



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

Klamath Falls Resource Area  
2795 Anderson Avenue, Bldg. 25  
Klamath Falls, Oregon 97603

June 1995



# **Klamath Falls Resource Area Record of Decision and Resource Management Plan and Rangeland Program Summary**



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/PL-95/022+1792



# United States Department of the Interior

BUREAU OF LAND MANAGEMENT

LAKEVIEW DISTRICT OFFICE  
P.O. BOX 151 (1000 Ninth Street S.)  
Lakeview, Oregon 97630



IN REPLY REFER TO

1617 (933)

May 22, 1995

Dear Reader:

This is a consolidated document which includes the rangeland program summary, the Record of Decision (ROD), and the Klamath Falls Resource Area Resource Management Plan (RMP), which was approved by the Oregon/Washington State Director, May 1995. The ROD approves the Bureau of Land Management's (BLM) decisions for managing 212,000 acres in Klamath County.

The Record of Decision was prepared in conformance with Title 40, Code of Federal Regulations, part 1505.2, which requires a concise document which links the manager's decision to the analysis presented in the Klamath Falls Resource Area final environmental impact statement (FEIS), dated September, 1994. The ROD shows how environmental impacts and other factors were considered in the decision-making process. The ROD documents approval and adoption of the proposed Resource Management Plan, as described in the Klamath Falls Resource Area Proposed Resource Management Plan/Final Environmental Impact Statement. Minor differences from the FEIS, Volume I, Chapter 2, or points of clarification in land use allocations or management direction have been incorporated in response to both public comment on the FEIS as well as ongoing staff review.

The purpose of the rangeland program summary is to inform interested parties of the implementation of the rangeland program for the KFRA. Also, the rangeland program summary provides a tracking mechanism between the KFRA Record of Decision on the RMP and grazing decisions to be issued in the future, as related to the grazing management program.

Management of the public lands is a dynamic process with a great deal of specific on-the-ground decisions yet to be made. The next step in the land use planning process is the development of specific activity plans (such as allotment management plans or other activity plans intended to serve as the functional equivalent of the allotment management plan). Subsequent rangeland program summary updates will be issued periodically to keep you informed of our management progress.

The planned range improvement projects by allotment are subject to change as allotment management plans and habitat management plans are developed. Projects proposed by livestock operators and/or other interested parties and any changes in grazing management that are due to monitoring will be tracked in future rangeland program summary updates.

It should be noted that the Director of the Bureau of Land Management determined that there were 9 valid protests on the proposed Klamath Falls RMP/FEIS. After careful consideration of all points raised in those protests, the Director concluded that the planning team and decision-makers followed the applicable planning procedures, laws, regulations, policies, and resource considerations in developing the proposed Klamath Falls Resource Area Resource Management Plan. In addition, the Governor of Oregon was provided a formal opportunity to review the proposed plan for conformance with officially approved or adopted natural resource-related plans, programs, or policies of the state or local governments. There were no objections from the Governor.



# United States Department of the Interior



BUREAU OF LAND MANAGEMENT

LAKEVIEW DISTRICT OFFICE  
P.O. BOX 151 (1000 Ninth Street S.)  
Lakeview, Oregon 97630

IN REPLY REFER TO

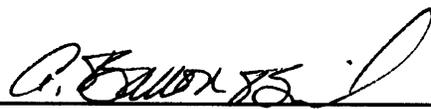
This document has been sent to all those individuals and groups who were on the mailing list for the Proposed Klamath Falls Resource Area Resource Management Plan/ Final Environmental Impact Statement. The full supporting record for the approved Klamath Falls RMP is also available for inspection in the Klamath Falls Resource Area Office, at the address shown above. Copies of draft and final EISs are also available for inspection in the public room at the BLM Oregon/Washington State Office, 1515 SW Fifth St. Portland, Oregon; and Klamath County library, at 126 So. 3rd, Klamath Falls, OR 97601 during normal office hours. Due to the cost of publication and the expected long-term use of these documents, we urge you to retain your personal copies of each of these documents for future reference.

Although this document contains a map packet with critical information on major land use allocations and management prescriptions, some of the maps will require periodic updating as we implement the approved plans, collect and analyze more information, and practice adaptive management. In addition, two or three resource area maps will be developed to provide more detailed information for mineral and energy development restrictions and made available to the public.

We are pleased to provide this copy for your reference and we extend our appreciation for your interest, cooperation, and assistance during this planning process. We encourage you to stay informed and involved as we implement, monitor, and evaluate the plan.

Sincerely,

  
Edwin J. Singleton, Lakeview District Manager

  
A. Barron Bail, Klamath Falls Resource Area,  
Area Manager

# Table of Contents

<b>Record of Decision .....</b>	<b>R-1</b>
<b>The Resource Management Plan .....</b>	<b>1</b>
The Planning Area .....	2
Purpose and Need for the Action .....	2
Relationship of the Resource Management Plan to BLM Policies, Programs, and Other Plans .....	3
Planning Process .....	4
The Resource Management Plan .....	5
Vision .....	5
Strategy .....	6
Ecological Principles for Management of Late-Successional Forests .....	7
Aquatic Conservation Strategy .....	7
Riparian Reserves .....	8
Key Watersheds .....	8
Watershed Analysis .....	8
Watershed Restoration .....	9
Land Use Allocations and Resource Programs .....	9
Management Actions/Direction for All Land Use Allocations and Resource Programs .....	11
Survey and Manage for Amphibians, Mammals, Bryophytes, Mollusks, Vascular Plants, Fungi, Lichens, and Arthropods .....	11
Protection Buffers for Supplemental Environmental Impact Statement Special Attention Species .....	12
Major Land Use Allocations .....	12
Riparian Reserves .....	12
Late-Successional/District Designated Reserves .....	18
Matrix (General Forest Management Area) - West Side .....	22
Matrix (Late-Successional/District Designated Reserve Buffers) .....	23
Matrix (General Forest Management Area) - East Side .....	26
Resource Programs .....	27
Air Quality .....	27
Water and Soils .....	28
Wildlife Habitat .....	31
Fish Habitat .....	35
Special Status and Supplemental Environmental Impact Statement Special Attention Species Habitat .....	36
Special Areas .....	41
Cultural Resources Including American Indian Values .....	43
Visual Resources .....	43
Wild and Scenic Rivers .....	45
Wilderness and Wilderness Study Areas .....	45
Rural Interface Areas .....	46
Socioeconomic Conditions .....	46
Recreation .....	47

Forest Condition Restoration (Forest Health Restoration) .....	53
Timber Resources .....	55
Special Forest/Natural Products .....	57
Energy and Minerals .....	59
Grazing Management .....	62
Wild Horse Management .....	64
Land Tenure Adjustments .....	64
Rights-of-Way .....	67
Access .....	68
Withdrawals .....	68
Roads .....	71
Hazardous Material .....	74
Fire/Fuels Management .....	75
Coordination and Consultation .....	77
Use of the Completed Plan .....	78
Adaptive Management .....	80
Watershed Analysis .....	81
Requirement for Further Environmental Analysis .....	83
Management of Newly Acquired Lands .....	84
The Budget Link .....	84
Monitoring .....	85
Research .....	86

# Tables

Table 1. Major Land Allocations .....	6
Table 2. Habitat Enhancement Opportunities .....	32
Table 3. Special Area Allocations .....	41
Table 4. Visual Resource Management Classes by Acres. ....	44
Table 5. Recreation Allocations .....	48
Table 6. Forest Condition Restoration Treatments. ....	54
Table 7. Matrix Timber Allocations .....	55
Table 8. Special Forest/Natural Products .....	58
Table 9. Energy and Mineral Allocations .....	59
Table 10. Locatable Mineral Restrictions (acres) .....	59
Table 11. Oil and Gas and Geothermal Lease Restrictions (acres) .....	60
Table 12. Salable Mineral Restrictions (acres) .....	60
Table 13. Land Tenure Zone Allocations .....	65
Table 14. Right-of-Way Avoidance Areas .....	66
Table 15. Communication Sites .....	69
Table 16. Withdrawals .....	Appendix J
Table 17. Management Direction For Land Returning To BLM Administration .....	70
Table 18. Noxious Weed Species Subject to Control in Klamath County .....	73
Table 19. Fire Management Acres .....	75

# Figures

Figure 1. Process of Changing the Resource Management Plan .....	79
Figure 2. Basic Adaptive Management Model .....	80

# Maps

Map 1. General Location	
Map 2. Land Status	
Map 3. District Planning Strategy	
Map 4. Special Areas	
Map 5. Visual Resources Management Classes	
Map 6. Rural Interface Areas	
Map 7. Recreation Sites/Areas	
Map 8. Off Highway Vehicle Designations	
Map 9. Existing and Proposed Trails and Byways	
Map 10. Livestock Grazing Allotment Boundaries	
Map 11. Land Tenure Zones	
Map 12. Rights of Way, Reservoirs, and Communication Sites	

# Appendices

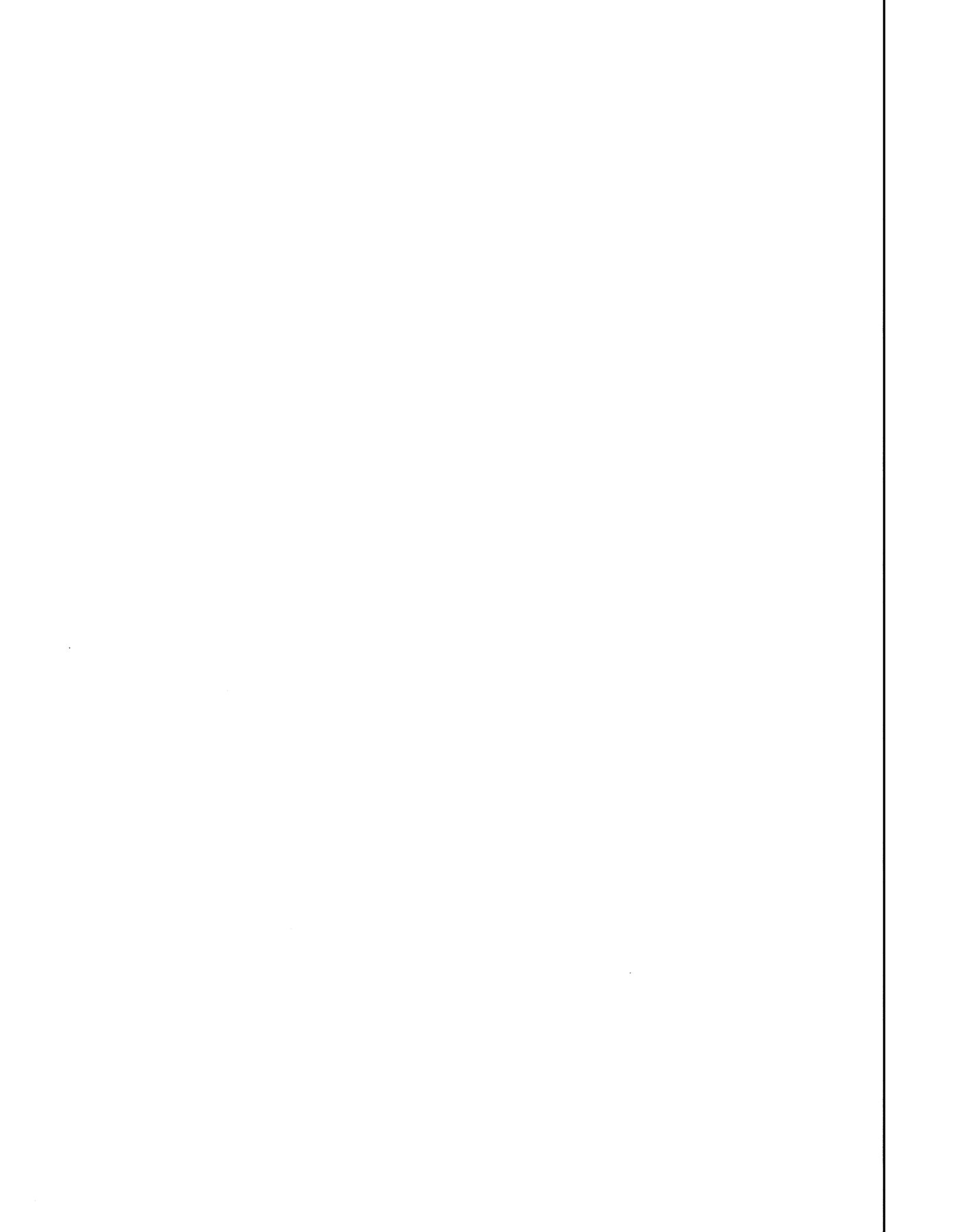
Appendix A - Supplemental Environmental Impact Statement Record of Decision .....	A-1
Appendix B - Table R-1. Summary of Land Allocations and Management Actions/Directions .....	B-1
Appendix C - Management for the Supplemental Environmental Impact Statement Special Attention Species .....	C-1
Appendix D - Best Management Practices .....	D-1
Appendix E - Timber Management .....	E-1
Appendix F - Special Areas .....	F-1
Appendix G - Proposed Restrictions on Mineral and Energy Exploration and Development Activity .....	G-1
Appendix H - Grazing Management and Rangeland Program Summary .....	H-1
Appendix I - Land Tenure .....	I-1
Appendix J - Table 16. Withdrawals .....	J-1

# Index

Index .....	iv
-------------	----



# **Record of Decision**



# Record of Decision for the Klamath Falls Resource Area Resource Management Plan

Prepared by the Bureau of Land Management,  
Klamath Falls Resource Area, Lakeview District, Oregon

## Introduction

In this Record of Decision we adopt and approve for immediate implementation the following Klamath Falls Resource Area Resource Management Plan, based on the combination of this office's August 1992 draft environmental impact statement and the September 1994 final environmental impact statement. It is also supported by and consistent with the July 1993 draft and February 1994 *Final Supplemental Environmental Impact Statement (SEIS) on Management of Habitat of Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* and its associated April 1994 interagency *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl*. The resource management plan addresses resource management on approximately 212,000 acres of federal land and 21,000 acres of reserved mineral estate administered by the Bureau of Land Management (BLM). The lands and mineral estate are all located within Klamath County, Oregon.

The approved resource management plan responds to the need for a healthy forest ecosystem with habitat that will contribute toward and support populations of native species, particularly those associated with late successional and old growth forests. It also responds to the need for a sustainable supply of timber, other forest products, recreation, and livestock grazing that will help maintain the stability of local and regional economies, and contribute valuable resources to the national economy on a predictable and long-term basis. As guided by the April 1994 interagency record of decision, BLM-administered lands are primarily allocated to Riparian Reserves, Late-Successional/District Designated Reserves, and Matrix (General Forest Management Areas). An Aquatic Conservation Strategy will be applied to all lands and waters under BLM administration. Major land and resource allocations of the approved resource management plan are displayed in Table R-1 found at the end of this record of decision.

## Alternatives Considered

Seven alternatives for management of the BLM-administered lands and resources in the resource area were analyzed in the final environmental impact statement, and nine other alternatives in the final SEIS. A brief description of each alternative analyzed in the final environmental impact statement follow below.

**No Action.** This alternative would not change the BLM management direction established in the current Jackson/Klamath and Lost River Management Framework Plans and associated timber and livestock grazing environmental impact statements.

**Alternative A.** This alternative would emphasize a high production of timber and livestock forage and other economically important values on all lands to contribute to community stability.

**Alternative B.** This alternative would emphasize the contribution of timber and livestock production to community stability, consistent with a variety of other land uses.

**Alternative C.** This alternative would emphasize retention and improvement of biological diversity while providing a sustained yield of timber and livestock forage to contribute to economic stability.

**Alternative D.** This alternative would emphasize management for plant and animal habitat diversity, dispersed non-motorized recreation opportunities, and scenic resources. It would include a variety of other resource values or uses including some timber and livestock forage production.

**Alternative E.** This alternative would emphasize protection of older forests and management and enhancement of values or uses such as dispersed, non-motorized recreation activities and scenic resources.

**The Proposed Resource Management Plan.** This alternative would emphasize ecosystem management. Resources would be managed with an emphasis on retention of late-successional forest, restoration and/or maintenance of watershed conditions, protection of special status and other species requiring special attention, and a variety of other land uses.

## Rationale for Decision

The proposed action responds to multiple needs, two primary ones being the need for healthy forests habitats and the need for forest products. As stated in the Proposed Resource Management Plan/Final Environmental Impact Statement, on page 1-3:

The need for forest habitat is the need for a healthy forest ecosystem with habitat that will support populations of native species and includes protection for riparian areas and waters. This need was reflected by President Clinton at the April 2, 1993, Forest Conference in Portland, Oregon.

The need for forest products from forest ecosystems is the need for a sustainable supply of timber and other forest products that will help maintain the stability of local and regional economies, and contribute valuable resources to the national economy, on a predictable and long-term basis. This need also was reflected by President Clinton at the Forest Conference.

The proposed action responds to a third primary need; the importance of public rangelands in the production of livestock. This is particularly true in the western United States where livestock grazing is a long-time, legally-recognized use of public lands, and has been an integral part of the landscape and lifestyle since the late 1800s. The BLM has been challenged with providing a stable resource base for grazing livestock on public lands, while recognizing and providing for the growing social and economic importance of other resources, such as healthy riparian areas, to local communities. These demands are reflected in the recent Healthy Rangelands initiative (formerly called Rangeland Reform '94).

The Congressionally directed purposes for managing the Bureau of Land Management-administered lands include both conserving the ecosystems upon which plant and wildlife species depend, and at the same time providing raw materials and other resources that are needed to sustain the health and economic well-being of the people of this country. To balance these sometimes conflicting purposes, we adopt the alternative that will both maintain the late-successional and old-growth forest ecosystem and healthy rangeland ecosystem and provide a predictable and sustainable supply of timber and livestock grazing, recreational opportunities, and other resources at the highest level possible. The Proposed Resource Management Plan alternative best meets these criteria.

The Proposed Resource Management Plan alternative, unlike all of the other action alternatives, applies the same criteria for management of habitat on both Forest Service and BLM lands. This was done in order to accomplish most efficiently the dual objectives discussed above — that is, achieving the biological results required by law, while minimizing adverse impact on timber harvests and jobs. The inefficiencies involved in applying different criteria on Forest Service and BLM land have been noted in previous analyses. For example, in the Report of the Scientific Analysis Team (“SAT Report”), the team found that BLM’s plans were relatively high-risk, when compared to the plans of the Forest Service, in terms of conserving the northern spotted owl. As a result, the SAT found that in order for the Forest Service to “make up for significantly increased risks,” it would have to dramatically increase the size of protected areas on Forest Service land (SAT Report, pages 12-13).

We have reviewed the alternatives discussed in the Proposed Resource Management Plan/Final Environmental Impact Statement and their predicted environmental, economic, and social consequences, and the risks and safeguards inherent in them. The Proposed Resource Management Plan alternative in the Proposed Resource Management Plan/Final Environmental Impact Statement is the best alternative for providing a sustainable level of human use of the forest resource while still meeting the need to maintain and restore the late-successional and old growth forest ecosystem. We therefore select Proposed Management Plan alternative as the management direction that best responds to the purpose and need for the proposed action as expressed in the Proposed Resource Management Plan/Final Environmental Impact Statement.

We base our conclusion on a number of factors. Although management under Alternatives A, B, or the No Action alternative would provide higher levels of timber supply than the Proposed Resource Management Plan alternative, those alternatives would not provide adequate assurance that the processes and functions of late-successional and old growth forest ecosystems would be maintained and restored, and would not provide adequate assurance that the riparian habitat essential for many aquatic and terrestrial species would be maintained and restored. All alternatives except Alternative E and the Proposed Resource Management Plan alternative would have a negative long-term impact on the northern spotted owl. The Proposed Resource Management Plan alternative would have a beneficial impact on more Special Status Animal Species than any other alternative. See Proposed Resource Management Plan/Final Environmental Impact Statement.

All alternatives follow current BLM policies, initiatives, and emphasis on restoration and maintenance of resource conditions, including riparian and aquatic conditions, that perpetuate fully functioning ecosystems while still providing for societal needs. Alternatives No Action, A, and B would make achieving these objectives more difficult. Alternatives C, D, E, and the Proposed Resource Management Plan make it easier to accomplish. The Proposed Resource Management Plan for grazing provides a high level of riparian protection through its goal of restoring or maintaining riparian-wetland areas so that 75 percent or more are in proper functioning condition, as outlined in the *Riparian-Wetlands Initiative for the 1990s*. It also provides a high level of riparian-wetland protection through its Aquatic Conservation Strategy. This level of protection is comparable to what could be provided in Alternative E (see Proposed Resource Management Plan/Final Environmental Impact Statement pages 4-43 and 44). The Proposed Resource Management Plan also allows rangeland ecosystems to continue improving (see Proposed Resource Management Plan/Final Environmental Impact Statement page 4-34) towards an advanced ecological status with a 5 percent cut in use levels (Proposed Resource Management Plan) rather than a 29 percent cut (Alternative E). Thus a better balance of resource protection and livestock commodity production is achieved in the Proposed Resource Management Plan than in Alternative E.

As to the No Action alternative, that alternative is based on plans that existed prior to the listing of the northern spotted owl, and it makes no specific provision for the recovery of this specie. In addition, it reflects a relatively low level of riparian habitat protection. In view of these factors, it is unlikely that Alternatives A and B and the No Action alternative would be deemed to satisfy the requirements of the Endangered Species Act.

The impacts to many species, and groups of species, of fish, wildlife, and plants are complex and difficult to summarize in this Record of Decision. They are described in detail in the Proposed Resource Management Plan/Final Environmental Impact Statement. Based upon the Proposed Resource Management Plan/Final Environmental Impact Statement and all of the information in the record, we have determined that Proposed Resource Management Plan alternative will continue to meet the needs of species influenced by federal land management activities. We find it meets the requirements of the Endangered Species Act for the conservation of listed species. It also meets the requirements of laws directing the management of these forests for sustainable multiple uses, including the Federal Land Policy and Management Act, and the Oregon and California Lands Act. Moreover, it meets the requirements of acts that protect elements of the environment, and requirements for coordinated planning and consultation.

Moreover, the Proposed Resource Management Plan alternative allows silvicultural activities, such as thinning young stands in late-successional reserves, when those activities will enhance late-successional conditions. Even when compared to Alternative E (which in the short-term protects more old growth than the Proposed Resource Management Plan Alternative), the Proposed Resource Management Plan Alternative may in the future provide a better connected network of old-growth forests. Furthermore, when compared to Alternative E, the Proposed Resource Management Plan Alternative provides nearly six times as much timber harvest to contribute to the long-term stability of the local and regional economies.

## Environmental Preferability of the Alternatives

Environmental preferability is judged using the criteria suggested in the National Environmental Policy Act of 1969 (NEPA), which is guided by the Council on Environmental Quality (CEQ). The CEQ has stated that “The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA’s Section 101. Generally this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources.” (Council on Environmental Quality, “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations (40 CFR 1500-1598), Federal Register Vol. 46, No. 55, 18026-18038, March 23, 1981: Question 6a.)

NEPA’s Section 101 establishes the following goals:

- Fulfills the responsibility of this generation as trustee of the environment for succeeding generations (NEPA 101(b)(1)),
- Assures for all Americans productive and aesthetically and culturally pleasing surroundings (NEPA 101(b)(2)),
- Attains the widest range of beneficial uses of the environment without degradation or other undesirable and unintended consequences (NEPA 101(b)(3)),
- Preserves important natural aspects of our national heritage and maintains an environment which supports diversity and variety of individual choice (NEPA 101(b)(4)),
- Achieves a balance between population and resource use, which permits high standards of living and a wide sharing of life’s amenities (NEPA 101(b)(5)), and
- Enhances the quality of renewable resources and approach the maximum attainable recycling of depletable resources (NEPA 101(b)(6)).

Alternative E would allow for the smallest amount of directly human-induced effects on the physical environment. It would exclude timber management activity from all old growth forest stands, preserving them from human management actions. It would set aside more existing older forest acres than any other alternative — 20,800 acres on both the west and east sides of the resource area (See Proposed Resource Management Plan/Final Environmental Impact Statement, Table S-1, pages Summary-22 and 23). Alternative E has more positive estimated effects on more wildlife habitat than any other alternative (See Proposed Resource Management Plan/Final Environmental Impact Statement, Tables 4-6 through 4-19 and 4-24 through 4-29). In the long-term, the percentage of acres in riparian zones in good condition on BLM lands is expected to increase more under Alternative E, compared to the existing condition (See Proposed Resource Management Plan/Final Environmental Impact Statement, page 4-43). Based on the probable sale quantity estimates, Bureau of Land Management forests in the planning area would produce about 0.182 million cubic feet on the west side (1.0 million board feet) and 0.084 million cubic feet on the east side (0.021 million board feet) of timber annually under Alternative E. (See Proposed Resource Management Plan/Final Environmental Impact Statement, Table S-1, pages Summary-24 through 27.) Alternative E would reduce total livestock animal unit month levels by about 29 percent across the resource area (See the Proposed Resource Management Plan/Final Environmental Impact Statement, page 4-135), as compared with current levels. Based on these factors, we conclude that Alternative E is the “environmentally preferable alternative.”

## Implementation

Decisions in this plan will be implemented over a period of years. The rate of implementation is tied to the BLM’s budgeting process. General priorities for overall management will be developed through long-term budgeting processes and in consultation with other agencies, tribes, and government units. Specific priorities for geographical subunits or for individual programs or projects will be established, in large part, after local watershed analyses and further environmental analysis are completed, as appropriate. Those priorities will be reviewed annually to help develop work plan commitments for the coming years. Although the Resource Management Plan implementing actions are described by individual resources, most activities will be consolidated and considered in interdisciplinary, multi-resource activity plans and based on watershed analyses.

## **Valid Existing Rights**

This plan will not repeal valid existing rights on public lands. Valid existing rights are those rights or claims to rights that take precedence over the actions contained in this plan. Valid existing rights may be held by other federal, state or local government agencies or by private individuals or companies. Valid existing rights may pertain to mining claims; mineral or energy leases; and rights-of-way; reciprocal rights-of-way and water rights.

## **Administrative Actions**

Various types of administrative actions will require special attention beyond the scope of this plan. Administrative actions are the day-to-day transactions required to serve the public and to provide optimum use of the resources. These actions are in conformance with the plan. They include, but are not limited to; permits or sales for traditional or special forest products; competitive and commercial recreation activities; lands and realty actions, including issuance of grants, leases, and permits and resolution of trespass; facility maintenance; law enforcement and hazardous material removal or mitigation; enforcement and monitoring of permit stipulations; cadastral surveys to determine legal land or mineral estate ownership; and engineering support to assist in mapping, designing, and implementing projects. These and other administrative actions will be conducted at the resource area, district or state level, sometimes in partnership with other landowner or agencies or entities. The degree to which these actions are carried out will depend upon BLM policies, available personnel, funding levels, and further environmental analysis and decision making, as appropriate.

## **Mitigation and Monitoring**

All protective measures and other management direction identified in the plan will be taken to avoid or mitigate adverse impacts. These measures will be taken throughout implementation. All practical means to avoid or reduce environmental harm will be adopted, monitored, and evaluated, as appropriate.

Monitoring will be conducted, as identified in the approved plan. Monitoring and evaluations will be utilized to ensure that decisions and priorities conveyed by the plan are being implemented, that progress toward identified resource objectives is occurring, that mitigating measures and other management direction are effective in avoiding or reducing adverse environmental impacts, and that the plan is maintained and consistent with the ongoing development of BLM state office, regional, and national guidance.

## **Public involvement**

Scoping of the Klamath Falls Resource Area Resource Management Plan/Environmental Impact Statement began in September 1986, when a mailer was sent to a mailing list of some approximately 2,100 parties, inviting them to identify issues and concerns for the Bureau of Land Management (BLM) to consider in the planning process. At that time the lands now managed by the Klamath Falls Resource Area west of U.S. Highway 97 in Klamath County were managed by the Medford District. Ten open houses were held by the Medford District BLM during the comment period, to help interested parties focus on the questions.

In September 1987, the boundary between the Lakeview and Medford Districts was moved to the Jackson/Klamath County line and the Klamath Falls Resource Area assumed management of BLM lands west of U.S. Highway 97 in Klamath County.

In 1989 the decision was made to broaden the scope of the resource management plan to include all of the lands managed by the Klamath Falls Resource Area. At that time the responsibility for the resource management plan/environmental impact statement was transferred from the Medford District office to the Klamath Falls Resource Area. In May of that year a mailer was sent to a list of approximately 550 people to identify any additional issues or concerns associated with the management of all the lands within the resource area. The Klamath Falls Resource Area held two open houses to help interested parties focus on their concerns. A series of planning brochures and documents were distributed over the entire planning period to provide public input and feedback opportunities in the development of planning issues, goals, objectives, and data needs for the planning effort.

In January 1991, approximately 1,500 copies of the resource area summary of the analysis of the management situation and preliminary alternatives were mailed to interested agencies, organizations, and individuals. This document described a variety of alternatives, most of which had similar objectives to comparable alternatives in the other ongoing five BLM western Oregon resource management plan/environmental impact statements.

In August 1992, a Notice of Availability of the Draft Resource Management Plan/Environmental Impact Statement was published in the Federal Register by the BLM, in addition to a Notice of Availability by the Environmental Protection Agency. Newspaper and other media were also notified of the document availability, the length of the comment period, and the dates, times, and locations of public meetings. The Draft Resource Management Plan/Environmental Impact Statement was sent to a list of approximately 2,000 individuals, organizations, and agencies.

A total of approximately 50 people attended four meetings which were held in Klamath Falls, Keno, and Bonanza, Oregon. In addition, the Klamath Falls Resource Area staff held several other meetings and discussions with interested people, groups, and organizations. A total of 977 letters, form letters, petitions, etc., were received by the end of the extended comment period.

A summary of the public involvement associated with the July 1993 Draft and February 1994 *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl* is included on pages 58 through 73 of the April 1994 interagency *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl* and is hereby incorporated by reference.

On November 25, 1994, the Environmental Protection Agency published a Notice of Availability in the Federal Register, which initiated the official protest and public comment period for the Klamath Falls Resource Area Proposed Resource Management Plan/Final Environmental Impact Statement. In addition, on December 2, 1994, a Notice of Availability was also published in the Federal Register by the BLM. Newspaper and other media were also notified of the document availability, the length of the protest period, and the date, time, and location of public meetings. The Proposed Resource Management Plan/Final Environmental Impact Statement or summary were sent to a list of approximately 1,700 individuals, organizations, and agencies. Approximately 25 people attended meetings. The district manager received 6 comment letters. There were no objections or recommendations by the Governor on behalf of any state or local government entity. There are no known inconsistencies with officially approved or adopted natural resource related plans, policies, or programs of applicable state or local governments or Indian tribes.

The official period to protest the proposed plan closed on December 27, 1994. Nine valid protests were received, reviewed, and resolved by the director. As a result of the protests and comment letters, a number of non-substantive changes have been made in the text of the approved plan to reflect typographical corrections, improve clarity, or demonstrate consistency with various regulatory procedures or policies.

## Recommendation

With full knowledge of the commitment to resource and ecosystem management represented by the plan, I recommend the adoption of the Klamath Falls Resource Area Resource Management Plan.

Edwin J. Singleton  
Edwin J. Singleton  
District Manager, Lakeview District, Lakeview, Oregon

5-27-95  
Date

### State Director Approval

I approve the Klamath Falls Resource Area Resource Management Plan as recommended and hereby declare that, effective October 1, 1994, the annual productive capacity (allowable harvest level) of that portion of the Klamath Master Unit in the Klamath Falls Resource Area of the Lakeview District (west side) is 1.03 million cubic feet: and, on the east side of the resource area the annual productive capacity (allowable harvest level) is 0.08 million cubic feet.

This document meets the requirements for a Record of Decision as provided in 40 Code of Federal Regulations 1505.2.

Elaine Zielinski  
Elaine Zielinski

June 2, 1995  
Date

State Director, Oregon/Washington  
Bureau of Land Management

## Table R-1. Summary of Land Allocations and Management Actions/Directions

(detailed management direction is described in the Resource Management Plan)

Major Land Allocations <sup>1</sup>	Acres
Late-Successional/District Designated Reserves	1,600
General Forest Management Areas - Matrix	
West side	23,550
Late-Successional/District Designated Reserve Buffers	2,300 <sup>3</sup>
East side	8,750
Rangelands <sup>2/3</sup>	
West side	46,537
East side	158,145
Other <sup>4</sup>	
West side	26,080
East side	155,270
<b>Total</b>	<b>215,520</b>

<sup>1</sup> Riparian Reserves underlie all of the allocations/classifications shown in this table. Overlaps could not be eliminated due to limitations in the database.

<sup>2</sup> Grazing allocations overlap with all of the other land allocations, including Riparian Reserves. If grazing is found in the future to be incompatible with the other land allocation objectives, grazing management will be changed through the processes described in the plan's grazing appendix.

<sup>3</sup> These acres are not included in the total.

<sup>4</sup> Includes all woodlands, commercial forest land outside matrix and LS/DDR, and non-forest lands.

Water Quality and Riparian Areas	Acres
<b>Riparian Reserves</b>	
West side	19,450
East side	9,100

### Management Decision:

Restore and maintain the ecological health of watersheds and the aquatic ecosystems contained within them on public lands through implementation of the Aquatic Conservation Strategy.

Restore or maintain riparian-wetland areas so that 75 percent or more are in proper functioning condition by 1997. Provide livestock forage consistent with the objective of achieving an advanced ecological status, except where resource management objectives, including proper functioning condition, will require an

earlier successional stage, thus providing the widest variety of vegetation and habitat diversity for wildlife, fish, and watershed protection.

### Old Growth and Mature Habitat

#### West Side Management Decision:

Manage 3 percent of the land as Late-Successional/District Designated Reserves. Manage all Matrix lands for connectivity and biological diversity across the landscape.

Existing old growth excluded from timber harvest	4,526
Existing mature stands excluded from timber harvest	4,090
Total forest land excluded from planned timber harvest	17,837
Existing old growth managed for partial retention	143
Existing mature stands managed for partial retention	154
Total forest land managed for partial retention	1,257

#### East Side Management Decision<sup>5</sup>:

Manage all Matrix lands for connectivity and biological diversity across the landscape.

Existing old growth excluded from timber harvest	729
Existing mature stands excluded from timber harvest	1,420
Total forest land excluded from planned timber harvest	6,561
Existing old growth managed for partial retention	67
Existing mature stands managed for partial retention	380
Total forest land managed for partial retention	1,292

<sup>5</sup> Does not include suitable woodlands (predominately juniper woodlands), for which no detailed inventory has yet been done.

**Table R-1. Summary of Land Allocations and Management Actions/Directions (continued)**

(detailed management direction is described in the Resource Management Plan)

<b>Timber</b>	<b>Acres</b>	<b>East Side</b>	
<b>West Side</b>		<b>Forest management allocations (commercial forest land):</b>	
<b>Forest management allocations (commercial forest land):</b>		Intensive	0
Intensive	0	Restricted	8,766
Restricted	23,563	Woodlands	0
Woodlands	0	Enhancement of other uses or not available (total) <sup>8</sup>	82,464
Enhancement of other uses or not available (total)	24,059	<b>Practices (assumed average annual for the first decade):</b>	
<b>Practices (assumed average annual for the first decade):</b>		Regeneration harvest units (acres) <sup>8</sup>	33
Regeneration harvest uni <sup>6</sup>	131	Commercial thinning/density management uneven age harvest units (acres)	269
(TRIM-PLUS harvest acres) <sup>6</sup>	(61)	Site preparation (pile & burn slash)	70
Commercial thinning/density management /uneven-age harvest units <sup>6</sup>	828	Vegetation control	25
(TRIM-PLUS harvest acres) <sup>6</sup>	(385)	Animal damage control	15
Site preparation (pile & burn slash)	180	Pre-commercial thinning	20
Vegetation control	200	Brushfield/hardwood conversion	0
Animal damage control	400	Planting/regular stock	60
Pre-commercial thinning	50	Planting/genetically selected stock	15
Brushfield/hardwood conversion	0	Fertilization	0
Planting/regular stock	300	Pruning	13
Planting/genetically selected	100	New road construction (miles/acres)	0.7/8
Fertilization	3	ASQ sale quantity (mmbf)	0.40 <sup>5</sup>
Pruning	16	ASQ sale quantity (mmcf)	0.08 <sup>5</sup>
New road construction (miles/acres)	1/11		
ASQ sale quantity (mmbf)	5.91 <sup>7</sup>		
ASQ sale quantity (mmcf)	1.03 <sup>7</sup>		

<sup>6</sup> See Appendix 4-C of the Final RMP for an explanation of the difference in acres between actual harvest and TRIM-PLUS harvest acres.

<sup>7</sup> The probable sale quantity shown may vary by plus or minus 40 percent due to changes resulting from further land classification, stream inventory, and watershed analysis. The acres associated with timber harvest activities would also vary by plus or minus 40 percent.

<sup>8</sup> Includes juniper woodland as available for enhancement of other uses.

**Table R-1. Summary of Land Allocations and Management Actions/Directions (continued)**

(detailed management direction is described in the Resource Management Plan)

**Special Status Species including Threatened and Endangered Species Habitat (Animals and Plants) Acres**

**Management Decision:**

Manage habitats of federal candidate state listed, state candidate, and Bureau sensitive species on all BLM-administered land.

Implement standards and guidelines for SEIS special attention species.

Acres managed for all federal candidate category 1 and 2, state listed, and Bureau sensitive species 212,000

**Wildlife (including Fisheries) Habitat Percent/Feet**

**West side**

Leave 120 linear feet of logs per acre greater than or equal to 16 inches in diameter and 16 feet long.

Seed harvested acres to legumes and/or grasses (percent) up to 40  
 Wet meadows buffer width (in feet) 150  
 Seasonal wetlands buffer width (in feet) 150  
 Cliffs/Talus slopes buffer width (in feet) 100  
 Dry meadows buffer width (in feet) 100  
 Wooded swamps buffer width (in feet) 150

**East Side**

Retain, where available dead and down materials at approximately 5 tons per acre including 50 lineal feet of logs per acre greater than or equal to 12 inches in diameter and 8 feet long.

Seed harvested acres to legumes and/or grasses (percent) up to 40  
 Wet meadows buffer width (in feet) 150  
 Seasonal wetlands buffer width (in feet) 150  
 Cliffs/Talus slopes buffer width (in feet) 100  
 Dry meadows buffer width (in feet) 100  
 Wooded swamps buffer width (in feet) 150

**Special Areas Numbers/Acres**

Designate New RNA/ACECs 1  
 Designate New other ACECs<sup>9</sup> 3  
 Acres in RNA/ACECs 520  
 Acres in other ACECs<sup>9</sup> 7,680

<sup>9</sup> An "other area of critical environmental concern" is one that is not also an research natural area.

**Recreation Number/Acres/Miles**

Sites available for recreation (numbers/acres) 15-50/450-1220  
 Open year-round to OHV use (acres) 102,000  
 OHV use limited (acres) 105,600  
 Closed year-round to OHV use (acres) 4,300

Maintained trails (number/miles) 4-22/8-118  
 Roads open year-round (miles) 283  
 Roads with OHV use limited (miles) 150  
 Roads closed year-round (miles) 44

**Table R-1. Summary of Land Allocations and Management Actions/Directions (continued)**

(detailed management direction is described in the Resource Management Plan)

Wild and Scenic Rivers	Number/Miles
River segments found suitable for designation as:	
Recreational	0/0
Scenic <sup>10</sup>	1/11.0
Wild	0/0

<sup>10</sup> The 11 mile segment of the Upper Klamath River was found suitable for designation as Scenic in both the draft and final Resource Management Plans. It was designated as Scenic by the Secretary of the Interior in October 1994. That designation is currently being litigated by the City of Klamath Falls.

Visual Resources	Acres
------------------	-------

**Management Decision:**

Manage as VRM Class II all BLM lands within 1/4 mile of developed recreation sites, the Pacific Crest Trail, Spencer Creek, state scenic waterways and rivers designated scenic under the National Wild & Scenic Rivers Act. No less than VRM Class III management would be provided within 1/4 mile of rural interface areas and state and federal highways. The remaining lands would be managed as inventoried.

Visual Resource Management Class I	0
Visual Resource Management Class II	33,500
Visual Resource Management Class III	81,800
Visual Resource Management Class IV	96,700

Cultural Resources	Acres/Sites
--------------------	-------------

Reserve as Native American traditional use areas	4,140/-
Acres nominated to National Register of Historical Places	5,000/50
Acres per year requiring cultural survey	4,500/-

Land Tenure	Acres
-------------	-------

**Management Decision:**

Make land tenure adjustment to benefit a variety of uses and values. Emphasize opportunities that conserve Biological Diversity, enhance ecosystem management or improve management efficiency.

Zone 1 identified for retention	186,000
Zone 2 potentially suitable for exchange only	3,000
Zone 3 potentially suitable for sale or exchange	23,000

**Hydroelectric or Alternative Energy Projects**

**Management Decision:**

Right-of-way application for the Salt Caves hydroelectric project is denied based on the Secretary of the Interior's designation of the Upper Klamath River as Scenic. The outcome of the litigation between the City of Klamath Falls and the Secretary of the Interior could change this decision.

Right-of-way applications for pumped storage or alternative energy projects would be accepted. Approval or denial of the application would depend on site-specific NEPA analysis.

**Table R-1. Summary of Land Allocations and Management Actions/Directions (continued)**  
(detailed management direction is described in the Resource Management Plan)

<b>Rights-of-Way</b>	<b>Acres</b>
Rights-of-way avoidance areas	58,080
Rights-of-way exclusion areas	840

**Access/Withdrawals**

**Management Decision:**

Acquire public access to public lands to assist various programs to meet management objectives.

Protect lands with important resource values and/or significant levels of investment by withdrawing them from operation of the public land and mineral laws.

<b>Energy and Mineral Management</b>	<b>Acres</b>
Available for oil and gas and geothermal leasing <sup>11</sup>	238,400
Closed to oil, gas and geothermal leasing	300
Open to mining claim location and operation	229,500
Closed to mining location <sup>12</sup>	6,400
Available for salable mineral disposal	222,500
Closed to salable mineral disposal	14,800

<sup>11</sup> There would be 1,400 acres less of geothermal resources.

<sup>12</sup> An additional 1,500 acres closed to non-metalliferous mineral location throughout all alternatives.

<b>Rural Interface Area Management</b>	<b>Acres</b>
Acres considered for alternative forest management practices	3,050
Acres where clearcutting and herbicide spraying excluded	0
Acres managed for VRM Class II objectives	0
Acres managed for VRM Class III objectives	3,050
Acres where prescribed burning excluded	0

**Livestock Grazing**

Number of AUMs annually on 95 grazing allotments	12,978
Construct reservoirs (each)	68
Develop springs (each)	14
Miles of fence to build	58.5
Control competing vegetation (acres)	12,950

**Road Management**

Construction (miles of road) <sup>13</sup>	1.7
Limit, as a goal, open road densities to 1.5 miles per square mile.	

<sup>13</sup> Annual average construction.

---

**Table R-1. Summary of Land Allocations and Management Actions/Directions (continued)**

(detailed management direction is described in the Resource Management Plan)

---

---

**Noxious Weed Control**

Follow Noxious Weed Control Final EIS 1986 and 1987. Follow current local plan and environmental assessment.

---

**Hazardous Materials**

Eliminate known hazardous materials on BLM-administered lands.

---

<b>Fire</b>	<b>Acres</b>
Per year prescribed burning for site preparation and silvicultural hazard reduction	250
Per year prescribed burning for wildlife habitat and forage enhancement	740
Per year natural and/or artificial ignition prescribed fire for ecosystem enhancement	up to 7,500

---

---

**Abbreviations used in this table:**

ACEC	= area of critical environmental concern
AUM	= animal unit month
DRMP	= draft Resource Management Plan
FLPMA	= Federal Land Policy and Management Act
MMBF	= million board feet
MMCF	= million cubic feet
N/A	= Not Applicable
O&C	= Oregon and California
OHV	= off-highway vehicle
PRMP	= Proposed Resource Management Plan
PSQ	= probable sale quantity
ROW	= right-of-way
RMA	= riparian management area
RNA	= research natural area
SEIS	= Supplemental Environmental Impact Statement
VRM	= Visual Resource Management

---

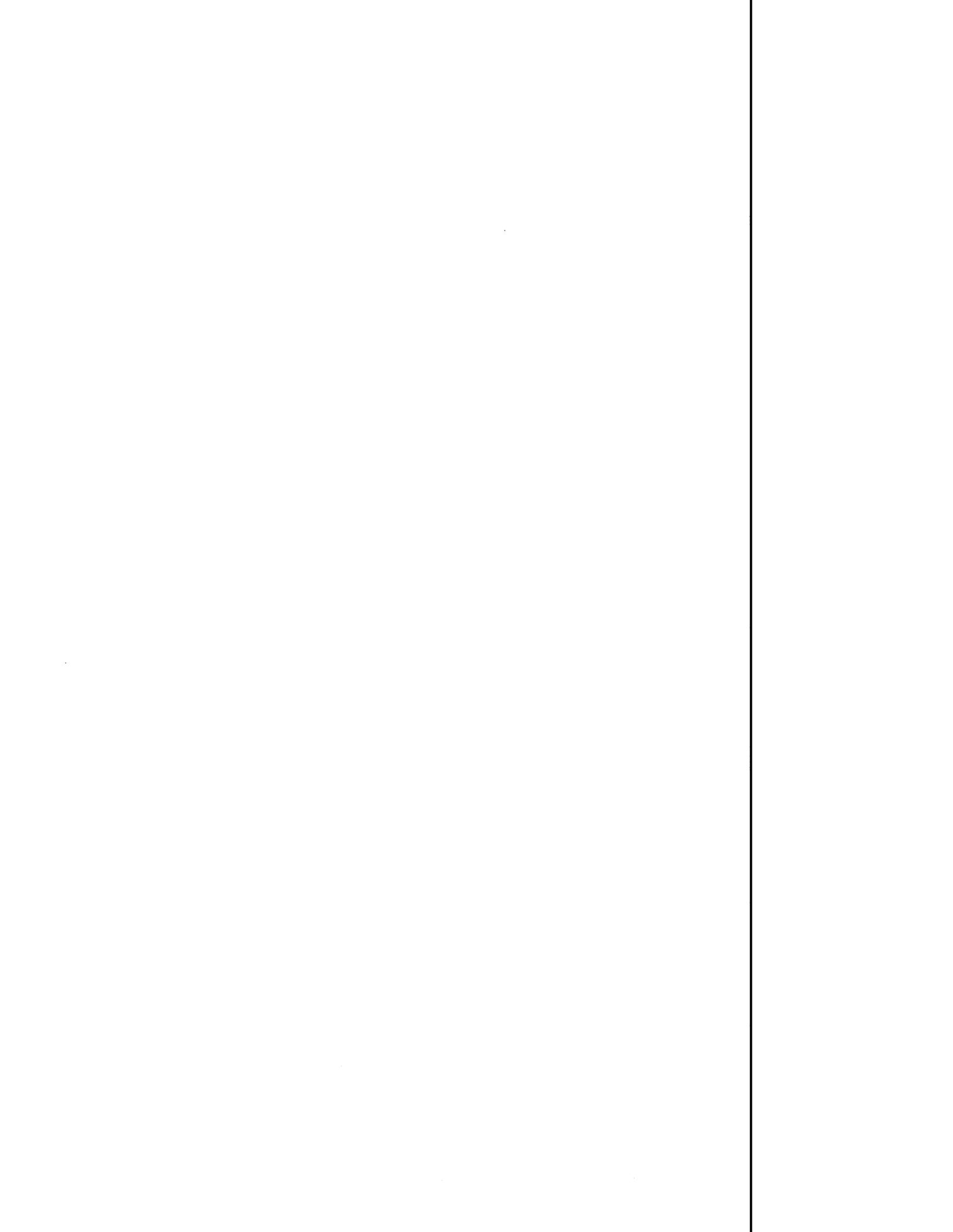
Table R-2. Summary of Environmental Consequences By Alternative

Effects	Alternatives						
	NA <sup>1</sup>	A	B	C	D	E	RMP <sup>2</sup>
Air Quality (tons of fuel burned <sup>3</sup> annually in prescribed fires, 10 years).	85,000	91,000	80,000	96,000	165,000	276,000	102,000
Water Quality (10 years) <sup>4</sup>							
Number of analytical watersheds probably improving <sup>5</sup>	3	3	3	3	3	3	3
Number of analytical watersheds probably declining	1	1	1	1	1	1	1
Dominant Woodpecker Populations (percentage of potential, 10 years).	54	45	46	53	61	57	52
Visual Resources (10 years) <sup>6</sup>							
VRM Class I	0	0	0	0	0	+	0
VRM Class II	0	-	-	0	+	+	+
VRM Class III	0	-	-	0	+	+	+
VRM Class IV	-	-	-	0	0	N/A	+
Wild and Scenic Rivers (study river segments, 10 years)							
Miller Creek (Scenic outstandingly remarkable value)	0	-	0	0	+	+	+
Barnes Valley Creek							
Fish outstandingly remarkable value	0	0	0	0	0	0	0
Scenic outstandingly remarkable value	0	-	-	0	0	+	0
Spencer Creek							
Fish outstandingly remarkable value	-	-	0	0	0	+	+
Scenic outstandingly remarkable value	0	-	-	0	0	+	+
Antelope Creek-segment A (Prehistoric)	0	0	0	0	0	+	0
Antelope Creek-segment C (Prehistoric)	0	0	0	0	0	+	0
Upper Klamath River-segment 2							
Historic outstandingly remarkable value	0	0	0	0	0	+	+
Prehistoric outstandingly remarkable value	0	-	-	0	0	+	+
Recreation outstandingly remarkable value	0	-	-	0	+	+	+
Scenic outstandingly remarkable value	0	-	-	0	0	+	+
Fish outstandingly remarkable value	0	0	0	0	0	0	0
Wildlife outstandingly remarkable value	0	-	-	0	+	+	+
Native American Traditional Use	0	-	-	0	+	+	+

**Table R-2. Summary of Environmental Consequences By Alternative (Continued)**

Effects	Alternatives						
	NA <sup>1</sup>	A	B	C	D	E	RMP <sup>2</sup>
Recreation Use (capability to meet ten-year demand) <sup>7</sup>							
Off-road travel	Yes	Yes	Yes	Yes	No	No	Yes <sup>8</sup>
Nonmotorized travel	No	No	No	Yes	Yes	Yes	Yes
Camping	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Picnicking, studying nature, etc.	No	No	No	Yes	Yes	Yes	Yes
Boating	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Swimming, general waterplay	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Timber							
Annual long term sustained yield capacity (mmcf)							
West Side	3,423	2,483	2,103	0,791	1,674	0,182	1,028
East Side	0,270	0,267	0,249	0,226	0,248	0,004	0,078
Socioeconomic Conditions (10 years)							
Planning area jobs dependent on BLM timber production.	170	130	110	40	90	10	40
Planning area jobs dependent on recreation on BLM administered lands.	20	20	20	20	20	20	20
Planning area annuals personal income dependent on BLM timber production (\$ million, 1989 Dollars).	3,397	2,508	2,124	0,801	1,697	0,184	0,789
Planning area annual personal income dependent on recreation on BLM-administered lands (\$ million).	0,219	0,219	0,230	0,238	0,212	0,212	0,238
Average annual O&C receipts distributed to all counties (\$ million).	130,00	169,42	154,19	48,11	54,15	39,69	25,77
Grazing (percentage of change).	0	+24	+3	-8	-16	-29	-5

<sup>1</sup> NA = No Action  
<sup>2</sup> RMP = Resource Management Plan  
<sup>3</sup> Ton of slash burned correlates directly with the level of omissions.  
<sup>4</sup> Cumulative effects, all ownerships.  
<sup>5</sup> The planning area was divided into five analytical watersheds. Four of those, where BLM administers substantial acreage, were analyzed.  
<sup>6</sup> + = Positive effect, - = negative effect, 0 = no change.  
<sup>7</sup> Yes, use would be met; No, use would not be met. For uses not listed, projected 10 year demand would be met under all alternatives.  
<sup>8</sup> Possibly met.



# **Resource Management Plan**

## The Planning Area

The BLM-administered lands in the Klamath Falls Resource Area are located in southern Klamath County, on the eastern slope of the Cascade Range (see Map 1 in the map packet). For purposes of this document the planning area and the resource area are equivalent, although planning decisions pertain only to BLM-administered lands in the planning area.

The public land acquired at the mouth of the Wood River is not included in this document. A separate Resource Management Plan is being developed for the Wood River property. This Upper Klamath Basin Draft Resource Management Plan/Environmental Impact Statement was released for public review in March 1994, and a Final Resource Management Plan for the Wood River property will be completed in 1995.

In addition to the 212,000 BLM-administered surface acres, there are 21,000 acres of non-federally-owned surface land underlain by subsurface federal mineral estate within the planning area that are also administered by the BLM. In these areas, the Resource Management Plan/Environmental Impact Statement only addresses the minerals, not the non-BLM-administered surface over those minerals. The lands west of Highway 97, referred to in this document as the west side, are primarily revested Oregon and California grant lands (46,000 acres of Oregon and California land out of a total of 51,000 acres of BLM-administered lands on the west side). The lands east of Highway 97, referred to in this document as the east side, are known as public domain lands (161,000 acres). The definition of east and west side lands is slightly different than this for purposes of discussion and analysis in the timber section. Map 2 shows the general land status within the planning area. Other major federal lands within the planning area include portions of the Rogue River, Fremont, and Winema National Forests and the Klamath Basin National Wildlife Refuge.

Briefly listed below are some of the distinctive features that characterize the Klamath Falls Resource Area. The Klamath Falls Resource Area lies within the geographic area called the Klamath Basin. Water in the planning area drains into the upper Klamath River and the Lost River drainage. The west side is predominantly a mixed conifer species consisting of ponderosa pine, white fir, Shasta red fir, sugar pine, western white pine, and Douglas fir. The east side is partially forested with ponderosa pine. The remaining east side lands are juniper woodlands and range lands. The major population is centered in and around the City of Klamath Falls.

## Purpose and Need for the Action

As discussed in the *Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl* (hereafter referred to as the Supplemental Environmental Impact Statement), the resource management plan responds to dual needs: the need for forest habitat and the need for forest products.

The need for forest habitat is the need for a healthy forest ecosystem with habitat that will support populations of native species and includes protection for riparian areas and waters. This need was reflected by President Clinton at the April 2, 1993, Forest Conference in Portland, Oregon.

The need for forest products from forest ecosystems is the need for a sustainable supply of timber and other forest products that will help maintain the stability of local and regional economies and contribute valuable resources to the national economy, on a predictable and long-term basis. This need also was reflected by President Clinton at the Forest Conference.

The Resource Management Plan identified in this document was developed after consideration of the following:

- ◆ Public comments at open house meetings and in correspondence;
- ◆ comments from other government agencies;
- ◆ BLM staff analysis of the consequences of alternatives;
- ◆ legal mandates of Federal laws and executive orders
- ◆ decisions made in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the northern spotted owl and its Attachment A (hereafter referred to as the Supplemental Environmental Impact Statement Record of Decision); and
- ◆ requirements of Bureau policy

The resource management plan was developed under the requirements of the Federal Land Policy and Management Act through the use of an interdisciplinary planning process. This document (resource management plan) is written in compliance with the National Environmental Policy Act and related Council on Environmental Quality regulations.

The management of the Oregon and California lands is governed by a variety of statutes, including the Oregon and California Lands Act, Federal Land Policy and Management Act, the Endangered Species Act, and the Clean Water Act. The Oregon and California Lands Act requires the Secretary of the Interior to manage Oregon and California lands for permanent forest production; however, such management must also be in accord with sustained-yield principles. Further, that Act requires that management of Oregon and California lands protect watersheds, regulate streamflow, provide for recreational facilities, and contribute to the economic stability of local communities and industries. The Act does not require the Secretary to harvest all old growth timber or all commercial timber as rapidly as possible or according to any particular schedule. The Secretary has discretion to determine how to manage the forest on a sustained-yield basis that provides for permanency of timber production over a long-term period. The Secretary must necessarily make judgments, informed by as much information as possible, about what kind of management will lead to permanent forest production that satisfies the principle of sustained yield.

Oregon and California lands must also be managed in accordance with other environmental laws such as the Endangered Species Act and the Clean Water Act. Some provisions of these laws take precedence over the Oregon and California Lands Act. For instance, the Endangered Species Act requires the Secretary to ensure that management of Oregon and California lands will not likely result in jeopardy to listed species or destruction or adverse modification of critical habitat. The Endangered Species Act directs the Secretary and all federal agencies to utilize their authorities to carry out programs for the conservation and recovery of listed species. Section 5(a) of the Act also directs: "the Secretary, and the Secretary of Agriculture with respect to the National Forest System, shall establish and implement a program to conserve fish, wildlife, and plants, including those which are listed as endangered species or threatened species pursuant to Section 4 of this Act." 16 U.S.C. 1534(a). Although several northern spotted owl recovery plans have been proposed, the Secretary has not yet adopted final recovery plans for either the northern spotted owl or the marbled murrelet. The Supplemental Environmental Impact Statement

Record of Decision's late-successional and riparian reserve concepts are important building blocks in the development of recovery plans to achieve the conservation and recovery of those species.

One of the purposes of the Endangered Species Act is the preservation of ecosystems upon which endangered and threatened species depend. A forward-looking land management policy would require that federal lands be managed in a way to minimize the need to list species under the Endangered Species Act. Additional species listings could have the effect of further limiting the Oregon and California Lands Act's goal of achieving and maintaining permanent forest production. This would contribute to the economic instability of local communities and industries, in contravention of a primary objective of the Congress in enacting the Oregon and California Lands Act. That Act does not limit the Secretary's ability to take steps now that would avoid future listings and additional disruptions.

Protection of watersheds and regulating streamflow are explicit purposes of forest production under the Oregon and California Lands Act. Riparian reserves, including those established on Oregon and California lands under the Resource Management Plan, are designed to restore and maintain aquatic ecosystem functions. Together with other components of the Aquatic Conservation Strategy, Riparian Reserves will provide substantial watershed protection benefits. Riparian Reserves will also help attain and maintain water quality standards, a fundamental aspect of watershed protection. Both Riparian Reserves and Late-Successional Reserves will help regulate streamflows, thus moderating peak streamflows and attendant adverse impacts to watersheds.

## **Relationship of the Resource Management Plan to BLM Policies, Programs, and Other Plans**

The BLM in Oregon is developing five other resource management plans concurrently with the development of this one. Together, the six resource management plans cover all BLM-administered lands in western Oregon. Some lands administered by the Medford District to the west in Oregon and the Ukiah District to the south in California are adjacent to lands addressed

## **Resource Management Plan**

in the Klamath Falls Resource Area plan. Management of certain resources or administrative features, such as watersheds and road networks, in these districts is shared with the Klamath Falls Resource Area. Coordination and cooperation for management of these lands is occurring in the planning process.

The draft Resource Management Plan/Environmental Impact Statement was supplemented by the Supplemental Environmental Impact Statement. The Supplemental Environmental Impact Statement Record of Decision, signed jointly by the Secretary of the Interior and the Secretary of Agriculture, requires the Bureau to incorporate the land-use allocations and standards and guidelines in that decision in the Bureau's Resource Management Plans for western Oregon. The resource management plan is intended to be consistent with the Supplemental Environmental Impact Statement Record of Decision; any apparent inconsistencies are oversights or misinterpretations of Supplemental Environmental Impact Statement Record of Decision language. The Final Supplemental Environmental Impact Statement describes the environmental impacts which arise from those directions. This resource management plan incorporates the analysis in that Final Supplemental Environmental Impact Statement.

This Resource Management Plan/Environmental Impact Statement incorporates by reference the following records of decision:

- ◆ Northwest Area Noxious Weed Control Program
- ◆ Western Oregon - Management of Competing Vegetation Program
- ◆ Pacific Yew management program
- ◆ Animal Damage Control Program

This Resource Management Plan/Environmental Impact Statement incorporates by reference the analyses and decisions made in the following documents:

- ◆ The 1993 Klamath Falls Resource Area Integrated Pest Control Plan and Environmental Assessment
- ◆ The Klamath Falls Resource Area 1993 Gopher Control Environmental Assessment
- ◆ The 1994 Klamath Falls Resource Area Fire Management Environmental Assessment
- ◆ The 1987 Programmatic Final Environmental Impact Statement on Grasshopper Control
- ◆ The 1993 Grasshopper Control Environmental Assessment covering Lake and Klamath Counties.
- ◆ The 1989 Lakeview District Animal Damage

Control Environmental Assessment (which should be replaced by the Environmental Assessment Wildlife Damage Management in the Roseburg Animal Damage Control District in Southwest Oregon, with the BLM as a cooperator)

The BLM's Final Oregon Wilderness Environmental Impact Statement, published in December 1989, addresses the Mountain Lakes Wilderness Study Area in the Klamath Falls Resource Area, and will lead to recommendations to Congress regarding designation of these areas. Pending Congressional action, the wilderness values in this area will be protected. This Resource Management Plan provides for management of these wilderness study areas should the Congress choose not to designate them as wilderness.

Any finding made in the record of decision for this Resource Management Plan/Environmental Impact Statement that certain river segments studied herein are suitable for designation under the Wild and Scenic Rivers Act, will be a preliminary administrative finding. It will receive further review and possible modification by the Director of the BLM; Secretary of the Interior; or the President of the United States. Final decisions have been reserved by Congress unless the Governor nominates a river to the Secretary of the Interior, who may then decide to designate it.

## **Planning Process**

The BLM's planning process involves nine steps as shown below:

1. Identify issues, concerns, and opportunities.
2. Develop planning criteria.
3. Collect inventory data and information.
4. Analyze the management situation.
5. Formulate alternatives.
6. Estimate effects of alternatives.
7. Select the preferred alternative.
8. Select the resource management plan.

- 8a. Publish Proposed Resource Management Plan/final Environmental Impact Statement.
- 8b. Respond to any protests and publish Resource Management Plan/record of decision.
- 9. Implement, monitor, and evaluate the Resource Management Plan.

Step 7 also includes publication of the draft Resource Management Plan/Environmental Impact Statement. Public involvement has occurred at several steps in the process.

Publication of this document constitutes completion of step 8. Public involvement has occurred at several steps in the process.

The planning process is designed to help the BLM identify and consider those uses on BLM-administered land that the public is interested in, to the extent consistent with the laws established by the Congress and the policies of the executive branch of the federal government regarding management of these lands.

## The Resource Management Plan

The purpose of this section is to describe the Klamath Falls Resource Area Resource Management Plan. The Resource Management Plan was developed partially in response to public comments related to the Bureau of Land Management's August 1992 draft Resource Management Plans for western Oregon. In addition the plan incorporates the land use allocations and management direction from the Supplemental Environmental Impact Statement Record of Decision. Finally, the plan was slightly modified in response to public comments and protest on the September 1994 proposed resource management plans for western Oregon. The following modifications were made in the Klamath Falls Resource Area Resource Management Plan:

The approved Resource Management Plan (RMP) incorporates the following nonsubstantive changes from the Proposed RMP:

- ◆ Language revisions intended to clarify some management direction.
- ◆ Language revisions intended to tighten the link between the approved RMP and the 1994 Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents

Within the Range of the northern spotted owl and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the northern spotted owl.

- ◆ Revisions that incorporate guidelines issued by the Regional Ecosystem Office since the issuance of the 1994 Record of Decision named above. Such guidelines may clarify or interpret the 1994 Record of Decision.

A map showing the land allocations of the Resource Management Plan are contained in Map 3.

In the Klamath Falls Resource Area, all references to Late-Successional/District Designated Reserves are for reserves that were unmapped in the Supplemental Environmental Impact Statement.

Also, the Matrix in the Klamath Falls Resource Area is designed to provide connectivity and biological diversity across the landscape rather than in connectivity/diversity blocks.

Much of the BLM-administered land in the Klamath Falls Resource Area was not covered by the Supplemental Environmental Impact Statement because it is outside the range of the northern spotted owl. However, an effort similar to the western Oregon Supplemental Environmental Impact Statement process is currently in progress for eastern Oregon (called the Eastside Ecosystem Management Project). An environmental impact statement is being developed, but a draft environmental impact statement has not been released yet. In the Klamath Falls Resource Area, any requirements, goals, and objectives devised as a result of the Eastside Ecosystem Management Project's future environmental impact statement record of decision will be incorporated into the resource area's management programs as appropriate.

## Vision

The Bureau of Land Management will manage the land and natural resources under its jurisdiction in western Oregon to help enhance and maintain the ecological health of the environment and the social well being of human populations.

There are several basic principles supporting this vision:

- ◆ natural resources can be managed to provide for human use and a healthy environment;

## Resource Management Plan

- ◆ resource management must be focused on ecological principles to reduce the need for single resource or single species management;
- ◆ stewardship, the involvement of people working with natural processes, is essential for successful implementation;
- ◆ the Bureau of Land Management cannot achieve this vision alone, but can, by its management processes and through cooperation with others, be a significant contributor to its achievement; and
- ◆ a carefully designed program of monitoring, research, and adaptation will be the change mechanism for achieving this vision.

## Strategy

Lands administered by the Bureau of Land Management will be managed to maintain healthy, functioning ecosystems from which a sustainable production of natural resources can be provided. This management strategy, titled ecosystem management, involves the use of ecological, economic, social, and managerial principles to achieve healthy and sustainable natural systems. Ecosystem management emphasizes the complete ecosystem instead of individual components and looks at sustainable systems and products that people want and need. It is based on the premise that economic health can not be sustained without ecological health.

The building blocks for this strategy are comprised of several major land use allocations - Riparian Reserves, Late-Successional/District Designated Reserves, Adaptive Management Areas (none of which occur in the Klamath Falls Resource Area), Matrix which includes General Forest Management Areas, and Connectivity/Diversity Blocks (none of which occur in the Klamath Falls Resource Area). The Matrix in the Klamath Falls Resource Area is designed to provide connectivity and biological diversity across the landscape rather than in large connectivity/diversity blocks. These land use allocations have differing management direction and are located and configured in the landscape to support overall ecosystem function and to meet the Vision for management of federal lands in Oregon. There are a variety of special purpose management areas such as recreation sites, wild and scenic rivers, and visual resource management areas.

Each land use allocation will be managed according to specific objectives and management actions/direction. During initial implementation of the plan, the stated objectives and management actions/direction will provide the direction and limits governing actions and the principles specifying the environmental conditions or levels to be achieved and maintained. As the BLM gains experience in implementing the plan and applying the concepts of adaptive management, the stated objectives and management actions/direction will be refined for specific geographic areas.

The land use allocations of the Resource Management Plan are shown in Table 1.

**Table 1. Major Land Allocations<sup>1</sup>**

	Acres
Late-Successional/District Designated Reserves	1,600
General Forest Management Areas - Matrix	
West side	23,550
Late-Successional/District Designated Reserve Buffers	2,300 <sup>2</sup>
East side	8,750
Rangelands <sup>2/3</sup>	
West side	46,537
East side	158,145
Other <sup>4</sup>	
West side	26,080
East side	155,270
<b>Total</b>	<b>215,520</b>

<sup>1</sup> Riparian Reserves underlie all of the allocations/classifications shown in this table. Overlaps could not be eliminated due to limitations in the database.

<sup>2</sup> These acres are not included in the total.

<sup>3</sup> Grazing allocations overlap with all of the other land allocations, including Riparian Reserves. If grazing is found in the future to be incompatible with the other land allocation objectives, grazing management will be changed through the processes described in the plan's grazing appendix.

<sup>4</sup> Includes all woodlands, commercial forest land outside matrix and Late-Successional District/Designated Reserves, and non-forest lands.

Map 3 shows most of the land use allocations of the Resource Management Plan.

There are two major management concepts underlying the objectives and management actions/direction-  
-Ecological Principles for Management of Late-Successional Forests and the Aquatic Conservation Strategy. These concepts are summarized below.

## **Ecological Principles for Management of Late-Successional Forests**

One goal of this plan is to maintain late-successional and old growth species habitat and ecosystems on federal lands. A second goal is to maintain biological diversity associated with native species and ecosystems in accordance with laws and regulations.

All land use allocations described in this plan will contribute to these two goals. For instance, Late-Successional/District Designated Reserves and many special areas (for example, some areas of critical environmental concern) will be managed to enhance and/or maintain late-successional forest conditions. The Matrix will be managed to retain late-successional forest legacies while providing diversity (for example, coarse woody debris, large green trees, snags, and late-successional forest patches). These and other land use allocations and resource programs are described in detail below.

See the Supplemental Environmental Impact Statement Record of Decision (Appendix A) for additional information about ecological principles for management of late-successional forests.

## **Aquatic Conservation Strategy**

The Aquatic Conservation Strategy was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands.

The Aquatic Conservation Strategy is designed to meet the following objectives:

- ◆ Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.
- ◆ Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.
- ◆ Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.
- ◆ Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain in the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.
- ◆ Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.
- ◆ Maintain and restore instream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing (that is, movement of woody debris through the aquatic system). The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.
- ◆ Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.
- ◆ Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.

## **Resource Management Plan**

- ◆ Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

The components of the Aquatic Conservation Strategy are Riparian Reserves, Key Watersheds, Watershed Analysis, and Watershed Restoration.

## **Riparian Reserves**

Riparian Reserves are lands along streams and unstable and potentially unstable areas where special standards and guidelines direct land use.

See Riparian Reserves in Appendix A.

## **Key Watersheds**

Key Watersheds are a system of large refugia that are crucial for maintaining and recovering habitat for at-risk stocks of resident fish species. These refugia include areas of high quality habitat and areas of degraded habitat. Key Watersheds with high quality conditions will serve as anchors for the potential recovery of depressed stocks. Those of lower quality habitat have high potential for restoration and will become future sources of high quality habitat with the implementation of a comprehensive restoration program (see the Watershed Restoration section that follows).

There are two types of Key Watersheds - Tier 1 and Tier 2. Tier 1 watersheds contribute directly to conservation of at-risk fish species. They also have a high potential of being restored as part of a watershed restoration program. Tier 2 watersheds do not contain at-risk fish stocks, but they are important sources of high quality water.

Key Watersheds in the resource area are Spencer Creek (Tier 1 - approximately 40,850 acres of public and private land), Clover Creek (Tier 2 - approximately 13,950 acres of public and private land), and a portion of (Johnson Creek) Jenny Creek (Tier 1 - approximately 133,000 acres of public and private land). See Map 3 for locations of Tier 1 Key Watersheds.

Key Watersheds overlay portions of most land use allocations in the resource area and place additional management requirements or emphasis on activities in those areas.

The non-interchangeable component of the allowable sale quantity, attribute to key watersheds, is 0.542 million cubic feet. Identification of this component

was required by the SEIS Record of Decision, pages E-19 and E-20.

## **Management Actions/Direction**

- ◆ Prior to further resource management activity, including timber harvest, in Key Watersheds, prepare watershed analyses. Until watershed analyses can be completed, proceed with minor activities, such as those categorically excluded under the National Environmental Policy Act regulations (except timber harvest), if they are consistent with Aquatic Conservation Strategy objectives. Apply Riparian Reserve management actions/direction.
- ◆ Reduce existing road mileage within Key Watersheds. If funding is insufficient to implement reductions, neither construct nor authorize through discretionary permits a net increase in road mileage in Key Watersheds.
- ◆ Give highest priority to watershed restoration in Key Watersheds.
- ◆ Manage riparian-wetland areas to protect, maintain, or improve riparian-wetland habitat for wildlife and native plant diversity. Restore or maintain riparian-wetland areas so that 75 percent or more are in proper functioning condition by 1997. The overall objective is to achieve an advanced ecological status, except where resource management objectives, including proper functioning condition, will require an earlier successional stage, thus providing the widest variety of vegetation and habitat diversity for wildlife, fish, and watershed protection. Proper functioning condition exists when adequate vegetation, landform, or large woody debris are present to: dissipate stream energy associated with high water flows; filter sediment, capture bedload and aid floodplain development; improve flood water retention and groundwater recharge; develop stabilizing root masses; create aquatic habitat; and insulate streams from summer and winter temperature extremes. Proper functioning condition is discussed in Chapter 3 in the Riparian Zones section.

## **Watershed Analysis**

Watershed analysis is a set of procedures for conducting an analysis to evaluate geomorphic and ecologic processes operating in a specific watershed. This analysis should enable watershed planning to prescribe management actions that will achieve Aquatic Conservation Strategy objectives. Water-

shed analysis provides the basis for monitoring and restoration programs and is the foundation from which Riparian Reserves can be delineated.

See the Watershed Analysis section (toward the end of this section) and the Supplemental Environmental Impact Statement Record of Decision (Appendix A) for requirements.

### **Management Actions/Direction**

Watershed analysis is a systematic procedure to characterize watersheds. The information obtained through watershed analysis will be used to guide management prescription and monitoring programs, set and refine Riparian Reserve boundaries, and develop the watershed restoration program.

It is required in Key Watersheds prior to resource management.

It is required in all roadless areas prior to resource management.

It is *recommended* in all other watersheds.

It is required to change Riparian Reserve widths in all watersheds.

Earthflows qualify as unstable and potentially unstable areas and will be analyzed for inclusion within Riparian Reserves.

### **Watershed Restoration**

Watershed restoration will be an integral part of a program designed to aid recovery of fish habitat, riparian-wetland habitat, and water quality. The most important components of a watershed restoration program are control and prevention of road-related runoff and sediment production, restoration of the condition of riparian vegetation, and restoration of instream habitat complexity. Other restoration opportunities include meadow and wetland restoration and mine reclamation.

Restoration will be based on watershed analysis and planning. Watershed analysis is essential to identify areas of greatest benefit-to-cost relationships for restoration opportunities and greatest likelihood of success. Watershed analysis can also be used as a medium to develop cooperative projects involving various landowners. In many watersheds the most critical restoration needs occur on private lands both upstream and downstream from federally managed lands. Decisions to apply a given treatment depend

on the value and sensitivity of downstream uses, transportation needs, social expectations, risk assessment of probable outcomes for success at correcting problems, costs, and other factors. Watershed analysis, including the use of sediment budgets, provides a framework for considering benefit-to-cost relations in a watershed context. Thus, the magnitude of restoration needs within the planning area will be based on watershed analysis.

### **Management Actions/Direction**

1. Prepare watershed analyses and plans prior to restoration activities. Activities will be designed to restore watershed processes and recover degraded habitat. See Use of the Plan section.
2. Focus watershed restoration on removing some roads and, where needed, upgrading those that remain in the system.
3. Apply silvicultural treatments to restore and retain large conifers in Riparian Reserves.
4. Restore stream channel complexity. Instream structures will only be used in the short term and not as a mitigation measure.

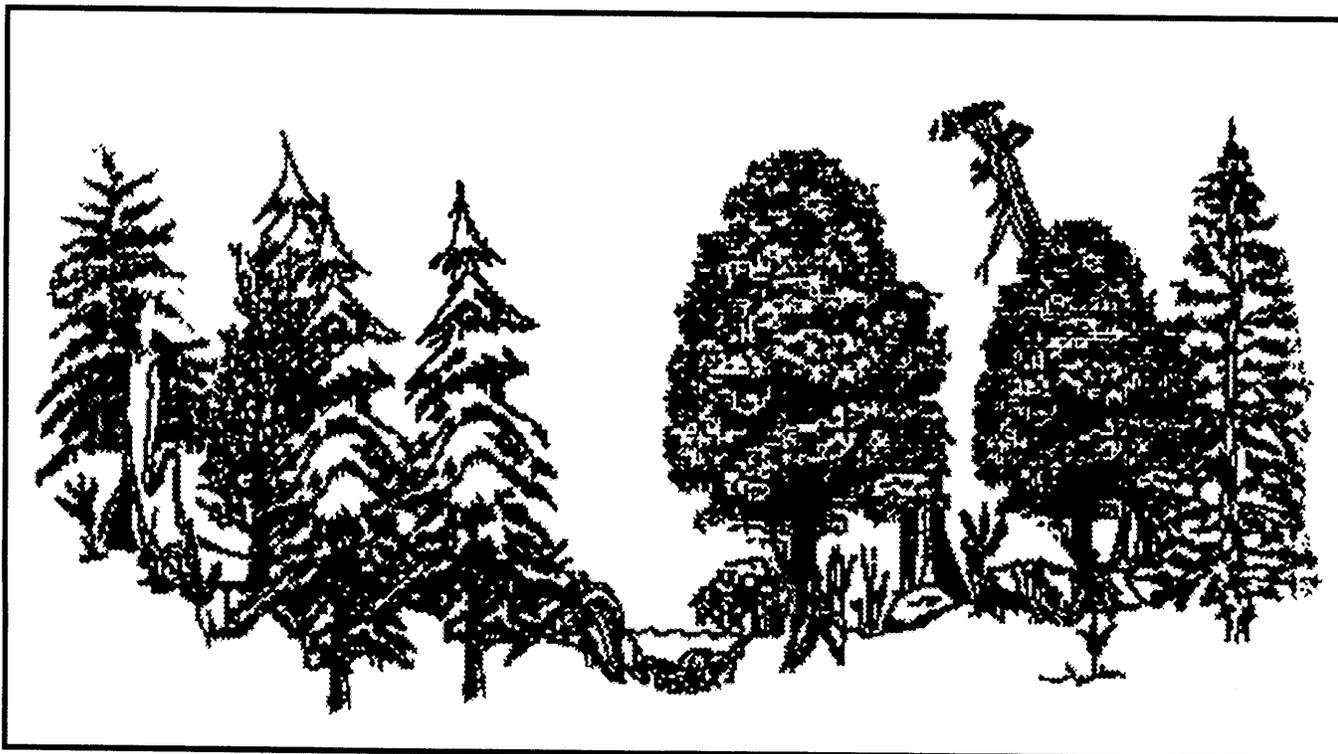
Additional information about the Aquatic Conservation Strategy is found in Supplemental Environmental Impact Statement Record of Decision (Appendix A).

## **Land Use Allocations and Resource Programs**

This Land Use Allocations and Resource Programs description has three major parts:

- ◆ management actions/direction for all land use allocations and resource programs;
- ◆ specific land use allocations - objectives, allocations, and management actions/direction for each category; and
- ◆ resource programs - objectives, allocations, and management actions/direction for each category.

This section provides a description of objectives, land use allocations, and management actions/direction for this resource management plan. The term "land use allocations" is used in two ways. First, it pertains to the major land use allocation categories derived from the Supplemental Environmental Impact Statement and its Record of Decision (for example, Riparian Reserves and Late-Successional Reserves) and the other resource program allocations of this



Resource Management Plan. The second use pertains to data and text describing specific allocations (for example, acres, miles, and number of sites) under each land use allocation and resource program category.

Although described separately, each of these elements contributes collectively and cumulatively to meeting the overall management strategy and must be considered together to accurately reflect the concept of ecosystem management. There is some duplication of objectives and management actions/direction for land use allocations and resource programs. A reader interested in either topic will find a basic package of related management guidance in one location.

All management actions/direction in this resource management plan are subject to refinement through planning based on watershed analysis and the adaptive management process. In some areas, land

use allocations overlap. A hierarchy of allocations and related management actions/direction will be used to guide plan implementation (see the Supplemental Environmental Impact Statement Record of Decision, Appendix A).

Most resource programs have basic requirements for activities such as inventory, site-specific analysis, planning, and environmental assessment prior to project implementation and monitoring after project implementation. Inherent in the Resource Management Plan is a BLM commitment to continue these activities in the future. For the sake of simplifying text, these activities are generally not repeated in the management actions/direction that follow.

A summary of the land use allocations and management actions/direction for the management plan is found in Table 1 in Appendix B. Most land use allocations are shown on the maps in the accompanying packet.

## Management Actions/Direction for All Land Use Allocations and Resource Programs

The land use allocations developed for the Supplemental Environmental Impact Statement Record of Decision and applicable to BLM-administered lands in the Klamath Falls Resource Area are Riparian Reserves, Late-Successional/District Designated Reserves, and Matrix.

Two of the allocations in the Supplemental Environmental Impact Statement Record of Decision, Congressionally Reserved Areas and Administratively Withdrawn Areas, recognize existing and proposed BLM management. These allocations are fully incorporated in the resource program elements of this resource management plan. They are not described as separate land use allocations in this document.

The types of administratively withdrawn areas in the resource area include campgrounds, research natural areas, areas of critical environmental concern, and Late-Successional/District Designated Reserves.

Land use allocation acres in the text are gross acres (that is, overlap with other allocations are not taken out).

The Supplemental Environmental Impact Statement Record of Decision record of decision provides management guidance for a specific list of plant and animal species which are or may be found in the major land allocation areas (see Appendix B). In this resource management plan, these species are referred to as "SEIS Special Attention Species". Management guidance is separated in two categories--"Survey and Manage" and "Protection Buffers".

### Survey and Manage for Amphibians, Mammals, Bryophytes, Mollusks, Vascular Plants, Fungi, Lichens, and Arthropods

Implement the survey and manage provision of the Supplemental Environmental Impact Statement Record of Decision within the range of Supplemental Environmental Impact Statement special attention species and the particular habitats that they are known to occupy. Appendix C shows which species are covered by the provision, and which of the following four categories and management actions/direction are to be applied to each:

1. Manage known sites (highest priority).
  - ◆ Acquire information on these sites, make it available to all project planners, and use it to design or modify activities.
  - ◆ Protect known sites. For some species, apply specific management treatments such as prescribed fire.
  - ◆ For rare and endemic fungus species, temporarily withdraw known sites from ground-disturbing activities until the sites can be thoroughly surveyed and site-specific measures prescribed.
2. Survey prior to ground-disturbing activities and manage sites.
  - ◆ Continue existing efforts to survey and manage rare and sensitive species habitat.
  - ◆ For species without survey protocols, start immediately to design protocols and implement surveys.
  - ◆ Within the known or suspected ranges and within the habitat types of vegetation communities associated with the species, survey for:
    - ◆ Red tree voles
    - ◆ Lynx
  - ◆ For the other species listed in Appendix C, begin development of survey protocols promptly and proceed with surveys as soon as possible. These surveys will be completed prior to ground-disturbing activities that will be implemented in Fiscal Year 1999 or later. Work to establish habitat requirements and survey protocols may be prioritized relative to the estimated threats to the species as reflected in the Supplemental Environmental Impact Statement.
  - ◆ Conduct surveys at a scale most appropriate to the species.
  - ◆ Develop management actions/direction to manage habitat for the species on sites where they are located.
  - ◆ Incorporate survey protocols and proposed site management in interagency conservation strategies developed as part of ongoing planning efforts coordinated by the Regional Ecosystem Office.
3. Conduct extensive surveys and manage sites
  - ◆ Conduct extensive surveys for the species to find high-priority sites for species management. Specific surveys prior to ground-disturbing activities are not a requirement.

## **Resource Management Plan**

- ◆ Conduct surveys according to a schedule that is most efficient and identify sites for protection at that time.
  - ◆ Design these surveys for efficiency and develop standardized protocols.
  - ◆ Begin these surveys by 1996.
4. Conduct general regional surveys.
- ◆ Survey to acquire additional information and to determine necessary levels of protection for arthropods, fungi species that were not classed as rare and endemic, bryophytes, and lichens.
  - ◆ Initiate these surveys no later than Fiscal Year 1996 and complete them within 10 years.

## **Protection Buffers for Supplemental Environmental Impact Statement Special Attention Species (Amphibians, Nonvascular Plants, Birds, and Mammals)**

Provide protection buffers for specific rare and locally endemic species and other species in the upland forest matrix. A list of these species and related management actions/direction are presented in Appendix C and the section on Special Status and Supplemental Environmental Impact Statement Special Attention Species. These species are likely to be assured viability if they occur within reserves. However, there might be occupied locations outside reserves that will be important to protect as well.

Apply the following management actions/direction:

1. Develop survey protocols that will ensure a high likelihood of locating sites occupied by these species.
2. Following development of survey protocols and prior to ground-disturbing activities, conduct surveys within the known or suspected ranges of the species and within the habitat types or vegetation communities occupied by the species. See the previous Survey and Manage section for an implementation schedule.
3. When located, protect the occupied sites.

See Special Status and Supplemental Environmental Impact Statement Special Attention Species section for additional details.

## **Major Land Use Allocations**

This section describes specific land use allocations developed for the Supplemental Environmental Impact Statement Record of Decision.

## **Riparian Reserves**

The following material summarizes Riparian Reserve direction. Details regarding this direction are found in the Supplemental Environmental Impact Statement Record of Decision (Appendix A).

## **Objectives**

See Aquatic Conservation Strategy Objectives.

Provide habitat for special status, Supplemental Environmental Impact Statement special attention species, and other terrestrial species (see the Wildlife and Special Status Species and Special Areas Habitat sections later in the Chapter).

## **Land Use Allocations**

There are approximately 19,450 west side and 9,100 east side acres of Riparian Reserves in the Resource Area. Calculation of these acres is based on prescribed widths and estimated miles of stream in the various categories described in the Supplemental Environmental Impact Statement Record of Decision. The widths are intended to provide a high level of fish, wildlife, and plant habitat and riparian protection until watershed and site analysis can be completed. Although Riparian Reserve boundaries on permanently flowing streams may be adjusted, they are considered to be the approximate widths necessary for attaining Aquatic Conservation Strategy objectives. Post-watershed analysis Riparian Reserve boundaries for permanently flowing streams will approximate the boundaries described below. Following watershed analysis, Riparian Reserve boundaries for intermittent streams may be different from the existing boundaries. Determination of final boundaries will be based on hydrologic, geomorphic and ecologic processes in a watershed affecting intermittent streams. The widths of Riparian Reserves apply to all watersheds until watershed analysis is completed, a site-specific analysis is conducted and described, and the rationale for final Riparian Reserve boundaries is presented through the appropriate National Environmental Policy Act decision-making process.

More information on Riparian Reserves is located in Appendix A. Best management practices for activities conducted in or near Riparian Reserves are listed in Appendix D.

The initial Riparian Reserve widths for the Klamath Falls Resource Area are as follows:

**Fish-bearing streams.** Riparian Reserves consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet total, including both sides of the stream channel), whichever is greatest.

**Permanently flowing non-fish-bearing streams.** Riparian Reserves consist of the stream and the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance (300 feet total, including both sides of the stream channel), whichever is greatest.

**Seasonally flowing or intermittent streams, wetlands less than one acre, and unstable and potentially unstable areas.** This category applies to features with high variability in size and site-specific characteristics. At a minimum the Riparian Reserves will include:

- ◆ the extent of unstable and potentially unstable areas;
- ◆ the stream channel and the area extending to the top of the inner gorge;
- ◆ the stream channel or wetland and the area from the edges of the stream channel or wetland to the outer edges of the riparian vegetation; and
- ◆ the area extending from the edges of the stream channel to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest.

**Constructed ponds and reservoirs, and wetlands greater than one acre.** Riparian Reserves consist of the body of water or wetland and the area to the outer edges of the

riparian vegetation, or the extent of seasonally saturated soil, or to the extent of unstable and potentially unstable areas, or to a distance equal to the height of one site-potential tree, or to 150 feet slope distance from the edge of a wetland greater than one acre or the maximum pool elevation of constructed ponds and reservoirs, whichever is greatest. (Riparian vegetation and seasonally saturated soils will generally constitute a wetland and will be managed as prescribed for wetlands.)

**Lakes and Natural Ponds.** Riparian Reserves consist of the body of water and the area to the outer edges of the riparian vegetation, or to the extent of seasonally saturated soil, or to the extent of unstable and potentially unstable areas, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance, whichever is greatest. (Riparian vegetation and seasonally saturated soils will generally constitute a wetland and will be managed as prescribed for wetlands.)

## **Management Actions/Direction**

### ***General***

As a general rule, management actions/direction for Riparian Reserves prohibit or regulate activities that retard or prevent attainment of Aquatic Conservation Strategy objectives. Watershed analysis and appropriate National Environmental Policy Act compliance will be required to change Riparian Reserves in all watersheds.

Implement the following management actions/direction in Riparian Reserves. (Management actions/direction in this section are supplemented by the best management practices in Appendix D.)

Apply the management actions/direction in the Special Status and Supplemental Environmental Impact Statement Special Attention Species section.

### ***Timber Management***

Neither conduct nor allow timber harvest, including fuelwood cutting, in Riparian Reserves, with exception of the following:

- ◆ Where catastrophic events such as fire, flooding, volcanic, wind, or insect damage result in degraded riparian-wetland conditions, allow salvage and fuelwood cutting if required to attain Aquatic Conservation Strategy objectives.

## **Resource Management Plan**

- ◆ Remove salvage trees only when watershed analysis determines that present and future coarse woody debris needs are met and other Aquatic Conservation Strategy objectives are not adversely affected.
- ◆ Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives.

Riparian Reserve acres are not included in calculations of the allowable sale quantity.

## **Road Management**

Cooperate with federal, state, and county agencies and work with private parties with road use agreements to achieve consistency in road design, operation, and maintenance necessary to attain Aquatic Conservation Strategy objectives.

For each existing or planned road, meet Aquatic Conservation Strategy objectives by:

- ◆ completing watershed analyses including appropriate geotechnical analyses (that is, examining soil and rock conditions in riparian and stream crossings) prior to construction of new roads or landings in Riparian Reserves;
- ◆ minimizing road and landing locations in Riparian Reserves;
- ◆ preparing road design criteria, elements, and standards that govern construction and reconstruction;
- ◆ preparing operation and maintenance criteria that govern road operation, maintenance, and management;
- ◆ minimizing disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow;
- ◆ restricting sidestepping as necessary to prevent the introduction of sediment to streams; and
- ◆ avoiding wetlands entirely when constructing new roads.

Determine the influence of each road on the Aquatic Conservation Strategy objectives through watershed analysis. Meet Aquatic Conservation Strategy objectives by:

- ◆ reconstructing roads and associated drainage features that pose a substantial risk;
- ◆ prioritizing reconstruction based on current and potential impact to riparian-wetland resources and the ecological value of the riparian-wetland resources affected; and
- ◆ closing and stabilizing, or obliterating and stabilizing roads based on the ongoing and potential effects to Aquatic Conservation Strategy objectives and considering short-term and long-term transportation needs.

Design and construct new culverts, bridges, and other stream crossings and improve existing culverts, bridges, and other stream crossings determined to pose a substantial risk to riparian conditions. New structures and improvements will be designed to accommodate at least the 100-year flood, including associated bedload and debris. Priority for upgrading will be based on the potential impact and the ecological value of the riparian-wetland resources affected. Crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.

Minimize sediment delivery to streams from roads. Outsloping of the roadway surface is preferred, except in cases where outsloping will increase sediment delivery to streams or where outsloping is infeasible or unsafe. Route road drainage away from potentially unstable channels, fills, and hillslopes.

Provide and maintain fish passage at all road crossings of existing and potential fish-bearing streams.

Develop and implement a Road Management Plan or a Transportation Management Plan that will meet the Aquatic Conservation Strategy objectives. As a minimum, this plan will include provisions for the following activities:

- ◆ inspections and maintenance during storm events;
- ◆ inspections and maintenance after storm events;
- ◆ road operation and maintenance giving high priority to identifying and correcting road drainage problems that contribute to degrading riparian-wetland resources;
- ◆ traffic regulation during wet periods to prevent damage to riparian-wetland resources; and
- ◆ establishing the purpose of each road by developing a road management objective.

## Minerals Management

NOTE: The following management actions/direction differ from the standards and guidelines in the Supplemental Environmental Impact Statement Record of Decision, since the standards and guidelines are not all implementable under current laws and regulations. The stronger standards and guidelines in the Supplemental Environmental Impact Statement Record of Decision will be adopted at such time as changes in current laws and/or regulations authorize their implementation. See Appendix A.

For any proposed locatable mining operation in Riparian Reserves, other than notice level or casual use, require the following actions by the operator consistent with 43 Code of Federal Regulations 3809 regulations:

1. Prepare a Plan of Operations, including a reclamation plan and reclamation bond for all mining operations in Riparian Reserves. Such plans and bonds will address the costs of removing facilities, equipment, and materials; recontouring of disturbed areas to an approved topography; isolating and neutralizing or removing toxic or potentially toxic materials; salvaging and replacing topsoil; and revegetating to meet Aquatic Conservation Strategy objectives.
2. Locate structures, support facilities, and roads outside Riparian Reserves. If no alternative to siting facilities in Riparian Reserves exists, locate in a way compatible with Aquatic Conservation Strategy objectives. Road construction will be kept to the minimum necessary for the approved mineral activity. Roads will be constructed and maintained to meet road management standards and to minimize damage to resources in Riparian Reserves. When a road is no longer required for mineral or land management activities, it will be reclaimed. In any case, access roads will be constructed consistent with 43 Code of Federal Regulations 3809 and acceptable road construction standards and will minimize damage to resources in Riparian Reserves.
3. Avoid locating solid and sanitary waste facilities in Riparian Reserves. If no alternative to locating mine waste (waste rock, spent ore, tailings) facilities in Riparian Reserves exists, if releases can be prevented, and if stability can be ensured, then:
  - ◆ Analyze the waste material using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics.

- ◆ Locate and design the waste facilities using best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials. If the best conventional technology is not sufficient to prevent such releases and ensure stability over the long term, prohibit such facilities in Riparian Reserves.
- ◆ Reclaim waste facilities after operations to ensure chemical and physical stability and to meet Aquatic Conservation Strategy objectives.
- ◆ Monitor waste and waste facilities after operations to ensure chemical and physical stability and to meet Aquatic Conservation Strategy objectives.
- ◆ Require reclamation bonds adequate to ensure chemical and physical stability and to meet Aquatic Conservation Strategy objectives.

Where an existing operator is in noncompliance at the notice level (that is, causing unnecessary or undue degradation), require actions similar to those stated above to meet the intent of 43 Code of Federal Regulations 3809.

For future leasable mineral activity in Riparian Reserves, prohibit surface occupancy for oil, gas, and geothermal exploration and development activities unless it can be demonstrated that impacts will be acceptable or can be mitigated so that the objectives of the Aquatic Conservation Strategy can be met. Where possible, adjust the stipulations in existing leases to eliminate impacts that retard or prevent the attainment of Aquatic Conservation Strategy objectives, consistent with existing lease terms and stipulations.

Allow development of salable minerals, such as sand and gravel, within Riparian Reserves only if Aquatic Conservation Strategy objectives can be met.

Develop inspection and monitoring requirements and include such requirements in exploration and mining plans and in leases or permits consistent with existing laws and regulations. Evaluate the results of inspection and monitoring to determine if modification of plans, leases and permits is needed to eliminate impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives.

## Recreation Management

Design new recreational facilities within Riparian Reserves, including trails and dispersed sites, so as not to prevent meeting Aquatic Conservation Strategy

## ***Resource Management Plan***

objectives. Construction of these facilities should not prevent future attainment of these objectives. For existing recreation facilities within Riparian Reserves, evaluate and mitigate impacts to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Aquatic Conservation Strategy objectives.

Adjust dispersed and developed recreation practices that retard or prevent attainment of Aquatic Conservation Strategy objectives. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective, eliminate the practice or occupancy.

Address attainment of Aquatic Conservation Strategy objectives in Wild and Scenic River and Wilderness management plans.

## ***Fire/Fuels Management***

Design fuel treatment and fire suppression strategies, practices, and activities to meet Aquatic Conservation Strategy objectives, and to minimize disturbance of riparian-wetland ground cover and vegetation. Strategies will recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management activities could be damaging to long-term ecosystem function.

Locate incident bases, camps, helibases, staging areas, helispots and other centers for incident activities outside of Riparian Reserves. If the only suitable location for such activities is within the Riparian Reserve, an exemption may be granted following a review and recommendation by a resource advisor. The advisor will prescribe the location, use conditions, and rehabilitation requirements. Use an interdisciplinary team to predetermine suitable incident base and helibase locations.

Minimize delivery of chemical retardant, foam, or other additives to surface waters. An exception may be warranted in situations where overriding immediate safety imperatives exist, or, following a review and recommendation by a resource advisor, when an escape would cause more long-term damage.

Design prescribed burn projects and prescriptions to contribute to attainment of Aquatic Conservation Strategy objectives.

Immediately establish an emergency team to develop a rehabilitation treatment plan needed to attain Aquatic Conservation Strategy objectives whenever Riparian Reserves are significantly damaged by a

wildfire or a prescribed fire burning outside prescribed parameters.

Limit the size of all wildfires to the extent practical.

Allow some natural fires to burn under prescribed conditions. This decision will be based on additional analysis and planning.

Rapidly extinguishing smoldering coarse woody debris and duff should be considered to preserve these ecosystem elements.

Locate and manage water drafting sites (for example, sites where water is pumped to control or suppress fires) to minimize adverse effects on riparian-wetland habitat and water quality as consistent with Aquatic Conservation Strategy objectives.

## ***Lands***

Identify instream flows needed to maintain riparian-wetland resources, channel conditions, and fish passage in coordination with the Oregon Department of Fish and Wildlife, Department of Environmental Quality, and the Oregon Parks and Recreation Department.

Issue leases, permits, rights-of-way, and easements to avoid adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives. Where legally possible, adjust existing leases, permits, rights-of-way, and easements to eliminate adverse effects that retard or prevent the attainment of Aquatic Conservation Strategy objectives. If adjustments are not effective and where legally possible, eliminate the activity. Priority for modifying existing leases, permits, rights-of-way, and easements will be based on the actual or potential impact and the ecological value of the riparian-wetland resources affected.

Use land acquisition, exchange, and conservation easements to meet Aquatic Conservation Strategy objectives and facilitate restoration of fish stocks and other species at risk of extinction.

For proposed hydroelectric projects under the jurisdiction of the Federal Energy Regulatory Commission, provide timely, written comments regarding maintenance of instream flows and habitat conditions and maintenance/restoration of riparian resources and stream channel integrity. Request the Federal Energy Regulatory Commission to locate proposed support facilities outside of Riparian Reserves. For existing support facilities inside Riparian Reserves that are essential to proper management, provide

recommendations to the Commission that ensure Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, provide recommendations to the Federal Energy Regulatory Commission that such support facilities should be relocated. Existing support facilities that must be located in the Riparian Reserves should be located, operated, and maintained with an emphasis to eliminate adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives.

For other hydroelectric and surface water development proposals in Tier 1 Key Watersheds, require instream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage. Coordinate this process with the appropriate state agencies. For other hydroelectric and surface water development proposals in all other watersheds, give priority emphasis to instream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage. Coordinate this process with the appropriate state agencies.

### **Grazing Management**

Protect the following sites from grazing: known and newly discovered sites of the following mollusk species will be protected from grazing by all practicable steps to ensure that the local populations of the species will not be impacted. These species include: *Fluminicola n. sp. 1*, *Fluminicola n. sp. 11*, *Fluminicola n. sp. 19*, *Fluminicola n. sp. 20*, *Fluminicola n. sp. 3*, and *Fluminicola seminalis*. Freshwater mollusks in the family *Hydrobiidae* (to which the genus *Fluminicola* belong) are known to exist in the resource area. Tentative identification of mollusks collected at several sites in the resource area has been made. Further investigation is required for more positive identification of which species of *Fluminicola* are present in the resource area. Implementation of protection actions will be initiated after watershed analysis and appropriate National Environmental Policy Act decisions.

Through a planning and environmental analysis process appropriate to the action, adjust or eliminate grazing practices that retard or prevent attainment of Aquatic Conservation Strategy objectives.

Locate new livestock handling and/or management facilities outside Riparian Reserves. For existing livestock handling facilities inside Riparian Reserves, ensure that Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, require relocation or removal of such facilities.

Limit livestock trailing, bedding, watering, loading, and other handling efforts to those areas and times that will ensure Aquatic Conservation Strategy objectives are met.

### **Watershed and Habitat Restoration**

Design and implement watershed restoration projects in a manner that promotes long-term ecological integrity of ecosystems, conserves the genetic integrity of native species, and attains Aquatic Conservation Strategy objectives.

Cooperate with federal, state, local, and tribal agencies, and private landowners to develop watershed-based coordinated resource management plans or other cooperative agreements to meet Aquatic Conservation Strategy objectives.

Prevent watershed and habitat degradation rather than relying on mitigation measures or planned restoration.

### **General Riparian Area Management**

Identify and attempt to secure instream flows needed to maintain riparian resources, channel conditions, fish passage, and aquatic habitat in coordination with the Oregon Department of Fish and Wildlife, Department of Water Resources, Department of Environmental Quality, and the Oregon Parks and Recreation Department.

Fall trees in Riparian Reserves when they pose a safety risk. Keep felled trees on site when needed to meet coarse woody debris objectives.

Apply herbicides, insecticides, other toxicants, and other chemicals only in a manner that avoids impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives.

Locate water drafting sites (sites where water is pumped to control or suppress fires or for road construction and maintenance) to minimize adverse effects on stream channel stability, sedimentation, and instream flows needed to maintain riparian resources, channel conditions, and fish habitat.

### **Fish and Wildlife Management**

Design and implement fish and wildlife habitat restoration and enhancement activities in a manner that contributes to attainment of Aquatic Conservation Strategy objectives.

## **Resource Management Plan**

Design, construct, and operate fish and wildlife interpretive and other user-enhancement facilities in a manner that does not retard or prevent attainment of Aquatic Conservation Strategy objectives. For existing fish and wildlife interpretive and other user-enhancement facilities inside Riparian Reserves, ensure that Aquatic Conservation Strategy objectives are met. Where Aquatic Conservation Strategy objectives cannot be met, relocate or close such facilities.

Cooperate with federal, tribal, and state wildlife management agencies to identify and eliminate wild ungulate impacts that are inconsistent with attainment of Aquatic Conservation Strategy objectives.

Cooperate with federal, tribal, and state fish management agencies to identify and eliminate impacts associated with habitat manipulation, fish stocking, harvest and poaching that threaten the continued existence and distribution of native fish stocks inhabiting streams with adjacent or nearby federal lands.

## **Late-Successional/District Designated Reserves**

The following material summarizes Late-Successional Reserves direction. Details regarding this direction are found in the Supplemental Environmental Impact Statement Record of Decision (Appendix A). In the Klamath Falls Resource Area there are only unmapped Late-Successional/District Designated Reserves, not the large mapped Late-Successional Reserves shown in the Supplemental Environmental Impact Statement.

### **Objectives**

Protect and enhance conditions of late-successional and old growth forest ecosystems, which serve as habitat for late-successional and old growth forest-related species including the northern spotted owl.

Maintain a functional, interacting, late-successional, and old growth forest ecosystem.

### **Land Use Allocations**

On the west side of the Klamath Falls Resource Area there are approximately 1,600 acres allocated to

Late-Successional/District Designated Reserves. This allocation is composed of blocks of land containing approximately 80 to 100 acres each.

Also, protection buffers for special status and Supplemental Environmental Impact Statement special attention species will be made as identified in the Supplemental Environmental Impact Statement Record of Decision. These protection buffers will be part of the Late-Successional/District Designated Reserves. There are also district designated buffers on special status and threatened and endangered species protecting nest sites, sensitive plant areas, etc. These protection buffers will often be part of the Late-Successional/District Designated Reserves.

## **Management Actions/Direction**

### **General**

Apply the management actions/direction in the Special Status and Supplemental Environmental Impact Statement Special Attention Species section.

Plan and implement non-silvicultural activities inside Late-Successional Reserves/District Designated Reserve that are neutral or beneficial to the creation and maintenance of late-successional habitat.

Using interdisciplinary teams, evaluate other activities not described below and document appropriate guidelines.

Request review by the Regional Ecosystem Office of all activities deemed to have potential adverse effects on Late-Successional/District Designated Reserve objectives. The Regional Ecosystem Office may develop additional criteria for exempting some additional activities from review.

Provide Late-Successional/District Designated Reserves for biodiversity and old growth habitat on the east side by the designation of Miller Creek Canyon and Yainax Butte as areas of critical environmental concern (see the Special Areas section). Manage forest lands on the east side of the planning area under uneven-age harvest prescriptions that will provide for a diversity of structure and species composition.

### **Silviculture**

Plan and implement silvicultural treatments inside Late-Successional/District Designated Reserves that are beneficial to the creation of late-successional habitat.

## **Late-Successional/District Designated Reserves**

If needed to create, maintain, or enhance late-successional forest conditions, conduct thinning operations in forest stands. This will be accomplished by pre-commercial thinning, commercial thinning, or selective harvesting of stands regardless of origin (for example, planted after logging or naturally regenerated after fire or blowdown).

Given the increased risk of fire due to lower moisture conditions and the rapid accumulation of fuels in the aftermath of insect outbreaks and drought, additional management activities will be allowed in Late-Successional/District Designated Reserves.

Guidelines to reduce risks of large-scale disturbance are as follows:

1. Large-scale disturbances, such as fire, are natural events and can eliminate spotted owl habitat on hundreds of thousands of acres. Certain risk management activities, if properly planned and implemented, may reduce the probability of these major stand-replacing events. Elevated risk levels are attributed to changes in the characteristics and distribution of the mixed-conifer forests resulting from past fire protection. These forests occur in drier environments, have had repeated insect infestations, and are susceptible to major fires. Risk reduction efforts are encouraged where they are consistent with the objectives for the Late-Successional/District Designated Reserves.
2. Silvicultural activities aimed at reducing risk shall focus on younger stands in Late-Successional/District Designated Reserves. The objective will be to accelerate development of late-successional conditions while making the future stand less susceptible to natural disturbances. Salvage activities should focus on the reduction of catastrophic insect, disease, and fire threats. Treatments should be designed to provide effective fuel breaks wherever possible. However, the scale of salvage treatments should not generally result in degeneration of currently suitable owl habitat or other late-successional conditions.
3. In some Late-Successional/District Designated Reserves, management that goes beyond these guidelines may be considered. Levels of risk in those Late-Successional/District Designated Reserves may be particularly high and may require additional measures. Consequently, management activities designed to reduce risk levels are encouraged in those Late-Successional/District Designated Reserves even if a portion of the activities must take place in currently late-successional habitat. While risk-reduction efforts should generally be focused on young stands, activities in older stands may be appropriate if: the proposed

management activities will clearly result in greater assurance of long-term maintenance of habitat, the activities are clearly needed to reduce risks, and the activities will not prevent the Late-Successional/District Designated Reserve from playing an effective role in the objectives for which they were established.

Example of activities that may be needed in Late-Successional/District Designated Reserves to reduce large-scale disturbances are:

- ◆ light intensity underburning to reduce fuel loads;
- ◆ light thinning of the understory component in the stands; or
- ◆ manipulating species composition or develop a diversity of conifer species.

## **Salvage**

Limit salvage of dead trees in Late-Successional/District Designated Reserves to areas where stand-replacing events exceed ten acres in size and canopy closure has been reduced to less than 40 percent.

Retain all standing live trees including those injured (for example scorched) but likely to survive.

Retain snags that are likely to persist until late-successional forest conditions have developed and a new stand is again producing large snags.

Retain adequate coarse woody debris quantities in a new stand so that in the future it will still contain amounts similar to naturally regenerated stands. Watershed-level or province-level plans will establish appropriate levels of coarse woody debris to be used. Levels will be typical and will not require retention of all material where it is highly concentrated or too small to contribute to coarse woody debris over the long term.

If essential to reduce future risk of fire or insect damage, conduct salvage that does not meet the preceding management actions/ direction. Focus on those areas where there is high risk of large scale disturbance.

Remove snags and logs to reduce hazards to humans along roads and trails and in or adjacent to recreation sites. Leave some material where coarse woody debris is inadequate.

After disturbance in younger stands, develop diameter and biomass retention direction consistent with the intention of achieving late-successional forest

## ***Resource Management Plan***

conditions. Where green trees, snags, and logs are present following disturbance, the green tree and snag direction will be applied first and completely satisfied where possible. The biomass left in snags can be credited toward the amount of coarse woody debris biomass needed to achieve management objectives.

Retain logs present on the forest floor before a disturbance event.

Retain coarse woody debris to approximate the species composition of the original stand to help replicate preexisting suitable habitat conditions.

Deviate from these management actions/direction only to provide reasonable access to salvage sites and feasible logging operations. Limit deviations to as small an area as possible.

### ***Road Management***

Construct roads in Late-Successional/District Designated Reserves if the potential benefits of silviculture, salvage, and other activities exceed the costs of habitat impairment. If new roads are necessary to implement a practice that is otherwise in accordance with these guidelines, they will be kept to a minimum, be routed through unsuitable habitat where possible, and be designed to minimize adverse impacts. Alternative access methods, such as aerial logging, will be considered to provide access for activities in reserves.

Remove trees along rights-of-way if they are a hazard to public safety. Consider leaving material on site if available coarse woody debris is inadequate. Consider topping of trees as an alternative to felling.

### ***Fuelwood Gathering***

Permit fuelwood gathering only in existing cull decks, in areas where green trees are marked by silviculturists for thinning, in areas where blowdown is blocking roads, and in recently harvested timber sale units where down material will impede scheduled post-sale activities or pose an unacceptable risk of future large scale disturbance. In all cases these activities will comply with management actions/direction for salvage and silvicultural activities.

### ***Minerals Management***

Assess the impacts of ongoing and proposed mining activities in Late-Successional/District Designated Reserves.

Include stipulations in mineral leases, mineral material disposals, and, when legally possible, require operational constraints for locatable mineral activities to minimize detrimental effects to late-successional habitat.

### ***Developments***

Neither construct nor authorize new facilities that may adversely affect Late-Successional/District Designated Reserves.

Review on a case-by-case basis new development proposals that address public needs or provide significant public benefits. They may be approved when adverse effects can be minimized and mitigated. They will be planned to have the least possible adverse impacts on Late-Successional/District Designated Reserves.

Locate new developments to avoid degradation of habitat and adverse effects on identified late-successional species.

Retain and maintain existing developments, such as campgrounds, utility corridors, and electronic sites, consistent with other management actions/direction for Late-Successional/District Designated Reserves.

Remove hazard trees along utility rights-of-way and trails and in other developed areas.

### ***Recreational Uses***

Use adjustment measures, such as education, use limitations, traffic control devices, or increased maintenance, when dispersed and developed recreation practices retard or prevent attainment of Late-Successional/District Designated Reserve objectives.

### ***Fuels Management***

As part of watershed analysis, plan fire management for each Late-Successional/District Designated Reserve.

Emphasize maintaining late-successional habitat in wildfire suppression plans.

Use minimum impact suppression methods for fire management in accordance with guidelines for reducing risks of large-scale disturbances.

During actual fire suppression activities, consult an interdisciplinary team to assure that habitat damage is minimized.

## ***Late-Successional/District Designated Reserves***

Until a fire management plan is completed for a Late-Successional/District Designated Reserve or group of reserves, suppress wildfire to avoid loss of habitat and to maintain future management options.

Prepare a specific fire management plan prior to any habitat manipulation activities in Late-Successional/District Designated Reserves. Specify how hazard reduction and other prescribed fire applications meet the objectives of the Late-Successional/District Designated Reserve. Until the plan is approved, proposed activities will be subject to review by the Regional Ecosystem Office.

Apply prescribed fire in a manner which retains the amount of coarse woody debris determined through watershed analysis.

Limit the size of all wildfires to the extent practicable.

Allow some natural fires to burn under prescribed conditions. This decision will be based on additional analysis and planning. (See the 1994 Klamath Falls Resource Area Fire Management Environmental Assessment.)

Consider rapidly extinguishing smoldering coarse woody debris and duff.

### ***Lands***

Consider land exchanges in Late-Successional/District Designated Reserves if they provide benefits equal to or better than current conditions.

Consider land exchanges especially to improve area, distribution, and quality (for example connectivity, shape, and contribution to biodiversity) of Late-Successional/District Designated Reserves, especially where public and private lands are intermingled.

### ***Grazing Management***

In coordination with wildlife and fish biologists, implement range related management activities that do not adversely affect late-successional habitat.

Through a planning and environmental analysis process appropriate to the action, adjust or eliminate grazing practices that retard or prevent attainment of Late-Successional/District Designated Reserve objectives.

Evaluate effects of existing and proposed livestock management and handling facilities in Late-Successional/District Designated Reserves to determine if reserve objectives are met. Where objectives cannot

be met, relocate livestock management and/or handling facilities.

### ***Habitat Improvement Projects***

Design projects to improve conditions for fish, wildlife, and watersheds if they provide late-successional habitat benefits or if their effect on late-successional associated species is negligible.

Design projects for recovery of threatened or endangered species even if they result in some reduction of habitat quality for other late-successional species.

Design and implement watershed restoration projects consistent with Late-Successional/District Designated Reserve objectives.

### ***Special Forest/Natural Products***

Evaluate whether special forest/natural product harvest activities have adverse effects on Late-Successional/District Designated Reserve objectives.

Prior to selling special forest products, ensure resource sustainability and protection of other resource values such as special status plant or animal species.

Where special forest product activities are extensive, evaluate whether they have significant effects on late-successional habitat. Restrictions may be appropriate in some cases.

### ***Rights-of-Way, Contracted Rights, Easements, and Special/Temporary Use Permits***

Access to nonfederal lands through Late-Successional/District Designated Reserves will be considered and existing right-of-way agreements, contracted rights, easements, and special/temporary use permits in Late-Successional/District Designated Reserves will be recognized as valid uses.

For all new rights-of-way proposals, design mitigation measures to reduce adverse effects on Late-Successional/District Designated Reserves. Consider alternative routes that avoid Late-Successional/District Designated Reserves. If rights-of-way must be routed through a reserve, design and locate them to have the least impact on late-successional habitat.

Review all special/temporary use permits. When objectives of Late-Successional/District Designated Reserves are not being met, reduce impacts through education or modification of existing permits.

## **Resource Management Plan**

### **Non-native Species**

If introduction of a non-native species is proposed, complete an assessment of impacts and avoid any introduction that will retard or prevent achievement of Late-Successional/District Designated Reserve objectives.

Evaluate impacts of non-native species (plant and animal) existing within reserves.

Develop plans and recommendations for eliminating or controlling non-native species which are inconsistent with Late-Successional/District Designated Reserve objectives. Include an analysis of effects of implementing such programs on other species or habitats within Late-Successional/District Designated Reserves.

### **Protection Buffers**

See the Special Status and Supplemental Environmental Impact Statement Special Attention Species section.

## **Matrix (General Forest Management Area) - West Side**

The Matrix, or General Forest Management Area, on the west side, totals approximately 23,550 acres. Included in the Matrix are approximately 2,300 acres of buffers around the District Designated Reserves (Late-Successional/District Designated Reserve buffers). Management direction for the Late-Successional/District Designated Reserve buffer lands is more restrictive than for the other matrix lands, and is described separately. The Matrix in the Klamath Falls Resource Area is designed to provide connectivity and biological diversity across the landscape rather than in large connectivity/diversity blocks.

### **Objectives**

Produce a sustainable supply of timber and other forest commodities to provide jobs and contribute to community stability.

Provide connectivity (along with other allocations such as Riparian Reserves) across the landscape for forest dependent plant and animal species.

Provide habitat for a variety of organisms associated with both late-successional and younger forests.

Provide for important ecological functions such as dispersal of organisms, carryover of some species from one stand to the next, and maintenance of ecologically valuable structural components such as down logs, snags, and large trees.

Provide early-successional habitat.

### **Land Use Allocation**

There are approximately 23,550 acres of BLM-administered land in the Matrix (General Forest Management Area) on the west side.

### **Management Actions/Direction**

Apply the management actions/direction in the Special Status and Supplemental Environmental Impact Statement Special Attention Species section. Conduct timber harvest and other silvicultural activities in that portion of the Matrix with suitable forest lands, according to management actions/ direction summarized below, the Timber section, and Appendix E.

A portion of BLM-administered forest lands will be available for maintenance of biological diversity, including old growth characteristics, and will not be subject to planned timber harvest. These forest lands include: nonsuitable woodlands, suitable woodlands-all categories, recreation sites, forest lands allocated for riparian-wetland area protection in Riparian Reserves, proposed areas of critical environmental concern and research natural areas, core areas around bald eagle and spotted owl nest sites, and other areas required for threatened and endangered species recovery. These forest lands total approximately 24,050 acres, of which 6,600 acres are currently old growth and 6,100 acres are mature forest.

Designate the Klamath Canyon an Area of Critical Environmental Concern (see the Special Areas section) and manage for old growth and diversity of native plant communities, as well as for historic, cultural, scenic, fisheries, and wildlife populations.

Manage the 23,550 acres of Matrix forest lands under uneven-age/multiple canopy management harvest prescriptions (see the Timber section). These forest lands will allow for migration and dispersal of organisms between the Late-Successional Reserves on U.S. Forest Service land to the north and the Klamath Canyon to the south (see Maps 3 and 4 in the map packet).

Provide a renewable supply of large down logs well distributed across the Matrix landscape in a manner that meets the needs of species and provides for ecological functions. Down logs will reflect the species mix of the original stand. Models will be developed for groups of plant associations and stand types that can be used as a baseline for developing prescriptions.

- ◆ Leave 120 linear feet of logs per acre greater than or equal to 16 inches in diameter and 16 feet long. Decay class 1 and 2 logs will be credited toward the total. Down logs will reflect the species mix of the original stand. Where this management actions/direction cannot be met with existing coarse wood debris, merchantable material will be used to make up the deficit.
- ◆ In areas of partial harvest, apply the same basic management actions/decision, but they can be modified to reflect the timing of stand development cycles where partial harvest is practiced.
- ◆ Retain coarse woody debris already on the ground, and protect it to the extent compatible with ecosystem processes of the site, from disturbance during treatment (for example, underburning and yarding) that might otherwise destroy the integrity of the substrate.
- ◆ Retain 16 to 25 large green trees per acre where available.
- ◆ Retain snags within a timber harvest unit at levels sufficient to support species of cavity-nesting birds at 60 percent of potential population levels. Meet the 60 percent minimum throughout the Matrix with per acre requirements met on average areas no larger than 40 acres.
- ◆ When an area is regeneration harvested, limit patch size to 3 acres.

Modify site treatment practices, particularly the use of fire and pesticides, and modify harvest methods to minimize soil and litter disturbance. Plan and implement treatments to:

- ◆ Minimize intensive burning, unless appropriate for certain specific habitats, communities, or stand conditions. Prescribed fires should be planned to leave the appropriate amount of litter and coarse woody debris for the site.
- ◆ Minimize soil and litter disturbance that may occur as a result of yarding and operation of heavy equipment.
- ◆ Reduce the intensity and frequency of site treatments.

Retain late-successional forest patches in landscape areas where little late-successional forest persists. This management action/direction will be applied in fifth field watersheds (20 to 200 square miles) in which federal forest lands are currently comprised of 15 percent or less late-successional forest. (The assessment of 15 percent will include all federal land allocations in a watershed.) Within such an area, protect all remaining late-successional forest stands. Protection of these stands could be modified in the future when other portions of a watershed have recovered to the point where they could replace the ecological roles of these stands.

Retain 100 acres of the best northern spotted owl habitat as close as possible to a nest site or owl activity center for all known (as of January 1, 1994) spotted owl activity centers.

Additional information about Matrix management is found in the Supplemental Environmental Impact Statement Record of Decision (Appendix A).

## **Matrix (Late-Successional/District Designated Reserve Buffers)**

The following descriptions summarize direction for those areas in the west side Matrix that surround the Late-Successional/District Designated Reserves. Most of these special restriction areas are in existing old growth stands.

### **Objectives**

Protect and enhance conditions of late-successional and old growth forest stands, which serve as habitat for late-successional and old growth forest-related species including the northern spotted owl.

Maintain a functional, interacting, late-successional and old growth habitat.

Contribute substantially to the achievement of Supplemental Environmental Impact Statement Record of Decision objectives, including provision of well-distributed late-successional habitat outside reserves; retention of key structural elements of late-successional forests on lands subjected to regeneration harvest; restoration and protection of riparian-wetland areas; and provision of a stable timber supply.

## **Land Use Allocations**

There are approximately 3,800 acres (gross) of BLM-administered land in 19 restrictive buffer areas around the Late-successional/District Designated Reserves. These areas vary in size and are distributed throughout the Matrix.

## **Management Actions/Direction**

Note: These areas are a part of the Matrix, but will have many of the management actions/directions of the Late-Successional/District Designated Reserves applied to them. Adaptive management is a key component of the management for these areas.

### **General**

Apply the management actions/direction in the Special Status and Supplemental Environmental Impact Statement Special Attention Species section.

Management in the buffers around the reserves will be designed to reduce the risk of natural disturbances. Old growth ecosystem prescriptions are harvest methods designed to facilitate the attainment or maintenance of old growth characteristics (see Appendix E).

Manage coarse woody debris, green trees, and snags in a manner that meets the intent of the management actions/direction for the Matrix.

Modify site treatment practices, particularly the use of fire and pesticides, and modify harvest methods to minimize soil and litter disturbances.

- ◆ Minimize intensive burning, unless appropriate for certain specific habitats, communities, or stand conditions. Prescribed fires should be planned to leave the appropriate amount of litter and coarse woody debris for the site.
- ◆ Minimize soil and litter disturbance that may occur as a result of yarding and operation of heavy equipment.
- ◆ Reduce the intensity and frequency of site treatments.

Explore and support opportunities to research the role and effects of fire/fuels management on ecosystem functions.

Plan and implement non-silvicultural activities inside these areas that are neutral or beneficial to the creation and maintenance of late-successional habitat.

Using interdisciplinary teams, evaluate other activities not described below and document appropriate guidelines.

### **Silviculture**

Produce a sustainable supply of timber and other forest commodities.

Plan and implement silvicultural treatments inside these areas that are beneficial to the creation or maintenance of late-successional habitat.

Create and maintain late-successional forest conditions. Conduct thinning operations in forest stands. This will be accomplished by pre-commercial, commercial thinning, or selective harvesting of stands regardless of origin (for example, planted after logging or naturally regenerated after fire or blowdown).

Large-scale disturbances, such as fire, are natural events and can eliminate spotted owl habitat on hundreds or thousands of acres. Certain risk management activities, if properly planned and implemented, may reduce the probability of these major stand-replacing events. Elevated risk levels are attributed to changes in the characteristics and distribution of the mixed-conifer forests resulting from past fire protection. These forests occur in drier environments, have had repeated insect infestations, and are susceptible to major fires. Risk reduction efforts are encouraged where they are consistent with the objectives for these areas.

Silvicultural activities aimed at reducing risk shall focus on younger stands. The objective will be to accelerate development of late-successional conditions while making the future stand less susceptible to natural disturbances. Salvage activities should focus on the reduction of catastrophic insect, disease, and fire threats. Treatments should be designed to provide effective fuel breaks wherever possible. However, the scale of salvage and other treatments should not generally result in degeneration of currently suitable owl habitat or other late-successional conditions.

In some of these areas, management that goes beyond these guidelines may be considered. Levels of risk in those areas may be particularly high and may require additional measures. Consequently, management activities designed to reduce risk levels are encouraged in those areas even if a portion of the activities must take place in current late-successional habitat. While risk-reduction efforts should generally be focused on young stands, activities in older stands may be appropriate if: the proposed management

## **Developments**

Neither construct nor authorize new facilities that may adversely affect these areas.

Review on a case-by-case basis new development proposals that address public needs or provide significant public benefits. They may be approved when adverse effects can be minimized and mitigated. They will be planned to have the least possible adverse impacts on these areas.

Locate new developments to avoid degradation of habitat and adverse effects on identified late-successional species.

Retain and maintain existing developments, such as campgrounds, utility corridors, and electronic sites, consistent with other management actions/direction for these areas.

Remove hazard trees along utility rights-of-way and trails and in other developed areas.

## **Matrix (General Forest Management Area) - East Side**

Note: The following Objectives and Management Actions/Direction will apply to east side forest Matrix lands. They will be in effect until and unless otherwise amended by the record of decision on the pending Eastside Ecosystem Management Project Environmental Impact Statement.

### **Objectives**

Produce a sustainable supply of timber and other forest commodities to provide jobs and contribute to community stability.

Provide connectivity between biological communities.

Provide habitat for a variety of organisms associated with both late-successional and younger forests.

Provide for important ecological functions such as dispersal of organisms, carryover of some species from one stand to the next, and maintenance of ecologically valuable structural components such as down logs, snags, and large trees.

## **Land Use Allocation**

In the Matrix on the east side, there are approximately 8,750 acres of BLM-administered land in the General Forest Management Area (see Map 3).

## **Management Actions/Direction**

Apply the management actions/direction in the Special Status and Supplemental Environmental Impact Statement Special Attention Species section.

Conduct timber harvest and other silvicultural activities in that portion of the Matrix with suitable forest lands, according to management actions/direction summarized below and in the Timber section.

Provide a renewable supply of large down logs well distributed across the Matrix landscape in a manner that meets the needs of species and provides for ecological functions. Down logs will reflect the species mix of the original stand and at the historical levels that existed prior to attempted fire exclusion.

- ◆ Leave 50 linear feet of logs per acre greater than or equal to 12 inches in diameter and 8 feet long. Decay class 1 and 2 logs will be credited toward the total. Down logs will reflect the species mix of the original stand. Where this management actions/direction cannot be met with existing coarse woody debris, merchantable material will be used to make up the deficit.
- ◆ Retain historic levels (prior to fire exclusion) of coarse woody debris already on the ground and protect it to the extent compatible with ecosystem processes of the site, from disturbance during treatment (for example, underburning and yarding) that might otherwise destroy the integrity of the substrate.
- ◆ Retain 5 to 10 of the largest (greater than 16 inches diameter at breast height) and healthiest green trees per acre. In addition, maintain a sustainable uneven-aged understory so that there is a variety of different sized trees and species represented throughout the stand available for recruitment.
- ◆ On lands available for timber harvest, retain snags, live green cull trees, and green merchantable trees to provide nest sites for a minimum of 60 percent of optimal cavity nester populations, both for present needs and long-term sustainability. This retention level corresponds to approximately 1.9 snags per acre (or 190 snags per 100 acres) on west side and 1.4 snags per

acre (or 140 snags per 100 acres) in forested habitat on the east side.

- ◆ Meet the 60 percent minimum throughout the Matrix with the requirements met on the average for areas no larger than 40 acres.
- ◆ When an area is regeneration harvested, limit patch size to 3 acres and retain 5 to 10 green trees per acre in the patch.

Modify site treatment practices, particularly the use of pesticides, and modify harvest methods to minimize soil and litter disturbance. Plan and implement treatments to:

- ◆ Minimize intensive burning, unless appropriate for certain specific habitats, communities, or stand conditions. Prescribed fires should be planned to leave the appropriate amount of litter and coarse woody debris for the site.
- ◆ Minimize soil and litter disturbance that may occur as a result of yarding and operation of heavy equipment.
- ◆ Reduce the intensity and frequency of site treatments to the extent compatible with ecosystem management.
- ◆ Manage range and riparian-wetland areas in the Gerber Block for a mosaic of native plant communities. This mosaic will allow for migration and dispersal of organisms between BLM-administered lands and adjacent U.S. Forest Service lands. Reintroduce fire as a natural disturbance factor through prescribed burning.

## Resource Programs

The following material includes objectives, land use allocations, and management actions/direction for the resource uses and programs which BLM manages in the Resource Area. Some of the management actions/direction in the previous Land Use Allocation section are repeated in this section. The intent of this duplication is to give a reader a complete package of related management guidance in one location.

### Air Quality

#### Objectives

Continue efforts to meet National Ambient Air Quality Standards, Prevention of Significant Deterioration goals, and the visibility protection plan.

Maintain and enhance air quality and visibility in a manner consistent with the Clean Air Act and the State Implementation Plan.

Reduce the potential for wildfire emissions through the use of prescribed fire and other fuels management techniques.

#### Land Use Allocations

None.

#### Management Actions/Direction

By the year 2000, reduce particulate matter emissions and impacts from prescribed burning by 50 percent from the baseline period (1976-1979). This will be accomplished by planning, conducting, monitoring, and, if necessary, adjusting prescribed fire activities in accordance with the Oregon State Implementation Plan and the Oregon Smoke Management Plan (see Fire section).

Reduce broadcast burning in favor of lower intensity underburning. Use emission reduction mitigation measures and smoke dispersal techniques to the greatest extent practical. Wildfire hazard reduction, site preparation, and the use of prescribed fire for species habitat mitigation will be implemented in a manner consistent with ecosystem management.

Where needed, use dust abatement measures on roads during BLM timber harvest operations or other BLM commodity hauling activity. Encourage dust abatement measures when haulers use BLM roads under permits and right-of-way agreements.

Determine the cumulative effects of proposed forest management activities on local and subregional air quality and minimize impacts. Coordinate cumulative impact analysis with other federal agencies.

As part of implementation planning, prepare conformity determinations required by the Clean Air Act.

Perform an emissions trade-off analysis to determine and quantify the effects of prescribed burning and other types of fuel management on reduction of wildfire emissions. This analysis will be performed at the same geographic scale as conformity determinations.

Promote burning of dry fuelwood by making available copies of the Oregon Department of Environmental Quality publications to fuelwood purchasers.

For those designated nonattainment areas that smoke from woodstove is shown to be a major source

## **Resource Management Plan**

of particulate matter, which directly affects both health and visibility, and most of the wood burned comes from surrounding forest land mitigation should be developed that assures proper curing of the wood has occurred before sale off of federal land. Potential consideration to meet this objectives are:

1. Coordinate the issuance of educational information, with wood permits, that targets proper gather practices and way to minimize adverse effects on air quality from inefficient burning of the wood;
2. Cooperate with local air quality control agencies and other federal land management agencies to assure uniform and accurate dissemination of public information and educational material on proper firewood use and enforcement of permit requirements across agency boundaries.

See Special Forest Products Section for additional information on firewood availability.

## **Water and Soils**

### **Objectives**

See Aquatic Conservation Strategy, Riparian Reserve and Key Watershed objectives, and management action/direction for Riparian Reserves.

As directed by the Clean Water Act, comply with state water quality requirements to restore and maintain water quality to protect the recognized beneficial uses for the Klamath Basin. See Chapter 3 for a list of these beneficial uses.

Improve and/or maintain soil productivity.

### **Land Use Allocations**

None specifically for water quality or soils. However, Riparian Reserves, Key Watershed provisions, and timber production capability classifications will assist in meeting water quality and soils management objectives.

### **Management Actions/Direction**

#### **General**

Improve and/or maintain soil and water conditions by closing selected areas to off-highway vehicle use and/or limiting such use to existing or designated roads and trails. See the Recreation Section, Off-Highway Vehicles, for additional details.

## **Water**

See management actions/direction for Riparian Reserves and Key Watersheds (located in the Aquatic Conservation Strategy section).

Comply with state water quality requirements to restore and maintain water quality necessary to protect identifiable beneficial uses as directed by the Clean Water Act, as amended.

Comply with state laws and regulations pertaining to the beneficial uses identified by the states and any applicable water quality standards that have been established, as directed by the Federal Water Quality Act of 1987. The State of Oregon has established a list of beneficial uses for the Klamath Basin (Oregon Administrative Rules 340-41-962) and water quality standards that provide protection for those uses. Continue to implement a nonpoint source management program in cooperation with the U.S. Environmental Protection Agency and the Oregon Department of Environmental Quality to assure protection of water and water-dependent resources .

Design management practices to comply with Oregon's Antidegradation Policy, which describes the conditions under which water quality may be lowered and when it must be maintained or enhanced. The purposes of the Antidegradation Policy, which includes policies on high quality waters, water quality limited waters, and outstanding resources waters, is to protect, maintain, and enhance existing surface water quality to protect all existing beneficial uses.

Continue coordination with the Oregon Department of Environmental Quality for implementation of best management practices which protect beneficial uses of water. Best management practices will be selected based on site-specific conditions, feasibility, and the water quality standards for potentially affected waters (see Appendix D). Mining, timber, grazing, recreation, off-highway vehicle use, and other activities will be regulated to protect water quality and riparian-wetland areas.

Ensure consistency of management activities with the Oregon Water Management Program for forest practices and with Oregon's water quality criteria and guidelines (Oregon Administrative Rule 340-41).

Watershed analysis will provide the mechanism for consideration, incorporation and implementation of the above into land and water resource management planning.

Permit no degradation of water quality if it will interfere with or become injurious to the established beneficial uses of water within those segments of a river designated under the National Wild and Scenic Rivers Act.

Protect flood plains and wetlands in accordance with Executive Orders 11988 and 11990.

The components of the Aquatic Conservation Strategy are Riparian Reserves, Key Watersheds, Watershed Analysis, and Watershed Restoration. Please refer to these sections earlier in this Chapter for more information. These sections are supplemented by best management practices in Appendix D.

Follow a four tier approach to land and water resource management: regional, physiographic or river basin, watershed, and site specific or project level. Under this approach, analysis starts at the watershed level. The planning units will be physiographic province or river basin, consisting of a number of watersheds. Watershed based planning will be implemented and, over time, the BLM will switch from existing planning units to the provinces or modify the boundaries of current planning units to be more compatible with the watershed based approach.

Watershed analysis will provide the basis for cumulative effects analysis.

Evaluate proposed projects or management actions for their cumulative effects on water quality, runoff, and stream channel conditions. The results from the cumulative effects analysis will influence final decisions both on activity scheduling and on the application of design features and mitigation measures, including best management practices.

Refer to the Riparian Reserves section earlier in this Chapter for additional guidance. In general, guidance for Riparian Reserves supersedes guidance for riparian-wetland areas in this section and in best management practices Appendix D. In some instances, however, guidance in this section and in Appendix D is more restrictive than that stipulated in the Record of Decision for Riparian Reserves. In those instances, the more restrictive guidance will be followed.

Emphasize, in accordance with the Riparian-Wetland Initiative for the 1990s, the following in management of riparian-wetland areas: protection of riparian-wetland areas and associated uplands; rehabilitation

and maintenance of riparian-wetland areas; and partnership and cooperative rehabilitation and management of riparian-wetland areas.

Manage riparian-wetland areas to protect, maintain, or improve riparian habitat for wildlife and native plant diversity. Restore or maintain riparian-wetland areas so that 75 percent or more are in proper functioning condition by 1997. The overall objective is to achieve an advanced ecological status, except where resource management objectives, including proper functioning condition, will require an earlier successional stage, thus providing the widest variety of vegetation and habitat diversity for wildlife, fish, and watershed protection. Proper functioning condition exists when adequate vegetation, landform, or large woody debris are present to: dissipate stream energy associated with high water flows; filter sediment, capture bedload and aid floodplain development; improve flood water retention and groundwater recharge; develop stabilizing root masses; create aquatic habitat; and insulate streams from summer and winter temperature extremes.

Achieve riparian-wetland area improvement and maintenance objectives through the management of existing uses, wherever feasible.

Ensure that new resource management plans and activity plans, and revisions of existing plans incorporate, as applicable, practices that enhance or maintain properly functioning riparian systems and maintain, restore or enhance water quality, and result in water quality that meets or exceeds State water quality standards.

Prescribe management of riparian-wetland values based on site-specific characteristics and settings.

Give special attention to monitoring and evaluating management activities in riparian-wetland areas and revise management practices where site-specific objectives are not being met.

Cooperate with and encourage the involvement of interested federal, state and local governments, organizations and private parties to share information, implement management, coordinate activities, and provide education on the value, productivity and management of riparian-wetland areas.

Retain riparian-wetland areas in public ownership unless disposal would be in the public interest, as determined by land use planning.

## **Resource Management Plan**

Identify, encourage, and support research and studies needed to ensure that riparian-wetland area management objectives can be properly defined and met.

Provide environmental education materials to schools and other publics relating to riparian-wetland management.

Incorporate into the resources area's grazing management program, as appropriate, any additional requirements, goals, and objectives devised as a result of the Eastside Ecosystem Management Project and/or Healthy Rangelands record of decision.

Achieve watershed and riparian-wetland management objectives through improved livestock distribution and management through fencing, brush control, spring and other water source development, and through changes in livestock numbers and/or season of use. Maintain existing exclosures where appropriate to meet identified resource management objectives.

Continue implementation of the Gerber Riparian Demonstration Area Plan. Develop an interpretive program to showcase the intensive multiple use management systems currently being used to bring about improvements in riparian-wetland conditions.

## **Soils**

Protect watersheds according to the Federal Land Policy and Management Act (1976) . Minimize soil erosion and rehabilitate eroded areas, as an overall goal, to maintain and enhance watershed condition and soil productivity and reduce nonpoint source pollution that could result from management and land use activities.

Locate and analyze areas prone to erosion in watershed analysis. Management opportunities identified for these areas will be evaluated to determine potential impacts. Best management practices or mitigating measures will be identified and incorporated into future proposed activities (see Appendix D for more information). Proposed activities will also be evaluated under the National Environmental Policy Act, as appropriate, for their effects on soils.

Include corrective measures, such as construction of erosion control structures, allocation of proper levels of vegetation use by livestock and wildlife, forest or other land treatments measures and control or mitigation of activities that may contribute to soil erosion and degradation of watershed condition.

Rehabilitate headcuts and gullies on watershed uplands where feasible.

Rehabilitate burned areas with critical or severe erosion hazards or other environmental concerns.

Implement treatment projects, such as juniper thinning or brush control, to improve perennial grass cover conditions or wildlife habitat.

Apply best management practices during all ground- and vegetation-disturbing activities. See Appendix D for a list of practices.

Minimize disturbance of identified fragile sites. Appendix D contains management guidance for fragile sites.

Exclude fragile nonsuitable sites from the timber production base to minimize soil erosion and the effects of land management activities on surface waters.

Incorporate, as applicable, in grazing-related plans and activities practices that maintain or achieve healthy, properly functioning uplands. Uplands function properly when vegetation and ground cover maintain soil conditions that can sustain natural biotic communities. The functioning condition of uplands results from the interaction of geology, soil, climate, water, biological activity, and landform.

Manage uplands to provide the following functions within site capabilities, consistent with Appendix D and consistent with other management direction:

- ◆ The vegetation canopy allows moisture from typical storm events to reach the soil surface.
- ◆ Standing vegetation captures blowing or drifting snow.
- ◆ Organic material (plant litter, standing vegetation) protects the soil surface from raindrop impact.
- ◆ Coarse rock fragments protect the soil surface from raindrop impact.
- ◆ Water is not restricted from infiltrating the soil surface (for example, organic matter is present and no physical soil crusting, capping, or sealing of the surface is present).
- ◆ Subsurface soil conditions support infiltration rates (for example, compaction layers and evident of frost heave are uncommon).
- ◆ Standing vegetation and plant litter detain overland flow and trap sediment.
- ◆ Surface roughness detains overland flow.
- ◆ Evidence of excessive overland flow (rills and gullies, pedestalling), wind erosion or other soil movement is uncommon.

- ◆ Plant cover and litter protect the soil surface from the evaporative effects of sun and wind.
- ◆ Plants are vigorous and productive and consist of desirable species.

## Wildlife Habitat

### Objectives

See Late-Successional/District Designated Reserves, Riparian Reserve, and Matrix objectives.

Enhance and maintain biological diversity and ecosystem health in order to contribute to healthy wildlife populations.

### Land Use Allocations

The land use allocations in this resource management plan are designed to benefit wildlife species, in the aggregate, that use the various seral stages and other habitat areas of the forest, range, or aquatic ecosystems.

### Management Actions/Direction

#### General

Except where public safety is a concern, snags will be retained on lands not allocated to timber production at 100 percent of optimum population potential for cavity nesters. Where relevant to meeting cavity nester objectives, some green trees will be girdled or topped (having the top cut or blasted) or managed to create snags. Timber sale contracts will encourage retention of all snags and non-merchantable trees that could be left safely in timber harvest areas. For the retention of wildlife trees the following guidelines will be used:

- ◆ Leave all soft snags except where unacceptable for safety, logging system, or burning considerations.
- ◆ Leave scattered hard snags and green trees, both to provide the current needs of hard-snag dependent species and to serve as a source of future soft snags. Where available, green trees retained will be cull trees. If cull trees are not available, sound trees will be retained for this purpose. At least half of reserved wildlife trees will be future snags (green culls, or sound trees).

### All Land Use Allocations

Use the watershed analysis process to address wildlife habitat issues for individual watersheds. The analysis will help to resolve any concerns identified in applying management actions/direction in this section and those in the Special Status and Supplemental Environmental Impact Statement Special Attention Species section. Other wildlife enhancement opportunities may be or have been identified through an interagency or cooperative effects (such as Coordinated Resource Management Plan, Challenge Cost Share, or existing Habitat Management Plans).

Types of enhancement opportunities are shown in Table 2.

Coordinate with the Oregon Department of Fish and Wildlife during planning and implementation of wildlife habitat enhancement projects.

Cooperate with federal, tribal, and state wildlife management agencies to identify and mitigate impacts associated with habitat manipulation, poaching, and other management activities that threaten the continued existence and distribution of native wildlife inhabiting federal lands.

Cooperate with the Oregon Department of Fish and Wildlife on any wildlife research, inventory, or monitoring conducted on Klamath Falls Resource Area-administered lands, as well as for their assistance in developing an educational program to increase public awareness of wildlife (for example Watchable Wildlife and Fish and Wildlife 2000).

Continue ongoing animal damage control activities conducted by the Animal and Plant Health Inspection Service/Animal Damage Control according to the annual work plan. This includes control for predation on wildlife, livestock, crops, timber, and conifer seedlings. This may also involve control of wildlife causing damage to facilities or special habitats.

Reduce open road density to 1.5 miles or less per section as a road system management goal in accordance with other management activities. Existing off-highway vehicle closures in big game winter ranges will remain in effect throughout the plan (see the Recreation section for more details). Other important and sensitive wildlife habitats (special habitat features, project areas) will be evaluated for seasonal road closures. Some roads could remain open for administrative use, forest product removal, or access for mineral exploration and development. Road closures could be achieved using a variety of methods, such as gates, cables, boulders, obliteration or other.

**Riparian Reserves**

Design and implement wildlife habitat restoration and enhancement activities in a manner that contributes to attainment of Aquatic Conservation Strategy objectives.

Design, construct and operate wildlife interpretive and other user-enhancement facilities in a manner that does not retard or prevent attainment of Aquatic Conservation Strategy objectives. For existing wildlife interpretive and other user-enhancement facilities inside Riparian Reserves, ensure that Aquatic Conservation Strategy objectives are met. Where Aquatic Conservation Strategy objectives cannot be met, relocate or close such facilities.

Cooperate with federal, tribal, and state wildlife management agencies to identify and eliminate wild ungulate impacts that are inconsistent with attainment of Aquatic Conservation Strategy objectives.

**Late-Successional/District Designated Reserves**

Design projects to improve conditions for wildlife if they provide late-successional habitat benefits or if their effect on late-successional associated species is negligible.

If introduction of a non-native species is proposed, complete an assessment of impacts and avoid any introduction that will retard or prevent achievement of

Late-Successional/District Designated Reserve objectives.

Evaluate impacts of non-native species existing within Late-Successional/District Designated Reserves.

Develop plans and recommendations for eliminating or controlling non-native species which are inconsistent with Late-Successional Reserve objectives. Include an analysis of effects of implementing such programs on other species within Late-Successional Reserves.

Manage the system of 80 to 100-acre Late-Successional/District Designated Reserves to provide a diverse mosaic of habitats across the west side of the planning area. These areas will not be subject to planned timber harvest but harvest will be allowed to attain or maintain old growth characteristics. These forest lands total 1,600 acres, most of which are currently old growth or mature forest.

Reintroduce fire as a natural disturbance factor through prescribed burning.

Provide Late-Successional/District Designated Reserves for biodiversity and old growth habitat on the east side by the designation of Miller Creek Canyon and Yainax Butte as areas of critical environmental concern (see the Special Areas section). Manage forest lands on the east side of the planning area

**Table 2. Habitat Enhancement Opportunities<sup>1</sup>**

<u>Habitat Type</u>	<u>Enhancement Opportunities</u>
Scrub/Scabrock	Big game winter range improvement - burning - brush field rejuvenation
Big Game Winter Range	Seasonal closures
Juniper Woodlands	Thinning to: - release browse species - create openings - reduce stress on conifers.
All	Provide additional water sources
Forests	Snag creation (where needed)
Riparian	Stream or habitat improvements

<sup>1</sup>This list is not all inclusive but gives ideas of general types of projects.

under uneven-age harvest prescriptions that will provide for a diversity of structure and species composition.

### **Matrix (General Forest Management Area) - West Side**

Use old growth ecosystem prescriptions in one-quarter mile buffers around each Late-Successional/District Designated Reserve. These buffer areas will provide an additional component of habitat diversity. The gross BLM-administered acreage in these areas is 3,800 acres. Old growth ecosystem prescriptions are harvest methods designed to facilitate the attainment or maintenance of old growth characteristics (see Appendix E).

On the west side, retain late-successional forest patches in landscape areas where little late-successional forest persists. This management action/direction will be applied in fifth field watersheds (20 to 200 square miles) in which federal forest lands are currently comprised of 15 percent or less late-successional forest. (The assessment of 15 percent will include all federal land allocations in a watershed.) Within such an area, protect all remaining late-successional forest stands. Protection of these stands could be modified in the future when other portions of a watershed have recovered to the point where they could replace the ecological roles of these stands.

Retain 16 to 25 large green trees per acre in harvest units.

Leave 120 linear feet of logs per acre greater than or equal to 16 inches in diameter and 16 feet long. Existing decay class 1 and 2 logs count toward this requirement. Down logs will reflect the species mix of original stands. Where this management action/direction cannot be met with existing coarse woody debris, merchantable material will be used to make up the deficit.

When an area is regeneration harvested, limit patch size to 3 acres.

On lands available for timber harvest, retain snags, live green cull trees, and green merchantable trees to provide nest sites for a minimum of 60 percent of optimal cavity nester populations, both for present needs and long-term sustainability. This retention level corresponds to approximately 1.9 snags per acre (or 190 snags per 100 acres).

### **Matrix (General Forest Management Area) - East Side**

On lands available for timber harvest, retain snags, live green cull trees, and green merchantable trees to provide nest sites for a minimum of 60 percent of optimal cavity nester populations, both for present needs and long-term sustainability. This retention level corresponds to approximately 1.4 snags per acre (or 140 snags per 100 acres) in forested habitat.

Meet the 60 percent minimum throughout the Matrix with the requirements met on the average for areas no larger than 40 acres.

Use prescribed fire as a favored tool for site preparation, fuel reduction, and to restore or retain natural ecological processes through site disturbance.

Retain 5 to 10 of the largest (greater than 16 inches diameter at breast height) and healthiest green trees per acre. In addition, maintain a sustainable uneven-aged understory so that there is a variety of different sized trees and species represented throughout the stand available for recruitment.

When an area is regeneration harvested, limit patch size to 3 acres and retain 5 to 10 green trees per acre in the patch.

On lands east of Highway 97, manage range and riparian-wetland areas in the Gerber Block for a mosaic of native plant communities. This mosaic will allow for migration and dispersal of organisms between BLM-administered lands and adjacent U.S. Forest Service-administered lands. Reintroduce fire as a natural disturbance factor through prescribed burning.

### **Special Habitats**

Manage special habitats, such as lakes, talus slopes, meadows, and wetlands (see Table 1 in Appendix B) to protect their primary habitat values; however, rock quarries could be developed on cliffs or talus slopes not occupied by special status species. Consider wildlife values in the development and rehabilitation of rock quarries. Actions that will benefit wildlife include: constructing cavities for raptors and other species in quarry walls during development, or in abandoned quarries; and piling large boulders at the base of slopes or in waste areas to create cavities for mammals.

## **Resource Management Plan**

Buffer special habitats from surface disturbance and timber harvest if necessary to protect primary values.

Use management practices, including prescribed fire or timber harvest, to obtain desired vegetation conditions in special habitats.

### **Species Specific Action**

**Deer, Elk, and Antelope.** Design thinning projects to maintain existing major game trails free of slash accumulations that impede big game movement.

Conduct forage seeding in habitat areas with appropriate seed beds and where compatible with other management objectives.

Use seasonal restrictions on public use and management activities where needed to minimize disturbance and harassment of herds during critical use periods (for example, birthing areas, winter range, etc.).

Use patch cut harvesting in big game habitat only where silviculturally essential to accomplish relevant forest management or other resource objectives (such as providing small patch openings). Keep existing major game trails slash free in pre-commercial thinning units. Maintain or improve all seasonal ranges throughout the planning area through a variety of habitat projects and practices.

Conduct forage seedlings on up to 40 percent of appropriate habitat in harvest areas. Fertilize up to 50 percent of appropriate habitat in deer winter range. Create forage openings up to 5 acres in closed canopy areas. Create and/or maintain forage openings in closed canopy areas on summer and winter ranges. Provide visual barriers up to 25 feet wide along roads in harvest areas. Avoid constructing connecting or through roads in winter ranges. Continue existing seasonal off-highway vehicle closures in big game winter ranges. On lands available for timber production, maintain 40 percent in hiding and thermal cover.

Conduct thinnings of encroaching juniper to protect and improve forage areas for big game. These thinnings will protect old growth juniper and be designed to consider edge effect, escape cover, and proper unit size.

**Furbearers.** Conduct systematic inventory of furbearers such as pine marten, beaver, and otter.

**Golden Eagle (Protected).** Provide a buffer of up to 30 acres around known and future nest sites and

restrict some management activity near nest sites between January 1 and August 31.

**Osprey.** Restrict some management activity within ¼ mile of known nest sites between May 1 and August 1; develop nest structures to improve nesting opportunities in suitable habitat.

Provide snags or green culls for perch/nest sites along all suitable (fish-bearing) waterbodies. Provide up to a 5-acre buffer around known and future nest sites.

**Accipiters.** Provide up to a 15-acre buffer for some management activities around known and future activity centers.

**Prairie Falcon.** Provide up to a 15-acre buffer for some management activities around known and future activity centers.

**Red-tailed Hawk.** Provide up to a 5-acre buffer for some management activities around known and future nest sites.

**Other Raptors.** Maintain the integrity of nest sites and centers of activity.

**Woodpeckers.** Manage for 60 percent of optimum population potential on all lands allocated to timber production. Lands not allocated to timber production will be managed at 100 percent of optimum population potential.

**Sandhill Crane.** Conduct systematic nest surveys and construct artificial nest structures to optimize nesting potential.

Restrict some management activities within 200 feet of nest sites from April 1 to August 1.

**Waterfowl.** Where necessary, acquire water rights, consistent with Oregon State water laws in important waterfowl production areas; as opportunities arise, private lands in important waterfowl habitat will be obtained through exchange or other mutual agreement.

Allow livestock grazing in waterfowl nesting habitat only under guidelines set by an interdisciplinary team process. If necessary, initiate a predator control program to enhance nesting success and production, within guidelines of the established animal damage control environmental impact statement.

**Wild Turkey.** Rehabilitate and improve meadows with native plants and grasses in suitable habitat and plant small food plots with high yield grains and grasses in disturbed areas.

Create and/or maintain open forage areas up to 3 acres in appropriate habitat. Maintain hardwoods to maximize mast production in up to 50 percent of harvested acres. In suitable habitat provide 2 roost sites (approximately  $\frac{1}{8}$  to  $\frac{1}{4}$  acre) per 40 acres of harvest area. Minimize open roads and avoid new road construction within  $\frac{1}{4}$  mile of nest and roost sites.

**Other Upland Gamebirds.** Maintain clumps of mature conifers on major ridges to provide winter habitat for grouse. Install guzzlers in cooperation with the Oregon Department of Fish and Wildlife to benefit upland game-birds and other wildlife. Continue to introduce red-legged partridge/chukar, pheasant, and turkey in cooperation with the Oregon Department of Fish and Wildlife.

**Amphibians and Reptiles.** See Special Status Species section.

**Trout.** Develop a coordinated recreation management plan to include tributaries of the Jenny Creek watershed; install instream structures in areas lacking sufficient habitat; stock suitable waterbodies that are below carrying capacity and/or areas above barriers; timber sale contracts would require, when practical, removal of debris that obstructs fish passage or would degrade the stream channel; retain large woody debris in and adjacent to the stream channel; improve trout habitat and/or maintain through minimal impact grazing system; use riparian-wetland exclosures to enhance streamside habitat; remove debris jams that impede migration; modify or replace culverts that block migration; and block up ownership when possible on lands with trout bearing streams.

## Fish Habitat

### Objectives

See Aquatic Conservation Strategy objectives.

Maintain or enhance the fisheries potential of streams and other waters consistent with BLM's Fish and Wildlife 2000 Plan, the Bring Back the Natives initiative, and other nationwide initiatives.

Promote the rehabilitation and protection of fish stocks at risk and their habitat.

## Land Use Allocations

There are no specific land use allocations for the fisheries resource. However, Riparian Reserves, Key Watershed provisions, and best management practices (see Appendix D) will assist in meeting fish habitat management objectives. Silvicultural prescriptions, and range management objectives also will help provide good fish management.

Propose fish habitat enhancement projects for Rainbow and Redband Trout which include:

- ◆ A continual supply of large woody debris would be recruited into the stream and into adjacent uplands.
- ◆ Suitable boulders, cull logs, and rootwads would be stockpiled in designated areas during normal work operations for future habitat improvement projects.
- ◆ A cooperative resource management plan would be developed for tributaries of the Jenny Creek watershed and others in conjunction with other agencies and private land owners.
- ◆ The BLM would cooperate with the Oregon Department of Fish and Wildlife and Oregon Department of Fish and Wildlife approved volunteer groups to stock suitable streams with approved brood stock and/or juveniles that are below carrying capacity or above barriers.

## Management Actions/Direction

### All Land Use Allocations

Apply the management actions/direction in the Special Status and Supplemental Environmental Impact Statement Special Attention Species section.

Use the watershed analysis process to address at-risk fish species and stocks and their habitat for individual watersheds. Where appropriate, fish habitat enhancement opportunities will be identified through this process or through coordinated resource management plans.

Coordinate with the Oregon Department of Fish and Wildlife during planning and implementation of fish habitat enhancement projects. Priority will be given to watersheds supporting at-risk fish species and stocks and those requiring extensive restoration.

## **Resource Management Plan**

As identified through watershed analysis, rehabilitate streams and other waters to enhance natural populations of resident fish. Possible rehabilitation measures will include, but not be limited to, fish passage improvements, instream structures using boulders and log placement to create spawning and rearing habitat, placement of fine and coarse materials for overwintering habitat, and establishment or release of riparian-wetland trees.

Enhance warm water fisheries in reservoirs or ponds where fish populations provide forage for eagles or osprey or where recreational needs can be fulfilled.

### **Riparian Reserves**

Design and implement fish habitat restoration and enhancement activities in a manner that contributes to attainment of Aquatic Conservation Strategy objectives.

Design, construct, and operate fish interpretive and other user-enhancement facilities in a manner that does not retard or prevent attainment of Aquatic Conservation Strategy objectives. For existing fish interpretive and other user-enhancement facilities inside Riparian Reserves, ensure that Aquatic Conservation Strategy objectives are met. Where Aquatic Conservation Strategy objectives cannot be met, relocate or close such facilities.

Cooperate with federal, tribal, and state fish management agencies to identify and eliminate impacts associated with habitat manipulation, fish stocking, harvest, and poaching that threaten the continued existence and distribution of native fish stocks inhabiting federal lands.

Cooperate with federal, tribal, and state wildlife management agencies to identify and eliminate wild ungulate impacts that are inconsistent with attainment of Aquatic Conservation Strategy objectives.

Identify instream flows needed to maintain riparian resources, channel conditions, and fish passage.

### **Late-Successional/District Designated Reserves**

Design projects to improve conditions for fish if they provide late-successional habitat benefits or if their effect on late-successional associated species is negligible.

## **Special Status and Supplemental Environmental Impact Statement Special Attention Species Habitat**

### **Objectives**

See Late-Successional/District Designated Reserve, Riparian Reserve, Matrix, and Special Area objectives.

Protect, manage, and conserve federal listed and proposed species and their habitats to achieve their recovery in compliance with the Endangered Species Act, approved recovery plans, and Bureau special status species policies.

Manage for the conservation of federal candidate and bureau sensitive species and their habitats so as not to contribute to the need to list and to recover the species.

Manage for the conservation of state listed species and their habitats to assist the state in achieving management objectives.

Protect and manage assessment species where possible so as to not elevate their status to any higher level of concern.

Protect Supplemental Environmental Impact Statement special attention species so as not to elevate their status to any higher level of concern.

Study, maintain, or restore community structure, species composition, and ecological processes of special status plant and animal habitat.

### **Land Use Allocations**

All of the major land allocations in this plan are designed in part to benefit or maintain special status species in the aggregate.

### **Management Actions/Direction**

#### **All Land Use Allocations**

##### **Special Status Species**

Protect the following sites from grazing: known and newly discovered sites of the following mollusk species will be protected from grazing by all practicable steps to ensure that the local populations of the species will not be impacted. These species include: *Fluminicola n. sp. 1*, *Fluminicola n. sp. 11*, *Fluminicola*

*n. sp. 19, Fluminicola n. sp. 20, Fluminicola n. sp. 3, and Fluminicola seminalis.* Freshwater mollusks in the family *Hydrobiidae* (to which the genus *Fluminicola* belong) are known to exist in the resource area. Tentative identification of mollusks collected at several sites in the resource area has been made. Further investigation is required for more positive identification of which species of *Fluminicola* are present in the resource area. Implementation of protection actions will be initiated after watershed analysis and appropriate National Environmental Policy Act decisions.

Review all proposed actions to determine whether or not special status species occupy or use the affected area or if habitat for such species is affected.

Conduct field surveys according to protocols and other established procedures. This includes surveying during the proper season unless surveys are deemed unnecessary through watershed analysis, project planning, and environmental assessment. For example, field surveys may not be conducted in all cases depending on the number and timing of previous surveys conducted, whether previous surveys looked for all species that a new survey would look for, and the likelihood of potential habitat. The intensity of field surveys will also vary depending on the same factors.

Consult/conference with the U.S. Fish and Wildlife Service or National Marine Fisheries Service for any proposed action which may effect federal listed or proposed species or their critical or essential habitat. Based on the results of consultation/conferencing, modify, relocate, or abandon the proposed action. Request technical assistance from one of these agencies for any proposed action which may affect federal candidate species or their habitat.

Coordinate with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and other appropriate agencies and organizations and jointly endeavor to recover federal listed and proposed plant and animal species and their habitats.

Modify, relocate, or abandon a proposed action to avoid contributing to the need to list federal candidate species, state listed species, or Bureau sensitive species.

Coordinate and cooperate with the state of Oregon to conserve state listed species.

Identify impacts of proposed actions, if any, to bureau assessment species as a whole and clearly describe impacts in environmental analyses. As funding permits

and as species conservation dictates, Bureau assessment species will be actively managed.

Retain under federal management, or other appropriate management organization, habitat essential for the survival or recovery of listed species. Retain habitat of candidate or bureau sensitive species where disposal will contribute to the need to list the species.

Where appropriate opportunities exist, acquire land to contribute to recovery, reduce the need to list, or enhance special status species habitat.

Where appropriate, pursue opportunities to increase the number of populations of species under BLM management through land acquisition and/or species reintroduction in coordination with other responsible agencies.

Coordinate with other agencies and groups in management of species across landscapes. Coordination will be accomplished through conservation plans or similar agreements which identify actions to conserve single or multiple species and/or habitats. Such strategies could preclude the need for intensive inventories or modifications to some projects where the conservation plan provides adequate protection for the species and meets the intent of policy.

Where plans exist for species no longer on the special status list, continue with the prescribed conservation actions if determined to be required to avoid relisting or future consideration for listing. In the case of interagency plans or agreements, this determination will be mutually decided. Such plans may be modified as needed based on adequacy of existing range-wide conditions and conservation management.

Pursue opportunities for public education about conservation of species.

In addition to protection of federally listed or proposed threatened or endangered plant or animal species, manage areas to restore and retain biological diversity to provide protection for clusters of federal candidate category 1 and 2, state listed, Bureau sensitive, and Bureau assessment species. Modify or constrain Bureau management actions and permitted actions to the extent considered necessary to avoid contributing to the need to list federal candidate category 1 and 2, state listed, state candidate, and Bureau sensitive species.

## **Resource Management Plan**

Monitor and manage habitats of federally listed or proposed threatened or endangered species as required by law. Prior to any vegetation or ground manipulation, or any disposal of BLM-administered land, conduct a review of the affected site(s) or tract(s) for such plants and animals.

Conduct general inventories for special status species where needed to determine species distribution and status. Conduct monitoring of these species populations to determine their requirements and trends. Prepare management plans when necessary, and implement active management where needed to prevent listing or to conserve the species. Report population and occurrence data to the Oregon Natural Heritage Program.

### **Listed, Proposed, or Candidate Threatened and Endangered Species**

#### **General**

Implement the land use allocations and management actions/direction of this resource management plan which are designed to enhance and maintain habitat for threatened and endangered species.

#### **Animals**

**Northern Spotted Owl (federal threatened species).** In the Matrix, retain 100 acres of the best northern spotted owl habitat as close as possible to a nest site or owl activity center for all known (as of January 1, 1994) spotted owl activity centers.

Fall no trees within ¼ mile of all active northern spotted owl nest sites from approximately March 1 to September 30 to avoid disturbance and harm to young owls.

With minor exceptions, restrict human activities that could disturb owl nesting, especially use of large power equipment, within ¼ mile of all active spotted owl nest sites from approximately March 1 to September 30. Restrictions on activities will usually not be required for owl nests and activity centers located near roads or in other areas of permanent human activity.

Continue the Surveyor Mountain study to monitor spotted owl density, northern goshawk, and other old growth species and their response to harvest prescriptions.

**Bald Eagle (federal threatened species).** Protect known and potential habitat sites identified in the *Pacific Bald Eagle Recovery Plan*.

Provide a buffer of up to 30 acres around nest sites and restrict management activity near nest sites between January 1 and August 31. Coordinate with the Oregon Department of Fish and Wildlife to maintain optimum fish populations in reservoirs providing potential nesting and foraging sites. All management activities will be consistent with objectives identified in the recovery plan and the *Working Implementation Plan for Bald Eagle Recovery in Oregon and Washington*.

Provide snags for perching and protect those snags within ¼ mile of nest, roost, and known forage sites. Retain old growth characteristics in existing and potential habitat, including large trees and snags, to provide for future population expansion. Acquire easements or ownership of private lands within ½ mile of existing or potential habitat that aids in meeting recovery plans; also specifically evaluate acquisition of the Algoma and Swan Lake nest sites as recommended in the recovery plan. Conduct fuels reduction management actions to help reduce potential loss of habitat to catastrophic wildfire occurrences.

Write and implement a site-specific habitat management plan for bald eagle nest sites and major use areas in the Klamath Falls Resource Area, incorporating those management actions identified in the *Working Implementation Plan for Bald Eagle Recovery in Oregon and Washington* for which the BLM is responsible.

**Peregrine Falcon (federal endangered species).** Comply with the *Pacific Coast Recovery Plan for Peregrine Falcons* and any other site-specific habitat management plans.

Provide a buffer of up to 30 acres around known and future sites; survey for presence in potential nesting habitat and cooperate with the Oregon Department of Fish and Wildlife to reintroduce peregrines into the Klamath River Canyon.

Restrict new roads and other management activities within ½ mile of existing and potential nest sites. Protect potential habitat in cliff areas of upper Klamath River Canyon.

**Northern Goshawk (Federal Candidate Category 2).** Provide up to a 30-acre buffer around known and future activity centers.

**Townsend's Big-eared Bat (Federal Candidate Category 2).** When available, obtain through exchange or other mutual agreement private lands that support bat populations or contain potential habitat.

change or other mutual agreement private lands that support bat populations or contain potential habitat. Continue the Salt Caves seasonal habitat closure from May 1 to September 15.

Buffer current and future use sites up to 20 acres. Restrict management activities within ¼ mile of occupied sites.

Conduct an inventory of Townsend's big-eared bats in all potential habitat. To optimize big-eared bat populations, minimize detrimental human disturbance in habitat used by the bat. As opportunities arise, obtain through exchange or other mutual agreement, private lands with habitat that support big-eared bat populations or have the potential for use by the bat.

**Western Sage Grouse (Federal Candidate Category 2).** Conduct surveys in cooperation with the Oregon Department of Fish and Wildlife.

Inventory, monitor, and manage important habitats for those characteristics important for grouse.

Provide a buffer around lek sites up to 20 acres; institute a seasonal restriction on surface disturbing activity of up to ¼ mile around lek sites from March 1 through May 1.

Prohibit the removal of large tracts of sagebrush in and near important sage grouse use areas.

**Amphibians and Reptiles.** Conduct inventories for special status reptiles and amphibians in the planning area. Inventory and documentation of non-status reptiles and amphibians will also take place during this time.

**Shortnose Sucker (Endangered), Lost River Sucker (Endangered), Klamath Largescale Sucker (Candidate), Western Pond Turtle (Candidate).** Provide a buffer of up to 300 feet around waterbodies used by these species. Maintain riparian crown cover in accordance with best management practices and riparian-wetland areas.

**Redband Trout (Candidate).** Provide a buffer of up to 300 feet around waterbodies used by this species. Maintain riparian crown cover in accordance with best management practices and riparian-wetland areas.

## **Plants**

***Astragalus applegatei* (federal endangered).** Although there are known populations within the planning area, none of these populations have been found on BLM-administered lands.

## **Supplemental Environmental Impact Statement Special Attention Species**

This incorporates the "Survey and Manage" and "Protection Buffer" species and standards and guidelines from the Supplemental Environmental Impact Statement record of decision.

### ***Survey and Manage***

Implement the survey and manage provision of the Supplemental Environmental Impact Statement Record of Decision within the range of Supplemental Environmental Impact Statement special attention species and the particular habitats that they are known to occupy. Appendix C shows which species are covered by this provision, and which of the following four categories and management actions/direction are to be applied to each:

Manage known sites (highest priority).

- ◆ Acquire and manage information on these sites, make it available to all project planners, and use it to design or modify activities.
- ◆ Protect known sites. For some species, apply specific management treatments such as prescribed fire.
- ◆ For rare and endemic fungus species, temporarily withdraw known sites from ground-disturbing activities until the sites can be thoroughly surveyed and site-specific measures prescribed.

Survey prior to activities and manage sites.

- ◆ Continue existing efforts to survey and manage rare and sensitive species habitat.
- ◆ For species without survey protocols, start immediately to design protocols and implement surveys.
- ◆ Within the known or suspected ranges and within the habitat types of vegetation communities associated with the species, survey for red tree voles and lynx. These surveys will precede the design of all ground-disturbing activities that will be implemented in 1997 or later.
- ◆ For the other species listed in Appendix C, begin development of survey protocols promptly and proceed with surveys as soon as possible. These surveys will be completed prior to ground-disturbing activities that will be implemented in Fiscal Year 1999 or later. Work to establish habitat requirements and survey protocols may be prioritized relative to the estimated threats to

## **Resource Management Plan**

the species as reflected in the Supplemental Environmental Impact Statement.

- ◆ Conduct surveys at a scale most appropriate to the species.
- ◆ Develop management actions/direction to manage habitat for the species on sites where they are located.
- ◆ Incorporate survey protocols and proposed site management in interagency conservation strategies developed as part of ongoing planning efforts coordinated by the Regional Ecosystem Office.

Conduct extensive surveys and manage sites.

- ◆ Conduct extensive surveys for the species to find high-priority sites for species management. Specific surveys prior to ground-disturbing activities are not a requirement.
- ◆ Conduct surveys according to a schedule that is most efficient and identify sites for protection at that time.
- ◆ Design these surveys for efficiency and develop standardized protocols.
- ◆ Begin these surveys by 1996.

Conduct general regional surveys.

- ◆ Survey to acquire additional information and to determine necessary levels of protection for arthropods, fungi species that were not classed as rare and endemic, bryophytes, and lichens.
- ◆ Initiate these surveys no later than Fiscal Year 1996 and complete them within 10 years.

### **Protection Buffers**

Provide protection buffers for specific rare and locally endemic species and Supplemental Environmental Impact Statement special attention species in the upland forest matrix and all habitats identified in the Supplemental Environmental Impact Statement record of decision. A list of these species and related management actions/direction are presented in Appendix C and the section on Special Status and Supplemental Environmental Impact Statement Special Attention Species. These species are likely to be assured viability if they occur within reserves. However, there might be occupied locations outside reserves that will be important to protect as well.

Apply the following management actions/direction:

- ◆ Develop survey protocols that will ensure a high likelihood of locating sites occupied by these species.
- ◆ Following development of survey protocols and prior to ground-disturbing activities, conduct surveys within the known or suspected ranges of the species and within the habitat types or vegetation communities occupied by the species. See the previous Survey and Manage section for an implementation schedule.
- ◆ When located, protect the occupied sites of:
  - ◆ Nonvascular plants
  - ◆ Amphibians
  - ◆ Birds
  - ◆ Mammals

**Animals.** Roosting Bats. Conduct surveys to determine the presence of roosting bats, including fringed myotis, silver-haired bats, long-eared myotis, long-legged myotis, and pallid bats. Surveys will be conducted according to protocol defined in the Supplemental Environmental Impact Statement Record of Decision and in any subsequent revisions to protocol.

As an interim measure, allow no timber harvest within 250 feet of sites containing bats. Develop mitigation measures in project or activity plans involving these sites. The intent of these measures is to protect sites from destruction, vandalism, disturbance from road construction or blasting, or any other activity that could change cave or mine temperatures or drainage patterns.

When Townsend's big-eared bats are found on federal land, notify the Oregon Department of Fish and Wildlife. Develop management prescriptions for these sites that include special consideration for potential impacts on this species. See the management actions/direction for Townsend's big-eared bats listed in the Special Status Species section.

### **Late-Successional/District Designated Reserves**

Design projects for recovery of threatened or endangered animal and plant species even if they result in some reduction of habitat quality for late-successional species. These projects will be designed for least impact to late-successional species.

Design projects to maintain health of the habitat for the long term.

## Special Areas

### Objectives

Provide new special areas where needed to maintain or protect important values.

Maintain, protect, or restore relevant and important value(s) of areas of critical environmental concern.

Preserve, protect, or restore native species composition and ecological processes of biological communities (including Oregon Natural Heritage Plan terrestrial and aquatic cells) in research natural areas. These areas will be available for short- or long-term scientific study, research, and education and will serve as a baseline against which human impacts on natural systems can be measured.

Provide and maintain environmental education opportunities in environmental education areas. Control uses to minimize disturbance of educational values.

Protect, maintain, and/or restore botanical and wildlife habitat values in special botanical/wildlife habitat areas.

### Land Use Allocations

## Management Actions/Direction

Develop site-specific management plans for new special areas as needed. Protect resource values in new areas pending completion of management plans. Management plans will address other possible actions such as land acquisition, use of prescribed fire, and interpretation.

Apply the guidelines of the prevailing land use allocation(s) to candidate areas of critical environmental concern that were dropped from further consideration. See Appendix F for a list of these areas and the land use allocations under which they will be managed.

Use minimum impact suppression activities during wildfires.

The following areas are designated areas of critical environmental concern and are provided the following management:

- ◆ Miller Creek: 2,000 acres, from Gerber dam to the Goodlow Rim, 200 feet either side of canyon rim. Maintain, protect, or restore natural processes, wildlife, and scenic values. Not available for planned timber harvest; restrict grazing; mineral leasing subject to no surface occupancy; close area to off-highway vehicle use (except Round Valley Road area); provide for primitive and semi-primitive recreation opportunities, including a trail along Miller Creek.

**Table 3. Special Area Allocations<sup>1</sup>**

Special Area Category	Number	Acres
Areas of Critical Environmental Concern <sup>2</sup>	3	7,680
Areas of Critical Environmental Concern/ Research Natural Areas	1	520
Environmental Education Areas	2	180
Special Botanical/Habitat Areas	3	570

<sup>1</sup> See Map 4 for locations.

<sup>2</sup> This category includes only areas with an area of critical environmental concern designation. Double designated areas, such as areas of critical environmental concern/research natural areas, are not included.

## Resource Management Plan

- ◆ Upper Klamath River: 4,960 acres, 11 miles of the Klamath River canyon from rim to rim extending from J.C. Boyle powerhouse to the Oregon-California State line. Maintain, protect, or restore historic, cultural, scenic, fisheries, wildlife populations and habitat. Not available for planned timber harvest; limit off-highway vehicle use to designated roads; no developments allowed to enhance the potential for grazing; mineral leasing subject to no surface occupancy, not available for hydroelectric development. Manage area for semi-primitive motorized recreation opportunities.
- ◆ Yainax Butte: 720 acres, isolated mountain eight miles south of Beatty, Oregon. Maintain, protect, or restore natural processes and systems. Not available for planned timber harvest; open to grazing, but fence if necessary to protect plant communities from grazing; limit off-highway vehicle use to existing roads; mineral leasing subject to no surface occupancy. Manage area for semi-primitive motorized recreation opportunities.

The following areas are designated Areas of Critical Environmental Concern/Research Natural Area:

- ◆ Old Baldy: 520 acres (Klamath Falls Resource Area +160 acres Medford District BLM). High elevation mixed conifer forests and associated brush fields to fill Research Natural Area cell. Preserve, protect, or restore natural processes or system. No timber harvest, firewood, or salvage sales; closed to off-highway vehicle use; area to remain free of cattle use with no developments allowed to enhance the potential for grazing. Mineral leasing subject to no surface occupancy; closed to mineral entry. Manage area for semi-primitive non-motorized recreation opportunities.

The following environmental education areas will be provided and maintained:

- ◆ Clover Creek: 30 acres; an area adjacent to a tributary of Spencer Creek used by elementary classes for educational purposes (annual forestry tour). Manage and maintain area for educational values as presented in forestry tour and for recreation. Consider development of adjacent area for parking of large vehicles (busses) and provide day-use facilities. Make parking area available as a winter sno-park. Restrict timber harvest; open to off-highway vehicle use; open to grazing use; mineral leasing subject to no surface occupancy.

- ◆ Surveyor Forest Area: 150 acres; an area adjacent to Surveyor Recreation site, old growth, mixed conifer forest with meadows along the headwaters of Johnson Creek. Manage and maintain educational values, natural processes, scenic values, and wildlife habitat. Not available for planned timber harvest; limit off-highway vehicle use to designated roads; control grazing by fencing; mineral leasing subject to no surface occupancy. Manage area for semi-primitive recreation opportunities. Develop informational, educational, interpretive trail to highlight old growth education and riparian-wetland ecosystems.

The following Special Botanical/Habitat Areas will be protected/maintained and/or restored:

- ◆ Alkali Lake: 240 acres; wetland area in Yonna Valley between Dairy and Bonanza, Oregon. Protect, maintain, and/or restore wildlife habitat area. Open to off-highway vehicle use (no public access); actively pursue land exchange and legal access opportunities; mineral leasing subject to no surface occupancy; control grazing by fencing.
- ◆ Tunnel Creek Wetlands: 280 acres; Lodgepole pine swamp located between Keno Road and Buck Lake. Protect, maintain, and/or restore natural systems or processes. Restrict timber harvest; limit off-highway vehicle use to designated roads; control grazing by fencing; mineral leasing subject to no surface occupancy.
- ◆ Bumpheads: 50 acres; volcanic formations at the south end of the Gerber Block. Preserve, protect, or restore natural processes or system, and scenic resources; limit off-highway vehicle use to existing roads; control grazing by fencing; mineral leasing subject to no surface occupancy.

The following two areas, while not falling into one of the above land use allocations, will receive special management attention (see Appendix F).

- ◆ Pacific Crest National Scenic Trail
- ◆ Spencer Creek

## **Cultural Resources Including American Indian Values**

### **Objectives**

Identify cultural resource localities and manage them for public, scientific, and cultural heritage purposes.

Conserve and protect designated cultural resources for future generations.

Support ecosystem management by providing information on long-term environmental change and the interactions between humans and the environment in the past.

Continue to fulfill government-to-government and trust responsibilities to appropriate American Indian tribes regarding heritage and religious concerns.

### **Land Use Allocations**

Sites with significant values will be protected from management actions and from vandalism to the extent possible. Cultural resource sites are not mapped in this plan or described in detail due to the sensitivity of resource values.

The Klamath Falls Resource Area manages more than 400 cultural resource sites. Two of these areas are now in the process of nomination to the National Register of Historic Places as archeological districts and cultural landscapes.

### **Management Action/Direction**

Identify and evaluate Native American traditional use areas requiring protection and management during watershed analysis or site-specific planning.

Evaluate cultural resource sites to determine their potential for contributing to public, cultural heritage, and/or scientific purposes. Evaluate the Klamath River Canyon and lands on Bryant Mountain for nomination to the National Register of Historic Places as Archaeological Districts.

Investigate landscape features such as bogs, ponds, and packrat middens, and cultural sites that contain information regarding long-term environmental change.

Develop mechanisms for describing past landscapes and the role of humans in shaping those landscapes,

Address the management of cultural resources through watershed analyses and project plans.

Develop educational and interpretive programs to increase public awareness and appreciation of cultural resources, as part of the "Adventures in the Past" initiative, and the "Heritage Education" program.

Develop partnerships with local American Indian tribes and other interested parties to accomplish cultural resource objectives.

Take appropriate law enforcement or other actions when necessary to protect cultural resources. (Such actions may include physical protection measures such as riprapping and barrier installations to reduce deterioration.)

Work with federally recognized American Indian tribes to develop Memoranda Of Understanding so that their heritage and religious concerns may be appropriately considered. These tribes may include but are not limited to the Klamath Tribes, the Shasta Tribe, the Modoc Tribe of Oklahoma, and the Consolidated Modoc and Paiute Tribe.

Consider acquiring significant cultural resource properties for public, cultural heritage, and scientific purposes.

## **Visual Resources**

### **Objectives**

Manage all BLM-administered land to meet the following visual quality objectives:

- ◆ Visual Resource Management Class I areas: preserve the existing character of landscapes.
- ◆ Visual Resource Management Class II areas: retain the existing character of landscapes.
- ◆ Visual Resource Management Class III areas: partially retain the existing character of landscapes.
- ◆ Visual Resource Management Class IV areas: allow major modifications of existing character of landscapes.

Emphasize management of scenic resources in selected high-use areas to retain or preserve scenic quality.

**Land Use Allocations**

See Map 5 for the location of visual resource management classes and Table 4 for a summary of acres by class.

Some of the specific areas by Visual Resource Management class are as follows:

- ◆ Visual Resource Management Class I: None (Since there are no congressionally-designated wilderness areas, rivers designated wild under the National Wild and Scenic Rivers Act, or other such areas, no lands in the Klamath Falls Resource Area will be managed for Visual Resource Management class I).
- ◆ Visual Resource Management Class II: All BLM lands within ¼ mile of Topsy, Surveyor, and Gerber developed recreation sites, the Pacific Crest National Scenic Trail, and Spencer Creek. Also, the Klamath River Complex special recreation management area, Miller Creek Canyon, the upper Klamath Lake viewshed, state scenic waterways and rivers designated Scenic under the National Wild and Scenic Rivers Act will be managed as Visual Resource Management Class II.
- ◆ Visual Resource Management Class III: No less than Visual Resource Management Class III management will be provided within ¼ mile of rural interface areas, state Highways 66 and 140, and U.S. Highway 97.
- ◆ Visual Resource Management Class IV: The Matrix (General Forest Management Area) in the northwest part of the resource area, the Pokegama area south of Highway 66, and the central portion of the Gerber Block will be managed as Visual Resource Management Class IV.

**Table 4. Visual Resource Management Classes by Acres**

Visual Resource Management Class	Acres
I	0
II	33,500
III	81,800
IV	96,700

**Management Actions/Direction**

Address visual resource management issues when conducting watershed analysis.

Use the visual resource contrast rating system during project level planning to determine whether or not proposed activities will meet Visual Resource Management objectives. Use mitigation measures to reduce visual contrasts.

Provide for natural ecological changes in Visual Resource Management Class I areas. Some very limited management activities may occur in these areas. The level of change to the characteristic landscape should be very low and must not attract attention. Changes should repeat the basic elements of form, line, color, texture, and scale found in the predominant natural features of the characteristic landscape.

Manage Visual Resource Management Class II lands for low levels of change to the characteristic landscape. Management activities may be seen but should not attract the attention of the casual observer. Changes should repeat the basic elements of form, line, color, texture, and scale found in the predominant natural features of the characteristic landscape.

Manage Visual Resource Management Class III lands for moderate levels of change to the characteristic landscape. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements of form, line color, texture, and scale found in the predominant natural features of the characteristic landscape.

Manage Visual Resource Management Class IV lands for moderate levels of change to the characteristic landscape. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the effect of these activities through careful location, minimal disturbance, and repeating the basic elements of form, line, color, and texture.

## **Wild and Scenic Rivers**

### **Objectives**

Manage designated and suitable segments of the National Wild and Scenic Rivers System by protecting their outstandingly remarkable values. Maintain and enhance the natural integrity of river-related values in designated and suitable river areas.

### **Land Use Allocations**

#### ***Designated River Segments***

The Upper Klamath River was designated by the Secretary of the Interior as a Scenic River and is included in the National Wild and Scenic Rivers system under section 2(a)(ii) of the National Wild and Scenic Rivers Act.

The upper Klamath Scenic River is 11.0 miles and approximately 4,960 acres. The corridor width for the upper Klamath River Canyon is from rim-to-rim or ¼-mile from the normal high water mark on each side of the river, whichever is greater.

### **Management Actions/Direction**

#### ***General***

Provide the following types of interim protection from the John C. Boyle Powerhouse to the Oregon-California state line on the upper Klamath River until a river management plan is completed; exclude timber harvest in the Riparian Reserve, provide Visual Resource Management Class II management in the corridor, and protect the free-flowing values and identified outstandingly remarkable values (recreation, scenic, fish, wildlife, prehistoric, and historic resources, and its value as a Native American traditional use area).

Release from interim protection those rivers found to be eligible but not suitable for inclusion in the national rivers system (segments A and C of Antelope Creek, Barnes Valley Creek, Miller Creek, and Spencer Creek) upon completion of the Record of Decision for this Resource Management Plan.

#### ***Riparian Reserves***

Address attainment of Aquatic Conservation Strategy objectives when developing Wild and Scenic River management plans.

## **Wilderness and Wilderness Study Areas**

### **Objectives**

Maintain the wilderness character of the Mountain Lakes Wilderness Study Area to comply with the BLM's Wilderness Interim Management Policy.

### **Land Use Allocations**

The Mountain Lakes Wilderness Study Area is contiguous to the existing Mountain Lakes Wilderness Area and is a potential addition to this wilderness area.

### **Management Actions/Direction**

Follow interim management guidelines for wilderness study until decisions are made by the Congress. Authorize no action that will diminish the suitability of these lands as wilderness. Take appropriate actions following Congressional decision.

The President has transmitted his recommendations to the Congress that Mountain Lakes Wilderness Study Area (330 acres) be designated as wilderness and be added to the existing Mountain Lakes Wilderness Area.

If not designated wilderness, the Mountain Lakes Wilderness Study Area (330 acres) will be managed as a Late-Successional/District Designated Reserve. Objectives will be for retention and maintenance of old growth, mature forest, and habitat diversity. Manage the area for primitive and semi-primitive non-motorized recreation opportunities.

## **Rural Interface Areas**

### **Objectives**

Consider the interests of adjacent and nearby rural land owners, including residents, during analysis, planning and monitoring related to managed rural interface areas. These interests include personal health and safety, improvements to property and quality of life. Determine how land owners might be or are affected by activities on BLM-administered lands.

### **Land Use Allocations**

Managed rural interface areas encompass approximately 3,500 acres of BLM-administered land within one-quarter mile of private lands zoned for 1 to 5-acre or 5 to 20-acre lots located throughout the district (see Map 6 for locations and Table 1 in Appendix B for acres).

### **Management Actions/Direction**

Work with local governments to:

- ◆ Improve the BLM data base regarding private land planning/zoning designations and residential development near BLM-administered land;
- ◆ Provide information to local planners regarding BLM land allocations in rural interface areas and the management objectives and guidelines for these lands;
- ◆ Develop design features and mitigation measures that will minimize the possibility of conflicts between private and federal land management; and
- ◆ Monitor the effectiveness of design features and mitigation measures in rural interface areas.

As a part of watershed analysis and project planning, work with local individuals and groups, including fire protection districts, to identify and address concerns related to possible impacts of proposed management activities on rural interface areas.

Use design features and mitigation measures to avoid/minimize impacts to health, life, and property and quality of life. Examples include different harvest regimes, hand application rather than aerial application of herbicides and pesticides, and hand piling

slash forburning of low to moderate intensity prescribed burns. Monitor the effectiveness of design features and mitigation measures.

Eliminate or mitigate public hazards such as abandoned mine tunnels and quarries.

Manage within ¼ mile of rural interface areas using no less than visual resource management Class III standards (unless an area is classified as visual resource management Class I or II).

Reduce unauthorized public use of non-through or "local" roads within rural interface areas and within ¼ mile of existing dwellings. Gates and other types of traffic barriers such as guardrails, berms, ditches, and log barricades will be used as appropriate. These actions are needed to reduce public health and safety hazards, fire risk, vandalism to private property, and will be used on an as needed basis.

Reduce natural fuel hazards on BLM-administered lands in rural interface areas.

## **Socioeconomic Conditions**

### **Objectives**

Contribute to local, state, national, and international economies through sustainable use of BLM-administered lands and resources and use of innovative contracting and other implementation strategies.

Provide amenities (for example, recreation facilities, protected special areas, and high quality fisheries) that enhance communities as places to live, work, and visit.

### **Land Use Allocations**

There are no specific land use allocations related to socioeconomic conditions. However, allocations such as the Matrix (General Forest Management Area), recreation facilities, and range lands can assist in meeting socioeconomic objectives.

### **Management Actions/Direction**

Support and assist the state of Oregon Economic Development Department's efforts to help rural, resource-based communities develop and implement alternative economic strategies as a partial substitute

for declining timber-based economies. Aid and support could include: increased coordination with state and local governments and citizens to prioritize BLM management and development activities; increased emphasis on management of special forest/natural products; and recreation development and other activities identified by the BLM and the involved communities as benefiting identified economic strategies.

Improve wildlife and fish habitat to enhance hunting and fishing opportunities and to increase the economic returns generated by these activities.

Improve viewing opportunities for watchable wildlife in the Gerber block area, Klamath River canyon, Topsy recreation site, and other sites as they arise.

Plan and design forest and livestock management activities to produce a sustained yield of products to support local and regional economic activity. A diversity of forest products (timber and non-timber) will be offered to support large and small commercial operations and provide for personal use.

## Recreation

### Objectives

Provide a wide range of developed and dispersed recreation opportunities that contribute to meeting projected recreation demand within the planning area.

Manage scenic, natural and cultural resources to enhance visitor recreation experience expectations and satisfy public land users.

Support locally-sponsored tourism initiatives and community economic strategies by providing recreation projects and programs that benefit both short- and long-term implementation. Continue participation in multi-agency recreation program (public and private) to coordinate and promote recreational development and tourism.

Manage off-highway vehicle use on BLM-administered land to protect natural resources, provide visitor safety, and minimize conflicts among various users.

Enhance recreation opportunities provided by existing and proposed watchable wildlife areas and national back country byways.

Continue to provide non-motorized recreation opportunities and create additional opportunities where consistent with other management objectives.

Manage special and extensive recreation management areas in a manner consistent with the BLM's Recreation 2000 Implementation Plan and Oregon-Washington Public Lands Recreation initiative.

Continue to provide barrier free or universally accessible recreation facilities and trails as they are constructed or reconstructed.

### Land Use Allocations

See Table 5 for allocations.

See Map 7 for locations.

**Table 5. Recreation Allocations**

<u>Recreation Management Category</u>	<u>Number</u>	<u>Acres</u>	<u>Miles</u>
<b>Recreation Sites</b>			
Existing	15	450	----
Proposed	15-50	450-1220	----
<b>Recreation Trails</b>			
Existing <sup>1</sup>	4	----	8
Proposed	4-22	----	8-118
<b>Special Recreation Management Areas</b>			
Existing	2	7,440	----
Proposed	4	20,600	----
<b>Extensive Recreation Management Areas</b>			
Existing	1	206,000	----
Proposed	1	185,400	----
<b>Off-Highway Vehicle Use Areas</b>			
Open	----	102,100	283
Limited	----	105,600	150
Closed	----	4,300	44
<b>Back Country Byways</b>			
Existing	0	----	----
Proposed	2	----	90

<sup>1</sup> The Pacific Crest National Scenic Trail Special Recreation Management Area (40 acres) is jointly managed with the Medford District BLM.

**Management Actions/Direction**

**General**

Enhance travel and recreation management through an increased emphasis on interpretive and informational signs and maps. Develop a resource area recreation guide and travel map for public distribution. Identity on information handouts and bulletins, all major travel routes within the resource area. These actions will support state and local strategies to encourage tourism.

Provide additional informational, educational and recreational opportunities to enhance visitors' experiences, and increase their knowledge of the use and protection of natural resources, the BLM's land management role, and the responsibility of visitors to public lands. Examples of opportunities could include development of nature of multipurpose trails in the Klamath River Complex Special Recreation Management Area, Surveyor recreation site (Johnson Creek), Spencer Creek area, Hamaker Mountain area, Bryant

Mountain area, Stukel Mountain area, Swan Lake Rim, and in the Gerber Block area (Miller Creek and Pothole); development of overnight camping or day-use facilities (hang gliding, target shooting) in the Stukel Mountain area, Hamaker Mountain area, Spencer Creek area, Bryant Mountain area, Gerber Block area; and development of interpretive sites, brochures, and facilities for wildlife, historic or cultural sites, or other natural resources in the Klamath River Complex Special Recreation Management Area, Surveyor Recreation Site, and Gerber Block area. Provide portal and interpretive signs along major public routes. See Table 1 in Appendix B for recreation sites, trails, and off-highway vehicle closures. Cooperate with local user groups to provide for coordinated recreation planning, maintenance of facilities, and acquisition of recreation funding.

Manage recreation areas to minimize disturbance to a number of fungus and lichen species known to occur within these areas. Follow survey and manage actions/direction as stated in the introduction to Land Use Allocations and Resource Programs.

## All Land Use Allocations

In addition to the guidelines for late-successional and Riparian Reserves, manage recreation resources in accordance with the guidelines described below.

### Recreation Sites and Trails

Continue to operate and maintain fifteen developed and semi-developed recreation sites and four developed trails as listed below:

#### Developed and Semi-Developed Recreation Sites

- ◆ Surveyor Recreation site
- ◆ Topsy Recreation site
- ◆ Gerber Recreation site
- ◆ Klamath River put-in
- ◆ Stan H. Spring campsite
- ◆ Gerber Potholes campsite
- ◆ Miller Creek campsite
- ◆ Wildhorse campsite
- ◆ Upper Midway campsite
- ◆ Basin camp
- ◆ Rock Creek campsite
- ◆ Klamath River BLM campgrounds
- ◆ Lower Klamath Hills day-use area
- ◆ East Gerber Boat ramp
- ◆ Pitchlog Creek campsite

#### Developed Trails

- ◆ Pacific Crest National Scenic Trail
- ◆ Miller Creek dam trail
- ◆ Pederson snowmobile trail
- ◆ Klamath River edge trail

Designate developed recreation sites as fire suppression areas (intensive) and fire fuels management areas. These designations will reduce fire hazards and protect investments. Restrictions on fire suppression equipment and activities or minimum impact methods will be required in the following recreation sites and areas: Surveyor Recreation site and associated old growth areas, Pacific Crest National Scenic Trail, Spencer Creek, Tunnel Creek Wetlands/old growth area, Topsy Recreation site, Klamath River Canyon, Gerber Recreation site, and Miller Creek Canyon.

Manage timber within developed recreation sites for purposes of removing or topping hazard trees, providing space for additional facilities and activity areas and providing desired regeneration of the forest canopy.

In addition to the 15 developed and semi-developed sites, maintain potential for recreation development in the 35 other sites and 18 other trail locations. Develop potential sites and trails as funding and/or recreation partnerships becomes available and if development is consistent with other land use objectives and allocations. Maintain or protect the recreation objectives for development of potential sites and trails by using and/or modifying the silvicultural treatments and harvest designs discussed in the Timber Section. Identify site and trail objectives and issues during watershed analysis or other activity level planning.

Pursue mineral withdrawals for existing developed recreation sites and for proposed recreation sites when development is approved.

#### Special Recreation Management Areas

Address special recreation management area issues and prioritize projects in watershed analyses. Prepare project plans as needed. Designated special recreation management areas are described below.

Continue to manage and maintain the following existing special recreation management areas will.

- ◆ Pacific Crest National Scenic Trail Special Recreation Management Area - ½-mile long in the Klamath Falls Resource Area, for hiking and horseback non-motorized use. Maintenance for the Klamath Falls Resource Area section of the trail will continue to be coordinated by the Medford District BLM. Management of the trail will continue to follow the existing Pacific Crest National Scenic Trail Comprehensive Plan. Development of a special recreation management area plan (for both Medford and Lakeview sections of the trail) to be coordinated by Medford District.
- ◆ The Pacific Crest National Scenic Trail special recreation management area will receive a new 50-foot wide no timber harvest buffer on either side of the trail and scenic ¼-mile corridor (Visual Resource Management Class II management, see the Visual Resources Section) on either side of the trail. Mineral leasing subject to no surface occupancy.

## Resource Management Plan

- ◆ Klamath River Complex Special Recreation Management Area - 7,460 acres will continue to be managed for semi-primitive motorized recreation objectives. Manage the special recreation management area to emphasize whitewater boating, fishing, and camping along the upper Klamath River. Improve and expand stateline take-out. Improve scouting trails for the Caldera and Hell's Corner rapids. Manage and maintain Topsy recreation site with camping units for overnight and day use visitors; boat ramp; the rafting put-in, and several primitive camping sites along the Klamath River. Continue to follow the cooperative management agreement with the Pacific Power and Light Company for coordinated recreation trail and facility development. Nominate for designation Topsy Road to the National Back Country Byway System. Maintain the Klamath River edge trail for non-motorized use.
- ◆ Evaluate and update the Klamath River Complex Special Recreation Management Area recreation area management plan. Provide fire-safe, approved, and developed group campsites. Improve and provide barrier-free access at the Topsy recreation site and BLM campground in the Klamath Canyon. Pursue development of a cooperative management agreement with Klamath and Siskiyou counties to provide minimum annual maintenance on the Topsy Road. Pursue the development of additional nature or multipurpose trails and an interpretive facility at the powerhouse site.

Manage the following areas as new Special Recreation Management Areas:

- ◆ **Hamaker Mountain.** Manage Hamaker Mountain Special Recreation Management Area for Roaded Natural recreation opportunities. Design timber management and other activities to enhance future trail and site development, with an emphasis on winter sports and mountain biking. Examples of timber management activities that would enhance recreation would include the development of cleared trails suitable for downhill or cross country skiing. Trails would be replanted with vegetation to benefit wildlife and would be unavailable for future timber harvest. The identification and resolving of specific recreation management issues and prioritization of projects (developed parking areas, designated trails, etc.) will occur during watershed analysis or recreation area planning. Establish a BLM patrol during winter months to provide visitor assistance on Hamaker Mountain.

- ◆ **Stukel Mountain.** Manage the Stukel Mountain Special Recreation Management Area for semi-primitive motorized and non-motorized recreation opportunities. The identification and resolving of specific recreation management issues and prioritization of projects (designated off-highway vehicle trails, ease of public access, developed recreation sites, etc.) will occur during watershed analysis or recreation area planning. Improve main road access. Consider development of hang gliding and other facilities for day use and overnight camping.

### Extensive Recreation Management Areas

Address extensive recreation management area issues and prioritize projects in watershed analyses. Prepare project plans as needed. The following recreation strategies are proposed in the extensive recreation management areas.

- ◆ Designate the majority of BLM-administered lands in the Klamath Falls Resource Area as an extensive recreation management area. Consistent with BLM's nationwide Recreation 2000 plan, manage lands for a diversity of resources. These lands will continue to be available for dispersed recreation activities, including hunting, fishing, sight-seeing, horseback riding, snowmobiling, and hiking when consistent with other resource objectives. Emphasize vehicle-accessible opportunities close to population centers. Open all BLM-administered lands to recreational mineral collection (casual use) unless the area is subject to prior rights, such as mining claims. Maintain and manage the following existing recreation facilities or areas (some in partnership with other agencies or groups) as indicated.
- ◆ Gerber Block - Continue to manage Gerber Recreation site with camping units to accommodate overnight, day use, and mobility impaired visitors; frog camp day use area; and boat ramps. Manage several nearby semi-developed camp sites to provide primitive camping and day use. Manage and maintain the Gerber Watchable Wildlife area tour. In addition, develop or enhance watchable wildlife and other interpretive sites to showcase resource management. Manage area for roaded natural and semi-primitive recreation opportunities.
- ◆ Miller Creek Trail - Maintain ¼-mile long, for hiking and horseback use, for semi-primitive non-motorized use. Pursue development of additional trail along Miller Creek canyon.

- ◆ Surveyor Recreation Site - Manage camping units to accommodate overnight, day use and mobility impaired visitors; Develop informational, educational, and recreational trails to highlight old growth education areas and riparian-wetland ecosystems. Pursue development of the Old Baldy trail linking the Pacific Crest National Scenic Trail with Surveyor Recreation site. Manage the area for semi-primitive recreation opportunities.
- ◆ Pederson Snowmobile Trail - 11 mile groomed snowmobile trail connecting with Hyatt Lake of the Wood snowmobile trail. Pursue development of an additional 30 miles of connecting snowmobile trails and sno park at Clover Creek day use area.
- ◆ In the Spencer Creek area, pursue legal access for a barrier-free fishing and hiking trail. Manage the creek for non-motorized use. Resource management will highlight public education about the coordinated resource management plan, the role of fire in ecosystem processes, illegal wood cutting, and other resource activities. Some potential recreation developments include the Clover Creek day use parking area, walk-in campsites along Spencer Creek, and an off-highway vehicle use area in an abandoned rock quarry near Clover Creek.
- ◆ In the Swan Lake Rim area, pursue legal access for a non-motorized trail along the rim. Manage the area for non-motorized use. Provide a trail access/day use area in conjunction with the Oregon, California, and Eastern Rail-Trail, near Dairy, Oregon. Coordinate Swan Lake Rim trail planning with the U.S. Forest Service, Oregon State Parks, and others in accordance with an existing Memorandum of Understanding on the management of the Oregon, California, and Eastern Rail-Trail.
- ◆ In the Bryant Mountain area, manage the area for semi-primitive motorized and non-motorized recreation opportunities. Pursue development of semi-primitive camping sites at Harpold, Captain Jack, and Smith Reservoirs. Pursue development of non-motorized and designated off-highway vehicle trails.
- ◆ In the Gerber Block area, Bryant Mountain, and other areas, the identification and resolving of specific recreation management issues and prioritization of projects will occur during watershed analysis.
- ◆ As opportunities arise, obtain easements and/or land through exchange or other mutual agreements to enhance future recreation management and opportunities. Swan Lake Rim; and Hamaker, Stukel, Bryant, and Hogback mountain areas are among the areas that will be considered for this action.

### Off-Highway Vehicles

Designate the majority of BLM-administered land limited to off-highway vehicle use. The use of off-highway vehicles on BLM-administered lands will be regulated in accordance with the authority and requirements of Executive Orders 11644 and 11989 and regulations contained in 43 Code of Federal Regulations 8340. They require that off-highway vehicle use not cause significant adverse effects to resource values, conflicts between visitors be minimized, public hazards be identified, and public safety be promoted. Some of the existing off-highway vehicle designations will remain unchanged from current management. Areas are designated as open, closed, or limited for off-highway vehicles use (see Glossary for definitions). Off-highway vehicle closed and limited areas would remain open to non-motorized recreation use. See Map 8 for more detail.

The following areas will remain closed to off-highway vehicle use:

- ◆ Pacific Crest National Scenic Trail - 3 acres; and
- ◆ Lower Klamath Hills Wildlife area - 1,340 acres.

In addition the following areas will receive new road closures to off-highway vehicles:

- ◆ Spencer Creek;
- ◆ Miller Creek area of critical environmental concern;
- ◆ Old Baldy Research Natural Area;
- ◆ Areas where water quality is being adversely affected; areas where soil erosion or other significant resource damage is occurring (for example, an area receiving off-highway vehicle use affecting threatened or endangered species could be closed to off-highway vehicles). These areas will be identified and any recreation issues resolved during watershed analysis or other activity level planning; and
- ◆ Progeny test sites.

## **Resource Management Plan**

Off-highway vehicle use will be limited to designated roads and trails in the following sites/areas:

- ◆ Klamath River Canyon area of critical environmental concern;
- ◆ Surveyor Mountain area (including Surveyor Recreation site); and
- ◆ Stukel Mountain area.

Off-highway vehicle use will be limited to existing roads and trails in the following sites/areas:

- ◆ Mountain Lakes Wilderness Study Area (an unchanged designation);
- ◆ Yainax Butte area of critical environmental concern;
- ◆ Swan Lake Rim;
- ◆ Bryant Mountain;
- ◆ Gerber Block (including the Gerber recreation site);
- ◆ lands south of Highway 66, outside of the Klamath River Canyon area of critical environmental concern;
- ◆ Topsy recreation site; and
- ◆ Bly Mountain area.

Seasonal off-highway vehicle use limitations will continue in the following areas:

- ◆ Pokegama Wildlife Area (November 20 to April 1); and
- ◆ Klamath Deer Winter Range area (November 1 to April 15).

Seasonal off-highway vehicle use limitations will be added to the following areas:

- ◆ Bryant Mountain (November 1 to April 15)
- ◆ Stukel Mountain (November 1 to April 15)
- ◆ Gerber Block (November 1 to April 15)

Enhance off-highway vehicle use of the following areas:

- ◆ Stukel Mountain;
- ◆ Bryant Mountain;
- ◆ Chase Mountain potential off-highway vehicle trail; and
- ◆ Clover Creek Potential off-highway vehicle trail.

Some possible enhancement measures include easements and/or land will be obtained through exchange or other mutual agreements to enhance future recreation management and opportunities; better informational signing, maps, and patrols; identification of roads needed for primary access and roads for maintaining off-highway vehicle opportunities; minimizing the upgrading of off-highway vehicle roads and trails to areas such as stream crossings and areas receiving active erosion; specific enhancement measures will be addressed in watershed analysis and subsequent project plans. Opportunities to enter into adopt-a-trail agreements with local user groups and the use of Oregon Department of Transportation All-Terrain Vehicle gasoline tax account funds will be pursued.

### **Back Country Byways**

Nominate for designation and facilitate the use of two new National Back Country Byways. Develop interpretive signs, vehicle parking areas, interpretive brochures, etc. for the following potential Back Country Byways (see Map 9 for location of proposed trails and byways).

- ◆ Topsy Road Back Country Byway; and
- ◆ Gerber Area Watchable Wildlife Tour/Modoc Trail Back Country Byway.

Coordinate management of Back Country Byways with county governments, chambers of commerce, regional tourism alliances, U.S. Forest Service, and interested private parties.

### **Riparian Reserves**

Design new recreational facilities within Riparian Reserves, including trails and dispersed sites, so as not to prevent meeting Aquatic Conservation Strategy objectives. Construction of these facilities should not prevent future attainment of these objectives. For existing recreation facilities within Riparian Reserves, evaluate and mitigate impacts to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Aquatic Conservation Strategy objectives.

Adjust dispersed and developed recreation practices that retard or prevent attainment of Aquatic Conservation Strategy objectives. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective, eliminate the practice or occupancy.

## **Late-Successional/District Designated Reserves**

Retain and maintain existing recreation developments consistent with other management actions/direction for Late-Successional Reserves.

Use adjustment measures, such as education, use limitations, traffic control devices, or increased maintenance, when dispersed or developed recreation practices retard or prevent attainment of Late-Successional Reserve objectives.

Neither construct nor authorize new facilities that may adversely affect Late-Successional Reserves.

Review on a case-by-case basis new recreation development proposals. They may be approved when adverse effects can be minimized and mitigated.

Locate new recreation developments to avoid degradation of habitat and adverse effects on identified late-successional species.

Remove hazard trees along trails and in developed recreation areas.

## **Forest Condition Restoration (Forest Health Restoration)**

### **Objectives**

Reduce tree mortality and restore the degree of vigor, resiliency, and stability in forest stands which is necessary in order to achieve land use allocation objectives.

### **Land Use Allocations**

There are no specific land use allocations for forest condition restoration. There is the potential for restoration treatment in all allocations. Estimated program acres, potential benefits, and by-products are shown in Table 6 below.

## **Management Actions/Direction**

### **All Land Use Allocations**

Design and implement silvicultural treatments in stands that exhibit deteriorating conditions. Treatments are intended to restore the ability of stands to respond to other management and to reduce the risk of mortality from drought, insects, disease, and wildfire. Treatments will consist of thinning of stands, prescribed fire, forest fertilization, reduction of under-story vegetation, reduction of ladder fuels, and restoration of more stable plant communities.

Design forest condition restoration treatments to be consistent with the long-term objectives of the allocation in which the treatment is proposed. Develop treatments in an interdisciplinary manner.

Maintain the natural richness of tree species (conifers and hardwoods).

Develop forest condition restoration treatments at the stand level based on the combination of stand condition and trend, on the functional characteristics of the ecosystem, and on characteristics of the site. Design treatments, as much as possible, to prevent the development of undesirable species composition, species dominance, stand density, or other stand characteristics. Employ the principles of integrated pest management and integrated vegetation management to avoid the need for direct treatments. Use herbicides only as a last resort.

### **Riparian Reserves**

Design and implement forest condition restoration treatments in a manner that contributes to the attainment of Aquatic Conservation Strategy objectives.

### **Late-Successional/District Designated Reserves**

Design and implement forest condition restoration treatments if they provide habitat benefits for late-successional associated species or if the effects on such species are negligible.

**Table 6. Forest Condition Restoration Treatments.**

<b>Forest Condition Restoration Treatment</b>	<b>Acres Proposed for Annual Treatment</b>	<b>Potential Benefits</b>	<b>Potential By-Products<sup>1</sup></b>
Restoration Thinning	East - 100 West - 240	<ul style="list-style-type: none"> <li>- increased stand vigor</li> <li>- reduced tree mortality</li> <li>- reduce stocking to site capacity.</li> <li>- control of species composition and structure</li> <li>- reduced susceptibility to insect and disease attack and spread</li> </ul>	Timber, chips
Understory Reduction	East - 50 West - 50	<ul style="list-style-type: none"> <li>- increased overstory vigor</li> <li>- reduction in large overstory mortality.</li> <li>- control of species composition and structure.</li> <li>- reduced fuel hazard by reducing ladder fuels</li> </ul>	Timber, chips
Restoration Underburning <sup>2</sup>	East - Up to 3,000 West - Up to 1,000	<ul style="list-style-type: none"> <li>- increased overstory vigor</li> <li>- reduction in large overstory mortality.</li> <li>- control of species composition and structure.</li> <li>- reintroduction of fire as a natural ecosystem component</li> <li>- plant community restoration.</li> </ul>	-----
Plant Community Restoration	East - 25 West - 15	<ul style="list-style-type: none"> <li>- establishment and maintenance of desired species (including herbs, grasses and shrubs).</li> <li>- prevention of the introduction of noxious weeds.</li> </ul>	-----
Restoration Fertilization	East - 50 West - 140	<ul style="list-style-type: none"> <li>- minimization of thinning shock after restoration thinning.</li> <li>- increased stand vigor</li> <li>- reduced susceptibility to insect attack.</li> </ul>	-----

<sup>1</sup> Some potential exists for all treatments (except restoration fertilization) for by-products.

<sup>2</sup> Does not include acres to be underburned for fuel hazard reduction.

Prior to the use of prescribed fire as a forest condition restoration treatment, develop an interdisciplinary fire management plan specifying how prescribed fire applications will meet the objectives of the Late-Successional Reserve. Until the plan is approved, proposed activities will be subject to review by the Regional Ecosystem Office. Apply prescribed fire in a manner which retains the needed amount of coarse woody debris as determined through watershed analysis.

**Matrix (General Forest Management Area) - West and East Sides**

Retain snags within forest condition restoration treatment units at levels sufficient to support species of cavity-nesting birds at 60 percent of potential population levels. Meet the 60 percent minimum throughout the Matrix with per acre requirements met on average areas no larger than 40 acres.

Special Habitats. In project areas containing special wildlife habitats (for example, talus and meadows) maintain 100 to 200 foot buffers around the special habitat. This could be increased, decreased, or manipulated based on site-specific circumstances. Ecologically significant buffers will be determined by interdisciplinary teams.

**Timber Resources**

**Objectives**

Provide a sustainable supply of timber and other forest products while maintaining a healthy, functioning ecosystem.

Manage developing stands on available lands to promote tree survival and growth and to achieve a balance between wood volume production, quality of wood, and timber value at harvest.

Manage timber stands to reduce the risk of stand loss from fires, animals, insects, and diseases.

Provide for salvage harvest of timber killed or damaged by events such as wildfire, windstorms, insects, or disease, consistent with management objectives for other resources.

**Land Use Allocations**

**Table 7. Matrix Timber Allocations**

Land Use Allocation	Approx. Acres	
	West side	East side
Matrix (General Forest Management Areas-including visual resource management class II, rural interface, and TPCC restricted)	23,550	8,750

The general forest management area lands are available for restricted timber production only (see also Table 1 in Appendix B). Restricted timber production refers to management of forest stands for purposes other than intensive commodity production, such as development of old growth habitat, visual quality, or ecosystem stability and maintenance.

**Management Actions/Direction**

**Matrix (General Forest Management Area) - West and East Sides**

Declare an annual allowable sale quantity of 1.03 million cubic feet on the west side and 0.08 million cubic feet on the east side of the Klamath Falls Resource Area.

The allowable sale quantity for the resource management plan is an estimate of annual average timber sale volume likely to be achieved from lands allocated to planned, sustainable harvest. Harvest of this approximate volume of timber is considered sustainable over the long term. This is based on assumptions that the available land base remains fixed, and that funding is sufficient to make planned investments in timely reforestation, plantation maintenance, thinning, genetic selection, forest fertilization, timber sale planning, related forest resource protection, and monitoring.

The allowable sale quantity represents neither a minimum level that must be met nor a maximum level that cannot be exceeded. It is an approximation because of the difficulty associated with predicting actual timber sale levels over the next decade, given the complex nature of many of the management

## Resource Management Plan

actions/directions. It represents BLM's best assessment of the average amount likely to be awarded annually in the planning area over the life of the plan, following a start-up period. The actual sustainable timber sale level attributable to the land use allocations and management direction of the resource management plan may deviate by as much as 40 percent from the identified allowable sale quantity. As inventory, watershed analysis, and site-specific planning proceed in conformance with that management direction, the knowledge gained will permit refinement of the allowable sale quantity. The separable component of the allowable sale quantity attributable to lands in key watersheds carries a higher level of uncertainty, due to the greater constraints of Aquatic Conservation Strategy objectives and the requirement to prepare watershed analyses before activities can take place.

During the first several years, the annual allowable sale quantity will not likely be offered for sale. The resource management plan represents a new forest management strategy. Time will be required to develop new timber sales that conform to the resource management plan.

Maintain a well distributed pattern of early and mid-seral forest across the Matrix.

Apply silvicultural systems that are planned to produce, over time, forests which have desired species composition, structural characteristics, and distribution of seral or age classes (see Appendix E).

Develop plans for the locations and specific designs of timber harvests and other silvicultural treatments within the framework of watershed analyses (see Appendix E).

Select logging systems based on the suitability and economic efficiency of each system for the successful implementation of the silvicultural prescription, for protection of soil and water quality, and for meeting other land use objectives.

Base silvicultural treatments and harvest designs on the functional characteristics of the ecosystem and on the characteristics of each forest stand and site. Treatments will be designed, as much as possible, to prevent the development of undesirable species composition, species dominance, or other stand characteristics. The principles of integrated pest management and integrated vegetation management will be employed to avoid the need for direct treatments. Herbicides will be used only as a last resort.

**Unscheduled Harvests.** Manage suitable and nonsuitable woodlands (all categories) for resource values other than sustained timber production. Other forest lands not subject to planned harvest include existing high-use recreation sites, riparian-wetland areas, Mountain Lakes Wilderness Study Area, proposed area of critical environmental concern, an area adjacent to the Pacific Crest Trail, bald eagle and peregrine falcon nest site protection areas, and identified cultural sites. Plan unscheduled harvest to manipulate stand density, composition, fuel loads, or other features where the resulting stand will improve forest ecological condition, wildlife habitat, or other resource values. Specifically, plan harvest of marketable western juniper woodlands for improvement of forest or range land ecosystem or watershed conditions. Up to 1,000 acres per year of juniper woodland could be harvested for commercial forest products. See also Riparian Reserves and Late-Successional/District Designated Reserves sections.

Apply the management actions/direction in the Riparian Reserves, Late-Successional/District Designated Reserves, and Special Status and Supplemental Environmental Impact Statement Special Attention Species section. Appendix E describes the silvicultural systems to be applied to available forest lands.

On the east side, retain 5 to 10 of the largest (greater than 16 inches diameter at breast height) and healthiest green trees per acre. In addition, maintain a sustainable uneven-aged understory so that there is a variety of different sized trees and species represented throughout the stand available for recruitment.

On the west side, retain 16 to 25 large green trees per acre in harvest units.

Retain late-successional forest patches in landscape areas where little late-successional forest persists. This management action/direction will be applied in fifth field watersheds (20 to 200 square miles) in which federal forest lands are currently comprised of 15 percent or less late-successional forest. (The assessment of 15 percent will include all federal land allocations in a watershed.) Within such an area, protect all remaining late-successional forest stands. Protection of these stands could be modified in the future when other portions of a watershed have recovered to the point where they could replace the ecological roles of these stands.

Retain snags within a timber harvest unit at levels sufficient to support species of cavity-nesting birds at 60 percent of potential population levels. Meet the 60 percent minimum throughout the Matrix with per acre requirements met on average areas no larger than 40 acres.

On the west side, leave 120 linear feet of logs per acre greater than or equal to 16 inches in diameter and 16 feet long. On the east side, leave 50 linear feet of logs per acre greater than or equal to 12 inches in diameter and 8 feet long. Existing decay class 1 and 2 logs count toward this requirement. Down logs will reflect the species mix of original stands. Where this management action/direction cannot be met with existing coarse woody debris, merchantable material will be used to make up the deficit.

Within identified sensitive rural interface areas, alter forest management practices, where realistically feasible, to mitigate adjacent landowner concerns. Practices used will be consistent with sustained yield.

**Special Habitats.** In project areas containing special wildlife habitats (for example, talus and meadows) maintain 100 to 200 foot buffers around the special habitat. This could be increased, decreased, or manipulated based on site-specific circumstances. Ecologically significant buffers will be determined by interdisciplinary teams.

## **Special Forest/Natural Products**

### **Objectives**

Manage for the production and sale of special forest/natural products when demand is present and where actions taken are consistent with primary objectives for the land use allocation.

Use the principles of ecosystem management to guide the management and harvest of special forest/natural products.

### **Land Use Allocations**

No land use allocations are made specifically for special forest/natural products.

### **Management Actions/Direction**

#### **All Land Use Allocations**

Allow harvest of special forest/natural products throughout the resource area but apply the area and plant species/group restrictions as shown in Table 8.

Establish specific guidelines for the management of individual special forest products using interdisciplinary review as needed. Management guidelines will

be based on the ecological characteristics of the special forest product species and the requirements of associated plant, animal, and fungal species. Guidelines will include methods of harvest and provisions that minimize changes in site productivity. Monitoring of harvest activities and the effects of harvest will be part of special forest product management. Feasibility to harvest newly identified special forest product species will receive interdisciplinary review.

In appropriate areas (for example, the Matrix) manage hardwood stands originating from nonhuman causes for the continued production and sale of hardwood timber and products.

Limit harvests of fuelwood and posts.

### **Riparian Reserves**

Where catastrophic events result in degraded riparian conditions, allow fuelwood cutting if required to attain Aquatic Conservation Strategy objectives.

### **Late-Successional/District Designated Reserves**

Permit fuelwood gathering only in existing cull decks, in areas where green trees are marked by silviculturists for thinning, in areas where blowdown is blocking roads, and in recently harvested timber sale units where down material will impede scheduled post-sale activities or pose an unacceptable risk of future large scale disturbance. In all cases, these activities will comply with management actions/direction for Late-Successional/District Designated Reserves.

Evaluate whether special forest product harvest activities have adverse effects on Late-Successional/District Designated Reserves objectives.

Prior to selling special forest products, ensure resource sustainability and protection of other resource values such as special status plants or animal species.

Where special forest product activities are extensive, evaluate whether they have significant effects on late-successional habitat. Restrictions may be appropriate in some cases.

**Table 8. Special Forest/Natural Products**

Area	<u>Limited Harvest</u>	<u>No Harvest</u>
Areas of critical environmental concern	X	
Research natural areas		X
Environmental education areas	X	
Special habitats		X
White oak woodlands	X	
Developed recreation sites	X	
Known cultural resource sites		X
Wetlands	X	
Fragile soils areas	X	
Special status fauna or flora sites		X
Late-Successional/District Designated Reserve Buffers	X	
Late-Successional/District Designated Reserves		X
Riparian Reserves	X	
Key Watersheds	X	
Wilderness Study Area		X
<b>Plant Species or Group</b>		
Lily family ( <i>Liliaceae</i> )	X	
Orchid family ( <i>Orchidaceae</i> )	X	
Iris family ( <i>Iridaceae</i> ) except common iris	X	
Special status plant species		X
Lichens	X	
Ferns	X	
Conifer boughs	X	
Mosses	X	
Mushrooms	X	
Cones	X	
Mushrooms	X	
Incense Cedar Boughs	X	
Christmas Trees	X	
Juniper Boughs	X	
Manzanita Boughs	X	
Juniper Seedlings	X	
Aspen Seedlings	X	
Pacific Yew		X

## Energy and Minerals

### Objectives

Maintain exploration and development opportunities for leasable and locatable energy and mineral resources.

Provide opportunities for extraction of salable minerals by other government entities, private industry, individuals, and nonprofit organizations.

Continue to make available mineral resources on the reserved federal mineral estate.

### Land Use Allocations

See Table 9 for energy and mineral allocations. The acreages given in these tables and the discussion below are approximate. Overlapping restrictions from different land use allocations have been taken into consideration, and where this occurs, the most restrictive constraint was used.

**Table 9. Energy and Mineral Allocations**

Energy and Mineral Management	Acres
Available for oil and gas and geothermal leasing <sup>1</sup>	238,400
Closed to oil, gas and geothermal leasing	300
Open to mining claim location and operation	229,500
Closed to mining location <sup>2</sup>	6,400
Available for salable mineral disposal	222,500
Closed to salable mineral disposal	14,800

<sup>1</sup> There would be 1,400 acres less of geothermal resources.

<sup>2</sup> An additional 1,500 acres closed to non-metalliferous mineral location.

**Locatable Minerals.** Approximately 191,600 acres of the 235,900 acres of federally-owned locatable minerals will be open to mining claim location and operation subject to standard requirements. Another 37,900 acres will be subject to additional restrictions. About 5,800 acres will continue to be withdrawn from mineral entry, with an additional 1,500 acres withdrawn from nonmetalliferous mineral entry. The Old Baldy Research Natural Area will be recommended for withdrawal (600 acres; See Table 10).

**Table 10. Locatable Mineral Restrictions (acres)**

Closed Nondiscretionary <sup>1</sup>	4,700
Closed Discretionary <sup>2</sup>	700
Open - With Standard Requirements <sup>3</sup>	191,600
Open - With Additional Restrictions <sup>4</sup>	37,900

<sup>1</sup> Existing withdrawals, Federal Energy Regulatory Commission power project permits and licenses in effect. Includes 1,500 acres closed to non-metalliferous mining only.

<sup>2</sup> Recreation and Public Purposes Act lease, Old Baldy proposed withdrawal.

<sup>3</sup> Powersite reserves, off-highway vehicle closures, wilderness study areas, designated or suitable scenic/recreational rivers, areas of critical environmental concern and research natural areas, some cultural resources sites, federal mineral estate only, special management areas, and special recreation management areas.

## Resource Management Plan

**Leasable Minerals.** Approximately 197,600 acres of the 238,700 acres of federally-owned oil and gas and 237,300 acres of federally-owned geothermal resources will be available for leasing subject to restrictions. No surface occupancy stipulations will be imposed on another 40,800 acres of oil and gas and geothermal resources. Leasing will not be allowed within the 300 acre Mountain Lakes Wilderness Study Area (see Table 11).

**Salable Minerals.** Approximately 222,500 acres of the 237,300 acres of federally-owned salable minerals will be open to mineral material disposal subject to restrictions. About 14,800 acres will be unavailable for mineral material disposal in order to protect important resource values and special investments (see Table 12).

**Table 11. Oil and Gas and Geothermal Lease Restrictions (acres)**

Closed Nondiscretionary <sup>1</sup>	300
Closed Discretionary	0
Open - No Surface Occupancy <sup>2</sup>	40,800
Open - With Standard Terms	0
Open - With Additional Stipulations <sup>3</sup>	197,600

<sup>1</sup> Congressional and other agency withdrawals, and wilderness study areas.

<sup>2</sup> Administrative sites, including recreation sites and progeny test sites; Recreation and Public Purposes Act leases; some areas of critical environmental concern; some special management areas; some special recreation management areas; research natural areas; threatened and endangered species habitat; some cultural resources sites; Late-Successional/District Designated Reserve (RMP); and Riparian Resources (RMP).

<sup>3</sup> Proposed or existing BLM withdrawals; powersite withdrawals; seasonal wildlife restrictions; Riparian Reserves; corridors of rivers designated as, or suitable for, designation as scenic or recreational; rural interface areas; Visual Resource Management Class II areas; off-highway vehicle restricted areas; federal mineral estate; wetlands; and Late-Successional/District Designated Reserve buffers. Subtract 1,400 acres across all alternatives for geothermal resources.

**Table 12. Salable Mineral Restrictions (acres)**

Closed Nondiscretionary <sup>1</sup>	300
Closed Discretionary	14,500
Open - With Standard Terms	0
Open - With Additional Stipulations <sup>3</sup>	222,500

<sup>1</sup> Wilderness study area.

<sup>2</sup> Proposed or existing withdrawals; areas of critical environmental concern; research natural areas; special management areas; special recreation management areas; corridors of rivers suitable for designation as scenic or recreational; Recreation and Public Purposes Act leases; habitat for sensitive, threatened, or endangered species of plants and animals; Visual Resource Management Class I; administrative sites (not withdrawn); cultural resource sites; wetlands; and Late-Successional/District Designated Reserves.

<sup>3</sup> Federal mineral estate only, rural interface areas, seasonal wildlife restrictions, Visual Resource Management Class II, powersite withdrawals, Riparian Reserves, off-highway vehicle closures, and Late-Successional/District Designated Reserves.

## Management Actions/Direction

See Tables 10, 11, and 12 for restrictions on energy and mineral activities and Appendix G for leasing notices and stipulations, and operating standards pertinent to locatable and salable minerals.

## All Land Use Allocations

### Leasable Minerals

Use special stipulations for oil, gas and geothermal leases to protect fragile areas or critical resource values (see Appendix G for a list of mineral restrictions by resource value). Special stipulations may include seasonal restrictions to protect resources such as critical wildlife habitat, prevent excessive erosion, etc.; controlled surface use stipulations to protect valuable resources in small areas; and no surface occupancy stipulations to protect valuable resources scattered over a large area while still providing an opportunity for exploration and development. Special stipulations may be waived by authorized BLM officials if the objective of a stipulation could be met in another way.

**Locatable Minerals**

Use general requirements in 43 Code of Federal Regulations 3809 and site-specific guidelines to avoid unnecessary or undue degradation of resources on mining claims.

Require reclamation at the earliest feasible time for all surface-disturbing operations, whether conducted under a notice or approved plan of operations.

**Salable Minerals**

Address quarry development, management, and reclamation needs through implementation planning.

Emphasize long-term regional quarry use.

Develop new quarry sites in locations consistent with overall management objectives and guidelines of the resource management plan.

Continue to use rock from existing quarries for construction and maintenance of timber sale access roads and other purposes.

**Riparian Reserves**

NOTE: The following management actions/direction differ from the standards and guidelines in the Supplemental Environmental Impact Statement Record of Decision since the standards and guidelines are not all implementable under current laws and regulations. The stronger standards and guidelines in the Supplemental Environmental Impact Statement Record of Decision (Appendix A) will be adopted at such time as changes in current laws and/or regulations authorize their implementation.

For any proposed locatable mining operation in Riparian Reserves, other than notice level or casual use, require the following actions by the operator consistent with 43 Code of Federal Regulations 3809:

- ◆ Prepare a Plan of Operations, including a reclamation plan and reclamation bond for all mining operations in Riparian Reserves. Such plans and bonds will address the costs of removing facilities, equipment, and materials; recontouring of disturbed areas to an approved topography; isolating and neutralizing or removing toxic or potentially toxic materials; salvaging and replacing topsoil; and revegetating to meet Aquatic Conservation Strategy objectives.
- ◆ Locate structures, support facilities, and roads outside Riparian Reserves. If no alternative to siting facilities in Riparian Reserves exists, locate

in a way compatible with Aquatic Conservation Strategy objectives. Road construction will be kept to the minimum necessary for the approved mineral activity. Roads will be constructed and maintained to meet road management standards and to minimize damage to resources in Riparian Reserves. When a road is no longer required for mineral or land management activities, it will be reclaimed. In any case, access roads will be constructed consistent with 43 Code of Federal Regulations 3809 and acceptable road construction standards and will minimize damage to resources in Riparian Reserves.

- ◆ Avoid locating solid and sanitary waste facilities in Riparian Reserves. If no alternative to locating mine waste (waste rock, spent ore, tailings) facilities in Riparian Reserves exists, releases can be prevented, and stability can be ensured, then:
  - ◆ Analyze the waste material using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics.
  - ◆ Locate and design the waste facilities using best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials. If the best conventional technology is not sufficient to prevent such releases and ensure stability over the long term, prohibit such facilities in Riparian Reserves.
  - ◆ Reclaim waste facilities after operations to ensure chemical and physical stability and to meet Aquatic Conservation Strategy objectives.
- ◆ Monitor waste and waste facilities after operations to ensure chemical and physical stability and to meet Aquatic Conservation Strategy objectives.
- ◆ Require reclamation bonds adequate to ensure chemical and physical stability and to meet Aquatic Conservation Strategy objectives.
- ◆ Where an existing operator is in noncompliance at the notice level (that is, causing unnecessary or undue degradation), require actions similar to those stated above to meet the intent of 43 Code of Federal Regulations 3809.

For future leasable mineral activity in Riparian Reserves, prohibit surface occupancy for oil, gas, and geothermal exploration and development activities unless it can be demonstrated that impacts will be acceptable or can be mitigated so that the objectives of the

## **Resource Management Plan**

Aquatic Conservation Strategy can be met. Where possible, adjust the stipulations in existing leases to eliminate impacts that retard or prevent the attainment of Aquatic Conservation Strategy objectives, consistent with existing lease terms and stipulations.

Allow development of salable minerals, such as sand and gravel, within Riparian Reserves only if Aquatic Conservation Strategy objectives can be met.

Develop inspection and monitoring requirements and include such requirements in exploration and mining plans and in leases or permits consistent with existing laws and regulations. Evaluate the results of inspection and monitoring to determine if modification of plans, leases and permits is needed to eliminate impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives.

### **Late-Successional/District Designated Reserves**

Assess the impacts of ongoing and proposed mining activities in Late-Successional/District Designated Reserves.

Include stipulations in mineral leases and, when legally possible, require operational constraints for locatable mineral activities to minimize detrimental effects on late-successional habitat.

## **Grazing Management**

### **Objectives**

Provide for livestock grazing in an environmentally sensitive manner, consistent with other objectives and land use allocations. Resolve resource conflicts and concerns and ensure that livestock grazing use is consistent with the objectives and direction found in Appendix H (Grazing Management).

Integrate the appropriate state specific "Standards and Guidelines for Livestock Grazing" (when determined), into the resource areas grazing program, to ensure ecological health and conditions concurrent with livestock grazing.

Provide for range land improvement projects and management practices, consistent with other objectives and land use allocations.

## **Land Use Allocations**

Provide for initial levels of livestock grazing within the parameters outlined, by allotment, in Appendix H. Changes in this plan's grazing use will be done as described in the monitoring and evaluation discussion in the Management Actions/Directions section below.

The actual geographical area defined and allocated for each allotment is found on Map 10 in the map packet. More specific allotment boundaries and legal delineations are found within the grazing allotment files located in the Klamath Falls Resource Area office. Areas within allotments which are specifically excluded from livestock grazing are listed in Appendix H.

## **Management Actions/Direction**

### **General**

Implement the grazing management program as guided by the collection of vegetative monitoring data, and as outlined in the 1988 Oregon Rangeland Monitoring Handbook (H-1732-2), the Manual Handbooks (4000 series), BLM Technical References 1737 and 4400 series, the resource area's *Coordinated Monitoring and Evaluation Plan for Grazing Allotments*, and other applicable policies and direction. Appendix H, provides an overview of the resource areas monitoring program.

Adjust grazing use (including, but not limited to, changes in season-of-use, kinds and classes of livestock, numbers of animals, grazing capacity, management facilities needed) based on and supported by the ongoing range land studies performed in accordance with the above guidance. Review the results of these studies by an interdisciplinary team of resource specialists through the allotment evaluation process. Recommend future management actions (in consultation, coordination, and cooperation with the affected interests) to the Area Manager for review, modification, and/or approval. When necessary, implement changes in permitted use through written agreement or decision. An allotment management plan may be completed, or revised where one exists, after an evaluation to implement management changes, propose additional range improvements, set more specific resource objectives, or modify other aspects of the grazing use as allowed by policy and regulations. Temporary non-use for all or a portion of the grazing on an allotment may be approved by the Area Manager, on a year-to-year basis, as needed to meet the management objectives of this plan or to

Make BLM-administered lands in Zones 1, 2, and 3 available for a variety of uses as authorized by section 302 of the Federal Land Policy and Management Act, the Recreation and Public Purposes Act, and special recreation permits.

Manage newly acquired lands for the purpose for which they are acquired or consistent with the management objectives for adjacent BLM-administered lands. If lands with unique or fragile resource values are acquired, protect those values until the next plan revision.

Eliminate unauthorized use of BLM-administered land.

**Land Use Allocations**

**Table 13. Land Tenure Zone Allocations**

<u>Zone</u>	<u>Acres</u>
Zone 1	186,000
Zone 2	3,000
Zone 3	23,000

See Map 11 for location of land tenure zones. See Appendix I for legal descriptions of Zone 3 lands.

**Management Actions/Direction**

**All Land Use Allocations**

Use the land tenure adjustment criteria shown in Appendix I when conducting environmental analyses for site-specific proposals. Application of these criteria may result in retention of some Zone 2 or 3 lands.

Maintain or increase public land holdings in Zone 1 by retaining public lands and acquiring nonfederal lands with high public resource values. The primary mode of acquisition will be through exchange of BLM-administered lands in Zones 2 and 3. Utilize purchases and donations if exchange is not feasible.

Consult with county governments prior to any land exchange.

Consider the effect of land tenure adjustments on the mineral estate. If the lands are not known to have mineral potential, the mineral estate will normally be transferred simultaneously with the surface estate.

Minimize impact on local tax base by emphasizing exchanges rather than fee purchase.

Make exchanges to enhance public resource values and/or improve land patterns and management capabilities of both private and BLM-administered land within the planning area by consolidating ownership and reducing the potential for land use conflict.

Consider transfer of BLM-administered land to other Federal agencies or acquisition of other federal lands where consistent with public land management policy and where improved management efficiency will result.

Consider conveying the subsurface mineral interest owned by the United States to the existing or proposed owner of the surface estate consistent with the Federal Land Policy and Management Act Section 209(b).

Prohibit disposal of Zone 2 lands through sales under Section 203(a) of the Federal Land Policy and Management Act. Zone 2 lands may be transferred to other public agencies or managed under some form of cooperative agreement. Zone 2 lands will generally remain under BLM administration.

Dispose of Zone 3 lands through sale under Section 203(a) of the Federal Land Policy and Management Act if no viable exchange proposals can be identified. Zone 3 lands could also be transferred to another Federal agency or state or local government as needed, to accommodate community expansion or other public purposes.

**Riparian Reserves**

Use land acquisition, exchange, and conservation easements to meet Aquatic Conservation Strategy objectives and facilitate restoration of fish stocks and others species at risk of extinction.

**Late-Successional/District Designated Reserves**

Consider land exchanges when they will provide benefits equal to or better than current conditions.

Consider land exchanges especially to improve area, distribution, and quality (for example, connectivity, shape, and contribution to biodiversity) of Late-Successional/District Designated Reserves and where public and private lands are intermingled.

meet the needs of grazing users. Temporary nonrenewable grazing use may also be approved if resource conditions warrant it and the management objectives of this plan are met.

Monitoring studies and evaluations will be, at a minimum, done on a schedule as outlined in the Oregon Rangeland Monitoring Handbook (H-1734-2). Current direction is to perform an allotment evaluation every 5 years for "I" category allotments and every 10 years for "M" category allotments. "C" category allotments will be monitored and evaluated as needed.

Continue to develop short-duration, high-intensity grazing systems on section 3 grazing lands in the Gerber Block to improve riparian and wetland resources. Livestock grazing management practices will provide for regrowth of riparian plants after use or will leave sufficient vegetation for maintenance of plant vigor and streambank protection. More specifics are found in Appendix H, Grazing in Riparian-Wetland Areas Section, and in the Soils Section earlier in this chapter.

Additional and future guidance, pertinent to the livestock grazing program, will be incorporated into the resource areas grazing program, as applicable. The primary example of this will be the state specific *Standards and Guidelines for Livestock Grazing*, which are expected to be implemented in the next two or three years, as a result of Rangeland Reform '94. Additionally, any requirements, goals, and objectives devised as a result of the Eastside Ecosystem Management Project will be incorporated into the resource area's grazing management program as appropriate.

Construct range land improvements as needed to support achievement of management objectives. Range land improvements may include, but are not limited to fence and reservoir construction, spring developments, vegetation manipulation, and prescribed burns. See Appendix H for a listing of proposed range land improvements, for each grazing allotment, predicted to be necessary at this time. This does not preclude proposing and implementation of additional or different range land improvement projects in the future as necessary to support achievement of resource objectives.

### **Riparian Reserves**

Adjust or eliminate grazing practices that retard or prevent attainment of Aquatic Conservation Strategy objectives, through a planning and environmental analysis process appropriate to the action.

Locate new livestock handling and/or management facilities outside Riparian Reserves. Ensure that Aquatic Conservation Strategy objectives are met for existing livestock handling facilities inside Riparian Reserves. Where these objectives cannot be met, require relocation or removal of such facilities.

Limit livestock trailing, bedding, watering, loading, and other handling efforts to those areas and times that will ensure Aquatic Conservation Strategy objectives are met.

Protect the following sites from grazing: known and newly discovered sites of the following mollusk species will be protected from grazing by all practicable steps to ensure that the local populations of the species will not be impacted. These species include: *Fluminicola n. sp. 1*, *Fluminicola n. sp. 11*, *Fluminicola n. sp. 19*, *Fluminicola n. sp. 20*, *Fluminicola n. sp. 3*, and *Fluminicola seminalis*. Freshwater mollusks in the family *Hydrobiidae* (to which the genus *Fluminicola* belong) are known to exist in the resource area. Tentative identification of mollusks collected at several sites in the resource area has been made. Further investigation is required for more positive identification of which species of *Fluminicola* are present in the resource area. Implementation of protection actions will be initiated after watershed analysis and appropriate National Environmental Policy Act decisions.

### **Late-Successional/District Designated Reserves**

In coordination with wildlife and fish biologists, implement range-related management activities that do not adversely affect late-successional habitat.

Adjust or eliminate grazing practices that retard or prevent attainment of Late-Successional/District Designated Reserve objectives through a planning and environmental analysis process appropriate to the action.

Evaluate effects of existing and proposed livestock management and handling facilities in Late-Successional/District Designated Reserves to determine if reserve objectives are met. Where objectives cannot be met, relocate livestock management and/or handling facilities.

Make BLM-administered lands in Zones 1, 2, and 3 available for a variety of uses as authorized by section 302 of the Federal Land Policy and Management Act, the Recreation and Public Purposes Act, and special recreation permits.

Manage newly acquired lands for the purpose for which they are acquired or consistent with the management objectives for adjacent BLM-administered lands. If lands with unique or fragile resource values are acquired, protect those values until the next plan revision.

Eliminate unauthorized use of BLM-administered land.

**Land Use Allocations**

**Table 13. Land Tenure Zone Allocations**

<u>Zone</u>	<u>Acres</u>
Zone 1	186,000
Zone 2	3,000
Zone 3	23,000

See Map 11 for location of land tenure zones. See Appendix I for legal descriptions of Zone 3 lands.

**Management Actions/Direction**

**All Land Use Allocations**

Use the land tenure adjustment criteria shown in Appendix I when conducting environmental analyses for site-specific proposals. Application of these criteria may result in retention of some Zone 2 or 3 lands.

Maintain or increase public land holdings in Zone 1 by retaining public lands and acquiring nonfederal lands with high public resource values. The primary mode of acquisition will be through exchange of BLM-administered lands in Zones 2 and 3. Utilize purchases and donations if exchange is not feasible.

Consult with county governments prior to any land exchange.

Consider the effect of land tenure adjustments on the mineral estate. If the lands are not known to have mineral potential, the mineral estate will normally be transferred simultaneously with the surface estate.

Minimize impact on local tax base by emphasizing exchanges rather than fee purchase.

Make exchanges to enhance public resource values and/or improve land patterns and management capabilities of both private and BLM-administered land within the planning area by consolidating ownership and reducing the potential for land use conflict.

Consider transfer of BLM-administered land to other Federal agencies or acquisition of other federal lands where consistent with public land management policy and where improved management efficiency will result.

Consider conveying the subsurface mineral interest owned by the United States to the existing or proposed owner of the surface estate consistent with the Federal Land Policy and Management Act Section 209(b).

Prohibit disposal of Zone 2 lands through sales under Section 203(a) of the Federal Land Policy and Management Act. Zone 2 lands may be transferred to other public agencies or managed under some form of cooperative agreement. Zone 2 lands will generally remain under BLM administration.

Dispose of Zone 3 lands through sale under Section 203(a) of the Federal Land Policy and Management Act if no viable exchange proposals can be identified. Zone 3 lands could also be transferred to another Federal agency or state or local government as needed, to accommodate community expansion or other public purposes.

**Riparian Reserves**

Use land acquisition, exchange, and conservation easements to meet Aquatic Conservation Strategy objectives and facilitate restoration of fish stocks and others species at risk of extinction.

**Late-Successional/District Designated Reserves**

Consider land exchanges when they will provide benefits equal to or better than current conditions.

Consider land exchanges especially to improve area, distribution, and quality (for example, connectivity, shape, and contribution to biodiversity) of Late-Successional/District Designated Reserves and where public and private lands are intermingled.

## Rights-of-Way

### Objectives

Continue to make BLM-administered lands available for needed rights-of-way where consistent with local comprehensive plans, Oregon statewide planning goals and rules, and the exclusion and avoidance areas identified in this Resource Management Plan.

Ensure that all rights-of-way for hydroelectric development are consistent with the Northwest Power Planning Council guidance, which recommends prohibiting future hydroelectric development on certain rivers and streams with significant fisheries and wildlife values.

### Land Use Allocations

Where consistent with local comprehensive plans and Oregon's statewide planning goals and rules, BLM-administered lands will continue to be available for needed rights-of-way. Utility/transportation routes (for electric transmission, as distinguished from electricity distribution or facilities; pipelines 10 inches in diameter or larger; significant canals, ditches and conduits; railroads; communication lines for interstate use; federal and state highways; and major county roads) will be confined to existing and other previously designated corridors, which are shown on Map 12. Communication facilities will be allowed on existing communication sites, also shown on Map 12.

Corridor widths vary depending on the number of parallel facilities within the corridor, but are a minimum

of 2,000 feet (1,000 feet on either side of existing center lines) unless restricted by exclusion areas described in the following paragraph. Applicants will be encouraged to locate new facilities (including communication sites) adjacent to existing facilities to the extent technically and economically feasible. New facilities will be limited to the minimum acreage necessary for operation and maintenance.

All research natural areas, visual resource management Class I areas (see the Visual Resources section), and the Mountain Lakes Wilderness Study Area will be considered right-of-way exclusion areas (where future rights-of-way will be granted only when mandated by law).

With the exception of buried lines in rights-of-way of existing roads, avoid locating rights-of-way in the areas listed in Table 14.

Future rights-of-way may be granted in avoidance areas when no feasible alternative route or designated right-of-way corridor is available.

## Management Actions/Direction

### Riparian Reserves

Issue rights-of-way to avoid adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives. Where legally possible, adjust existing rights-of-way to eliminate adverse effects that retard or prevent the attainment of Aquatic Conservation Strategy objectives. If adjustments are not effective and where legally possible, eliminate the

**Table 14. Right-of-Way Avoidance Areas**

Avoidance Area	Acres
Recreation Sites (existing and proposed)	700
Areas of Critical Environmental Concern (except research natural areas)	7,680
Scenic and Recreational Rivers (suitable)	4,660
Sensitive Species Habitat	4,000
Visual Resource Management Class II Areas	33,500
Late-Successional/District Designated Reserves	1,600
Late-Successional/District Designated Reserve Buffers	3,900

activity. Priority for modifying existing rights-of-way will be based on the actual or potential impact and the ecological value of the riparian-wetland resources affected.

For proposed hydroelectric projects under the jurisdiction of the Federal Energy Regulatory Commission, provide timely, written comments regarding maintenance of instream flows and habitat conditions and maintenance/restoration of riparian resources and stream channel integrity. Request the Federal Energy Regulatory Commission to locate proposed support facilities outside of Riparian Reserves. For existing support facilities inside Riparian Reserves that are essential to proper management, provide recommendations to the Federal Energy Regulatory Commission that ensure Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, provide recommendations to the Federal Energy Regulatory Commission that such support facilities should be relocated. Existing support facilities that must be located in the Riparian Reserves should be located, operated, and maintained with an emphasis to eliminate adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives.

The right-of-way application for the Salt Caves hydroelectric project is denied based on the Secretary of Interior's designation of the upper Klamath River as scenic. The outcome of litigation between the City of Klamath Falls and the Secretary of the Interior could change this decision.

For other hydroelectric and surface water development proposals in Tier 1 Key Watersheds, require instream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage. Coordinate this process with the appropriate state agencies. For other hydroelectric and surface water development proposals in all other watersheds, give priority emphasis to instream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage. Coordinate this process with the appropriate state agencies.

### ***Late-Successional/District Designated Reserves***

Retain and maintain existing developments, such as utility corridors and electronic sites, consistent with other management actions/direction for Late-Successional/District Designated Reserves.

Neither construct nor authorize new facilities that may adversely affect Late-Successional/District Designated Reserves.

Review on a case-by-case basis new development proposals. They may be approved when adverse effects can be minimized and mitigated.

Locate new developments to avoid degradation of habitat and adverse effects on identified late-successional species.

Remove hazard trees along utility rights-of-way and in other developed areas.

### ***Other Land Use Allocations***

Encourage location of major new rights-of-way projects in existing utility/transportation routes and other previously designated corridors.

Encourage applicants to consult the Western Regional Corridor Study in planning route locations.

Consider new locations for rights-of-way projects on a case-by-case basis. Applications may be approved where the applicant can demonstrate that use of an existing route or corridor will not be technically or economically feasible; and the proposed project will otherwise be consistent with this resource management plan and will minimize damage to the environment.

Allow expansion of communications facilities on existing communication sites.

Consider new communication sites on a case-by-case basis. Applications may be approved where the applicant can demonstrate that use of an existing, developed communication site will not be technically feasible; and the proposed facility will otherwise be consistent with this resource management plan and will minimize damage to the environment.

**Alternative Energy Projects.** Issuance of a right-of-way grant for alternative energy (pumped storage, wind, etc.) are acceptable so long as the proposal is consistent with other resource values and management objectives. Consistency will be determined by appropriate site-specific National Environmental Policy Act analysis.

## Access

### Objectives

Acquire access to public lands to assist various programs to meet management objectives.

### Land Use Allocations

None

### Management Actions/Direction

Acquire access to Zone 1 and large blocks of Zone 2 lands when appropriate to manage the resources found there, by obtaining easements, entering into new reciprocal right-of-way agreements, or amending existing reciprocal right-of-way agreements. Condemnation for access will be pursued when necessary.

Acquire perpetual exclusive easements whenever possible to provide for public access and BLM control. Acquire nonexclusive easements, which do not provide for public access, consistent with management objectives and where no public access is needed. Acquire temporary easements only when other options are not available.

Continue to obtain access across lands of private companies or individuals who are a party (permittee) to existing reciprocal rights-of-way agreements through appropriate agreements. Whenever a willing permittee is identified and it is determined there is a need for public access, negotiations could be started to provide for the acquisition of public access rights.

Emphasize acquisition for public access on major travel routes.

## Withdrawals

### Objectives

Protect lands with important resource values and/or significant levels of investment by withdrawing them from the operation of public land and mineral laws. Withdrawal is necessary to avoid irreparable damage that may be caused by nondiscretionary activities.

## Land Use Allocations

Tables 15, 16, and 17 show recommendations for communication sites, withdrawals, and management direction for land returning to BLM-administration. (Table 16 is located in Appendix J.)

Bureau of Land Management-proposed withdrawals are as follows:

1. T. 39S. R. 9E., Sec. 21, lots 15, 17, and 18 Klamath Falls administrative site - 10.04 acres. Transfer jurisdiction of an existing Fish and Wildlife Service Administrative site withdrawal to the BLM. Withdrawal is needed to protect improvements (tree seedling cooler) placed upon public land.
2. T. 38N. R. 5E., Sec. 19 lots 3 and 4, S $\frac{1}{2}$ S $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ , S $\frac{1}{2}$ SE $\frac{1}{4}$ ; Sec. 29 W $\frac{1}{2}$ W $\frac{1}{2}$ W $\frac{1}{2}$ NW $\frac{1}{4}$ ; Sec. 30 lots 1, and 2, N $\frac{1}{2}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ . Old Baldy Research Natural Area - 581.20 acres located within the above described public land. A new withdrawal is proposed to protect the proposed Old Baldy Research Natural Area.

**Management of Newly Acquired Lands.** Lands may come under BLM administration after completion of the Record of Decision for this Resource Management Plan/Environmental Impact Statement through exchange, donation, purchase, revocation of withdrawals of other Federal agencies, or relinquishment of Recreation and Public Purpose Act leases. Newly acquired or administered lands will be managed for their highest potential or for the purposes for which they are acquired. For example, lands acquired within "special management areas" with Congressional or Resource Management Plan allocation/direction will be managed in conformance with guidelines for those areas. If lands with unique or fragile resource values are acquired, it may be appropriate to protect those values until the next plan revision.

Lands acquired with no identified special values or management goals will be managed in the same manner as surrounding or comparable BLM-administered lands. This implies typical timber harvest opportunities, grazing management practices, management of the mineral estate, standard operating procedures and precommitted mitigation measures.

**Table 15. Communication Sites**

Site	No. of BLM Authorized Users	Site Type	BLM Restrictions
Hamaker Mountain	13	Radar, Microwave, two-way radio	Must be compatible with existing user frequencies. Must be Department of Defense and Federal Aviation Administration (FAA) compatible.
Stukel Mountain	2	TV broadcasting, two-way radio	Must be compatible with existing user frequencies. Must be FAA and low poer radio compatible.
Yainax Butte	2	Low power government radio only	Solar power only
Brady Butte	1	Microwave	Must be microwave compatible
Buck Butte	3	Microwave	Must be microwave compatible
Malin	1	Passive microwave reflector	Must be microwave reflector compatible
Bly	1	Passive microwave reflector	Must be microwave reflector compatible

Table 17. Management Direction For Land Returning To BLM Administration

Authority	Acres	Termination/Revocation Recommendation and Rationale	RMP
BLM Order 6/14/57 ANS 57	160.00	Modify withdrawal, 80 acres continued, 80 acres returned to BLM, not all land used by withdrawing agent.	Mountain top will not be used for a communication site. Use would be the same as adjacent BLM land.
PLO 3869	254.35	Continue withdrawal. BLM's investment still in need of protection.	Gerber Reservoir, Surveyor Mountain, and Topsy recreation site and campground will continue to be used for the life of the plan.
PLO 3274	10.04	Modify withdrawal. Half of property to be transferred to BLM for administrative site use.	Use as an administrative site. Will continue for the life of the plan. More buildings to be constructed.
SO of 7/9/1904	3,585.82	Gerber Reservoir and adjacent lands. Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Suitable for return to BLM administration. Right-of-way issued protecting Bureau of Reclamation (BR) use.	Lands would be managed to produce a sustained yield of forage for wildlife consistent with other uses and values. Refer to the livestock grazing Appendix H for the Proposed Resource Management Plan for allotments 803, 882, 884, and 885.
SO of 7/27/1904	2,878.87	Miller Creek and associated canyon. Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Suitable for return to BLM administration. Right-of-way issued protecting BR use.	Miller Creek and its associated canyon would be designated as an area of critical environmental concern and managed to protect the resources found there.
SO of 1/20/1910	1,196.09	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Suitable for return to BLM administration.	Dispose of the land to the Winema National Forest in exchange for other Forest Service lands.
SO of 7/31/1919	80.00	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Right-of-way issued to protect BR interests. Suitable for return to BLM administration.	Lands would be managed to produce a sustained yield of forage for livestock and wildlife consistent with other uses and values. Refer to livestock grazing Appendix H for the Proposed Resource Management Plan for allotment 851.
SO of 2/25/1939	120.00	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Suitable for return to BLM administration.	Dispose of the land by sale or exchange according to the Land Ownership Adjustment Criteria in Appendix I, subject to site specific National Environmental Policy Act analysis.
SO of 4/21/1940	41.04	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Suitable for return to BLM administration.	Dispose of the land by sale or exchange according to the Land Ownership Adjustment Criteria in Appendix I, subject to site specific National Environmental Policy Act analysis.
SO of 2/11/1947	60.06	Modify withdrawal. Continue withdrawal on 28.06 acres and revoke the withdrawal on 22 acres as directed by holding agency. Property no longer needed for project purposes. Rights-of-way issued to protect BR interests. Lands suitable for return to BLM administration.	Dispose of the land by sale or exchange according to the Land Ownership Adjustment Criteria in Appendix I, subject to site specific National Environmental Policy Act analysis.

## Management Actions/Direction

Complete the review of existing withdrawals to determine whether continuation of the withdrawal is consistent with the statutory objectives of the programs for which the lands were dedicated and with other important programs.

Terminate unnecessary or duplicative withdrawals and continue those which still meet the intent of the withdrawal.

Implement the BLM-proposed withdrawals listed under land use allocations. This will involve recommendations to and approval by the Secretary of the Interior.

Evaluate future withdrawal proposals for compliance with program objectives and federal law and recommend appropriate action to the Secretary of the Interior.

Limit withdrawals to the minimum area needed and restrict only those activities that will be detrimental to the purposes of the withdrawal.

## Roads

### Objectives

Develop and maintain a transportation system that serves the needs of users in an environmentally sound manner. Arterial and major collector roads will form the backbone of the transportation system in the planning area.

Correct problems associated with high road density by emphasizing the reduction of minor collector and local road densities where those problems exist.

Manage roads to meet the needs identified under other resource programs (for example, seasonal road closures for wildlife). Road management is mentioned or implied primarily under Aquatic Conservation Strategy Objectives, Riparian Reserves, Late-Successional/District Designated Reserves, Water Quality and Soils, Wildlife, Fish Habitat, Special Status and Supplemental Environmental Impact Statement Special Attention Species Habitat, Timber Resources, and Recreation Sections.

In accordance with other management activities, road system management will have a goal of reducing open road density to 1.5 miles or less per section.

## Land Use Allocations

There are approximately 6,900 acres (950 miles) of roads on BLM-administered land in the Klamath Falls Resource Area.

## Management Actions/Direction

### All Land Use Allocations

Prepare a district wide road management plan after approval of the resource management plan. The management plan will specifically address recreation use, road densities, road closures, wildlife protection, water quality, timber management, construction and maintenance standards, fire suppression, and coordination with adjacent landowners. Address road management planning on a watershed basis consistent with Late-Successional Reserves, Riparian Reserves, and other major allocations. Specific road closures will be determined using standard analysis, public involvement, and notification procedures.

Existing off-highway vehicle closures in big game winter ranges will remain in effect throughout the plan (see the Recreation section for more details). Other important and sensitive wildlife habitats (special habitat features, project areas) will be evaluated for seasonal road closures. Some roads could remain open for administrative use, forest product removal, or access for mineral exploration and development. Road closures could be achieved using a variety of methods, such as gates, cables, boulders, obliteration, or other.

Determine standards for new road construction during the project planning process. Standards will be the minimum necessary to meet resource and allocation objectives (for example, recreation site, timber sale, key watershed, etc.) while having minimal impacts on the environment.

Minimize new road construction in areas with fragile soils to reduce impacts to soils, water quality, and fisheries. Stabilize existing roads where they contribute to significant adverse effects on these resources.

Locate, design, construct, and maintain roads to standards that meet management objectives in accordance with the district road management plan.

Follow best management practices (see Appendix D) for water quality and soil productivity to mitigate adverse effects on soils, water quality, fish, and riparian-wetland habitat during road construction and maintenance.

## **Resource Management Plan**

Reduce road density by closing minor collector and local roads in areas or watersheds where water quality degradation, big game harassment, or other road related resource problems have been identified.

Acquire water rights for road management purposes consistent with Oregon State Water laws.

Specifically address, either in the road management plan or in a watershed analysis, stabilizing existing roads located in drainages, watersheds with water quality limited streams, and other parts of the resource area where soil/water quality problems are known to exist.

Avoid road construction in special areas and special habitats.

Manage non-through roads classified as local and located within rural interface areas and within one-quarter mile of existing dwellings to limit unauthorized public use activity that could contribute to public safety hazards, increased fire risk, and vandalism to private property. Gates and other types of traffic barriers such as guardrails, berms, ditches, and log barricades will be used as appropriate.

Reduce the further spread of blackstain fungus through proper timing of roadside brushing.

## **Riparian Reserves**

Cooperate with federal, state, and county agencies and work with parties with road use agreements to achieve consistency in road design, operation, and maintenance necessary to attain Aquatic Conservation Strategy objectives.

For each existing or planned road, meet Aquatic Conservation Strategy objectives by:

- ◆ Completing watershed analyses, including appropriate geotechnical analyses (for example, examining soil and rock conditions in riparian and stream crossings) prior to construction of new roads or landings in Riparian Reserves;
- ◆ Minimizing road and landing locations in Riparian Reserves;
- ◆ Preparing road design criteria, elements, and standards that govern construction and reconstruction;
- ◆ Preparing operation and maintenance criteria that govern road operation, maintenance, and management;
- ◆ Minimizing disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow;

- ◆ Restricting sidecasting as necessary to prevent the introduction of sediment to streams; and
- ◆ Avoiding wetlands entirely when constructing new roads.

Determine the influence of each road on the Aquatic Conservation Strategy objectives through watershed analysis. Meet Aquatic Conservation Strategy objectives by:

- ◆ Reconstructing roads and associated drainage features that pose a substantial risk;
- ◆ Prioritizing reconstruction based on current and potential impact to riparian-wetland resources and the ecological value of the riparian-wetland resources affected; and
- ◆ Closing and stabilizing, or obliterating and stabilizing roads based on the ongoing and potential effects to Aquatic Conservation Strategy objectives and considering short-term and long-term transportation needs.

Design and construct new culverts, bridges and other stream crossings and improve existing culverts, bridges and other stream crossings determined to pose a substantial risk to riparian conditions. New structures and improvements will be designed to accommodate at least the 100-year flood, including associated bedload and debris. Priority for upgrading will be based on the potential impact and the ecological value of the riparian resources affected. Crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.

Minimize sediment delivery to streams from roads. Outsloping of the roadway surface is preferred, except in cases where outsloping will increase sediment delivery to streams or where outsloping is infeasible or unsafe. Route road drainage away from potentially unstable channels, fills, and hillslopes.

Provide and maintain fish passage at all road crossings of existing and potential fish-bearing streams.

Develop and implement a Road Management Plan or a Transportation Management Plan that meets the Aquatic Conservation Strategy objectives. As a minimum, this plan will include provisions for the following activities:

- ◆ Inspections and maintenance during storm events;
- ◆ Inspections and maintenance after storm events;

- ◆ Road operation and maintenance giving high priority to identifying and correcting road drainage problems that contribute to degrading riparian resources;
- ◆ Traffic regulation during wet periods to prevent damage to riparian resources; and
- ◆ Establishing the purpose of each road by developing the transportation management objective.

**Late-Successional/District Designated Reserves**

Construct roads in Late-Successional/District Designated Reserves if the potential benefits of silviculture, salvage, and other activities exceed the costs of habitat impairment. If new roads are necessary to implement a practice that is otherwise in accordance with these guidelines, they will be kept to a minimum, routed through unsuitable habitat where possible, and designed to minimize adverse impacts. Alternative access, such as aerial logging, should be considered to provide access for activities in reserves.

Remove trees along rights-of-way if they are a hazard to public safety. Consider leaving material on site if available coarse woody debris is inadequate. Consider topping of trees as an alternative to felling.

**Key Watersheds**

Reduce existing road mileage within key watersheds. If funding is insufficient to implement reductions, neither construct nor authorize through discretionary permits a net increase in road mileage in Key Watersheds.

**Noxious Weeds**

**Objectives**

Avoid introducing or spreading noxious weed infestations in any areas.

Contain and/or reduce noxious weed infestations on BLM-administered land using an integrated pest management approach. Some noxious weeds expected to be subject to control are listed in Table 18.

**Table 18. Noxious Weed Species Subject to Control in Klamath County**

Botanical Plant Name	Common Plant Name	Priority <sup>1</sup>
<i>Carduus nutans</i>	Musk thistle	3
<i>Centaurea diffusa</i>	Diffuse knapweed	3
<i>Centaurea maculosa</i>	Spotted knapweed	3
<i>Centaurea repens</i>	Russian knapweed	3
<i>Centaurea solstitialis</i>	Yellow starthistle	3
<i>Centaurea virgata ssp squarosa</i>	Squarrose knapweed	2
<i>Chondrilla juncea</i>	Rush skeletonweed	3
<i>Cirsium arvense</i>	Canada thistle	3
<i>Conium maculatum</i>	Poison hemlock	3
<i>Euphorbia esula</i>	Leafy spurge	3
<i>Hypericum perforatum</i>	St. Johnswort	3
<i>Linaria dalmatica</i>	Dalmation toad flax	3
<i>Onopordum acanthium</i>	Scotch thistle	3
<i>Salvia aethiopsis</i>	Mediterranean sage	2
<i>Senecio jacobaea</i>	Tansy ragwort	3
<i>Tribulus terrestris</i>	Puncture vine	3
<i>Xanthium spinosum</i>	Spiny clotbur	2

<sup>1</sup> Priority 3 species are established species by containment of existing populations and treatment of small outlying populations prevented. Priority 2 species are new invader species that may be controlled through appropriate, prompt action including multi-year follow-up action.

## **Resource Management Plan**

### **Land Use Allocations**

No allocations are made for noxious weeds in the planning process.

### **Management Actions/Direction**

#### **All Land Use Allocations**

Continue to survey BLM-administered land for noxious weed infestations, report infestations to the Oregon Department of Agriculture, and work with the Department of Agriculture to reduce infestations.

Use control methods which do not retard or prevent attainment of Aquatic Conservation Strategy Objectives.

Apply integrated pest management methods (for example, chemical, mechanical, manual, and/or biological) in accordance with the BLM's multi-state environmental impact statement, Northwest Area Noxious Weed Control Program, 1985, as supplemented in 1987, and the related Record of Decision, and as described in the *Noxious Weed Strategy for Oregon/Washington* (July 1994). Local direction for the planning area is from an integrated weed control plan and environmental assessment decision record of July 1993.

Design management actions to minimize the potential for noxious weed invasion and/or dominance of the affected area.

#### **Late-Successional/District Designated Reserves**

Evaluate impacts of non-native plants (weeds) growing in Late-Successional/District Designated Reserves.

Develop plans and recommendations for eliminating or controlling non-native plants (weeds) which adversely affect Late-Successional/District Designated Reserve objectives. Include an analysis of effects of implementing such programs on other species or habitats within reserves.

## **Hazardous Material**

### **Objectives**

Minimize use of hazardous materials and eliminate known hazardous waste.

### **Land Use Allocations**

No allocations are made for hazardous material sites in the planning process.

### **Management Actions/Direction**

Identify, investigate, and arrange for removal of hazardous substances on BLM-administered land in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act. Emergency response will be as specified in the District Hazardous Materials Contingency Plan. The response will include cleanup, proper notifications, criminal investigations, risk assessment, and other actions consistent with the Act and the nature of the emergency.

Store, treat and dispose of hazardous materials in accordance with the Resource Conservation and Recovery Act and other appropriate regulations.

Use the Emergency Planning and Community Right-To-Know Act to coordinate emergency planning with state and local jurisdictions concerning hazardous materials, emergency notifications, and routine reporting of hazardous materials inventories.

Until hazardous materials on BLM-administered land are removed, protect employees and the public from exposure to these materials.

Provide information to the public regarding the need to properly dispose of hazardous materials and the danger of becoming exposed to hazardous materials.

## Fire/Fuels Management

### Objectives

Provide appropriate fire suppression responses to wildfires that will help meet resource management objectives and minimize the risk of large-scale, high intensity wildfires.

Use prescribed fire to meet resource management objectives. This will include but not be limited to fuels management for wildfire hazard reduction, restoration of desired vegetation conditions, management of habitat, management of fire dependent/adapted species, and silvicultural treatments.

Adhere to smoke management/air quality standards of the Clean Air Act and State Implementation Plan for prescribed burning.

### Land Use Allocations

None specifically for fire/fuels management.

### Management Actions/Direction

#### General

Apply the management actions/direction in the Special Status and Supplemental Environmental Impact Statement Special Attention Species section.

Address fire/fuels management for all land use allocations as part of watershed analysis and project planning. This will include determinations of the role of fire and the risk of large-scale, high intensity wildfires at the landscape level.

Describe the need to use prescribed fire or other fuel management treatments to reduce fuel hazards and the risk of large-scale, high intensity fire, while maintaining coarse woody debris, down logs, green tree retention, and snags, consistent with the natural role of fire and protection standards for each land allocation unit.

Coordinate fire management activities in rural interface areas with local governments, agencies, and landowners. During watershed analysis, identify additional factors which may affect hazard reduction goals. Minimize the impacts of wildfire suppression actions.

Following election by the interdisciplinary team, prescribed burning will be conducted using management ignition to reduce wildfire hazards in locations adjacent to rural interface areas.

The management of wildland fire will be conducted following the processes and guidelines within the Klamath Falls Resource Area Fire Management Environmental Assessment (Environmental Assessment OR-014-94-09, Finding of No Significant Impacts, May 1994 and Decision Record, June 1994. The Fire Environmental Assessment assessed/assesses the impacts of wildfire as a historic natural process, current wildfire suppression methods, and how prescribed fire mimicking a natural function, is to be conducted on areas selected by random process for ecosystem management, utilizing both management ignition and/or prescribed natural fire (see Table 1 in Appendix B and Table 19).

**Table 19. Fire Management Acres**

Fire Prescription	Acres
Per year prescribed burning for site preparation and silvicultural hazard reduction	250
Per year prescribed burning for wildlife habitat and forage enhancement	740
Per year natural and/or artificial ignition prescribed fire for ecosystem enhancement	up to 7,500

### All Land Use Allocations

#### Wildfire Suppression

Minimize the direct negative impacts of wildfire suppression on ecosystem management objectives.

Respond to all wildfires by taking appropriate suppression actions. In most cases, responses will consist of aggressive initial attack to extinguish fires at the smallest size possible.

For wildfires that escape initial attack, perform a Wildfire Situation Analysis to develop a suppression strategy to evaluate the damage induced by suppression activities compared to expected wildfire damage. Suppression tactics will consider:

- ◆ public and firefighting personnel safety;
- ◆ protection of specific attributes of each land use allocation;
- ◆ coordination of wildfire suppression activities to avoid causing adverse impacts on federal and nonfederal lands;

## **Resource Management Plan**

- ◆ appropriate use of suppression tools such as aircraft, dozers, pumps and other mechanized equipment, and clear definitions of any restrictions relating to their use;
- ◆ the potential adverse affects on meeting ecosystem management objectives; and
- ◆ protection of structural components such as snags, duff, and coarse woody debris to the extent possible.

### **Fuels Management (including Hazard Reduction) Using Prescribed Fire**

Modify fuel profiles in order to lower the potential of fire ignition and rate of spread; protect and support land use allocation objectives by lowering the risk of high intensity, stand-replacing wildfires; and, adhere to smoke management and air quality standards.

Reduce hazards through methods such as prescribed burning, mechanical or manual manipulation of forest vegetation and debris, removal of forest vegetation and debris, and combinations of these methods. Hazard reduction plans will be developed through an interdisciplinary team approach and will consider the following:

- ◆ safety of fire fighting personnel;
- ◆ identification of levels of coarse woody debris and snags of adequate size and in sufficient quantities to meet habitat requirements of species of concern;
- ◆ consumption of litter and coarse woody debris that are in excess of historic fuel levels that existed prior to attempted fire suppression;
- ◆ developing a fuel profile that supports land allocation objectives; and seeking a balance between reducing the risk of wildfire and the cost efficiency consistent with meeting land allocation objectives;
- ◆ interagency cooperation to assure cost effective fuel hazard reduction across the landscape;
- ◆ adherence to smoke management and air quality standards;
- ◆ consistency with objectives for land use allocations;
- ◆ maintenance or restoration of ecosystem processes or structure; and
- ◆ the natural role of fire in specific landscapes, current ecosystem needs, and wildfire hazard analysis included in the fire management plan.

### **Prescribed Fire Use for Ecosystem Maintenance and Restoration**

The use of prescribed fire will be based on the risk of high intensity wildfire and the associated cost and environmental impacts of using prescribed under-burning to meet protection, restoration, and maintenance of critical stands that are current susceptible to large-scale catastrophic wildfire.

Introduce prescribed fire across large areas over a period of time to create a mosaic of vegetation conditions. Treatments should be site-specific treatments because some species with limited distributions are fire intolerant. The use prescribed burning will be based on an interdisciplinary evaluation. Funding authority, therefore, must reflect the range of objectives identified for using fire under ecosystem management.

Use prescribed fire to manage seral stage diversity through the development of fire resistant vegetation mosaics by timing the application of fire (for example, every five to ten years).

### **Riparian Reserves**

Design fuel treatment and fire suppression strategies, practices, and activities to meet Aquatic Conservation Strategy objectives, and to minimize disturbance of riparian ground cover and vegetation. Strategies will recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management activities could be damaging to long-term ecosystem function.

Locate incident bases, camps, helibases, staging areas, helispots and other centers for incident activities outside of Riparian Reserves. If the only suitable location for such activities is within the Riparian Reserve, an exemption may be granted following a review and recommendation by a resource advisor. The advisor will prescribe the location, use conditions, and rehabilitation requirements. Use an interdisciplinary team to predetermine suitable incident base and helibase locations.

Minimize delivery of chemical retardant, foam, or other additives to surface waters. An exception may be warranted in situations where overriding immediate safety imperatives exist, or, following a review and recommendation by a resource advisor, when an escape would cause more long-term damage.

Design prescribed burn projects and prescriptions to contribute to attainment of Aquatic Conservation Strategy objectives.

Establish an emergency team to develop a rehabilitation treatment plan needed to attain Aquatic Conservation Strategy objectives whenever Riparian Reserves are significantly damaged by a wildfire or a prescribed fire burning outside prescribed parameters.

Limit the size of all wildfires to the extent practicable.

Allow some natural fires to burn under prescribed conditions. This decision will be based on additional analysis and planning. In Riparian Reserves, the goal of wildfire suppression is to limit the size of all fires. When watershed and/or landscape analysis, or province-level plans are completed and approved, some natural fires may be allowed to burn under prescribed conditions.

Consider rapidly extinguishing smoldering coarse woody debris and duff to preserve these ecosystem elements.

Locate and manage water drafting sites (for example, sites where water is pumped to control or suppress fires) to minimize adverse effects on riparian-wetland habitat and water quality as consistent with Aquatic Conservation Strategy objectives.

### **Late-Successional/District Designated Reserves**

Emphasize maintaining late-successional habitat in wildfire suppression plans.

Use minimum impact suppression methods for fuels management in accordance with guidelines for reducing risks of large-scale disturbances.

During fire suppression activities, consult with an interdisciplinary team to assure that habitat damage is minimized.

Until a fire management plan is completed for a Late-Successional/District Designated Reserve or group of reserves, suppress wildfire to avoid loss of habitat and to maintain future management options. Then some natural fires may be allowed to burn under prescribed conditions.

Prepare a specific fire management plan prior to any habitat manipulation activities in Late-Successional Reserves. Specify how hazard reduction and other prescribed fire applications meet the objectives of the Late-Successional/District Designated Reserve. Until the plan is approved, proposed activities will be subject to review by the Regional Ecosystem Office.

Apply prescribed fire in a manner which retains the amount of coarse woody debris determined through watershed analysis.

Consider rapidly extinguishing smoldering coarse woody debris and duff.

### **Matrix (General Forest Management Area) - West and East Sides**

Plan and implement prescribed fire treatments to minimize:

- ◆ Intensive burning, unless appropriate for certain specific habitats, communities, or stand conditions;
- ◆ consumption of litter and coarse woody debris that are in excess of historic fuel levels that existed prior to attempted fire suppression; and
- ◆ disturbance of soil and litter that may occur as a result of heavy equipment operation.

Identify levels of coarse woody debris and snags of adequate size and in sufficient quantities to meet habitat requirements of species of concern.

## **Coordination and Consultation**

The implementation of this Resource Management Plan and the overriding Supplemental Environmental Impact Statement Record of Decision, calls for a high level of coordination and cooperation among agencies. A formal procedure for interagency coordination has been created by a Memorandum of Understanding for Forest Ecosystem Management that has been entered into by the White House Office on Environmental Policy, the Department of the Interior, the Department of Agriculture, the Department of Commerce, and the Environmental Protection Agency. The Memorandum of Understanding created several interagency groups, including the Interagency Steering Committee, Regional Interagency Executive Committee, and Regional Ecosystem Office. A detailed description of these groups is included in Attachment A, Section E, Implementation, of the Supplemental Environmental Impact Statement Record of Decision.

Consultation under the Endangered Species Act will emphasize an integrated ecosystem approach. This will include involving the Fish and Wildlife Service and the National Marine Fisheries Service in all relevant implementation planning, so their views can be made known. Actions proposed to implement this Resource Management Plan will undergo consultation, either formal or informal, as appropriate. Consultation for the northern spotted owl on activities that are consistent

## **Resource Management Plan**

with the standards and guidelines of the Supplemental Environmental Impact Statement Record of Decision and that would not result in "take" of a listed species is expected to be informal. If take would result, incidental take statements will be provided through formal consultation.

Concurrent coordination with the Environmental Protection Agency and the Oregon Department of Environmental Quality on water quality standards and beneficial use requirements of the Clean Water Act will minimize project impacts. Similar coordination with the Environmental Protection Agency, Department of Environmental Quality, and the U.S. Forest Service on minimizing impacts of emissions from prescribed burning will occur.

## **Use of the Completed Plan**

Many of the management activities described in this Resource Management Plan/Environmental Impact Statement will be accomplished through contracts and permits. Performance standards are developed and included in a contract or permit. They require the contractor or permittee to comply with applicable laws, regulations, policies and plans. Selection of performance standards is governed by the scope of the action to be undertaken and the physical characteristics of the specific site. The standards, which include design features and mitigating measures, must be followed in carrying out an action.

Site-specific planning by interdisciplinary teams will precede most on-the-ground management activities. Interdisciplinary teams are comprised of relevant resource management disciplines. The interdisciplinary team process includes field examination of resources, selection of alternative management actions, analysis of alternatives, and documentation to meet National Environmental Policy Act requirements. Adjacent land uses will be considered during site-specific land management planning.

Potential minor changes, refinements or clarifications in the plan may take the form of maintenance actions. Maintenance actions respond to minor data changes and incorporation of activity plans. Such maintenance is limited to further refining or documenting a previously approved decision incorporated in the plan. Plan maintenance will not result in expansion of the scope of resource uses or restrictions or change the terms, conditions, and decisions of the approved

resource management plan. Maintenance actions are not considered a plan amendment and do not require the formal public involvement and interagency coordination process undertaken for plan amendments. Plan maintenance will be documented in the annual district Planning Process Report or its equivalent. A plan amendment may be initiated because of the need to consider monitoring findings, new data, new or revised policy, a change in circumstances, or a proposed action that may result in the scope of resource uses or a change in the terms, conditions, and decisions of the approved plan.

In addition to being routinely monitored, the Resource Management Plan will be formally evaluated at the end of every third year after implementation begins, until such time as preparation of new plans, that would supersede the Resource Management Plan over a substantial majority of its area, is well under way. The reason for the formal evaluation is to determine whether there is significant cause for an amendment or revision of the plan. Evaluation includes a cumulative analysis of monitoring records, with the broader purpose of determining if the plan's goals and objectives are being or are likely to be met, and whether the goals and objectives were realistic and achievable in the first place.

Evaluation will also assess whether changed circumstances (such as changes in the plans of other government agencies or American Indian tribes) or new information so altered the levels or methods of activities or the expected impacts (on water, wildlife, socioeconomic conditions, etc.), that the environmental consequences of the plan may paint a seriously different picture than those anticipated in this Resource Management Plan/Final Environmental Impact Statement.

As part of these third year evaluations, the probable sale quantity will be reevaluated, to incorporate the results of watershed analyses; monitoring; further inventory; and site-specific, watershed-specific, or province-level decisions.

If an evaluation concludes that the plan's goals are not achievable a plan amendment or revision will be initiated. If the evaluation concludes that land use allocations or management direction need to be modified, a plan amendment or revision may be appropriate. An analysis will address the need for either. If the analysis determines that amending the plan is appropriate, the amendment process set forth in 43 Code of Federal Regulations 1610.5-5 or 1610.5-6 would be followed. If amendment is not appropriate, National Environmental Policy Act procedures would still be followed before the modifi-

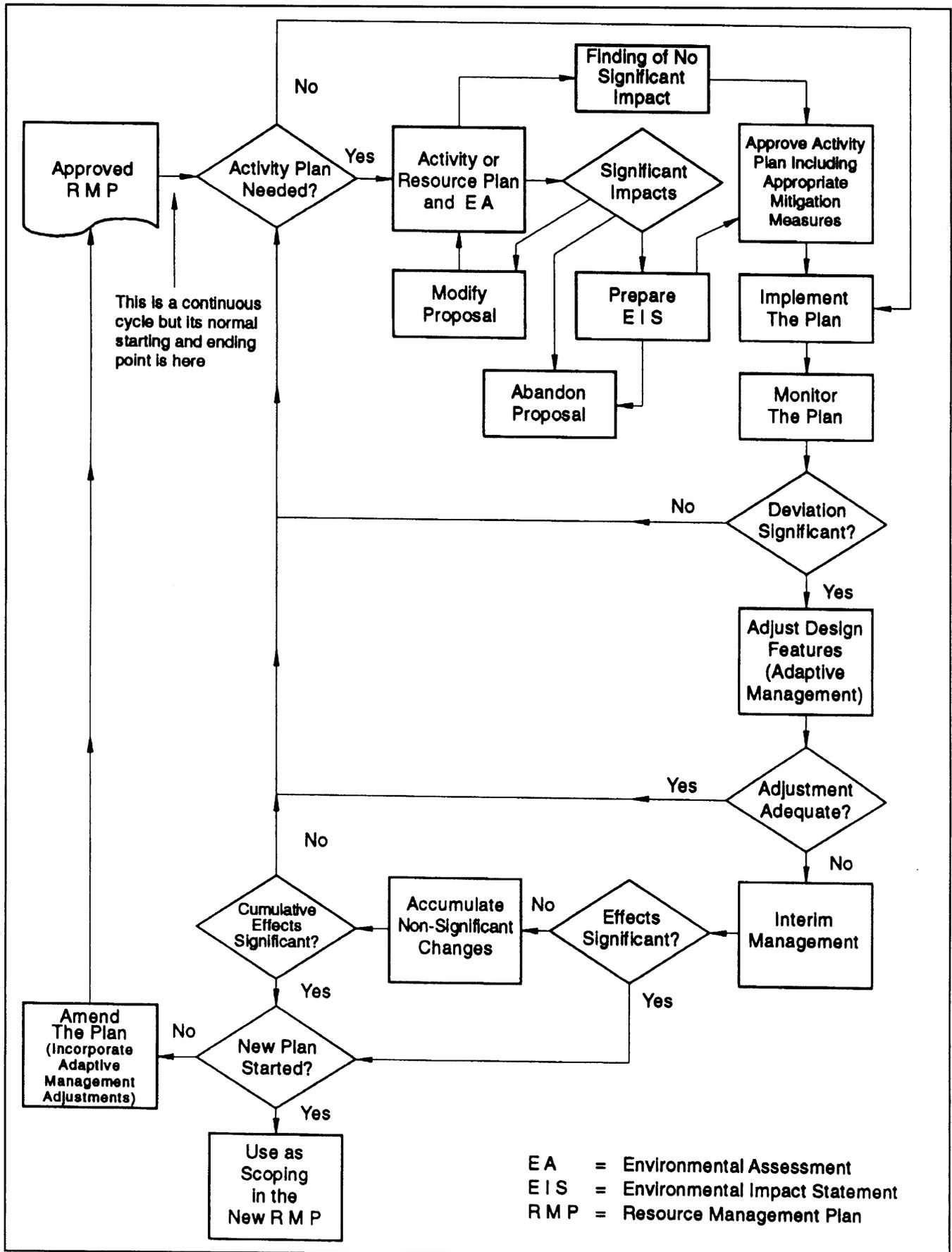


Figure 1. Process of Changing the Resource Management Plan

## Resource Management Plan

cation is approved, along with coordination through the Regional Ecosystem Office and the Regional Interagency Executive Committee if Supplemental Environmental Impact Statement Record of Decision standards and guidelines or land-use allocations would be modified. Figure 1 shows how monitoring and/or evaluation could lead to a revision of management direction or other changes in the Resource Management Plan.

No additional evaluations of this type will be done unless some changed circumstance or unusual event causes the continuing validity of the plan to be questioned. Following completion of each plan evaluation, a summary of its findings will be included in the district's annual program summary.

In future years, after preparation of new plans that would substantially supersede the Resource Management Plan is well under way, if some circumstances change or unusual events occur of a magnitude that question BLM's ability to meet some of the remaining plan objectives, interim management adjustments may be made to meet those objectives, without a plan amendment. The kind of circumstance which could lead to such an adjustment might be an announcement of research findings which clearly establish that some of the plan's goals and objectives are unlikely to be met. The kind of unusual event which could lead to such an adjustment might be a major catastrophe such as a wildfire or windstorm causing extensive damage to forest stands. Similar interim adjustments can be made at any time during the life of the plan, pending evaluation and possible plan amendment.

## Adaptive Management

This approach to evaluation and interim adjustment will frame a process of adaptive management, permitting effective response to changing knowledge. Adaptive management is a continuing process of action-based monitoring, researching, evaluating and adjusting with the objective of improving the implementation and achieving the goals of the Resource Management Plan. The Resource Management Plan is based on current scientific knowledge. To be successful, it must have the flexibility to adapt and respond to new information. Under the concept of adaptive management, new information will be evaluated and a decision will be made whether to make adjustments or changes. The adaptive man-

agement approach will enable resource managers to determine how well management actions meet their objectives and what steps are needed to modify activities to increase success or improve results.

The adaptive management process will be implemented to maximize the benefits and efficiency of the Resource Management Plan. This may result in the refinement of management direction or land-use allocations which may require amendment of the Resource Management Plan. Adaptive management decisions may vary in scale from individual watersheds, specific forest types, physiographic provinces, or the entire planning area. Many adaptive management modifications may not require formal changes to the Resource Management Plan.

The model displayed in Figure 2 identifies the various steps, activities, and outline of a procedure for the adaptive management process. This diagram conveys the general concept, and is valuable as a starting point, for understanding adaptive management. A full and detailed explanation of the model, which is beyond the scope of this discussion, would require that each step be further broken down and defined.

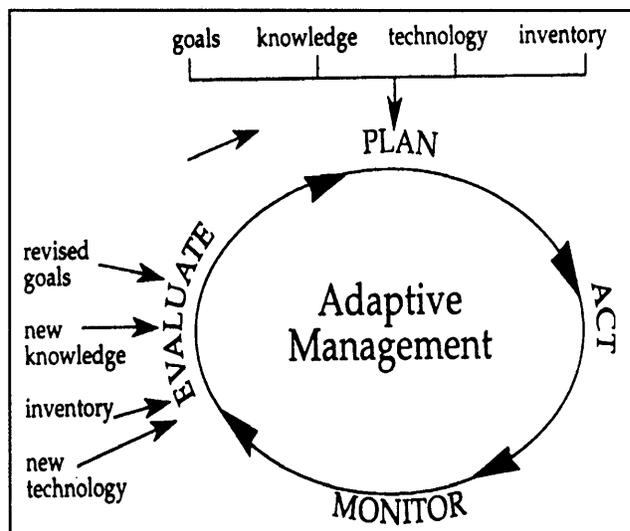


Figure 2. Basic Adaptive Management Model

New information that would compel an adjustment of strategy may come from monitoring, research, statutory or regulatory changes, organizational or process assessments, or any number of additional sources. During the evaluation process, personnel will analyze the information to determine the nature, scope, and importance of the new information.

Adaptive management could entail modification of silvicultural prescriptions to respond to increasing knowledge providing greater certainty about anticipated climate change or to respond to increasing knowledge about the habitat needs of spotted owls, to cite two examples that could have widespread application. Adaptive management could equally entail modification of rather localized management practices to respond to the results of monitoring.

Any potential new management actions identified after Resource Management Plan/Record of Decision approval will be reviewed before BLM moves to implement them. For example, if a new area of critical environmental concern proposal meets BLM criteria for consideration, the District Manager may prescribe interim management measures for the remaining life of the plan or until addressed in a plan amendment. Such interim management must meet the objectives of the Resource Management Plan, except where inconsistent with the regulations regarding potential area of critical environmental concerns.

## **Watershed Analysis**

Watershed analysis is one of the principal analyses that will be used to meet the ecosystem management objectives of this Resource Management Plan. Watershed analyses will be the mechanism to support ecosystem management at approximately the 20 to 200 square mile watershed level. Watershed analysis, as described here, focuses on its broad role in implementing the ecosystem management objectives prescribed by these standards and guidelines. The use of watershed analysis, as described in the Aquatic Conservation Strategy (see Appendix A), is a more narrow focus and is just one aspect of its role.

Watershed analysis will focus on collecting and compiling information within the watershed that is essential for making sound management decisions. It will be an analytical process, not a decision-making process with a proposed action requiring National Environmental Policy Act documentation. It will serve as the basis for developing project-specific proposals,

and determining monitoring and restoration needs for a watershed. Some analysis of issues or resources may be included in broader scale analyses because of their scope. The information from the watershed analyses will contribute to decision making at all levels. Project-specific National Environmental Policy Act planning will use information developed from watershed analysis. For example, if watershed analysis shows that restoring certain resources within a watershed could contribute to achieving landscape or ecosystem management objectives, then subsequent decisions will need to address that information.

The results of watershed analyses may include a description of the resource needs, issues, the range of natural variability, spatially explicit information that will facilitate environmental and cumulative effects analyses to comply with National Environmental Policy Act regulations, and the processes and functions operating within the watershed. Watershed analysis will identify potentially disjunct approaches and conflicting objectives within watersheds. The information from watershed analysis will be used to develop priorities for funding and implementing actions and projects, and will be used to develop monitoring strategies and objectives. The participation in watershed analysis of adjacent landowners, private citizens, interest groups, industry, government agencies, and others will be promoted.

Watershed analysis will be an ongoing, iterative process that will help define important resource and information needs. As watershed analysis is further developed and refined, it will describe the processes and interactions for all applicable resources. It will be an information-gathering and analysis process, but will not be a comprehensive inventory process. It will build on information collected from detailed, site-specific analyses. Information gathering and analysis will be related to management needs, and not be performed for their own sake. While generally watershed analysis will organize, collate, and describe existing information, there may be critical information needs that must be met before completing the analysis. In those instances, the additional information will be collected before completing the watershed analysis. In other instances, information needs may be identified that are not required for completing the watershed analysis but should be met for subsequent analyses, planning, or decisions.

Watershed analysis is a technically rigorous procedure with the purpose of developing and documenting a scientifically-based understanding of the ecological structures, functions, processes and interactions occurring within a watershed. The scope of the

## Resource Management Plan

analysis for implementing the ecosystem management objectives of these standards and guidelines may include all aspects of the ecosystem. Some of these aspects include beneficial uses; vegetative patterns and distribution; flow phenomena such as vegetation corridors, streams, and riparian corridors; wind; fire (wild and prescribed fire, and fire suppression); wildlife migration routes; dispersal habitat; terrestrial vertebrate distribution; locally significant habitats; human use patterns throughout the ecosystem; cumulative effects; and hydrology. The number and detail of these aspects considered will depend on the issues pertaining to a given watershed.

In the initial years of implementation, the process for watershed analysis is expected to evolve to meet long-term objectives. However, some projects proposed for the first few years of implementation are in areas that require watershed analysis prior to approval of the projects (that is, Key Watersheds and Riparian Reserves). In Fiscal Years 1995-96, watershed analysis done for these projects may be less detailed than analyses that are completed in later years. Regardless, analysis done during the initial years (Fiscal Years 1995-96) will comply with the following guidance:

- ◆ The goal of the analysis is to determine whether the proposed actions are consistent with the objectives, land-use allocations and management direction of the Resource Management Plan.
- ◆ Existing information will be used to the greatest extent possible, with new information collected, to the maximum extent practicable, to fill crucial data gaps.
- ◆ Analysis will address the entire watershed, even though some areas may be analyzed at a lower level of precision, and the analysis of issues may be prioritized.
- ◆ Information from the analysis will flow into the National Environmental Policy Act documentation for specific projects, and will be used where practicable to facilitate Endangered Species Act and Clean Water Act compliance.
- ◆ Restoration opportunities will be identified.

A regional pilot watershed analysis program has been initiated to develop and test an effective long-term process. A scientifically peer-reviewed Watershed Analysis Guide will be finalized based on experiences gained in the pilot program.

The results of watershed analysis will influence final decisions both on timing of land-disturbing activities such as timber sales and on application of design features and mitigating measures, including best management practices for water quality protection. Monitoring and evaluating the effectiveness of best management practices is required by Oregon's Nonpoint Source Management Plan to ensure that water quality standards are achieved and that beneficial uses are maintained. When monitoring identifies previously unanticipated impacts, the information gained from that monitoring will be used in subsequent development of mitigating measures, including best management practices, and considered in future watershed analyses.

Factored into these decisions on land-disturbing activities, where appropriate, will be an assessment of compliance with the anti-degradation policy of Oregon's Water Quality Standards (Oregon Administrative Rules 340-41-026(1)(a)). These standards apply to existing high quality waters which exceed those levels necessary to support recreation and the propagation of fish, shell, and wildlife.

Proposed timber sales and other land-disturbing activities will incorporate the interactive (adaptive management) process for developing, implementing and evaluating nonpoint control (best management practices) to determine if water quality goals have been met. Modification of non-point-source controls, including best management practices, will be adjusted based upon sound scientific evidence. Where necessary, appropriate actions to mitigate adverse effects on water quality will be taken to protect designated beneficial uses.

# Requirement for Further Environmental Analysis

Site-specific planning by interdisciplinary teams would precede most on-the-ground management activities. Interdisciplinary teams are comprised of relevant resource management disciplines. The interdisciplinary team process includes field examination of resources, identification of alternative management actions, and analysis. Adjacent land uses would be considered during site-specific land management planning.

Site-specific environmental analysis and documentation (including environmental assessments, categorical exclusions or administrative determinations where appropriate, and resource management plan conformance determination) will be accomplished for each action or type of treatment under consideration. Where the action is to be accomplished by a contractor or timber sale purchaser, the environmental assessment or other environmental analysis is a primary means for determining appropriate contract stipulations. Where the action is to be accomplished by BLM personnel, the environmental analysis is a primary means for determining how it will be conducted. When determining whether activities retard or prevent attainment of Aquatic Conservation Strategy objectives, the scale of analysis typically will be BLM analytical watersheds or similar units.

Watershed analysis or province analysis will often precede environmental analysis of specific proposals, and the findings of such preceding analyses will be addressed in documentation of the environmental analyses. Ultimately, watershed analysis will serve as the basis for developing project-specific proposals and determining monitoring and restoration needs for a watershed. Project-specific National Environmental Policy Act planning will use information developed from watershed analysis. By improving understanding of the ecological structures, functions, processes and interactions occurring within a watershed, watershed analysis will enhance the ability to predict direct, indirect and cumulative impacts of specific proposals in that watershed.

Analyses of proposals for the use of prescribed fire will adhere to the requirements of the Clean Air Act and the State Implementation Plan (including the Visibility Protection Plan and Smoke Management Plan). Conformity determinations, to evaluate whether BLM actions comply with the State Implementation Plan, will be conducted in association with

site-specific environmental analysis, where emissions can be most reasonably forecasted in quantified terms. These analyses will specifically evaluate the effects of project-specific prescribed burning on nonattainment areas.

Accurate assessment of local and airshed-level air quality effects of ecosystem management may require cumulative effects analysis, reflecting all relevant BLM actions, as well as expected actions of other parties. Coordination with other agencies is implicit. Cumulative effects analysis will include consideration of the effects on visibility and regional haze. Where extensive fuel hazard reduction by prescribed burning is considered, the analysis also will consider the impact of prescribed burning on wildfire emissions. This will be done in a quantified trade-off analysis, comparing emissions from prescribed fire with potential emissions from wildfires if prescribed burning is not accomplished. Factors considered when establishing the geographic boundaries for a cumulative effects analysis include whether the action will result in impacts that cross administrative boundaries, and whether the action will affect sensitive air quality regions (for example, Class I areas and nonattainment areas). Resultant analysis may be based on airsheds.

Interdisciplinary impact analysis will be tiered within the framework of applicable environmental analyses. Tiering is used to prepare more specific documents without duplicating relevant parts of previously-prepared general documents. The more specific environmental assessment or other environmental analysis cannot lead directly to a change in the decisions based on the more general environmental impact statement to which it is tiered. It could, however, result in some interim management direction pending plan revision, or a proposal to amend the plan. If an environmental assessment indicates potential for significant impacts that are seriously different from those described in an existing environmental impact statement, a new environmental impact statement (or supplement to an existing environmental impact statement) may be required.

Specific proposals for treatment to manage competing vegetation and for control of noxious weeds will be addressed in site-specific environmental assessments.

## **Resource Management Plan**

Availability of environmental assessments for public review will be announced in a minimum of one of the following ways:

- ◆ News release distributed to the newsroom of area newspapers, TV, and radio stations;
- ◆ Notices posted in the public area at the Klamath Falls Resource Area office;
- ◆ Mailings to known interested/affected people, groups, tribal units, governmental agencies and businesses. These mailings may include, but are not limited to, District Planning Update progress reports.
- ◆ Legal notices in one or more newspapers circulated in the project area.

## **Management of Newly Acquired Lands**

Lands may come under BLM administration after completion of the Resource Management Plan/ Record of Decision through exchange, donation, purchase, revocation of withdrawals of other Federal agencies, or relinquishment of Recreation and Public Purpose Act leases. Newly acquired or administered lands or interests in lands will be managed for their highest potential or for the purposes for which they are acquired. For example, lands acquired within "special management areas" with Congressional or resource management plan allocation/direction will be managed in conformance with guidelines for those areas. If lands with unique or fragile resource values are acquired, it may be appropriate to protect those values until the next plan revision.

Lands acquired with no identified special values or management goals will be managed in the same manner as surrounding or comparable BLM-administered lands. This implies typical timber harvest opportunities, intensive timber management practices, management of the mineral estate, standard operating procedures and precommitted mitigation measures.

## **The Budget Link**

The initial annual cost of implementing the Resource Management Plan is reflected in the Presidents' Fiscal Year 1995 budget, approximately 2.25 million for the Klamath Falls Resource Area. There is not yet, however, a clear understanding of what the management needs and costs of the ecosystem management approach will be, so future year budget estimates may differ as experience is gained in implementing the Resource Management Plan.

Timber sale levels and other resource programs will be reduced if annual funding is not sufficient to support the relevant actions assumed in the plan, including mitigation and monitoring. The extent of the reduction will be based on the principle of program balance as envisioned in the plan. For example, if funding in a given year is sufficient only to support half of planned annual investments in pre-commercial thinning, the otherwise anticipated timber sale volume for that year would be reduced by half of the portion of the declared probable sale quantity attributable to pre-commercial thinning. If, in subsequent years, budget levels permit BLM to eliminate the backlog of unfunded investments that have accumulated, timber sale levels will be adjusted upward to the extent that the work can be accomplished. If subsequent budget levels create a cumulative shortfall over the years, the probable sale quantity will be adjusted downward.

This principle will apply similarly to management of roads, facilities, and other resource programs. If maintenance of such facilities is not adequately funded, some of them may be closed to scale back management commitments to the level that is budgeted.

# Monitoring

The BLM planning regulations (43 Code of Federal Regulations 1610.4-9) call for the monitoring and evaluation of resource management plans at appropriate intervals.

Monitoring is an essential component of natural resource management because it provides information on the relative success of management strategies. The implementation of the Resource Management Plan will be monitored to ensure that management actions: follow prescribed management direction (implementation monitoring), meet desired objectives (effectiveness monitoring), and are based on accurate assumptions (validation monitoring) (see Appendix K). Some effectiveness and most validation monitoring will be accomplished by formal research.

Monitoring will be an integral component of many new management approaches such as adaptive management and ecosystem management.

Adaptive management is based on monitoring that is sufficiently sensitive to detect relevant ecological changes. In addition, the success of adaptive management depends on the accuracy and credibility of information obtained through inventories and monitoring. Close coordination and interaction between monitoring and research are essential for the adaptive management process to succeed. Data obtained through systematic and statistically valid monitoring can be used by scientists to develop research hypotheses related to priority issues. Conversely, the results obtained through research can be used to further refine the protocols and strategies used to monitor and evaluate the effectiveness of Resource Management Plan implementation.

Monitoring results will provide managers with the information to determine whether an objective has been met, and whether to continue or modify the management direction. Findings obtained through monitoring, together with research and other new information, will provide a basis for adaptive management changes to the plan. The processes of monitoring and adaptive management share the goal of improving effectiveness and permitting dynamic response to increased knowledge and a changing landscape. The monitoring program itself will not remain static. The monitoring plan will be periodically evaluated to ascertain that the monitoring questions and standards are still relevant, and will be adjusted as appropriate. Some monitoring items may be discontinued and

others may be added as knowledge and issues change with implementation.

Watershed analysis is one of the principal analyses that will be used to meet the ecosystem management objectives. Information from watershed analysis will also be used in developing monitoring strategies and objectives. Specific to monitoring, the results and findings from watershed analysis are used to reveal the most useful indicators for monitoring environmental change, detect magnitude and duration of changes in conditions, formulate and test hypotheses about the causes of the changes, understand these causes and predict impacts, and manage the ecosystem for desired outcomes. Watershed analysis will provide information about patterns and processes within a watershed and provide information for monitoring at that scale.

The monitoring process will collect information in the most cost effective manner, and may involve sampling or remote sensing. Monitoring could be so costly as to be prohibitive if it is not carefully and reasonably designed. Therefore, it will not be necessary or desirable to monitor every management action or direction. Unnecessary detail and unacceptable costs will be avoided by focusing on key monitoring questions and proper sampling methods. The level and intensity of monitoring will vary, depending on the sensitivity of the resource or area and the scope of the proposed management activity.

Resource management plan monitoring will be conducted at multiple levels and scales. Monitoring will be conducted in a manner that allows localized information to be compiled and considered in a broader regional context, and thereby address both local and regional issues. At the project level, monitoring will examine how well specific management direction has been applied on the ground and how effectively it produces expected results. Monitoring at broader levels will measure how successfully projects and other activities have achieved the objectives for those management areas.

Monitoring will be coordinated with other appropriate agencies and organizations in order to enhance the efficiency and usefulness of the results across a variety of administrative units and provinces. The approach will build on past and present monitoring work. In addition, specific monitoring protocols, criteria, goals, and reporting formats will be developed, subject to review and guidance of the Regional Ecosystem Office. This guidance will be used to augment and revise the monitoring plan and facilitate the process of aggregating and analyzing information on provincial or regional levels.

## **Resource Management Plan**

Monitoring results will be reported in an "Annual Program Summary" (such as the Lakeview Planning Update), which will be published starting the second year following initial implementation of this resource management plan. The Annual Program Summary will track and assess the progress of plan implementation, state the findings made through monitoring, specifically address the implementation monitoring questions posed in each section of this Monitoring Plan and serve as a report to the public.

The resource area will be responsible for the collection, compilation, and analysis of much of the data gained through monitoring activities. The resource area will report its findings and recommendations to the District for consolidation and publication in the Annual Program Summary.

The monitoring plan for the Resource management plan is tiered to the Monitoring and Evaluation Plan for the Supplemental Environmental Impact Statement Record of Decision. That Monitoring and Evaluation Plan is not yet fully refined. Therefore, this Monitoring Plan is not complete. As components of the regional (SEIS) monitoring and evaluation plan are completed or refined, this resource management plan's monitoring plan will be conformed to the regional plan. The BLM has been, and will continue to be, a full participant in the development of the Supplemental Environmental Impact Statement Monitoring and Evaluation Plan. Ongoing BLM effectiveness and validation monitoring will continue where it is relevant to Resource Management Plan direction (for example, stocking surveys, threatened and endangered species studies, and water quality measurements).

The Supplemental Environmental Impact Statement and Resource Management Plan monitoring plans will not identify all the monitoring the Klamath Falls Resource Area will do. More specific activity and project plans may identify monitoring needs of their own.

## **Research**

A research plan will be developed by the Research and Monitoring Committee identified in the Supplemental Environmental Impact Statement Record of Decision.

Ongoing research in Riparian Reserves will be analyzed to insure that significant risk to the watershed does not exist. If significant risk is present and cannot be mitigated, study sites will be relocated. Some activities not otherwise consistent with the objectives may be appropriate, particularly if the activities will test critical assumptions of the Forest Plan; will produce results important for establishing or accelerating vegetation and structural characteristics for maintaining or restoring aquatic and riparian ecosystems; or the activities represent continuation of long-term research. These activities will be considered only if there are no equivalent opportunities outside of Riparian Reserves and Key Watersheds.

# Appendices

# **Appendix A**

## **Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl**

### **Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl**

This appendix consists of the Record of Decision and its Attachment A, published in April 1994, for the Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. It is referred to in this Proposed Resource Management Plan/Final Environmental Impact Statement as the Supplemental Environmental Impact Statement Record of Decision.

The Supplemental Environmental Impact Statement Record of Decision is bound separately from the Proposed Resource Management Plan/Final Environmental Impact Statement and is incorporated by reference. The Draft and Final Supplemental Environmental Impact Statement and the Supplemental Environmental Impact Statement Record of Decision were sent to those who received copies of the draft Klamath Falls Resource Area Resource Management Plan and Environmental Impact Statement. It was also sent to agencies, libraries, and others who requested it. It is available upon request.

To obtain a copy of the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl send a request in writing to:

Regional Ecosystem Office  
Post Office Box 3623  
Portland, OR 97208-3623

# **Appendix B**

## **Summary of Land Allocations and Management Actions/Directions**

**Table R-1. Summary of Land Allocations and Management Actions/Directions**

(detailed management direction is described in the Resource Management Plan)

<b>Major Land Allocations<sup>1</sup></b>	<b>Acres</b>
Late-Successional/District Designated Reserves	1,600
General Forest Management Areas - Matrix	
West side	23,550
Late-Successional/District Designated Reserve Buffers	2,300 <sup>3</sup>
East side	8,750
Rangelands <sup>2/3</sup>	
West side	46,537
East side	158,145
Other <sup>4</sup>	
West side	26,080
East side	155,270
<b>Total</b>	<b>215,520</b>

<sup>1</sup> Riparian Reserves underlie all of the allocations/classifications shown in this table. Overlaps could not be eliminated due to limitations in the database.

<sup>2</sup> Grazing allocations overlap with all of the other land allocations, including Riparian Reserves. If grazing is found in the future to be incompatible with the other land allocation objectives, grazing management will be changed through the processes described in the plan's grazing appendix.

<sup>3</sup> These acres are not included in the total.

<sup>4</sup> Includes all woodlands, commercial forest land outside matrix and LS/ DDRs, and non-forest lands.

<b>Water Quality and Riparian Areas</b>	<b>Acres</b>
<b>Riparian Reserves</b>	
West side	19,450
East side	9,100

**Management Decision:**

Restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands through implementation of the Aquatic Conservation Strategy.

Restore or maintain riparian-wetland areas so that 75 percent or more are in proper functioning condition by 1997. Provide livestock forage consistent with the objective of achieving an advanced ecological status, except where resource management objectives, including proper functioning condition, will require an

earlier successional stage, thus providing the widest variety of vegetation and habitat diversity for wildlife, fish, and watershed protection.

<b>Old Growth and Mature Habitat</b>	<b>Acres</b>
<b>West Side Management Decision:</b>	
Manage 3 percent of the land as Late-Successional/District Designated Reserves. Manage all Matrix lands for connectivity and biological diversity across the landscape.	
Existing old growth excluded from timber harvest	4,526
Existing mature stands excluded from timber harvest	4,090
Total forest land excluded from planned timber harvest	17,837
Existing old growth managed for partial retention	143
Existing mature stands managed for partial retention	154
Total forest land managed for partial retention	1,257

**East Side Management Decision<sup>3</sup>:**

Manage all Matrix lands for connectivity and biological diversity across the landscape.

Existing old growth excluded from timber harvest	729
Existing mature stands excluded from timber harvest	1,420
Total forest land excluded from planned timber harvest	6,561
Existing old growth managed for partial retention	67
Existing mature stands managed for partial retention	380
Total forest land managed for for partial retention	1,292

<sup>7</sup> Does not include suitable woodlands (predominately juniper woodlands), for which no detailed inventory has yet been done.

**Table R-1. Summary of Land Allocations and Management Actions/Directions (continued)**  
(detailed management direction is described in the Resource Management Plan)

Timber	Acres	Timber	Acres
<b>West Side</b>		<b>East Side</b>	
<b>Forest management allocations (commercial forest land):</b>		<b>Forest management allocations (commercial forest land):</b>	
Intensive	0	Intensive	0
Restricted	23,563	Restricted	8,766
Woodlands	0	Woodlands	0
Enhancement of other uses or not available (total)	24,059	Enhancement of other uses or not available (total) <sup>6</sup>	82,464
<b>Practices (assumed average annual for the first decade):</b>		<b>Practices (assumed average annual for the first decade):</b>	
Regeneration harvest unit <sup>4</sup> (TRIM-PLUS harvest acres) <sup>4</sup>	131 (61)	Regeneration harvest units (acres) <sup>6</sup>	33
Commercial thinning/density management /uneven-age harvest units <sup>4</sup> (TRIM-PLUS harvest acres) <sup>4</sup>	828 (385)	Commercial thinning/density management uneven age harvest units (acres)	269
Site preparation (pile & burn slash)	180	Site preparation (pile & burn slash)	70
Vegetation control	200	Vegetation control	25
Animal damage control	400	Animal damage control	15
Pre-commercial thinning	50	Pre-commercial thinning	20
Brushfield/hardwood conversion	0	Brushfield/hardwood conversion	0
Planting/regular stock	300	Planting/regular stock	60
Planting/genetically selected	100	Planting/genetically selected stock	15
Fertilization	3	Fertilization	0
Pruning	16	Pruning	13
New road construction (miles/acres)	1/11	New road construction (miles/acres)	0.7/8
PSQ sale quantity (mmbf)	5.91 <sup>5</sup>	PSQ sale quantity (mmbf)	0.40 <sup>5</sup>
PSQ sale quantity (mmcf)	1.03 <sup>5</sup>	PSQ sale quantity (mmcf)	0.08 <sup>5</sup>

<sup>4</sup> See Appendix 4-C of the Final RMP for an explanation of the difference in acres between actual harvest and TRIM-PLUS harvest acres.

<sup>5</sup> The probable sale quantity shown may vary by plus or minus 40 percent due to changes resulting from further land classification, stream inventory, and watershed analysis. The acres associated with timber harvest activities would also vary by plus or minus 40 percent.

<sup>6</sup> Includes juniper woodland as available for enhancement of other uses.



**Table R-1. Summary of Land Allocations and Management Actions/Directions (continued)**  
(detailed management direction is described in the Resource Management Plan)

<b>Wild and Scenic Rivers</b>	<b>Number/Miles</b>	<b>Land Tenure</b>	<b>Acres</b>
River segments found suitable for designation as:		<b>Management Decision:</b>	
Recreational	0/0	Make land tenure adjustment to benefit a variety of uses and values. Emphasize opportunities that conserve Biological Diversity, enhance ecosystem management or improve management efficiency.	
Scenic <sup>8</sup>	1/11.0	Zone 1 identified for retention	
Wild	0/0	186,000	
<hr/> <sup>8</sup> The 11 mile segment of the Upper Klamath River was found suitable for designation as Scenic in both the draft and final Resource Management Plans. It was designated as Scenic by the Secretary of the Interior in October 1994. That designation is currently being litigated by the City of Klamath Falls.		Zone 2 potentially suitable for exchange only	
<hr/> <b>Visual Resources</b>		3,000	
	<b>Acres</b>	Zone 3 potentially suitable for sale or exchange	
<b>Management Decision:</b>		23,000	
Manage as VRM Class II all BLM lands within 1/4 mile of developed recreation sites, the Pacific Crest Trail, Spencer Creek, state scenic waterways and rivers designated scenic under the National Wild & Scenic Rivers Act. No less than VRM Class III management would be provided within 1/4 mile of rural interface areas and state and federal highways. The remaining lands would be managed as inventoried.		<b>Hydroelectric or Alternative Energy Projects</b>	
Visual Resource Management Class I	0	<b>Management Decision:</b>	
Visual Resource Management Class II	33,500	Right-of-way application for the Salt Caves hydroelectric project is denied based on the Secretary of the Interior's designation of the Upper Klamath River as Scenic. The outcome of the litigation between the City of Klamath Falls and the Secretary of the Interior could change this decision.	
Visual Resource Management Class III	81,800	Right-of-way applications for pumped storage or alternative energy projects would be accepted. Approval or denial of the application would depend on site-specific NEPA analysis.	
Visual Resource Management Class IV	96,700		
<b>Cultural Resources</b>			
	<b>Acres/Sites</b>		
Reserve as Native American traditional use areas	4,140/-		
Acres nominated to National Register of Historical Places	5,000/50		
Acres per year requiring cultural survey	4,500/-		

**Table R-1. Summary of Land Allocations and Management Actions/Directions (continued)**  
 (detailed management direction is described in the Resource Management Plan)

<b>Rights-of-Way</b>	<b>Acres</b>
Rights-of-way avoidance areas	58,080
Rights-of-way exclusion areas	840

**Access/Withdrawals**

**Management Decision:**

Acquire public access to public lands to assist various programs to meet management objectives.

Protect lands with important resource values and/or significant levels of investment by withdrawing them from operation of the public land and mineral laws.

<b>Energy and Mineral Management</b>	<b>Acres</b>
Available for oil and gas and geothermal leasing <sup>9</sup>	238,400
Closed to oil, gas and geothermal leasing	300
Open to mining claim location and operation	229,500
Closed to mining location <sup>10</sup>	6,400
Available for salable mineral disposal	222,500
Closed to salable mineral disposal	14,800

<sup>9</sup> There would be 1,400 acres less of geothermal resources.

<sup>10</sup> An additional 1,500 acres closed to non-metalliferous mineral location throughout all alternatives.

<b>Rural Interface Area Management</b>	<b>Acres</b>
Acres considered for alternative forest management practices	3,050
Acres where clearcutting and herbicide spraying excluded	0
Acres managed for VRM Class II objectives	0
Acres managed for VRM Class III objectives	3,050
Acres where prescribed burning excluded	0

**Livestock Grazing**

Number of AUMs annually on 95 grazing allotments	12,978
Construct reservoirs (each)	68
Develop springs (each)	14
Miles of fence to build	58.5
Control competing vegetation (acres)	12,950

**Road Management**

Construction (miles of road) <sup>13</sup>	1.7
Limit, as a goal, open road densities to 1.5 miles per square mile.	

<sup>13</sup> Annual average construction.

**Table R-1. Summary of Land Allocations and Management Actions/Directions (continued)**  
 (detailed management direction is described in the Resource Management Plan)

**Noxious Weed Control**

Follow Noxious Weed Control Final EIS 1986 and 1987. Follow current local plan and environmental assessment.

**Hazardous Materials**

Eliminate known hazardous materials on BLM-administered lands.

<b>Fire</b>	<b>Acres</b>
Per year prescribed burning for site preparation and silvicultural hazard reduction	250
Per year prescribed burning for wildlife habitat and forage enhancement	740
Per year natural and/or artificial ignition prescribed fire for ecosystem enhancement	up to 7,500

Abbreviations used in this table:

- ACEC = area of critical environmental concern
- AUM = animal unit month
- DRMP = draft Resource Management Plan
- FLPMA = Federal Land Policy and Management Act
- MMBF = million board feet
- MMCF = million cubic feet
- N/A = Not Applicable
- O&C = Oregon and California
- OHV = off-highway vehicle
- PRMP = Proposed Resource Management Plan
- PSQ = probable sale quantity
- ROW = right-of-way
- RMA = riparian management area
- RNA = research natural area
- SEIS = Supplemental Environmental Impact Statement
- VRM = Visual Resource Management

# Appendix C

## Management for the Supplemental Environmental Impact Statement Special Attention Species

Species	Survey Strategies <sup>1</sup>				Protection Buffers <sup>2</sup>
	1	2	3	4	
<b>Fungi</b>					
<b>Mycorrhizal Fungi</b>					
<b>Boletes</b>					
<i>Gastroboletus subalpinus</i>	X		X		
<i>Gastroboletus turbinatus</i>			X		
<b>Boletes, low elevation</b>					
<i>Boletus piperatus</i>			X		
<i>Tylopilus pseudoscaber</i>	X		X		
<b>Rare Boletes</b>					
<i>Boletus haematinus</i>	X		X		
<i>Boletus pulcherrimus</i>	X		X		
<i>Gastroboletus imbellus</i>	X		X		
<i>Gastroboletus ruber</i>	X		X		
<b>False Truffles</b>					
<i>Nivatogastrium nubigenum</i>	X		X		
<i>Rhizopogon abietis</i>			X		
<i>Rhizopogon atroviolaceus</i>			X		
<i>Rhizopogon truncatus</i>			X		
<i>Thaxterogaster pingue</i>			X		
<b>Uncommon False Truffle</b>					
<i>Macowanites chlorinosmus</i>	X		X		
<b>Rare False Truffles</b>					
<i>Alpova alexsmithii</i>	X		X		
<i>Alpova olivaceotinctus</i>	X		X		
<i>Arcangeliella crassa</i>	X		X		
<i>Arcangeliella lactarioides</i>	X		X		
<i>Destuntzia fusca</i>	X		X		
<i>Destuntzia rubra</i>	X		X		
<i>Gautieria magnicellaris</i>	X		X		
<i>Gautieria otthii</i>	X		X		
<i>Leucogaster citrinus</i>	X		X		

Appendix C - Management for the Supplemental Environmental Impact Statement Special Attention Species

Species	Survey Strategies <sup>1</sup>				Protection Buffers <sup>2</sup>
	1	2	3	4	
<b>Rare False Truffles (continued)</b>					
<i>Leucogaster microsporus</i>	X		X		
<i>Macowanites lymanensis</i>	X		X		
<i>Macowanites mollis</i>	X		X		
<i>Martellia fragrans</i>	X		X		
<i>Martellia idahoensis</i>	X		X		
<i>Martellia monticola</i>	X		X		
<i>Octavianina macrospora</i>	X		X		
<i>Octavianina papyracea</i>	X		X		
<i>Rhizopogon brunneiniger</i>	X		X		
<i>Rhizopogon evadens</i> var. <i>subalpinus</i>	X		X		
<i>Rhizopogon exiguus</i>	X		X		
<i>Rhizopogon Flavofibrillosus</i>	X		X		
<i>Rhizopogon inquinatus</i>	X		X		
<i>Seducula pulvinata</i>					
<b>Undescribed Taxa, Rare Truffles &amp; False truffles</b>					
<i>Alpova</i> sp. nov. #Trappe 9730	X		X		
<i>Alpova</i> sp. nov. #Trappe 1966	X		X		
<i>Arcangeliella</i> sp. nov. #Trappe 12382	X		X		
<i>Arcangeliella</i> sp. nov. #Trappe 12359	X		X		
<i>Chamonixia pacifica</i> sp. nov. #Trappe 12768	X		X		
<i>Elaphomyces</i> sp. nov. #Trappe 1038	X		X		
<i>Gastroboletus</i> sp. nov. #Trappe 2897	X		X		
<i>Gastroboletus</i> sp. nov. #Trappe 7515	X		X		
<i>Gastrosuillus</i> sp. nov. #Trappe 7516	X		X		
<i>Gastrosuillus</i> sp. nov. #Trappe 9608	X		X		
<i>Gymnomyces</i> sp. nov. #Trappe 4703, 5576	X		X		
<i>Gymnomyces</i> sp. nov. #Trappe 5052	X		X		
<i>Gymnomyces</i> sp. nov. #Trappe 1690, 1706, 1710	X		X		
<i>Gymnomyces</i> sp. nov. #Trappe 7545	X		X		
<i>Hydnotrya</i> sp. nov. #Trappe 787, 792	X		X		
<i>Hydnotrya subnix</i> sp. nov. #Trappe 1861	X		X		
<i>Martellia</i> sp. nov. #Trappe 649	X		X		
<i>Martellia</i> sp. nov. #Trappe 1700	X		X		
<i>Martellia</i> sp. nov. #Trappe 311	X		X		
<i>Martellia</i> sp. nov. #Trappe 5903	X		X		
<i>Octavianina</i> sp. nov. #Trappe 7502	X		X		
<i>Rhizopogon</i> sp. nov. #Trappe 9432	X		X		
<i>Rhizopogon</i> sp. nov. #Trappe 1692	X		X		
<i>Rhizopogon</i> sp. nov. #Trappe 1698	X		X		
<i>Thaxterogaster</i> sp. nov. #Trappe 4867, 6242, 7427, 7962, 8520	X		X		
<i>Tuber</i> sp. nov. #Trappe 2302	X		X		
<i>Tuber</i> sp. nov. #Trappe 12493	X		X		
<b>Rare Truffles</b>					
<i>Balsamia nigra</i>	X		X		
<i>Choiromyces alveolatus</i>	X		X		
<i>Choiromyces venosus</i>	X		X		
<i>Elaphomyces anthracinus</i>	X		X		
<i>Elaphomyces subviscidus</i>	X		X		

Species	Survey Strategies <sup>1</sup>				Protection Buffers <sup>2</sup>
	1	2	3	4	
<b>Chanterelles</b>					
<i>Cantharellus cibarius</i>			X	X	
<i>Cantharellus subalbidus</i>			X	X	
<i>Cantharellus tubaeformis</i>			X	X	
<b>Chanterelles - Gomphus</b>					
<i>Gomphus bonarii</i>			X		
<i>Gomphus clavatus</i>			X		
<i>Gomphus floccosus</i>			X		
<i>Gomphus kauffmanii</i>			X		
<b>Rare Chanterelle</b>					
<i>Cantharellus formosus</i>	X		X		
<i>Polyozellus multiplex</i>	X		X		
<b>Uncommon Coral Fungi</b>					
<i>Ramaria abietina</i>			X		
<i>Ramaria araiospora</i>	X		X		
<i>Ramaria botrytis</i> var. <i>aurantiiramosa</i>	X		X		
<i>Ramaria concolor</i> f. <i>tsugina</i>			X		
<i>Ramaria coulterae</i>			X		
<i>Ramaria fasciculata</i> var. <i>sparsiramosa</i>	X		X		
<i>Ramaria gelatiniaurantia</i>	X		X		
<i>Ramaria largentii</i>	X		X		
<i>Ramaria rubella</i> var. <i>blanda</i>	X		X		
<i>Ramaria rubrievanescens</i>	X		X		
<i>Ramaria rubripermanens</i>	X		X		
<i>Ramaria suecica</i>			X		
<i>Ramaria thiersii</i>	X		X		
<b>Rare Coral Fungi</b>					
<i>Ramaria amyloidea</i>	X		X		
<i>Ramaria aurantiisiccescens</i>	X		X		
<i>Ramaria celerivirescens</i>	X		X		
<i>Ramaria claviramulata</i>	X		X		
<i>Ramaria concolor</i> f. <i>marri</i>	X		X		
<i>Ramaria cyaneigranosa</i>	X		X		
<i>Ramaria hilaris</i> var. <i>olympiana</i>	X		X		
<i>Ramaria lorithamnus</i>	X		X		
<i>Ramaria maculatipes</i>	X		X		
<i>Ramaria rainierensis</i>	X		X		
<i>Ramaria rubribrunnescens</i>	X		X		
<i>Ramaria stuntzii</i>	X		X		
<i>Ramaria verlotensis</i>	X		X		
<i>Ramaria gracilis</i>	X		X		
<i>Ramaria spinulosa</i>	X		X		
<b>Phaeocollybia</b>					
<i>Phaeocollybia attenuata</i>			X		
<i>Phaeocollybia californica</i>	X		X		
<i>Phaeocollybia carmanahensis</i>	X		X		
<i>Phaeocollybia dissiliens</i>	X		X		
<i>Phaeocollybia fallax</i>			X		

Species	Survey Strategies <sup>1</sup>				Protection Buffers <sup>2</sup>
	1	2	3	4	
<b>Phaeocollybia (continued)</b>					
<i>Phaeocollybia gregaria</i>	X		X		
<i>Phaeocollybia kauffmanii</i>	X		X		
<i>Phaeocollybia olivacea</i>			X		
<i>Phaeocollybia oregonensis</i>	X		X		
<i>Phaeocollybia piceae</i>	X		X		
<i>Phaeocollybia pseudofestiva</i>			X		
<i>Phaeocollybia scatesiae</i>	X		X		
<i>Phaeocollybia sipei</i>	X		X		
<i>Phaeocollybia spadicea</i>			X		
<b>Uncommon Gilled Mushrooms</b>					
<i>Catathelasma ventricosa</i>			X		
<i>Cortinarius azureau</i>			X		
<i>Cortinarius boulderensis</i>	X		X		
<i>Cortinarius cyanites</i>			X		
<i>Cortinarius magnivelatus</i>	X		X		
<i>Cortinarius olympianus</i>	X		X		
<i>Cortinarius spilomius</i>			X		
<i>Cortinarius tabularis</i>			X		
<i>Cortinarius valgus</i>			X		
<i>Dermocybe humboldtensis</i>	X		X		
<i>Hebeloma olympiana</i>	X		X		
<i>Hygrophorus caeruleus</i>	X		X		
<i>Hygrophorus karstenii</i>			X		
<i>Hygrophorus vernalis</i>	X		X		
<i>Russula mustelina</i>			X		
<b>Rare Gilled Mushrooms</b>					
<i>Chroogomphus loculatus</i>	X		X		
<i>Cortinarius canabarda</i>	X		X		
<i>Cortinarius rainierensis</i>	X		X		
<i>Cortinarius variipes</i>	X		X		
<i>Cortinarius verrucisporus</i>	X		X		
<i>Cortinarius wiebeae</i>	X		X		
<i>Tricholoma venenatum</i>	X		X		
<b>Uncommon Ecto-Polypores</b>					
<i>Albatrellus ellisii</i>			X		
<i>Albatrellus flettii</i>			X		
<i>Polyozellus multiplex</i>			X		X
<b>Rare Ecto-Polypores</b>					
<i>Albatrellus avellaneus</i>	X		X		
<i>Albatrellus caeruleoporus</i>	X		X		
<b>Tooth Fungi</b>					
<i>Hydnum repandum</i>			X		
<i>Hydnum umbilicatum</i>			X		
<i>Phellodon atratum</i>			X		
<i>Sarcodon fuscoindicum</i>			X		
<i>Sarcodon imbricatus</i>			X		

Species	Survey Strategies <sup>1</sup>				Protection Buffers <sup>2</sup>
	1	2	3	4	
<b>Rare Zygomycetes</b>					
<i>Endogone acrogena</i>	X		X		
<i>Endogone oregonensis</i>	X		X		
<i>Glomus radiatum</i>	X		X		
<b>Saprobies (Decomposers)</b>					
<b>Uncommon Gilled Mushrooms</b>					
<i>Baeospora myriadophylla</i>			X		
<i>Chrysomphalina grossula</i>			X		
<i>Collybia bakerensis</i>	X		X		
<i>Fayodia gracilipes (rainierensis)</i>			X		
<i>Gymnopilus punctifolius</i>	X		X		
<i>Marasmius applanatipes</i>	X		X		
<i>Mycena hudsoniana</i>	X		X		
<i>Mycena lilacifolia</i>			X		
<i>Mycena marginella</i>			X		
<i>Mycena monticola</i>	X		X		
<i>Mycena overholtsii</i>	X		X		
<i>Mycena quinaultensis</i>	X		X		
<i>Mycena tenax</i>			X		
<i>Mythicomyces corneipes</i>			X		
<i>Neolentinus kauffmanii</i>	X		X		
<i>Pholiota albivelata</i>	X		X		
<i>Stagnicola perplexa</i>			X		
<b>Rare Gilled Mushrooms</b>					
<i>Clitocybe subditopoda</i>	X		X		
<i>Clitocybe senilis</i>	X		X		
<i>Neolentinus adherens</i>	X		X		
<i>Rhodocybe nitida</i>	X		X		
<i>Rhodocybe speciosa</i>	X		X		
<i>Tricholomopsis fulvescens</i>	X		X		
<b>Noble Polypore (rare and endangered)</b>					
<i>Oxyporus nobilissimus</i>	X	X	X		
<b>Bondarzewia Polypore</b>					
<i>Bondarzewia montana</i>	X	X	X		
<b>Rare Resupinates and Polypores</b>					
<i>Aleurodiscus farlowii</i>	X		X		
<i>Dichostereum granulosum</i>	X		X		
<i>Cudonia monticola</i>			X		
<i>Gyromitra californica</i>			X	X	
<i>Gyromitra esculenta</i>			X	X	
<i>Gyromitra infula</i>			X	X	
<i>Gyromitra melaleucoides</i>			X	X	
<i>Gyromitra montana (syn. G. gigas)</i>			X	X	
<i>Otidea leporina</i>			X		X
<i>Otidea onotica</i>			X		X
<i>Otidea smithii</i>	X		X		X

Species	Survey Strategies <sup>1</sup>				Protection Buffers <sup>2</sup>
	1	2	3	4	
<b>Rare Resupinates and Polypores (continued)</b>					
<i>Plectania melastoma</i>			X		
<i>Podostroma alutaceum</i>			X		
<i>Sarcosoma mexicana</i>			X		X
<i>Sarcosphaera eximia</i>			X		
<i>Spathularia flavida</i>			X		
<b>Rare Cup Fungi</b>					
<i>Aleuria rhenana</i>					X
<i>Bryoglossum gracile</i>					
<i>Gelatinodiscus flavidus</i>	X		X		
<i>Helvella compressa</i>	X		X		
<i>Helvella crassitunicata</i>	X		X		
<i>Helvella elastica</i>	X		X		
<i>Helvella maculata</i>	X		X		
<i>Neourmula pouchetii</i>	X		X		
<i>Pithya vulgaris</i>	X		X		
<i>Plectania latahensis</i>	X		X		
<i>Plectania milleri</i>	X		X		
<i>Pseudaleuria quinaultiana</i>	X		X		
<b>Club Coral Fungi</b>					
<i>Clavariadelphus ligula</i>			X	X	
<i>Clavariadelphus pistilaris</i>			X	X	
<i>Clavariadelphus truncatus</i>			X	X	
<i>Clavariadelphus borealis</i>			X	X	
<i>Clavariadelphus lovejoyae</i>			X	X	
<i>Clavariadelphus sachalinensis</i>			X	X	
<i>Clavariadelphus subfastigiatus</i>			X	X	
<b>Jelly Mushroom</b>					
<i>Phlogotitis helvelloides</i>			X	X	
<b>Branched Coral Fungi</b>					
<i>Clavulina cinerea</i>			X	X	
<i>Clavulina cristata</i>			X	X	
<i>Clavulina ornatipes</i>			X	X	
<b>Mushroom Lichen</b>					
<i>Phytoconis ericetorum</i>			X	X	
<b>Parasitic Fungi</b>					
<i>Asterophora lycoperdoides</i>			X		
<i>Asterophora parasitica</i>			X		
<i>Collybia racemosa</i>			X		
<i>Cordyceps capitata</i>			X		
<i>Cordyceps ophioglossoides</i>			X		
<i>Hypomyces luteovirens</i>			X		
<b>Cauliflower Mushroom</b>					
<i>Sparassis crispa</i>			X		

Species	Survey Strategies <sup>1</sup>				Protection Buffers <sup>2</sup>
	1	2	3	4	
<b>Moss Dwelling Mushrooms</b>					
<i>Cyphellostereum laeve</i>			X		
<i>Galerina atkinsoniana</i>			X		
<i>Galerina cerina</i>			X		
<i>Galerina heterocystis</i>			X		
<i>Galerina sphagnicola</i>			X		
<i>Galerina vittaeformis</i>			X		
<i>Rickenella setipes</i>			X		
<b>Coral Fungi</b>					
<i>Clavicornia avellanea</i>			X		
<b>Lichens</b>					
<b>Rare Forage Lichen</b>					
<i>Bryoria tortuosa</i>	X		X		
<b>Rare Leafy (arboreal) Lichens</b>					
<i>Hypogymnia duplicata</i>	X	X	X		
<i>Tholurna dissimilis</i>	X		X		
<b>Rare Nitrogen-fixing Lichens</b>					
<i>Dendroscocaulon intricatum</i>	X		X		
<i>Lobaria hallii</i>	X		X		
<i>Lobaria linita</i>	X	X	X		
<i>Nephroma occultum</i>	X		X		
<i>Pannaria rubiginosa</i>	X		X		
<i>Pseudocyphellaria rainierensis</i>	X	X	X		
<b>Nitrogen-fixing Lichens</b>					
<i>Lobaria oregana</i>				X	
<i>Lobaria pulmonaria</i>				X	
<i>Lobaria scrobiculata</i>				X	
<i>Nephroma bellum</i>				X	
<i>Nephroma helveticum</i>				X	
<i>Nephroma laevigatum</i>				X	
<i>Nephroma parile</i>				X	
<i>Nephroma resupinatum</i>				X	
<i>Pannaria leucostictoides</i>				X	
<i>Pannaria mediterranea</i>				X	
<i>Pannaria saubinetii</i>				X	
<i>Peltigera collina</i>				X	
<i>Peltigera neckeri</i>				X	
<i>Peltigera pacifica</i>				X	
<i>Pseudocyphellaria anomala</i>				X	
<i>Pseudocyphellaria anthraspis</i>				X	
<i>Pseudocyphellaria crocata</i>				X	
<i>Sticta beauvoisii</i>				X	
<i>Sticta fuliginosa</i>				X	
<i>Sticta limbata</i>				X	

Species	Survey Strategies <sup>1</sup>				Protection Buffers <sup>2</sup>
	1	2	3	4	
<b>Pin Lichens</b>					
<i>Calicium abietinum</i>				X	
<i>Calicium adaequatum</i>				X	
<i>Calicium adpersum</i>				X	
<i>Calicium glaucellum</i>				X	
<i>Calicium viride</i>				X	
<i>Chaenotheca brunneola</i>				X	
<i>Chaenotheca chrysocephala</i>				X	
<i>Chaenotheca ferruginea</i>				X	
<i>Chaenotheca furfuracea</i>				X	
<i>Chaenotheca subroscida</i>				X	
<i>Chaenothecopsis pusilla</i>				X	
<i>Cyphelium inquinans</i>				X	
<i>Microcalicium arenarium</i>				X	
<i>Mycocalicium subtile</i>				X	
<i>Stenocybe clavata</i>				X	
<i>Stenocybe major</i>				X	
<b>Rare Rock Lichens</b>					
<i>Pilophorus nigricaulis</i>	X		X		
<i>Sticta arctica</i>	X		X		
<b>Riparian Lichens</b>					
<i>Cetrelia cetrarioides</i>				X	
<i>Collema nigrescens</i>				X	
<i>Leptogium burnetiae</i> var. <i>hirsutum</i>				X	
<i>Leptogium cyanescens</i>				X	
<i>Leptogium saturninum</i>				X	
<i>Leptogium teretiusculum</i>				X	
<i>Platismatia lacunosa</i>				X	
<i>Ramalina thrausta</i>				X	
<i>Usnea longissima</i>				X	
<b>Aquatic Lichens</b>					
<i>Dermatocarpon luridum</i>	X		X		
<i>Hydrothyria venosa</i>	X		X		
<i>Leptogium rivale</i>	X		X		
<b>Additional Lichen Species</b>					
<i>Cladonia norvegica</i>			X		
<i>Heterodermia sitchensis</i>			X		
<i>Hygomnia vittata</i>			X		
<i>Hypotrachyna revoluta</i>			X		
<i>Ramalina pollinaria</i>			X		
<i>Nephroma isidiosum</i>			X		
<b>Bryophytes</b>					
<i>Antitrichia curtipendula</i>				X	
<i>Bartramiopsis lescurii</i>	X		X		
<i>Brotherella roelli</i>	X		X		X
<i>Diplophyllu albicans</i>	X		X		
<i>Diplophyllum plicatum</i>	X	X			

Species	Survey Strategies <sup>1</sup>				Protection Buffers <sup>2</sup>
	1	2	3	4	
<i>Douinia ovata</i>				X	
<i>Encalypta brevicolla</i> var. <i>crumiana</i>	X		X		
<i>Herbertus aduncus</i>	X		X		
<i>Herbertus sakurali</i>	X		X		
<i>Iwatsuklella leucotricha</i>	X		X		
<i>Kurzia makinoana</i>	X	X			
<i>Marsupella emarginata</i> var. <i>aquatica</i>	X	X			
<i>Orthodontium gracile</i>	X		X		
<i>Plagiochila satol</i>	X		X		
<i>Plagiochila semidecurrens</i>	X		X		
<i>Pleuroziopsis ruthenica</i>	X		X		
<i>Ptilidium californicum</i>	X	X			
<i>Racomitrium aquaticum</i>	X		X		
<i>Radula brunnea</i>	X		X		
<i>Scouleria marginata</i>				X	
<i>Tetraphis geniculata</i>	X		X		X
<i>Tritomaria exsectiformis</i>	X	X			
<i>Tritomaria quinquedentata</i>	X		X		

## Birds

<i>Great Grey Owl</i>					X
<i>White-headed Woodpecker</i>					X
<i>Black-backed Woodpecker</i>					X
<i>Pygmy Nuthatch</i>					X
<i>Flammulated owl</i>					X

## Mammals

<i>Red tree vole (P. longicaudus)</i>		X			
<i>Lynx</i>					X

## Mollusks

<i>Cryptomastix devia</i>	X	X			
<i>Cryptomastix hendersoni</i>	X	X			
<i>Helminthoglypta hertleina</i>	X	X			
<i>Helminthoglypta talmadgei</i>	X	X			
<i>Megomphix hemphilli</i>	X	X			
<i>Monadenia chaceana</i>	X	X			
<i>Monadenia churchi</i>	X	X			
<i>Monadenia fidelis minor</i>	X	X			
<i>Monadenia troglodytes troglodytes</i>	X	X			
<i>Monadenia troglodytes wintu</i>	X	X			
<i>Oreohelix n. sp.</i>	X	X			
<i>Pristiloma articum crateris</i>	X	X			
<i>Trilobopsis roperi</i>	X	X			
<i>Trilobopsis tehamana</i>	X	X			
<i>Vertigo n. sp.</i>	X	X			
<i>Vespericola pressleyi</i>	X	X			
<i>Vespericola shasta</i>	X	X			

Species	Survey Strategies <sup>1</sup>				Protection Buffers <sup>2</sup>
	1	2	3	4	
<b>Mollusks (continued)</b>					
<i>Deroceras hesperium</i>	X	X			
<i>Hemphillia barringtoni</i>	X	X			
<i>Hemphillia glandulosa</i>	X	X			
<i>Hemphillia malonei</i>	X	X			
<i>Hemphillia pantherina</i>	X	X			
<i>Prophysaon coeruleum</i>	X	X			
<i>Prophysaon dubium</i>	X	X			
<i>Fluminicola n. sp. 1</i>	X	X			
<i>Fluminicola n. sp. 11</i>	X	X			
<i>Fluminicola n. sp. 14</i>	X	X			
<i>Fluminicola n. sp. 15</i>	X	X			
<i>Fluminicola n. sp. 16</i>	X	X			
<i>Fluminicola n. sp. 17</i>	X	X			
<i>Fluminicola n. sp. 18</i>	X	X			
<i>Fluminicola n. sp. 19</i>	X	X			
<i>Fluminicola n. sp. 2</i>	X	X			
<i>Fluminicola n. sp. 20</i>	X	X			
<i>Fluminicola n. sp. 3</i>	X	X			
<i>Fluminicola seminalis</i>	X	X			
<i>Juga (O.) n. sp. 2</i>	X	X			
<i>Juga (O.) n. sp. 3</i>	X	X			
<i>Lyogyrus n. sp. 1</i>	X	X			
<i>Lyogyrus n. sp. 2</i>	X	X			
<i>Lyogyrus n. sp. 3</i>	X	X			
<i>Vorticifex klamathensis sinitsini</i>	X	X			
<i>Vorticifex n. sp. 1</i>	X	X			
<b>Vascular Plants</b>					
<i>Allotropa virgata</i>	X	X			
<i>Arceuthobium tsugense</i>	X	X			
<i>Aster vialis</i>	X	X			
<i>Bensoniella oregana (California)</i>	X	X			
<i>Botrychium minganense</i>	X	X			
<i>Botrychium montanum</i>	X	X			
<i>Corydalis aquae-gelidae</i>	X	X			
<i>Cypripedium fasciculatum (Klamath)</i>	X	X			
<i>Cypripedium montanum (west Cascades)</i>	X	X			
<i>Habenaria orbiculata</i>	X	X			
<i>Pedicularis howellii</i>	X	X			
<b>Arthropods</b>					
<i>Canopy herbivores (south range)</i>					X
<i>Coarse wood chewers (south range)</i>					X
<i>Litter and soil dwelling species (south range)</i>					X
<i>Understory and forest gap herbivores</i>					X

<sup>1</sup> Survey Strategies:

- 1 = Manage known sites;
- 2 = Survey prior to activities and manage sites;
- 3 = Conduct extensive surveys and manage sites; and
- 4 = Conduct general regional surveys.

<sup>2</sup> Protection Buffers are additional standards and guidelines from the Scientific Analysis Team Report for specific rare and locally endemic species, and other specific species in the upland forest matrix (see Record of Decision for SEIS [page C-19]).

---

# Appendix D

## Best Management Practices

### Introduction

The best management practices described in this appendix are designed to achieve the objectives of maintaining or improving water quality and soil productivity and the protection of riparian-wetland areas. The goal of the practices listed is to prevent or mitigate adverse impacts while meeting other resource objectives.

These best management practices are a compilation of existing policies and guidelines and commonly employed practices to minimize water quality degradation and loss of soil productivity. These best management practices are considered the primary mechanisms to achieve Oregon water quality standards.

Nonpoint sources of pollution result from natural causes, human actions, and the interactions between natural events and conditions associated with human use of the land and its resources. Nonpoint source pollution is caused by diffuse sources rather than from a discharge at a specific, single location. Such pollution results in alteration of the chemical, physical, and biological integrity of water. Erosion from a harvest unit or surface erosion from a road are some examples of nonpoint sources.

Best management practices are defined as methods, measures or practices selected on the basis of site-specific conditions to ensure that water quality will be maintained at its highest practicable level. Best management practices include, but are not limited to, structural and nonstructural controls, operations, and maintenance procedures. Best management practices can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters (40 Code of Federal Regulations 130.2, Environmental Protection Agency Water Quality Standards Regulation).

Best management practices are identified as part of the National Environmental Policy Act process, with interdisciplinary involvement. Because the control of nonpoint sources of pollution is an ongoing process, continual refinement of best management practices design is necessary. This process can be described in five steps, which are: 1) selection of design of a specific best management practices; 2) application of the best management practices; 3) monitoring; 4) evaluation; and 5) feedback. Data gathered through monitoring is evaluated and is used to identify changes needed in best management practices design, application, or in the monitoring program.

Monitoring of soil, water, and riparian-wetland resources conducted by the Klamath Falls Resource Area is described in the following documents: The Klamath Falls Resource Area Interdisciplinary Rangeland Monitoring Plan; Appendix O in the Klamath Falls Resource Area Proposed Resource Management Plan and Environmental Impact Statement; and BLM Manual Supplement 1743-2, *Rangeland Monitoring Handbook*.

### Use

The goal of this document is to identify water quality and soil objectives for various management actions. The practices listed below each management action are given as examples of best management practices which are effective in achieving the water and soil objectives. Best management practices are selected and implemented as necessary based on site-specific conditions to meet water and soil objectives for specific management actions. This document does not provide an exhaustive list of best management practices. Additional best management practices may be identified during the interdisciplinary process when evaluating site-specific management actions. Implementation and effectiveness of best management practices need to be monitored to determine whether the practices are achieving water and soil objectives. Adjustments will be made as necessary to ensure objectives are met and as needed to conform with changes in Bureau of Land Management policy, direction, or new information.

## Organization

This Appendix is organized by management activities plus separate sections which address activity planning and design, riparian-wetland areas, and fragile soils. Objectives are stated under each management activity followed by a list of practices designed to achieve these objectives.

Any best management practices that corresponds with a Standard and Guideline from the Record of Decision for the Supplemental Environmental Impact Statement has the number of the Standard and Guideline referenced in bold (for example **RF-1**).

## Legislation and Regulations

This document is designed to ensure compliance with the:

**Clean Water Act of 1972**, as amended (1977 and 1987). Section 319 of the Clean Water Act Amendments of 1987 (Water Quality Act) requires that the states determine those waters that will not meet the goals of the Act, to determine those nonpoint source activities that are contributing pollution, and to develop a process of determining best management practices to reduce such pollution to the “maximum extent practicable”.

**Oregon Administrative Rules** (Chapter 340, sections: 340-41-026,027,965). Department of Environmental Quality. Oregon’s Administrative Rules contain water quality standards for the identified beneficial uses of water in relation to the antidegradation policy, the requirement for the highest and best control of waste activities, temperature and turbidity.

**BLM Manual 9188**: Nonpoint Source Pollution Control

### Table of Contents

Introduction .....	1
Activity Planning and Design .....	3
Riparian Reserves .....	6
Soil Resource Protection .....	11
Fragile Soils .....	12
Roads .....	15
Timber Harvest .....	22
Silviculture .....	26
Firewood Program .....	28
Wildfire and Prescribed Fire .....	28
Mining .....	31
Livestock Grazing .....	35
Watershed Rehabilitation .....	37
Fisheries Habitat Improvement Projects .....	38
Recreation and Off-Highway Vehicle Use .....	39
Management of Competing Vegetation (Not Including Noxious Weeds) .....	40
Noxious Weed Control .....	41
Water Source Development and Use .....	42
Erosion Control Practices .....	42
Definitions and Proper Functioning Condition .....	42
Table D-1. Riparian Reserve Widths (in feet) .....	8
Table D-2. Erosion Potential .....	11
Table D-3. Guide for Placing Common Soil and Geologic Types into Soil Erosion and Soil Infiltration Classes to Space Lateral Road Drainage Culverts. ....	45
Table D-4. Guide for Maximum Spacing of Lateral Drainage Culverts by Soil Erosion Classes and Road Grade .....	46
Table D-5. Water Bar Spacing .....	25
Table D-6. Guidelines for Levels of Burn Intensity .....	30
Table D-7. Utilization Standards in Riparian-Wetland Areas .....	36
Table D-8. Degree of Allowable Use .....	37
Table D-9. Application Technique .....	40
Table D-10. Application Technique .....	41

# Activity Planning and Design

## A. Planning

**Objective:** *To include soil productivity, water quality and hydrologic considerations in activity planning.*

- Practices:** (1) **Incorporate landscape-level analysis and watershed analysis into project and activity planning.** Watershed analysis consists of: identifying principal issues within a particular watershed; identifying existing and desired conditions (as driven by the principal issues); identifying those processes and activities that need to be modified to achieve the desired watershed conditions; identifying restoration opportunities; and identifying planning and coordination requirements. Guidance on developing watershed restoration projects and for conducting watershed analysis can be found in Chapter 2 of the Proposed Resource Management Plan/Environmental Impact Statement and in other issued guidance.
- (2) Use the timber production capability classification inventory to identify areas classified as fragile due to slope gradient, mass movement potential, surface erosion potential, and high ground water levels.
  - (3) Use the planning process to identify, evaluate, and map potential problems (for example, slump prone areas, saturated areas and slide areas).
  - (4) Develop activity plans for third to fifth order watersheds to minimize detrimental cumulative effects on water quality and quantity.
  - (5) Analyze watershed cumulative effects and provide mitigation measures if necessary to meet water quality requirements (see Cumulative Effects below).
  - (6) Disperse activities over time and space.
  - (7) Determine potential for natural and activity-created high intensity wildfires at the subwatershed level. Reduce potential for high intensity wildfires through proposed management activities.
  - (8) Identify in-stream flows needed to maintain riparian resources, channel conditions, fish passage, and aquatic habitat (**LH-1, RA-1**).
  - (9) Address attainment of Aquatic Conservation Strategy objectives in Wild and Scenic Rivers and Wilderness management plans.

**Objective:** *To restore and maintain riparian-wetland areas so that 75 percent or more are in proper functioning condition by 1997. The overall objective is to achieve an advanced ecological status (late successional), except where resource management objectives, including proper functioning condition, would require an earlier successional stage.*

- Practices:** (1) Assess the current status of a riparian-wetland area in terms of functioning condition and ecological status (see the Definitions and Proper Functioning Condition section for a list of reference materials).
- (2) Use the methods outlined in the Definitions and Proper Functioning Condition section and BLM Technical Reference 1737-9, *Process for Assessing Proper Functioning Condition* to determine proper functioning condition and to determine the desired functioning and ecological condition for a riparian-wetland area.

## **B. Design**

**Objective:** *To ensure that management activities maintain favorable conditions of soil productivity, water flow, water quality, and fish habitat.*

**Practices:** (1) Design proposed management activities to avoid potential adverse impacts to soil and water. Evaluate factors such as soil characteristics, watershed physiography, current watershed and stream channel conditions, proposed roads, skid trails, logging system design, season of activity, etc., to determine impacts of proposed management activities.

(2) Design mitigation measures if unavoidable adverse impacts to water quality/quantity or soil productivity may result from the proposed action.

## **C. Maps/Contract Requirements**

**Objective:** *To identify areas to be protected and to ensure their protection on the ground.*

**Practices:** Include the following on activity maps and/or contracts:

(1) Location of all stream channels and riparian-wetland areas (springs, meadows, lakes, bogs, etc.).

(2) Stipulations required for each stream channel and riparian-wetland area.

(3) Location of water sources available for Purchaser's/Contractor's use (see the Water Source Development and Use section).

(4) Location of water sources to be used for management activities (see the Water Source Development and Use section).

## **D. Cumulative Effects**

**Objective:** *To minimize detrimental impacts on water and soil resources resulting from the cumulative effect of land management activities within a watershed.*

**Practices:** (1) When and where possible, coordinate scheduling of management activities such as timber sales, road construction, and watershed enhancement activities with other landowners in the watershed.

(2) **Identify watersheds with a high level of cumulative effects.** Conduct cumulative effects analysis as required by the National Environmental Policy Act process. Cumulative effects analysis assesses the effects of a proposed action on the environment; the following procedure is only one method of doing so. There is no required standard analysis procedure for cumulative impacts. Cumulative effects analysis is separate, but similar, to analyses conducted for Section 7 Consultation with the U.S. Fish and Wildlife Service. Information in one can be incorporated into the other. Watershed analysis provides information for the "Affected Environment" and "Management Opportunity" portions of a National Environmental Policy Act or planning document, but does not analyze impacts. Cumulative effects analysis supplements and supports watershed analysis.

a. Use the following general guidelines to delineate watersheds for cumulative effects analyses.

1) Use natural drainage boundaries.

2) Use third to fifth order drainages.

3) Size ranges from 500 to 10,000 acres.

4) Locate lower boundary based on a state-recognized beneficial use.

b. The extent to which any or all of the following criteria exist would determine which watersheds have a high risk for water quality degradation due to cumulative effects. The criteria are not listed in order of priority.

- 1) Highly erodible soils.
- 2) High equivalent clearcut area.
- 3) Large area of compacted soil.
- 4) High level of non-recovered openings in transient snow zone.
- 5) High sedimentation potential.
- 6) Poor to fair channel stability or condition.
- 7) Poor to fair riparian condition.
- 8) High impact from catastrophic event (for example, wildfire).
- 9) High road density.
- 10) Potential for adverse impact on a beneficial use.
- 11) Monitoring data shows that water quality does not meet state water quality standards.

(3) After initial analysis, an intensive evaluation should include the nature of the problem, the cause of the problem, and a specific plan with objectives and alternatives for recovery and mitigation. Water monitoring may also be initiated to validate the conclusion of the impact analysis and to establish baseline data. This step complements, and may be an integral part of conducting a watershed analysis.

(4) Based on site-specific conditions, select and apply one or more special management practices such as the following to mitigate water quality impacts in **high risk or highly impacted watersheds**.

- a. Develop and implement a watershed/riparian enhancement plan and encourage coordination with landowners.
- b. Require plans of operation for mining and rights-of-way. Require a management plan for grazing.
- c. Defer the watershed from management activities which would potentially degrade water quality for approximately five years. Reanalyze the watershed.
- d. Increase widths of Riparian Reserves to provide additional protection.
- e. Incorporate watershed and riparian-wetland area management objectives into existing plans (Coordinated Resource Management Plans, Allotment Management Plans, etc.) where practicable.
- f. Require helicopter logging.
- g. Require full suspension cable yarding.
- h. Require seasonal restrictions with no waivers for timber falling and yarding.
- i. Minimize existing and prevent additional road caused impacts:
  - ◆ reduce road densities by obliterating roads or reduce open road densities through road closures
  - ◆ minimize road width and clearing limits
  - ◆ require transport of excavated materials to appropriate disposal site (end hauling)
  - ◆ prohibit new road construction
  - ◆ surface all roads
  - ◆ require seasonal restriction with no waivers for construction, renovation and hauling
  - ◆ require special low impact maintenance and construction techniques
  - ◆ no roadside brushing/grubbing with excavator
  - ◆ no blading and ditch pulling in the wet season unless essential to provide drainage
  - ◆ rock ditch lines
  - ◆ pull back sidecast from road construction and recontour roadway
  - ◆ remove culverts and reshape drainageway crossings
- j. Restrict or officially close the watershed to off-road vehicle use and enforce the closure.
- k. Implement regular compliance reviews on all activities in the watershed.
- l. Assess trade-offs between wildfire suppression impacts and wildfire damage; plan suppression levels accordingly. Limit use of heavy equipment during wildfire suppression (see the Wildfire and Prescribed Fire section).

## Appendix D - Best Management Practices

- m. Develop a Winter Logging Plan
  - ◆ design proper snow storage areas
  - ◆ manipulate snow cover on roads to allow for proper drainage of melt water
  - ◆ prohibit hauling activities during snow melt

### E. Permits

**Objective:** *To minimize detrimental impacts on water and riparian-wetland resources and to comply with the Clean Water Act.*

**Practice:** Obtain appropriate and necessary permits from the Oregon Department of Environmental Quality (through the Oregon Division of State lands) and the U.S. Army Corps of Engineers for projects potentially affecting waters of the state and/or wetlands. Guidance regarding permit requirements for resource management activities is outlined in BLM Manual 9188: Nonpoint Source Pollution Control and in 33 Code of Federal Regulations 330.

# Riparian Reserves

## Introduction

An *Aquatic Conservation Strategy* is outlined in Chapter 2 of the Proposed Resource Management Plan/Environmental Impact Statement that is aimed at restoring and maintaining the ecological health of watersheds, providing a scientific basis for protecting the aquatic ecosystem, and to enable planning for sustainable resource management.

The **objectives** of the *Aquatic Conservation Strategy* are:

- ◆ maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted;
- ◆ maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species;
- ◆ maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations;
- ◆ maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain in the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities;
- ◆ maintain and restore the sediment regime under which the aquatic system evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport;
- ◆ maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected;
- ◆ maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands;
- ◆ maintain and restore the species composition and structural diversity of plant communities in riparian-wetland areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability; and

- ◆ maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

The **components** of the Aquatic Conservation Strategy are:

1. **Riparian Reserves:** Riparian Reserves are lands along streams and unstable and potentially unstable areas where special standards and guidelines direct land use. The prescribed widths of these Riparian Reserves for various stream and riparian-wetland area categories are described in Section III A. These widths are intended to provide a high level of fish, wildlife and plant habitat and riparian-wetland area protection until watershed and site analysis can be completed. Although Riparian Reserve boundaries on permanently flowing streams may be adjusted, these are considered to be the approximate widths necessary for attaining Aquatic Conservation Strategy objectives. Post-watershed analysis Riparian Reserve boundaries for permanently flowing streams will approximate the boundaries described in Section III A. Following watershed analysis, Riparian Reserve boundaries for intermittent streams may be different from the existing boundaries. Determination of final boundaries will be based on hydrologic, geomorphic and ecologic processes in a watershed affecting intermittent streams. The widths of Riparian Reserves apply to all watersheds until watershed analysis is completed, a site-specific analysis is conducted and described, and the rationale for final Riparian Reserve boundaries is presented through the appropriate National Environmental Policy Act decision-making process.
2. **Key Watersheds:** Key Watersheds are a system of large refugia comprising watersheds that are crucial to at-risk fish species and stocks and provide high quality water. The Key Watersheds in the Klamath Falls Resource Area are: **Spencer Creek (Tier 1), Clover Creek (Tier 2) and Jenny Creek (Tier 1).**
3. **Watershed Analysis:** Watershed analysis is a set of procedures for conducting an analysis to evaluate geomorphic and ecologic processes operating within a specific watershed. This analysis should enable watershed planning that achieves the Aquatic Conservation Strategy objectives. Watershed analysis provides the basis for monitoring and restoration programs and is the foundation from which Riparian Reserves can be delineated. Guidance for conducting watershed analysis is outlined in various other manuals and documents.
4. **Watershed Restoration:** Watershed Restoration is a comprehensive, long-term program of restoration to restore watershed health and aquatic ecosystems; including the habitats supporting fish and other aquatic and riparian-dependent organisms.

## A. Riparian Reserve Designation

**Objectives:** *To designate an area along streams, lakes, ponds, and other waters for management and protection of riparian-wetland areas and water quality.*

**Practices:** (1) Establish Riparian Reserves on streams and water bodies as listed in the table below. To use this table, a) determine if the stream in a proposed activity area is fish bearing; b) determine if the stream is perennial or intermittent (see the Definitions and Proper Functioning Condition section); c) determine if the area is unstable or potentially unstable (this will be a rare designation in the Klamath Falls Resource Area).

Watershed analysis will identify critical hillslope, riparian, and channel processes that must be evaluated in order to delineate Riparian Reserves that assure protection of riparian and aquatic functions. Project-level consideration of these processes and features will be the basis on which site-specific Riparian Reserves are delineated. The Riparian Reserve widths in Table F-1 apply until watershed analysis is completed, a site-specific analysis is conducted and described, and the rationale for final Riparian Reserve boundaries is presented.

**Table D-1. Riparian Reserve Widths (in feet).**

<b>Stream/Waterbody/Wetland Type</b>	<b>Slope Distance of Riparian Reserve</b>
Fish Bearing Streams	<b>300 feet</b> , or to a distance equal to the eight of <b>two</b> site-potential trees
Perennial, Nonfish-Bearing Streams	<b>150 feet</b> , or to a distance equal to the height of <b>one</b> site-potential tree
Intermittent Streams	<b>100 feet</b> , or to a distance equal to the height of <b>one</b> site-potential tree
Constructed Ponds and Reservoirs and Wetlands greater than 1 acre	<b>150 feet</b> , or to a distance equal to the height of <b>one</b> site-potential tree.
Lakes and Natural Ponds	<b>300 feet</b> , or to a distance equal to the height of <b>two</b> site-potential trees
Wetlands less than 1 acre and Unstable and Potentially Unstable Areas	The extent of unstable and potentially unstable areas; or the wetland to the outer edges of the riparian vegetation.

A site-potential tree is defined as the average maximum height of the tallest dominant trees (200 years old or more) for a given site class. In the Forest Ecosystem Management Assessment Team report, the average height of site potential trees on forests east of the Cascades was estimated at 110 feet for the purposes of analysis.

Minimum widths of Riparian Reserves are expressed as whichever slope distance is greatest. The widths listed in the table are those that would be applied to one side of the stream. For example, a fish-bearing stream would have a 600 foot buffer (300 feet each side). In addition to these widths, Riparian Reserves must extend from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, and to the outer edges of riparian vegetation. Wetland, pond and reservoir Riparian Reserves must include the body of water or wetland and the area from the outer edges of the riparian vegetation, or to the extent of seasonally saturated soil, or to the extent of unstable or potentially unstable areas. Reservoir and pond Riparian Reserves are to be measured from the edge of the maximum pool elevation.

(2) Use the following sequence of decisions when establishing Riparian Reserve boundaries:

- a. **Identify floodplain boundaries** The entire 100-year floodplain should be included within the Riparian Reserve. The topographic break in slope between hillsides and the relatively flat floor of the stream valley will define a floodplain boundary. Floodplain soils and substrates are characterized by rounded edges on gravels, cobbles, or boulders as a result of being tumbled by streams. In contrast, hillslope substrates are more sharp and angular. Vegetation may change in age or composition at floodplain boundaries; however, many floodplains have forest vegetation as old or older than hillslope stands. Smaller, incised (downcut) streams and lower order (first, second, and third) streams frequently lack floodplains. Also, floodplains may not exist along non-riverine wetlands and lakes. In the absence of floodplains, historical high water levels should be used (see Section b, below).
- b. **Locate margins of active channels and shorelines (high water mark)** After floodplains (if they exist) have been identified, Riparian Reserves are delineated. Delineation of the Riparian Reserve starts at the edge of the active channel or mean high water level, and

extends outward horizontally on both sides. Active channels consist of all portions of the stream channel carrying water at normal high flows, not just the current wetted channel. This includes side channels and backwaters which may not carry water during summer low flow. All islands and gravel bars are included as part of the active channel. Active channel boundaries are indicated by abrupt topographic breaks where frequent channel scour has steepened streambanks. Frequently, plant abundance is reduced in areas of active channel modification, and plant communities are dominated by herbs and forbs. The high water mark is often marked by the vegetative litter carried in high flows and then deposited or caught in live vegetation.

Riparian Reserves around reservoirs, ponds and lakes should be measured from the high water level. This level may be indicated by evidence of erosion by wave action, reduced plant cover, topographic features and sharp transitions in plant community composition.

- c. **Lay Out Riparian Reserve Boundaries** For optimal management of riparian and other resources, Riparian Reserves should have variable widths that are delineated at ecological boundaries, not at arbitrary distances from the stream, lake or wetlands. Riparian-wetland areas are naturally irregular or asymmetrical in shape, in response to local topography, geology, groundwater, and plant communities. Consideration of topographic irregularities can both protect riparian resources and simplify harvest unit layout. Avoid straight, uniform Riparian Reserve boundaries.

## B. Riparian Reserve Protection

**Objective:** *To prevent damage to riparian vegetation and disturbance to streambanks, maintain or improve riparian conditions that support water-related functions, protect the natural flow of streams, and preserve nutrient cycling from woody debris.*

**Practices:** No timber harvest will be planned within a Riparian Reserve as part of the sustained yield timber management program. Where catastrophic events such as fire, flooding, wind or insect damage result in degraded riparian conditions, allow salvage and firewood cutting if required to attain Aquatic Conservation Strategy Objectives. Remove salvage trees only when watershed analysis determines that present and future woody debris needs are met and other Aquatic Conservation Strategy Objectives are not adversely affected.

Apply silvicultural practices in Riparian Reserves to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy Objectives **(TM-1)**.

- (1) Guidelines for tree harvest and removal in or adjacent to Riparian Reserves are discussed in Riparian Reserves in the Timber Harvest section.
- (2) Retain all snags in the Riparian Reserve except where safety or fire hazard dictate removal **(RA-2)**. Guidelines for woody debris in streams are discussed in Riparian Reserves in the Timber Harvest section.
- (3) Livestock grazing management in riparian-wetland areas is outlined in Yarding Methods in the Timber Harvest section.
- (4) Use interdisciplinary teams to develop riparian enhancement plans for rehabilitation of Riparian Reserves. Placement of large woody debris, creation of snags, planting conifers, or prescribed fire would be used where appropriate for riparian enhancement.
- (5) Avoid refueling, equipment maintenance, fuel storage, or other handling of petroleum products or other chemicals in or adjacent to Riparian Reserves.

## Appendix D - Best Management Practices

- (6) No slashing, ripping, piling or mechanical site preparation (except for designated skid trail crossings, roads, or yarding corridors) will occur in Riparian Reserves, although riparian-wetland enhancement or wildlife projects can be allowed that consist of these types of activities in order to meet Aquatic Conservation Strategy Objectives. Other activities, such as mining, livestock grazing, and recreation are to be conducted in Riparian Reserves as described in the Mining, Livestock Grazing, and Recreation and Off-Highway Vehicle Use sections, respectively.
- (7) For proposed hydroelectric projects under the jurisdiction of the Federal Energy Regulatory Commission, provide timely, written comments regarding maintenance of instream flows and habitat conditions and maintenance/restoration of riparian resources and stream channel integrity. Request the Federal Energy Regulatory Commission to locate proposed support facilities outside of Riparian Reserves. For existing support facilities inside Riparian Reserves that are essential to proper management, provide recommendations to the Commission that ensure Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, provide recommendations to the Federal Energy Regulatory Commission that such support facilities should be relocated. Existing support facilities that must be located in Riparian Reserves should be located, operated, and maintained with an emphasis to eliminate adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives **(LH-2, LH-3)**.

For other hydroelectric and surface water development proposals in Tier 1 Key Watersheds, require instream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage. Coordinate this process with the appropriate state agencies. For other hydroelectric and surface water development proposals in all other watersheds, give priority emphasis to instream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage. Coordinate this process with the appropriate state agencies **(LH-2)**.

- (8) Issue leases, permits, rights-of-way, and easements to avoid adverse effects that retard or prevent attainment of Aquatic Conservation Strategy Objectives. Where legally possible, adjust existing leases, permits, rights-of-way, and easements to eliminate adverse effects that retard or prevent the attainment of Aquatic Conservation Strategy Objectives. If adjustments are not effective and where legally possible, eliminate the activity. Priority for modifying existing leases, permits, rights-of-way and easements will be based on the actual or potential impact to and the ecological value of the riparian resources affected **(LH-4)**.
- (9) Use land acquisition, exchange, and conservation easements to meet Aquatic Conservation Strategy objectives and facilitate restoration of fish stocks and other species at risk of extinction **(LH-5)**.

## C. Wetlands

**Objective:** *To maintain the integrity and function of wetlands.*

**Practices:** (1) Manage vegetation to protect or enhance wetland areas.

(2) Avoid surface disturbing activities in or adjacent to wetlands.

(3) Avoid operations which would put pollutants into a wetland.

(4) Follow practices outlined in the following sections: Permits under Activity Planning and Design; and Riparian Reserve Designation and Protection under the Riparian Reserves section.

# Soil Resource Protection

## A. Limiting Detrimental Soil Conditions

**Objective:** *To minimize soil erosion and soil productivity losses.*

**Practice:** The cumulative effects of detrimental soil conditions are not to exceed 20 percent of the total acreage within an activity area (the total area of ground, such as a timber sale unit or a slash treatment area including roads, skid trails, and landings). Detrimental soils conditions include detrimental compaction (see the Definitions and Proper Functioning Condition section), displacement, and creation of adverse cover conditions. Sites where the 20 percent standard is exceeded will require treatment, such as ripping, backblading or seeding.

## B. Soil Cover Retention and Establishment

**Objective:** *To retain and establish an adequate vegetative cover on disturbed sites to prevent erosion.*

**Practices:** (1) Minimum guidelines for the retention of effective ground cover will be prescribed as outlined in the following table for all soil-disturbing activities. Exceptions to these guidelines may be made due to site-specific resource considerations (for example, brush field scarification projects where bare soil is a specific objective). Effective ground cover is all living or dead herbaceous or woody materials and all rock fragments greater than 0.5 inch in diameter in contact with the ground surface. See Table F-2.

**Table D-2. Erosion Potential.**

Soil Surface Erosion Potential	General Slope Range (percent)	Minimum Effective Ground Cover (percent)	
		First Year	Second Year
Low	0-20	20-30	30-40
Moderal	20-35	30-45	40-60
High	35-50	45-60	60-75
Severe	50+	60-75	75-90

Soil surface erosion potential can be estimated using a variety of methods (that is, the Revised Universal Soil Loss Equation—RUSLE). A hydrologist or other knowledgeable resource professional can provide assistance in determining soil surface erosion potential.

(2) Use native vegetation which allows natural succession to occur. Avoid interference with reforestation operations. Include application of seed, mulch, and fertilizer as necessary. Complete prior to fall rains.

## C. Retention of Small Woody Material

**Objective:** *To retain small woody (dead and down) material to sustain soil nutrients and a healthy forest ecosystem.*

**Practice:** Where practicable, maintain 10 tons or more of nine-inch diameter or smaller woody material per acre. In ponderosa pine forest land, 9 tons per acre of duff and litter (approximately ½ inch deep) and 2.2 tons per acre of material ¼ to 3 inches in diameter will be maintained. These target loads are designed to meet soil productivity and fire suppression objectives.

# Fragile Soils

**Objective:** To minimize surface disturbance on Timber Production Capability Classification fragile soils.

The best management practices in this section are to be used **in addition** to those in other sections.

Three categories of fragile soils sensitive to surface disturbing activities are identified in the Klamath Falls Resource Area Timber Production Capability Classification:

<b>Fragile Slope Gradient</b>	These sites consist of steep to extremely steep slopes that have a high potential for surface ravel. Gradients commonly range from 60 to greater than 100 percent.
<b>Fragile Mass Movement</b>	These sites consist of deep seated, slump, or earth flow types of landslides with undulating topography and slope gradients generally less than 60 percent. Soils are derived from volcanic tuffs or breccias.
<b>Fragile Groundwater</b>	These sites have high water tables where water is at or near the soil surface for sufficient periods of time that vegetation survival and growth are affected.

## A. Roads

### 1. Planning

**Practice:** Avoid fragile soils when planning road systems.

### 2. Design

**Practices:** (1) Design haul roads with rock surface on Fragile Mass Movement and Fragile Groundwater soils.

(2) Use slotted risers, trash racks, or over-sized culverts to prevent culvert plugging on Fragile Mass Movement soils.

### 3. Erosion Control

**Practice:** Stabilize cutbanks on Fragile Mass Movement soils using rock buttressing.

### 4. Maintenance

**Practice:** Minimize ditch cleaning on Fragile Mass Movement soils to retard slumping of road and cutbanks.

### 5. Access Restrictions

**Practice:** Block unsurfaced roads on fragile soils to prohibit motorized vehicle use.

## B. Timber Harvest

### 1. Yarding Methods - Cable

**Practices:** (1) Use full or partial suspension when yarding on Fragile Slope Gradient and Fragile Groundwater soils.

(2) Restrict yarding and hauling to dry season (generally May 15 to October 15) on Fragile Mass Movement and Fragile Groundwater soils.

## **2. Yarding Methods - Helicopter**

**Practice:** Employ helicopter yarding to avoid or minimize new road construction on fragile soils.

## **C. Silviculture**

### **1. Pile Burning**

#### **a. Hand Piles**

**Practices:** (1) Put slash in yarding corridors on Fragile Slope Gradient soils to control erosion, allowing adequate space to plant trees.

(2) Burn hand piles on Fragile Slope Gradient soils only if they prevent planter access.

#### **b. Machine Piles**

**Practice:** Avoid machine piling or ripping on Fragile Mass Movement and Fragile Groundwater soils.

## **D. Wildfire and Prescribed Fire**

### **1. Suppression**

**Practices:** (1) Apply suppression on fragile soils based on environmental and operational conditions that exist at time of ignition (conditional suppression). Use the Soil Impact Evaluation Worksheet developed for Emergency Fire Situation Analysis to determine the appropriate level of suppression and the risk of adverse impacts from suppression activities.

(2) Limit the use of tractors and other major surface-disturbing activities on all fragile soils.

### **2. Rehabilitation**

**Practice:** Assure prompt rehabilitation on fragile soils through seeding or planting of native species or species that will quickly establish desired ground cover conditions.

### **3. Prescribed Fire**

**Practices:** (1) Prescribe cool burns and only burn in the spring on Fragile Slope Gradient soils.

(2) Restrict broadcast burns to north slopes on Fragile Slope Gradient soils.

# **Roads**

## **A. Planning**

**Objective:** *To plan road systems that meet resource objectives and minimize detrimental impacts on water and soil resources.*

**Practices:** (1) Use an interdisciplinary team to develop an overall transportation system and Transportation Management Objectives.

(2) Develop Transportation Management Objectives to meet Aquatic Conservation Strategy Objectives. As a minimum, Transportation Management Objectives will include provisions for the following activities: during-storm inspections and maintenance; post-storm inspections

## Appendix D - Best Management Practices

- and maintenance; during road operation and maintenance, giving high priority to the identification and correction of road drainage problems that contribute to degradation of riparian resources; regulation of traffic during wet periods to prevent damage to riparian resources; and establishment of the purpose of each road **(RF-7)**.
- (3) Establish Transportation Management Objectives that minimize adverse environmental impacts.
  - (4) Avoid fragile and unstable areas.
  - (5) Encourage use of best management practices where not specifically required in reciprocal right-of-way agreements.
  - (6) Cooperate with Federal, state, and county agencies to achieve consistency in road design, operation, and maintenance necessary to attain Aquatic Conservation Strategy Objectives **(RF-1)**.
  - (7) Complete a watershed analysis (including appropriate geotechnical analyses) prior to any decision to construct a new road in a Riparian Reserve. Reduce existing road mileage in Key Watersheds and/or allow no net increase in road mileage in Key Watersheds **(RF-2)**.
  - (8) Determine the influence of each road on the Aquatic Conservation Strategy objectives thorough watershed analysis. Meet Aquatic Conservation Strategy objectives by: reconstructing roads and associated drainage features that pose a substantial risk; prioritizing reconstruction based on current and potential impact to riparian resources and the ecological value of the riparian resources affected; closing and stabilizing, or obliterating and stabilizing roads based on the ongoing and potential effects to Aquatic Conservation Strategy objectives and considering short-term and long-term transportation needs **(RF-3)**.

## B. Location

**Objective:** *To minimize soil erosion, water quality degradation, and disturbance of riparian vegetation.*

**Practices:** (1) Locate roads away from Riparian Reserves **(RF-2)**.

- (2) Locate roads on stable positions (for example, ridges, natural benches, and flatter transitional slopes near ridges and valley bottoms). When crossing unstable areas is necessary, implement additional mitigation measures.
- (3) Avoid headwalls, midslope locations on steep unstable slopes, seeps, old landslides, slopes in excess of 60 percent, and areas where the geologic bedding planes or weathering surfaces are inclined with the slope.
- (4) Locate roads to minimize heights of cutbanks. Avoid high, steeply sloping cutbanks in highly fractured bedrock.
- (5) Locate roads on well-drained soil types. Vary the grade to avoid wet areas.
- (6) Locate stream crossing sites where channels are well defined, unobstructed and straight. Minimize the area of road that enters a Riparian Reserve.

## **2. Surface Cross Drains**

**Objective:** *To design road drainage systems that minimize concentrated water volume and velocity and therefore to reduce soil movement and maintain water quality.*

- Practices:**
- (1) Design cross drains in ephemeral or intermittent channels to lay on solid ground rather than on fill material to avoid road failures.
  - (2) Design placement of all surface cross drains to avoid discharge onto erodible (unprotected) slopes or directly into stream channels. Provide a buffer or sediment basin between the cross drain outlet and the stream channel.
  - (3) Locate culvert or drainage dips in such a manner to avoid discharge onto unstable terrain such as headwalls, slumps, or block failure zones. Provide adequate spacing to avoid accumulation of water in ditches or surfaces through these areas.
  - (4) Provide energy dissipators (for example, rock material) at cross drain outlets or drain dips where water is discharged onto loose material or erodible soil or steep slopes.
  - (5) Place protective rock at culvert entrance to streamline water flow and reduce erosion.
  - (6) Use the guide for drainage spacing by soil erosion classes and road grade shown in Tables F-3 and F-4 at the end of this appendix.
  - (7) Use drainage dips in place of culvert on roads which have gradients less than 10 percent or where road management objectives result in blocking roads. Avoid drainage dips on road gradients greater than 10 percent.
  - (8) Locate drainage dips where water might accumulate or where there is an outside berm which prevents drainage from the roadway.
  - (9) When sediment is a problem, design cross drainage culverts or drainage dips immediately upgrade of stream crossings to prevent ditch sediment from entering the stream.
  - (10) Varying gradients is recommended in erodible and unstable soils to reduce surface water volume and velocities and culvert requirements.

## **3. Permanent Stream Crossings**

**Objective:** *To prevent stream crossings from being a direct source of sediment to streams thus minimizing water quality degradation; to provide unobstructed access to spawning and rearing areas for anadromous and resident fish.*

- Practices:**
- (1) Design culverts to provide adult and juvenile fish passage both upstream and downstream. Use pipe arch culverts on most fishery streams. Use bottomless arch culverts and bridges where stream gradients are greater than 5 percent, to accommodate stream discharge, and when the value of the fishery resource dictates special engineering considerations necessary to ensure uninterrupted fish passage. On fish bearing streams, culverts should be placed at a zero (0) percent grade **(RF-6)**.
  - (2) Use the theoretical 100-year flood (including considerations for bedload and debris) as design criteria for newly-installed culverts, bridges and other stream crossings. On a case-by-case basis, replace existing culverts posing a substantial risk to riparian conditions with a structure designed for a theoretical 100-year flood and one that meets fish passage requirements, if applicable **(RF-4)**.

- (3) Minimize the number of crossings on any particular stream.
- (4) Where feasible, design culvert placement on a straight reach of stream to minimize erosion at both ends of the culvert. Design adequate stream bank protection (for example, rip-rap) where scouring would occur. Avoid locations that require a stream channel to be straightened beyond the length of a culvert to facilitate installation of a road crossing.

#### **4. Temporary Stream Crossings**

**Objective:** *To design temporary stream crossings that minimize disturbance of the stream and riparian environment.*

- Practices:**
- (1) Evaluate the advantages and disadvantages of a temporary versus permanent crossing structure for access to the area during all seasons over the long term in terms of economics, maintenance, and resource requirements.
  - (2) Design temporary structures such as pre-fab temporary timber bridges, multiple culverts with minimum fill height, cattleguard crossings, or log cribs to keep vehicles out of the stream.
  - (3) Minimize the number of temporary crossings on a particular stream.
  - (4) Avoid temporary stream crossings on fishery streams during spawning, hatching and migration.

#### **5. Low Water Ford Stream Crossings**

**Objective:** *To design low water fords that minimize disturbance of the stream and riparian environment.*

**Practice:** Use only when site conditions make it impractical or uneconomical to utilize a permanent or temporary crossing structure.

### **D. Construction**

**Objective:** *To create a stable roadway while minimizing soil erosion and potential water quality degradation.*

#### **1. Roadway Construction**

- Practices:**
- (1) Limit road construction to the dry season (generally between May 15 and October 15). When conditions permit operations at the limits of the dry season, keep erosion control measures current with ground disturbance, to the extent that the affected area can be rapidly closed/ blocked and weatherized if weather conditions warrant.
  - (2) Manage road construction so that any construction can be completed and bare soil can be protected and stabilized prior to fall rains.
  - (3) Confine preliminary equipment access (pioneer roads) to within the roadway construction limits.
  - (4) Construct pioneer roads so as to prevent undercutting of the designated final cutslope and prevent avoidable deposition of materials outside the designated roadway limits. Conduct slope rounding at the first opportunity during construction to avoid excess amounts of soil being moved after excavation and embankment operations are completed.
  - (5) Use controlled blasting techniques that minimize amount of material displaced from road location.

## **Appendix D - Best Management Practices**

- (6) Construct embankments, including waste disposal sites, of appropriate materials (no slash or other organic matter) using one or more of the following methods:
  - a. layer placement (tractor compaction),
  - b. layer placement (roller compaction),
  - c. controlled compaction (85 to 95 percent maximum density).

Slash and organic material may remain under waste embankment areas outside the road prism and outside units planned for broadcast burning.

- (7) Avoid sidecasting where it will adversely affect water quality or weaken stabilized slopes. Place excavated material away from Riparian Reserves.
- (8) Place surface drainage prior to fall rains.
- (9) Clear drainage ditches and natural watercourses of woody material deposited by construction or logging above culverts prior to fall rains.

### **2. Permanent Stream Crossing Construction**

- Practices:**
- (1) Confine culvert installation to the low flow period (generally June 15 to September 15) to minimize sedimentation and the adverse effects of sediment on aquatic life.
  - (2) Divert the stream around the work area to minimize downstream sedimentation during construction. After construction, return the stream to its natural channel. Ensure, through proper construction and maintenance, that the stream will remain in its natural channel in the event of crossing failure.
  - (3) Install culverts as close to zero percent slope as possible on fishery streams but not to exceed 0.5 percent. Place culverts in the streambed at the existing slope gradient on larger non-fishery streams. Place energy dissipators (for example, large rock) at the outfall of culverts on small nonfishery streams to reduce water velocity and minimize scour at the outlet end.
  - (4) Countersink culverts 6 to 8 inches below the streambed to minimize scouring at the outlet. Increase culvert diameters accordingly.
  - (5) Limit activities of mechanized equipment in the stream channel to the area necessary for installation.
  - (6) Place permanent stream crossing structures on fishery streams before heavy equipment moves beyond the crossing area. Where this is not feasible, install temporary crossings to minimize stream disturbance.
  - (7) Place rip-rap on fills around culvert inlets and outlets.

### **3. Temporary Stream Crossing Construction**

- Practices:**
- (1) Where possible, limit the installation and removal of temporary crossing structures to once during the same year and within the prescribed work period. Installation and removal should occur during the low flow period (generally June 15 to September 15).
  - (2) Use backfill material that is as soil-free as practicable over temporary culverts. Whenever possible use washed river rock covered by pit run or one inch minus as a compacted running surface.
  - (3) Spread and reshape clean fill material to the original lines of the streambed after a crossing is removed to ensure the stream remains in its channel during high flow.

- (4) Use log cribbing in tractor logging units when it is impractical to use a culvert and rock backfill material. Remove upon completion of logging the unit.
- (5) Limit activities of mechanized equipment in the stream channel to the area that is necessary for installation and removal operations.
- (6) Remove stream crossing drainage structures and in-channel fill material during low flow and prior to fall rains. Reestablish natural drainage configuration.

#### **4. Low Water Ford Stream Crossing Construction**

**Practices:** (1) Restrict construction and use to low flow period (generally June 15 to September 15).

- (2) Use washed rock/gravel or concrete slab in the crossing.
- (3) Apply rock on road approaches within 150 feet of each side of the ford to prevent washing and softening of the road surface.

#### **E. Soil Resource Protection**

**Objective:** *To limit and mitigate soil erosion and sedimentation.*

**Practices:** (1) Apply protective measures to all areas of disturbed, erosion-prone, unprotected ground, including waste disposal sites, prior to fall rains. Protective measures may include water bars, grass seeding, planting deep rooted vegetation, and/or mulching. Armor or buttress fill slopes and unstable areas with rock which meets construction specifications. Revegetation with native species is preferred, except where overriding concerns to reduce sediment dictate the use of annuals or other quickly establishing species.

- (2) Use seasonal restrictions on unsurfaced roads.
- (3) Remove snow on haul roads in a manner which will protect roads and adjacent resources. Remove or place snow berms to prevent water concentration on the roadway or on erodible sideslopes or soils.

#### **F. Road Renovation/Improvement**

**Objective:** *To restore or improve a road to a desired standard in a manner that minimizes sediment production and water quality degradation.*

- Practices:**
- (1) Improve flat gradients to a minimum of two percent or provide raised subgrade sections (turnpike) to avoid saturation of the road prism.
  - (2) Reconstruct culvert catchbasins to specifications. Catchbasins in solid rock need not be reconstructed provided water flow is not restricted by soil, rock, or other debris.
  - (3) Identify potential water problems caused by off-site disturbance and add necessary drainage facilities.
  - (4) Identify ditchline and outlet erosion caused by excessive flows and add necessary drainage facilities and armoring.
  - (5) Replace undersized culverts and repair damaged culverts and downspouts.
  - (6) Add additional full-rounds, half-rounds, and energy dissipators as needed.

## **Appendix D - Best Management Practices**

- (7) Correct special drainage problems (for example, high water table, seeps) that affect stability of subgrade through the use of perforated drains, geotextiles, or drainage bays.
- (8) Eliminate undesirable berms that retard normal surface runoff.
- (9) Restore outslope or crown sections.
- (10) Avoid disturbing backslope while reconstructing ditches.
- (11) Surface inadequately surfaced roads that are to be left open to traffic during wet weather.
- (12) Require roadside brushing be done in a manner that prevents disturbance to root systems (such as, avoid using excavators for brushing).
- (13) Prioritize reconstruction and maintenance based on current and potential impacts to Riparian Reserves.

### **G. Road Maintenance**

**Objective:** *To maintain roads in a manner that protects water quality and minimizes erosion and sedimentation.*

- Practices:**
- (1) Provide basic custodial care to protect the road investment and to ensure minimal damage to adjacent land and resources. Repair erosion in its early stages.
  - (2) Perform blading and shaping to conserve existing surface material, retain the original crowned or outsloped self-draining cross section, prevent or remove rutting berms (except those designed for slope protection) and other irregularities that retard normal surface runoff. Avoid wasting loose ditch or surface material over the shoulder where it can cause stream sedimentation or weaken slump prone areas. Avoid undercutting backslopes.
  - (3) Keep road inlet and outlet ditches, catchbasins, and culverts free of obstructions, particularly before and after winter snowfall and spring runoff. However, hold routine machine cleaning of ditches to a minimum during wet weather.
  - (4) Grading operations are to be conducted to prevent sedimentation and to dispose of surface water without ponding or concentrating water flow in unprotected channels. Schedule grading operations during time periods of the least erosion hazard (generally during the dry season, May 15 to October 15).
  - (5) Retain vegetation on cut slopes and ditches unless it poses a safety hazard or restricts maintenance activities. Cut roadside vegetation rather than pulling it out and disturbing the soil.
  - (6) Inspect areas subject to road or watershed damage during periods of high runoff.

### **H. Dust Abatement**

**Objective:** *To minimize movement of fine sediment from roads; to prevent introduction into waterways of chemicals applied for dust abatement.*

- Practices:**
- (1) Use dust palliatives or surface stabilizers to reduce surfacing material loss and buildup of fine sediment that may wash off into water courses.
  - (2) Closely control application of dust palliatives and surface stabilizers, equipment cleanup, and disposal of excess material to prevent contamination or damage to water resources.

## I. Access Restrictions

**Objective:** *To reduce road surface damage and therefore minimize erosion and sedimentation.*

- Practices:** (1) Barricade or block roads using gates, guard rails, earth/log barricades, boulders, logging debris, or a combination of these methods. Avoid blocking roads that will need future maintenance (that is, culverts, potential slides, etc.) with unremovable barricades. Use guardrails, gates, or other barricades capable of being opened for roads needing future maintenance.
- (2) Provide maintenance of blocked roads in accordance with design criteria.
- (3) Install waterbars, cross drains, cross sloping, or drainage dips if not already on road to assure drainage.
- (4) Scarify, mulch (weed free), and/or seed with native species for erosion control.

## J. Obliteration of Roads and Landings

**Objective:** *To minimize or reduce sedimentation and improve site productivity by obliterating roads and landings and rehabilitating the land.*

- Practices:** (1) Rip temporary spur roads and landings by an approved method to remove ruts, berms, and ditches while leaving or replacing surface cross drain structures.
- (2) Return roads or landings not needed for future resource management to resource production through ripping and/or revegetation with native species. Apply weed free mulch and fertilizer where appropriate.

## K. Reclamation of Rock Quarries

**Objective:** *To minimize sediment production from quarries and associated crusher pad developments susceptible to erosion due to steep sideslopes, lack of vegetation, or their proximity to water courses.*

- Practices:** (1) Prior to excavation, remove topsoil and place at a site with minimal erosion potential. Stockpile topsoil for surface dressing during the post-operation rehabilitation.
- (2) Use culverts and rip-rap for crusher pad drainage when necessary.
- (3) Stabilize quarry sides and general quarry area consistent with objectives for other resources, such as recreation and wildlife.
- (4) Revegetate with native species, apply weed free mulch, and provide adequate drainage to minimize erosion.
- (5) Rip, waterbar, block, fertilize and revegetate roads to quarries where no future entry is planned.

# Timber Harvest

## A. Riparian Reserves

### 1. General Guidelines

See the discussions under Riparian Reserve Designation and Protection in the Riparian Reserves section.

### 2. Tree Felling Adjacent to Streams or Riparian Reserves

**Objective:** *To prevent damage to riparian vegetation, disturbance of streambanks, and accumulation of slash in stream channels.*

**Practices:** (1) Directionally fell trees away from Riparian Reserves when harvesting within a tree length of any stream or Riparian Reserve.

(2) Where feasible, leave in place unbucked and unlimbed any trees felled within a Riparian Reserve, consistent with management for fish habitat.

### 3. Yarding Across Riparian Reserves

**Objective:** *To prevent damage to riparian vegetation, disturbance of streambanks, and accumulation of slash in stream channels.*

**Practices:** (1) Avoid yarding through Riparian Reserves when possible.

(2) Designate yarding corridors prior to yarding.

(3) Minimize number and width of yarding corridors. The maximum width of any corridor will be 30 feet. No more than 25 percent of the overstory canopy within the corridor will be removed to facilitate yarding operations.

(4) Leave vegetation in Riparian Reserves that is cut for yarding corridors to meet stream and riparian objectives. Consider falling conifers into the stream and leaving them to contribute to the stream ecosystem.

(5) During cable yarding operations across Riparian Reserves, obtain complete suspension of logs over streambanks (or one end suspension if complete suspension is not possible).

(6) Do not place skid trails in Riparian Reserves except at designated crossings. Where feasible, locate skid trails perpendicular to Riparian Reserves and stream channels. Avoid tractor yarding across fishery streams and associated Riparian Reserves. All skid trails that enter Riparian Reserves will be seeded with native species after use or prior to first rains, whichever comes first.

(7) Install temporary stream crossings across Riparian Reserves of nonfishery streams prior to tractor yarding operations. Select stable, naturally armored areas. Minimize the area of disturbance. Use a culvert and clean rock or logs for temporary stream crossings. Install during low flows and remove prior to fall rains in the same season.

### 4. Woody Debris in Streams

**Objective:** *To protect the natural flow of streams, to provide unobstructed passage of storm flows, and to preserve nutrient cycling from woody debris.*

**Practices:** (1) Avoid removal of down trees or logs in stream channels and Riparian Reserves.

(2) Remove **excessive** concentrations of logging slash from all streams prior to fall rains and place above high water mark.

(3) Remove all logging slash in streams resulting from the current timber sale for a distance of 100 feet above culverts. Hand pile slash above high water mark.

## **5. Landings Near Riparian Reserves**

**Objective:** *To preclude damage to Riparian Reserve vegetation and to prevent sediment or pollutants from entering stream channels.*

**Practice:** Avoid locating landings and helicopter service pads within 50 feet of Riparian Reserves.

## **B. Yarding Methods**

### **1. General Guidelines**

Conditions outlined in the Soil Resource Protection section will be met.

### **2. Cable**

**Objective:** *To minimize soil damage and erosion caused by displacement or compaction.*

**Practices:** (1) Cable yard when average slopes exceed 35 percent.

(2) Use full or partial suspension when yarding on erodible or ravel prone areas where practical.

(3) Use full or partial suspension with seasonal restrictions on areas of high water tables.

(4) Use seasonal restriction if required suspension cannot be achieved by yarding equipment.

(5) Avoid downhill yarding.

### **3. Tractor**

**Objective:** *To minimize loss of soil productivity and reduce potential for surface runoff and subsequent water quality degradation.*

**Practices:** (1) In previously unentered stands, use designated skid roads to limit soil compaction to 12 percent or less of the harvest area.

(2) In previously entered stands, inventory existing soil compaction and design proposed management activities to mitigate or avoid reductions in soil productivity. Utilize existing skid roads. On most timber harvest units, establish a network of permanent, designated skid trails not to exceed 12 percent of an activity area. Where feasible, rip all skid roads used in final entry harvest or roads not needed as part of the network of permanent, designated skid roads.

(3) Rip skid roads discontinuously, preferably with winged ripper teeth when the soil is dry (generally 15-20 percent or less soil moisture content at a six inch depth). Rips should be spaced no more than 36 inches apart and from 12 to 18 inches deep or to bedrock, whichever is shallower. Subsoiling should generally result in 80 percent of the compacted zone being fractured with 80 percent of the fractured soil material as clods of less than six inches in size.

(4) Minimize the width of skid roads.

## **Appendix D - Best Management Practices**

- (5) Avoid placement of skid roads through areas with high water tables.
- (6) Use appropriate seasonal restrictions that would result in no off-site damage from designated skid roads. Operation on both new and existing skid roads will minimize soil displacement and will occur when soil moisture content provides the most resistance to compaction.
- (7) Allow logging on snow whenever practicable when snow depths average 20 inches or greater and negligible ground surface exposure occurs during the operation. Logging on frozen ground may also be allowed when the ground is frozen to a depth of 6 inches.
- (8) Restrict tractor operations to slopes less than 35 percent.
- (9) Construct waterbars on skid roads according to guidelines in this section under Waterbars.
- (10) Consider end-lining and felling to the lead to minimize the effects of tractor yarding.

### **4. Helicopter**

**Objective:** *To minimize surface disturbance.*

**Practice:** Employ helicopter yarding to avoid or minimize new road construction in high risk watersheds, on steep slopes, or in other areas with resource concerns, where practicable.

### **5. Horse**

**Objective:** *To minimize soil disturbance, soil compaction, and soil erosion.*

- Practices:**
- (1) Limit horse logging to slopes less than 20 percent.
  - (2) Construct hand waterbars on horse skid trails according to guidelines in the Timber Harvest section under Waterbars.
  - (3) Limit harvest activity to times when soil moisture content at a six-inch depth is generally less than 15 to 20 percent by weight.

### **C. Use of a Mechanical Harvester**

**Objective:** *To minimize soil disturbance, soil compaction, and soil erosion.*

**Practice:** Mechanical harvesting will generally meet the following minimal conditions:

- a. Operations will be restricted to dry conditions (generally less than 15 to 20 percent soil moisture by weight).
- b. The lowest ground pressure machine capable of meeting objectives will be used when available.
- c. Conditions outlined in the Soil Resource Protection and this section under Yarding Methods, Cable, will be met.

### **D. Landings**

**Objective:** *To minimize soil disturbance, soil erosion, soil productivity losses and water quality degradation.*

**Practices:** (1) Minimize the size and number of landings.

- (2) Locate landings at approved sites.
- (3) Avoid placing landings adjacent to or in meadows or other wetland areas.
- (4) Clear or excavate landings to minimum size needed for safe and efficient operations.
- (5) Select landing locations considering the least amount of excavation, erosion potential, and where sidecast will not enter drainages or damage other sensitive areas.
- (6) Deposit excess excavated material on stable sites where there is no erosion potential. Construct waste disposal sites according to guidelines in the Roads Section, under Construction, Roadway Construction, number 6.
- (7) Restore landings to the natural configuration or shape to direct the runoff to preselected spots where water can be dispersed to natural, well-vegetated, gentle ground.

## E. Waterbars

**Objective:** *To minimize soil erosion and soil productivity losses.*

**Practices:** (1) Construct adequate waterbars on roads, spurs, skid roads, yarding corridors, and fire lines prior to fall rains.

(2) For waterbar spacing, based on gradient and erosion class, use Table F-5.

**Table D-5. Water Bar Spacing (in feet)<sup>1</sup>**

Gradient (percent)	Erosion Class <sup>2</sup>		
	High	Moderate	Low
3-5	200	300	400
6-10	150	200	300
11-15	100	150	200
16-20	75	100	150
21-35	50	75	100
36+	50	50	50

<sup>1</sup> Spacing is determined by slope distance and is the maximum allowed for the grade.

<sup>2</sup> The following guide lists rock types according to erosion class:

High: granite, sandstone, andesite porphyry, glacial or alluvial deposits, soft matrix conglomerate, volcanic ash, pyroclastics;  
 Moderate: basalt, andesite, quartzite, hard matrix conglomerate, rhyolite;  
 Low: metasediments, metavolcanics, hard shale

- (3) Use the following techniques to construct waterbars:
  - a. Open the downslope end of the waterbar to allow free passage of water.
  - b. Construct the waterbar so that it will not deposit water where it will cause erosion.
  - c. Compact the waterbar berm to prevent water from breaching the berm.
  - d. Skew waterbars no more than 30 degrees from perpendicular to the centerline of the trail or road.

# Silviculture

## A. Site Preparation

### 1. Slashing

**Objective:** *To prevent damage to riparian vegetation, disturbance of streambanks, and accumulation of slash in stream channels.*

**Practices:** (1) No slashing within Riparian Reserves.

(2) Directionally fell trees away from Riparian Reserves when slashing within a tree length of any stream or Riparian Reserve, except in cases where trees must be yarded across Riparian Reserves. In this instance, full tree yard to the lead.

### 2. Gross Yarding

**Objective:** *To achieve a cool burn on sensitive soils and maintain protective duff layer.*

**Practice:** Consider the following in writing a prescription for gross yarding to reduce burn intensities: long-term site productivity, ecosystem dynamics, regeneration success, prescribed fire intensities, and smoke emissions.

### 3. Broadcast Burning

See the Wildfire and Prescribed Fire section.

### 4. Piling

#### a. Hand Piling

**Objective:** *To protect Riparian Reserves and stream channels and to prevent soil damage due to high burn intensity.*

**Practices:** (1) Minimize the number and size of piles within designated Riparian Reserves.

(2) Burn piles when soil and duff moisture are high.

#### b. Tractor Piling

**Objective:** *To protect Riparian Reserves and soil productivity and to prevent soil damage due to compaction, displacement, and high burn intensity.*

**Practices:** (1) Where practicable, avoid tractor piling by requiring the removal and utilization of excessive biomass and residual slash, subject to guidelines in the Soil Resource Protection section, under Retention of Small Woody Debris.

(2) No piles or tractor operations within Riparian Reserves.

(3) Restrict tractor operations to dry conditions with generally less than 15-20 percent soil moisture content in the upper six inches of soil.

(4) Restrict tractors to slopes less than 35 percent.

(5) Construct small diameter piles or pile in windrows using brush blades.

- (6) Avoid piling concentrations of large logs and stumps.
- (7) Pile small material (3 to 8 inches diameter size).
- (8) Avoid displacement of duff and topsoil into piles or windrows.
- (9) Make only two machine passes (one round trip) over the same area wherever practicable.
- (10) Use the lowest ground pressure machine capable of meeting objectives.
- (11) Burn piles when soil and duff moisture are high.
- (12) Rip entire area to maintain soil productivity except that occupied by piles. Use winged ripper teeth and rip on contour to minimum depth of 12 inches. Minimize ripping on clayey soils.
- (13) Use alternative equipment or techniques for site preparation or slash treatment, such as excavators to pile slash or low ground pressure chippers, to minimize compaction.
- (14) Conditions outlined in the Soil Resource Protection section will be met.

## **B. Fertilization**

**Objective:** *To protect water quality.*

- Practices:**
- (1) Avoid aerial application when wind speeds would cause drift.
  - (2) Locate heliports and storage areas away from stream channels.
  - (3) No application within 100 feet of perennial streams or water bodies which have beneficial use(s) recognized by the state.
  - (4) Avoid direct application to intermittent streams or channels without beneficial use(s) recognized by the state.

## **C. Precommercial Thinning**

**Objective:** *To protect Riparian Reserves.*

- Practices:**
- (1) Fell trees away from streams.
  - (2) No cutting within Riparian Reserves excluded from timber harvest except to meet Riparian Reserve management objectives.

## **D. Brushing**

**Objective:** *To minimize soil erosion.*

- Practice:** Maintain soil cover conditions outlined in the Soil Resource Protection section by scattering limbs and debris from the brushing operation over the treated areas.

# Firewood Program

## A. Roads

**Objective:** *To prevent erosion and water quality degradation.*

**Practices:** (1) Seasonally restrict firewood cutting if access is by an unsurfaced road.

(2) Clean all road surfaces, ditches, and catchbasins of debris from wood cutting.

## B. Harvest

### 1. Riparian Reserves

**Objective:** *To prevent damage to riparian vegetation, disturbance of streambanks, and accumulation of slash in stream channels.*

**Practices:** (1) Follow practices identified in the Timber Harvest section, under Riparian Reserves.

(2) Do not permit firewood cutting in Riparian Reserves except to meet watershed, wildlife habitat, or Aquatic Conservation Strategy objectives.

### 2. Yarding Methods

**Objective:** *To minimize soil damage and soil erosion.*

**Practice:** Follow practices listed in the Timber Harvest section, under Riparian Reserves and Yarding Methods.

# Wildfire and Prescribed Fire

## A. Prevention

**Objective:** *To minimize occurrence of severe intensity wildfires in Riparian Reserves, on erosion-susceptible soils, and in high risk watersheds.*

**Practices:** (1) Utilize prescribed burning to reduce both natural and activity slash (fuel) adjacent to and/or within these areas.

(2) Design fuel treatment and fire suppression strategies, practices, and activities to meet Aquatic Conservation Strategy objectives, and to minimize disturbance of riparian ground cover and vegetation. Strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management activities could be damaging to long-term ecosystem function **(FM-1)**.

(3) Design prescribed burn projects and prescriptions to contribute to attainment of Aquatic Conservation Strategy objectives **(FM-4)**.

## B. Suppression

**Objective:** *To minimize water quality degradation while achieving rapid and safe suppression of a wildfire.*

- Practices:** (1) Use the Soil and Water Resources Impact Evaluation Worksheets during Emergency Fire Situation Analysis to determine appropriate suppression methods.
- (2) Apply intensive and conditional suppression in high-risk watersheds and conditional suppression in Riparian Reserves. In Riparian Reserves, the goal of wildfire suppression is to limit the size of all wildfires. When watershed and/or landscape analysis, or province-level plans are completed and approved, some natural fires may be allowed to burn under prescribed conditions. Rapidly extinguishing smoldering coarse woody debris and duff should be considered to preserve these ecosystem elements **(FM-other)**.
- (3) Locate incident bases, camps, helibases, staging areas, helispots and other centers for incident activities outside of Riparian Reserves. If the only suitable location for such activities is within an Riparian Reserve, an exemption may be given following a review and recommendation by a resource advisor. The advisor will prescribe the location, use conditions, and rehabilitation requirements. Utilize an interdisciplinary team to predetermine suitable incident base and helibase locations **(FM-2)**.
- (4) Exclude tractors within Riparian Reserves. Limit use of heavy equipment near Riparian Reserves, on slopes greater than 35 percent, and in high-risk watersheds. Where fire trail entry into a Riparian Reserve is essential, angle the approach rather than have it perpendicular to the Riparian Reserve.
- (5) Minimize delivery of chemical retardant, foam, or additives to surface waters. An exception may be warranted in situations where overriding immediate safety imperatives exist, or, following review and recommendation by a resource advisor, when an escape would cause more long-term damage. Apply aerial retardant adjacent to Riparian Reserves by making passes parallel to Riparian Reserves **(FM-3)**.

## C. Rehabilitation

**Objective:** *To protect water quality and soil productivity with consideration for other resources.*

- Practices:** (1) Utilize information from burned area surveys to determine if watershed emergency fire rehabilitation is needed.
- (2) Develop a fire rehabilitation plan through an interdisciplinary process. Whenever Riparian Reserves are significantly damaged by a wildfire or a prescribed fire burning out of prescription, immediately establish an emergency team to develop a rehabilitation treatment plan needed to obtain Aquatic Conservation Strategy Objectives **(FM-5)**.
- (3) Select treatments on the basis of on-site values, downstream values, soil erosion potential, probability of successful implementation, social and environmental considerations (including protection of native plant communities), and cost as compared to benefits.
- (4) Examples of emergency fire rehabilitation treatments are listed below. Other examples are listed in BLM Manual Handbook 9188-1.
- ◆ Seed grasses or other vegetation as needed to provide a protective cover as quickly as possible, using native species whenever practicable;
  - ◆ Mulch with weed free straw or other suitable material;
  - ◆ Fertilize;
  - ◆ Place channel stabilization structures;
  - ◆ Construct waterbars on firelines;
  - ◆ Place log erosion barriers (contour-felled and anchored trees).

**D. Prescribed Fire**

**1. General Guidelines**

**Objective:** *To maintain long-term site productivity of soil.*

**Practices:** (1) Evaluate the need for burning based on soils, plant community, hazard reduction objectives, site ecology and site preparation criteria. Burn under conditions when a light to moderate-intensity burn can be achieved (see Table F-6) except when ecosystem management objectives dictate achievement of a burn of higher intensity.

(2) Conditions outlined in the Soil Resource Protection section will be met.

**Table D-6. Guidelines for Levels of Burn Intensity**

Visual Characterization	Site-Specific Results	Proportional Area
Light Burn	Duff, crumbled wood or other woody debris is partly burned, logs not deeply charred.	Less than 2 percent is severely burned. Less than 15 percent is moderately burned.
Moderate burn	Duff, rotten wood, or other woody debris partially to mostly consumed; logs may be deeply charred but but mineral soil under the ash is not appreciably changed in color.	Less than 10 percent is severely burned. More than 15 percent is moderately burned.
Severe Burn	Top layer of mineral soil significantly changed in color, usually to reddish color; next 1/2 inch blackened from organic matter charring by heat conducted through top layer.	More than 10 percent is severely burned. More than 80 percent is moderately burned. Remainder is lightly burned.

**2. Riparian Reserves**

**Objective:** *To maintain a healthy riparian zone and water quality by minimizing erosion levels within Riparian Reserves.*

**Practices:** (1) Hand piling and burning will be the preferred fuel treatment within 100 feet of Riparian Reserves. Design prescribed fire projects to contribute to the attainment of Aquatic Conservation Strategy Objectives and to minimize disturbance of riparian ground cover and vegetation.

(2) When an Riparian Reserve is within a burn unit and conditions warrant, only low intensity fire will be prescribed within 100 feet of Riparian Reserves. No intentional ignition will occur within 50 feet of Riparian Reserves except where watershed, wildlife habitat or riparian-wetland enhancement is the objective. Fires will be allowed to “back into” Riparian Reserves as long as a primarily light intensity burn is maintained.

### 3. Firelines

**Objective:** *To minimize soil disturbance, soil compaction, soil erosion, and disturbance to Riparian Reserves.*

- Practices:**
- (1) Construct firelines by hand on all slopes greater than 35 percent.
  - (2) Utilize one-pass construction with a brush blade or one edge of a tractor blade to construct tractor firelines, or construct firelines by hand.
  - (3) Construct waterbars on tractor and hand firelines according to guidelines in the Timber Harvest section, under Waterbars.
  - (4) No machine constructed firelines in Riparian Reserves.

## Mining

**Objective:** *To protect surface and groundwater quality and to minimize disturbance to soils, streambanks and riparian habitat within constraints of Department of Interior, Bureau of Land Management surface mining regulations (43 Code of Federal Regulations 3809). Reclamation guidance can be found in the Draft BLM Reclamation Handbook H-3042-1.*

### A. General Guidelines—All Mining Operations

**Objective:** *To mitigate impacts resulting from disturbances associated with mining and minerals leasing activities, as appropriate, in addition to the guidelines listed below (B through E).*

- Practices:**
- (1) **Steep Slopes** The Authorized Officer will approve an engineering or reclamation plan prior to disturbance of slopes over 60 percent. This plan could encompass the following: restoration of site productivity, adequate control of surface runoff; protection on off-site areas from accelerated erosion, such as rilling, gulying, piping, and mass wasting; surface-disturbing activities would not be conducted during extended wet periods; construction would not be allowed when soils are frozen.
  - (2) **Topsoil** Strip, stockpile, and protect from erosion all productive topsoil (usually the top 12 to 18 inches) from all excavations for use in future reclamation. Remove topsoil before the establishment of mining waste dumps and tailings ponds if the waste material is to be left in place during reclamation. Do not mix subsoil with topsoil. Control erosion of stockpiles through appropriate construction design with mulching (using weed free mulch) and/or revegetation with native species. Whenever possible, do not store topsoil for extended periods (over two years). Protect topsoil removed from the site by applying it to the areas of disturbance outside the working area and reseed.
  - (3) **Seedbed Preparation** Soils should be ripped or disked to a depth of at least 6 inches in rocky areas and at least 12 inches in less rocky areas. Contours should be followed to limit erosion. All stockpiled settling pond fines, and then topsoil, are then spread evenly over the disturbed areas.
  - (4) **Roads and Trails** Use existing roads and trails as much as possible. Construct roads to standards outlined in the Roads section. In areas designated as closed to off-highway vehicle use, do not allow off-road use of vehicles or equipment without the approval of the Authorized Officer. After mining is completed, reclaim all new roads unless otherwise specified. Knock down or backfill high walls and cutbanks to blend with the surrounding landscape. Remove all culverts and cut back fill to the original channel. Rip the roadbed to a minimum depth of 12 inches and waterbar, seed, fertilize, and/or mulch as necessary.

- (5) **Drill Sites** Locate exploratory drill sites next to or on existing roads when possible. Install erosion control structures (berms, dikes, trenches, outslope fill) under qualified supervision and take all precautions necessary to ensure their stability. The minimum area required for construction will be graded and cleared. Use special design measures, on a case-by-case basis, for new cut and fill slopes where moderate to high erosion hazards exist.
- (6) **Wells** Recontour and rehabilitate all areas not needed for production on well pads following the drilling phase for each well. Recontouring means shaping the disturbed area so that it will blend with the surrounding lands and minimize the possibility of erosion. While in operation, and during periods of temporary shutdown, protect exposed ground surfaces susceptible to erosion by stabilization, seeding, mulching, or installation of water diversions and routine watering of dust producing surfaces. Case and cement wells placed in freshwater aquifers. Remove drainage structures and associated fill dirt to the extent necessary to pass expected flood flows when obliterating well pads. Where practicable, backfill excavations and reduce high walls. Prepare an adequate seedbed while recontouring. Rip or disc compacted soils, following the contour of the land.
- (7) **Settling Ponds** Line ponds to prevent groundwater contamination. Allow tailings and settling ponds to dry out. Remove the fines and spread them evenly over disturbed areas, unless they contain toxic materials, which would be disposed of accordingly. Spread topsoil evenly over the fines. Backfill and reclaim settling and tailings ponds, unless they are suitable for another purpose, such as wildlife habitat or recreation.

## **B. Riparian Reserves**

**Note:** Practices 1 through 4 apply to any proposed **locatable** mining operation, other than notice level or casual use, located in Riparian Reserves.

**Practices:** (1) Prepare a Plan of Operations, including a reclamation plan and reclamation bond for all mining operations in Riparian Reserves. Such plans and bonds will address the costs of removing facilities, equipment, and materials; recontouring of disturbed areas to an approved topography; isolating and neutralizing or removing toxic or potentially toxic material; salvaging and replacing topsoil; and revegetating to meet Aquatic Conservation Strategy objectives **(MM-1)**.

(2) Locate structures, support facilities, and roads outside Riparian Reserves. Use existing roadways whenever possible. If no alternative to siting facilities in Riparian Reserves exists, locate in a way compatible with Aquatic Conservation Strategy objectives. Road construction will be kept to the minimum necessary for the approved mineral activity. Roads will be constructed and maintained to meet road management standards and to minimize damage to resources in Riparian Reserves. When a road is no longer required for mineral or land management activities, it will be reclaimed. In any case, access roads will be constructed consistent with 43 Code of Federal Regulations 3809 and acceptable road construction standards and will minimize damage to resources in Riparian Reserves **(MM-2)**.

- (3) Avoid locating solid and sanitary waste facilities in Riparian Reserves. If no alternative to locating mine waste (waste rock, spent ore, tailings) facilities in Riparian Reserves exists, if releases can be prevented, and if stability can be ensured, then:
- a. Analyze the waste material using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics.
  - b. Locate and design the waste facilities using best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials. If the best conventional technology is not sufficient to prevent such releases and ensure stability over the long term, prohibit such facilities in Riparian Reserves.

- c. Reclaim waste facilities after operations to ensure chemical and physical stability and to meet Aquatic Conservation Strategy objectives.
  - d. Monitor waste and waste facilities after operations to ensure chemical and physical stability and to meet Aquatic Conservation Strategy objectives.
  - e. Require reclamation bonds adequate to ensure chemical and physical stability and to meet Aquatic Conservation Strategy objectives.
- (4) Where an existing operator is in noncompliance at the notice level (that is, causing unnecessary or undue degradation), require actions similar to those in (3) above to meet the intent of 43 Code of Federal Regulations 3809 regulations.
  - (5) For future **leasable** mineral activity in Riparian Reserves, prohibit surface occupancy for oil, gas and geothermal exploration and development activities unless it can be demonstrated that impacts will be acceptable or can be mitigated so that the objectives of the Aquatic Conservation Strategy can be met. Where possible, adjust the stipulations in existing leases to eliminate impacts that retard or prevent the attainment of Aquatic Conservation Strategy objectives, consistent with existing lease terms and stipulations.
  - (6) Allow development of **salable** minerals, such as sand and gravel, within Riparian Reserves only if Aquatic Conservation Strategy objectives can be met.
  - (7) Develop mitigating measures to prevent water quality degradation and to comply with Executive Order 11190 for wetlands. Require mining activities including road construction to conform with best management practices listed in other sections to protect water quality.
  - (8) Develop inspection and monitoring requirements and include such requirements in exploration and mining plans and in leases or permits consistent with existing laws and regulations. Evaluate the results of inspection and monitoring to determine if modification of plans, leases and permits is needed to eliminate impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives.

### C. Locatable Operations

- Practices:** (1) **Permits.** Require the claimant to obtain all required state and federal operating permits. When mining will be in or near bodies of water or sediment will be discharged, the Department of Environmental Quality will be contacted. It is the operator's responsibility to obtain any needed suction dredging, stream bed alteration, or water discharge permits required by the Department of Environmental Quality or other agencies. Copies of such permits will be provided to the Area Manager if a notice or plan of operations is filed.
- (2) **Suction Dredging.** Comply with seasonal restrictions on suction dredging identified in Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources. A notice or plan of operations is required for any suction dredge operation where the dredge is equipped with a suction intake hose diameter of greater than four inches. A notice or plan of operations is also required for all suction dredge operations involving more than one dredge, regardless of size. The operator must have the applicable Department of Environmental Quality suction dredge permit prior to starting work, and a copy should be submitted to the Area Manager.
  - (3) **Settling Ponds.** Settling ponds must be used to contain fines and any discharge into waters of the state must meet the Department of Environmental Quality standards. Locate, design, operate, and maintain sediment settling ponds in conformance with the Department of Environmental Quality requirements.

## Appendix D - Best Management Practices

- (4) **Stream Crossings.** Design, locate, and construct stream crossings in conformance with practices described under Location, Design, and Construction in the Roads section.
- (5) Use existing roads, skid trails, and stream crossings whenever possible.
- (6) **Roads.** Temporary roads are to be constructed to a minimum width and with minimum cuts and fills. All roads will be constructed so as not to negatively impact slope stability. Where resource conditions warrant, apply rock to roads constructed or reconstructed for vehicular access to the mining area. Provide adequate drainage for roads.
- (7) **Roads** Prior to the first wet season, rip, waterbar, seed with native species, mulch (weed free), and barricade according to BLM specifications all roads and trails constructed for exploratory purposes that are unnecessary for the mining operation.
- (8) **Roads** Construct waterbars and barricade on all natural surface roads and trails when an operation shuts down for the wet season.
- (9) Rip, waterbar, seed, mulch, and barricade all natural surface roads and trails when the operation terminates, unless otherwise directed by the Authorized Officer.
- (10) Construct a berm or trench between disturbed areas and water courses.
- (11) **Topsoil** All excavations should have all productive topsoil (usually the top 12 to 18 inches) first stripped, stockpiled, and then protected from erosion for use in future reclamation. This also includes removal of topsoil before the establishment of mining waste dumps and tailings ponds, if the waste material will be left in place during reclamation. Construct a berm or trench immediately downslope of the stockpile. Preserve and protect organic matter in the topsoil by establishing vegetation on stockpiled soils.
- (12) Stabilize and contour the area, replace topsoil and mulch (weed free), seed with native species, and plant the area with appropriate vegetation from local sources (if possible) when no further mining is contemplated.
- (13) Where appropriate, during the period from October 15 to May 15, contour and mulch disturbed areas that will not be mined for at least 30 days.
- (14) Confine operations to bench areas rather than allow encroachment into Riparian Reserves whenever possible.
- (15) Locate and maintain sanitation facilities in accordance with the Department of Environmental Quality regulations.

### D. Leasable Operations

**Practice:** Limit drill site construction and access through Riparian Reserves to established roadways unless the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

### E. Salable Operations

- Practices:** (1) Locate rock material stockpile sites on stable ground.
- (2) Locate, design, construct, and close roads, landings, and crusher pads in accordance with the Roads section. Prior to abandonment, all material sites will be graded to conform with the surrounding topography. Oversize material that is not usable, and reject, will be placed in the bottom of the pit, graded, and then the pit floor and cutslopes covered with topsoil. Reseeding, if

necessary, will be done as prescribed by the Area Manager. Access roads no longer needed by the BLM will be abandoned and reclaimed.

- (3) All topsoil will be stockpiled or windrowed, as appropriate, for use in reclamation. These piles may need to be stabilized by seeding in order to minimize erosion during the winter months.

# Livestock Grazing

## A. General Guidelines

**Objective:** *To protect, maintain, or improve water quality, riparian-wetland areas and upland plant communities; to achieve properly functioning riparian ecosystems.*

- Practices:**
- (1) Monitor, evaluate and adjust grazing practices to eliminate impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives. If adjusting practices is not effective, eliminate grazing in the area **(GM-1)**.
  - (2) Consider fencing springs, seeps, and water developments to protect water quality and riparian ecosystems. Pipe overflow away from the developed source area to minimize contamination.
  - (3) Locate livestock water developments away from riparian and wetland areas. Conditions outlined in the Water Source Development and Use section will be met.
  - (4) Do not locate salting areas within ¼ mile of permanent water sources or in Riparian Reserves.
  - (5) Minimize construction of livestock trails. Construct trails with a minimum of disturbance to the soil surface. Waterbar as appropriate.
  - (6) Locate new livestock handling and/or management facilities (corrals, pens, or holding pastures) outside Riparian Reserves and on level ground where appropriate drainage can be achieved away from Riparian Reserves. For existing livestock handling facilities inside Riparian Reserves, ensure that Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, require relocation or removal of such facilities. Limit livestock trailing, bedding, watering, loading, and other handling efforts to those areas and times that will ensure Aquatic Conservation Strategy objectives are met. Provide for adequate collection and disposal of wastes **(GM-2, GM-3)**.
  - (7) Monitor, evaluate, and adjust upland livestock management practices to meet resource objectives.
  - (8) Resolve management conflicts or concerns regarding water quality and/or watershed/riparian-wetland area condition through the development of grazing management plans. Modify current grazing management practices through allotment management plans, coordinated resource management plans, agreements or decisions, as needed.
  - (9) Promote ecological recovery through appropriate forage utilization levels, improved livestock distribution and management through fencing, vegetation treatments, water source development, and/or changes in season of use or livestock numbers.
  - (10) Range improvement projects will meet conditions outlined in the Soil Resource Protection section.
  - (11) Cooperate with federal, tribal, and state wildlife management agencies to identify and eliminate wild ungulate impacts that are inconsistent with attainment of Aquatic Conservation Strategy objectives.

## B. Grazing Management in Riparian-Wetland Areas

**Objective:** *To achieve properly functioning riparian-wetland ecosystems.*

- Practices:**
- (1) Conduct grazing management practices to provide for regrowth of riparian-wetland vegetation or leave sufficient vegetation after use for maintenance of proper functioning condition. See the Definitions and Proper Functioning Condition section for instructions on determining proper functioning condition.
  - (2) Develop grazing strategies for riparian-wetland areas using one or more of the following features. This grazing strategy would be developed at the activity planning level, through an allotment evaluation and the development of an allotment management plan:
    - ◆ inclusion of the riparian-wetland area within a separate pasture with separate management objectives and strategies;
    - ◆ fencing or herding of livestock out of riparian-wetland areas for as long as necessary to allow vegetation to recover;
    - ◆ controlling the timing of grazing to keep livestock off streambanks when they are most vulnerable to damage and to coincide with the physiological needs of target plant species;
    - ◆ adding more rest to the grazing cycle to increase plant vigor, allow streambanks to heal, or encourage more desirable plant species composition;
    - ◆ limiting grazing intensity to a level which will maintain desired species composition and vigor;
    - ◆ changing from cattle to sheep to obtain better animal distribution through herding;
    - ◆ permanently excluding livestock from those riparian-wetland areas that are at high risk and have poor recovery potential, and when there is no practical way to protect them while grazing adjacent uplands.
  - (3) Incorporate allowable use guidelines for riparian-wetlands in allotment management plans as part of a grazing strategy. Allowable use of forage is based on the amount of forage that will be left at the end of the overall grazing season or the end of the growing season, whichever is later. These guidelines would **generally** follow the utilization standards shown in Table F-7, which include cumulative annual use by wild ungulates and livestock:

**Table D-7. Utilization Standards in Riparian-Wetland Areas.**

	Proper Functioning Condition		Functional - At Risk or Nonfunctioning	
	Herbaceous	Woody	Herbaceous	Woody
Riparian Areas with Management	50	50	0-40	0-35
Riparian Areas without Management	40	30	0-30	0-25

In addition to these allowable use guidelines, grazing would be scheduled to allow at least 30 days of post-grazing regrowth annually. The allotment management plans could include utilization standards which are either lower or higher than those outlined above, or could prescribe late season use of riparian vegetation. This prescription could occur when associated with intensive grazing systems and specific vegetation management objectives that meet the needs of riparian-dependent resources.

## C. GRAZING MANAGEMENT IN UPLAND AREAS

Objective: *To protect, maintain, or improve upland plant communities; to achieve properly functioning upland ecosystems.*

Practices: (1) Follow the Allowable Use Guidelines outlined in Table F-8 for uplands. These utilization objectives are designed to maintain soil productivity, plant vigor, and livestock and wildlife forage value.

**Table D-8. Degree of Allowable Use (by percentage).**

Plant Category	Spring	Summer	Fall	Season-long
Perennial grasses and grasslike	50	50	60	50
Perennial and biennial forbs	50	50	60	50
Shrubs, half shrubs and trees	30	50	50	45

For this table, spring is considered to be the period of active vegetative growth; summer is flowering, seed production, and some regrowth; fall is cured and late regrowth. These utilization levels are for **the current year's growth, including regrowth**. Guidelines for certain allotment or pastures may differ from these guidelines, due to specific resource concerns and site-specific conditions.

- (2) Manage uplands to provide for the following functions within site capabilities and consistent with other practices:
- ◆ the vegetation canopy allows moisture from typical storm events to reach the soil surface;
  - ◆ standing vegetation captures blowing or drifting snow;
  - ◆ organic material (plant litter, standing vegetation) protects the soil surface from raindrop impact;
  - ◆ coarse rock fragments protect the soil surface from raindrop impact;
  - ◆ water is not restricted from infiltrating the soil surface (for example, organic matter is present and no physical soil crusting, capping, or sealing of the surface is present);
  - ◆ subsurface soil conditions support infiltration rates (for example, compaction layers and evidence of frost heave are uncommon);
  - ◆ standing vegetation and plant litter detain overland flow and trap sediment;
  - ◆ surface roughness detains overland flow;
  - ◆ evidence of excessive overland flow (rills and gullies, pedestalling), wind erosion or other soil movement is uncommon;
  - ◆ plant cover and litter protect the soil surface from the evaporative effects of sun and wind;
  - ◆ plants are vigorous and productive and consist of desirable species.

## Watershed Rehabilitation

**Objective:** *To increase soil stability, reduce soil erosion, and improve water quality.*

- Practices:**
- (1) Design and implement watershed restoration projects in a manner that promotes long-term ecological integrity of ecosystems, conserves the genetic integrity of native species, and attains Aquatic Conservation Strategy Objectives. Employ good project planning using an interdisciplinary team. Recent BLM policy provides direction and guidance for the development of restoration projects, and should be incorporated **(WR-1)**.
  - (2) Use corrective measures to repair degraded watershed conditions and rehabilitate with a native (where practicable) vegetative cover that will maintain or improve soil stability, reduce surface runoff, increase infiltration, and reduce flood occurrence and flood damages. Do not use mitigation or planned restoration as a substitute for preventing habitat degradation **(WR-3)**.
  - (3) Consider partnerships or the use of cooperative agreements to coordinate efforts with adjacent landowners. Develop watershed-based Coordinated Resource Management Plans to meet Aquatic Conservation Strategy Objectives **(WR-2)**.
  - (4) Where feasible, rehabilitate headcuts and gullies on watershed uplands.
  - (5) Improve native perennial grass cover conditions or wildlife habitat using treatment projects such as juniper control, brush control or prescribed fire. Design projects so that adequate soil cover remains (either by leaving cut trees in place for many years or by lopping and scattering branches); an adequate herbaceous seed source or seed bed is available (either naturally or through seeding); wildlife habitat is either maintained or enhanced; and ensure that subsequent management of the site addresses livestock and recreation use, or other management-caused limiting factors. Watershed improvement projects are to be designed to meet the requirements of Section IV; however, in the short-term these conditions may be exceeded in order to achieve watershed improvement objectives.

## Fisheries Habitat Improvement Projects

**Objective:** *To minimize damage to streambanks and riparian habitat during construction of fishery habitat improvement projects.*

- Practices:**
- (1) Design and implement fish and wildlife habitat restoration and enhancement activities in a manner that contributes to attainment of Aquatic Conservation Strategy objectives **(FW-1)**.
  - (2) Carefully plan access needs for individual work sites within a project area to minimize exposure of bare soil, compaction, and possible damage to tree roots. Utilize existing trails to the extent practical.
  - (3) Base design of habitat improvement structures on state-of-the-art techniques and local stream hydraulics.
  - (4) Confine work in the stream channels to between June 15 and September 15 (during the low flow period) to minimize the area of the stream that would be affected by sedimentation.
  - (5) Keep equipment out of streams to extent possible.

- (6) Limit the amount of streambank excavation to the minimum necessary to ensure stability of enhancement structures. Place excavated material as far above the high water mark as possible to avoid entry into the stream.
- (7) Whenever possible obtain logs for habitat improvement structures from outside the riparian zone or at least 200 feet from the stream channel to maintain integrity of riparian habitat and streambanks.
- (8) Inspect all mechanized equipment daily to help ensure toxic materials such as fuel and hydraulic fluid do not enter the stream.
- (9) Utilize waterbars, barricades, and seeding to stabilize bare soil areas.

## Recreation and Off-Highway Vehicle Use

**Objective:** *To minimize damage to streambanks and riparian habitat and impacts to water quality and soil productivity from off-highway vehicles and other recreation use.*

- Practices:**
- (1) Minimize resource damage from off-highway vehicle use. Where off-highway vehicle use is causing resource damage, restrict or prohibit such use. Prohibit vehicle and off-highway vehicle use (except for boats) in fish bearing and perennial streams, lakes, ponds and other waters, on sensitive stream banks, and, during wet soil conditions, in Riparian Reserves.
  - (2) Design, construct, and operate recreation facilities, including trails and dispersed sites, within Riparian Reserves in a manner that contributes to attainment of Aquatic Conservation Strategy Objectives. For existing recreation facilities inside Riparian Reserves, evaluate and mitigate impacts to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Aquatic Conservation Strategy Objectives. Implement erosion control measures on all administrative sites and on developed recreation sites to stabilize the soil and minimize stream sedimentation **(RM-1)**.
  - (3) Adjust dispersed and developed recreation practices that retard or prevent attainment of Aquatic Conservation Strategy Objectives. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities and/or specific site closures are not effective, eliminate the practice or occupancy **(RM-2)**.
  - (4) Design facilities to concentrate and direct foot and vehicular traffic to reduce impacts. Apply site-hardening measures appropriate for the level of designed development. However, in areas with concentrated recreation use, requirements outlined in the Soil Resource Protection section may be exceeded, provided that State and Clean Water Act requirements are met.
  - (5) Design, construct and operate fish and wildlife interpretive and other user-enhancement facilities in a manner that does not retard or prevent attainment of Aquatic Conservation Strategy objectives. For existing fish and wildlife interpretive and other user-enhancement facilities inside Riparian Reserves, ensure that Aquatic Conservation Strategy objectives are met. Where Aquatic Conservation Strategy objectives cannot be met, relocate or close such facilities **(FW-2)**.

**Objective:** *To provide safe drinking water to administrative facilities and recreation sites.*

- Practices:**
- (1) Environmental Protection Agency Drinking Water Standards and State and local Health Departments provide the standards and administrative guidelines for drinking water supplies. These agencies will be used as a source of information and technical assistance.

## Appendix D - Best Management Practices

- (2) The District Engineer serves as the District Drinking Water Coordinator and is responsible for coordinating a testing program to ensure that tests are performed on water systems in accordance with applicable laws and regulations. The District Drinking Water Coordinator also prepares reports of test results for district water systems and maintains records of monitoring, treatment, and laboratory test results. Bureau-operated water systems are managed in accordance with BLM Manual 9184: Drinking Water Supply.

**Objective:** *To protect surface and subsurface water from bacteria, nutrients, and chemical pollutants resulting from the collection, transmission, treatment, and disposal of sewage and solid waste at administrative facilities and recreation sites.*

- Practices:** (1) The District Engineer is responsible for the day-to-day operation, monitoring and maintenance of wastewater treatment facilities, including septic systems and toilets at recreation facilities. Guidance for this program is outlined in BLM Manual 9182: Wastewater Treatment.
- (2) Plan, locate, design, construct, operate, inspect, and maintain sanitation facilities and refuse disposal sites to minimize the possibility of water contamination. Consult State and local authorities to assure compliance with all applicable State and local regulations. Educate the public in proper sanitation practices and refuse disposal at each site through the use of signs, printed information, mass media, and personal contact.

## Management of Competing Vegetation (Not Including Noxious Weeds): Use of Herbicides

**Objective:** *To protect water quality and public health and safety.*

- Practices:** (1) Herbicides, insecticides, and other toxicants, and other chemicals shall be applied only in a manner that avoids impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives **(RA-3)**.
- (2) Notify residents and adjacent landowners within 0.5 mile of proposed treatment sites who likely could be directly affected by chemical drift, smoke, food or water contamination, or an accidental spill prior to any chemical application.
- (3) Use the buffer strip widths in Table F-9 on perennial and fish bearing streams, and on all lakes, ponds and other waters:

**Table D-9. Application Technique.**

	<u>Minimum Buffer Width<sup>1</sup></u>
Manual wipe-on	High Water Mark
Manual	10 feet
Vehicle	50 feet
Aerial (Perennial and Fish Bearing Streams)	100 feet
Aerial (Lakes, ponds, and other waters)	200 feet
Aerial (in drainages with domestic water diversions)	200 feet

<sup>1</sup>All surface waters, unless otherwise indicated.

Local conditions may require an expansion of these minimum widths. Some examples of site-specific factors that may necessitate additional buffer widths include: mode of transport (direct application, drift, and water flow); adjacent topography; and buffer vegetation structure and functions.

- (3) Assign 100-200 foot buffers in areas having shallow water tables or where aquifers are located in alluvial deposits along major streams when using atrazine, a persistent chemical.

## Noxious Weed Control

**Objective:** *To protect water quality, public health and safety, and soil productivity.*

- Practices:**
- (1) Herbicides, insecticides, and other toxicants, and other chemicals shall be applied only in a manner that avoids impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives (RA-3).
  - (2) **Biological Control:** If grazing by goats or sheep is used, allowable use guidelines in Section XII may be exceeded in order to accomplish control or eradication objectives. Adherence to these guidelines will be analyzed on a site-specific, case-by-case basis.
  - (3) **Manual/Mechanical Control:** Tillage will be allowed on slopes that do not exceed 10 percent. Controlled burning may be used if the burned area can be rehabilitated to prevent erosion and resource degradation. Guidelines in Section IV may be exceeded in order to accomplish control or eradication objectives. Adherence to these guidelines will be analyzed on a site-specific, case-by-case basis.
  - (4) **Chemical Control:** Herbicides labeled for aquatic use in the control of riparian-wetland or aquatic weeds could be used as described in the *Northwest Area Noxious Weed Control Environmental Impact Statement* (1987). For all other herbicides, use the buffer strips widths in Table F-10 on perennial and fish bearing streams, and on all lakes, ponds and other waters:

**Table D-10. Application Technique.**

	<u>Minimum Buffer Width<sup>1</sup></u>
Manual wipe-on	Existing High Water Line
Spot Treatment by Ground vehicle with handguns or with backpacks	10 feet
Granular Formations	10 feet
Ground Vehicle with Boom Sprayers	25 feet
Aerial (All surface waters and identified ground water recharge areas)	100 feet

<sup>1</sup>All surface waters.

Local conditions may require an expansion of these minimum widths. Some examples of site-specific factors that may necessitate addition buffer widths include: mode of transport (direct application, drift, and water flow); adjacent topography; and buffer vegetation structure and functions.

# Water Source Development and Use

**Objective:** *To supply water for various resource programs while protecting water quality and riparian vegetation.*

- Practices:**
- (1) Locate water drafting sites to minimize adverse effects on stream channel stability, sedimentation, and in-stream flows needed to maintain riparian resources, channel conditions, and aquatic habitat **(RA-4)**.
  - (2) **Water Rights and Permits** All proposed water source developments will have appropriate water rights documentation completed prior to construction, in accordance with Oregon State water laws. The District Engineer will be consulted during the planning process for proposed developments in order to initiate filing for permits and water rights documentation.
  - (3) Design and construct durable, long-term water sources. Avoid reduction of downstream flow which would detrimentally affect aquatic resources, fish passage, or other uses.
  - (4) Direct overflow from water-holding developments back into the stream.
  - (5) Locate road approaches to instream water source developments so as to minimize potential impacts in riparian-wetland areas. Apply rock to surface of these approaches to reduce the effects of sediment washing into the stream.
  - (6) Avoid use of road fills for water impoundment dams unless specifically designed for that purpose. Remove any blocking device prior to fall rains.
  - (7) Construct water sources during the dry season (generally between May 15 and October 15).
  - (8) Standards and guidelines for water developments are outlined in BLM Manual Handbook 1741-2, *Water Developments*.
  - (9) **Use of Existing Developments** Use of water in existing developments must be in accordance with the allowed use of that water as stated in the water right for that development. **Any use, except for emergency fire suppression, that is outside of the permitted amounts or type of use (as specified by a Certificate of Water Right) must be covered under a Limited License to Use Surface Water, which is issued by the State.** The District Engineer will be consulted prior to the anticipated need for the use of water to determine if the proposed use is in accordance with water rights. If not, then an application for a Limited License to Use Surface Water will be filed by the District Engineer.

## Erosion Control Practices

See BLM Manual Handbook 9188-1.

## Definitions and Proper Functioning Condition

### Definitions

**Wetland:** Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and which, under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include marshes, shallow swamps, lake bogs, muskegs, wet meadows, estuaries, and riparian areas. (33 Code of Federal Regulations 323)

**Riparian Area:** A form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation of physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

**Lotic:** Characterized by running water habitat, as in rivers, streams and springs.

**Lentic:** Characterized by standing water habitat, as in lakes, ponds, seeps, bogs and wet meadows.

**Perennial Stream:** A stream that typically has running water on a year-round basis.

**Intermittent Stream:** Any non-permanently flowing drainage feature having a definable channel and evidence of annual scour or deposition. This includes what are sometimes referred to as ephemeral streams if they meet these two physical criteria. As a guideline, an intermittent stream will flow at least 30 days every six out of 10 years.

Many intermittent streams may be used as spawning and rearing streams, refuge areas during flood events in larger rivers and streams, or travel routes for fish emigrating from lakes. In these instances, the standards and guidelines for fish-bearing streams would apply to those sections of the intermittent used by any species of fish for any duration.

**Detrimental Compaction:** Detrimental soil compaction occurs at depths greater than two inches and is evidenced by: an increase in soil bulk density of 15 percent or more over the undisturbed level; and/or a macropore space (pores over 0.038 millimeters) reduction of 50 percent or more.

## Determination of Riparian-Wetland Area Condition

Recent Bureau of Land Management, Oregon State Office guidance states that during inventory and monitoring of riparian areas, an assessment of riparian-wetland area status in terms of functioning and ecological condition should be incorporated. This information should be included in allotment management plans and other planning documents. Current condition of riparian-wetland areas is placed into one of the following functional categories.

**Proper Functioning Condition:** Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris are present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload and aid floodplain development; improve floodwater retention and groundwater 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 the interaction among geology, soil, water and vegetation.

**Functional-At Risk:** Riparian-wetland areas that are in functional condition but an existing soil, water, management or vegetation attribute makes it 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 thus are not reducing erosion, improving water quality, etc., as listed above. The absence of certain physical attributes, such as having a floodplain where one should be, are indicators of non-functioning conditions.

Along with functioning condition, BLM expresses the status of riparian-wetland areas in ecological terms. In many cases, riparian-wetland areas will provide functional benefits if they are in the late seral to potential plant community stage. Therefore, BLM has the general goal of achieving advanced ecological status in riparian-wetland areas, except where resource management objectives would require an earlier successional stage. For

## **Appendix D - Best Management Practices**

example, vegetation diversity may not occur at the potential plant community stage. Through site-specific activity plans, determine the most desirable riparian-wetland community for meeting management objectives.

A Technical Reference 1737-9, *Process for Assessing Proper Functioning Condition*, discusses how to assess condition and gives the following guidelines for determining desired future condition:

1. Determine existing condition.
2. Determine potential condition.
3. Determine the minimum conditions to reach proper functioning condition.
4. Determine management goals for the watershed (that is Desired Plant Community or Desired Future Condition).
5. Negotiate specific objectives to reach management goals.
6. Design management actions.
7. Determine monitoring needs.
8. Provide enough flexibility to change management actions based upon monitoring results.

The amount of time spent in these steps would depend on the riparian and riparian-dependent resources involved, and what kinds of information are available. When possible, Ecological Site Inventory information should be gathered on certain riparian areas in order to make judgements. Otherwise, use existing inventory and monitoring information and professional, interdisciplinary judgement.

## **Riparian-Wetland Reference Tools**

The BLM has developed a series of handbooks to assist in the management of riparian-wetland areas, and are listed below.

- Technical Reference TR-1737-1: *A Selected, Annotated Bibliography of Riparian Area Management*
- Technical Reference TR-1737-2: *The Use of Aerial Photography to Inventory and Monitor Riparian Areas*
- Technical Reference TR-1737-3: *Inventory and Monitoring of Riparian Areas*
- Technical Reference TR-1737-4: *Grazing Management in Riparian Areas*
- Technical Reference TR-1737-5: *Riparian and Wetland Classification Review*
- Technical Reference TR-1737-6: *Management Techniques in Riparian Areas*
- Technical Reference TR-1737-7: *Procedures for Ecological Site Inventory- With Special Reference to Riparian-Wetland Sites*
- Technical Reference TR-1737-8: *Greenline Riparian-Wetland Monitoring*
- Technical Reference TR-1737-9: *Procedures for Assessing Proper Functioning Condition*

**Table D-3. Guide for Placing Common Soil and Geologic types into Soil Erosion and Soil Infiltration Classes to Space Lateral Road Drainage Culverts**

Representative Soil Series type	721	729	380	719	706	718	381			
Erosion Class	I	II	III	IV	V	VI	VII	VIII	IX	X
Erosion Index	10	20	30	40	50	60	70	80	90	100
Standard Soil Textures and Unified System Soil Groups	SM ML	SM ML	Silt (unconsolidated) (B) OL	Silt (consolidated) (B) OL	Silty clay loam (A) Silty Clay (A)	Clay loam (A) Silt Loam (A,B)	Loamy sand (C) Sandy loam (B)	Course sand (C) SW	Fine gravel SW	Rock (C) Cobble (C)
Special Cases: General Names & Descriptions	Decomposed grandiorite (C) High decomposed granite (B)	Decomposed sandstone, e.g., (B,C) Greasy decomposed rock high in clay (A)	Fine soils derived from rocks high in mica (C)	Coarse soils derived from rocks high in mica (C)	Sandy clay (B) SC,GM OH,CH	Sandy clay loam (B) CH,GM	Sand (B,C) GC	Sand (B,C)		Fractured loose basalt or shale (C) "Shot" as found in Coarse volcanic cinders (C)
										Bed rock (A)

**Table D-4. Guide for Maximum Spacing (in feet) of Lateral Drainage Culverts by Soil Erosion Classes and Road Grade (2 percent to 18 percent)**

Road Grade in Percent	Erosion Class									
	I	II	III	IV	V	VI	VII	VIII	IX	X
Erosion Index	10	20	30	40	50	60	70	80	90	100
2	900	1225								
3	600	815	1070	1205						
4	450	610	800	905	1015					
5	360	490	640	725	810	865	1000			
6	300	410	535	605	675	720	835	1010		
7	255	350	455	515	580	620	715	865	1030	1210
8	225	305	400	450	505	540	625	755	900	1055
9	200	270	355	400	450	480	555	670	800	940
10	180	245	320	360	405	435	500	605	720	845
11	165	220	290	330	370	395	455	550	655	770
12	150	205	265	305	340	360	415	505	600	705
13	140	190	245	280	310	335	385	465	555	650
14	130	175	230	260	290	310	355	430	515	605
15	120	165	215	240	270	300	335	405	480	565
16	115	155	200	225	255	280	310	380	450	530
17	105	145	190	215	240	265	295	355	424	500
18	100	135	180	200	225	250	280	335	400	470
19 to 40	50	50	50	90	90	90	90	90	90	90
	Jeep Roads									
	Skid Roads									

This table is based on rainfall intensities of 1 to 2 inches per hour falling in a 15-minute period with an expected recurrence interval of 25 years. For areas having intensities other than 1 to 2 inches per hour, divide values in the table as follows:

Rainfall intensity	Divisor
2-3 inches per hour	1.50
3-4 inches per hour	1.75
4-5 inches per hour	2.00
Less than 1 inch per hour	Whatever the intensity (.75, .85, etc.)

Ref. Transportation Engineering Handbook, U.S. Forest Service, R-6, 1966.

Notes: In soils producing high sediment yields such as the 721, 729, and 300 series, the spacings should be considered as maximum distances between drainage structures. 300 feet to 400 feet to gradients of 4 to 10 percent in these soils was found to be the average spacing that provided fair ditchline protection.

# Appendix E

# Timber Management

## Introduction

This appendix consists of three parts. The first part describes the silvicultural systems used in the design of the resource management plan. Part two describes the objectives, habitat criteria, and management practices design for the land use allocations. Finally, the third section describes forest genetics program.

## Silvicultural Systems Utilized in the Design of the Proposed Action

In addition to dealing with land use allocations and objectives, the resource management plan deals with the selection of and effects of different silvicultural systems and the practices used to carry out those systems.

Silvicultural systems define the sequence of management treatments that take place throughout the entire lives of forest stands that are conducted to meet management objectives. Systems are designed to move stands from their current condition along a developmental path toward a desired or target stand condition. Reforestation or the establishment of desired vegetation is the critical part of any silvicultural system.

In the design of the proposed action, a variety of general silvicultural systems are used for the different Land Use Allocations. Differences between systems are the result of differences in resource objectives and differences in forest condition and ecological types. Silvicultural systems are resource and objective neutral. They are designed to meet a wide range of management goals that include timber production, creation or maintenance of wildlife habitat, restoration of forest condition (health), restoration or improvement of riparian condition, and maintenance of site productivity. The description of silvicultural systems, therefore, is not included with any one resource category.

## Modified Even-Aged Silvicultural Systems

Modified even-aged systems involve the management of both existing even-aged or near even-aged stands and the creation of new even-aged stands through harvesting while retaining both living and dead structural elements (green trees, snags, coarse woody debris). Retained structure is at levels below those detailed for structural retention systems.

## Stand Regeneration

Stand regeneration methods under even-aged silvicultural systems include modified versions of the clear-cutting, seed tree, shelterwood, and overstory removal harvest methods.

Modified clear-cutting harvests the majority of the stand in a single entry. It permits the establishment of an even-aged stand with the fewest number of entries while retaining wildlife trees and snags. Regeneration is usually through planting following site preparation, although in southern Oregon there are sometimes significant quantities of advanced regeneration remaining after logging. Natural regeneration may occur through seed dispersed from retained trees or trees in adjacent timber stands. In southern Oregon, units harvested in this manner could require actions in addition to conifer planting to secure regeneration. These practices include seedling shading, protection from animal damage, and control of competing vegetation.

## **Appendix E - Silvicultural Systems Utilized in the Design of the Proposed Action**

The seed tree method of harvest removes the majority of a stand in a single entry except for a small number (usually 3-10 trees per acre) of green, seed trees that are retained (in addition to desired green-trees and snags) to provide seed for natural regeneration. If necessary, artificial regeneration, usually planting, would be used to reach target stocking levels. Genetically-selected stock would be used when available. Seed trees are removed when the unit is judged to be stocked with regeneration.

In a shelterwood system, a stand is harvested in a series of two or more partial cut entries designed to create the necessary level of disturbance and to provide shelter for the establishment of newly planted and natural seedlings. After establishment of regeneration, overstory trees that are in addition to designated wildlife trees and snags would be removed. While shelterwood units are typically planted with conifer species, natural regeneration may constitute a large percentage of the regeneration present.

Forest stands in southern Oregon are often multiple-aged with different canopy levels resulting from past natural stand disturbances such as under-canopy fires or from past partial cut harvesting. In these stands an understory canopy level often exists and is capable of being released. This understory canopy level may consist of seedlings, saplings, or young merchantable timber. The release and subsequent management of the understory canopy could result in a yield increase when compared to growing a new stand after a more complete stand removal. The decision to remove an overstory canopy considers the releasability and species composition of the understory canopy and logging feasibility. In some cases, retention of understory species could result in an undesirable seral shift, a higher level of disease in stands, and a potential loss of stand health.

## **Stand Management**

Following the regeneration phase, modified even-aged systems are subjected to treatments designed to produce desired stand conditions that include wood of desired quality, quantity, and value. Modified even-aged systems may be managed at different levels of intensity.

Stand management practice include control of species composition and stand density. Release practices are employed to ensure tree growth is not slowed by competing, undesirable plants and that desired trees are not displaced. Density control through thinning assures that cubic foot volume growth is concentrated in the stems of selected trees.

On higher sites, forest fertilization may be employed to temporarily increase stand growth. Some young stands in the planning area are in poor condition because of high densities or because of overstory competition. Stands may experience significant growth retardation called thinning shock following precommercial thinning, overstory removal, or release. The severity of this retardation may be reduced through the application of fertilizer. Forest fertilization may also be used to improve tree vigor and to reduce insect and drought related mortality.

## **Stand Harvesting**

Stand harvesting may occur at any age above a minimum harvest age set to meet land use objectives as well as economic and logging-practicality requirements.

The sustainable harvest level is highest if minimum harvest age is set at the lowest practical age. Over time, however, rotation lengths would approach the age of culmination of mean annual increment. Culmination of mean annual increment varies with site quality, the kinds of silvicultural practices employed, and the timing of those practices. For most regimes and sites in southwestern Oregon, culmination of mean annual increment occurs near 100 years of age.

To achieve higher wood quality, larger log sizes, or to produce habitat for species that live in later seral stages, minimum harvest age may be set at an older age.

# Shelterwood Retention Silvicultural Systems

Shelterwood retention refers to even-aged systems that have sometimes been termed “irregular shelterwoods.” In these systems, overstory trees are retained until understory conifers are large enough to fulfill management objectives such as preserving visual qualities, surviving growing-season frosts, or protecting sensitive soils. Depending upon objectives, overstory trees may be retained for 15 to 30 years. A wide variety of stand conditions exist across the planning area. In some areas such as those infected with diseases or root rot and those of high blowdown hazard, retention of an overstory may not be successful.

## Stand Regeneration

Shelterwood retention units are normally planted, but like shelterwoods, also receive varying amounts of natural regeneration. Planting stock would reflect genetic selection when such stock is available, but since the performance of genetic stock and percent representation in stands created under these regimes are uncertain, no yield gain would be claimed for this action.

## Stand Management

Like other silvicultural systems, shelterwood retention stands receive treatments designed to produce desired stand characteristics. To produce economically-harvestable tree sizes in reasonable periods of time, control of species composition and stand density are as critical or more critical in shelterwood retention systems than in modified even-aged systems. Following the removal harvest, fertilization may be applied to accelerate stand development and to reduce the shock and damage of overstory removal.

## Stand Harvesting

Harvest of retained shelterwood trees (in excess of desired green-trees and snags) occurs in one or more entries 15 to 30 years after the regeneration harvest and when stand development has reached a point where visual, frost-tolerance or soil requirements are met.

# Structural Retention Systems

These silvicultural systems are designed primarily to retain or to recreate forest ecosystems that resemble natural systems in composition, structure, and in ecosystem function. Retained structural components include green-trees, snags, and coarse woody debris that may be clumped or distributed in various ways across the landscape. Through retention and re-creation of structure and through appropriate selection and timing of treatments, these systems attempt to retain natural ecosystem processes and habitat niches.

Structural retention systems attempt to provide for maintenance of site productivity, wildlife habitat, and a high level of biological diversity in a managed landscape. Silvicultural practices used are modifications of those used in modified even-aged systems and reflect attempts to redirect ecosystem processes rather than to replace those processes with agricultural-style management.

Structural retention systems would usually produce a multiple-canopied, multiple-aged stand but not an all-aged stand. Such stands are irregular uneven-aged stands, since they have several age classes, but not the more balanced age class distribution of stands with many age classes. Uneven-aged management of these stands would involve the selective harvest of individual trees (individual tree selection), or groups of trees (group selection), or small patch cuts to regenerate light-intolerant species. Under selective harvest, trees in all size classes would be eligible for thinning in order to reduce stocking to site capacity. The objective of structural retention and uneven-aged systems is to produce a multiple-canopied forest, but not necessarily one with all age classes present.

## **Stand Regeneration**

The regeneration phase of this system relies upon the use of both natural and planted conifer seedlings, together with subsequent stand management, to achieve a near-natural mixture of species in each seral stage. Genetically-selected stock, when available, would be combined with regular stock. No yield increase for use of selected stock would be projected.

## **Stand Management**

Stands created under this system receive treatments designed to meet structural, functional, and growth objectives. Density management would be used. Forest fertilization would be used as appropriate, but because of the uncertainty of its effect on diverse stands, it would not result in a projected yield increase. Underburning would be done to reintroduce fire as a natural process, reduce fuel loads to natural levels, and exclude species that would not be present under natural conditions.

## **Stand Harvesting**

Structural retention systems seek to retain or re-create habitat characteristics of older forests. Harvesting is expected to occur across stands and in group selections of varying sizes and patch cuts up to 3 acres in size with structures retained in the groups.

## **Salvage of Mortality Volume**

All silvicultural systems provide for salvage under prescriptions designed to ensure that such actions meet the requirements of the allocation.

Mortality in established stands results either from competition and self-thinning or from disturbance events such as fire, windstorms, or insect attack. Mortality associated with competition is generally harvested in commercial thinnings or is prevented through density management and species selection practices. Mortality of entire stands or of scattered trees that results from disturbance would be harvested in salvage operations. Only mortality above the level needed to meet snag retention and other habitat requirements and provide desired levels of coarse woody debris would be harvested.

## **Silvicultural Practices**

For each silvicultural system a variety of practices, other than harvesting, may be planned for specific periods in the life of the stand. These practices act to keep forest stands on desired developmental trajectories, speed the development of desired habitat components, and maintain or improve stand vigor. Silvicultural practices in this region have traditionally been applied to conifers stands and their development, however, many of the same principles and treatments have application for the growth and development of other desired vegetation.

While both the types of practices used and timing vary between systems, most silvicultural systems require the full range of forest management tools and practices for their successful implementation. To predictably direct forest stands (ecosystems) so that structural and other objectives are met may require some level of intensive stand tending practices whatever the system employed.

## **Site Preparation**

If needed, site preparation procedures would be used to prepare newly harvested or inadequately stocked areas for planting, seeding, or natural regeneration. Site preparation methods would be selected to: provide physical access to planting sites; control fire hazard; provide initial physical control of the site to channel limited resources

on the site into desired vegetation; influence the plant community that redevelops on the site; influence or control animal populations; and ensure the retention of site productivity.

Within the planning area, four types of site preparation techniques would be used. These are prescribed burning, mechanical and manual methods, and herbicide application.

Prescribed burning, including broadcast and pile burns, is expected to be the primary method of site preparation. To protect air quality, burning would occur under conditions consistent with the Oregon Smoke Management Plan. Broadcast burning prescriptions will be written to minimize the detrimental effects of fire on other resources. Emphasis will be placed on protecting soils properties and the retention of coarse woody debris. Prescribed fire on sensitive soils will be designed to result in low to moderate intensity burns.

Mechanical site preparation consists of either: tractor piling or windrowing of slash and unwanted vegetation; or the use of a low ground pressure backhoe, loader, grapple, or other special equipment to move or pile slash and unwanted vegetation.

Manual site preparation consists of shrub pulling or cutting and hoeing or grubbing of unwanted vegetation and slash.

Application of herbicides for site preparation purposes would occur only after careful site-specific environmental analysis and local public involvement. Decision for use would be governed by the procedures established in BLM's Record of Decision Western Oregon Program-Management of Competing Vegetation (see Appendix 1-D of the draft Resource Management Plan for key sections of the Record of Decision).

## **Reforestation/Establishment of non-conifer plant species**

Conifer planting would be done where appropriate to assure that reforestation objectives are promptly met. The production of planting stock requires seed (cone) collection from wild stands and/or from seed orchards and the production of planting stock in bare-root nurseries or container shadehouses.

The release and management of existing natural regeneration has the potential to speed stand development. Natural regeneration can, in many situations, be both adequate and relatively prompt (Lewis, Park and Tuttle 1991) and of appropriate species (Williamson 1973). A result of relying on natural regeneration is the loss of the ability to use genetically-selected stock. When applicable, silvicultural systems would utilize existing regeneration, natural seeding, and prompt planting of desired species to assure that regeneration targets and timeframes are met. Within this plan no yield increased was assumed as a result of retention of existing regeneration following regeneration harvest or overstory removal.

Existing vegetation would be used to the extent possible in meeting management objectives dependant upon non-conifer vegetation. Where necessary to meet objectives, non-conifer vegetation would be established through seeding or the planting of bare-root or containerized plants.

## **Stand Protection**

Stand protection procedures would be designed to protect newly planted conifer seedlings and in some cases natural seedlings from natural hazards. Treatments include protecting seedlings from the sun by shading or bud capping or placing plastic tubes or netting over seedlings to protect from animal browsing or clipping. Control measures to deal with populations of animals such as mountain beaver, gophers, or porcupines would be initiated if populations of these animals reached levels high enough to threaten stands. Treatment acres will be determined annually in conjunction with reforestation surveys.

Similar treatments would be used when appropriate to protect planted or seeded non-conifer vegetation.

Stands will also be managed to decrease the risk of destruction by wildfire. Management practices include treatments such as underburning, limbing, density management, or hand piling or utilization of slash. Creation of fuel breaks, especially in Rural Interface Areas, would be a method of decreasing risks. Retention of a hardwood component in stands may result in somewhat higher level of resistance to low intensity fires.

## **Stand Maintenance**

Maintenance treatments occur after planting or seeding and are designed to promote the survival and establishment of conifers and other vegetation by reducing competition from undesired plant species. Maintenance and other vegetation management actions would be planned to meet species diversity goals.

Maintenance actions involve the implementation of preventive or ecosystem-based strategies or direct control actions using techniques such as mulching, cutting or pulling of unwanted species, grazing, or herbicide application. As with other vegetation management treatments, preference for stand maintenance treatments would be given to strategies that redirect natural ecosystem processes where practical and where scientific knowledge was adequate to support such strategies. The choice between methods would be made under the same decision framework listed for site preparation.

## **Pre-commercial Thinning (Density Management) and Release**

Precommercial thinning and release treatments would be designed to control stand density, influence species dominance, maintain stand vigor, and place stands on developmental paths so that desired stand characteristics result in the future. Thinning and release may occur simultaneously or separately.

Precommercial thinning and release treatments may be done either by manual methods such as falling and girdling or through herbicide application. Site specific decision-making processes for herbicide release treatments follow the same procedures as those listed for site preparation.

## **Commercial Thinning (Density Management)**

Commercial thinnings would be designed to control stand density, maintain stand vigor, and place or maintain stands on developmental paths so that desired stand characteristics result in the future. Commercial thinnings are scheduled after developing stands reach a combination of stem diameter and surplus volume to permit an entry that is economical. Commercial thinning may be effective in increasing recoverable timber production and in meeting structural diversity objectives in stands as old as 150 years (Williamson and Price 1971) (Williamson 1982). Heavy commercial thinning shows the ability to accelerate the development of old growth characteristics in even-aged stands (Newton and Cole 1987).

## **Fertilization**

Stand growth is limited by the supply of available nutrients, particularly by available nitrogen. The supply of soil nutrients would be conserved through design of management actions and could be augmented through either fertilization or in some situations, through retention of species and structural diversity in stands. Fertilization practices are designed based on extensive research, including work in southwestern Oregon. Fertilization actions are usually designed to apply 200 pounds of available nitrogen with helicopters in the form of urea-based prill (46 percent available nitrogen). Occasionally, fertilizer may be applied in a liquid urea-ammonia form or with a mixture of other nutrient elements in addition to nitrogen. Hand application is usually impractical. Forest fertilization actions would be sequenced with thinning actions with preference given to young even-aged stands of site four and higher in the next decade.

Fertilization has the effect of accelerating stand and seral development. Since fertilizer increases the rate tree canopies expand and increases tree vigor, it has been observed to reduce thinning shock, accelerate release, and reduce susceptibility to damage from insect and drought.

## **Pruning**

Pruning of young stands is carried out to increase wood quality through the production of clear wood on rotations shorter than would be required without the action. Pruning helps to avoid production of wood with loose knots and yielding lumber, which is tight-knotted but not necessarily clear. It is mandatory for the production of clear wood with grades above "common" under normal, even-aged rotations for Douglas-fir and pine.

Pruning appears to be necessary to produce wood of acceptable quality from stands that are managed at very low densities to meet biological diversity objectives since trees in such stands would have long crowns and would produce wood with large knots without the action.

## Forest Condition Restoration Treatments

Forest condition restoration treatments are silvicultural treatments that are intended to reduce mortality and to restore the vigor, resiliency, and stability of forest stands that is necessary to achieve resource management objectives. These treatments include:

**Restoration thinning:** Reduction of the density of forest stands with the objective(s) of increasing stand vigor, reducing mortality of desired stand components, and/or reducing susceptibility to insect and disease attack and spread.

**Understory reduction:** Partial or complete removal of one or more understory canopy layers for the purpose(s) of reducing competition for desired stand components and/or reducing the risk of stand replacement fire.

**Restoration underburning:** Use of fire for the specific purpose of reducing mortality of desired trees and improving stand vigor, resiliency, and stability. Hazard reduction is an incidental benefit.

**Plant community restoration:** Silvicultural actions (including planting, maintenance, and stand tending) designed to establish and maintain desired species (including grasses, herbs, and shrubs) within forest stands and to prevent the introduction of noxious weeds.

**Restoration fertilization:** Fertilization of forest stands, with nitrogen or with micronutrients, designed to minimize thinning shock after restoration thinning, to improve stand vigor, and/or to increase resistance to insect attack.

## Silvicultural System Design

Silvicultural systems as well as individual management actions will be designed to:

- ◆ meet established land use objectives,
- ◆ maintain the health and sustainability of forest ecosystems and their processes or to restore forest condition so that management objectives can be met,
- ◆ incorporate current and developing knowledge of natural processes and the relationships between structures, landscape arrangements, and the maintenance of ecosystem function,
- ◆ involve landscape level (watershed) analysis at a variety of spatial and temporal scales, and
- ◆ consider the elements of ecosystem and landscape function, composition, and structure.

Silvicultural system design will vary from site to site and will be based on:

- ◆ consideration of stand vigor, disease, live crown ratio, and general stand condition,
- ◆ the autecological and synecological requirements of major or indicator plant and animal species and species groups,
- ◆ habitat requirements of rare or endangered species,
- ◆ requirements of avoidance strategies for vegetation management,
- ◆ economic feasibility, and

## **Appendix E - Silvicultural Systems Utilized in the Design of the Proposed Action**

- ◆ soil, slope, aspect, and other physical site conditions that influence reforestation potential, blowdown potential, or that otherwise influence the ability of prescribed treatments to meet target stand and landscape objectives.

Simply stated, silvicultural systems and actions should be based on the objectives of the Land Allocation, ecological processes, site and stand characteristics, and economic feasibility within a framework of landscape analysis.

Best management practices for soil and water resources (see Appendix D) would be used in designing site-specific silvicultural prescriptions consistent with the objectives of the land use allocation.

Where appropriate, silvicultural systems and individual management actions will be adapted to meet the requirements of experimental designs that permit the agency and its publics to explore the results of the application of a range of alternative management options to both stands and landscapes. Where not in direct conflict with land use allocation objectives, silvicultural systems would be designed to assure that resultant wood quality is suitable for the range of current and forecasted uses and that they would maintain or enhance log value.

# **Objectives, Habitat Criteria, and Management Practices Design for the Land Use Allocations**

The description of the proposed action involves three separate criteria for each Land Use Allocation. These criteria are: A) resource condition objectives that summarize and highlight the important resource management goals for the land use allocation for the next decade; B) stand and landscape condition objectives that are desired in the near future and in the longer run; and C) management direction, which set sideboards and stands for stand and landscape composition.

Management direction described in this appendix incorporates *Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl*.

## **Matrix**

The general prescription would involve management within strategies and with levels of green tree retention that would both mimic natural ecological processes and meet species diversity, structural diversity, and landscape diversity objectives. In most cases, the general prescription would be one of structural retention. Modified even-aged and shelterwood retention systems would be utilized dependant upon factors such as site quality, growing season frosts, sensitive soils, presence of disease and visuals. Silvicultural practices include the full range of practices consistent with land use allocation objectives.

### **A. Resource Condition Objectives**

1. Commodity Production: Suitable commercial forest land would be managed to assure a moderately high level of sustained timber productivity.
2. Forest Condition (Forest Health): Achievement of management objectives, including sustainability of both commodity production and wildlife habitat, requires that management emphasis be placed on treatments and harvests that restore stand condition and ecosystem productivity. Management actions include density management and understory reduction operations that reduce competition, increased use of understory prescribed fire, and fertilization. Removal of biomass from the understories of stands in the Pine series to restore stand health, reduce overstory mortality, and restore habitat productivity may be a below cost operation on many sites.

3. **Habitat Retention, Restoration, and Production:** Manage for minimal loss (including loss from wildfire) and long-term recovery of intact forest habitat over 150 years of age and toward an increase in the amount of spotted owl reproductive habitat. Selection of stands for management will involve consideration of the desired blend of seral stages and stand densities. Manage landscape planning blocks to maintain desired levels and distribution of early seral vegetation. Manage to retain a minimum of 40% canopy cover at the stand level in most regeneration harvest units except for units of the pine series or where stand condition or site characteristics require lower levels.

## **B. Stand and Landscape Condition Objectives**

1. **Target Stand Conditions:** Manage forests of the land use allocation so that over time landscapes would trend toward a forest composed of stands containing a variety of structures, stands containing trees of varying age and size, and stands with an assortment of canopy configurations. As stands age, within stand conditions should trend toward those characteristic of older forest types. Manage to provide for connectivity. Consistent with operational and logging practicality, retain fine-grained patterns.
2. **Seral Composition:** Over time, manage for a balance of seral stages consistent with land use allocation objectives.
3. **Landscape Composition:** Manage toward a mix of stand conditions and seral patterns with consideration to three levels of scale: physiographic province (river basin / mountain range), landscape block (watershed), and within stand detail. Manage treatment unit shapes and sizes to mimic natural terrain and stand features. Minimize fragmentation and maintain the highest level of interior habitat consistent with meeting overall resource objects, except for Pine series forest types where a mix of various sized seral patches may be desired.

## **C. Management Direction for program implementation**

1. **Variation by ecological type:** Planning and implementation of specific projects will be strongly based on an understanding of the ecological relationships and limitations of the communities proposed for management.

**Pine Series:** Prescriptions would discriminate in favor of a higher proportion of ponderosa pine in the stand than current and would target reduction in understory densities. Stand densities would normally be reduced to less than 100 square feet of basal area.

**Douglas-fir Series:** Regeneration patch sizes would vary to maintain pine and other species in the stand. Mistletoe and excessive madrone regeneration will require variation in prescriptions. Retention of canopy cover and careful choice of site preparation technique should be used to maintain deerbrush and grass at levels that prevent target stand conditions to be reached. Deerbrush and legumes should be retained in the system.

**Shasta red fir Series:** Management actions would consider limitations imposed by growing season frosts and would be designed to restore a higher proportion of white pine and Douglas-fir on sites where those components have been lost.

**White fir Series:** Management actions would consider limitations imposed by growing season frosts and will be designed to restore a higher proportion of pine and Douglas-fir in stands from which those components had been lost.

2. **Qualification of stands for management deferral:** Harvest entries would usually not be planned for the next decade for stands with less than 40 percent live canopy cover, except for stands of the Pine Series. Salvage of volume from these stands following partial or complete stand mortality would be permitted provided structural objectives were met.
3. **Stand Structural and Species Composition:**

**Appendix E - Silvicultural Systems Utilized in the Design of the Proposed Action**

**Structural Composition:** Maintain site productivity and wildlife habitat values through the retention of structure and the design of practices required to maintain ecosystem processes throughout the management cycle. Retain on the average 16-25 larger green trees per acre in harvest units. For specific Standards and Guidelines on coarse woody debris, green tree, and snag retention refer to pages C-40 through C-44 of the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl, sections "Provide specified amounts of coarse woody debris in matrix management," "Emphasize green-tree and snag retention in matrix management," "Standards and Guideline Specific to Northern Spotted Owl Habitat for Lands Administered by the Bureau of Land Management in Oregon," and "Provide additional protection for caves, mines, and abandoned wooden bridges and buildings that are used as roost sites for bats." In addition, a minimum of two large hardwoods, if present would be left per acre. Logging safety and potential tree mortality would be considered when determining the distribution of retain trees and snags.

**Species Composition:** Manage so that tree species trend over time toward Target Species Composition Objectives, see Table E-1. Manage shrubs, forbs, and other vegetation consistent with land use allocation objectives.

**Table E-1. SGFMA Target Stand Species Composition Objectives.**

Plant Series	<b>Desired Species Composition (by percent conifer basal area)</b>								
	Ponderosa pine	Douglas fir	White fir	Shasta Red-fir	Incense Cedar	Sugar Pine	Western White Pine	Lodgepole Pine	Western Juniper
Ponderosa Pine	50-95	0-35	0-20	--	0-5	0-2	--	0-5	1-20
White fir	5-40	10-50	40-60	5-20	5-20	1-5	0-10	1-10	--
Douglas-fir	5-30	60-85	2-10	0-5	0-5	1-5	0-10	0-5	--
Shasta Red Fir	--	5-20	5-20	40-80	--	--	2-5	0-30	--

- Landscape Design Elements:** Harvest unit shapes would be constrained by economic practicality and logging system capabilities. Retain dead and green structure within group selections consistent with meeting long term stand composition goals. Situate harvest units to meet general landscape objectives, including minimizing fragmentation and providing general landscape connectivity. Harvest methods could vary within stand to: a) reflect current within-stand spatial patterns, b) as required to meet stand objectives, and c) to retain or create patches of reproductive or other habitat for key wildlife species.
- Regeneration harvests:** Regeneration harvests would not be programmed for stands under 120 years of age and generally would not be programmed for stands under 150 years of age within the next decade unless required by deteriorating stand condition, disease, or other factors that threaten the integrity of the stand. Priority for harvest in stands under 150 years of age would be commercial thinning.

Regeneration strategies would be planned to produce the highest probability of success at the lowest practical cost and will include provisions for species diversity and long-term site productivity within the design. Practices will be strongly influenced by consideration of ecological site potential, for retention of sufficient canopy to assure control of competing vegetation, by the requirements of owl habitat connectivity at the stand level, and by factors including growing season frost potential.

- Commercial Thinning:** Stand densities would be maintained within desired ranges through a combination of planting density, precommercial thinning, commercial thinning, and management of fine-grained

stand detail. Commercial thinning entries would be programmed for stands under 150 years of age, often in conjunction with limited selection harvest in stands over 80 years. Thinning in older stands will often result in understory regeneration and the development of multiple-canopied stands. Units will retain patches of denser habitat where desired to meet wildlife habitat criteria.

- 7. Activity Scheduling:** Stand treatment priority would result from the watershed analysis process. General priorities for stand treatments are shown in Table E-2.

**Table E-2. Treatment Priority by Ecological Type**

Treatment Type	Pine	White fir	Douglas fir	Shasta Red Fir
Understory Density Control	High	Medium	High	Medium
Stand Density Management	High	Medium	High	Medium
Density Management and Group Selection	Medium	Medium	Medium	Medium
Regeneration Harvest or Overstory Removal	Low	Low	Low	Low
Underburning	High	Medium	Medium	Medium

- 8. Disease Management:** Design silvicultural treatments so that within-stand endemic levels of tree disease do not increase and so that, where possible, infected trees contribute to the achievement of land use allocation objectives. Creation of snags over time as a root rot center expanded would be an example of using tree disease to meet a structural objective. Mistletoe infected trees should be located in topographic positions that are not conducive to the spread of the disease and which are favorable for the production of nest groves. Treatment of stumps with borax would be done as needed to prevent air-borne infection of the stumps with root rot fungi, and prevent its spread to adjacent trees via root grafts.
- 9. Forest Condition (Forest Health) Restoration:** Priority for restoration treatments will be determined at the stand level and will be based on the stand's ability to meet management objectives in the long-term.

## Late-Successional/District Designated Reserves

Late-Successional/District Designated Reserves would be managed to protect and enhance conditions of late-successional and old-growth forest ecosystems, which serve as habitat for the northern spotted owl and other late-successional and old-growth related species. Silvicultural practices and salvage should therefore be guided by the objective of maintaining adequate amounts of suitable habitat.

Silvicultural practices within reserves would be limited to those practices beneficial to the creation of late-successional forest conditions and would include reforestation, maintenance and protection of existing young stands, density management, and fertilization. In addition to practices that put or maintained stands on desired developmental pathways, practices designed to restore forest condition (forest health) and other practices designed to reduce the risks of stand loss would be done to maintain long-term habitat viability.

"While risk-reduction efforts should generally be focused on young stands, activities in older stands may be appropriate if: (1) the proposed management activities will clearly result in greater assurance of long-term maintenance of habitat, (2) the activities are clearly needed to reduce risks, and (3) the activities will not prevent the Late-Successional Reserves from playing an effective role in the objectives for which they were established." ("Guidelines to Reduce Risks of Large-Scale Disturbance," page C-13, Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl).

## **Appendix E - Silvicultural Systems Utilized in the Design of the Proposed Action**

Salvage of mortality volume is limited to stand-replacing disturbance events exceeding 10 acres under standards outlined under "Guidelines for Salvage," page C-13, Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl.

## **Riparian Reserves**

Silvicultural activities within Riparian Reserves will be designed to meet the objectives of the Aquatic Conservation Strategy. Generally, standards and guidelines prohibit or regulate activities in the reserves that retard or prevent attainment of Strategy objectives. Silvicultural practices would be applied within the reserves to control stocking, to reestablish and manage stands, to establish and manage desired non-conifer vegetation, and to acquire desired vegetation characteristics needed to attain objectives of the Aquatic Conservation Strategy. Forest condition (forest health) restoration would be done where required to attain objectives of the Aquatic Conservation Strategy.

Salvage operations would be done only when watershed analysis determines that present and future coarse woody debris needs are met and other Aquatic Conservation Strategy objectives are not adverse

## **Other Allocations**

Silvicultural practices where appropriate would be designed to be consistent with the objectives of the allocation.

## **Hardwoods**

Manage hardwood stands for production of commodities as markets develop. Regenerate harvested stands with the same hardwood species mix. Harvest up to 1/200 of the hardwood allocation per year.

Suitable commercial forest land allocated to timber production, but dominated by grass, shrubs, and hardwood that resulted from human activity would be restored to conifer production. Hardwood species would be retained to maintain species richness. Natural hardwood and shrub communities on suitable commercial forest land would not be converted to conifer production.

Stands on commercial forest land that are dominated by commercial conifers, which also contain a high percentage of hardwoods as a successional stage, would be managed for timber production.

Manage white oak woodlands to meet wildlife, range, and biological diversity objectives.

## **Research**

A variety of wildlife and other research activities may be ongoing, currently proposed, or proposed in the future in all land allocations. Provided certain requirements are satisfied, ongoing research may continue and new research may begin. For a discussion of research requirements see, "Research" page C-4, under "Standards and Guidelines Common to all Land Allocations" in Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Research discussions can also be found under some of the individual allocations.

# Forest Genetics Program

For thousands of years humans have selected and used the genetic variation which is naturally present in plants and animals. Genetic diversity is the foundation for plant and animal improvement programs. Modern crop and livestock improvement programs have substantially increased yields and productivity with selection and breeding. The need for food production and natural resources is increasing as the human population increases. Genetic improvement programs have and will continue to help meet these demands.

The genes in all organisms are the basis of their diversity. Genetic diversity is a key component of an ecosystem. Broad genetic diversity is considered to be an asset because variability is a buffer against change. Problems can occur when genetic diversity is too narrow. Genetic uniformity decreases resilience to change and increases the potential for problems due to pests and diseases. Environmental conditions influence the expression of the genetic code. The physical characteristics of an organism are dependent on the interaction of its genes with the environment. Ecosystems are dynamic communities which change over time and plants and animals are impacted by the changes. Species with wide tolerances can adapt to changes, while those with narrow tolerances can be heavily impacted.

The amount and pattern of genetic diversity in a species develops in part as an organism responds to the environment. This adaptation occurs over a long period of time as the environmental conditions select for or against specific genetic traits. Each species has a unique genetic structure. Genetic studies are conducted to describe and quantify the amount of genetic variation within a species. This information is necessary to direct management and to help guide operational projects.

Genetic diversity can be described as a natural resource. Management and conservation of genetic resources is vital for many reasons. Genetic improvement programs are a great benefit to society and genetic materials have a large economic value. Genetic material from wild stock is an important source of variability which can be infused into existing improved varieties. Many medicinal compounds are derived from plants and there is the potential for more undiscovered uses. Conserving genetic diversity for all species allows evolutionary processes to continue within the conditions of the natural environment.

Tree improvement is the application of genetic principles and methods to forest trees. Many of the desirable traits in trees can be enhanced with tree improvement. The Bureau of Land Management has participated in cooperative tree improvement programs for forest trees in the Pacific Northwest since the late 1950's. The emphasis to date has been in improvement of growth and disease resistance. Ecosystem management principles are changing the focus of the tree improvement program. The existing tree improvement and seed orchard programs will be integrated into a broader based forest genetics program. Genetic diversity issues for many organisms will likely become more important in the future. A forest genetics program is consistent with ecosystem management principles and can be expanded to cover the genetics of other plants and animals.

This appendix describes the objectives of the forest genetics program, the present status, and proposed direction. The BLM Western Oregon Tree Improvement Plan (1987) describes the technical details of the program. Additional general information on genetic resource issues can be found in *The Value Of Genetic Resources* (Oldfield 1984) and *Genetics and Conservation Of Rare Plants* (Falk and Holsinger 1991).

## Program Objectives

The objectives of the forest genetics program underlay a broad spectrum of land management activities. The biological foundation of ecosystem management rests upon a clear understanding of the genetic diversity present within the system. The following objectives are broadly defined and include tree improvement, gene management, and gene conservation activities.

- ◆ Provide for seed production as needed for planting species on BLM lands. Develop seed collection and seed deployment guidelines as needed.

## **Appendix E - Silvicultural Systems Utilized in the Design of the Proposed Action**

- ◆ Develop genetically improved materials as needed to meet BLM's resource management objectives.
- ◆ Maintain and restore the genetic diversity within managed forest stands.
- ◆ Analyze needs and implement gene conservation strategies as appropriate.
- ◆ Collect information on genetic variation from important species.
- ◆ Contribute to the development of genetic information needed for landscape analysis, ecological assessments, research studies and ecosystem management projects.
- ◆ Maintain flexibility within the program so that information fulfills the current needs and anticipates future needs.

## **Status of the Existing Program**

The BLM tree improvement program has generated a substantial and important genetic information base for several conifer species. The data is significant to ecosystem management because it describes the nature and extent of genetic variation present for traits of the species.

Tree improvement programs function at a landscape level. Genetic diversity is continuous across the landscape and tree improvement programs are implemented at this level. Each program is a small ecologically similar area called a breeding unit. Most tree improvement programs are cooperatives with BLM and adjacent land owners. A cooperative structure is beneficial because it greatly increases the number of trees in the genetic base and the trees are located across a broader geographic area. Program costs are shared among cooperators which is more efficient. BLM is cooperating in more than fifty breeding units which include several million acres of forest land in Western Oregon.

The following accomplishments summarize the status of the program.

- ◆ Several conifer species (Douglas-fir, western white pine, sugar pine) have been selected for genetically controlled characteristics such as growth rate, form and resistance to disease.
- ◆ Field tests have been established using progeny of the selected trees. These progeny test sites have been measured at regular intervals.
- ◆ Seed orchards have been established using parent trees. The orchards are producing locally adapted seed for several major species (Douglas-fir, western hemlock, western red cedar, ponderosa pine, grand fir, noble fir, incense cedar).
- ◆ Each year improved seed is sown for replanting a portion of the harvested forest acres.
- ◆ The seed orchards are managed for seed production. Stimulation techniques are part of the management to encourage cone production. Trees which have slow growth in field tests or show undesirable characteristics are removed from the orchard. This practice is known as "roguing".
- ◆ Second generation programs have been initiated in some breeding units. Selection and breeding work is underway.
- ◆ Facilities for cone and seed processing and greenhouses for growing custom tailored lots of many species are located at the seed orchards.

# Proposed Program Direction

The future forest genetics program will be more complex under ecosystem management than under the previous management plans. Improvement of growth and disease resistance will continue as an important component of the forest genetics program. Gene conservation and gene resources management issues will be emphasized to a greater degree. Gene conservation is specific actions taken to conserve the genetic variation of a species. The purpose is to maintain the range of natural diversity within the species. Gene management is the integration of genetic principals into resource management actions. Ecosystems are complex and genetic diversity is important for all organism. Genetic principals must be considered when planning and implementing resource management projects so that genetic diversity is maintained.

The following is a summary of the direction for the forest genetics program.

- ◆ Progeny test sites will be maintained and measurements of growth and other characteristics will continue. Long term management plans for the sites will be developed.
- ◆ Seed orchards will be maintained and managed to produce seed as needed for ecosystem management projects.
- ◆ Improved stock will be planted on a portion of the harvested acres.
- ◆ Tree improvement programs have emphasized cooperative efforts for operational programs and research studies with state, private, and other government agencies. These partnerships will continue.
- ◆ Genetic expertise and genetically appropriate guidelines will be provided for ecosystem management implementation.
- ◆ A forest genetic plan will be prepared. It will include a strategy for gene conservation, maintenance of genetic diversity and definition of a monitoring baseline to quantify genetic variation.

# Appendix F

## Special Areas

### Introduction

This appendix management of areas that were dropped from consideration as areas of critical environmental concern.

### Identification and Screening of Candidate Areas of Critical Environmental Concerns

During the initial stages of the planning process, the public, BLM employees, and other government agencies identified 12 sites within the planning area with resource values that could meet criteria for areas of critical environmental concern. These identified areas became candidate areas. To be a potential area of critical environmental concern, a candidate area must meet both "importance" and "relevance" criteria. Each candidate area was screened by an interdisciplinary team to determine whether these criteria were met, and if met, the interdisciplinary team proposed boundaries and management objectives for the potential area of critical environmental concern. The interdisciplinary team recommendations were then submitted to the Area Manager for a decision and then to the District Manager for concurrence. The results of this process are summarized in the table below.

## Management of Candidate Areas of Critical Environmental Concerns Dropped from Consideration

Area Name	Acres Dropped	(Primary Values)	Managed For
Lower Goodlow Mountain	1,760	Plant communities related to Goodlow Mountain Research Natural Area.	No special management. Plant communities present on BLM lands do not differ appreciably from those already protected in the existing Research Natural Area.
Barnes Valley Creek	480	Scenic value, water quality concerns	Riparian reserve, 300 foot buffer either side of stream channel, Visual Resource Management Class II management, livestock controlled by fencing. Endangered Species Act protection for endangered sucker fish.
Alkali Lake	240	Riparian/Wetland	Special Botanical/Habitat area, open to off-highway vehicle use (no public access, actively pursue land exchange and legal access opportunities, mineral leasing subject to no surface occupancy, control grazing by fencing.
Clover Creek	30	Forest Education	Environmental Education Area, restricted timber harvest (Matrix) to manage and maintain for forest education values and forest health, off-highway vehicle limited, open to grazing use, mineral leasing subject to no surface occupancy.
Surveyor Forest Area	150	Education, Natural Processes	Designated Environmental Education Area administratively withdrawn) to receive special management attention. Not available for planned timber harvest, off-highway vehicle use limited, control grazing by fencing, mineral leasing subject to no surface occupancy.

## Management of Candidate Areas of Critical Environmental Concerns Dropped from Consideration (continued)

Area Name	Acres Dropped	(Primary Values)	Managed For
Tunnel Creek Wetlands	280	Natural System	Area to receive special management attention. Available for restricted timber harvest; off-highway vehicle use limited; control grazing by fencing; mineral leasing subject to no surface occupancy. Actively pursue cooperative land management or land exchange opportunities with private land. Area designated special Botanical/Habitat Area (Riparian Reserve and Late-Successional/District Designated Reserve).
The Bumpheads	50	Natural Systems, Scenic	Area to receive special management attention. Off-highway vehicle use limited; control grazing by fencing; mineral leasing subject to no surface occupancy. Area designated as an Special Botanical/Habitat Area.
Pacific Crest National	620	Natural Proces	Not designated as an area of critical environmental concern. Area to receive 50 foot no harvest buffer either side of trail plus 1/4 mile visual Resource Management Class II either side of trail. Closed to off-highway vehicle use; open to grazing use; mineral leasing subject to no surface occupancy.
Spencer Creek	320	Fisheries	Area to receive special management attention. Restricted timber harvest and grazing; closed to off-highway vehicles. Coordinated Resource Management Plan. Area within 300 foot either side of creek a Riparian Reserve. Visual Resource Management Class II 1/4 mile either side of creek. Watershed analysis to be completed. Mineral leasing subject to no surface occupancy.

# Appendix G

## Proposed Restrictions on Mineral and Energy Exploration and Development Activity

### Introduction

This appendix discusses the leasing stipulations as they will be applied to BLM managed lands in the planning area. Operating standards pertinent to the locatable and salable minerals program are also described. Mineral exploration and development on federal lands must also comply with laws and regulations administered by several agencies of the State of Oregon; however, these specific requirements are not discussed in this document.

Stipulations and operating standards pertaining to the No Action Alternative, Alternatives A through E, and the Preferred Alternative can be found in the Draft Resource Management Plan and Environmental Impact Statement.

### Leasable Mineral Resources

#### Oil and Gas Leasing

The Mineral Leasing Act of 1920 (as amended) provides that all publicly-owned oil and gas resources be open to leasing unless a specific land order has been issued to close the area. Through the land use planning process, the availability of these resources for leasing is analyzed, taking into consideration development potential and surface resources. Restrictions on oil and gas operations are identified and placed in the leases as notices and stipulations. Oil and gas leases are then issued from the BLM Oregon State Office in Portland. A leasing notice, and specific lease stipulations, for the Proposed Resource Management Plan are listed later in this appendix.

The issuance of a lease conveys to the lessee an authorization to actively explore and/or develop the lease, in accordance with the attached stipulations and the standard terms outlined in the Federal Onshore Oil and Gas Leasing Reform Act. Restrictions on oil and gas activities in the planning area will take the form of timing limitations, controlled surface use, or no surface occupancy stipulations used at the discretion of the Authorized Officer to protect identified surface resources of special concern.

Stipulations will be attached to each lease before it is offered for sale by the field office which reviews the lease tract. The review will be conducted by consulting the direction given in this proposed resource management plan. In addition, all lands administered by BLM within the planning area will be subject to the lease notice as shown on the following pages. Every attempt will be made to place stipulations in the lease and to minimize use of Standard Conditions of Approval attached to the site specific permit. All federal lessees or operators are required to follow procedures set forth by: Onshore Oil and Gas Orders, Notices to Lessees, The Federal Oil and Gas Royalty Management Act (as amended), The Federal Onshore Oil and Gas Leasing Reform Act and Title 43 Code of Federal Regulations, Part 3100.

# **Oil and Gas Operations**

## **Geophysical Exploration**

Geophysical operations may be conducted regardless of whether the land is leased or not. Notices to conduct geophysical operations on BLM surface are received by the resource area. Administration and surface protection are accomplished through close cooperation of the operator and the BLM. Seasonal restrictions may be imposed to reduce fire hazards, conflicts with wildlife, watershed damage, etc. An operator is required to file a "Notice of Intent to Conduct Oil and Gas Exploration Operations" for all geophysical activities on public land administered by BLM. The notice should adequately show the location and access routes, anticipated surface damages, and time frame. The operator is required to comply with written instructions and orders given by the Authorized Officer, and must be bonded. Signing of the Notice of Intent by the operator signifies agreement to comply with the terms and conditions of the notice, regulations, and other requirements prescribed by the Authorized Officer. A pre-work conference and/or site inspection may be required. Periodic checks during and upon completion of the operations will be conducted to ensure compliance with the terms of Notice of Intent, including reclamation.

## **Drilling Permit Process**

The federal lessee or operating company selects a drill site based on spacing requirements, subsurface and surface geology, geophysics, topography, and economic considerations. Well spacing is determined by the authorized officer after considering topography, reservoir characteristics, protection of correlative rights, potential for well interference, interference with multiple use of lands, and protection of the surface and subsurface environments. Close coordination with the State will take place. Written field spacing orders are issued for each field. Exceptions to spacing requirements involving federal lands may be granted after joint State and BLM review.

## **Notice of Staking**

Once the company makes the decision to drill, they must decide whether to submit a Notice of Staking or apply directly for a permit to drill. The Notice of Staking is an outline of what the company intends to do, including a location map and sketched site plan. The Notice of Staking is used to review any conflicts with known critical resource values and to identify the need for associated rights-of-way and special use permits. The BLM utilizes information contained in the Notice of Staking and obtained from the on-site inspection to develop conditions of approval to be incorporated into the application for permit to drill. Upon receipt of the Notice of Staking, the BLM posts the document and pertinent information about the proposed well in the District Office for a minimum of 30 days prior to approval, for review and comment by the public.

## **Application for Permit to Drill**

The operator may or may not choose to submit a Notice of Staking; in either case, an Application for Permit to Drill must be submitted prior to drilling. An application for permit to drill consists of two main parts; a 12 point surface plan which describes any surface disturbances and is reviewed by resource specialists for adequacy with regard to lease stipulations designed to mitigate impacts to identified resource conflicts with the specific proposal, and an 8 point subsurface plan which details the drilling program and is reviewed by the staff petroleum engineer and/or geologist. This plan includes provisions for casing, cementing, well control, and other safety requirements. For the application for permit to drill option, the on-site inspection is used to assess possible impacts, and develop stipulations to minimize these impacts. If the Notice of Staking option is not utilized, the 30 day posting period begins with the filing of the application for permit to drill. Private surface owner input is actively solicited during the application for permit to drill stage.

## **Geothermal Leasing**

The Geothermal Steam Act of 1970 (as amended) provides for the issuance of leases for the development and utilization of geothermal steam and associated geothermal resources. Geothermal leasing and operational

regulations are contained in Title 43 Code of Federal Regulations, Part 3200. Through the land use planning process the availability of the geothermal resources for leasing is analyzed, taking into consideration development potential and surface and subsurface resources. Restrictions on geothermal operations are identified and placed in the leases as stipulations. Geothermal leases are then issued by the BLM Oregon State Office in Portland.

Geothermal resources within a known geothermal resource area are offered by competitive sale. Outside of known geothermal resource areas, leases can be issued non-competitively (over-the-counter). Prior to a competitive lease sale, or the issuance of a non-competitive lease, each tract will be reviewed, and appropriate lease stipulations will be included. The review will be conducted by consulting the direction given in this resource management plan. The issuance of a lease conveys to the lessee authorization to actively explore and/or develop the lease in accordance with regulations and lease terms and attached stipulations. Subsequent lease operations must be conducted in accordance with the regulations, Geothermal Resources Operational Orders, and any Conditions of Approval developed as a result of site-specific National Environmental Policy Act analysis. In the planning area, restrictions in some areas will include timing limitations, controlled surface use, or no surface occupancy stipulations used at the discretion of the Authorized Officer to protect identified surface resources of special concern.

In addition to restrictions related to the protection of surface resources, the various stipulations and conditions could contain requirements related to protection of subsurface resources. These may involve drainage protection of geothermal zones, protection of aquifers from contamination, or assumption of responsibility for any unplugged wells on the lease.

Development of geothermal resources can be done only on approved leases. Orderly development of a geothermal resource from exploration to production involves several major phases that must be approved separately. Each phase must undergo the appropriate level of National Environmental Policy Act compliance before it is approved and subsequent authorization(s) are issued.

## Leasing Notice and Stipulation Summary

On the following pages, the mineral leasing notice and stipulations for the Proposed Resource Management Plan are shown. In addition to the notice and stipulations, the standard leasing terms (Form 3100-11) will be used. The powersite stipulation (Form 3730-1) will be used on lands within powersite reservations.

Stipulations also can include waivers, exceptions, and modifications. Stipulations that involve an issue of major concern can be waived, excepted, or modified only with at least a 30-day public review (43 CFR 3101.1-4). Waiver, exception, and modification are defined as follows:

- ◆ Waiver - The lifting of a stipulation from a lease which constitutes a permanent revocation of the stipulation from that time forward.
- ◆ Exception - This is a one time lifting of the stipulation to allow a permitting activity for a specific proposal. This is a case-by-case exemption. The stipulation continues to apply to all other sites within the leasehold to which the restrictive criteria apply.
- ◆ Modification - This is either a temporary or permanent change to the provisions of a lease stipulation. A modification may, therefore, include an exemption from or alteration to a stipulated requirement. Depending on the specific modification, the stipulation may or may not apply to all other sites within the leasehold to which the restrictive criteria apply.

Throughout the alternatives, the no surface occupancy stipulation is used rather than not leasing, because leasable minerals, if present, can be produced from most, if not all of each of the parcels that are subject to this stipulation without impacting the value(s) needing protection.

Whenever a special stipulation, such as no surface occupancy, timing, controlled surface use, or special status species is used, the need for the special stipulation is described in the objective that follows the stipulation. By

## **Appendix G - Proposed Restrictions on Mineral and Energy Exploration & Development Activity**

imposing these special stipulations, it has been concluded that less restrictive stipulations would not be adequate to meet the stated objective.

Lease notices are attached to leases in the same manner as stipulations; however, there is an important distinction between lease notices and stipulations. Lease notices do not involve new restrictions or requirements. Any requirements contained in a lease notice must be fully supported by laws, regulations, policies, onshore oil and gas orders, or geothermal resources operational orders.

# **Leasing Notice and Stipulations for the Proposed Resource Management Plan**

## **Leasing Notice (for all leases)**

**Cultural Resources:** An inventory of the leased lands may be required prior to surface disturbance to determine if cultural resources are present and to identify needed mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator shall:

1. Contact the Bureau of Land Management (BLM) to determine if a cultural resource inventory is required. If an inventory is required, then;
2. The BLM will complete the required inventory; or the lessee or operator, at their option, may engage the services of a cultural resource consultant acceptable to the BLM to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the standard ten-acre minimum to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the BLM for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface-disturbing operation is submitted.
3. Implement mitigation measures required by the BLM. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as data recovery and extensive recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the BLM, surface occupancy on that area must be prohibited. The lessee or operator shall immediately bring to the attention of the BLM, any cultural resources discovered as a result of approved operations under this lease, and shall not disturb such discoveries until directed to proceed by the BLM.

**Authorities:** Compliance with Section 106 of the National Historic Preservation Act is required for all actions which may affect cultural properties eligible to the National Register of Historic Places. Also, compliance with the Archaeological Resources Protection Act and the Native American Graves Protection Act is required. Section 6 of the Oil and Gas Lease Terms (Form 3100-11) requires that operations be conducted in a manner that minimizes adverse impacts to cultural and other resources.

## **Leasing Stipulations**

### **Standard Leasing Terms**

Standard leasing terms for oil and gas are listed in Section 6 of Offer to Lease and Lease for Oil and Gas, Form 3100-11. They are:

Lessee shall conduct operations in a manner that minimizes adverse impacts to the land, air and water, to cultural, biological, visual and other resources, and to other land uses or users. Lessee shall take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with lease rights granted, such measures may include, but are not limited to, modification to siting or design of facilities,

timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way. Such uses shall be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee.

Prior to disturbing the surface of the leased lands, lessee shall contact BLM to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessee may be required to complete minor inventories or short-term special studies under guidelines provided by lessor. If in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee shall immediately contact lessor. Lessee shall cease any operations that would result in the destruction of such species or objects until appropriate steps have been taken to protect the site or recover the resources as determined by BLM in consultation with other appropriate agencies.

Standard terms for geothermal leasing can be found on Offer to Lease and Lease for Geothermal Resources (Form 3200-24), Section 6, and are very similar to those described above for oil and gas leasing.

## **Powersite Stipulation (Form No. 3730-1) (to be used on all lands within powersite reservations.)**

### **Special Leasing Stipulations**

The following special stipulations are to be utilized on specifically designated tracts of land as described below:

#### **Special Status Species (to be attached to all leases)**

##### **Resources: Botany and Wildlife**

Stipulation: Lands within this lease may be within the suitable habitat of the Federal Threatened, Endangered or Proposed Threatened and Proposed Endangered species, either officially listed or proposed for listing as Threatened or Endangered species. These species are listed on Tables 3-22 and 3-23. If it is determined through an environmental review process that these species or their habitat exist within this lease, all future operations will be analyzed and subjected to a U.S. Fish and Wildlife Service or National Marine Fisheries Service Section 7 consultation or conference to ensure the action is not likely to jeopardize the continued existence of the species or result in the destruction or adverse modification of critical habitat.

Lands within this lease may bear some or all of the species listed on Tables 3-22 and 3-23 which have protected status as State Threatened; State Endangered; Federal Candidate; Bureau Sensitive or are within the suitable habitat of these species. These species are protected by BLM policy as described in Manual 6840. All future post-lease operations must be analyzed, utilizing recent field data collected at the proper time of year, to identify the presence of such species. If the field examination indicates that the proposed activity may adversely impact Federal candidate species, technical assistance will be obtained from the Fish and Wildlife Service to insure that the actions will not contribute to the need to list a Federal Candidate as a Federal Threatened or Endangered species. Technical assistance may be obtained from the Fish and Wildlife Service or the National Marine Fisheries Service to ensure that actions will not contribute to the need to list a State threatened, State endangered, or Bureau Sensitive species as a Federal Threatened or Endangered species.

Therefore, prior to any surface disturbing activities or even the use of vehicles off existing roads on this lease, BLM approval is required. This restriction also applies to geophysical activities for which a permit is required. The approval is contingent upon the results of site-specific inventories for any of the above mentioned species. The timing of these inventories is critical. They must be conducted at a time of year appropriate to determine the presence of the species or its habitat. The lessee is hereby notified that the process may take longer than the normal 30 days and that surface activity approvals may be delayed.

If no Federal threatened, Federal endangered, Proposed threatened, or Proposed endangered species, or suitable habitat for such species, are found during the inventories, then no formal Section 7 consultation with the

## **Appendix G - Proposed Restrictions on Mineral and Energy Exploration & Development Activity**

Fish and Wildlife Service or the National Marine Fisheries Service will be necessary, and the action will be processed using the procedures found in the applicable Oil and Gas Onshore Orders or Geothermal Resources Operational Orders. However, the lessee is hereby notified that, if any Federal threatened, Federal endangered, Proposed threatened, Proposed endangered, State threatened, State endangered, Federal candidate, or Bureau sensitive species are found during the inventories, or if the actions are proposed in designated or proposed critical habitat, then surface disturbing activities may be prohibited on portions of, or even all of the lease, unless an alternative is available that meets all of the following criteria: (a) The proposed action is not likely to jeopardize the continued existence of a threatened or endangered species; (b) The proposed action is not likely to destroy or adversely modify critical habitat for a threatened or endangered species; (c) The proposed action is consistent with the recovery needs in approved Fish and Wildlife Service or National Marine Fisheries Service recovery plans or BLM Habitat Management Plans for the threatened or endangered species; and (d) The proposed action will not contribute to the need to list species as Federal Threatened or Endangered.

**Objective:** To protect officially listed or proposed threatened or endangered plant or wildlife species; and to ensure that post leasing oil and gas or geothermal operations will not likely contribute to the need to list other special status species as threatened or endangered.

**Exception:** An exception may be granted by the Authorized Officer if it is determined that portions of the area do not have any officially listed or proposed threatened or endangered species, Federal Candidate, State Threatened or Endangered species, or Bureau Sensitive species, or their habitat.

**Waiver:** This stipulation may be waived if the species is declared recovered and is no longer protected under the Endangered Species Act, or if other species found within the lease are no longer considered to be in the Federal Candidate, State Threatened or Endangered, or Bureau Sensitive categories.

### **No Surface Occupancy**

A 30-day public notice period will be required prior to modification or waiver of this stipulation.

**Resource:** Riparian Reserves

**Stipulation:** Surface occupancy and use are prohibited within Riparian Reserves.

**Objective:** To meet the objectives of the Aquatic Conservation Strategy in order to protect the health of aquatic systems and their dependent species, including upland species that benefit from these areas.

**Exception:** An exception to this stipulation may be granted by the authorized officer if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be mitigated so that the objectives of the Aquatic Conservation Strategy can be met.

**Modification:** The boundaries of the stipulated area may be modified if the Riparian Reserve boundaries are modified.

**Waiver:** This stipulation may be waived if it is determined that the leasehold no longer contains land that meets Riparian Reserve criteria.

### **No Surface Occupancy**

**Resource:** Bly Sanitary Landfill

**Stipulation:** Surface occupancy and use is prohibited on the Bly Sanitary Landfill Recreation and Public Purposes Act lease.

**Objective:** To protect uses on the existing Recreation and Public Purposes Act lease.

**Exception:** An exception to this stipulation may be granted by the Authorized Officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The area affected by this stipulation may be modified by the Authorized Officer if the land use authorization boundaries are modified.

Waiver: This stipulation may be waived by the Authorized Officer if all land use authorizations within the leasehold have been terminated, canceled, or relinquished.

### **No Surface Occupancy**

A 30-day public notice period may be required prior to exception, modification, or waiver of this stipulation.

Resource: Recreation Sites (Gerber, Topsy, Surveyor Mountain, Klamath River rafting put-in)

Stipulation: Surface occupancy and use is prohibited within developed recreation sites.

Objective: To protect developed recreation sites.

Exception: An exception to this stipulation may be granted by the Authorized Officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The boundaries of the stipulated area may be modified by the Authorized Officer if the recreation site boundaries are changed.

Waiver: This stipulation may be waived if the Authorized Officer determines that the entire leasehold no longer contains developed recreation areas.

### **No Surface Occupancy**

Resource: Progeny test sites (Cold-Johnson, Long Point, Buck Swamp, Gerber Road, and North Willow Spring)

Stipulation: Surface occupancy and use is prohibited within progeny test sites.

Objective: To protect progeny test sites.

Exception: An exception to this stipulation may be granted by the Authorized Officer if the operator submits a plan demonstrating that the impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The boundaries of the stipulated area may be modified by the Authorized Officer if the progeny test site boundaries are changed.

Waiver: This stipulation may be waived if the Authorized Officer determines that the entire leasehold no longer contains progeny test sites.

### **No Surface Occupancy**

Resource: Native American Religious Sites

Stipulation: Surface occupancy and use is prohibited within the Yainax Butte and Olene Native American religious sites.

Objective: To protect important Native American religious sites.

Exception: An exception to this stipulation may be granted by the authorized officer if, after consultation with the appropriate tribe(s), it has been determined that the proposed action is compatible with the religious use of the site.

Modification: The boundaries of the stipulated area may be modified by the authorized officer if the religious site boundaries are changed by the appropriate tribe(s).

## ***Appendix G - Proposed Restrictions on Mineral and Energy Exploration & Development Activity***

Waiver: This stipulation may be waived if the religious sites are abandoned and if, after consultation with the appropriate tribe(s), it is determined that impacts from subsequent surface occupancy are acceptable or can be mitigated adequately.

### **No Surface Occupancy**

A 30-day public notice period will be required prior to exception, modification, or waiver of this stipulation.

Resource: Pacific Crest National Scenic Trail Special Recreation Management Area

Stipulation: Surface occupancy and use is prohibited within 50 feet of the Pacific Crest National Scenic Trail.

Objective: To protect recreational qualities, including scenery, and enhance recreational opportunities.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of the area no longer are suitable for inclusion in the special recreational management area.

Waiver: This stipulation may be waived by the authorized officer if it is determined that the leased lands no longer qualify for special recreation management area designation.

### **No Surface Occupancy**

A 30-day public notice period will be required prior to exception, modification, or waiver of this stipulation.

Resource: Upper Klamath River Area of Critical Environmental Concern

Stipulation: Surface occupancy and use is prohibited within the Upper Klamath River Area of Critical Environmental Concern.

Objective: To protect historic, cultural, scenic, fisheries, and wildlife resources.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The boundaries of the stipulated area may be modified if the area of critical environmental concern boundaries are modified.

Waiver: This stipulation may be waived if the area of critical environmental concern designation is lifted.

### **No Surface Occupancy**

A 30-day public notice period will be required prior to exception, modification, or waiver of this stipulation.

Resource: Miller Creek Area of Critical Environmental Concern

Stipulation: Surface occupancy and use is prohibited within the Miller Creek Area of Critical Environmental Concern.

Objective: To protect scenic and wildlife resources and natural processes.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The boundaries of the stipulated area may be modified if the area of critical environmental concern boundaries are modified.

Waiver: This stipulation may be waived if the area of critical environmental concern designation is lifted.

### **No Surface Occupancy**

A 30-day public notice period will be required prior to exception, modification, or waiver of this stipulation.

Resource: Yainax Butte Area of Critical Environmental Concern

Stipulation: Surface occupancy and use is prohibited within the Yainax Butte Area of Critical Environmental Concern.

Objective: To protect natural systems.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The boundaries of the stipulated area may be modified if the area of critical environmental concern boundaries are modified.

Waiver: This stipulation may be waived if the area of critical environmental concern designation is lifted.

### **No Surface Occupancy**

Resource: Spencer Creek Off-Highway Vehicle Closure (This area is within a Riparian Reserve)

Stipulation: Access, travel, and drill site construction will be limited to established roads.

Objective: To protect important scenic, fisheries, and riparian resources.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the resource values.

Waiver: None

### **No Surface Occupancy**

A 30-day public notice period will be required prior to exception, modification, or waiver of this stipulation.

Resource: Clover Creek Forest Educational Special Management Area

Stipulation: Surface occupancy and use is prohibited within the Clover Creek Forest Educational Special Management Area.

Objective: To protect an educationally-important natural forest stand.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: This stipulation may be modified if the boundaries of the educational area change, or portions of the educational area can be used without adverse, unmitigable impacts.

## ***Appendix G - Proposed Restrictions on Mineral and Energy Exploration & Development Activity***

Waiver: This stipulation may be waived if it is determined that the leasehold no longer contains important forest-related educational opportunities.

### **No Surface Occupancy**

Resource: Surveyor Forest Special Management Area (This area is within a Late-Successional/District Designated Reserve)

Stipulation: Surface occupancy and use is prohibited within the Surveyor Forest Special Management Area.

Objective: To protect natural processes, scenic and wildlife resources, and educational opportunities.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: This stipulation may be modified if the boundaries of the special management area change, or portions of the area can be used without adverse, unmitigable impacts.

Waiver: This stipulation may be waived if it is determined that the leasehold no longer contains land that meets special management area criteria.

### **No Surface Occupancy**

Resource: Bumpheads Special Management Area

Stipulation: Surface occupancy and use is prohibited within the Bumpheads Special Management Area.

Objective: To protect geologic and scenic values, and natural systems.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: This stipulation may be modified if the boundaries of the special management area change, or portions of the area can be used without adverse, unmitigable impacts.

Waiver: This stipulation may be waived if it is determined that the leasehold no longer contains land that meets special management area criteria.

### **No Surface Occupancy**

A 30-day public notice period will be required prior to exception, modification, or waiver of this stipulation.

Resource: Old Baldy Research Natural Area

Stipulation: Surface occupancy and use is prohibited within the Old Baldy Research Natural Area.

Objective: To protect scenic resources and natural processes.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: This stipulation may be modified if the boundaries of the research natural area change, or portions of the area can be used without adverse, unmitigable impacts.

Waiver: This stipulation may be waived if it is determined that the leasehold no longer contains land that meets research natural area criteria.

## **No Surface Occupancy**

Resource: Alkali Lake Special Management Area (This area is within a Riparian Reserve)

Stipulation: Surface occupancy and use is prohibited within the Alkali Lake Special Management Area.

Objective: To protect wetlands and wildlife habitat.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: This stipulation may be modified if the authorized officers determines that climatic, soil, and moisture conditions are such that seasonal occupancy may be permitted.

Waiver: This stipulation may be waived if it is determined that the leasehold no longer contains wetland values.

## **No Surface Occupancy**

A 30-day public notice period will be required prior to exception, modification, or waiver of this stipulation.

Resource: Tunnel Creek Wetlands Special Management Area (This area is within a Riparian Reserve and/or Late-Successional/District Designated Reserve)

Stipulation: Surface occupancy and use is prohibited within the Tunnel Creek Wetlands Special Management Area.

Objective: To protect natural processes and riparian and wildlife resources.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: This stipulation may be modified if the authorized officers determines that climatic, soil, and moisture conditions are such that seasonal occupancy may be permitted.

Waiver: This stipulation may be waived if it is determined that the leasehold no longer contains wetland values.

## **No Surface Occupancy**

A 30-day public notice period will be required prior to exception, modification, or waiver of this stipulation.

Resource: Late-Successional/District Designated Reserves

Stipulation: No surface occupancy will be allowed within Late-Successional/District Designated Reserves.

Objective: To retain and/or restore old growth forest and habitat diversity.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of the area do not include Late-Successional/District Designated Reserves.

Waiver: This stipulation may be waived by the authorized officer if it is determined that the entire leasehold no longer includes Late-Successional/District Designated Reserves.

## ***Appendix G - Proposed Restrictions on Mineral and Energy Exploration & Development Activity***

### **Timing Limitation**

Resource: Wildlife - Bald and Golden Eagle Nest Sites and Nesting Habitat

Stipulation: Surface occupancy and use is prohibited from January 1 to August 15, within mile of known bald and golden eagle nest sites and nesting habitat.

Objective: To protect bald and golden eagle nesting sites and/or nesting habitat.

Exception: An exception may be granted by the Authorized Officer if the operator submits a plan which demonstrates that the proposed action will not affect the bald/golden eagle or its habitat. If the Authorized Officer determines that the action may or will have an adverse effect on the species, the operator may submit a plan demonstrating that the impacts can be mitigated adequately. This plan must be approved by BLM in consultation with the US Fish and Wildlife Service.

Modification: The boundaries of the stipulated area may be modified if the Authorized Officer, in consultation with US Fish & Wildlife Service, determines that portion of the area can be occupied without adversely affecting bald/golden eagle nest sites or nesting habitat.

Waiver: This stipulation may be waived if the Authorized Officer, in consultation with US Fish & Wildlife Service, determines that the entire leasehold can be occupied without adversely affecting bald/golden eagle nest sites or nesting habitat, or if the bald eagle is declared recovered and is no longer protected.

### **Timing Limitation**

Consultation with the Oregon Department of Fish and Wildlife will be required prior to exception, modification, or waiver of this stipulation.

Resource: Wildlife, Critical Deer/Elk Winter Range

Stipulation: Surface use is prohibited from November 20 to April 1 within critical deer/elk winter range. This stipulation does not apply to the operation or maintenance of production facilities.

Objective: To protect critical deer/elk winter range from disturbance during the winter use season, and to facilitate long-term maintenance of deer/elk populations.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer contain critical winter range. This stipulation can be expanded to cover additional portions of the lease if additional critical habitat areas are identified, or if habitat use areas change. The dates for the timing restriction may be modified if new wildlife use information indicates that the November 20 to April 15 dates are not valid for the leasehold.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold no longer contains critical winter range for deer/elk.

### **Timing Limitation**

Consultation with the Oregon Department of Fish and Wildlife will be required prior to exception, modification or waiver of this stipulation.

Resource: Wildlife - Osprey Nest Sites

Stipulation: Surface occupancy and use is prohibited from May 1 to August 1, within mile of known osprey nest sites.

Objective: To protect osprey nest sites.

Exception: An exception may be granted by the Authorized Officer if the operator submits a plan which demonstrates that the proposed action will not affect the osprey or its nest site.

Modification: The boundaries of the stipulated area may be modified if the Authorized Officer determines that a portion of the area can be occupied without adversely affecting the osprey or its nest site.

Waiver: This stipulation may be waived if the Authorized Officer determines that there is no longer osprey nesting habitat on the leasehold.

### **Timing Limitation**

Resource: Wetlands (See table 3-19 in Chapter 3 for legal descriptions)

Stipulation: Surface occupancy and use is prohibited from November 1 to July 15, on wetlands.

Objective: To protect wetland vegetation and wildlife habitat

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: This stipulation may be modified if the authorized officers determines, on a wetland by wetland basis, that a shorter time limitation will adequately protect the wetland values.

Waiver: This stipulation may be waived if it is determined that the leasehold no longer contains wetland values.

### **Timing Limitation**

Consultation with the Oregon Department of Fish and Wildlife will be required prior to exception, modification, or waiver of this stipulation.

Resource: Wildlife - Western Sage Grouse lek sites

Stipulation: Surface occupancy and use is prohibited from March 1 to May 1 within mile of known western sage grouse lek sites.

Objective: To protect lek sites.

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the sage grouse or its lek site.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that a portion of the area can be occupied without adversely affecting the sage grouse or its lek site.

Waiver: This stipulation may be waived if the authorized officer determines that there is no longer a lek site on the leasehold.

### **Controlled Surface Use**

Resource: Soils, Water

Stipulation: Prior to disturbance of slopes over 60 percent, an engineering/reclamation plan must be approved by the authorized officer. Such plan must demonstrate how the following will be accomplished:

- ◆ Site productivity will be restored.
- ◆ Surface runoff will be adequately controlled.

## **Appendix G - Proposed Restrictions on Mineral and Energy Exploration & Development Activity**

- ◆ Off-site areas will be protected from accelerated erosion, such as rilling, gullying, piping, and mass wasting.
- ◆ Water quality and quantity will be in conformance with state and federal water quality laws.
- ◆ Surface-disturbing activities will not be conducted during extended wet periods.
- ◆ Construction will not be allowed when soils are frozen.

Objective: To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes, and to avoid areas having excessive reclamation problems.

Exception: An exception to this stipulation may be granted by the Authorized Officer if the operator submits a plan which demonstrates that the impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The area affected by this stipulation may be modified by the authorized officer if it is determined that slopes over 60 percent in the area are not subject to excessive erosion and do not have excessive reclamation problems.

Waiver: This stipulation may be waived by the Authorized Officer if it is determined that the entire leasehold does not include slopes over 60 percent.

### **Controlled Surface Use**

Resource: Visual Resource Management Class II.

Stipulation: All surface-disturbing activities, semipermanent and permanent facilities in Visual Resource Management Class II areas may require special design including location, painting and camouflage to blend with the natural surroundings and meet the visual quality objectives for the area.

Objective: To control the visual impacts of activities and facilities within acceptable levels.

Exception: None.

Modification: None.

Waiver: This stipulation may be waived if the Authorized Officer determines that there are no longer Visual Resource Management Class II areas in the leasehold.

### **Controlled Surface Use**

A 30-day public notice period will be required prior to exception, modification, or waiver of this stipulation.

Resource: Klamath River Complex Special Recreation Management Area

Stipulation: Drill site construction and access within the Klamath River Complex Special Recreation Management Area will be limited to established roadways.

Objective: To protect recreational qualities and enhance recreational opportunities.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of the area no longer are suitable for inclusion in the special recreational management area.

Waiver: This stipulation may be waived by the authorized officer if it is determined that the leased lands no longer qualify for special recreation management area designation.

## **Controlled Surface Use**

Resource: Lower Klamath Hills Wildlife Area

Stipulation: Access, travel, and drill site construction will be limited to established roads.

Objective: To protect important wildlife habitat.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the wildlife habitat.

Waiver: This stipulation may be waived if the area no longer considered to contain important wildlife habitat.

## **Controlled Surface Use**

A 30-day public notice period will be required prior to exception, modification, or waiver of this stipulation.

Resource: Upper Klamath River - Segment 2 - Suitable Scenic River

Stipulation: Exploration activities, including drilling and access, within mile of the normal high water mark on each side of the river, or from rim to rim, whichever is greater, will be limited to established roadways.

Objective: To minimize surface disturbance, water sedimentation and pollution, and visual impairment.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of the area no longer are suitable for designation as scenic.

Waiver: This stipulation may be waived by the authorized officer if it is determined that the leased lands no longer contain a river designated as scenic.

## **Controlled Surface Use**

Consultation with the Oregon Department of Fish and Wildlife will be required prior to exception, modification, or waiver of this stipulation.

Resource: Critical deer/elk winter range

Stipulation: New connecting or through roads in critical deer/elk winter range will not be allowed.

Objective: To protect critical deer/elk winter habitat

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: A portion or portions of the leased lands can be opened to connecting or through roads if the authorized officer determines the area is no longer effective as habitat and is not used as winter range. This stipulation can be expanded to cover additional portions of the lease if additional critical habitat areas are identified, or if habitat use areas change.

Waiver: This stipulation can be waived if the habitat is no longer effective and is not used as winter habitat anywhere within the leasehold.

## ***Appendix G - Proposed Restrictions on Mineral and Energy Exploration & Development Activity***

### **Controlled Surface Use**

Resource: Stukel Mountain Special Recreation Management Area

Stipulation: Drill site construction and access within the Stukel Mountain Special Recreation Management Area will be limited to established roadways.

Objective: To protect recreational qualities and enhance recreational opportunities.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of the area no longer are suitable for inclusion in the special recreational management area.

Waiver: This stipulation may be waived by the authorized officer if it is determined that the leased lands no longer qualify for special recreation management area designation.

### **Controlled Surface Use**

Resource: Swan Lake Rim Area-Roads

Stipulation: Access, travel, and drill site construction will be limited to established roads in the Swan Lake Rim Area.

Objective: To protect important scenic and wildlife resources, and to enhance recreational opportunities.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be mitigated adequately.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the resource values.

Waiver: This stipulation may be waived if the off-road vehicle restriction is no longer needed.

### **Controlled Surface Use**

A 30-day public notice period will be required prior to exception, modification, or waiver of this stipulation.

Resource: Late-Successional/District Designated Reserve Buffers

Stipulation: Drill site construction and access in Late-Successional/District Designated Reserve Buffers within this leasehold will be limited to established roadways.

Objective: To maintain old growth habitat features in areas subject to planned timber harvest.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of the area do not include Late-Successional/District Designated Reserve Buffers.

Waiver: This stipulation may be waived by the authorized officer if it is determined that the entire leasehold no longer includes Late-Successional/District Designated Reserve Buffers.

# Locatable Minerals Surface Management in the Lakeview District

The following operational guidelines for mining activities have been compiled to assist the miner in complying with the 43 Code of Federal Regulations 3809, which apply to all mining operations on BLM administered lands. The manner in which the necessary work is to be done will be site specific and all of the following standards may not apply to each mining operation. It is the mining claimant's and operator's responsibility to avoid "unnecessary or undue degradation" and they must perform all necessary reclamation work. Refer to 43 Code of Federal Regulations 3809 for general requirements. The BLM will provide site specific guidelines for some mining proposals.

## Construction and Mining

### Vegetation Removal

Remove only that vegetation which is in the way of mining activities. On Oregon and California land merchantable timber must be marked by BLM prior to cutting, and may not be used for firewood. The same requirement is recommended for public land. It is recommended that small trees (less than 6 inches diameter at breast height) and shrubs are to be lopped and scattered, or shredded for use as mulch. Trees over 12 inches diameter at breast height should be bucked and stacked in an accessible location unless they are needed for the mining operation.

### Firewood

Firewood may not be cut and sold, or used off of the mining claims.

### Topsoil

All excavations should have all productive topsoil (usually the top 12 to 18 inches) first stripped, stockpiled and protected from erosion for use in future reclamation. This also includes removal of topsoil before the establishment of mining waste dumps and tailings ponds if the waste material will be left in place during reclamation.

### Roads

Existing roads and trails should be used as much as possible. Temporary roads are to be constructed to a minimum width and with minimum cuts and fills. All roads shall be constructed so as not to negatively impact slope stability.

### Water Quality

When mining will be in or near bodies of water, or sediment will be discharged, contact the Department of Environmental Quality. It is the operator's responsibility to obtain any needed suction dredging, stream bed alteration, or water discharge permits required by the Department of Environmental Quality or other state agencies. Copies of such permits shall be provided to the Area Manager if a Notice or Plan of Operations is filed.

### Claim Monuments

Due to the history of small wildlife deaths, plastic pipe is no longer allowed for lode claim staking pursuant to state law. It is recommended that existing plastic pipe monuments have all openings permanently closed. Upon loss or abandonment of the claim, all plastic pipe must be removed from the public lands, and when old markers are replaced during normal claim maintenance, they are to be either wood posts or stone or earth mounds, consistent with state law.

## ***Appendix G - Proposed Restrictions on Mineral and Energy Exploration & Development Activity***

### **Drill Sites**

Exploratory drill sites should be located next to or on existing roads when possible without blocking public access. When drill sites must be constructed, the size of the disturbance shall be as small as possible in order to conduct drilling operations.

### **Dust and Erosion Control**

While in operation, and during periods of temporary shut-down, exposed ground surfaces susceptible to erosion will need to be protected. This can be accomplished with seeding, mulching, installation of water diversions, and routine watering of dust producing surfaces.

### **Fire Safety**

All State fire regulations must be followed, including obtaining a campfire permit or blasting permit if needed. All internal combustion engines must be equipped with approved spark arresters.

### **Safety and Public Exclusion**

The general public may not be excluded from the mining claim. In the interest of safety, the general public can be restricted only from specific dangerous areas (underground mines, open pits or heavy equipment) by erecting fences, gates and warning signs. It is the operator's responsibility to protect the public from mining hazards. Gates or road blocks may be installed on existing or proposed roads only with the approval of the Area Manager.

### **Occupancy**

All structures/trailers on mining claims must be used for mining purposes (must be reasonably incident to mining) and should be covered by a notice or plan of operation. Use of such a structure for residential purposes not related to mining or for recreation is not authorized.

### **Suction Dredging**

Filing either Notice or Plan of Operations is required for any suction dredge operation where the dredge is equipped with a suction intake hose diameter of greater than four inches, and for all suction dredge operations involving more than one dredge regardless of size. The operator must have the applicable Department of Environmental Quality suction dredge permit prior to starting work, and a copy should be submitted to the Area Manager.

### **Tailings Ponds**

Settling ponds must be used to contain fines and any discharge into creeks must meet the Department of Environmental Quality standards.

### **Trash & Garbage**

Trash, garbage, used oil, etc. must be removed from public land and disposed of properly. Do not bury any trash, garbage or hazardous wastes on public lands. Accumulations of trash, debris, or inoperable equipment on public lands is viewed as unnecessary degradation and will not be tolerated.

### **Cultural and Paleontological Resources**

Operators shall not knowingly alter, injure, or destroy any scientifically important paleontological (fossil) remains or any historical or archaeological site, structure, or object on federal lands. The operator shall immediately bring to the attention of the Area Manager, any paleontological (fossil) remains or any historical or archaeological site, structure, or object that might be altered or destroyed by exploration or mining operations, and shall leave such discovery intact until told to proceed by the Area Manager. The Area Manager shall evaluate the discovery, take action to protect or remove the resource, and allow operations to proceed within 10 working days.

## **Threatened and Endangered Species of Plants/Animals**

Operators shall take such action as may be needed to prevent adverse impacts to threatened or endangered species of plants and animals and their habitat which may be affected by operations. Special status species (federal candidate/Bureau sensitive) of plants and animals, and their habitat, will be identified by the Area Manager, and shall be avoided wherever possible.

## **Reclamation**

Reclamation of all disturbed areas must be performed concurrently with mining, or as soon as possible after mining permanently ceases. Reclamation shall include, but shall not be limited to: 1) saving of topsoil for final application after reshaping of disturbed areas has been completed; 2) measures to control erosion, landslides, and water runoff; 3) measures to isolate, remove, or control toxic materials; 4) reshaping the area disturbed, application of topsoil, and revegetation of disturbed areas, where reasonably practicable; and 5) rehabilitation of fisheries and wildlife habitat. When reclamation of the disturbed area has been completed, except to the extent necessary to preserve evidence of mineralization, the Area Manager must be notified so that inspection of the area can be made.

## **Equipment and Debris**

All mining equipment, vehicles, structures, debris and trash must be removed from the public lands during periods of non-operation and/or at the conclusion of mining, unless authorization from the Area Manager is given to the operator or claimant in writing.

## **Backfilling & Recontouring**

The first steps in reclaiming a disturbed site are backfilling excavations and reducing high walls. Coarse rock material should be replaced first, followed by medium sized material, with fine materials to be placed on top. Recontouring means shaping the disturbed area so that it will blend in with the surrounding lands and minimize the possibility of erosion.

## **Seedbed Preparation**

Recontouring should include preparation of an adequate seedbed. This is accomplished by ripping or disking compacted soils to a depth of at least six inches in rocky areas and at least twelve inches in less rocky areas. This should be done following the contour of the land to limit erosion. All stockpiled settling pond fines, and then topsoil, are spread evenly over the disturbed areas.

## **Fertilizer**

The Area Manager must be contacted to determine if fertilization will be necessary, and if so, the type and rate of application.

## **Revegetation**

An Area Manager-approved revegetation prescription must be used to provide adequate revegetation for erosion control, wildlife habitat, and productive secondary uses of public lands.

## **Mulch**

As directed by the Area Manager, during review of the Notice or Plan of Operations, the disturbed area may require mulching during interim or final reclamation procedures. Depending on site conditions, the mulch may need to be punched, netted, or blown on with a tackifier to hold it in place. In some cases, erosion control blankets may be cost effective for use.

## **Roads**

After mining is completed, all new roads shall be reclaimed, unless otherwise specified by the Area Manager. High wall and cutbanks are to be knocked down or backfilled to blend with the surrounding landscape. Remove all culverts from drainage crossings and cut back the fill to the original channel. The roadbed should be ripped to a minimum depth of twelve inches to reduce compaction and provide a good seedbed. The road must then be fertilized and seeded if necessary. When necessary, waterbars are to be used to block access and provide drainage.

## **Tailings Ponds**

The ponds should be allowed to dry out and the fines removed and spread with the topsoil, unless the fines contain toxic materials. If the ponds contain toxic materials, a plan will be developed to identify, dispose, and mitigate effects of the toxic materials. If necessary, a monitoring plan will also be implemented. The ponds should then be backfilled and reclaimed.

# **Guidelines for Development of Salable Mineral Resources in the Lakeview District**

## **Proposed Operations**

All proposed pits and quarries, and any exploration that involves surface disturbance, are required to have operating and reclamation plans that must be approved by the Area Manager. All proposals will undergo the appropriate level of review and compliance with the National Environmental Policy Act.

## **Operating Procedures**

Where practicable, the following requirements should be made a part of every contract or permit providing for the use of mineral material sites on the district:

- ◆ Oversized boulders shall not be wasted but shall be broken and utilized concurrently with the excavated material.
- ◆ The operator shall comply with local and state safety codes covering quarry operations, warning signs and traffic control. All necessary permits must be obtained from state and county agencies.
- ◆ Use of the site for equipment storage and stockpiling rock material is allowed for the duration of the contract or permit. Use of the site beyond that time would be authorized under a special use permit.
- ◆ All topsoil shall be stockpiled or windrowed, as appropriate, for use in reclamation.
- ◆ Prior to abandonment, all material sites will be graded to conform with the surrounding topography. Oversize material that is not usable, and reject, will be placed in the bottom of the pit, graded, and the pit floor and cutslopes covered with topsoil. Reseeding, if necessary, will be done as prescribed by the Area Manager. Access roads no longer needed by the BLM will be abandoned and reclaimed as directed by the Area Manager.

## **Quarry Design**

Where in steep terrain in the operating area, quarry developments will require a series of benches to effectively maximize the amount of mineral materials to be removed in a safe manner. In most cases, bench height should not exceed forty feet, and if the bench will be used by bulldozers to access other parts of the quarry, the width of the bench should be at least twenty-five feet. If the bench is not used by equipment, then this width can be reduced to approximately ten feet.

Clearing of timber and brush should be planned at least ten feet beyond the edge of the excavation limit. Most often the brush will be piled and burned at the site, or scattered nearby.

If at all possible, all topsoil and overburden should be stockpiled and saved for eventual quarry site reclamation. These piles may need to be stabilized by seeding in order to minimize erosion during the winter months.

As a standard procedure, the excavation of the quarry floor should be designed with an outslope of approximately three percent in order to provide for adequate drainage of the floor. Compliance with this design should be made a requirement of all operators at the site.

# Appendix H

## Grazing Management and Rangeland Program Summary

### Introduction

This appendix has six major sections: Livestock Grazing Allotments, Potential Range Improvements by Allotment, Selective Management, Rangeland Monitoring and Evaluation, General Allowable Use Guidelines, and Grazing in Riparian-Wetland Areas.

### Livestock Grazing Allotments

The following tables summarize multiple-use information for each allotment in the resource area. Pertinent information is organized in four general sections: Allotment Identification, Grazing Administration, Identified Resource Conflicts/Concerns and Management Objectives, and Constraints.

**Allotment Identification.** This section of the tables identifies each allotment by name and allotment number. The Selective Management Category (M,I,C) is identified (See the section Selective Management for more information), type of livestock authorized, and acreage within the allotment (public and private) is provided.

**Grazing Administration Information.** This section provides basic information on the grazing license and other forage demands within the allotment including active preference, suspended nonuse, total preference, exchange-of-use, current season-of-use (No Action) and proposed season-of-use (Proposed Resource Management Plan), and estimated average forage use by major wildlife grazing species. All changes to these and other attributes of livestock grazing management will be made through the monitoring and evaluation process as outlined in the section Rangeland Monitoring and Evaluation.

Based on the preliminary evaluation of vegetative monitoring information by an interdisciplinary team, the following livestock grazing reductions are proposed as part of the Proposed Resource Management Plan (Allotments are listed by number, name, and category; the numbers reflect the animal unit months proposed reduction). The actual evaluation and implementation of these proposed reductions will be as outlined in the section Rangeland Monitoring and Evaluation and the applicable policies and regulations.

#### Stukel Mountain

0815 Stukel-Dehlinger (I)	90
0822 Jeld Wen (I)	60
0852 Rodgers (I)	74
0859 Cunard (I)	20

#### Gerber Block

0876 Bear Valley (I)	75
0889 Timber Hill (I)	145
0890 Willow Valley (I)	220

## **Appendix H - Grazing Management**

**Identified Resource Conflicts/Concerns and Management Objectives.** This section of the tables presents the major resource conflicts or concerns that have been identified in each allotment through public input and internal interdisciplinary team interactions. For each conflict/concern identified, a general management objective for its resolution has been developed. This section forms the basis for establishing or revising Allotment Management Plans (or equivalent) and for the further quantification of grazing related objectives during the implementation period for the Proposed Resource Management Plan. Upon completion of an Ecological Site Inventory on the Klamath Falls Resource Area, ecological status related objectives will be developed for all allotments. (an Ecological Site Inventory is currently not scheduled until after 1999.)

This section of the tables also forms the basis for the direct integration of other pertinent resource values into the allotment monitoring and evaluation process. The grazing use objectives and direction found in the section General Allowable Use Guidelines and Appendix F, best management practices will apply, as applicable, to all of the allotments within the resource area. The information in those sections/appendices is, thus, not reiterated in each allotment table.

**Constraints.** This section of the tables presents information and multiple-use constraints that may influence the nature and degree of change that can be implemented on the allotment through grazing management adjustments, rangeland improvements, or other potential management actions. This section also includes the identification of known areas that are excluded from general livestock grazing (that is riparian exclosures) for resource enhancement purposes. Note that this exclusion designation is not all inclusive, in that additional areas may be designated in the future. Conversely, any generally excluded area may be grazed in the future, as needed, to achieve specific resource objectives.

Potential Range Improvements at the end of the allotment tables section is a summary of the planned potential range improvements by allotment. This table, entitled Potential Range Improvements by Allotment outlines the types, numbers, and estimated costs of improvements that could reasonably be predicted at the time of issuance of this Proposed Resource Management Plan. During the life of the plan it is expected that some additional new projects will arise and that some of the listed potential projects will not be completed.

Over time, changes, additions, and adjustments to the tables in this appendix will be made through the Resource Area's Rangeland Program Summary Update found in the annual Planning Update. This summary will also outline pertinent accomplishments within the grazing and wild horse management programs, range improvements proposed and completed, changes/additions/adjustments to grazing related objectives, grazing management changes, allotment evaluation and activity planning results and efforts, and other grazing related items as they occur.

---

**Listing by Allotment Number**

---

Allotment Number	Allotment Name
0101	Chase Mountain
0102	Edge Creek
0103	Buck Mountain
0104	Buck Lake
0105	Johnson Prairie
0107	Dixie
0140	Dry Lake
0141	Chicken Hills
0142	Long Lake
0147	Grubb Springs
0800	Adams
0801	Haught
0802	Stock Drive
0803	J. Spring
0804	Bar CL
0805	SE 80
0806	Two Mile
0807	Barnwell
0808	Lee
0809	Brown
0810	Brenda
0811	Cheyne
0812	Stukel-Coffin
0813	Plum Hills
0814	Cunningham
0815	Stukel-Dehlinger C.
0816	Stukel-Dehlinger H.
0817	Drew
0818	Duncan
0819	Dupont
0820	Flesher
0821	North Horsefly
0822	Jeld-Wen
0823	North Horsefly
0824	Jeld-Wen
0825	Naylox
0826	Haskins
0827	Stukel-High
0828	Stukel-Hill
0829	Horton
0830	Hungry Hollow
0831	Warlow
0832	Jespersion
0833	Johnson
0834	Kellison
0835	Ketcham
0836	Harpold Chaining
0837	Bryant-Horton
0838	Windy Ridge

Allotment Number	Allotment Name
0839	Bryant-Loveness
0840	Bryant-Lyon
0841	Marshall
0842	Masten
0843	McAuliffe
0844	Paddock
0845	K-Hills-O'Connor
0846	OK
0847	Swede Cabin
0848	Pope
0849	Rajnus Bros.
0850	Wilkinson
0851	Harpold Ridge
0852	Rodgers
0853	7C
0854	Jump
0855	Bryant-Smith
0856	Bryant-Stastny
0857	Taylor
0858	Swan Lake Rlm
0859	Cunard
0860	McCartie
0861	Yainax Butte
0862	Klamath Forest Estate
0863	Wirth
0864	Rajnus & Son
0865	Mills Creek
0876	Bear Valley
0877	Bumpheads
0878	Campbell
0879	Devaul
0881	Goodlow
0882	Horsefly
0883	Horton
0884	Pankey Basin
0885	Dry Prairie
0886	Horse Camp Rim
0887	Pitchlog
0888	Rock Creek
0889	Timber Hill
0890	Willow Valley
0892	Williams
0893	Fields
0894	Voight
0895	Harpold Canyon
0896	McFall



# Management Summaries By Allotment

Allotment Name: Chase Mountain  
 Allotment Number: 0101  
 Public Acres: 8,823

Management Category: C  
 Livestock Kind: Cattle  
 Other Acres: 19,680

## Grazing Administration Info. (AUMs)

Active Preference: 195  
 Suspended Nonuse: 0  
 Total Preference: 195  
 Exchange of Use: 239  
 Total: 434

## Other Forage Demands (AUMs)

Deer: 1,681  
 Elk: 0  
 Antelope: 0  
 Horses: 0  
 Total: 1,681

**Season of Use:** 5/15 - 8/13

## Identified Resources Conflicts/Concerns

None

## Management Objectives

## Constraints

The grazing lease for BLM lands (and the exchange of use listed) within this allotment is dependent on and tied to the intermingled private land grazing lease (Weyerhaeuser Company).

Allotment Name: Edge Creek  
 (Ward, Edge Creek & North Pastures)  
 Allotment Number: 0102  
 Public Acres: 8,860

Management Category: I  
 Livestock Kind: Cattle  
 Other Acres: 29,400

## Grazing Administration Info. (AUMs)

Active Preference: 207  
 Suspended Nonuse: 0  
 Total Preference: 207  
 Exchange of Use: 349  
 Total: 556

## Other Forage Demands (AUMs)

Deer: 1,681  
 Elk: 100  
 Antelope: 0  
 Horses: 100  
 Total: 1,881

## Season of Use:

Ward 5/1 - 7/1

Edge Creek & North 5/1 - 9/1

## Appendix H - Grazing Management

### Identified Resources Conflicts/Concerns

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Large area that is not included in allotment but grazed in common with the Ward Pasture.

Critical deer winter range occurs in allotment.

Special status species and/or habitat exists within the allotment.

Riparian or aquatic habitat is in less than good habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

River segment under study for inclusion in the National Wild and Scenic River System.

Potential Area of Critical Environmental Concern (ACEC) within this allotment.

Allotment makes up a large portion of the Pokegama Herd Management Area.

Potential for grazing/recreation conflicts within the allotment.

### Management Objectives

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Include south and east side of Klamath River Canyon in Edge Creek allotment and Ward Pasture.

Management systems should reflect the importance of deer winter range.

Prevent significant risk to well-being of special status species and/or habitat from BLM-authorized actions.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

Ensure livestock grazing management within the river corridor conforms with the river management plan if Congressional approval of river segment occurs.

If designated, grazing management will be consistent with the ACEC management plan.

Manage wild horse grazing levels on public lands to ensure a thriving natural ecological balance and prevent deterioration of the range.

Grazing management should consider recreation concerns.

---

### Constraints

Officially listed threatened or endangered species and/or critical habitats occur within allotment. Mitigate all management practices, as needed, to ensure full compliance with the recovery plan in effect for the species in question.

Critical deer winter range occurs in allotment. Vegetation conversions must be coordinated to adequately address the needs of both big game and cattle. No more than 10 percent of current browse in deer winter range may be converted in any one year.

Allotment contains all or a portion of a wild horse herd management area. Management actions must be mitigated, as needed, to ensure the free-roaming nature of the herd.

Ensure that substantial vegetation conversions do not significantly reduce the variety of plant species or communities in abundances necessary for their continued existence and proper functioning.

The grazing lease for the BLM lands (and the exchange of use) within the North and Edge Creek pastures is dependent on and tied to the intermingled private land grazing lease (Weyerhaeuser Company).

The following areas are excluded from general livestock grazing: The upper and lower Hayden Creek Riparian Enclosures and Fox Lake.

---



---

Allotment Name:	Buck Mountain	Management Category:	C
Allotment Number:	0103	Livestock Kind:	Cattle
Public Acres:	Medford District* 1,120	Other Acres:	Medford* 8,420
	Lakeview District 7,022		Lakeview 33,300
	<b>Total 8,142</b>		<b>Total 41,720</b>

\*These acres are within the Medford District boundary but licensed for grazing by the Klamath Falls Resource Area, Lakeview District.

**Grazing Administration Info. (AUMs)**

Active Preference:	204
Suspended Nonuse:	0
Total Preference:	204
Exchange of Use:	948
Total:	1,152

**Other Forage Demands (AUMs)**

Deer:	1,643
Elk:	0
Antelope:	0
Horses:	0
Total:	1,643

Season of Use: 5/15 - 9/1

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

No forage allocations for elk use in the allotment have been made.

Riparian or aquatic habitat is in less than good habitat condition.

Potential for grazing/recreation conflicts within the allotment.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Allocate forage to meet elk forage demands.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Grazing management should consider recreation concerns.

**Constraints**

The grazing lease for BLM lands (and the exchange of use listed), within this allotment is dependent on and tied to the intermingled private land grazing lease (Weyerhaeuser Company).

**Appendix H - Grazing Management**

Allotment Name: Buck Lake  
Allotment Number: 0104  
Public Acres: 11,971

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 4,380

---

**Grazing Administration Info. (AUMs)**

Active Preference: 280  
Suspended Nonuse: 0  
Total Preference: 280  
Exchange of Use: 169  
Total: 449

**Other Forage Demands (AUMs)**

Deer: 2,129  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 2,129

---

Season of Use: 6/15 - 9/15

---

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

No forage allocations for elk use in the allotment have been made.

Riparian or aquatic habitat is in less than good habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

Potential for grazing/recreation conflicts within the allotment.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Allocate forage to meet elk forage demands.

Improve and maintain riparian or aquatic habitat in good or better habitat condition.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

Grazing management should consider recreation concerns.

---

**Constraints**

Multiple use management of the allotment has been and will continue to be directed and adjusted via the Spencer Creek coordinated resource management planning (CRMP) process currently in place.

---

---

Allotment Name: Johnson Prairie  
 Allotment Number: 0105  
 Public Acres: 120

Management Category: C  
 Livestock Kind: Cattle  
 Other Acres: 400

**Grazing Administration Info. (AUMs)**

Active Preference: 12  
 Suspended Nonuse: 0  
 Total Preference: 12  
 Exchange of Use: 0  
 Total: 12

**Other Forage Demands (AUMs)**

Deer: 0  
 Elk: 0  
 Antelope: 0  
 Horses: 0  
 Total: 0

**Season of Use:** 5/1 - 10/1

**Identified Resources  
 Conflicts/Concerns**

None

**Management  
 Objectives**

Allotment Name: Dixie  
 Allotment Number: 0107  
 Public Acres: Medford District\* 3,260  
 Lakeview 2,287  
 Total 5,547

Management Category: I  
 Livestock Kind: Cattle  
 Other Acres: Medford\* 14,060  
 Lakeview 8,200  
 Total 22,260

\*These acres are within the Medford District boundary but licensed for grazing by the Klamath Falls Resource Area, Lakeview District.

**Grazing Administration Info. (AUMs)**

Active Preference: 415  
 Suspended Nonuse: 0  
 Total Preference: 415  
 Exchange of Use: 259  
 Total: 674

**Other Forage Demands (AUMs)**

Deer: 928  
 Elk: 100  
 Antelope: 0  
 Horses: 50  
 Total: 1,078

**Season of Use:** 5/15 - 9/15

**Identified Resources  
 Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

**Management  
 Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

## Appendix H - Grazing Management

Critical deer winter range occurs in allotment.

Management system should reflect the importance of deer winter range.

Riparian or aquatic habitat is in less than good habitat condition.

Improve and maintain riparian or aquatic habitat in good or better habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

Allotment comprises a large portion of the Pokegama Herd Management Area.

Manage wild horse grazing levels on public lands to ensure a thriving natural ecological balance and prevent deterioration of the range.

---

### **Constraints**

Officially listed threatened or endangered species and/or critical habitats occur within allotment. Mitigate all management practices, as needed, to ensure full compliance with the recovery plan in effect for the species in question.

Critical deer winter range occurs in allotment. Vegetation conversions must be coordinated to adequately address the needs of both big game and cattle. No more than 10 percent of current browse in deer winter range may be converted in any one year.

Allotment contains all or a portion of a portion of a wild horse herd management area. Management actions must be mitigated, as needed, to ensure free-roaming nature of the herd.

Ensure that substantial vegetation conversions do not significantly reduce the variety of plant species or communities in abundances necessary for their continued existence and proper functioning.

The exchange of use figure listed within this allotment is dependent on the renewal of the private land grazing lease (Weyerhaeuser Company).

The following area is excluded from general livestock grazing: Dixie Riparian Exclosure.

---

Allotment Name:	Dry Lake	Management Category:	C
Allotment Number:	0140	Livestock Kind:	Cattle
Public Acres:	145	Other Acres:	1,040

---

### **Grazing Administration Info. (AUMs)**

Active Preference:	10
Suspended Nonuse:	0
Total Preference:	10
Exchange of Use:	145
Total:	155

### **Other Forage Demands (AUMs)**

Deer:	10
Elk:	0
Antelope:	0
Horses:	0
Total:	10

---

**Season of Use:** 5/1 - 6/30

---

**Identified Resources  
Conflicts/Concerns**

None

---

**Management  
Objectives**

---

**Constraints**

The grazing lease for BLM lands (and the exchange of use listed) within the allotment is dependent on and tied to the intermingled private land grazing lease (Weyerhaeuser Company).

---

Allotment Name:	Chicken Hills	Management Category:	C
Allotment Number:	0141	Livestock Kind:	Cattle
Public Acres:	3,422	Other Acres:	5,340

---

---

**Grazing Administration Info. (AUMs)**

Active Preference:	80
Suspended Nonuse:	0
Total Preference:	80
Exchange of Use:	383
Total:	463

---

**Other Forage Demands (AUMs)**

Deer:	931
Elk:	0
Antelope:	0
Horses:	0
Total:	931

---

**Season of Use:** 5/15 - 8/1

---

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

---

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

---

---

**Appendix H - Grazing Management**

Allotment Name: Long Lake  
Allotment Number: 0142  
Public Acres: 363

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 1,160

**Grazing Administration Info. (AUMs)**

Active Preference: 18  
Suspended Nonuse: 0  
Total Preference: 18  
Exchange of Use: 0  
Total: 18

**Other Forage Demands (AUMs)**

Deer: 0  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 0

**Season of Use:** 6/15 - 8/1

**Identified Resources  
Conflicts/Concerns**

No forage allocations for deer use in the allotment have been made.

Riparian or aquatic habitat may be in less than good habitat.

**Management  
Objectives**

Allocate forage to meet deer forage demands.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Allotment Name: Grubb Springs  
Allotment Number: 0147  
Public Acres: 3,524

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 34,620

**Grazing Administration Info. (AUMs)**

Active Preference: 130  
Suspended Nonuse: 0  
Total Preference: 130  
Exchange of Use: 454  
Total: 584

**Other Forage Demands (AUMs)**

Deer: 650  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 650

**Season of Use:** 5/1 - 8/15

**Identified Resources  
Conflicts/Concerns**

Riparian or aquatic habitat is in less than good habitat condition.

**Management  
Objectives**

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

Potential for grazing/recreation conflicts with the allotment.

Grazing management should consider recreation concerns.

**Constraints**

Multiple use management of the allotment has been and will continue to be directed and adjusted via the Spencer Creek Coordinated Resource Management Planning process currently in place.

The grazing lease for BLM lands (and the exchange of use listed) is dependent on and tied to the intermingled private land grazing lease (Weyerhaeuser Company).

Allotment Name:	Adams	Management Category:	C
Allotment Number:	0800	Livestock Kind:	Cattle
Public Acres:	40	Other Acres:	0

**Grazing Administration Info. (AUMs)**

Active Preference:	6
Suspended Nonuse:	0
Total Preference:	6
Exchange of Use:	0
Total	6

**Other Forage Demands (AUMs)**

Deer:	0
Elk:	0
Antelope:	0
Horses:	0
Total:	0

**Season of Use:** 5/15 - 10/31

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

**Appendix H - Grazing Management**

Allotment Name: Haught  
Allotment Number: 0801  
Public Acres: 400

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 27  
Suspended Nonuse: 0  
Total Preference: 27  
Exchange of Use: 0  
Total: 27

**Other Forage Demands (AUMs)**

Deer: 7  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 7

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

---

Allotment Name: Stock Drive  
Allotment Number: 0802  
Public Acres: 40

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 2  
Suspended Nonuse: 0  
Total Preference: 2  
Exchange of Use: 0  
Total: 2

**Other Forage Demands (AUMs)**

Deer: 0  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 0

---

**Season of Use:** 5/1 - 5/31

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

Allotment Name: "J" Spring  
Allotment Number: 0803  
Public Acres: 320

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 260

---

**Grazing Administration Info. (AUMs)**

Active Preference: 7  
Suspended Nonuse: 0  
Total Preference: 7  
Exchange of Use: 0  
Total 7

**Other Forage Demands (AUMs)**

Deer: 6  
Elk: 0  
Antelope: 2  
Horses: 0  
Total: 8

---

**Season of Use:** 5/1 - 6/30

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

Allotment Name: Bar CL  
Allotment Number: 0804  
Public Acres: 480

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 20  
Suspended Nonuse: 22  
Total Preference: 42  
Exchange of Use: 0  
Total 42

**Other Forage Demands (AUMs)**

Deer: 10  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 10

---

**Season of Use:** 5/1 - 5/31

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

**Appendix H - Grazing Management**

Allotment Name: SE 80  
Allotment Number: 0805  
Public Acres: 80

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 8  
Suspended Nonuse: 0  
Total Preference: 8  
Exchange of Use: 0  
Total 8

**Other Forage Demands (AUMs)**

Deer: 1  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 1

---

**Season of Use:** 5/1 - 10/31

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

Allotment Name: Two Mile  
Allotment Number: 0806  
Public Acres: 817

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 80  
Suspended Nonuse: 0  
Total Preference: 80  
Exchange of Use: 0  
Total 80

**Other Forage Demands (AUMs)**

Deer: 16  
Elk: 16  
Antelope: 0  
Horses: 0  
Total: 32

---

**Season of Use:** 5/1 - 9/30

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

Allotment Name: Barnwell  
Allotment Number: 0807  
Public Acres: 1,708

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 100  
Suspended Nonuse: 0  
Total Preference: 100  
Exchange of Use: 0  
Total: 100

**Other Forage Demands (AUMs)**

Deer: 80  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 80

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

Important waterfowl habitat exists within allotment.  
Critical deer winter range occurs in allotment.

**Management  
Objectives**

Maintain or improve existing waterfowl habitat.  
Management systems should reflect the importance of deer winter range.

---

---

Allotment Name: Lee  
Allotment Number: 0808  
Public Acres: 40

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 10  
Suspended Nonuse: 0  
Total Preference: 10  
Exchange of Use: 0  
Total: 10

**Other Forage Demands (AUMs)**

Deer: 0  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 0

---

**Season of Use:** 6/1 - 6/30

---

**Identified Resources  
Conflicts/Concerns**

Important waterfowl habitat exists within allotment.

**Management  
Objectives**

Maintain or improve existing waterfowl habitat.

---

---

**Appendix H - Grazing Management**

Allotment Name: Brown  
Allotment Number: 0809  
Public Acres: 80

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 30  
Suspended Nonuse: 0  
Total Preference: 0  
Exchange of Use: 0  
Total: 30

**Other Forage Demands (AUMs)**

Deer: 1  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 1

---

**Season of Use:** 6/1 - 6/30

---

**Identified Resources  
Conflicts/Concerns**

Important waterfowl habitat exists within allotment.

**Management  
Objectives**

Maintain or improve existing waterfowl habitat.

---

Allotment Name: Brenda  
Allotment Number: 0810  
Public Acres: 1,300

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 124  
Suspended Nonuse: 0  
Total Preference: 124  
Exchange of Use: 0  
Total: 124

**Other Forage Demands (AUMs)**

Deer: 24  
Elk: 24  
Antelope: 0  
Horses: 0  
Total: 48

---

**Season of Use:** 5/1 - 6/30

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

**Constraints**

The grazing lease for BLM lands in this allotment is dependent on and tied to the intermingled private land grazing lease (Jeld-Wen, Inc.)

Allotment Name: Cheyne  
Allotment Number: 0811  
Public Acres: 840

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 51  
Suspended Nonuse: 0  
Total Preference: 51  
Exchange of Use: 0  
Total: 51

**Other Forage Demands (AUMs)**

Deer: 40  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 40

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

---

---

Allotment Name: Stukel-Coffin  
Allotment Number: 0812  
Public Acres: 760

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 55  
Suspended Nonuse: 0  
Total Preference: 55  
Exchange of Use: 0  
Total: 55

**Other Forage Demands (AUMs)**

Deer: 14  
Elk: 5  
Antelope: 0  
Horses: 0  
Total: 19

---

**Season of Use:** 5/1 - 7/1

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

**Appendix H - Grazing Management**

Allotment Name: Plum Hills  
Allotment Number: 0813  
Public Acres: 160

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 20  
Suspended Nonuse: 0  
Total Preference: 20  
Exchange of Use: 0  
Total: 20

**Other Forage Demands (AUMs)**

Deer: 4  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 4

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

---

Allotment Name: Cunningham  
Allotment Number: 0814  
Public Acres: 840

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 108  
Suspended Nonuse: 0  
Total Preference: 108  
Exchange of Use: 0  
Total: 108

**Other Forage Demands (AUMs)**

Deer: 16  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 16

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

Active erosion occurs in the allotment.

**Management  
Objectives**

Maintain and improve erosion condition to moderate or better condition.

---

---

Allotment Name: Stukel-Dehlinger C  
Allotment Number: 0815  
Public Acres: 1,680

Management Category: I  
Livestock Kind: Cattle  
Other Acres: 560

---

**Grazing Administration Info. (AUMs)**

Active Preference: 240  
Suspended Nonuse: 0  
Total Preference: 240  
Exchange of Use: 46  
Total: 286

**Other Forage Demands (AUMs)**

Deer: 31  
Elk: 11  
Antelope: 0  
Horses: 0  
Total: 42

---

**Season of Use:** 5/1 - 7/1

---

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Critical deer winter range occurs in allotment.

Active erosion occurs in the allotment.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Management systems should reflect the importance of deer winter range.

Maintain and improve erosion condition in moderate or better erosion condition.

---

---

**Appendix H - Grazing Management**

Allotment Name: Stukel-Dehlinger H  
Allotment Number: 0816  
Public Acres: 440

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 30  
Suspended Nonuse: 0  
Total Preference: 0  
Exchange of Use: 0  
Total: 30

**Other Forage Demands (AUMs)**

Deer: 8  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 8

---

**Season of Use:** 5/1 - 7/1

---

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

---

Allotment Name: Drew  
Allotment Number: 0817  
Public Acres: 720

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 72  
Suspended Nonuse: 0  
Total Preference: 72  
Exchange of Use: 0  
Total: 72

**Other Forage Demands (AUMs)**

Deer: 34  
Elk: 14  
Antelope: 0  
Horses: 0  
Total: 48

---

**Season of Use:** 5/1 - 6/30

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

Allotment Name: Bryant-Duncan  
Allotment Number: 0818  
Public Acres: 200

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 15  
Suspended Nonuse: 0  
Total Preference: 15  
Exchange of Use: 0  
Total: 15

**Other Forage Demands (AUMs)**

Deer: 4  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 4

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

---

Allotment Name: Dupont  
Allotment Number: 0819  
Public Acres: 79

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 7  
Suspended Nonuse: 0  
Total Preference: 7  
Exchange of Use: 0  
Total: 7

**Other Forage Demand (AUMs)**

Deer: 0  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 0

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

---

**Appendix H - Grazing Management**

Allotment Name: Flesher  
Allotment Number: 0820  
Public Acres: 160

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 16  
Suspended Nonuse: 0  
Total Preference: 16  
Exchange of Use: 0  
Total: 16

**Other Forage Demand (AUMs)**

Deer: 4  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 4

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

Allotment Name: North Horsefly  
Allotment Number: 0821  
Public Acres: 988

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 68  
Suspended Nonuse: 0  
Total Preference: 68  
Exchange of Use: 0  
Total: 68

**Other Forage Demands (AUMs)**

Deer: 18  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 18

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

**Appendix H - Grazing Management**

Allotment Name: Flesher  
Allotment Number: 0820  
Public Acres: 160

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 16  
Suspended Nonuse: 0  
Total Preference: 16  
Exchange of Use: 0  
Total: 16

**Other Forage Demand (AUMs)**

Deer: 4  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 4

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

---

Allotment Name: North Horsefly  
Allotment Number: 0821  
Public Acres: 988

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 68  
Suspended Nonuse: 0  
Total Preference: 68  
Exchange of Use: 0  
Total: 68

**Other Forage Demands (AUMs)**

Deer: 18  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 18

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

**Appendix H - Grazing Management**

Allotment Name: North Horsefly  
Allotment Number: 0823  
Public Acres: 920

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 60  
Suspended Nonuse: 0  
Total Preference: 60  
Exchange of Use: 0  
Total: 60

**Other Forage Demands (AUMs)**

Deer: 17  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 17

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

Allotment Name: Jeld-Wen  
Allotment Number: 0824  
Public Acres: 360

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 36  
Suspended Nonuse: 0  
Total Preference: 36  
Exchange of Use: 0  
Total: 36

**Other Forage Demands (AUMs)**

Deer: 7  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 7

---

**Season of Use:** 6/1 - 7/15

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

**Constraints:**

The grazing lease for BLM lands within this allotment is dependent on and tied to the intermingled private land grazing lease (Jeld-Wen, Inc.)

## Management of Candidate Areas of Critical Environmental Concerns Dropped from Consideration (continued)

Area Name	Acres Dropped	(Primary Values)	Managed For
Tunnel Creek Wetlands	280	Natural System	Area to receive special management attention. Available for restricted timber harvest; off-highway vehicle use limited; control grazing by fencing; mineral leasing subject to no surface occupancy. Actively pursue cooperative land management or land exchange opportunities with private land. Area designated speical Botanical/Habitat Area (Riparian Reserve and Late-Successional/District Designated Reserve).
The Bumpheads	50	Natural Systems, Scenic	Area to receive special management attention. Off-highway vehicle use limited; control grazing by fencing; mineral leasing subject to no surface occupancy. Area designated as an Special Botanical/Habitat Area.
Pacific Crest National	620	Natural Proces	Not designated as an area of critical environmental concern. Area to receive 50 foot no harvest buffer either side of trail plus 1/4 mile visual Resource Management Class II either side of trail. Closed to off-highway vehicle use; open to grazing use; mineral leasing subject to no surface occupancy.
Spencer Creek	320	Fisheries	Area to receive special management attention. Restricted timber harvest and grazing; closed to off-highway vehicles. Coordinated Resource Management Plan. Area within 300 foot either side of creek a Riparian Reserve. Visual Resource Management Class II 1/4 mile either side of creek. Watershed analysis to be completed. Mineral leasing subject to no surface occupancy.

**Appendix H - Grazing Management**

Allotment Name: Stukel-High  
Allotment Number: 0827  
Public Acres: 237

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

**Grazing Administration Info. (AUMs)**

Active Preference: 17  
Suspended Nonuse: 0  
Total Preference: 17  
Exchange of Use: 0  
Total: 17

**Other Forage Demands (AUMs)**

Deer: 5  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 5

**Season of Use:** 5/1 - 7/1

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Big game limited by unsatisfactory habitat condition.

Critical deer winter range occurs in allotment.

Active erosion occurs in the allotment.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Maintain and improve big game habitat in satisfactory condition.

Management systems should reflect the importance of deer winter range.

Maintain and improve erosion condition in moderate or better erosion condition.

Allotment Name: Stukel-Hill  
Allotment Number: 0828  
Public Acres: 960

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

**Grazing Administration Info. (AUMs)**

Active Preference: 60  
Suspended Nonuse: 0  
Total Preference: 60  
Exchange of Use: 0  
Total: 60

**Other Forage Demands (AUMs)**

Deer: 18  
Elk: 7  
Antelope: 0  
Horses: 0  
Total: 25

**Season of Use:** 5/1 - 7/1

---

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Big game limited by unsatisfactory habitat condition.

Active erosion occurs in the allotment.

Riparian or aquatic habitat is in less than good habitat condition.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Maintain and improve big game habitat in satisfactory condition.

Maintain and improve erosion condition in moderate or better erosion condition.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

---

Allotment Name: Horton  
Allotment Number: 0829  
Public Acres: 760

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 26  
Suspended Nonuse: 0  
Total Preference: 26  
Exchange of Use: 0  
Total: 26

**Other Forage Demands (AUMs)**

Deer: 36  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 36

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

---

---

**Appendix H - Grazing Management**

Allotment Name: Hungry Hollow  
Allotment Number: 0830  
Public Acres: 280

Management Category: C  
Livestock Kind: Horses  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 40  
Suspended Nonuse: 0  
Total Preference: 40  
Exchange of Use: 0  
Total: 40

**Other Forage Demands (AUMs)**

Deer: 5  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 5

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

---

Allotment Name: Warlow  
Allotment Number: 0831  
Public Acres: 460

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 50  
Suspended Nonuse: 0  
Total Preference: 50  
Exchange of Use: 0  
Total: 50

**Other Forage Demands (AUMs)**

Deer: 8  
Elk: 3  
Antelope: 0  
Horses: 0  
Total: 11

---

**Season of Use:** 5/1 - 9/30

---

**Identified Resources  
Conflicts/Concerns**

Riparian or aquatic habitat is in less than good habitat condition.

**Management  
Objectives**

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

---

---

Allotment Name: Jesperson  
Allotment Number: 0832  
Public Acres: 1,578

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 158  
Suspended Nonuse: 0  
Total Preference: 158  
Exchange of Use: 0  
Total: 158

**Other Forage Demands (AUMs)**

Deer: 30  
Elk: 30  
Antelope: 0  
Horses: 0  
Total: 60

---

**Season of Use:** 5/1 - 7/1

---

**Identified Resources**  
**Conflicts/Concerns**

None

**Management**  
**Objectives**

---

---

Allotment Name: Bryant-Johnson  
Allotment Number: 0833  
Public Acres: 40

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 6  
Suspended Nonuse: 0  
Total Preference: 6  
Exchange of Use: 0  
Total: 6

**Other Forage Demands (AUMs)**

Deer: 0  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 0

---

**Season of Use:** 5/1 - 6/30

---

**Identified Resources**  
**Conflicts/Concerns**

None

**Management**  
**Objectives**

---

---

**Appendix H - Grazing Management**

Allotment Name: Kellison  
Allotment Number: 0834  
Public Acres: 335

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 19  
Suspended Nonuse: 0  
Total Preference: 19  
Exchange of Use: 0  
Total: 19

**Other Forage Demands (AUMs)**

Deer: 6  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 6

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

Allotment Name: Kethcham  
Allotment Number: 0835  
Public Acres: 320

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 20  
Suspended Nonuse: 0  
Total Preference: 20  
Exchange of Use: 0  
Total: 20

**Other Forage Demands (AUMs)**

Deer: 16  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 16

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

---

---

Allotment Name: Harpold Chaining  
Allotment Number: 0836  
Public Acres: 900

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 96  
Suspended Nonuse: 0  
Total Preference: 96  
Exchange of Use: 0  
Total: 96

**Other Forage Demands (AUMs)**

Deer: 101  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 101

---

**Season of Use:** 5/1 - 5/31

---

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Management systems should reflect the importance of deer winter range.

---

---

Allotment Name: Bryant-Horton  
Allotment Number: 0837  
Public Acres: 1,249

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 130  
Suspended Nonuse: 0  
Total Preference: 130  
Exchange of Use: 0  
Total: 130

**Other Forage Demands (AUMs)**

Deer: 24  
Elk: 8  
Antelope: 0  
Horses: 0  
Total: 32

---

**Season of Use:** 6/1 - 6/30

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

**Appendix H - Grazing Management**

Allotment Name: Windy Ridge  
Allotment Number: 0838  
Public Acres: 600

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

**Grazing Administration Info. (AUMs)**

Active Preference: 52  
Suspended Nonuse: 0  
Total Preference: 52  
Exchange of Use: 0  
Total: 52

**Other Forage Demands (AUMs)**

Deer: 11  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 11

**Season of Use:** 5/1 - 6/15

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Management systems should reflect the importance of deer winter range.

Allotment Name: Bryant-Loveness  
Allotment Number: 0839  
Public Acres: 3,440

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

**Grazing Administration Info. (AUMs)**

Active Preference: 490  
Suspended Nonuse: 0  
Total Preference: 490  
Exchange of Use: 0  
Total: 490

**Other Forage Demands (AUMs)**

Deer: 161  
Elk: 21  
Antelope: 0  
Horses: 0  
Total: 182

**Season of Use:** 5/1 - 6/30

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Allotment Name: Bryant-Lyon  
Allotment Number: 0840  
Public Acres: 565

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 38  
Suspended Nonuse: 0  
Total Preference: 38  
Exchange of Use: 0  
Total: 38

**Other Forage Demands (AUMs)**

Deer: 11  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 11

---

**Season of Use:** 5/1 - 5/31

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

Allotment Name: Marshall  
Allotment Number: 0841  
Public Acres: 348

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 14  
Suspended Nonuse: 0  
Total Preference: 14  
Exchange of Use: 0  
Total: 14

**Other Forage Demands (AUMs)**

Deer: 17  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 17

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

**Appendix H - Grazing Management**

Allotment Name: Masten  
Allotment Number: 0842  
Public Acres: 485

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 40  
Suspended Nonuse: 0  
Total Preference: 40  
Exchange of Use: 0  
Total: 40

**Other Forage Demands (AUMs)**

Deer: 10  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 10

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

Allotment Name: Mc Auliffe  
Allotment Number: 0843  
Public Acres: 80

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 10  
Suspended Nonuse: 0  
Total Preference: 10  
Exchange of Use: 0  
Total: 10

**Other Forage Demands (AUMs)**

Deer: 1  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 1

---

**Season of Use:** 5/1 - 5/31

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

Allotment Name: Paddock  
Allotment Number: 0844  
Public Acres: 440

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 240

---

**Grazing Administration Info. (AUMs)**

Active Preference: 31  
Suspended Nonuse: 0  
Total Preference: 31  
Exchange of Use: 0  
Total: 31

**Other Forage Demands (AUMs)**

Deer: 8  
Elk: 0  
Antelope: 3  
Horses: 0  
Total: 11

---

**Season of Use:** 5/ 1 - 6/30

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

Allotment Name: K-Hills O'Connor  
Allotment Number: 0845  
Public Acres: 500

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 55  
Suspended Nonuse: 0  
Total Preference: 55  
Exchange of Use: 0  
Total: 55

**Other Forage Demands (AUMs)**

Deer: 10  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 10

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

**Appendix H - Grazing Management**

Allotment Name:	OK	Management Category:	C
Allotment Number:	0846	Livestock Kind:	Cattle
Public Acres:	1,260	Other Acres:	0

**Grazing Administration Info. (AUMs)**

Active Preference:	105
Suspended Nonuse:	0
Total Preference:	105
Exchange of Use:	0
Total:	105

**Other Forage Demands (AUMs)**

Deer:	24
Elk:	0
Antelope:	0
Horses:	0
Total:	24

**Season of Use:** 5/1 - 6/15

**Identified Resources  
Conflicts/Concerns**

Potential for grazing/recreation conflicts within the allotment.

**Management  
Objectives**

Grazing management should consider recreation concerns.

**Constraints**

Allotment recently changed from sheep to cattle use via a grazing decision. The active preference listed above is an initial estimate of grazing capacity for cattle that will be monitored and adjusted if necessary in the future. The prior sheep preference was 140 AUMs.

Allotment Name:	Swede Cabin	Management Category:	C
Allotment Number:	0847	Livestock Kind:	Cattle
Public Acres:	1,921	Other Acres:	0

**Grazing Administration Info. (AUMs)**

Active Preference:	108
Suspended Nonuse:	0
Total Preference:	108
Exchange of Use:	0
Total:	108

**Other Forage Demands (AUMs)**

Deer:	36
Elk:	0
Antelope:	0
Horses:	0
Total:	36

**Season of Use:** 5/1 - 6/15

**Identified Resources  
Conflicts/Concerns**

Special status species and/or habitat exists within the allotment.

**Management  
Objectives**

Prevent significant risk to well-being of special status species and/or habitat from BLM-authorized actions.

Allotment Name: Pope  
Allotment Number: 0848  
Public Acres: 1,044

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 70  
Suspended Nonuse: 0  
Total Preference: 70  
Exchange of Use: 0  
Total: 70

**Other Forage Demands (AUMs)**

Deer: 19  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 19

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

Allotment Name: Rajnus Bros.  
Allotment Number: 0849  
Public Acres: 480

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 32  
Suspended Nonuse: 0  
Total Preference: 32  
Exchange of Use: 0  
Total: 32

**Other Forage Demands (AUMs)**

Deer: 10  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 10

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

**Management  
Objectives**

None

---

---

**Appendix H - Grazing Management**

Allotment Name: Wilkinson  
Allotment Number: 0850  
Public Acres: 320

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 18  
Suspended Nonuse: 0  
Total Preference: 18  
Exchange of Use: 0  
Total: 18

**Other Forage Demands (AUMs)**

Deer: 6  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 6

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

---

Allotment Name: Harpold Ridge  
Allotment Number: 0851  
Public Acres: 1,043

Management Category: M  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 108  
Suspended Nonuse: 0  
Total Preference: 108  
Exchange of Use: 0  
Total: 108

**Other Forage Demands (AUMs)**

Deer: 49  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 49

---

**Season of Use:** 5/1 - 5/31

---

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

---

---

Allotment Name: Rodgers  
Allotment Number: 0852  
Public Acres: 2,549

Management Category: I  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 249  
Suspended Nonuse: 0  
Total Preference: 249  
Exchange of Use: 0  
Total: 249

**Other Forage Demands (AUMs)**

Deer: 48  
Elk: 17  
Antelope: 0  
Horses: 0  
Total: 65

---

**Season of Use:** 5/1 - 7/1

---

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Big game limited by unsatisfactory habitat condition.

Critical deer winter range occurs in allotment.

Active erosion occurs in the allotment.

Riparian or aquatic habitat is in less than good habitat condition.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Maintain and improve big game habitat in satisfactory condition.

Management systems should reflect the importance of deer winter range.

Maintain and improve erosion condition in moderate or better erosion condition.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

---

**Constraints**

The following area is excluded from general livestock grazing: Van Meter Flat Reservoir enclosure.

---

---

**Appendix H - Grazing Management**

Allotment Name:	7C	Management Category:	C
Allotment Number:	0853	Livestock Kind:	Cattle
Public Acres:	688	Other Acres:	0

**Grazing Administration Info. (AUMs)**

Active Preference:	104
Suspended Nonuse:	0
Total Preference:	104
Exchange of Use:	0
Total:	104

**Other Forage Demands (AUMs)**

Deer:	13
Elk:	0
Antelope:	0
Horses:	0
Total:	13

**Season of Use:** 5/1 - 6/30

**Identified Resources  
Conflicts/Concerns**

Special status species and/or habitat exists within the allotment.

**Management  
Objectives**

Prevent significant risk to well-being of special status species and/or habitat from BLM-authorized actions.

Allotment Name:	Jump	Management Category:	C
Allotment Number:	0854	Livestock Kind:	Cattle
Public Acres:	200	Other Acres:	0

**Grazing Administration Info. (AUMs)**

Active Preference:	20
Suspended Nonuse:	0
Total Preference:	20
Exchange of Use:	0
Total:	20

**Other Forage Demands (AUMs)**

Deer:	4
Elk:	0
Antelope:	0
Horses:	0
Total:	4

**Season of Use:** 5/1 - 5/31

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

Allotment Name: Bryant-Smith  
Allotment Number: 0855  
Public Acres: 1,140

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 109  
Suspended Nonuse: 0  
Total Preference: 109  
Exchange of Use: 0  
Total: 109

**Other Forage Demands (AUMs)**

Deer: 22  
Elk: 7  
Antelope: 0  
Horses: 0  
Total: 29

---

**Season of Use:** 5/15 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Riparian or aquatic habitat is in less than good habitat condition.

Potential for grazing/recreation conflicts within the allotment.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Grazing management should consider recreation concerns.

---

---

**Appendix H - Grazing Management**

Allotment Name: Bryant-Stastny  
Allotment Number: 0856  
Public Acres: 440

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 70  
Suspended Nonuse: 0  
Total Preference: 70  
Exchange of Use: 0  
Total: 70

**Other Forage Demands (AUMs)**

Deer: 8  
Elk: 3  
Antelope: 0  
Horses: 0  
Total: 11

---

**Season of Use:** 5/10 - 9/30

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

---

Allotment Name: Bryant-Taylor  
Allotment Number: 0857  
Public Acres: 1,080

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 74  
Suspended Nonuse: 0  
Total Preference: 74  
Exchange of Use: 0  
Total: 74

**Other Forage Demands (AUMs)**

Deer: 14  
Elk: 4  
Antelope: 0  
Horses: 0  
Total: 18

---

**Season of Use:** 4/15 - 9/30

---

**Identified Resources  
Conflicts/Concerns**

Potential for grazing/recreation conflicts within the allotment.

**Management  
Objectives**

Grazing management should consider recreation concerns.

---

---

Allotment Name: Swan Lake Rim  
Allotment Number: 0858  
Public Acres: 6,448

Management Category: M  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 300  
Suspended Nonuse: 0  
Total Preference: 300  
Exchange of Use: 0  
Total: 300

**Other Forage Demands (AUMs)**

Deer: 121  
Elk: 116  
Antelope: 0  
Horses: 0  
Total: 237

---

**Season of Use:** 5/1 - 6/30

---

**Identified Resources**  
**Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Critical deer winter range occurs in allotment.

Potential for grazing/recreation conflicts within the allotment.

**Management**  
**Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Management systems should reflect the importance of deer winter range.

Grazing management should consider recreation concerns.

**Appendix H - Grazing Management**

Allotment Name: Cunard  
 Allotment Number: 0859  
 Public Acres: 370

Management Category: I  
 Livestock Kind: Horses  
 Other Acres: 0

**Grazing Administration Info. (AUMs)**

Active Preference: 60  
 Suspended Nonuse: 0  
 Total Preference: 60  
 Exchange of Use: 0  
 Total: 60

**Other Forage Demands (AUMs)**

Deer: 7  
 Elk: 0  
 Antelope: 0  
 Horses: 0  
 Total: 7

**Season of Use:** 5/15 - 7/1

**Identified Resources  
 Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Big game limited by unsatisfactory habitat condition.

Critical deer winter range occurs in allotment.

Active erosion occurs in the allotment.

Riparian or aquatic habitat is in less than good habitat condition.

**Management  
 Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Maintain and improve big game habitat in satisfactory condition.

Management systems should reflect the importance of deer winter range.

Maintain and improve erosion condition in moderate or better erosion condition.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Allotment Name: McCartie  
 Allotment Number: 0860  
 Public Acres: 545

Management Category: C  
 Livestock Kind: Cattle  
 Other Acres: 0

**Grazing Administration Info. (AUMs)**

Active Preference: 83  
 Suspended Nonuse: 0  
 Total Preference: 83  
 Exchange of Use: 0  
 Total: 83

**Other Forage Demands (AUMs)**

Deer: 25  
 Elk: 0  
 Antelope: 0  
 Horses: 0  
 Total: 25

---

**Season of Use:** 5/1 - 5/31

---

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

---

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

---

**Constraints**

Multiple use management of the allotment will be consistent with the Yainax Butte Coordinated Resource Management Planning (CRMP) process currently in place.

---

---

Allotment Name: Yainax Butte  
Allotment Number: 0861  
Public Acres: 2,520

Management Category: M  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 120  
Suspended Nonuse: 0  
Total Preference: 120  
Exchange of Use: 0  
Total: 120

---

**Other Forage Demands (AUMs)**

Deer: 119  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 119

---

**Season of Use:** 6/1 - 9/15

---

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

Potential Area of Critical Environmental Concern (ACEC) within this allotment.

---

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

If designated, grazing management will be consistent with the ACEC management plan.

---

**Constraints**

Multiple use management of the allotment will be consistent with the Yainax Butte Coordinated Resource Management Planning (CRMP) process currently in place.

---

---

**Appendix H - Grazing Management**

Allotment Name: Klamath Forest Estates  
Allotment Number: 0862  
Public Acres: 2,520

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

**Grazing Administration Info. (AUMs)**

Active Preference: 47  
Suspended Nonuse: 0  
Total Preference: 47  
Exchange of Use: 0  
Total: 47

**Other Forage Demands (AUMs)**

Deer: 47  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 47

**Season of Use:** 5/1 - 5/31

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

**Constraints**

Multiple use management of the allotment will be consistent with the Yainax Butte Coordinated Resource Management Planning (CRMP) process currently in place.

Allotment Name: Wirth  
Allotment Number: 0863  
Public Acres: 1,360

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

**Grazing Administration Info. (AUMs)**

Active Preference: 113  
Suspended Nonuse: 0  
Total Preference: 113  
Exchange of Use: 0  
Total: 113

**Other Forage Demands (AUMs)**

Deer: 25  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 25

**Season of Use:** 4/15 - 10/15

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

Allotment Name: Rajnus & Son  
Allotment Number: 0864  
Public Acres: 1,440

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 110  
Suspended Nonuse: 0  
Total Preference: 110  
Exchange of Use: 0  
Total: 110

**Other Forage Demands (AUMs)**

Deer: 28  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 28

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

Critical deer winter range occurs in allotment.

**Management  
Objectives**

Management systems should reflect the importance of deer winter range.

---

---

Allotment Name: Mills Creek  
Allotment Number: 0865  
Public Acres: 280

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 40  
Suspended Nonuse: 0  
Total Preference: 40  
Exchange of Use: 0  
Total: 40

**Other Forage Demands (AUMs)**

Deer: 5  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 5

---

**Season of Use:** 5/1 - 5/31

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

**Appendix H - Grazing Management**

Allotment Name: Bear Valley  
Allotment Number: 0876  
Public Acres: 5,018

Management Category: I  
Livestock Kind: Cattle  
Other Acres: 4,780

**Grazing Administration Info. (AUMs)**

Active Preference: 475  
Suspended Nonuse: 0  
Total Preference: 475  
Exchange of Use: 0  
Total: 475

**Other Forage Demands (AUMs)**

Deer: 94  
Elk: 0  
Antelope: 34  
Horses: 0  
Total: 128

**Season of Use:** 6/21 - 8/1

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Active erosion occurs in the allotment.

Riparian or aquatic habitat is in less than good habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Maintain and improve erosion condition in moderate or better erosion condition.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

Allotment Name: Bumpheads  
Allotment Number: 0877  
Public Acres: 9,220

Management Category: I  
Livestock Kind: Cattle  
Other Acres: 220

**Grazing Administration Info. (AUMs)**

Active Preference: 420  
Suspended Nonuse: 265  
Total Preference: 685  
Exchange of Use: 0  
Total: 685

**Other Forage Demands (AUMs)**

Deer: 173  
Elk: 0  
Antelope: 63  
Horses: 0  
Total: 236

---

**Season of Use:** 4/15 - 6/30

---

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Critical deer winter range occurs in allotment.

Grazing management system established but not formally documented.

Potential for grazing/recreation conflicts within the allotment.

---

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Management systems should reflect the importance of deer winter range.

Revise existing allotment management plan.

Grazing management should consider recreation concerns.

---

---

Allotment Name: Campbell  
Allotment Number: 0878  
Public Acres: 1,465

Management Category: C  
Livestock Kind: Horses  
Other Acres: 3,140

---

**Grazing Administration Info. (AUMs)**

Active Preference: 47  
Suspended Nonuse: 12  
Total Preference: 59  
Exchange of Use: 173  
Total: 232

---

**Other Forage Demands (AUMs)**

Deer: 28  
Elk: 0  
Antelope: 10  
Horses: 0  
Total: 38

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

Riparian or aquatic habitat is in less than good habitat condition.

---

**Management  
Objectives**

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

---

---

**Appendix H - Grazing Management**

Allotment Name: Devaul  
Allotment Number: 0879  
Public Acres: 240

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 320

**Grazing Administration Info. (AUMs)**

Active Preference: 12  
Suspended Nonuse: 15  
Total Preference: 27  
Exchange of Use: 0  
Total: 27

**Other Forage Demands (AUMs)**

Deer: 5  
Elk: 0  
Antelope: 2  
Horses: 0  
Total: 7

**Season of Use:** 5/1 - 8/1

**Identified Resources  
Conflicts/Concerns**

Riparian or aquatic habitat is in less than good habitat condition.

**Management  
Objectives**

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Allotment Name: Goodlow  
Allotment Number: 0881  
Public Acres: 285

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 640

**Grazing Administration Info. (AUMs)**

Active Preference: 32  
Suspended Nonuse: 52  
Total Preference: 84  
Exchange of Use: 0  
Total: 84

**Other Forage Demands (AUMs)**

Deer: 6  
Elk: 0  
Antelope: 2  
Horses: 0  
Total: 8

**Season of Use:** 5/1 - 8/31

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

Allotment Name: Horsefly  
Allotment Number: 0882  
Public Acres: 26,356

Management Category: I  
Livestock Kind: Cattle  
Other Acres: 4,779

---

**Grazing Administration Info. (AUMs)**

Active Preference: 2,656  
Suspended Nonuse: 2,075  
Total Preference: 4,731  
Exchange of Use: 70  
Total: 4,801

**Other Forage Demands (AUMs)**

Deer: 495  
Elk: 30  
Antelope: 181  
Horses: 0  
Total: 706

---

**Season of Use:** 4/15 - 6/30, 10/1 - 10/30

---

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

No forage allocations for elk use in the allotment have been made.

Critical deer winter range occurs in allotment.

Special status species and/or habitat exists within the allotment.

Wetlands habitat in less than satisfactory condition.

Riparian or aquatic habitat is in less than good habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

Grazing management system established but not formally documented.

Potential for grazing/recreation conflicts within the allotment.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Allocate forage to meet elk forage demands.

Management systems should reflect the importance of deer winter range.

Prevent significant risk to well-being of special status species and/or habitat from BLM-authorized actions. Grazing use and management will be consistent with the biological opinion for the allotment.

Improve wetlands habitat condition to satisfactory or better.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

Revise existing allotment management plan.

Grazing management should consider recreation concerns.

## Appendix H - Grazing Management

### Constraints

The following areas are excluded from general livestock grazing: The two Longbranch Creek exclosures (Norcross Pasture).

In the fall (10/1 - 10/30), after summer use on USFS lands, cattle are trailed through the allotment with short term stop overs in the Waterspreader pasture. Maximum use during this period is 204 AUMs.

---

Allotment Name:	Horton	Management Category:	C
Allotment Number:	0883	Livestock Kind:	Cattle
Public Acres:	880	Other Acres:	342

---

### Grazing Administration Info. (AUMs)

Active Preference:	58
Suspended Nonuse:	211
Total Preference:	269
Exchange of Use:	15
Total:	284

### Other Forage Demands (AUMs)

Deer:	41
Elk:	0
Antelope:	6
Horses:	0
Total:	47

---

**Season of Use:** 5/1 - 6/15

---

### **Identified Resources Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

Critical deer winter range occurs in allotment.

Potential for grazing/recreation conflicts within the allotment.

### **Management Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Management systems should reflect the importance of deer winter range.

Grazing management should consider recreation concerns.

---

---

Allotment Name: Pankey Basin  
Allotment Number: 0884  
Public Acres: 282

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 508

---

**Grazing Administration Info. (AUMs)**

Active Preference: 43  
Suspended Nonuse: 39  
Total Preference: 82  
Exchange of Use: 95  
Total: 177

**Other Forage Demands (AUMs)**

Deer: 5  
Elk: 0  
Antelope: 2  
Horses: 0  
Total: 7

---

**Season of Use:** 5/1 - 8/1

---

**Identified Resources  
Conflicts/Concerns**

Riparian or aquatic habitat is in less than good habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

**Management  
Objectives**

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

---

---

**Appendix H - Grazing Management**

Allotment Name: Dry Prairie  
 Allotment Number: 0885  
 Public Acres: 7,231

Management Category: I  
 Livestock Kind: Cattle  
 Other Acres: 3,624

**Grazing Administration Info. (AUMs)**

Active Preference: 608  
 Suspended Nonuse: 392  
 Total Preference: 1,000  
 Exchange of Use: 275  
 Total: 1,275

**Other Forage Demands (AUMs)**

Deer: 149  
 Elk: 0  
 Antelope: 55  
 Horses: 0  
 Total: 204

**Season of Use:** 4/15 - 8/31

**Identified Resources  
 Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

No forage allocations for elk use in the allotment have been made.

Special status species and/or habitat exists within the allotment.

Wetlands habitat in less than satisfactory condition.

Riparian or aquatic habitat is in less than good habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

Grazing management system established but not formally documented.

Potential for grazing/recreation conflicts within the allotment.

**Management  
 Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Allocate forage to meet elk forage demands.

Prevent significant risk to well-being of special status species and/or habitat from BLM-authorized actions. Grazing use and management will be consistent with the biological opinion for the allotment.

Improve wetlands habitat condition to satisfactory or better.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

Revise existing allotment management plan.

Grazing management should consider recreation concerns.

Allotment Name: Horse Camp Rim  
Allotment Number: 0886  
Public Acres: 9,180

Management Category: I  
Livestock Kind: Cattle  
Other Acres: 40

---

**Grazing Administration Info. (AUMs)**

Active Preference: 445  
Suspended Nonuse: 0  
Total Preference: 445  
Exchange of Use: 0  
Total: 445

**Other Forage Demands (AUMs)**

Deer: 172  
Elk: 0  
Antelope: 63  
Horses: 0  
Total: 235

---

**Season of Use:** 5/1 - 7/31

---

**Identified Resources  
Conflicts/Concerns**

No forage allocations for elk use in the allotment have been made.

Riparian or aquatic habitat is in less than good habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

Grazing management system established but not formally documented.

**Management  
Objectives**

Allocate forage to meet elk forage demands.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

Revise existing allotment management plan.

---

**Constraints**

The following area is excluded from general livestock grazing: 21 Reservoir enclosure.

---

---

## Appendix H - Grazing Management

Allotment Name:	Pitchlog	Management Category:	I
Allotment Number:	0887	Livestock Kind:	Cattle
Public Acres:	9,280	Other Acres:	1,040

---

### Grazing Administration Info. (AUMs)

Active Preference:	434
Suspended Nonuse:	796
Total Preference:	1,230
Exchange of Use:	80
Total:	1,310

### Other Forage Demands (AUMs)

Deer:	174
Elk:	37
Antelope:	64
Horses:	0
Total:	275

---

**Season of Use:** 5/1 - 6/30

---

### **Identified Resources Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

No forage allocations for elk use in the allotment have been made.

Special status species and/or habitat exists within the allotment.

Wetlands habitat in less than satisfactory condition.

Riparian or aquatic habitat is in less than good habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

Grazing management system established but not formally documented.

### **Management Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Allocate forage to meet elk forage demands.

Prevent significant risk to well-being of special status species and/or habitat from BLM authorized actions. Grazing use and management will be consistent with the biological opinion for the allotment.

Improve wetlands habitat condition to satisfactory or better.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

Revise existing allotment management plan.

---

### **Constraints**

The following area is excluded from general livestock grazing: The Pitchlog Creek enclosure.

---

---

Allotment Name: Rock Creek  
Allotment Number: 0888  
Public Acres: 2,750

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 1,200

---

**Grazing Administration Info. (AUMs)**

Active Preference: 216  
Suspended Nonuse: 639  
Total Preference: 855  
Exchange of Use: 227  
Total: 1,082

**Other Forage Demands (AUMs)**

Deer: 130  
Elk: 0  
Antelope: 19  
Horses: 0  
Total: 149

---

**Season of Use:** 5/1 - 6/20

---

**Identified Resources  
Conflicts/Concerns**

No forage allocations for elk use in the allotment have been made.

Riparian or aquatic habitat is in less than good habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

**Management  
Objectives**

Allocate forage to meet elk forage demands.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

---

**Constraints**

Grazing use and management of the allotment will be consistent with the Warm Springs Coordinated Resource Management Planning process currently in place.

---

---

**Appendix H - Grazing Management**

Allotment Name: Timber Hill  
Allotment Number: 0889  
Public Acres: 2,937

Management Category: I  
Livestock Kind: Cattle  
Other Acres: 760

---

**Grazing Administration Info. (AUMs)**

Active Preference: 270  
Suspended Nonuse: 134  
Total Preference: 404  
Exchange of Use: 34  
Total: 438

**Other Forage Demands (AUMs)**

Deer: 55  
Elk: 0  
Antelope: 20  
Horses: 0  
Total: 75

---

**Season of Use:** 6/21 - 7/31

---

**Identified Resources  
Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

No forage allocations for elk use in the allotment have been made.

Riparian or aquatic habitat is in less than good habitat condition.

**Management  
Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Allocate forage to meet elk forage demands.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

---

---

Allotment Name: Willow Valley  
 Allotment Number: 0890  
 Public Acres: 20,460

Management Category: I  
 Livestock Kind: Cattle  
 Other Acres: 887

**Grazing Administration Info. (AUMs)**

Active Preference: 1,320  
 Suspended Nonuse: 444  
 Total Preference: 1,764  
 Exchange of Use: 175  
 Total: 1,939

**Other Forage Demands (AUMs)**

Deer: 960  
 Elk: 0  
 Antelope: 141  
 Horses: 0  
 Total: 1,101

**Season of Use:** 4/15 - 6/30

**Identified Resources  
 Conflicts/Concerns**

Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.

No forage allocations for elk use in the allotment have been made.

Special status species and/or habitat exists within the allotment.

Wetlands habitat in less than satisfactory condition.

Riparian or aquatic habitat is in less than good habitat condition.

Water quality may not currently meet the Department of Environmental Quality water quality standards for beneficial use.

Grazing management system established but not formally documented.

**Management  
 Objectives**

Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.

Allocate forage to meet elk forage demands.

Prevent significant risk to well-being of special status species and/or habitat from BLM-authorized actions.

Improve wetlands habitat condition to satisfactory or better condition.

Maintain and improve riparian or aquatic habitat in good or better habitat condition.

Maintain and improve water quality on public lands to meet or exceed standards for beneficial uses, as specifically established by the Department of Environmental Quality, where BLM authorized actions are having a negative effect on water quality.

Revise existing allotment management plan.

**Constraints**

The following area is excluded from general livestock grazing: Duncan Spring/Antelope Creek enclosure.

**Appendix H - Grazing Management**

Allotment Name: Williams  
Allotment Number: 0892  
Public Acres: 1,790

Management Category: M  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 75  
Suspended Nonuse: 0  
Total Preference: 75  
Exchange of Use: 0  
Total: 75

**Other Forage Demands (AUMs)**

Deer: 34  
Elk: 0  
Antelope: 12  
Horses: 0  
Total: 46

---

**Season of Use:** 5/1 - 6/15

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

**Constraints**

Multiple use management of the allotment will be consistent with the Yainax Butte Coordinated Resource Management Planning (CRMP) process currently in place.

---

---

Allotment Name: Fields  
Allotment Number: 0893  
Public Acres: 180

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 6  
Suspended Nonuse: 0  
Total Preference: 6  
Exchange of Use: 0  
Total: 6

**Other Forage Demands (AUMs)**

Deer: 4  
Elk: 0  
Antelope: 1  
Horses: 0  
Total: 5

---

**Season of Use:** 4/15 - 5/20

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

Allotment Name: Voight  
Allotment Number: 0894  
Public Acres: 112

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 8  
Suspended Nonuse: 0  
Total Preference: 8  
Exchange of Use: 0  
Total: 8

**Other Forage Demands (AUMs)**

Deer: 2  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 2

---

**Season of Use:** 5/1 - 6/14

---

**Identified Resources**  
**Conflicts/Concerns**

**Management**  
**Objectives**

None

---

---

Allotment Name: Harpold Canyon  
Allotment Number: 0895  
Public Acres: 760

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 76  
Suspended Nonuse: 0  
Total Preference: 76  
Exchange of Use: 0  
Total: 76

**Other Forage Demands (AUMs)**

Deer: 20  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 20

---

**Season of Use:** 5/1 - 7/31

---

**Identified Resources**  
**Conflicts/Concerns**

**Management**  
**Objectives**

None

**Appendix H - Grazing Management**

Allotment Name: McFall  
Allotment Number: 0896  
Public Acres: 600

Management Category: C  
Livestock Kind: Cattle  
Other Acres: 0

---

**Grazing Administration Info. (AUMs)**

Active Preference: 60  
Suspended Nonuse: 0  
Total Preference: 60  
Exchange of Use: 0  
Total: 60

**Other Forage Demands (AUMs)**

Deer: 11  
Elk: 0  
Antelope: 0  
Horses: 0  
Total: 11

---

**Season of Use:** 5/1 - 5/31

---

**Identified Resources  
Conflicts/Concerns**

None

**Management  
Objectives**

---

# Potential Range Improvements by Allotment

(See notes at the end of table for explanation of details.)

Allotment Name/# (Pasture)	Type of Improvement	Units	Cost(\$)/ Unit	No.	Cost(\$)
Chase Mt.(0101)	Reservoir	each	1,200	3	3,600
Edge Crk.(0102) (Ward)	Reservoir	each	1,200	3	3,600
	Fence	mile	3,000	3	9,000
	Veg. Control	acre	90	500	45,000
(Edge Crk.& North)	Reservoir	each	1,200	1	1,200
Buck Mt. (0103)	Fence	mile	3,000	3	9,000
Buck Lake (0104)	Fence	mile	3,000	3	9,000
	Reservoir	each	1,200	1	1,200
Johnson Prairie (0105)	Fence	mile	3,000	0.5	1,500
Dixie (0107)	Fence	mile	3,000	4	12,000
Chicken Hills (0141)	Reservoirs	each	1,200	5	6,000
Long Lake (0142)	Reservoirs	each	1,200	2	2,400
	Fence	mile	3,000	3	9,000
Grub Springs (0147)	Spring	each	2,300	1	2,300
	Reservoirs	each	1,200	2	2,400
Haught (0801)	Veg. Control	acre	90	100	9,000
"J" Spring (0803)	Spring	each	2,300	1	2,300
	Veg. Control	acre	90	80	7,200
Barnwell (0807)	Reservoir	each	1,200	1	1,200
	Fence	mile	3,000	2	6,000
	Veg. Control	acre	90	80	7,200
Lee (0808)	Fence	mile	3,000	1	3,000
Brown (0809)	Fence	mile	3,000	1	3,000
Brenda (0810)	Veg. Control	acre	90	60	5,400
Cheyne (0811)	Reservoir	each	1,200	1	1,200
Stukel-Dehlinger (0815)	Reservoir	each	1,200	1	1,200
	Veg. Control	acre	90	80	7,200

**Appendix H - Grazing Management**

Allotment Name/# (Pasture)	Type of Improvement	Units	Cost(\$)/ Unit	No.	Cost(\$)
Stukel-Dehlinger (0816)	Veg. Control	acre	90	40	3,600
	Reservoir	each	1,200	1	1,200
Drew (0817)	Reservoir	each	1,200	1	1,200
	Veg. Control	acre	90	100	9,000
	Fence	mile	3,000	2	6,000
Bryant-Duncan (0818)	Reservoir	each	1,200	1	1,200
	Veg. Control	acre	90	100	9,000
Flesher (0820)	Veg. Control	acre	90	80	7,200
North Horsefly (0821)	Reservoirs	each	1,200	2	2,400
Jeld-Wen (0822)	Veg. Control	acre	90	280	25,200
	Reservoirs	each	1,200	2	2,400
North Horsefly (0823)	Reservoir	each	1,200	1	1,200
Jeld-Wen (0824)	Reservoir	each	1,200	1	1,200
	Veg. Control	acre	90	80	7,200
Haskins (0826)	Veg. Control	acre	90	80	7,200
Stukel-High (0827)	Veg. Control	acre	90	80	7,200
	Reservoir	each	1,200	1	1,200
Stukel-Hill (0828)	Reservoir	each	1,200	1	1,200
	Veg. Control	acre	90	80	7,200
Horton (0829)	Reservoir	each	1,200	2	2,400
	Spring	each	2,300	1	2,300
	Veg. Control	acre	90	100	9,000
Jesperperson (0832)	Veg. Control	acre	90	100	9,000
Ketcham (0835)	Veg. Control	acre	90	80	7,200
Harpold (0836)	Veg. Control	acre	90	500	45,000
	Reservoir	each	1,200	1	1,200
Windy Ridge (0838)	Reservoir	each	1,200	2	2,400
	Fence	mile	3,000	1	3,000
	Veg. Control	acre	90	80	7,200
Bryant-Loveness (0839)	Veg. Control	acre	90	100	9,000
Bryant-Lyon (0840)	Veg. Control	acre	90	40	3,600
Marshall (0841)	Veg. Control	acre	90	80	7,200
Masten (0842)	Veg. Control	acre	90	40	3,600

Allotment Name/# (Pasture)	Type of Improvement	Units	Cost(\$)/ Unit	No.	Cost(\$)
Paddock (0844)	Fence	mile	3,000	2	6,000
	Reservoir	each	1,200	1	1,200
OK (0846)	Reservoir	each	1,200	4	4,800
	Fence	mile	3,000	5	15,000
	Veg. Control	acre	90	200	18,000
Pope (0848)	Veg. Control	acre	90	180	16,200
	Reservoir	each	1,200	1	1,200
Rajnus Bros. (0849)	Veg. Control	acre	90	80	7,200
Wilkinson (0850)	Reservoir	each	1,200	1	1,200
	Spring	each	2,300	1	2,300
	Fence	mile	3,000	2	6,000
	Veg. Control	acre	90	100	9,000
Harpold Ridge (0851)	Reservoir	each	1,200	2	2,400
	Spring	each	2,300	1	2,300
	Veg. Control	acre	90	100	9,000
Rodgers (0852)	Reservoir	each	1,200	2	2,400
	Fence	mile	3,000	3	9,000
	Veg. Control	acre	90	350	31,500
Jump (0854)	Veg. Control	acre	90	80	7,200
Bryant-Stastny (0856)	Reservoir	each	1,200	1	1,200
Venable & Biaggi (0858)	Spring	each	2,300	1	2,300
	Veg. Control	acre	90	200	18,000
Cunard (0859)	Spring	each	2,300	2	4,600
	Veg. Control	acre	90	80	7,200
Wirth (0863)	Reservoir	each	1,200	1	1,200
Rajnus & Son (0864)	Reservoir	each	1,200	1	1,200
	Veg. Control	acre	90	200	18,000
Mills Creek (0865)	Reservoir	each	1,200	1	1,200
	Fence	mile	3,000	1	3,000
Bear Valley (0876)	Reservoir	each	1,200	1	1,200
	Fence	mile	3,000	2	6,000
	Veg. Control	acre	90	500	45,000
	Springs	each	2,300	2	4,600
Bumpheads (0877)	Fence	mile	3,000	2	6,000
	Veg. Control	acre	90	500	45,000
Devaul (0879)	Fence	mile	3,000	1	3,000

## Appendix H - Grazing Management

Allotment Name/# (Pasture)	Type of Improvement	Units	Cost(\$)/ Unit	No.	Cost(\$)
Goodlow (0881)	Reservoir	each	1,200	1	1,200
	Fence	mile	3,000	1	3,000
Horsefly (0882)	Reservoir	each	1,200	2	2,400
	Fence	mile	3,000	4	12,000
	Veg. Control	acre	90	3000	270,000
Horton (0883)	Reservoir	each	1,200	1	1,200
	Veg. Control	acre	90	100	9,000
Panky Basin (0884)	Reservoir	each	1,200	2	2,400
	Fence	mile	3,000	1	3,000
Dry Prairie (0885)	Reservoir	each	1,200	3	3,600
	Spring	each	2,300	1	2,300
	Fence	mile	3,000	4	12,000
	Veg. Control	acre	90	400	36,000
Horse Camp Rim (0886)	Fence	mile	3,000	1	3,000
	Veg. Control	acre	90	1000	90,000
Pitchlog (0887)	Fence	mile	3,000	2	6,000
	Veg. Control	acre	90	1000	90,000
	Reservoirs	each	1,200	2	2,400
Rock Creek (0888)	Veg. Control	acre	90	200	18,000
Timber Hill (0889)	Reservoir	each	1,200	2	2,400
	Spring	each	2,300	1	2,300
	Veg. Control	acre	90	100	9,000
Willow Valley (0890)	Reservoir	each	1,200	2	2,400
	Spring	each	2,300	2	4,600
	Fence	mile	3,000	4	12,000
	Veg. Control	acre	90	1500	135,000
Voight (0894)	Veg. Control	acre	90	40	3,600
Harpold Canyon (0895)	Veg. Control	acre	90	100	9,000
McFall (0896)	Reservoir	each	1,200	1	1,200

### Notes on Range Improvements Table:

- ◆ All range improvements listed are for the benefit of multiple resource management and will provide for the rehabilitation, protection and improvement of public rangeland ecosystems. The projects listed in this table may be funded from a variety of sources besides the traditional "range betterment" funds (authorized and allocated by Congress through section 401 (b) of the Federal Land Policy and Management Act) including wildlife, fire, riparian, and others. It is expected that during the life of the plan not all of the listed projects will be completed and that some not listed will be implemented. Such changes will be due to future funding constraints or directions, priorities, policies, laws, activity planning, the outcome of Allotment Monitoring Evaluations, and other unknowns. The public will be informed of such changes through the Rangeland Program Summary update found in the Annual Program Summary. (Note: This list of

projects is for new improvements; maintenance and/or reconstructions of existing projects, as needed, is already covered by current Bureau policy.)

- ◆ The majority of the Vegetation Control (“Veg. Control”) acres listed in the table are for juniper management/reduction via cutting, although other vegetative conversion techniques, such as fire, may be used when consistent with Bureau policy and procedures. Vegetation manipulation of other vegetative types (such as big sagebrush or wedgeleaf ceanothus) may also be done as part of some allotments vegetation control activities.
- ◆ Unit costs of the listed range improvements are based on 1991-92 average costs for the Resource Area and are the same figures as listed in the Draft Resource Management Plan/Environmental Impact Statement. The actual costs of a given project could be more or less depending on specifics of design, complexity and difficulty of completion, changes in materials and labor costs, and other factors.

## Selective Management

The goals and objectives derived through the planning process are prioritized and incorporated into the range land management program through the selective management process. The purpose of selective management is to prioritize allotments so as to direct management efforts and funding to the areas or allotments with the greatest needs and/or opportunities. The “I” category allotments receive the most management attention, followed by “M” allotments, with “C” allotments receiving the least attention, relatively.

An interdisciplinary team of resource specialists from the Klamath Falls Resource Area reviewed all allotments within the resource area during the draft Resource Management Plan/Environmental Impact Statement process for changes in categorization. The original categorization of allotments was done in the early 1980s and revision was needed to reflect changes in allotment status since that time. The parameters used in this process are listed below, by the three categories, and are consistent with the Bureau’s categorization criteria outlined in the 1982 Rangeland Improvement Policy. (The criteria are not listed in a priority order, although on any given allotment some criteria may have more weight than others.) See the allotment specific tables in the section entitled Allotment Management Summaries for the designated selective management category for each allotment.

### Criteria of M, I, C Categories

#### “M” Or Maintain

- ◆ Present range condition is satisfactory.
- ◆ Allotments have moderate or high resource production potential and are producing near their potential (or trend is moving in that direction).
- ◆ No serious resource-use conflicts/controversy exist.
- ◆ Opportunities may exist for positive economic return from public investments.
- ◆ Present management appears satisfactory.

#### “I” Or Improve

- ◆ Present range condition is unsatisfactory.
- ◆ Allotments have moderate to high resource production potential and are producing at relatively low to moderate levels (trend is typically static to downward).
- ◆ Serious resource use conflicts/controversy exists.
- ◆ Opportunities exist for positive economic return from public investments.
- ◆ Present management appears unsatisfactory.

## **Appendix H - Grazing Management**

“C” Or Custodial

- ◆ Present range condition is not a factor.
- ◆ Allotments have low resource production potential and are producing near their potential (trend is typically static).
- ◆ Limited resource use conflicts/controversy may exist.
- ◆ Opportunities for positive economic return on public investment do not exist or are constrained by technological or economic factors.
- ◆ Present management appears satisfactory or is the only logical practice under existing resource conditions.

Note that an allotment does not have to meet all the criteria points in order to be designated as a particular category and managed by category objectives. It is more of a “best fit” concept versus an “exact fit”. For example, most of the allotments in the Gerber Block continue to be designated as “1” category even though significant improvements in riparian and upland vegetative conditions have occurred in many areas. These allotments remain as “1” because of the intensity of public interest in the Gerber Riparian Demonstration Area, the need to continue focusing efforts on management implemented to date, continued opportunities to derive positive returns from expenditures of public funds, and other allotment specific reasons. (Also note that allotment categorization is a relative comparison of allotments within a planning area (that is, the Klamath Falls Resource Area) and allows no accurate comparison with other areas.)

# **Range Land Monitoring and Evaluation**

## **Purpose of Monitoring**

- ◆ To determine the effects of management actions on the range land resources.
- ◆ To determine the effectiveness of on-the-ground management actions in achieving resource management objectives within planned time frames.
- ◆ To provide quantifiable data to identify and support needed management actions.
- ◆ To provide quantifiable data for the periodic review of management objectives.

## **Monitoring Methods**

Monitoring methods must be suitable for the vegetation types and resource conditions that will be encountered. The capability of the methods to detect subtle changes due to management over short periods of time must be carefully considered.

For monitoring data to be meaningful over time, there must be consistency in the kinds of data that are collected and the manner in which they are collected. However, the need for changes in sampling may occasionally arise when problems are detected during a cursory review of the collected data, when analyzing and interpreting the data, or when conducting an evaluation. Serious consideration must be given to the effect changes will have on the historical value of existing data.

The methods briefly discussed here are the methods currently in use and/or planned for future use within the Klamath Falls Resource Area. These methods are consistent with Klamath Falls Resource Area “Coordinated Monitoring and Evaluation Plan for Grazing Allotments”, State monitoring guidance, and Bureau Policy. For further information and specifics the following Bureau guidance will be used: the Oregon Rangeland Monitoring Handbook, H-1734-2 (1988); the Rangeland Monitoring Technical References, TR 4400 series; the Riparian Area Management Technical References, TR 1737 series; the BLM Manual Handbooks, 4100 and 4400 series (including the National Range Handbook); and various BLM Washington Office and State Office level Instruction Memorandums. (Refer to the resource area monitoring and evaluation plan for more specifics on all of the following. This plan is available for review at the Klamath Falls Resource Area office.)

## Actual Use

Actual use monitoring provides information concerning the actual amount of grazing use occurring on an area during a specific time period. It is a record of livestock, wildlife, and/or wild horse use in each pasture of an allotment and represents forage consumed in terms of animal unit months. Livestock actual use is provided by the permittees. Data is verified by field checks and other use supervision.

The report includes livestock numbers, pasture usage, and turnout/gathering dates.

Wild horse actual use, in animal unit months, is determined by multiplying inventoried (census) numbers by the grazing period in a given area. The Pokegama Herd Management Area, within the Klamath Falls Resource Area, is located totally within the Dixie (0107) and Edge Creek (0102) allotments.

Estimates of wildlife actual use will be requested from the Oregon Department of Fish and Wildlife, through the BLM wildlife biologists.

Actual use is collected annually on all "I" and "M" allotments.

## Utilization

Utilization data are collected to provide information concerning the percentage of forage that has been consumed or destroyed on an area during a specific period of time. It can also portray the grazing patterns on a pasture or allotment. Utilization data are important in evaluating the effects of grazing use on specific areas and identifying areas of concentrated use that may be dispersed by some form of range improvement.

In the short term, utilization data are considered with actual use and climatic data to determine resource use levels and to identify the need for range improvement projects, adjustment in management actions, and/or adjustments in grazing use levels. These data can be used as the basis for implementing adjustments in grazing use through agreement or by decision.

In the long term, utilization data are considered along with actual use, authorized use, trend, climate, and any other data available or necessary for allotment evaluation. Evaluations are conducted to determine if the grazing management actions and/or practices are achieving the long term management objectives identified in the land-use and activity plans.

The primary methods used in the Klamath Falls Resource Area are the Key Forage Plant method, the Modified Cole Browse method, and Utilization Pattern Mapping. The Key Forage Plant method is an ocular estimate method of judging utilization within one of six utilization classes on one or more key herbaceous and/or browse species, usually at established key areas within an allotment. (Key species are forage species that indicate the degree of use of associated species, or they are species which must, because of their importance, be considered in the management program. Key areas are indicator areas that have the capability to reflect the effectiveness of management on the resources of a larger area within an allotment/pasture.) The Modified Cole Browse method measures utilization of key wildlife browse plant species by all users. Utilization (or Use) Pattern Mapping records use made, within the six utilization classes used in the Key Forage Plant method, by all grazing animals. Key Forage Plant method write-ups may be utilized during Use Pattern Mapping to document the precise utilization taking place at selected locations during the mapping process.

Utilization is usually expressed as a percentage of available, current years production, forage weight that has been consumed or destroyed. The standard time for use mapping and utilization measurement should be at the end of the growing season or the end of the grazing season, whichever occurs later. Exceptions to this will occur as noted in the earlier referenced Technical References. One likely exception may be the reading of utilization prior to cattle use when it is desirable to differentiate (where possible) the use by cattle from that of wildlife or wild horses.

## **Appendix H - Grazing Management**

Utilization studies are read every one to two years on "I" allotments, every three to five years on "M" allotments, and as needed on "C" allotments.

### **Trend**

Trend data are important in determining the effectiveness of on-the-ground management actions and evaluating progress toward meeting management objectives. Trend refers to the direction of change and indicates whether rangeland vegetation is being maintained or is moving toward or away from the desired plant community or other specific vegetation management objectives. Trends of rangelands may be judged by noting changes in composition, density, cover, production, vigor, age class, and frequency of the vegetation, and related parameters of other resources.

The trend techniques used in the Klamath Falls Resource Area are the Nested Frequency and Photo Plot methods. The Nested Frequency method consists of observing the frequency of occurrence (presence/absence) of key plant species within a specific size measurement frame. When frequency transect data indicate a statistically significant change in the frequency of occurrence of the key plant species, the change is evaluated to see if the specific management objectives for the range lands represented by the key area are being met. In addition, both a landscape and a close-up photograph are taken each time a transect is sampled.

The Photo plot method is also used to measure trend includes taking a close-up photograph of the three by three foot plot and a general view photograph of the study site. There are numerous photo plots within the Klamath Falls Resource Area that were established in the 1970's. Continuation of these studies for the purpose of long term photo documentation of changes in the rangelands is extremely important.

Once established, trend studies are read every three to five years on "I" allotments and every ten years on "M" and "C" allotments.

### **Condition**

The Public Rangelands Improvement Act of 1978 definition of "range condition" may be summarized as "the degree to which the present plant community resembles the plant community that best satisfies range management objectives." The Ecological Site Inventory is the Bureaus' method of determining condition or ecological status of range land vegetation. The Ecological Site Inventory determines the composition of the existing vegetation by species, within defined homogeneous vegetation types, based on production (weight). Ecological status is use-independent and is defined as the present state of the vegetation and soil protection of an ecological site in relation to the potential natural community for that site. The potential natural community is a final vegetative community that would eventually become established, without interference by man, under present environmental conditions. Ecological status is an expression of the relative degree to which the kinds, proportions, and amounts of plants in the present plant community resemble that of the potential natural community. The Ecological Site Inventory determines the potential of a given range site allowing the eventual development of ecological status or desired plant community objectives. These vegetative objectives would define a plant community to maintain or strive for that would best meet the needs identified by the public. An ecological site inventory is planned for the Klamath Falls Resource Area, tentatively to begin in 1999, after which more specific desired plant community objectives would be developed. Condition will, however, be determined on high priority allotments, at key areas concurrent with trend studies.

Once established, condition monitoring of the Ecological Site Inventory would be done a minimum of once every fifteen years on all category allotments. Condition would, however, be read sooner if trend studies indicated that a statistically significant change in trend was occurring.

### **Climate**

Climate studies provide a comparison of specific grazing season climatic conditions with long-term normals. Crop year (September through June) precipitation accounts for approximately 80 percent of the variation in vegetation production in Great Basin type plant communities. The Forage Yield Index developed at the Squaw Butte

Experiment Station will be used, as appropriate, to adjust forage utilization (F. Sneva and C.M. Britton 1983). Climate data collected at the Klamath Falls National Weather Service Station will be used due to its central location within the resource area.

## Evaluation

The analysis and interpretation of inventory and monitoring data is extremely important in the evaluation of management actions to determine progress in meeting resource management objectives. In addition, an evaluation of monitoring information is necessary to establish or affirm the Appropriate Management Level for the wild horse population in the Pokegama Herd Management Area. The evaluation process must be carefully accomplished to determine if adjustments in grazing use and management actions are needed, and if so, to what extent. Although we believe the grazing use changes proposed in this plan are accurate, reasonable, and supportable, all changes in grazing use on an allotment will be based on the results of an interdisciplinary evaluation of range land monitoring studies, as outlined below. Similarly, the appropriate management level of 30 to 50 wild horses affirmed by this plan is believed to be an accurate appropriate management level, based on professional judgment, for the area encompassed by the Herd Management Area.

The major steps involved in the evaluation process are:

**Assemble and display monitoring and other data.** Review and summarize available data which has been collected from baseline inventories, monitoring studies, supplemental studies and other sources;

**Analyze Data.** Perform all necessary calculations of data; and

**Interpret Data.** After the data has been analyzed, it is interpreted to determine whether the results show a trend or have remained static over time for each type of study. This includes interpreting individual data sets and examining their interrelationships.

In order to assess a proper stocking level or carrying capacity, the following formula may be used (from BLM TR-4400-7):

$$\frac{\text{Actual Use (animal unit months)}}{\text{Adjusted Utilization (percent)}} = \frac{\text{Desired Use (animal unit months)}}{\text{Desired Utilization (percent)}}$$

- ◆ **Actual Use** - Amount of use in animal unit months made by livestock, wild horses, and wildlife
- ◆ **Adjusted Utilization** - Actual utilization level(s) observed via monitoring studies as modified by the yield index
- ◆ **Desired Utilization** - The maximum utilization objective for the area monitored
- ◆ **Desired Use** - The proper stocking level (or population level for wild horses and wildlife), based on the monitoring studies used in the calculations, that would allow meeting of the utilization objective.

**Evaluate Data.** The data is evaluated for consistency, reliability, strong and weak points, completeness and accuracy. If the results of the interpretation indicate a trend, the evaluation attempts to determine the causes of the trends and establish a course of action for future management.

**Review Management Objectives.** Management objectives must be evaluated, as well as the monitoring data, in order to make sure that the objectives are meaningful. In order for management actions to be monitored and progress to be evaluated, the objectives must be measurable and quantifiable as well as simple and understandable. They must also have a probability of attainment within a reasonable time frame. In some cases, detection of a trend toward the desired value may be sufficient to justify continuation of the management practice being evaluated, especially on low response areas where vegetation objectives will be attainable only in the long term. In these cases, intermediate objectives may be useful in evaluating the progress.

**Evaluate Progress in Meeting Management Objectives.** This process determines if management objectives have been met or if adequate progress toward achieving them has occurred or if management objectives or monitoring techniques need redefining.

## Appendix H - Grazing Management

**Summarize Findings and Make Recommendations.** The formal evaluation concludes with the proposing of concise management recommendations as well as recommendations on changing monitoring techniques, management objectives, key areas, or key species.

By policy, allotment monitoring evaluations are done every five years on “I”, every ten years on “M” category allotments, and as needed on “C” allotments.

# General Allowable Use Guidelines

Allowable use is the degree of utilization considered desirable, given our best understanding of proper use, and attainable on various parts of the range or allotment considering the present nature and condition of the resource, management objectives, and level of management. Proper use is a maximum degree of utilization of the current year's growth which, if continued, will maintain or improve the long-term productivity of the site. Proper use varies with the year, season, the ecological site, the physiological requirement of the plant species, associated species, kind of livestock and species of wildlife, past grazing use, and other factors.

The importance of utilization limits has been well established and widely accepted in range research. A minimum level of plant biomass should be present at the end of the growing season to maintain the soil, plant vigor, livestock and wildlife diet quality, and wildlife habitat values. The consequences of continued overutilization are also widely documented. The removal of too much photosynthetic tissue from individual plants results in reduced plant vigor, and if continued, eventual demise of the plants involved. Repeated defoliations of preferred species results in a competitive disadvantage and eventual shifts in plant community composition. Deterioration of the vegetation eventually results in soil loss and reduced site potential.

The degree of allowable use identified for a key plant species for several years serves as a guideline or reference point to evaluate the impacts grazing may be having on the overall welfare of the plant community. In monitoring degrees of utilization, the primary concern is the trend in the community resulting from various levels of use. There are regulatory requirements for the establishment of utilization levels including the following: 43 Code of Federal Regulations 4100.0-8, “The authorized officer shall manage livestock grazing on public lands under the principle of multiple use and sustained yield, and in accordance with applicable land use plans. Land use plans shall establish allowable resource uses..., related levels of production or **use to be maintained** [emphasis added], areas of use, and resource condition goals and objectives to be obtained...”. Also, 4110.3-2(b) states that, “When monitoring shows that active use **is causing an unacceptable level or pattern of utilization** [emphasis added] or exceeds the livestock carrying capacity as determined through monitoring, the authorized officer shall reduce active use if necessary to maintain or improve rangeland productivity...”.

The following degrees of allowable use were developed as a set of definitive criteria to assist in managing range land vegetation on a sustained yield basis. This table is meant to be used as an area guideline and will be tempered by site specific judgement and experience during future evaluation and activity planning efforts. For example, “flash” grazing rotation systems (high intensity - short duration with multiple rotating pastures) are presently implemented on some allotments in the Gerber Block. This system may result in spring perennial grass utilization levels higher than that listed in the table (50 percent), but the higher level would be allowable due to the lengthy time after grazing for regrowth. In fact, after average regrowth, the total utilization level of *current years growth* would probably be less than 50 percent. Generally, most research has found that utilization should not exceed the moderate range (40 to 60 percent). Utilization objective levels may be adjusted downwards from the table figures for allotments/pastures where quicker improvement in condition objectives are desired. Also, the occasional exceeding of a utilization level objective on a small percentage or low resource concern portion of an allotment (such as around a water trough or salt block) may not key changes in management. However, exceeding the utilization objective on an important riparian area, though small in acreage, may well lead to changes in management. This may affect use on surrounding upland areas even though full upland utilization may have not been achieved.

For the following table, spring is considered to be the period of active vegetative growth; summer is flowering, seed production, and some regrowth; fall is cured and late regrowth. There is no winter grazing use within the Klamath Falls Resource Area. This table is generally for upland areas; riparian areas are covered in Appendix F, best management practices.

**Appendix H - Grazing Management**

especially beaver and big game; soils; bank and channel vulnerability to detachment; and stream gradient and sediment load. Grazing systems which consider only upland plant growth requirements will generally not meet riparian-wetland site requirements. However, a grazing strategy designed to protect or encourage only riparian-wetland site requirements. Optimally, grazing strategies should be designed to concurrently meet the needs of both upland and riparian vegetation over time.

**Management Actions/Direction**

Because of the complexity involved in managing riparian-wetland systems, there are many variation of grazing strategies that can be used in riparian-wetland areas, and no one grazing strategy will fit all situations. In general, the most successful strategies for protecting or restoring these areas incorporate one or more of the following features:

- ◆ inclusion of the riparian-wetland area within a separate pasture with separate management objectives and strategies;
- ◆ fencing or herding of livestock out of riparian-wetland areas for as long as necessary to allow vegetation to recover;
- ◆ controlling the timing of grazing to keep livestock off streambanks when they are most vulnerable to damage and to coincide with the physiological needs of target plant species;
- ◆ adding more rest of the grazing cycle to increase plant vigor, allow streambanks to heal, or encourage more desirable plant species composition;
- ◆ limiting grazing intensity to level which will maintain desired species composition and vigor;
- ◆ changing from cattle to sheep to obtain better animal distribution through herding;
- ◆ permanently excluding livestock from those riparian-wetland areas that are at high risk and have poor recovery potential, and when there is no practical way to protect them while grazing adjacent uplands.

For specific riparian-wetland areas in the Klamath Falls Resource Area, a grazing strategy would be developed using one or more of the features listed above. This grazing strategy would be developed at the activity planning level, through an allotment evaluation and the development of an Allotment Management Plan. These allotment management plans would contain allowable use guidelines for the riparian-wetlands in the allotment as part of the grazing strategy. Allowable use of forage is based on the amount of forage that will be left at the end of the overall grazing season or the end of the growing season, whichever is later. These guidelines would generally follow the utilization standards below, which include cumulative annual use by big game and livestock:

Utilization Standards in Riparian-Wetland Areas	Maximum Annual Utilization (percent)			
	<u>Proper Functioning Condition</u>		<u>Functional - At Risk or Nonfunctioning</u>	
	Herbaceous	Woody	Herbaceous	Woody
Riparian Areas with Management	50	50	0-40	0-35
Riparian Areas without Management	40	30	0-30	0-25

## Management of Candidate Areas of Critical Environmental Concerns Dropped from Consideration (continued)

Area Name	Acres Dropped	(Primary Values)	Managed For
Tunnel Creek Wetlands	280	Natural System	Area to receive special management attention. Available for restricted timber harvest; off-highway vehicle use limited; control grazing by fencing; mineral leasing subject to no surface occupancy. Actively pursue cooperative land management or land exchange opportunities with private land. Area designated speical Botanical/Habitat Area (Riparian Reserve and Late-Successional/District Designated Reserve).
The Bumpheads	50	Natural Systems, Scenic	Area to receive special management attention. Off-highway vehicle use limited; control grazing by fencing; mineral leasing subject to no surface occupancy. Area designated as an Special Botanical/Habitat Area.
Pacific Crest National	620	Natural Proces	Not designated as an area of critical environmental concern. Area to receive 50 foot no harvest buffer either side of trail plus 1/4 mile visual Resource Management Class II either side of trail. Closed to off-highway vehicle use; open to grazing use; mineral leasing subject to no surface occupancy.
Spencer Creek	320	Fisheries	Area to receive special management attention. Restricted timber harvest and grazing; closed to off-highway vehicles. Coordinated Resource Management Plan. Area within 300 foot either side of creek a Riparian Reserve. Visual Resource Management Class II 1/4 mile either side of creek. Watershed analysis to be completed. Mineral leasing subject to no surface occupancy.

# Appendix I

## Land Tenure

### Introduction

This appendix includes criteria to be used in evaluating land disposal or acquisition actions and a listing of public lands, by legal description, that may be suitable for sale, pending site-specific environmental analysis.

### Land Ownership Adjustment Criteria

In accordance with the Federal Land Policy and Management Act of 1976 (FLPMA) and other laws, Executive Orders, and Departmental and Bureau policy the following criteria that would be used to evaluate opportunities for disposal or acquisition. This list is not considered all inclusive, but represents the major factors to be evaluated. They include:

- ◆ Threatened, endangered, or sensitive plant and animal species habitat;
- ◆ Riparian areas and wetlands;
- ◆ Nesting/breeding habitat for game and non-game animals;
- ◆ Key big game seasonal habitat;
- ◆ Developed recreation sites and recreation use areas;
- ◆ High quality scenery;
- ◆ Land adjacent to rivers eligible for designation under the National Wild and Scenic Rivers Act;
- ◆ Significant cultural resources and sites eligible for inclusion on the National Register of Historic Places;
- ◆ Designated wilderness areas and areas being studied for possible wilderness designation;
- ◆ Accessibility of the land for public recreation and other uses;
- ◆ Amount of public investments in facilities or improvements and the potential for recovering those investments;
- ◆ Difficulty or cost of administration (manageability);
- ◆ Suitability of the land for management by another federal agency;
- ◆ Significance of the decision in stabilizing business, social and economic conditions, and/or lifestyles;
- ◆ Whether private sites exist for the proposed use;
- ◆ Encumbrances, including but not limited to, withdrawals or existing leases or permits;

## Appendix I - Land Tenure

- ◆ Consistency with cooperative agreements and plans or policies of other agencies; and
- ◆ Suitability (need for change in land ownership or use) for purposes, including but not limited to, community expansion or economic development, such as industrial, residential, or agricultural (other than grazing) developments.

## Zone 3 Lands

The following lands are potentially suitable for disposal through sale under section 203(a) of FLPMA if important recreation, wildlife, watershed, threatened or endangered species habitat, and/or cultural values are not identified during disposal clearance reviews and no viable exchange proposals for them can be identified. These lands would also be available for transfer to another agency or to local governments, as needed, to accommodate community expansion and other public purposes.

Legal Description	Size (acres)
T. 39 S., R. 5 E.	
Sec. 17 - NW $\frac{1}{4}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$	120.00
Sec. 21 - SW $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
Sec. 29 - NW $\frac{1}{4}$	160.00
Sec. 31 - N $\frac{1}{2}$	320.00
Sec. 33 - NW $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
T. 40 S., R. 5 E.	
Sec. 7 - W $\frac{1}{2}$	320.00
Sec. 31 - NE $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ W $\frac{1}{2}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , S $\frac{1}{2}$ SE $\frac{1}{4}$	320.00
T. 39 S., R. 6 E.	
Sec. 22 - SE $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
Sec. 23 - W $\frac{1}{2}$ SW $\frac{1}{4}$	80.00
Sec. 26 - SW $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
Sec. 35 - NE $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	320.00
T. 41 S., R. 7 E.	
Sec. 13 - NE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
Lot 4	24.69
T. 38 S., R. 8 E.	
Sec. 31 - Lot 4	10.30
T. 39 S., R. 8 E.	
Sec. 6 - Lot 6	27.20
Sec. 7 - Lot 5	16.90
Sec. 33 - Lot 1 the unpatented portion of	4.42

Legal Description	Size (acres)
T. 40 S., R. 8 E.	
Sec. 17 - SW $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
Sec. 21 - SW $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
Sec. 22 - Lot 4	38.00
Sec. 28 - SE $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$	160.00
Sec. 32 - S $\frac{1}{2}$ NE $\frac{1}{4}$	80.00
T. 41 S., R. 8 E.	
Sec. 8 - NW $\frac{1}{4}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$ N $\frac{1}{2}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	440.00
Sec. 17 - NE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
T. 37 S., R. 9 E.	
Sec. 3 - SE $\frac{1}{4}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$	80.00
Sec. 4 - SW $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
Sec. 6 - SE $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
Sec. 7 - NE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
Sec. 8 - E $\frac{1}{2}$ SW $\frac{1}{4}$	80.00
Sec. 9 - NW $\frac{1}{4}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$	80.00
Sec. 13 - NE $\frac{1}{4}$ SE $\frac{1}{4}$ , W $\frac{1}{2}$ W $\frac{1}{2}$	200.00
Sec. 14 - NE $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	80.00
Sec. 17 - W $\frac{1}{2}$ E $\frac{1}{2}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$	200.00
Sec. 20 - N $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$	120.00
Sec. 21 - SW $\frac{1}{4}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$	120.00
Sec. 28 - W $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	200.00
Sec. 35 - SE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
T. 38 S., R. 9 E.	
Sec. 3 - SE $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	80.00
Sec. 5 - SW $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
Sec. 8 - NE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
Sec. 9 - NW $\frac{1}{4}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$	80.00
Sec. 15 - SW $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
T. 40 S., R. 9 E.	
Sec. 23 - SW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
Sec. 35 - N $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$	120.00
T. 37 S., R. 10 E.	
Sec. 12 - S $\frac{1}{2}$ SE $\frac{1}{4}$	80.00
Sec. 13 - NE $\frac{1}{4}$ NW $\frac{1}{4}$	40.00

Legal Description	Size (acres)
T. 38 S., R. 10 E.	
Sec. 6 - Lot 5	39.80
Lot 6	39.96
Lot 7	40.12
NE $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
Sec. 7 - NE $\frac{1}{4}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$	80.00
Sec. 27 - NE $\frac{1}{4}$ SE $\frac{1}{4}$ , S $\frac{1}{2}$ SW $\frac{1}{4}$	120.00
Sec. 28 - W $\frac{1}{2}$ E $\frac{1}{2}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	200.00
Sec. 30 - Lot 2	39.80
Lot 3	39.72
Lot 4	39.66
Sec. 31 - Lot 1	39.65
Lot 2	39.75
Lot 3	39.85
E $\frac{1}{2}$ E $\frac{1}{2}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$	280.00
Sec. 32 - N $\frac{1}{2}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	400.00
Sec. 33 - W $\frac{1}{2}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$	280.00
Sec. 34 - N $\frac{1}{2}$ NW $\frac{1}{4}$	80.00
Sec. 35 - NE $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
T. 39 S., R. 10 E.	
Sec. 4 - Lot 1	41.40
Lot 2	41.40
Lot 3	41.50
S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$	240.00
Sec. 5 - Lot 2	41.03
Lot 3	41.68
Lot 4	40.34
S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	120.00
Sec. 10 - S $\frac{1}{2}$ SE $\frac{1}{4}$	80.00
Sec. 23 - W $\frac{1}{2}$ E $\frac{1}{2}$ , E $\frac{1}{2}$ W $\frac{1}{2}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$	360.00
Sec. 24 - S $\frac{1}{2}$ NE $\frac{1}{4}$	80.00
Sec. 25 - S $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ , SE $\frac{1}{4}$	400.00
Sec. 26 - N $\frac{1}{2}$	320.00
Sec. 32 - NE $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$	80.00
Sec. 32 - SE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
Sec. 33 - SE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
Sec. 34 - S $\frac{1}{2}$	320.00
T. 37 S., R. 11 E.	
Sec. 15 - NW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
Sec. 23 - NW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00

Legal Description	Size (acres)
Sec. 26 - SW $\frac{1}{4}$	160.00
Sec. 27 - E $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	240.00
Sec. 29 - N $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$	120.00
Sec. 30 - N $\frac{1}{2}$ SE $\frac{1}{4}$	80.00
Sec. 33 - SE $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$	120.00
Sec. 34 - E $\frac{1}{2}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$	480.00
Sec. 35 - W $\frac{1}{2}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$	560.00
T. 38 S., R. 11 E.	
Sec. 1 - W $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$	120.00
Sec. 2 - Lot 4	41.43
S $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$	280.00
Sec. 3 - Lot 1	41.46
Lot 2	41.35
Lot 3	41.24
S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$	280.00
Sec. 10 - E $\frac{1}{2}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$	440.00
Sec. 11 - SW $\frac{1}{4}$ SW $\frac{1}{4}$ , S $\frac{1}{2}$ SE $\frac{1}{4}$	120.00
Sec. 12 - SW $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$	360.00
Sec. 13 - W $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$	400.00
Sec. 14 - W $\frac{1}{2}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	320.00
Sec. 17 - NW $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$	120.00
Sec. 19 - SE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
Sec. 20 - S $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$	120.00
Sec. 21 - E $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$	160.00
Sec. 22 - S $\frac{1}{2}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	200.00
Sec. 23 - E $\frac{1}{2}$ , S $\frac{1}{2}$ SW $\frac{1}{4}$	400.00
Sec. 26 - N $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$	440.00
Sec. 27 - SW $\frac{1}{4}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$	200.00
Sec. 28 - NW $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$	200.00
Sec. 29 - E $\frac{1}{2}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$	400.00
Sec. 30 - E $\frac{1}{2}$ E $\frac{1}{2}$	160.00
Sec. 32 - NE $\frac{1}{4}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$	80.00
Sec. 34 - NE $\frac{1}{4}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$	160.00
Sec. 35 - W $\frac{1}{2}$ , E $\frac{1}{2}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$	440.00
T. 39 S., R. 11 E.	
Sec. 2 - Lot 1	40.24
Lot 3	39.60
Lot 4	39.62
Sec. 33 - E $\frac{1}{2}$ NE $\frac{1}{4}$	80.00
Sec. 34 - SW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$	120.00

Legal Description	Size (acres)
T. 40 S., R. 12 E.	
Sec. 10 - NE $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$	160.00
Sec. 11 - Lot 1	41.20
Sec. 14 - SE $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$	200.00
Sec. 15 - N $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$	200.00
Sec. 19 - N $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$	120.00
Sec. 20 - N $\frac{1}{2}$ N $\frac{1}{2}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$	240.00
Sec. 21 - SW $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$	400.00
Sec. 22 - SW $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$	120.00
Sec. 26 - W $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	120.00
Sec. 27 - W $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$	240.00
Sec. 28 - E $\frac{1}{2}$ NW $\frac{1}{4}$	80.00
Sec. 35 - NE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
T. 37 S., R. 11 $\frac{1}{2}$ E.	
Sec. 11 - NE $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$	240.00
Sec. 13 - E $\frac{1}{2}$ NW $\frac{1}{4}$	80.00
Sec. 14 - SE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
Sec. 17 - SE $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
Sec. 20 - NE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
Sec. 21 - NW $\frac{1}{4}$ NE $\frac{1}{4}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	320.00
Sec. 22 - W $\frac{1}{2}$ SW $\frac{1}{4}$	80.00
Sec. 26 - NE $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
Sec. 27 - NW $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
Sec. 28 - SW $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$ ,	200.00
Sec. 29 - SE $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$	200.00
T. 39 S., R. 11 $\frac{1}{2}$ E.	
Sec. 9 - S $\frac{1}{2}$ NE $\frac{1}{4}$	80.00
Sec. 10 - SW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
Sec. 21 - NE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
T. 38 S., R. 12 E.	
Sec. 5 - W $\frac{1}{2}$ SW $\frac{1}{4}$	80.00
Sec. 6 - NE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
T. 39 S., R. 12 E.	
Sec. 21 - NE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
Sec. 26 - NW $\frac{1}{4}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	80.00
Sec. 27 - E $\frac{1}{2}$ SE $\frac{1}{4}$	280.00
Sec. 28 - NE $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
Sec. 34 - NW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00

Legal Description	Size (acres)
T. 40 S., R. 13 E. Sec. 35 - SW $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
T. 41 S., R. 13 E. Sec. 14 - NE $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
T. 37 S., R. 13 E. Sec. 1 - Lot 5	9.88
Lot 7	9.88
Sec. 11 - NW $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
T. 37 S., R. 14 E. Sec. 10 - NW $\frac{1}{4}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$	70.00
T. 41 S., R. 14 E. Sec. 5 - NE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
T. 36 S., R. 15 E. Sec. 28 - All	640.00
Sec. 30 - Lot 1	40.25
Lot 2	40.18
Lot 3	40.11
Lot 4	40.04
E $\frac{1}{2}$ W $\frac{1}{2}$ , E $\frac{1}{2}$	480.00
Sec. 32 - All	640.00
T. 37 S., R. 15 E. Sec. 4 - Lot 1	40.73
Lot 2	41.03
Lot 3	40.91
Lot 4	40.64
Lot 5	40.11
Lot 6	40.21
Lot 7	40.54
Lot 8	40.64
Lot 9	40.68
Lot 10	40.44
Lot 11	40.02
Lot 12	39.96
Lot 13	40.13
Lot 14	40.19
Lot 15	40.55
Lot 16	40.79

**Appendix I - Land Tenure**

---

<b>Legal Description</b>	<b>Size (acres)</b>
T. 40 S., R. 15 E. Sec. 21 - NE $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$	80.00
T. 41 S., R. 15 E. Sec. 3 - SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 11 - E $\frac{1}{2}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00 120.00
Grand total	23,671.22

# **Appendix J**

## **Withdrawals**

**Table 16. Withdrawals.**

Authority	Location			Acreage	Purpose	Segregative Effect	Surface Management Agency	Revocation/Termination Recommendation and Rationale	Future Management
	T	R	S						
BLM Order <sup>1</sup> 6/14/57 ANS 57	40S	10E	9	80.00	Air navigation	A	FAA	Modify withdrawal, 80 acres continued, 80 acres returned to BLM, not all land used by withdrawing agency.	Refer to Table 2-14 for future management by alternative of lands to be returned to BLM administration. Continuation of a portion of the FAA withdrawal common to all alternatives.
			10	80.00					
				160.00					
SO of 2/11/47	39S	9E	21	51.12	Kingsley Field	B	USAF	Modify withdrawal. Portion not needed by holding agency, portion continued in withdrawal.	Land will continue to be used for Air Force purposes, remainder sold by GSA to City of Klamath Falls.
EO 5907	39S	13E	2	78.87	Public Water Reserve 146	D	BLM	Not evaluated	
	38S	13E	34	40.00					
			35	40.00					
			158.87						
EO of 1/24/1914	41S	13E	6	52.14	Public Water Reserve 15	D	BLM	Not evaluated	
	40S	13E	19	189.55					
	41S	12E	1	40.00					
	40S	12E	24	160.00					
			441.69						
SO 234	40S	10E	11	80.00	Public Water Reserve 107	D	BLM	Not evaluated	
SO 214	41S	14.5E	1	640.00	Public Water Reserve No. 107	D	BLM	Not evaluated	

Table 16. Withdrawals

Table 16. Withdrawals (continued).

Authority	Location			Acreage	Purpose	Segregative Effect	Surface Management Agency	Revocation/Termination Recommendation and Rationale	Future Management
	T	R	S						
PLO 3869	39S	13E	2	160.00	Gerber Reservoir recreation site	B	BLM	Continue withdrawal. BLM's investment still in need of protection. Use as a developed recreation site and campground will continue for the duration of the plan.	Continuation of the withdrawal is common to all alternatives.
	38S	5E	21	80.00	Surveyor Mountain recreation site	B	B		
	40S	7E	6	14.35 254.35	Topsy recreation site	B	BLM		
PLO 3274 <sup>1</sup>	39S	9E	21	10.04	Administrative site	B	FWS	Transfer jurisdiction of the 10.04 acre administrative site to BLM. Site no longer needed by Fish and Wildlife Service.	Transfer of jurisdiction is common to all alternatives. Use as an administrative site will continue for the duration of the plan. More buildings to be constructed.
PLO 4876	38S	6E	21	9.69	Protect road use	B	BLM/FS	Not evaluated	
PLO 487836S	15E	28	32	14.00 9.00 23.00	Protect road use	B	BLM/FS	Not evaluated	

**Table 16. Withdrawals (continued).**

Authority	Location		Acreage	Purpose	Segregative Effect	Surface Management Agency	Revocation/Termination Recommendation and Rationale	Future Management	
	T	R S							
SO of 7/9/1904	39S	14E 5	240.05 <sup>1</sup>	Klamath Basin Reclamation Project	B	BR/BLM	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Suitable for return to BLM administration.	Refer to Table 2-14 for future management by alternative of lands to be returned to BLM administration.	
		6	486.36 <sup>1</sup>						
		7	209.43 <sup>1</sup>						
		8	240.00 <sup>1</sup>						
		17	640.00 <sup>1</sup>						
		18	529.98 <sup>1</sup>						
		19	400.00 <sup>1</sup>						
		20	360.00 <sup>1</sup>						
		21	160.00 <sup>1</sup>						
		22	160.00 <sup>1</sup>						
		31	80.00 <sup>1</sup>						
		32	80.00						
			3,585.82						
SO of 7/27/1904 <sup>1</sup>	38S 39S	13E 35	120.00	Klamath Basin Reclamation Project	B	BR/BLM	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Suitable for return to BLM administration.	Refer to Table 2-14 for future management by alternative of lands to be returned to BLM administration.	
		13E 1	80.00						
		2	78.87						
		11	80.00						
		12	640.00						
		13	320.00						
		14	160.00						
		23	320.00						
		26	320.00						
		27	280.00						
		33	240.00						
		34	240.00						
			2,878.87						
SO of 1/28/1905 <sup>2</sup>	37S	8E 17	68.70	Klamath Basin Reclamation Project/Upper Klamath National Wildlife Refuge	B	FWS/BR	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Withdrawal overlaps USFWS withdrawal.	Property to be under administration of Klamath Basin NWR, USFWS. Future management subject to site specific NEPA analysis.	
		25	379.94						
		26	17.67						
		35	161.82						
		36	500.10						
									1,128.23

Table 16. Withdrawals (continued).

Authority	Location		Acreage	Purpose	Segregative Effect	Surface Management Agency	Revocation/Termination Recommendation and Rationale	Future Management						
	T	R S												
SO of 1/20/1910 <sup>2</sup> Lands within Winema NF	34S	6E 2	44.59	Klamath Basin Reclamation Project/Winema National Forest	B	FS/BR	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Withdrawal overlaps USFWS withdrawal.	Property to be under administration of Winema National Forest. Future management subject to site specific NEPA analysis.						
		11	438.73											
	36S	6E 10	80.00											
		11	160.00											
									1,904.85					
		34S	6E 25						480.00	Klamath Basin Reclamation Project/Upper Klamath National Wildlife Refuge	B	FWS/BR	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Withdrawal overlaps USFWS withdrawal.	Property to be under administration of Klamath Basin NWR, USFWS. Future management subject to site specific NEPA analysis.
			26						120.00					
			35						200.00					
			36						640.00					
	1		640.00											
	35S	6E 2	280.24											
12		640.00												
13		640.00												
24		640.00												
35		320.00												
36		640.00												
36S		6E 1	640.00											
		2	560.00											
	3	80.00												
	11	480.00												
SO of 1/20/1910 <sup>1</sup> (Continued)	34S	6E 1	239.23	Klamath Basin Reclamation Project	B	BR	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Suitable for return to BLM administration.	Refer to Table 2-14 for future management by alternative of lands to be returned to BLM administration.						
		12	640.00											
		13	316.86											
									1,196.09					
		14	320.00											
		8,361.84												

**Table 16. Withdrawals (continued).**

Authority	Location T R S	Acreage	Purpose	Segregative Effect	Surface Management Agency	Revocation/Termination Recommendation and Rationale	Future Management
SO of 6/25/1919 Same lands included in EO 924	41S 10E 15	159.80	Klamath Basin Reclamation Project/Upper Klamath National Wildlife Refuge	B	FWS/BR	Continue withdrawal. Property still needed for project purposes.	Property will continue to be managed jointly by the BR and the USFWS.
	41S 9E 3	74.10					
	41S 9E 4	405.20					
	41S 9E 5	648.40					
	41S 9E 6	405.25					
	41S 9E 8	324.16					
	41S 9E 9	567.68					
	41S 9E 10	648.76					
	41S 9E 14	647.92					
	41S 9E 15	396.39					
	41S 9E 16	387.32					
	41S 9E 17	373.92					
	41S 9E 18	359.46					
	41S 8E 1	344.80					
	41S 8E 4	344.32					
	41S 8E 9	72.30					
	41S 8E 11	149.50					
	41S 8E 12	40.00					
41S 8E 13	324.44						
41S 8E 14	167.10						
41S 8E 15	40.00						
41S 8E 16	291.20						
41S 8E 16	91.80						
41S 8E 24	40.00						
		7,303.82					
SO of 7/31/1919 <sup>1</sup>	39S 11E 19	80.00	Klamath Basin Reclamation Project	B	BR/BLM	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Right-of-way issued to protect BR interests. Suitable for return to BLM administration.	Refer to Table 2-14 for future management by alternative of lands to be returned to BLM administration.

Table 16. Withdrawals

Table 16. Withdrawals (continued).

Authority	Location			Acreage	Purpose	Segregative Effect	Surface Management Agency	Revocation/Termination Recommendation and Rationale	Future Management
	T	R	S						
SO of 6/20/1922	41S	14E	19	29.55	Klamath Basin Reclamation Project	B	BR/BLM	Continue withdrawal. Property still needed for project purposes.	Property will continue to be managed jointly by the BR and the BLM
SO of 2/25/1939 <sup>1</sup>	39S	12E	22 26	40.00 80.00 120.00	Klamath Basin Reclamation Project	B	BR/BLM	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Suitable for return to BLM administration.	Refer to Table 2-14 for future management by alternative of lands to be returned to BLM administration.
SO of 4/21/1940 <sup>1</sup>	40S	14E	5	41.04	Klamath Basin Reclamation Project	B	BR/BLM	Revoke withdrawal. Withdrawal relinquished by holding agency, no longer needed for project purposes. Suitable for return to BLM administration.	Refer to Table 2-14 for future management by alternative of lands to be returned to BLM administration.
SO of 2/21/1946	41S	14E	15 20 21 22 23	80.00 240.00 307.06 354.92 81.82 1,063.80	Klamath Basin Reclamation Project	B	BR/BLM	Continue withdrawal. Property still needed for project purposes.	Property will continue to be managed jointly by the BR and the BLM.
SO of 2/11/1947	39S	9E	20 21 21 22 25 27	13.30 <sup>1</sup> 12.06 1.20 <sup>1</sup> 7.50 <sup>1</sup> 7.70 18.40 60.16	Klamath Basin Reclamation Project	B	BR/BLM	Modify withdrawal. Continue or revoke portions of the withdrawal as requested by holding agency. Property no longer needed for project purposes. Rights-of-way issued to protect BR interests on lands to be returned to BLM administration.	Use of portions of the property as a BR administrative site will continue. Refer to Table 2-14 for future management by alternative of lands to be returned to BLM administration.

**Table 16. Withdrawals (continued).**

Authority	Location T R S	Acreage	Purpose	Segregative Effect	Surface Management Agency	Revocation/Termination Recommendation and Rationale	Future Management
FPC Order 11/17/1930	40S 8E 33	1.52	Protect electric transmission line	B	BLM/FERC	Not evaluated	Joint management to continue.
PSR 579	41S 6E 2	80.00	Protect water, power, and reservoir development potential	C	BLM/FERC	Not evaluated	Joint management to continue. BLM finds segment 2 of the Klamath River suitable for designation as scenic under the WSR Act, pending a decision by the Congress.
	7	40.00					
	10	80.00					
	18	113.95 313.95					
WPD 3 Same lands included in PSR 582	41S 6E 2	440.00	Protect water, power, and reservoir development potential	C	BLM/FERC	Not evaluated	Joint management to continue. BLM finds segment 2 of the Klamath River suitable for designation as scenic under the WSR Act, pending a decision by the Congress.
	3	480.00					
	5	40.00					
	7	512.58					
	1	151.54					
	11	240.00					
	13	550.15					
	23	578.25					
	27	280.00					
	35	312.53					
	13	30.54 3,615.19					
PSR 258	41S 6E 4	40.00	Protect water, power, and reservoir development potential	C	BLM/FERC	Not evaluated	Joint management to continue. BLM finds segment 2 of the Klamath River suitable for designation as scenic under the WSR Act, pending a decision by the Congress.
	8	360.00					
	10	80.00					
	12	294.03					
	14	216.09					
	26	288.15					
	34	309.83					
	13	23.24 1,611.34					

Table 16. Withdrawals

Table 16. Withdrawals (continued).

Authority	Location			Acreage	Purpose	Segregative Effect	Surface Management Agency	Revocation/Termination Recommendation and Rationale	Future Management		
	T	R	S								
Power project 10199 Salt Caves proposal	40S	6E	14	45.00	Protect water, power, and reservoir development potential	B	BLM/FERC	Not evaluated	Joint management to continue. BLM finds segment 2 of the Klamath River suitable for designation as scenic under the WSR Act, pending a decision by the Congress.		
			23	147.15							
			26	150.32							
	41S	6E	27	13.56							
			34	115.70							
			35	76.28							
	41S	5E	3	76.53							
			5	28.08							
			7	146.13							
			8	111.86							
			9	168.92							
			10	8.79							
			1	8.15							
41S	5E	12	11.89								
		13	13.98								
			1,122.34								
Power project 2082	40S	7E	6	14.47	Protect J.C. Boyle power project	B	BLM/FERC	Not evaluated	Joint management to continue.		
			40S	6E						1	23.41
										12	67.00
	13	40.74									
	41S	6E	14	27.33							
			23	16.68							
			26	7.40							
	41S	6E	27	1.23							
			34	2.80							
			35	11.17							
	41S	6E	3	8.24							
			10	4.89							
				225.36							
			6.42								
PSC 2	41S	5E	12	6.42	Protect water, power, and reservoir development potential	C	BLM/FERC	Not evaluated	Joint management to continue. BLM finds segment 2 of the Klamath River suitable for designation as scenic under the WSR Act, pending a decision by the Congress.		

Table 16. Withdrawals (continued).

Authority	Location			Acreage	Purpose	Segregative Effect	Surface Management Agency	Revocation/Termination Recommendation and Rationale	Future Management
	T	R	S						
Power project 10518-000 preliminary permit	40S	10E	11	200.00	Protect water, power, and reservoir development potential	B	BLM/FERC	Not evaluated	Joint management to continue.
			14	240.00					
			24	120.00					
				560.00					
Power project 10233 preliminary permit	40S	13E	30	80.00	Protect water, power, and reservoir development potential	B	BLM/FERC	Not evaluated	Joint management to continue.
			31	400.00					
	41S	12E	1	120.00					
	41S	13E	6	640.00					
			7	360.00					
			8	40.00					
			17	200.00					
			18	40.00					
			19	40.00					
			20	80.00					
			2,000.00						
Power project 10897 preliminary permit Russell Canyon	40S	13E	35	40.00	Protect water, power, and reservoir development Potential	B	BLM/FERC	Not evaluated	Joint management to continue.
	41S	13E	5						
			6						
			7						
			8						
			9						
			17						
			18						
Power project 11136 preliminary permit Stukel Mountain	40S	10E	11	200.00	Protect water, power, and reservoir development potential	B	BLM/FERC	Not evaluated	Joint management to continue.
			14	240.00					
			24	120.00					
				560.00					

Table 16. Withdrawals (continued).

Authority	Location T R S	Acreage	Purpose	Segregative Effect	Surface Management Agency	Revocation/Termination Recommendation and Rationale	Future Management
Power project 11138 preliminary permit Siukel Mountain	40S 10E 11 14 24	200.00 240.00 120.00 560.00	Protect water, power, and reservoir development potential	B	BLM/FERC	Not evaluated	Joint management to continue.
Power project 10897 preliminary permit Lorella pumped storage project	40S 12E 12	640.00	Protect water, power, and reservoir development potential	B	BLM/FERC	Not evaluated	Joint management to continue.
Power project 10970 preliminary permit Smith Reservoir pumped storage project	40S 13E 7 8 17 18	497.11 360.00 280.00 292.05 1,429.16	Protect water, power, and reservoir development potential	B	BLM/FERC	Not evaluated	Joint management to continue.
<b>Acreage Summary (does not include overlapping withdrawals):</b>							
BLM Administrative Sites		214.00	B		USFWS/BR	16,775.00	B
BR		8,815.00	B				
Public Water Reserves		1,321.00	D		BR/USFS	1,905.00	B
USFW		10.00	B				
Other Agency Powersites		211.00 5,547.00	A or B C				
Power Projects Stock Driveways		3,909.00 160.00	B				

**Table 16. Withdrawals (continued)**

## Abbreviations:

ANS	- Air Navigation Site	BR	- Bureau of Reclamation
PLO	- Public Land Order	FAA	- Federal Aviation Administration
PSC	- Power Site Classification	GSA	- General Services Administration
PSR	- Power Site Reserve	USFWS	- U.S. Fish and Wildlife Service
WPD	- Water Power Designation	NWR	- National Wildlife Refuge
SO	- Secretarial Order	NEPA	- National Environmental Policy Act
EO	- Executive Order	WSR Act	- Wild and Scenic Rivers Act
FERC	- Federal Energy Regulatory Commission	USFS	- U.S. Forest Service

Table does not include lands that have been transferred out of federal ownership subsequent to withdrawal.

## Segregative Effect:

- A - Withdrawn from operation of the general land laws, the mining laws, and the mineral leasing laws.
- B - Withdrawn from operation of the general land laws and the mining laws.
- C - Withdrawn from operation of the general land laws only, but open to entry and to mining claim location subject to section 24 of the Federal Power Act.
- D - Withdrawn from operation of the general land laws and closed to non-metalliferous mining (cement quality limestone, diatomite etc.), but open to metal mining (gold, silver, mercury etc).

## Footnotes:

<sup>1</sup> Withdrawals relinquished; land suitable for return to BLM administration.

<sup>2</sup> Reclamation withdrawal relinquished; administration returned to other withdrawing agency.

# Appendix K

## Resource Management Plan Monitoring

### All Land Use Allocations

#### Expected Future Conditions and Outputs

Protection of Supplemental Environmental Impact Statement special attention species so as not to elevate their status to any higher level of concern.

#### Implementation Monitoring

##### Questions

1. Are surveys for the species listed in Appendix E conducted before ground-disturbing activities occur?
2. Are protection buffers being provided for specific rare and locally endemic species and other species in the upland forest matrix?
3. Are the known sites of amphibians, mammals, bryophytes, mollusks, vascular plants, fungi, lichens, and arthropod species listed in Appendix E being protected?
4. Are the known sites of amphibians, mammals, bryophytes, mollusks, vascular plants, fungi, lichens, and arthropod species listed in Appendix E being surveyed?
5. Are high priority sites for species management being identified?
6. Are general regional surveys being conducted to acquire additional information and to determine necessary levels of protection for arthropods, fungi species that were not classed as rare and endemic, bryophytes, and lichens?

##### Monitoring Requirements

1. At least twenty percent of all ground disturbing management actions will be examined prior to project initiation and re-examined following project completion, to determine if: surveys are conducted for species listed in Appendix E, protection buffers are provided for specific rare and locally endemic species and other species in the upland forest matrix, and sites of species listed in Appendix E are protected.
2. The Annual Program Summary will address Implementation Questions 4-6.

#### Effectiveness and Validation Monitoring

##### Questions

1. Are measures taken to protect the Supplemental Environmental Impact Statement special attention species effective?

##### Monitoring Requirements

Deferred to Supplemental Environmental Impact Statement Monitoring Plan.

## **Riparian Reserves**

### **Expected Future Conditions and Outputs**

See Aquatic Conservation Strategy Objectives.

Provision of habitat for special status and Supplemental Environmental Impact Statement special attention species.

### **Implementation Monitoring**

#### **Questions**

1. Are watershed analyses being completed before on-the-ground actions are initiated in Riparian Reserves?
2. Is the width and integrity of the Riparian Reserves being maintained? (For example, did the conditions that existed before management activities change in ways that are not in accordance with the Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines and resource management plan management direction?)
3. What silvicultural practices are being applied to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy Objectives?
4. Are management activities in Riparian Reserves consistent with Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines, resource management plan management direction, and Aquatic Conservation Strategy Objectives?
5. Are new structures and improvements in Riparian Reserves constructed to minimize the diversion of natural hydrologic flow paths, reduce the amount of sediment delivery into the stream, protect fish and wildlife populations, and accommodate the 100-year flood?
6. A) Are all mining structures, support facilities and roads located outside the Riparian Reserves? B) Are those located within the Riparian Reserves meeting the objectives of the Aquatic Conservation Strategy? C) Are all solid and sanitary waste facilities excluded from Riparian Reserves or located, monitored, and reclaimed in accordance with Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines, and resource management plan management direction?
7. Are new recreation facilities within the Riparian Reserves designed to meet, and where practicable, contribute to Aquatic Conservation Strategy Objectives? Are mitigation measures initiated where existing recreation facilities are not meeting Aquatic Conservation Strategy Objectives?
8. Are new livestock handling and/or management facilities located outside Riparian Reserves? Are existing livestock handling and/or management facilities within the Riparian Reserves meeting the Aquatic Conservation Strategy Objectives?

#### **Monitoring Requirements**

1. The files on each year's on-the-ground actions will be checked annually to ensure that watershed analyses were completed prior to project initiation and to ensure the concerns identified in the watershed analysis were addressed in the project's Environmental Assessment.
2. At least twenty percent of management activities within the resource area will be examined prior to project initiation and re-examined following project completion, to determine whether the width and integrity of the Riparian Reserves were maintained.
3. The Annual Program Summary will report what silvicultural practices are being applied in order to attain Aquatic Conservation Strategy Objectives.

4. At least twenty percent of the activities that are conducted or authorized within Riparian Reserves will be reviewed in order to identify whether the actions were consistent with the Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines, resource management plan management direction, and Aquatic Conservation Strategy Objectives. In addition to reporting the results of this monitoring, the Annual Program Summary will also summarize the types of activities that were conducted or authorized within Riparian Reserves.
5. All new structures and improvements within a Riparian Reserve will be monitored during and after construction to ensure that it was constructed to: minimize the diversion of natural hydrologic flow paths, reduce the amount of sediment delivery into the stream, protect fish and wildlife populations and accommodate the 100-year flood.
6. All approved mining Plans of Operations will be reviewed to determine if: A) both a reclamation plan and bond were required; B) structures, support facilities and roads were located outside of Riparian Reserves, or in compliance with Aquatic Conservation Strategy objectives if located inside the Riparian Reserve; and C) if solid and sanitary waste facilities were excluded from Riparian Reserves or located, monitored and reclaimed in accordance with resource management plan management direction.
7. The Annual Program Summary will examine the status of evaluations of existing recreational facilities inside Riparian Reserves, to ensure that Aquatic Conservation Strategy Objectives are met. The Summary will also report on the status of the mitigation measures initiated where the Aquatic Conservation Strategy objectives cannot be met.
8. The Annual Program Summary will report the status of evaluations of existing and proposed livestock management facilities inside Riparian Reserves, to determine if Aquatic Conservation Strategy Objectives are met. The Summary will also report on the status of relocating those facilities where Aquatic Conservation Strategy Objectives cannot be met.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Is the health of Riparian Reserves stable or improving?
2. Are management actions designed to rehabilitate Riparian Reserves effective?
3. If conditions in the Riparian Reserves are stable or declining, are management activities contributing to the decline or preventing improvement?

### **Monitoring Requirements**

Deferred to Supplemental Environmental Impact Statement Monitoring Plan.

## **Late-Successional Reserves**

### **Expected Future Conditions and Outputs**

Development and maintenance of a functional, interacting, late-successional and old-growth forest ecosystem in Late-Successional Reserves.

Protection and enhancement of habitat for late-successional and old-growth forest-related species including the northern spotted owl.

## **Implementation Monitoring**

### **Questions**

1. What is the status of the preparation of assessments and fire plans for Late-Successional Reserves?
2. What activities were conducted or authorized within Late-Successional Reserves and how were they compatible with the objectives of the Late-Successional Reserve plan? Were the activities consistent with Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines, resource management plan management direction and Regional Ecosystem Office review requirements and the Late-Successional Reserve assessment?
3. What is the status of development and implementation of plans to eliminate or control non-native species which adversely impact late-successional objectives?
4. Are the effects of existing and proposed livestock management and handling facilities in Late-Successional Reserves being evaluated to determine if Late-Successional Reserve objectives are met? Are livestock management and/or handling facilities relocated where Late-Successional Reserve objectives are not met?

### **Monitoring Requirements**

1. The Annual Program Summary will address Implementation Questions 1-3.
2. The Annual Program Summary will report the status of evaluations of existing and proposed livestock management facilities inside Late-Successional Reserves, to determine if reserve objectives are being met. The Summary will also report on the status of relocating those facilities where Late-Successional Reserve objectives cannot be met.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Are forest management activities (for example, special forest/natural product harvest activities) within Late-Successional Reserves compatible with the goal of developing and maintaining a functional, interacting, late-successional and old-growth forest ecosystem?
2. Does the harvest of special forest products have adverse effects on Late-Successional Reserve objectives?
3. Is a functional, interacting, late-successional ecosystem maintained where adequate, and restored where inadequate?
4. Did silvicultural treatments benefit the creation and maintenance of late-successional conditions?
5. What is the relationship between levels of management intervention and the health and maintenance of late-successional and old-growth ecosystems?

### **Monitoring Requirements**

Deferred to Supplemental Environmental Impact Statement Monitoring Plan

# Matrix

## Expected Future Conditions and Outputs

Production of a stable supply of timber and other forest commodities.

Maintenance of important ecological functions such as dispersal of organisms, carryover of some species from one stand to the next, and maintenance of ecologically valuable structural components such as down logs, snags, and large trees.

Assurance that forests in the Matrix provide for connectivity between mapped Late-Successional Reserves.

Provision of habitat for a variety of organisms associated with early and late-successional forests.

## Implementation Monitoring

### Questions

1. Are suitable numbers of snags, coarse woody debris, and green trees being left, following timber harvest, as called for in the Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines and resource management plan management direction?
2. Are timber sales being designed to meet ecosystem goals for the Matrix?
3. Are late-successional stands being retained in fifth-field watersheds in which federal forest lands have fifteen percent or less late-successional forest?

### Monitoring Requirements

1. At least twenty percent of timber sales in the resource area will be examined by pre- and post-harvest (and after site preparation) inventories to determine snag and green tree numbers, heights, diameters, and distribution within harvest units. Snags and green trees left following timber harvest activities (including site preparation for reforestation) will be compared to those that were marked prior to harvest.

The same timber sales will also be inventoried pre- and post-harvest to determine if Supplemental Environmental Impact Statement Record of Decision and resource management plan down log retention direction and protection buffers for special status and Supplemental Environmental Impact Statement special attention species have been followed.

2. At least twenty percent of the files on each year's timber sales will be reviewed annually to determine if ecosystem goals were addressed in the silvicultural prescriptions.
3. All proposed harvest timber sales in watersheds with less than 15 percent late-successional forest remaining will be reviewed prior to sale to ensure that a watershed analysis has been completed.

## Effectiveness and Validation Monitoring

### Questions

1. Are stands growing at a rate that produce the predicted yields?
2. Are forests in the Matrix providing for connectivity between mapped Late-Successional Reserves?
3. Is forest health being addressed?

## **Monitoring Requirements**

Deferred to the Supplemental Environmental Impact Statement Monitoring Plan.

# **Air Quality**

## **Expected Future Conditions and Outputs**

Attainment of National Ambient Air Quality Standards, Prevention of Significant Deterioration goals, and Oregon Visibility Protection Plan and Smoke Management Plan goals.

Maintenance and enhancement of air quality and visibility in a manner consistent with the Clean Air Act and the State Implementation Plan.

## **Implementation Monitoring**

### **Questions**

1. Were efforts made to minimize the amount of particulate emissions from prescribed burns?
2. Are dust abatement measures used during construction activities and on roads during BLM timber harvest operations and other BLM commodity hauling activities?
3. Are conformity determinations being prepared prior to activities which may contribute to a new violation of the National Ambient Air Quality Standards, increase the frequency or severity of an existing violation, or delay the timely attainment of a standard?

### **Monitoring Requirements**

1. At least twenty percent of prescribed burn projects will be randomly selected for monitoring to assess what efforts were made to minimize particulate emissions, and whether the environmental analysis that preceded the decision to burn addressed the questions set forth in the Supplemental Environmental Impact Statement discussion of Emission Monitoring (pages 3&4-100).
2. At least twenty percent of the construction activities and commodity hauling activities will be monitored to determine if dust abatement measures were implemented.
3. The Annual Program Summary will address Implementation Question 3.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. What techniques were the most effective in minimizing the amount of particulate emissions from prescribed burns?
2. Are BLM prescribed burns contributing to intrusions into Class I areas or non-attainment areas?
3. Of the intrusions that the BLM is reported to be responsible for, what was the cause and what can be done to minimize future occurrences?
4. Are BLM prescribed underburns causing adverse air quality impacts to rural communities?

5. Are prescribed fires decreasing the actual or potential impacts from wildfire emissions?

## **Monitoring Requirements**

Deferred to Supplemental Environmental Impact Statement Monitoring Plan.

# **Water and Soils**

## **Expected Future Conditions and Outputs**

Restoration and maintenance of the ecological health of watersheds. See Aquatic Conservation Strategy Objectives.

Compliance with state water quality requirements to restore and maintain water quality to protect recognized beneficial uses.

Improvement and/or maintenance of soil productivity.

Reduction of existing open road mileage within all watersheds.

## **Implementation Monitoring**

### **Questions**

1. Are site specific Best Management Practices, identified as applicable during interdisciplinary review, carried forward into project design and execution?
2. Are the prescribed actions, programs and interagency coordination efforts called for in the Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines and resource management plan management direction being conducted?
3. What watershed analyses have been or are being performed? Are watershed analyses being performed prior to management activities in Key Watersheds?
4. What is the status of identification of in-stream flow needs for the maintenance of channel conditions, aquatic habitat, and riparian resources?
5. What watershed restoration projects are being developed and implemented?
6. What fuel treatment and fire suppression strategies have been developed to meet Aquatic Conservation Strategy Objectives?
7. What is the status of development of road or transportation management plans to meet Aquatic Conservation Strategy Objectives?
8. What is the status of preparation of criteria and standards which govern the operation, maintenance, and design for the construction and reconstruction of roads?
9. What is the status of the reconstruction of roads and associated drainage features identified in watershed analysis as posing a substantial risk? What is the status of closure or elimination of roads to further Aquatic Conservation Strategy Objectives; and to reduce the overall road mileage within all watersheds? If funding is insufficient to implement road mileage reductions, are construction and authorizations through discretionary permits, denied to prevent a net increase in road mileage in Key Watersheds?
10. What is the status of reviews of ongoing research in Key Watersheds to insure that significant risk to the watershed does not exist?

## **Appendix K - Resource Management Plan Monitoring**

11. What is the status of evaluation of recreation, interpretive and user-enhancement activities/facilities to determine their effects on the watershed? What is the status of eliminating or relocating these activities/facilities when found to be in conflict with Aquatic Conservation Strategy Objectives?
12. What is the status of cooperation with other agencies in the development of watershed-based Research Management Plans and other cooperative agreements to meet Aquatic Conservation Strategy Objectives? What is the status of cooperation with other agencies to identify and eliminate wild ungulate impacts which are inconsistent with attainment of Aquatic Conservation Strategy objectives?
13. Are management practices achieving the goal of maintaining long-term site productivity by avoiding, minimizing, or ameliorating soil compaction, displacement, surface erosion, and loss of organic material, including coarse woody debris?

### **Monitoring Requirements**

1. All management activities using best management practices will be monitored to determine whether best management practices are incorporated in the project design.
2. At least twenty percent of the timber sales, silviculture projects, or other ground disturbing activities stratified by management category will be randomly selected for monitoring to determine whether or not best management practices were implemented as prescribed. The selection of management actions to be monitored will be based on beneficial uses likely to be impacted, and for which best management practices are being prescribed.
3. Compliance checks will be completed for all agreements entered into with providers of municipal water.
4. The Annual Program Summary will address Implementation Questions 3-11.
5. Baseline monitoring will continue in the resource area to determine long-term trends and to provide a basis of separating changes in water quality resulting from natural events from those potentially created by management actions.
6. Two stream miles per year will be monitored to determine whether stream ecosystem objectives, such as maintenance of stream function, are being met.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Is the ecosystem function of the watersheds improving?
2. Are State water quality criteria being met? When State water quality criteria is met, are the beneficial uses of riparian areas protected?
3. Are prescribed best management practices maintaining or restoring water quality consistent with basin specific State water quality criteria for protection of specified beneficial uses?

### **Monitoring Requirements**

Deferred to Supplemental Environmental Impact Statement Monitoring Plan

# Wildlife Habitat

## Expected Future Conditions and Outputs

Maintenance of biological diversity and ecosystem health to contribute to healthy wildlife populations, consistent with BLM's Fish and Wildlife 2000 plan and other nationwide initiatives.

Maintenance of desired conditions in each special habitat (such as meadows, wetlands, and cliff/talus slopes), plus desired conditions in buffers at least 100 feet wide around dry meadows, and wooded swamps.

## Implementation Monitoring

### Questions

1. Are suitable (diameter, length and numbers) of snags, coarse woody debris and green trees being left, in a manner that meets the needs of species and provides for ecological functions in harvested areas as called for in the Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines and resource management plan management direction?
2. Are special habitats being identified and protected?
3. What is the status of designing and implementing wildlife restoration projects?
4. What is the status of designing and constructing wildlife interpretive and other user-enhancement facilities?
5. Are elk herds on BLM-administered lands stable or increasing?
6. Are range conditions stable or is there obvious competition between resources?
7. Are facilities or improvements functional and providing desired management results?
8. Is the BLM protecting special habitats as provided for in the resource management plan?
9. Is the average width of undisturbed buffers retained following timber harvest and site preparation activities as specified in the resource management plan?

### Monitoring Requirements

1. At least twenty percent of regeneration harvest timber sales in each resource area will be examined by pre- and post-harvest (and after site preparation) inventories to determine snag and green tree numbers, heights, diameters and distribution within harvest units. The measure of distribution of snags and green trees will be the percent in the upper, middle and lower thirds of the sale units monitored. Snags and green trees left following timber harvest activities (including site preparation for reforestation) will be compared to those that were marked prior to harvest.

The same timber sales will also be inventoried pre- and post-harvest to determine if Supplemental Environmental Impact Statement Record of Decision and resource management plan down log retention direction has been followed.

2. At least twenty percent of BLM actions, within the resource area, on lands including or near special habitats will be examined to determine whether special habitats were protected.
3. The Annual Program Summary will address Implementation Questions 3 and 4.
4. Examine twenty percent of BLM actions on lands containing or near special habitats to determine whether special habitats were protected as provided for in the resource management plan. Determine average buffer widths by measurements at approximately equidistant points around the affected unique habitat within each timber sale unit.

## **Appendix K - Resource Management Plan Monitoring**

6. Monitor the effects of BLM management on wildlife species using a variety of methods. Coordinate surveys of game species with the Oregon Department of Fish and Wildlife. Conduct monitoring of other species and habitats as needed, such as neotropical migrant birds by vegetation community, individual species surveys when needed, and vegetation surveys as part of the timber and range management activities.
7. Maintain and check management facilities (such as guzzlers, springs, road closures, etc.) periodically to ensure that they are functioning properly.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Are habitat conditions for late-successional forest associated species maintained where adequate, and restored where inadequate?
2. Are the snags, green trees and coarse woody debris being left, achieving the habitat necessary to attain the desired population at a relevant landscape level?
3. Are BLM actions intended to protect special habitats actually protecting the habitat? Is the protection of special habitats helping to protect the species population?
4. What are the effects of management on species richness (numbers and diversity)?

### **Monitoring Requirements**

Deferred to Supplemental Environmental Impact Statement Monitoring Plan (Which will address a variety of wildlife species such as amphibians, mollusks, neotropical migratory birds, etc.)

## **Fish Habitat**

### **Expected Future Conditions and Outputs**

See Aquatic Conservation Strategy Objectives.

Maintenance or enhancement of the fisheries potential of streams and other waters, consistent with BLM's *Fish and Wildlife 2000 Plan*, the Bring Back the Natives initiative, and other nationwide initiatives.

Rehabilitation and protection of at-risk fish stocks and their habitat.

### **Implementation Monitoring**

#### **Questions**

1. Are at-risk fish species and stocks being identified?
2. Are fish habitat restoration and enhancement activities being designed and implemented which contribute to attainment of Aquatic Conservation Strategy Objectives?
3. Are potential adverse impacts to fish habitat and fish stocks being identified?
4. Are habitat improvement projects and opportunities being identified?
5. Are fish populations adequate to provide present and expected future recreational needs?

## **Monitoring Requirements**

1. The Annual Program Summary will report on the status of watershed analysis to identify at-risk fish species and stocks, their habitat within individual watersheds, and restoration project needs.
2. The Annual Program Summary will report on the status of the design and implementation of fish habitat restoration and habitat activities.
3. The Annual Program Summary will report on the status of cooperation with federal, tribal and state fish management agencies to identify and eliminate impacts associated with poaching, harvest, habitat manipulation and fish stocking which threaten the continued existence and distribution of native fish stocks inhabiting federal lands. The Summary will also identify any management activities or fish interpretive and other user-enhancement facilities which have detrimental effects on native fish stocks.
4. At least twenty percent of the files on each year's timber sales, and other relevant actions, will be reviewed annually to evaluate documentation regarding fish species and habitat and related recommendations and decisions in light of policy and Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines and resource management plan management direction. If mitigation was required, review will ascertain whether such mitigation was incorporated in the authorization document and the actions will be reviewed on the ground after completion to ascertain whether the mitigation was carried out as planned.
5. Monitor lakes and fish populations, and stock if necessary.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Is the ecological health of the aquatic ecosystems recovering or sufficiently maintained to support stable and well-distributed populations of fish species and stocks?
2. Is fish habitat in terms of quantity and quality of rearing pools, coarse woody debris, water temperature and width to depth ratio being maintained or improved as predicted?
3. Are desired habitat conditions for listed, sensitive, and at-risk fish stocks maintained where adequate, and restored where inadequate?

### **Monitoring Requirements**

Deferred to Supplemental Environmental Impact Statement Monitoring Plan

## **Special Status and Supplemental Environmental Impact Statement Special Attention Species Habitat**

### **Expected Future Conditions and Outputs**

Protection, management and conservation of federal listed and proposed species and their habitats, to achieve their recovery in compliance with the Endangered Species Act (ESA) and Bureau special status species policies.

Conservation of federal candidate and Bureau sensitive species and their habitats so as not to contribute to the need to list, and to recover the species.

Conservation of state listed species and their habitats to assist the state in achieving management objectives.

## **Appendix K - Resource Management Plan Monitoring**

Maintenance or restoration of community structure, species composition, and ecological processes of special status plant and animal habitat.

Protection of Bureau assessment species and Supplemental Environmental Impact Statement special attention species so as not to elevate their status to any higher level of concern.

### **Implementation Monitoring**

#### **Questions**

1. Are special status species being addressed in deciding whether or not to go forward with forest management and other actions? During forest management and other actions that may disturb special status species, are steps taken to adequately mitigate disturbances?
2. Are the actions identified in plans to recover species being implemented in a timely manner?
3. What coordination with other agencies has occurred in the management of special status species?
4. What land acquisitions occurred or are under way, to facilitate the management and recovery of special status species?
5. What site specific plans for the recovery of special status species were or are being developed?
6. What is the status of analysis which ascertains species requirements or enhances the recovery or survival of a species?
7. What is the status of efforts to maintain or restore the community structure, species composition and ecological processes of special status plant and animal habitat?

#### **Monitoring Requirements**

1. At least twenty percent of the files on each year's timber sales, range improvements, grazing decisions, and other relevant actions (for example, rights-of-way, instream structures) will be reviewed annually to evaluate documentation regarding special status species and related recommendations and decisions in light of the Endangered Species Act requirements, policy and Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines and resource management plan management direction. If mitigation was required, review will ascertain whether such mitigation was incorporated in the authorization document and the actions will be reviewed on the ground after completion to ascertain whether the mitigation was carried out as planned.
2. Review implementation schedule and actions taken annually, to ascertain if the actions to recover species were carried out as planned.
3. The Annual Program Summary will address Implementation Questions 3-7.

### **Effectiveness and Validation Monitoring**

#### **Questions**

1. Are trends for special status species meeting the objectives of mitigation and/or conservation actions?
2. Have any Federal Candidates, Bureau Assessment or Bureau Sensitive species been elevated to higher levels of concern due to BLM management?
3. Were desired habitat conditions for the late-successional species maintained where adequate and restored where inadequate?

## **Monitoring Requirements**

Deferred to Supplemental Environmental Impact Statement Monitoring Plan (Which will address a variety of special status species including the bald eagle, northern spotted owl, etc.)

# **Special Areas**

## **Expected Future Conditions and Outputs**

Maintenance, protection, and/or restoration of the relevant and important values of the special areas which include: Areas of Critical Environmental Concern, Research Natural Areas, and Environmental Education Areas.

Preservation, protection, or restoration of native species composition and ecological processes of biological communities in research natural areas.

Preservation, protection or restoration of native species composition and ecological processes of biological communities in research natural areas.

Retention of existing research natural areas and existing areas of critical environmental concern that meet the test for continued designation. Retention of other special areas. Provision of new special areas where needed to maintain or protect important values.

## **Implementation Monitoring**

### **Questions**

1. Are BLM actions and BLM authorized actions/uses near or within special areas consistent with resource management plan objectives and management direction for special areas?
2. What is the status of the preparation, revision, and implementation of areas of critical environmental concern management plans?
3. What environmental education and research initiatives and programs are occurring in the research natural areas and environmental education areas?
4. Are existing BLM actions and BLM authorized actions and uses not consistent with management direction for special areas being eliminated or relocated?
5. Are actions being identified which are needed to maintain or restore the important values of the special areas? Are the actions being implemented?

### **Monitoring Requirements**

1. Annually, the files on all actions and research proposals within and adjacent to special areas will be reviewed to determine whether the possibility of impacts on areas of critical environmental concern values was considered, and whether any mitigation identified as important for maintenance of areas of critical environmental concern values was required. If mitigation was required, the relevant actions will be reviewed on the ground, after completion, to ascertain whether it was actually implemented.
2. The Annual Program Summary will address Implementation Questions 2-7.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Are the implemented management actions, designed to protect the values of the special areas, effective?
2. Are the special areas managed to restore or prevent the loss of outstanding values and minimize disturbance?

### **Monitoring Requirements**

1. Each special area will be monitored at least every three years to determine if the values for which it was designated are being maintained.
2. Each area of critical environmental concern will be monitored annually to determine if pro-active management actions met their objectives.

## **Cultural Resources Including American Indian Values**

### **Expected Future Conditions and Outputs**

Identification of cultural resource localities for public, scientific, and cultural heritage purposes.

Surveys of all resource area lands prior to surface disturbing activities.

Conservation and protection of cultural resource values for future generations.

Provision of information on long-term environmental change and past interactions between humans and the environment.

Fulfillment of responsibilities to appropriate American Indian groups regarding heritage and religious concerns.

### **Implementation Monitoring**

#### **Questions**

1. Are cultural resources being addressed in deciding whether or not to go forward with forest management and other actions? During forest management and other actions that may disturb cultural resources, are steps taken to adequately mitigate disturbances?
2. What mechanisms have been developed to describe past landscapes and the role of humans in shaping those landscapes?
3. What efforts are being made to work with American Indian groups to accomplish cultural resource objectives and achieve goals outlined in existing memoranda of understanding and develop additional memoranda as needs arise?
4. What public education and interpretive programs were developed to promote the appreciation of cultural resources?

#### **Monitoring Requirements**

1. At least twenty percent of the files on each year's timber sales and other relevant actions (for example, rights-of-way, instream structures) will be reviewed annually to evaluate documentation regarding cultural resources

and American Indian values and decisions in light of requirements, policy, and Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines and resource management plan management direction. If mitigation was required, review will ascertain whether such mitigation was incorporated in the authorization document and the actions will be reviewed on the ground after completion to ascertain whether the mitigation was carried out as planned.

2. The Annual Program Summary will address Implementation Questions 2-4.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Are sites of cultural heritage (including religious) and traditional use adequately protected?
2. Do American Indians have access to and use of forest species, resources and places important for cultural, subsistence, or economic reasons; particularly those identified in treaties?

### **Monitoring Requirements**

1. All cultural resource sites, where management and/or mitigation measures are utilized to protect the resource, will be monitored at least once a year to determine if the measures were effective.

The balance is deferred to Supplemental Environmental Impact Statement Monitoring Plan.

## **Visual Resources**

### **Expected Future Conditions and Outputs**

Preservation or retention of the existing character of landscapes on BLM-administered lands allocated for Visual Resource Management Class I and II management; partial retention of the existing character on lands allocated for Visual Resource Management Class III management and major modification of the existing character of some lands allocated for Visual Resource Management Class IV management.

Continuation of emphasis on management of scenic resources in selected high-use areas to retain or preserve scenic quality.

### **Implementation Monitoring**

#### **Questions**

1. Are visual resource design features and mitigation methods being followed during timber sales and other substantial actions in Visual Resource Management Class II, III, and IV areas?

#### **Monitoring Requirements**

1. Twenty percent of the files for timber sales and other substantial projects in Visual Resource Management Class II or III areas will be reviewed to ascertain whether relevant design features or mitigating measures were included.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Are timber sales and other major actions in Visual Resource Management Class II, III, and IV areas meeting or exceeding visual resource management objectives?
2. Are visual resource management objectives being met consistently, over long periods of time, in Visual Resource Management Class II management areas?

### **Monitoring Requirements**

1. All timber sales and other selected projects in Visual Resource Management Class II areas and at least twenty percent of sales or projects in Class III areas that have special design features, or mitigating measures for visual resource protection, will be monitored to evaluate the effectiveness of the practices used to conserve visual resources.
2. In Visual Resource Management Class II management areas, where two or more sales or actions have occurred, impacts will be monitored at a minimum interval of five years.

## **Wild and Scenic Rivers**

### **Expected Future Conditions and Outputs**

Protection of the outstandingly remarkable values of designated components of the National Wild and Scenic Rivers System through the maintenance and enhancement of the natural integrity of river-related values.

Protection of the outstandingly remarkable values of eligible/suitable Wild and Scenic Rivers (the upper Klamath River) and the maintenance or enhancement of the highest tentative classification (scenic) pending resolution of suitability and/or designation.

Designation of important and manageable river segments suitable for designation where such designation contributes to the National Wild and Scenic Rivers System.

### **Implementation Monitoring**

#### **Questions**

1. Are BLM actions and BLM authorized actions consistent with protection of the outstandingly remarkable values of designated or suitable rivers?
2. Are existing plans being revised to conform to Aquatic Conservation Strategy Objectives? Are revised plans being implemented?
3. Do actions and plans address maintenance or enhancement of the outstandingly remarkable values?

#### **Monitoring Requirements**

1. Annually, the files on all actions and research proposals within and adjacent to Wild and Scenic River corri-

dors will be reviewed to determine whether the possibility of impacts on the outstandingly remarkable values was considered, and whether any mitigation identified as important for maintenance of the values was required. If mitigation was required, the relevant actions will be reviewed on the ground, after completion, to ascertain whether it was actually implemented.

2. The Annual Program Summary report will summarize progress on preparation and revision of Wild and Scenic River management plans, their conformance with the Aquatic Conservation Strategy Objectives, and the degree to which these plans have been implemented.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Are the outstandingly remarkable values for designated rivers being maintained?
2. Are the outstandingly remarkable values of the suitable rivers protected?

### **Monitoring Requirements**

1. Each designated river will be monitored at least once a year to determine if the outstandingly remarkable values are being maintained.
2. Each suitable river will be monitored at least once a year to determine if the outstandingly remarkable values are being maintained.

## **Rural Interface Areas**

### **Expected Future Conditions and Outputs**

Consideration of the interests of adjacent land owners, including residents, during analysis, planning, and monitoring related to managed rural interface areas. These areas are defined as public lands within ¼ mile of identified rural interface areas zoned for one to twenty acre lots. (These interests include personal health and safety, improvements to property, and quality of life.)

Determination of how land owners might be or are affected by activities on BLM-administered land.

### **Implementation Monitoring**

#### **Questions**

1. Are design features and mitigation measures developed and implemented to avoid/minimize impacts to health, life and property and quality of life and to minimize the possibility of conflicts between private and federal land management?

#### **Monitoring Requirements**

1. At least twenty percent of all actions within the identified rural interface areas will be examined to determine if special project design features and mitigation measures were included and implemented as planned.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Are the rural interface area design features and mitigation measures effective in minimizing impacts to health, life, and property?

### **Monitoring Requirements**

1. At least twenty percent of actions within the identified rural interface areas which had design features or mitigation measures will be examined following completion to assess the effectiveness of the action.

## **Socioeconomic Conditions**

### **Expected Future Conditions and Outputs**

Contribution to local, state, national and international economies through sustainable use of BLM-managed lands and resources and use of innovative contracting and other implementation strategies.

Provision of amenities for the enhancement of communities as places to live and work.

## **Implementation Monitoring**

### **Questions**

1. What strategies and programs have been developed, through coordination with state and local governments, to support local economies and enhance local communities?
2. Are resource management plan implementation strategies being identified that support local economies?
3. What is the status of planning and developing amenities that enhance local communities, such as recreation and wildlife viewing facilities?

### **Monitoring Requirements**

1. The Annual Program Summary will address Implementation Questions 1-3.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. What level of local employment is supported by BLM timber sales and forest management practices?
2. What were Oregon and California payments to counties?

### **Monitoring Requirements**

Deferred to Supplemental Environmental Impact Statement Monitoring Plan.

# Recreation

## Expected Future Conditions and Outputs

Provision of a wide range of developed and dispersed recreation opportunities that contribute to meeting projected recreation demand within the planning area.

Provision of nonmotorized recreational opportunities and creation of additional opportunities consistent with other management objectives.

## Implementation Monitoring

### Questions

1. What is the status of the development and implementation of recreation plans?

### Monitoring Requirements

1. The Annual Program Summary will address Implementation Question 1.

## Effectiveness and Validation Monitoring

### Questions

1. Based on the Statewide Comprehensive Outdoor Recreation Plan supply and demand data and public comments, is the range of recreation opportunities on BLM lands (that is, roaded vs. unroaded) meeting public needs?
2. Are BLM developed recreation facilities meeting public needs and expectations, including facility condition and visitor safety considerations?
3. Are off-highway vehicle designations adequate to protect resource values while providing appropriate motorized vehicle recreation opportunities?
4. Are non-developed recreation activities conflicting with other resource values?

### Monitoring Requirements

1. Each Special Recreation Management Area will be monitored at least every three years to determine if the types of recreation opportunities being provided are appropriate.
2. All developed recreation sites will be monitored annually to determine if facilities are being properly managed and all deficiencies documented.
3. All off-highway vehicle designations will be reviewed annually to determine if revisions are necessary to protect resource values and resolve user conflicts.

## **Timber Resources**

### **Expected Future Conditions and Outputs**

Provision of a sustained yield of timber and other forest products.

Reduction of the risk of stand loss due to fires, animals, insects, and diseases.

Provision of salvage harvest for timber killed or damaged by events such as wildfire, windstorms, insects, or disease, in a manner consistent with management objectives for other resources.

Maintenance or restoration of healthy ecosystems while providing for the harvest of timber and other forest products in balance with other resource values and needs.

### **Implementation Monitoring Questions**

1. By land-use allocation, how do timber sale volumes, harvested acres, and the age and type of regeneration harvest stands compare to the projections in the Supplemental Environmental Impact Statement Record of Decision Standards and Guidelines and resource management plan management objectives?
2. Were the silvicultural (for example, planting with genetically selected stock, fertilization, release, and thinning) and forest health practices anticipated in the calculation of the expected sale quantity, implemented?

### **Monitoring Requirements**

1. The Annual Program Summary will report both planned and non-planned volumes sold. The report will also summarize annual and cumulative timber sale volumes, acres to be harvested, and types of harvest for General Forest Management Areas, and stratified to identify them individually.
2. An annual district wide report will be prepared to determine if the silvicultural and forest health practices identified and used in the calculation of the probable sale quantity were implemented. This report will be summarized in the Annual Program Summary.

### **Effectiveness and Validation Monitoring**

#### **Questions**

1. Is reforestation achieving desired stocking?
2. Are stands growing at a rate that will produce the predicted yields?
3. Is the long-term health and productivity of the forest ecosystem being protected in the Matrix?

#### **Monitoring Requirements**

1. First, third, and fifth year surveys will be used to determine if reforestation is meeting reforestation objectives.

The balance is deferred to Supplemental Environmental Impact Statement Monitoring Plan.

# **Special Forest/Natural Products**

## **Expected Future Conditions and Outputs**

Production and sale of special forest/natural products when demand is present and where actions taken are consistent with primary objectives for the land use allocation.

Utilization of the principles of ecosystem management to guide the management and harvest of special forest/natural products.

## **Implementation Monitoring**

### **Questions**

1. Is the sustainability and protection of special forest/natural product resources ensured prior to selling special forest products?
2. What is the status of the development and implementation of specific guidelines for the management of individual special forest/natural products?

### **Monitoring Requirements**

1. The Annual Program Summary will address Implementation Questions 1 and 2.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Are special forest products being harvested at a sustainable level?

### **Monitoring Requirements**

Deferred to Supplemental Environmental Impact Statement Monitoring Plan.

# **Grazing Management**

## **Expected Future Conditions and Outputs**

The livestock and wild horse grazing programs will be managed under the principles of multiple use and sustained yield. Monitor the existing grazing allotments and the wild horse herd management area in compliance with the established "Coordinated Monitoring and Evaluation Plan for Grazing Allotments" for the Klamath Falls Resource Area. Monitoring data will be the foundation to support adjustments in the management of grazing use by livestock and wild horses. Evaluation of the monitoring data, in relation to the identified allotment objectives in this Proposed Resource Management Plan as well as future standards and guidelines, will be completed through a team of interdisciplinary resource specialists, with public review as appropriate. (See Appendix L, Rangeland Monitoring and Evaluation section for an overview of the studies and evaluation process.)

## **Implementation Monitoring**

### **Questions**

1. Are allotment and herd management area goals and objectives being achieved with current management as specified on a allotment specific basis?
2. Are the appropriate standards and guidelines, applicable to livestock and wild horse grazing, being correctly applied and followed?
3. Are rangeland improvement projects consistent with meeting the objectives of all resources addressed in this Resource management plan as well as the Aquatic Conservation Strategy and Late-Successional/District Designated Reserve objectives?

### **Monitoring Requirements**

1. The Annual Program Summary will report on the implementation of this Proposed Resource Management Plan within the Grazing Management and Wild Horse programs. The report will summarize changes in grazing management systems, timing, and levels of use; allotment evaluations; range improvements planned and/or completed; management actions or changes within the herd management area; activity planning efforts; grazing related objectives and priority changes or additions; and other grazing program related items as pertinent.

## **Effectiveness and Validation Monitoring**

### **Questions**

1. Are current grazing systems and levels effectively enhancing riparian and wetland sites as emphasized in this Proposed Resource Management Plan and the Aquatic Conservation Strategy Objectives.
2. Are current grazing levels within the sustained yield capacity of the lands potential?
3. Rangeland improvement projects consistent with meeting the objectives of all resources addressed in the Proposed Resource Management Plan as well as the Aquatic Conservation Strategy and Late-Successional/District Designated Reserve objectives?

### **Monitoring Requirements**

1. Use approved Bureau monitoring techniques to analyze the effect of present management systems. Monitoring studies data is the information used to ascertain if resource goals and objectives are being met, in both

riparian/wetland and upland areas. Monitoring will be done as outlined and schedules in the Klamath Falls Resource Area's "Coordinated Monitoring and Evaluation Plan for Grazing Allotments".

2. Evaluate allotments and the herd management area, based on their priority and selective management categories, within established time frames found in the Oregon Rangeland Monitoring Handbook, the above reference plan, Bureau regulations, and technical references. Make adjustments in management, as necessary, based on these evaluations.
3. When completed, Ecological Site Inventory data will be used to establish desired plant community objectives for the major rangeland vegetative communities. (The Ecological Site Inventory is not expected to be completed until after the year 2000.)

## **Noxious Weeds**

### **Expected Future Conditions and Outputs**

Containment and/or reduction of noxious weed infestations on BLM-administered land using an integrated pest management approach.

Avoidance of the introduction or spread of noxious weed infestations in all areas.

### **Implementation Monitoring**

#### **Questions**

1. Are noxious weed control methods compatible with Aquatic Conservation Strategy Objectives?

#### **Monitoring Requirements**

1. Review the files of at least twenty percent of each year's noxious weed control applications to determine if noxious weed control methods were compatible with Aquatic Conservation Strategy Objectives.

### **Effectiveness and Validation Monitoring**

#### **Questions**

1. Are management actions effectively containing or reducing the extent of noxious weed infestations?

#### **Monitoring Requirements**

1. At least twenty percent of noxious weed sites subjected to treatment will be monitored to determine if the treatment was effective.

## **Fire/Fuels Management**

### **Expected Future Conditions and Outputs**

Provision of the appropriate suppression responses to wildfires in order to meet resource management objectives and minimize the risk of large-scale, high intensity wildfires.

Utilization of prescribed fire to meet resource management objectives. (This will include, but not be limited to, fuels management for wildfire hazard reduction, restoration of desired vegetation conditions, management of habitat, and silvicultural treatments.)

Adherence to smoke management/air quality standards of the Clean Air Act and State Implementation Plan standards for prescribed burning.

### **Implementation Monitoring**

#### **Questions**

1. Have analysis and planning been completed to allow some natural fires to burn under prescribed conditions?
2. Do wildfire suppression plans emphasize maintaining late-successional habitat?
3. Are Wildfire Situation Analyses being prepared for wildfires that escape initial attack?
4. What is the status of the interdisciplinary team preparation and implementation of fuel hazard reduction plans?

#### **Monitoring Requirements**

1. The Annual Program Summary will address Implementation Questions 1 - 4.

### **Effectiveness and Validation Monitoring**

#### **Questions**

1. Are fire suppression strategies, practices, and activities meeting resource management objectives and concerns?
2. Are prescribed fires applied in a manner which retains the amount of coarse woody debris, snags, and duff at levels determined through watershed analysis?
3. Are fuel profiles being modified in order to lower the potential of fire ignition and rate of spread; and to protect and support land use allocation objectives by lowering the risk of high intensity, stand-replacing wildfires?

#### **Monitoring Requirements**

Deferred to Supplemental Environmental Impact Statement Monitoring Plan.

# Index

Access .....	15, 20, 22, 24, 28, 34, 47, 52, 56, 57, 60, 65, 66, 75, 77, 78, 81
Adaptive management .....	6, 10, 24, 80-82, 85
Aquatic Conservation Strategy .....	3, 7, 9, 12-18, 28, 29, 32, 35, 36, 45, 52, 53, 56, 57, 61-63, 65-67, 71, 72, 74, 76, 77, 81, 83
Area of critical environmental concern .....	22, 51, 52, 56, 81
Back country byway .....	47, 50, 52
Best management practices .....	13, 28-30, 35, 39, 71, 82
Biological diversity .....	5, 6, 7, 22, 31, 37, 64
Budget .....	9, 84
Commercial forest land .....	6
Communication sites .....	66-68
Connectivity/diversity .....	6, 22
Consistency .....	14, 28, 67, 72, 76
Coordination and consultation .....	77
Corridor .....	20, 26, 45, 49, 66, 67, 82
Cultural Resources .....	43, 47
District Designated Reserves .....	(See Late-successional/district designated reserves)
Ecological health .....	5-7, 62
Ecological Principles .....	6, 7
Endangered species .....	3, 18, 21, 22, 36, 38, 51, 77, 82, 86
Energy .....	8, 16, 17, 29, 59, 60, 67
Fire/fuels management .....	16, 24, 75
Fish .....	29, 31, 35, 37-40, 45, 47, 63, 65-68, 71, 72, 77, 82
Flood plains .....	29
Forage .....	34-36, 38, 64
General forest management area .....	6, 22, 26, 33, 44, 46, 55, 77
Green trees .....	7, 20, 23-27, 31, 33, 56, 57
Habitat diversity .....	8, 29, 33, 45
Hazardous materials .....	74
Herbicides .....	17, 46, 53, 56
Issues .....	4, 31, 44, 49-51, 81, 82, 85
Key watershed .....	8, 9, 17, 28, 29, 35, 56, 67, 71, 73, 82, 86
Land tenure .....	64, 65
Land use allocation .....	5-10, 66-68, 71, 74-76, 78
Late-successional/district designated reserves .....	5-7, 11, 18-24, 31, 32, 36, 40, 53, 56, 57, 62, 63, 65, 67, 71, 73, 74, 77
Livestock .....	62-64
livestock .....	17, 21, 30, 31, 34, 47, 62-64
Matrix .....	5-7, 11, 12, 22-27, 31, 33, 36, 38, 40, 44, 46, 55-57, 77
Minerals .....	2, 15, 20, 25, 59-62
Mining .....	15, 20, 25, 28, 50, 59, 61, 62
Monitoring .....	57, 62-64, 82, 85, 86
monitoring .....	6, 9, 10, 15, 27, 29, 31, 38, 46, 55, 57, 62-64, 78, 80-86
National back country byway .....	47, 50, 52
Northern spotted owl .....	2, 3, 5, 18, 23, 38, 77
Noxious weeds .....	4, 73, 74, 83
Off-highway vehicles .....	28, 51
Old growth .....	3, 7, 18, 22-24, 32-34, 38, 42, 45, 49, 51, 55
Pacific Yew .....	4
Planning criteria .....	4

Range management .....	35
Recovery plan .....	3, 36, 38
Recreation .....	15-17, 20, 22, 25, 28, 31, 35, 36, 41, 42, 44-53, 56, 65, 68, 71, 82, 84
Reforestation .....	55
Research .....	6, 11, 22, 24, 30, 31, 41, 42, 51, 59, 66, 68, 80, 81, 85, 86
Research Natural Area .....	11, 22, 41, 42, 59, 66, 68
Rights-of-way .....	20, 21, 25, 66-68, 73
Riparian Reserves .....	3, 6, 8, 9, 11-18, 22, 28, 29, 32, 35, 36, 45, 49, 52, 53, 56, 57, 61-63, 65-67, 71, 72, 76, 77, 82, 86
Riparian-wetland area .....	8, 23, 27, 28, 29, 33, 39, 56, 63, 64
Roads ...	4, 8, 9, 14, 15, 17, 19, 20, 25, 27, 28, 31, 34, 35, 38, 41-42, 46, 50-52, 57, 61, 66, 71-73, 84
Rural interface areas .....	44, 46, 57, 72, 75
Salvage .....	13, 14, 19, 20, 24, 25, 42, 55, 73
Scenic resources .....	42, 43
Supplemental Environmental Impact Statement Special Attention Species .....	11
Sensitive species .....	11, 36, 37, 39
Snags .....	7, 19, 20, 22-27, 31, 33, 34, 38, 55, 56, 75-77
Soil .....	13, 14, 23, 24, 27, 28, 30, 31, 51, 56, 63, 64, 71, 72, 77
Special forest/natural products .....	21, 57
Special Habitats .....	31, 33, 34, 55, 57, 72
Spotted owl .....	2, 3, 5, 18, 19, 22-24, 38, 77, 81
Thinning .....	19, 20, 24, 25, 30, 34, 53, 55, 57, 84
Threatened and endangered species .....	18, 22, 38, 86
Visual resources .....	43, 49, 66
Water Quality .....	3, 7, 9, 16, 28, 29, 51, 56, 71, 72, 77, 78, 82, 86
Watershed analysis ..	8-10, 12-14, 17, 20, 21, 28-31, 35-37, 43, 44, 46, 49-52, 55, 56, 63, 72, 75, 77, 81-83, 85
Watershed restoration .....	8, 9, 17, 21, 29
Wild and scenic rive .....	4, 6, 16, 29, 44, 45
Wild horse .....	64
Wildlife .....	2-4, 8, 12, 16-18, 21, 22, 29-33, 35-42, 45, 47, 48, 50-52, 55-57, 60, 63, 64, 66, 68, 71, 77, 78, 82
Woody debris .....	7, 8, 14, 16, 17, 19-21, 23-27, 29, 33, 35, 55, 57, 73, 75-77
Yew .....	4

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

**LAKEVIEW DISTRICT OFFICE**  
Klamath Falls Resource Area  
2795 Anderson Avenue, Bldg. 25  
Klamath Falls, Oregon 97603

**OFFICIAL BUSINESS**  
PENALTY FOR PRIVATE USE, \$300

FORWARDING AND ADDRESS  
CORRECTION REQUESTED

FIRST CLASS MAIL  
POSTAGE & FEES PAID  
Bureau of Land Management  
Permit No. G-76