



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

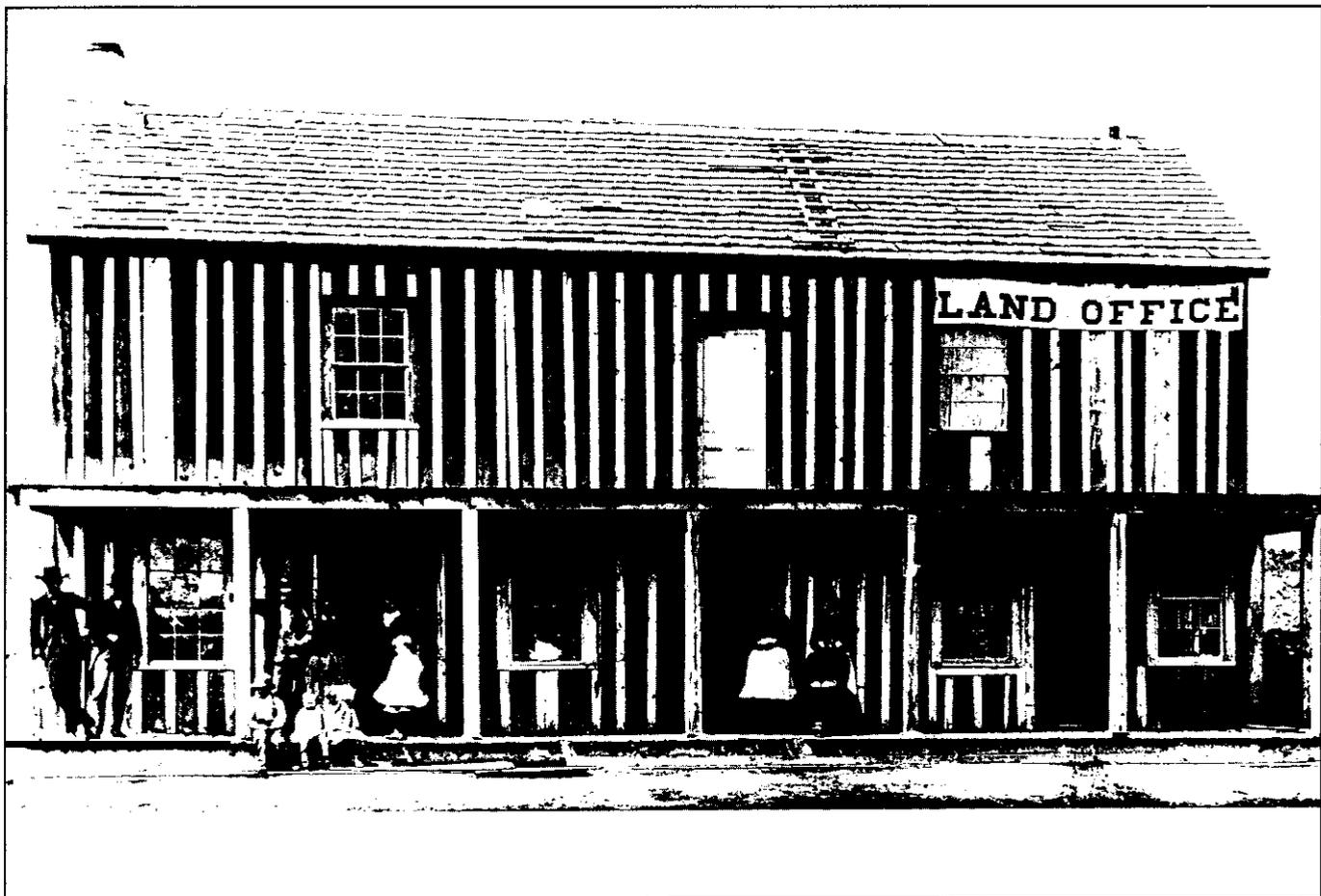
Burns District Office
HC 74-12533
Highway 20 W.
Hines, Oregon 97738

October 1989



Draft Three Rivers Resource Management Plan and Environmental Impact Statement

Volume I - Text



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-ES-90-4-1792

Cover Photo – Federal Land Office - Temporary Headquarters in the Burns Hotel building from 1889-1891. Predecessor to the Taylor Grazing Service and Bureau of Land Management.



UNITED STATES DEPARTMENT OF THE INTERIOR

**BUREAU OF LAND MANAGEMENT
BURNS DISTRICT OFFICE
HC 74-I 2533 Hwy 20 West
Hines, Oregon 97738**

October 31, 1989

Dear Reader:

You are cordially invited to assist the Bureau of Land Management (BLM) in a planning process that is important to you and your interests.

We ask for your participation in evaluating this draft of the Three Rivers Resource Management Plan/Environmental Impact Statement (RMPIEIS) which has been prepared in conformance with land use planning procedures established by the Federal Land Policy and Management Act of 1976.

The planning area encompassed by this document is the northern half of BLM's Burns District. The planning area includes 1,709,918 acres of public land, primarily in Harney County. Minor acreages of Grant, Lake, Malheur and Crook Counties are also covered.

There are five management alternatives, each with a different emphasis and each addressing the planning issues in slightly different ways. Public comment played an important role in shaping both the issues and the alternatives which have been analyzed in this RMPIEIS. Before the preferred alternative was developed, suggestions received from private individuals, interest groups and other governmental entities were thoroughly considered. These suggestions were utilized to strike a reasonable balance between the expressed desires of some individuals to emphasize the production of various commodity resources; the desire to maintain the current flow of resources from the public lands; and the desire to protect, restore and enhance natural values.

Through this RMPIEIS, the ELM has tentatively established: resource management goals (as expressed by each alternative); resource management objectives and specific management actions which would determine the potential land uses; levels of resource production; areas in which use restrictions would apply; and lands which could be transferred, sold or exchanged.

The end product of this planning process will be a Resource Management Plan (RMP) which will integrate all natural resources and their subsequent uses into a balanced approach to multiple use management of the Three Rivers Resource Area for the next 10 to 15 years. Your participation in guiding the future management of public lands is essential. This RMP will replace and supercede the Drewsey Management Framework Plan (MFP), the Riley MFP and the Silvies Valley portion of the John Day RMP. When completed, this RMP will establish specific land use allocations for water quality, commercial forest harvest, livestock grazing, wild horses, vegetative diversity, special status species, wildlife habitat, fire management, recreation, areas of critical environmental concern, visual resources, wild and scenic rivers, cultural resources, energy and minerals, land tenure, rights-of-way and access for BLM-administered lands in the entire planning area.

We would also like to call your attention to the fact that 1989 is the centennial year for Harney County. In honor of this important occasion, the Burns District BLM will be utilizing a series of old photographs in the RMP to highlight the county's important and colorful history. The District is proud of its contribution to Harney County's development and pleased to have the opportunity to "showcase" the county's rich past as we look to the future with the development of the land use plan. As the centennial theme states, we are "Proud of the Past Poised for the Future."

We would appreciate you reviewing this document and providing us with your written comments by February 1, 1990. Comments are most useful when they address one or more of the following: 1) comments which point out errors in the analysis that has been performed; 2) comments which provide new information that would have a bearing on the analysis, 3) comments which provide a substantive new alternative not within the range of alternatives considered; 4) comments requesting clarification; and 5) comments citing misinformation that may have been utilized and could affect the outcome of the analysis. To assist you in this, you are invited to contact Jay Carlson, Planning Team Leader, at any time during the 90-day comment period.

BLM employees will be available at informal public meetings to be held during the comment period. Public meetings are scheduled:

December 4, 1989
Burns District Office
Hines, Oregon
7 p.m.

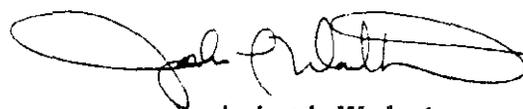
December 6, 1989
Riverhouse Motor Inn
Bend, Oregon
7 p.m.

Thank you for your interest in the multiple use management of the public lands.

Sincerely,



Craig M. Hansen
Area Manager,
Three Rivers Resource Area



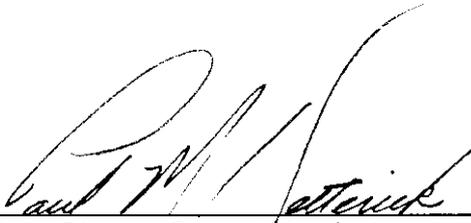
Joshua L. Warburton
District Manager
Burns District

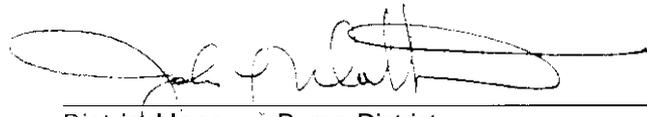
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

Draft Three River Resource Impact Statement

Environmental Impact Statement

Prepared by
Burns District Office
October 1989


State Director, Oregon/Washington


District Manager, Burns District



Three Rivers Resource Management Plan and Environmental Impact Statement

Draft (X) Final () RMP/EIS Department of the Interior Bureau of Land Management

1. Type of Action: Administrative (X) Legislative ()
2. Abstract: This Draft Resource Management Plan/Environmental Impact Statement addresses resource management on 1,709,918 acres of public land administered by the Bureau of Land Management in the Burns District. The Preferred Alternative proposes improvement of water quality on 115 miles of stream; average annual timber harvests of 578 MBF from 8,263 acres of commercial forestland; forage allocations of 139,851 AUMs for livestock, 5,808 AUMs for wild horses and burros, and 7,800 AUMs for big game (competitive forage only); improvement in wetland, aquatic and playa habitat; aggressive management of special status plant and animal species; administration of 17,176 acres as Special Recreation Management Areas; designation of 5.4 miles and 1,730 acres for inclusion in the National Wild and Scenic Rivers System as a Wild River; retention of 17,456 acres, and addition of 43,539 acres as ACECs. A total of approximately 38,523 acres of public land would be considered for sale over the planning period; provisions would be made for mineral exploration and development; and air, soil and recreation resources would be protected.
3. Five Alternatives are analyzed.
 - A. Emphasize Natural Values
 - B. Emphasize Natural values with Commodity Production**
 - C. The Preferred Alternative
 - D. Emphasize Commodity Production with Natural Values
 - E. Emphasize Commodity Production
4. The comment period will be 90 calendar days, ending February **1, 1990**.
5. For further information contact:

Jay **Carlson**
RMP/EIS Team Leader
Bureau of Land Management
Burns District Office
HC 74-12533
Highway 20 W.
Hines, Oregon 97738

Summary

Five multiple use alternatives for the management of public lands in the Three Rivers Resource Area have been developed and analyzed in accordance with the Federal Land Policy and Management Act of 1976.

The alternatives respond to major planning issues identified through the public participation and planning processes. They include management of livestock grazing, adjustment of land tenure, meeting wildlife

forage demands and improving habitat condition, fire management, and the identification and administration of special management areas.

Each alternative is a complete land use plan that provides a framework for the multiple use management of the full spectrum of resources present.

The anticipated effects of the management actions contained in each of the alternatives are summarized by major resource or program:

Program	Baseline Level	Alt. A Level	Alt. B Level	Alt. C Level	Alt. D Level	Alt. E Level
Water Quality						
<i>Water Quality (Stream Miles)</i>						
Excellent	0.00	2.90	0.00	0.00	0.00	0.00
Good	0.00	113.75	116.65	115.00	5.15	5.70
Fair	20.65	3.75	3.75	3.75	35.70	110.60
Poor	82.50	6.15	6.15	7.80	71.55	10.25
Unknown	23.40	0.00	0.00	0.00	14.15	0.00
Total	126.55	126.55	126.55	126.55	126.55	126.55
<i>Water Quality (Surface Acres)</i>						
Excellent	0	1,351	0	0	0	0
Good	45	3,090	4,441	1,301	876	825
Fair	4,001	0	0	3,140	3,560	411
Poor	445	50	50	50	55	3,255
Total	4,491	4,491	4,491	4,491	4,491	4,491
Forest Management						
<i>Timber Base</i>						
Acres	8,605	4,868	8,263	8,283	8,700	9,291
Annual Harvest (MBF)	602	341	578	578	609	650
Grazing Management						
<i>Livestock Forage Condition (Acres)</i>						
Good	590,141	716,805	612,512	667,142	789,644	688,663
Fair	813,652	731,704	831,031	809,510	705,217	796,266
Poor	251,646	206,930	211,896	178,787	160,578	170,510
Total	1,655,439	1,655,439	1,655,439	1,655,439	1,655,439	1,655,439
<i>Initial Stocking Levels (AUMs)</i>						
Stocking Levels	150,472	54,891	107,283	139,851	161,222	164,622

Program	Baseline Level	Alt. A Level	Alt. B Level	Alt. C Level	Alt. D Level	Alt. E Level
Wild Horses and Burros						
<i>Forage Condition (Acres)</i>						
Stinkingwater						
Good	36,778	62,078	51,269	51,269	51,269	51,269
Fair	42,853	17,553	28,362	28,362	28,362	28,362
Poor	0	0	0	0	0	0
Total	79,631	79,631	79,631	79,631	79,631	79,631
Kiger						
Good	12,985	22,693	15,225	15,225	15,225	15,225
Fair	23,831	14,123	21,591	21,591	21,591	21,591
Poor	0	0	0	0	0	0
Total	36,816	36,816	38,816	36,816	36,816	36,816
Riddle Mountain						
Good	6,000	6,000	7,223	7,223	7,223	7,223
Fair	22,021	22,021	20,797	20,797	20,797	20,797
Poor	0	0	0	0	0	0
Total	28,021	28,021	28,020	28,020	28,020	28,020
Warm Springs						
Good	133,064	138,064	225,525	195,525	195,525	225,525
Fair	199,926	195,926	137,465	137,465	137,465	137,465
Poor	123,824	122,824	93,824	123,824	123,824	93,824
Total	458,814	456,814	456,814	456,814	456,814	456,814
Palomino Buttes						
Good	22,068	22,068	45,368	50,368	45,368	50,368
Fair	35,300	35,300	12,000	12,000	12,000	12,000
Poor	12,681	12,881	12,681	12,681	12,681	7,681
Total	70,049	70,049	70,049	75,049	70,049	70,049
Wildlife Habitat						
<i>Deer Winter Range (Habitat Condition Acres)</i>						
Satisfactory	334,910	505,396	481,289	482,951	478,238	372,961
Unsatisfactory	195,571	25,085	49,192	47,530	52,243	157,520
Total	530,481	530,481	530,481	530,481	530,481	530,481
<i>Deer Summer Range (Habitat Condition Acres)</i>						
Satisfactory	376,670	669,808	616,371	611,371	564,784	472,257
Unsatisfactory	325,293	32,155	85,592	90,592	137,179	229,706
Total	701,963	701,963	701,963	701,963	701,963	701,963
<i>Elk Winter Range (Habitat Condition Acres)</i>						
Satisfactory	234,211	255,551	245,631	245,631	234,211	234,211
Unsatisfactory	21,340	0	9,920	9,920	21,340	21,340
Total	255,551	255,551	255,551	255,551	255,551	255,551

Program	Baseline Level	Alt. A Level	Alt. B Level	Alt. C Level	Alt. D Level	Alt. E Level
<i>Elk Summer Range (Habitat Condition Acres)</i>						
Satisfactory	105,380	148,480	127,680	127,680	105,380	105,380
Unsatisfactory	43,100	0	20,800	20,800	43,100	45,100
Total	148,480	148,480	148,480	148,480	148,480	150,480
<i>Streamside Riparian Habitat (Acres)</i>						
Good	118.20	494.50	294.50	494.50	116.70	494.50
Fair	274.80	40.75	40.75	40.75	230.70	40.75
Poor	149.00	19.75	19.75	19.75	207.50	19.75
Unknown	0.00	97.50	97.50	97.50	97.50	97.50
Total	542.00	158.00	158.00	158.00	535.70	158.00
<i>Aquatic Habitat Condition (Stream Miles)</i>						
Excellent	0.00	0.60	0.00	0.00	0.00	
Good	8.10	59.75	61.25	60.25	14.75	12.90
Fair	22.30	6.95	6.95	7.45	34.65	54.50
Poor	38.80	2.20	2.20	2.70	21.00	3.00
Total	1.20	0.00	0.00	0.00	0.00	0.00
<i>Wetland Habitat (Acres)</i>						
Good	50	971	956	956	956	956
Fair	911	380	395	395	395	395
Poor	390	0	0	0	0	0
Uncontrollable	3,140	3,140	3,140	3,140	3,140	3,140
Total	4,491	4,491	4,491	4,491	4,491	4,491
Expansion	200	670	300	490	200	200
<i>Playa Habitat Trend (Acres)</i>						
Upward	0	8,655	8,355	7,155	0	0
Static	8,655	0	0	0	8,155	0
Downward	0	0	300	1,500	500	8,655
Fire Management						
<i>Fire Suppression Classes (Acres)</i>						
Full, W/O Presc.	0	67,724	67,724	67,724	0	67,724
Full, W/Presc.	1,709,918	1,179,196	1,179,196	1,179,196	1,709,918	1,179,196
Cond., W/Presc.	0	462,080	462,080	462,080	0	462,080
Recreation						
<i>Special Recreation Management Areas</i>						
Acres	16,656	17,178	17,176	17,176	16,656	16,896
<i>Off Highway Vehicle Designations (Acres)</i>						
Open	1,599,764	911,704	1,570,994	1,556,825	1,599,764	1,584,384
Limited	100,064	788,434	124,834	143,003	100,064	115,444
Closed	10,090	10,090	14,090	10,090	10,090	10,090
Total	1,709,918	1,710,228	1,709,918	1,709,918	1,709,918	1,709,918

Program	Baseline Level	Alt. A Level	Alt. B Level	Alt. C Level	Alt. D Level	Alt. E Level
Wild and Scenic Rivers						
<i>Designations (Stream Miles)</i>						
Wild	0	3	0	0	0	0
Scenic	0	0	3	0	0	0
Total	0	3	3	0	0	0
<i>Designations (Acres)</i>						
Wild	0	920	0	0	0	0
Scenic	0	0	920	0	0	0
Total	0	920	920	0	0	0
Areas of Critical Environmental Concern (Acres)						
Diamond Craters ONA	16,656	17,136	17,136	17,136	16,656	16,656
South Narrows ACEC	160	160	160	160	160	160
Silver Cr. RNA	640	640	640	640	640	640
Silver Cr. Ext. RNA	0	960	960	960	0	0
Foster Flat RNA	0	1,870	1,870	720	0	0
Dry Mtn. Ext. RNA	0	2,240	2,240	2,240	0	0
Kiger Mustang ACEC	0	2,686	19,595	36,619	0	66,244
Biscuitroot ACEC	0	5,280	5,280	2,520	0	2,520
Obsidian ACEC	0	13,900	16,900	0	0	13,900
Total	17,456	44,872	64,781	60,995	17,456	100,120
Visual Resource Management						
<i>Class Designations (Acres)</i>						
Class I	8,610	8,580	8,580	8,580	8,610	8,580
Class II	120,621	131,131	131,131	126,581	120,621	122,061
Class III	425,600	419,550	419,550	421,770	425,600	424,190
Class IV	1,155,087	1,150,657	1,150,657	1,152,987	1,155,087	1,155,087
Cultural Resources						
<i>Active/Managed Sites</i>						
Lithic Scatters	51	371	51	51	51	6
Occupation/Camp	77	86	77	77	77	28
Quarry	29	37	29	29	29	6
Rock Shelter	27	31	27	27	27	2
Rock Art	18	19	18	18	18	0
Trash Dump	2	11	2	2	2	0
Structure	4	6	4	4	4	0
Other	6	11	6	6	6	2
Total	214	572	214	214	214	44
Energy and Minerals						
<i>Fluid Energy Minerals (Oil and Gas Lease Acres)</i>						
Category 1	1,328,111	1,139,069	1,442,231	1,510,294	1,328,111	2,166,464
Category 2	787,517	890,588	644,735	591,722	787,517	0
Category 3	98,075	184,046	126,737	111,687	98,075	47,239
Category 4	113,331	113,331	113,331	113,331	113,331	113,331
Total	2,327,034	2,327,034	2,327,034	2,327,034	2,327,034	2,327,034

Program	Baseline Level	Alt. A Level	Alt. B Level	Alt. C Level	Alt. D Level	Alt. E Level
<i>Solid Leasable Minerals (Acres)</i>						
Avail.to Lease	2,198,267	2,175,887	2,171,331	2,192,467	2,198,267	2,183,451
Not Available	17,936	40,316	44,872	23,736	17,936	32,752
<i>Mining Materials</i>						
Avail. Sites	24	24	24	24	24	24
Acres Avail.	2,114,337	2,114,337	2,114,337	2,114,337	2,114,337	2,114,337
<i>Locatable Minerals (Acres)</i>						
Withdrawn	44,912	59,532	57,902	45,162	44,912	44,912
Available	2,199,547	2,174,017	2,174,017	2,199,067	2,199,547	2,199,067
<i>Lands and Realty</i>						
<i>Land Tenure Adjustment (Acres)</i>						
Zone1	1,577,559	1,469,864	1,575,597	1,478,091	1,577,559	1,081,509
Zone2	121,559	199,220	93,599	193,304	121,559	531,764
Zone3	10,800	40,834	40,722	38,523	10,800	96,646
Total	1,709,918	1,709,918	1,709,918	1,709,918	1,709,918	1,709,919
<i>Corridor Designations</i>						
Linear Miles	123	185	185	185	123	185
<i>Exclusion/Avoidance Areas (Acres)</i>						
Exclusion Areas	0	114,710	20,385	20,385	0	20,385
Avoidance Areas	0	0	79,525	64,475	0	0
Total	0	114,710	99,910	84,860	0	20,385

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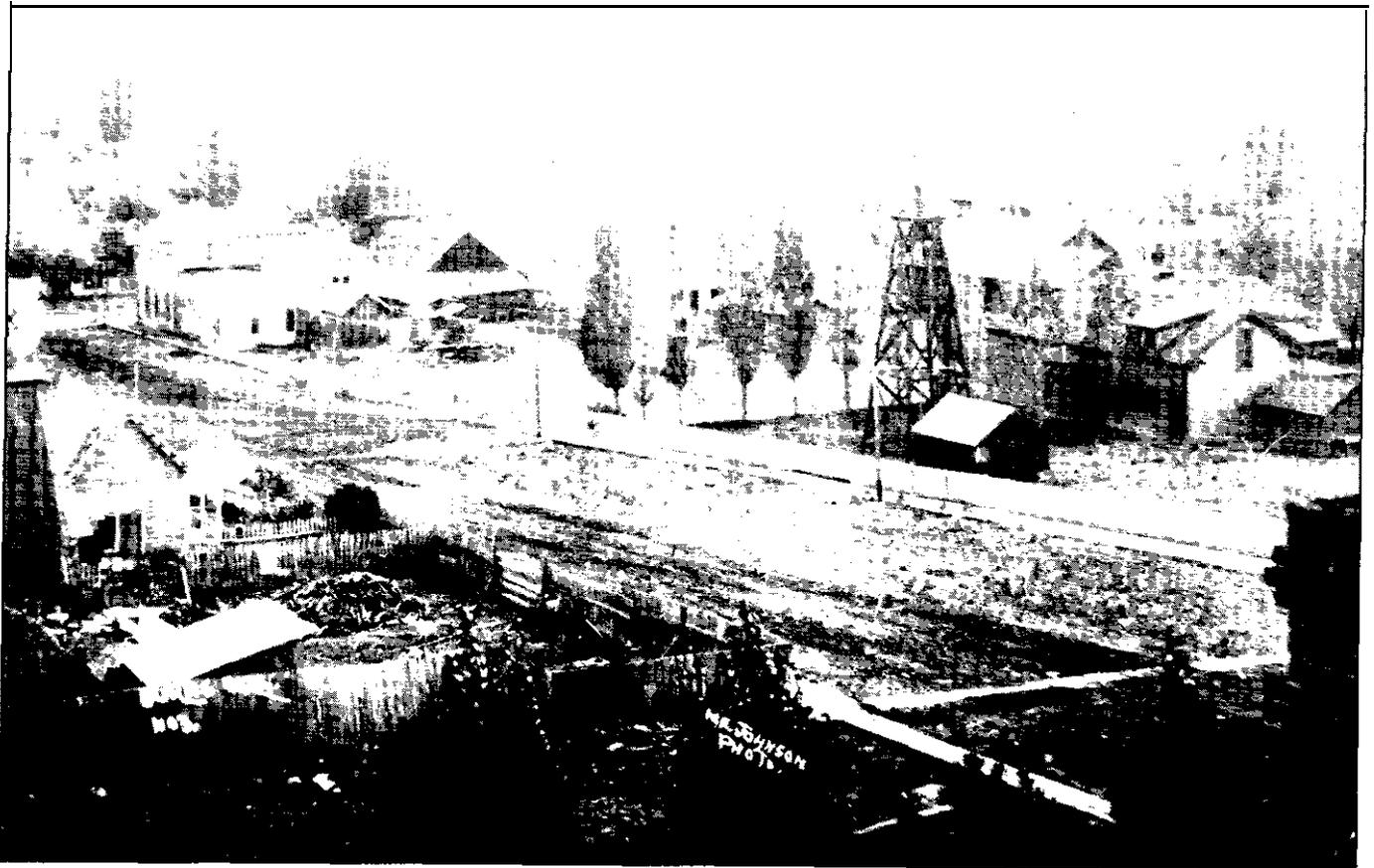
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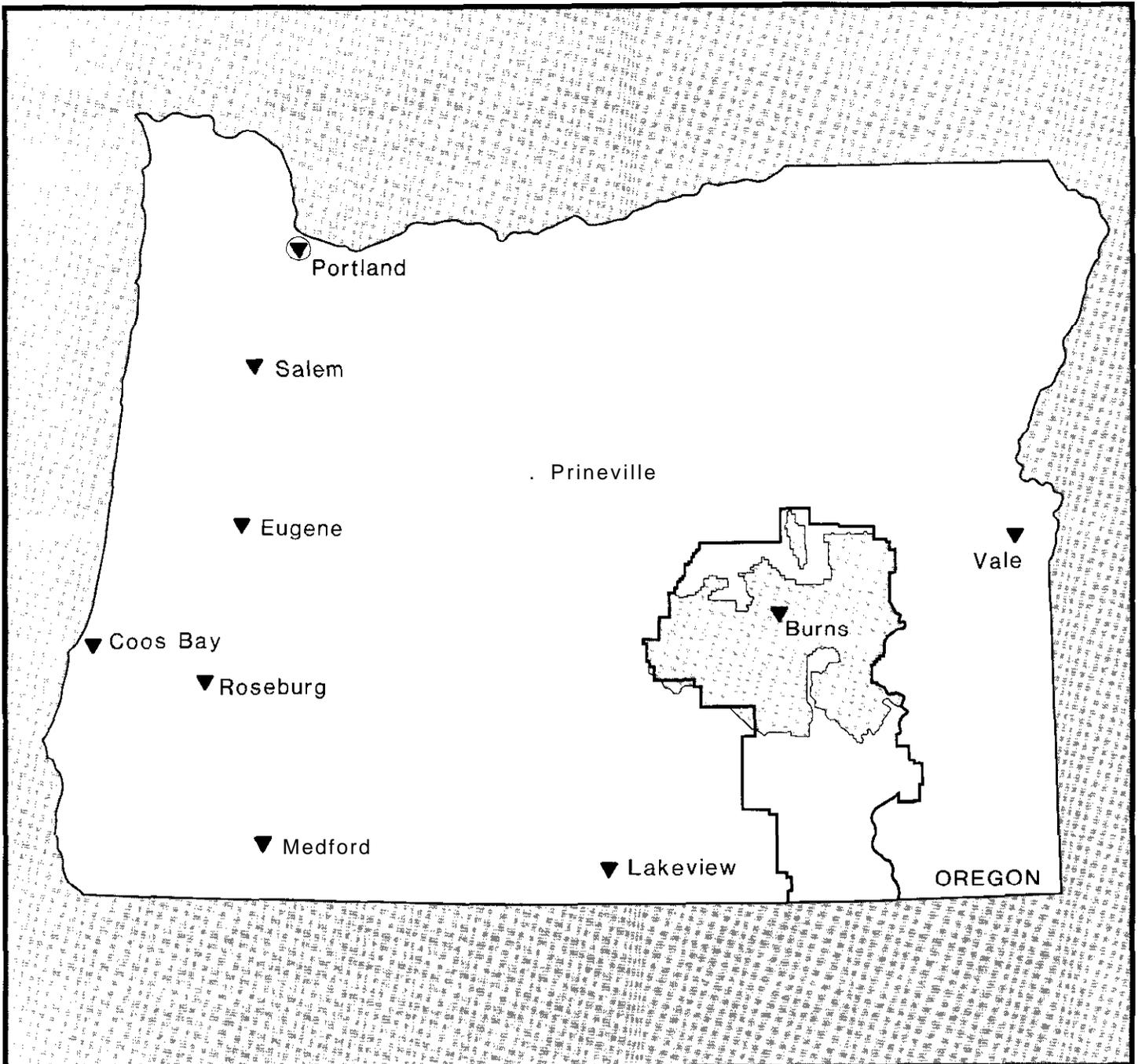
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Chapter 1 Purpose and Need



Burns Oregon, circa 1912, *Gene Luckey Photo*



LEGEND

◐ BLM State Office

▼ BLM District Office

— Burns District Boundary

▨ Three Rivers Planning Area

U.S. DEPARTMENT OF THE **INTERIOR**
Bureau Of Land Management

BURNS DISTRICT
THREE RIVERS RESOURCE AREA

September 1989

MAP GEN-1
GENERAL LOCATION

Introduction. The Planning Area

The Draft Three Rivers Resource Management Plan/ Environmental Impact Statement (RMP/EIS) is a comprehensive framework for managing public lands and for guiding the allocation of resources in the Three Rivers Resource Area (RA) over the next 10 to 15 years. The impacts associated with managing public land (Map GEN-1) in the high desert area of Eastern Oregon are analyzed in this document.

The Three Rivers RA contains 1,709,918 acres of public land that lies within portions of Harney (1,587,073 acres), Grant (8,484 acres), Lake (91,505+acres) and Malheur Counties (22,856 acres) (Map GEN-2).

The Ochoco and Malheur National Forests and the Malheur National Wildlife Refuge (U.S. Fish and Wildlife Service) are the other major federal land management agencies in the planning area.

The RA is situated in the northern half of the Burns District on the northern extreme of the Great Basin and the southern end of the Blue Mountains. The RA is generally characterized as high desert with large expanses dominated by sagebrush typical of the Great Basin. The Great Basin influence gives way in the northern and eastern portions of the RA where stands of pine and fir are found.

Purpose and Need

The purpose and need for the RMP/EIS is to guide the future management of public land resources in the

Three Rivers RA. To accomplish this it is necessary to identify and resolve multiple use conflicts (issues) related to the management of public lands in the RA. The plan is intended to fulfill requirements of the Federal Land Policy and Management Act (FLPMA), which requires the Bureau of Land Management (BLM) to prepare comprehensive land use plans that are consistent with the principles of multiple use and sustained yield. FLPMA also requires public participation and close coordination with other agencies. The RMP/EIS process results in decisions determining how the various resources will be managed to best meet present and future public needs. This plan establishes parameters for all resources on BLM-administered land in the Three Rivers RA, with the exception of the potential recommendations on the designation of Malheur River/Bluebucket Creek and Stonehouse Wilderness Study Areas (WSAs). The wilderness study process has been ongoing since 1979 and is beyond the scope of this RMP effort. Recommendations as to whether or not the areas are suitable for wilderness designation will be analyzed in a final statewide wilderness EIS.

It is also the purpose and need of this planning process to provide for and encourage direct public involvement in the decision-making process affecting the management of public lands in the RA. Toward this goal, the planning process is open to public involvement at every step.

Planning Process

The BLM planning process is conducted in nine stages. Table 1.1 summarizes these stages and displays the status of each.

Table 1.1. Resource Management **Planning Process**

1.	Identification of Issues	Completed Oct. '87
2.	Development of Planning Criteria	Ongoing
3.	Data Collection/Consolidation	Completed July '88
4.	Analysis of the Management Situation	Completed Nov. '88
5.	Formulation of Alternatives	Completed Jan. '89
6.	Estimation of Effects	Completed March '89
7.	Selection of Preferred Alternative and Public Review and Comment Periods	
	A. Draft RMP/EIS	Nov. Jan. '90
	B. Final RMP/EIS	April - May '90
8.	Approved Resource Management Plan	Scheduled Sept. '90
9.	Monitoring and Evaluation of RMP/EIS	Ongoing Upon Approval

Planning Issues

Five planning issues have been identified and carried into the process of developing the Draft RMP/EIS. Public input was received in response to an initial scoping brochure issued by the BLM in September of 1987. Public meetings were conducted in Burns on October 19, 1987, and in Bend on October+22, 1987. The five planning issues were confirmed, through public comment, as being significant and timely.

1. Grazing Management Issue

Grazing management practices prescribed in preceding land use plans (the Riley and Drewsey Grazing EISs and Management Framework Plans (MFPs)) have not been fully implemented and it now appears that they cannot be implemented within a reasonable timeframe. This leads to a condition in which there is potential for (a) conflict with legally established resource values and (b) conflict over the use of resources.

Considerations in Resolving the Issue

Are changes needed in the grazing management program identified in the Drewsey and Riley Grazing EISs/MFPs? If so, what kinds of changes are needed? Where are they needed? Should there be a priority of some areas over others? If so, what area(s) should receive highest priority and how should priorities be established?

2. Land Tenure Issue

Land ownership patterns within the RA contain some areas of scattered tracts and/or intermingled ownerships. Such patterns present problems for the efficient management and utilization of the public's resources. The means to relieve such problems are through exchanges with other landowners, transfers to other agencies and the public sale of identified tracts. Such actions can lead to the potential for (a) conflict with legally established resource values, (b) loss of a resource or environmental value, (c) conflict over the use of resources, and (d) high public concern relating to the use or preservation of a resource.

Considerations in Resolving the Issue

Is there a need to consolidate public landholdings? If so, what lands would be most important? Are there lands that should be identified for disposal through sale, exchange or transfer from public ownership? If so, which lands? Are there privately held lands which

should be acquired to enhance public values? If so, which lands? Are there lands which should be retained in public ownership and not made available for any form of disposal, including exchange? If so, which lands?

3. Wildlife Forage Demands and Habitat Condition Issue

Existing management decision documents do not adequately address recent shifts in elk populations or concerns over deer winter range conditions. To accommodate these concerns it may be necessary to revise some forage and land use allocations. Such allocations have the potential for (a) conflict with legally established resource values, (b) conflict over the uses of resources, and (c) high public concern over the use or preservation of a resource value.

Considerations in Resolving the Issue

Should BLM allocate forage for elk from public land? If so, for what target population levels? Are there management actions that BLM should undertake to improve the condition of deer winter range? If so, what and where? How much should other resource uses such as livestock grazing be changed to accommodate such modifications?

4. Fire Management Issue

BLM's fire management strategy has been primarily one of full suppression. This practice is both expensive and neglects the beneficial uses of fire as a management tool in certain applications. Changes in current fire management strategies could involve the establishment of three zones: full suppression, conditional suppression, and prescribed fire. Establishing these strategies could cause concern over the potential for (a) conflict with legally established resource values, (b) a serious loss of a resource or environmental value, and (c) high public concern relating to the preservation of a resource value.

Considerations in Resolving the Issue

With the understanding that the BLM will continue to meet its responsibility to protect life and property, are there areas where conditional suppression of wildfire would be appropriate? If so, where? Are there areas where either natural or prescribed fire would be a beneficial management tool? If so, where? Should the use of prescribed fire place more emphasis on the improvement of air quality than on the maintenance of plant communities? Are there areas where full fire suppression should be retained to protect important public/private values? If so, where?

5. Special Management Areas issue

Special management designations are in place on three sites in the RA - Diamond Craters Outstanding Natural Area (ONA), South Narrows Area of Critical Environmental Concern (ACEC), and Silver Creek Research Natural Area (RNA). Special designations and/or the absence of them can lead to the potential for (a) conflict with legally established resource values, (b) major conflict over the use of resources, and (c) high public concern relating to the use or preservation of a resource value.

Considerations in Resolving the Issue

Should the three existing areas be retained under their current special designations? Which, if any, of the proposed nine additional ACECs should be designated? Which, if any, segments of free-flowing and eligible river segments should be considered for inclusion in the National Wild and Scenic River System? Are there other areas or sites in the RA for which special designation is needed to further protect or enhance the habitat of listed threatened, endangered or sensitive species: to provide scientific and educational study opportunities; or to preserve outstanding or unique scenic, botanical, geologic, cultural or other resource values? If so, where? What are the values?

Issues Eliminated from Detailed Study

Ongoing Statewide Wilderness Study. The wilderness study process has continued since 1979 and has progressed beyond the level of detail contained in this RMP/EIS process. Two areas, Malheur River/Blue-bucket Creek and Stonehouse WSAs, totaling 17,885 acres, are located in the planning area and are being considered for designation as wilderness (Map ACEC-1). No further analysis of these areas for wilderness will be included in this document; however, portions of some WSAs are considered for designation as ACECs.

Noxious Weed Control. Control of noxious weeds is addressed in detail in the Northwest Area Noxious Weed Control Program EIS (BLM, 1987). As such, noxious weed control needs in the RA were not considered to be a planning issue.

Grasshopper Control. Periodic outbreaks of grasshoppers do occur in the RA and can be a significant problem. BLM has entered into a memorandum of

understanding (which can be renewed annually as needed) with the U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS) for the control of grasshoppers on public lands in the RA. An environmental assessment of the local effects of the APHIS control was completed in 1986. As such, grasshopper control in the RA was not considered to be a planning issue.

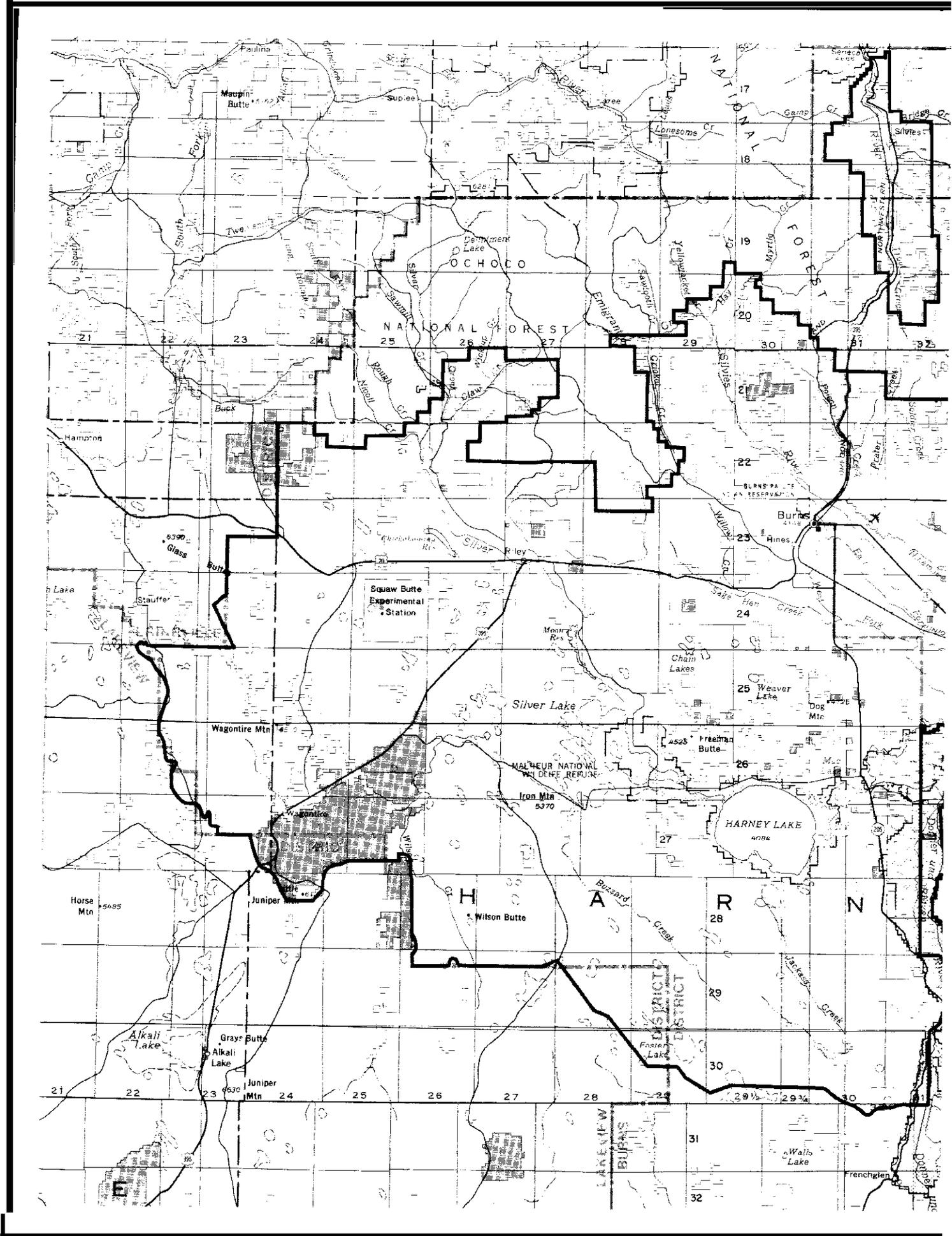
Planning Criteria

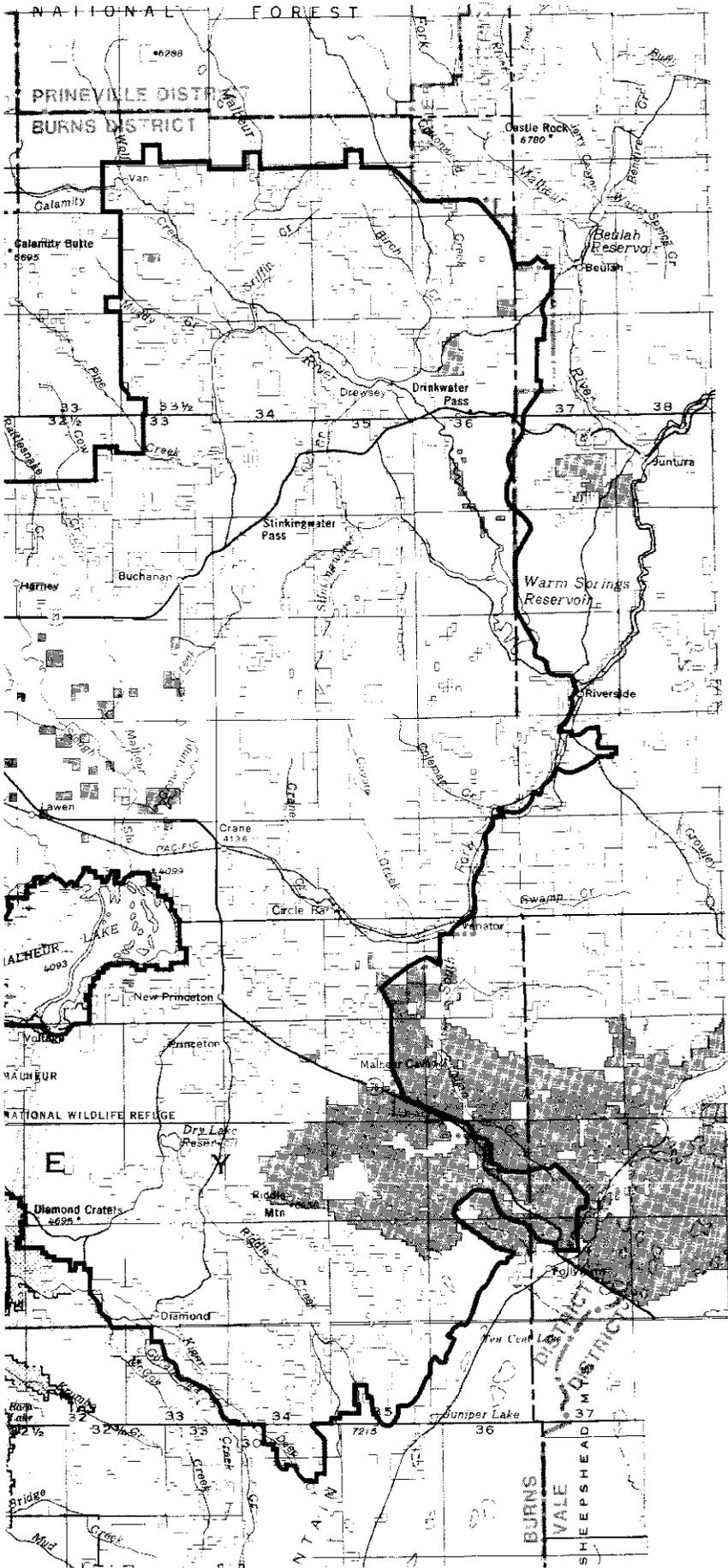
Planning criteria are utilized to guide the planning process. They are derived from law, regulation and policy. BLM has utilized three sets of planning criteria for the Three Rivers RMP: 1) FLPMA criteria, 2) Identification of Conflicts and Opportunities, and 3) Alternative Formulation Criteria.

Planning Criteria from the Federal Land Policy and Management Act of 1976 (FLPMA)

Section 202(c) of the FLPMA provides that, in the development and revision of land use plans, the Secretary of the Interior shall:

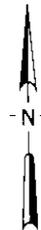
1. Use and observe the principles of multiple use and sustained yield;
2. Use an interdisciplinary approach to integrate consideration of physical, biological, economic and other sciences;
3. Give priority to the designation of areas of critical environmental concern;
4. Rely on the inventory of public lands, their resources and other values;
5. Consider present and potential uses of the public lands;
6. Consider the relative scarcity of the values involved and the availability of alternative means and sites for realization of those values;
7. Weigh long-term benefits to the public against short-term benefits;
8. Provide for compliance with applicable pollution laws;
9. To the extent possible, coordinate land use inventory, planning, and management of public lands with the land use planning and management programs of other federal agencies and state and local governments.





LEGEND

-  BLM Lands
-  USFS Lands
-  Other Federal Lands
-  State Lands
-  Private Lands
-  District Boundary
-  Planning Area Boundary
-  Planning Unit Boundary



U.S. DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT
 BURNS DISTRICT
 September 1989
 THREE RIVERS RESOURCE AREA
MAP GEN-2
LANDSTATUS

Section 302(b) of FLPMA requires the Secretary to manage the public lands so as to prevent unnecessary or undue degradation of the lands.

Planning Criteria Used in the Identification of Conflicts/ Opportunities

Conflicts - Management practices will be identified as management conflicts if any of the following conditions prevails:

1. Management of one resource significantly constrains or diminishes the use of another resource;
2. Agency guidance requires that land use allocations which are not currently in effect be made through the plan;
3. Existing land use allocations conflict with current agency resource management policies or guidance;
4. Documented public controversy exists regarding the management of a resource.

Opportunities - Management practices will be identified as management opportunities if either of the following conditions prevails:

1. Management conflicts identified through the above criteria can be resolved in alternative ways with readily available management practices;
2. Appreciable public demand exists for resource uses or conditions sustainable in the RA, but is currently under-represented.

Management Objectives

Management objectives for the various resources must:

1. Be measurable/quantifiable in terms of location, area involved and timeframe;
2. Be reasonably achievable within an appropriate timeframe, normal budgetary limitations and with existing technology;
3. Be purposeful in terms of resolving a significant conflict, realizing an identified opportunity, or maintaining a currently desirable condition;
4. Provide relatively clear and complete program guidance;

5. Be reasonably independent of other management objectives.

Planning Criteria for Alternative Formulation

Each alternative formulated and assessed in the Draft RMP/EIS shall:

1. Directly assess the degree of accomplishment of the identified management objectives;
2. Be in accordance with the discretionary limits established through applicable laws, regulations and agency policies;
3. Provide for reasonable, feasible and practical guidance for management of public lands and resources through a full range of options;
4. Provide a complete land use plan

At least one alternative among those assessed in the Draft RMP/EIS will provide for each of the following:

1. Continuation of present management practices;
2. Emphasizing the use, production, or extraction of renewable and nonrenewable resources (although not necessarily in the same alternative);
3. Emphasizing the protection and enhancement of natural systems and sensitive resources;
4. Emphasizing a balancing of production and extraction interests with protection and enhancement interests.

BLM Planning and Agency Interrelationships

Interagency coordination with other federal agencies and state and local government is required by BLM regulations (43 CFR Part 1610.3) and functions under cooperative agreements or memorandums of understanding.

Federal Agencies

With parts of two national forests administered by the Forest Service (FS) adjacent to the Three Rivers planning area, the two agencies strive to achieve similar resource management goals on adjoining lands.

The U.S. Fish and Wildlife Service (USFWS) administers the Endangered Species Act of 1973 (as amended). The BLM consults with that agency whenever a proposed project may affect a proposed or listed species or its critical habitat. The BLM requests technical assistance and the USFWS then issues a formal biological opinion and recommends appropriate courses of action. A proposed action may be modified or abandoned to satisfy the requirements of the biological opinion. The USFWS also administers the Malheur National Wildlife Refuge. BLM administers the underlying mineral estate and much of the surrounding lands.

The BLM and the Bonneville Power Administration (BPA) coordinate resource management programs through a memorandum of understanding. The BLM, the BPA and the Northwest Power Planning Council are involved in stabilization and improvement of riparian zones, fish habitat as authorized by the National Power Planning Act, and aquatic habitat through grants provided by the BPA. The BPA also assists the BLM in identifying and evaluating regional utility corridor options.

The Federal Energy Regulatory Commission reviews proposals for new powersites on rivers within the Three Rivers planning area.

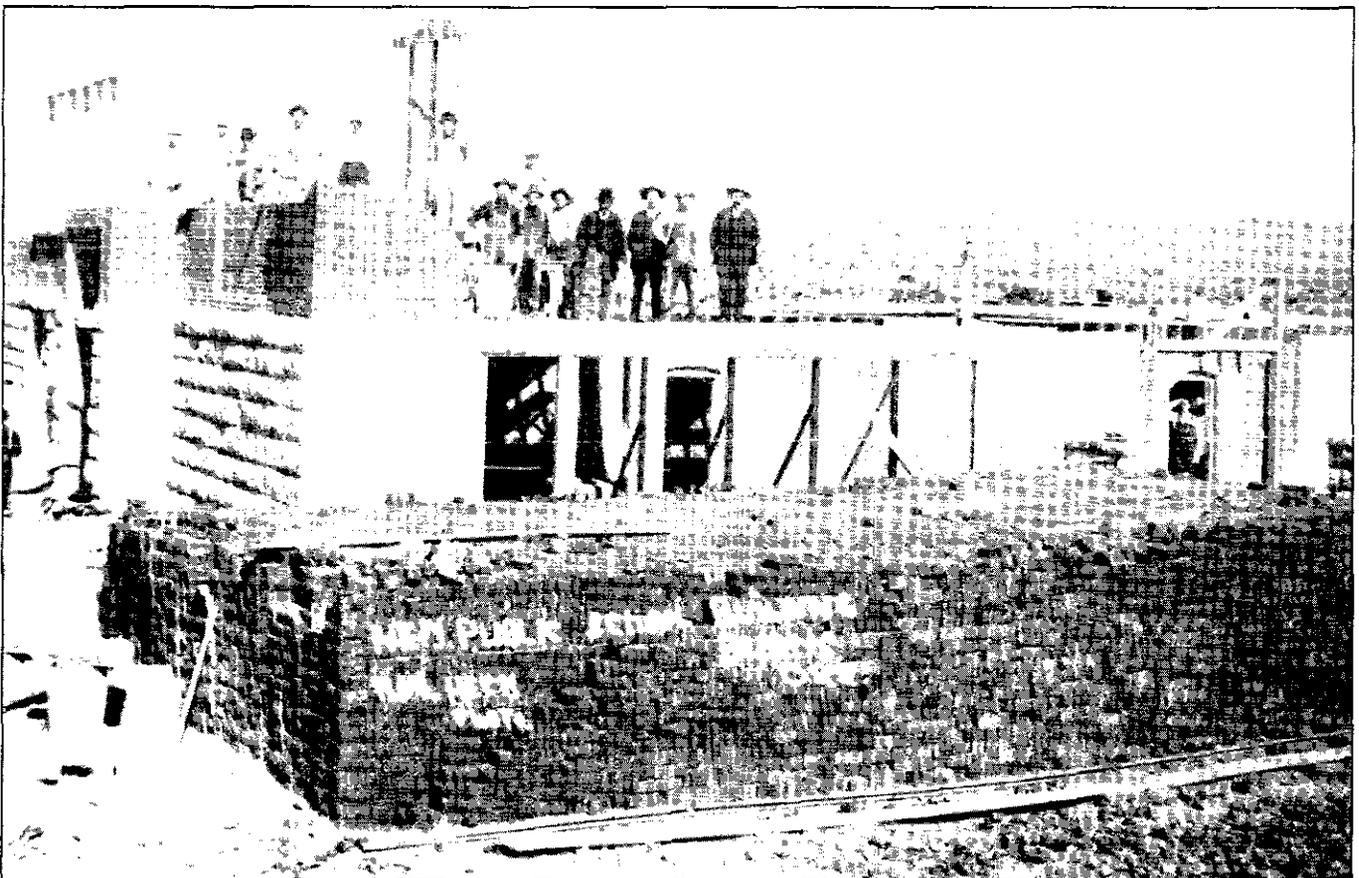
The BLM works with the Soil Conservation Service on shared soil and water management issues as well as other resource concerns.

The BLM also coordinates with the Malheur National Wildlife Refuge on issues of mutual concern.

The BLM and the FS have several Interagency agreements regarding minerals management on lands administered by the FS. The BLM also has interagency agreements on minerals management with other federal agencies, such as the Bureau of Indian Affairs. However, the management of minerals on lands administered by other federal agencies is not addressed as part of this RMP/EIS.

State and Local Governments

The Intergovernmental Relations Division of the Executive Department of Oregon acts as a clearinghouse for various state agencies. State agency review of BLM planning documents is coordinated through that clearinghouse at several points in the planning process. Planning is also coordinated with the county commissioners and county planning departments.



Building Burns High School. 1911, completed 1912 at present site of Lincoln Jr. High. *D.Clemens Photo*

The BLM and the Oregon Department of Fish and Wildlife (ODFW) work closely on site-specific activities. The ODFW also works with the ELM on livestock grazing management, vegetation monitoring and evaluation, and the installation of range, fish and wildlife improvements.

The ELM works cooperatively with the Oregon Department of Forestry (ODF) in fire suppression activities on public lands. Prescribed burning is scheduled in cooperation with adjacent landowners and the ODF. The BLM follows Oregon's Visibility Protection Plan when prescribed burning is done. BLM also coordinates with ODF and private landowners for forest harvest techniques and silvicultural practices.

The ODF, through administration of the Forest Practices Act of 1972, regulates timber harvest operations and related practices on all non-federal lands within the planning area. The BLM has entered into a memorandum of understanding with the ODF on minimum standards for:

- Timber harvest
- Reforestation of economically suitable lands
- Road construction and maintenance on forested lands
- Chemical applications
- Fuels treatment
- Maintenance of streamside buffers

The BLM and Oregon State Parks Division of Department of Transportation regularly consult on issues related to management of public land adjacent to state parks and state scenic waterways.

Under a memorandum of understanding, the BLM and Oregon Department of Environmental Quality (DEQ) work together to meet implementation requirements of the Clean Water Act (PL 92-500), as amended. The Fish and Wildlife Coordination Act of 1958 requires wildlife conservation be given equal consideration and be coordinated with other features of water developments.

The Oregon Department of Geology and Mineral Industries (DOGAMI) and BLM have a memorandum of understanding covering development of geothermal resources, conservation of oil and gas, and mined land reclamation on federal lands administered by BLM in Oregon. DOGAMI and BLM work closely to avoid duplication in regulations, inspections and approval of reclamation plans and attempt to minimize repetitive costs to mine operators, the public and state and federal governments.

The BLM cooperates with soil and water conservation districts to establish mutual goals in coordinating range and watershed practices and to gather and share information beneficial for use on public and private lands. Cooperation with appropriate weed control districts also occurs to deal with infestations of noxious weeds.

Under Section 202 of the FLPMA, all BLM plans must be consistent, insofar as possible, with resource-related plans officially approved or adopted by state and local agencies. The comprehensive plans for Harney, Lake, Grant and Malheur Counties have been acknowledged by the Oregon Land Conservation and Development Commission (LCDC) and are in conformance with statewide planning goals and objectives. The public lands within the planning area are generally in "exclusive farm use" or "forestland" zones.

Appendix 13 shows the relative consistency of each of the RMP/EIS alternatives with statewide land conservation and development goals. These statewide goals have been incorporated and acknowledged in the Harney, Malheur and Lake County comprehensive plans.

County plans on minimum lot size for residences vary. The sale of small parcels of public land would not violate county plans because the new owners would still be subject to county zone requirements in obtaining building permits or variances from existing county plans and ordinances which control land use.

Individuals and Groups

Approximately 1.03 million acres of privately-owned land lie within the boundaries of the Three Rivers RA and comprise nearly 35 percent of the surface ownership. Public lands, managed by the BLM, comprise approximately 58+percent. As such, numerous individuals and groups have a direct interest in the effects of public land management. In addition, numerous individuals and groups from outside the immediate area have interests in the management of the RA. Management coordination and consultation is, therefore, essential. To facilitate this coordination and consultation, the RA maintains a mailing list which currently exceeds 500 individuals and groups.

Coordination and Consistency with Other BLM Plans

The Three Rivers RMP/EIS is a comprehensive land use plan. During the Analysis of the Management Situation (AMS) stage of the planning process, an assessment was conducted of the Drewsey MFP and its associated Rangeland Program Summaries (RPSs), the Riley MFP and RPSs, and appropriate sections of the John Day RMP. Appropriate sections of these previous land use plans have been incorporated into the Three Rivers RMP/EIS as valid existing management to be carried forward and are displayed as elements common to all EIS alternatives. However, when completed, the Approved RMP will be self-contained and will supercede all previous planning documents.

The Burns District will coordinate site-specific planning and management activities with the adjacent Prineville, Lakeview and Vale Districts. Small portions of the Prineville and Lakeview District lands are included in this plan, based on ongoing management agreements. Those areas were previously covered by the Riley MFP and grazing management EIS and decision documents. The Three Rivers RA will likewise coordinate site-specific planning and management activities with the Andrews RA which lies to the south within the Burns District.

Relationship of the Preferred Alternative and Other Alternatives to Tribal Treaties

The Three Rivers RA does not appear to include any areas that were ceded to the U.S. Government by tribal governments in ratified treaties, although the

Confederated Tribes of the Umatilla Indian Reservation (Oregon) have such ceded lands in close proximity to the northernmost portions of the RA. Similarly, the ceded lands of the Confederated Tribes of Warm Springs (Oregon) lie to the west of the RA. Treaty rights provide for tribal access to usual and accustomed areas that lie outside of the ceded lands for hunting and gathering activities.

Federally recognized tribes and reservations which lack ratified treaties but have current or potential interests in protecting certain public lands in the RA for traditional values include the Burns Paiute Tribe (Oregon), the Fort McDermitt Shoshone - Paiute Tribe (Nevada), and the Fort Bidwell Indian Community (California).

The heritage-related interests of contemporary Native Americans are known to include the protection of Indian burial grounds and archaeological sites, as well as the perpetuation of traditional practices, primarily root gathering. In particular, members of the Burns Paiute Tribe and the Confederated Tribes of Warm Springs make use of root crops at camps within the RA.

Cooperative agreements will be pursued with the Burns Paiute Tribe, as well as perhaps other tribes, on the appropriate level and timing for consultation that may be required by the Archaeological Resources Protection Act (1979) and as recommended by the National Historic Preservation Act (1966). The BLM will also consult with the appropriate tribal representatives in the early stages of project or activity planning that may affect tribal interests, treaty rights or traditional use areas.

An agreement will also be established with the Burns Paiute Tribe to define the appropriate procedures to be followed upon the discovery of Native American human remains on public lands within the Burns District, including the Three Rivers RA.

Chapter 2
Description of the Alternatives
Including the
Preferred Alternative



Crane Feed Barn, circa 1920's - Marcus Haines

Introduction

Five alternatives have been considered in detail in this RMP/EIS. These alternatives are designed to identify combinations of public land uses and resource management practices that resolve the planning issues. Each alternative has been composed from four general elements. The first element is the overall theme of the alternative. The themes for the Three Rivers RMP/EIS range from emphasis on natural values and systems to emphasis on commodity production. The second element contains each of the individual resources or resource programs, (air quality, water quality, soils, vegetation, etc.). The third element contains the individual management objectives within each of the resource programs. The fourth element is the collection of management actions necessary to achieve as much as possible of the individual management objectives within each resource program, as indicated by each alternative's theme. The differences between the alternatives are shown in the differences in overall themes. The differences in theme influence the degrees to which individual management objectives would be accomplished within the respective programs and the types of management actions which would be applied on the ground.

Alternatives Considered In Detail

Alternative A - Emphasize Natural Values. This alternative places primary emphasis on meeting the management objectives associated with natural values and the functioning of natural systems. Under this alternative, heavy constraints would be placed on commodity production where such production would have a negative effect on natural values and systems.

Alternative B - Emphasize Natural Values With Commodity Production, This alternative places emphasis on meeting the management objectives most closely associated with natural values and systems. Under this alternative, constraints would be placed on commodity production where such production would have a negative effect on natural values. However, such constraints generally would be of a lesser degree than those in Alternative A.

Alternative C -The Preferred Alternative. This alternative is a composite of the various options presented in the other alternatives that Bureau of Land Management (BLM) feels best represents a balance between the public demands in the Re-

source Area (RA) and the capabilities and limitations of the Area's resources. This alternative represents a balance between the need to protect, restore and enhance natural values and the need to provide for the production of food, fiber, minerals and services (e.g., rights-of-way, recreation, etc.) on public lands.

Alternative D - Emphasize Commodity Production with Protection of Natural Values. This is the Continuation of Present Management or "No Action" Alternative. This alternative places emphasis on the extraction of commodities from public lands in the RA. Major impacts to sensitive resource values would be mitigated. Managerial emphasis on natural values or systems would be pursued on a limited basis.

Alternative E - Emphasize Commodity Production. This alternative places primary emphasis on meeting the management objectives most closely associated with commodity production or extraction. Under this alternative, constraints on commodity production for the protection of sensitive resources would be the least restrictive possible within the limits defined by law, regulation and ELM policy. Potential impacts to sensitive resource values would be mitigated on a case-by-case basis.

Composition of the Preferred Alternative

In composing the Preferred Alternative, the District Manager and the Three Rivers Resource Area Manager placed special emphasis on an integrated systems philosophy of the land use planning process. It was a primary concern that the major systems in effect in the RA, ecological and socio-economic, be fully recognized through the selection of specific management actions. As they formulated the Preferred Alternative, the managers consulted with the interdisciplinary planning team, other managers (both within the BLM and outside), other staff members, and referred to public input received on the RMP/EIS to date. In some cases, management actions contained in one of the other alternatives were selected. In other cases, management actions from other alternatives were modified. And in other cases, new management actions were composed.

Criteria for the Composition of the Preferred Alternative

The Preferred Alternative of the RMP/EIS must incorporate management actions which recognize, promote and enhance the integrity of the ecological and socioeconomic *systems* in effect *in* the Three Rivers RA into the RMP/EIS:

Ecological Systems

1. Protect, restore and enhance the vegetative diversity of the RA with specific attention given to:
 - Waterbased systems such as riparian, aquatic, wetlands and *playa* habitats;
 - Oregon Natural Heritage Plan cell needs;
 - Special status species habitat; and
 - Big game habitat
2. Recognize and balance the diverse demands for forage and cover for livestock, wildlife and wild horses.
3. Protect, restore and enhance water quality in perennial aquatic habitats to provide optimum diversity within the aquatic community and to supply high quality water for socioeconomic demands.
4. Protect and enhance the unique Kiger mustang wild horses.

Socioeconomic Systems

1. Provide a long-term stable resource base for communities and private enterprises economically dependent on public lands.
2. Protect the opportunity for exploration and development of energy and mineral resources.
3. Provide for the continued opportunities for ranching operations typical of the American western heritage.
4. Protect and enhance public recreational and educational opportunities at the RA's various unique geologic features.

5. Provide for public enjoyment of a broad spectrum of recreation opportunities, both structured and unstructured, with increased emphasis on interagency, intergovernmental and public/private cooperative ventures.
6. Provide for the opportunity for the continued practice of Native American traditional uses.
7. Provide for the efficient administration of public lands through judicious adjustment of landownership patterns which would increase not only the effectiveness of public resource stewardship, but the efficiency of neighboring private enterprises as well.

Monitoring The Three Rivers Resource Management Plan

The Three Rivers RMP/EIS will be monitored on a continual basis to allow up-to-date evaluations and to respond to changing situations. Management actions arising from activity plan decisions will be evaluated to ensure consistency with RMP/EIS objectives.

A detailed monitoring and evaluation plan will be published with the Proposed RMP/Final EIS. It will guide how the RMP/EIS will be formally evaluated at intervals not to exceed 5 years. All plan monitoring will assess:

1. Whether management actions are resulting in satisfactory progress toward objectives;
2. Whether actions are consistent with current policy;
3. Whether original assumptions were correctly applied and impacts correctly predicted;
4. Whether mitigation measures are satisfactory;
5. Whether the RMP is consistent with the plans and policies of state and local government, other federal agencies and Indian tribes;
6. Whether new data are available that would require alternation of the plan.

As part of plan evaluation, concerned government entities will be requested to review the plan and advise the District Manager of its continued consis-

tency with their officially-approved plans, programs and policies. Advisory groups will be consulted during plan evaluation.

Upon completion of periodic evaluation, or in the event that modifying the plan becomes necessary, the Burns District Manager will determine what, if any, changes are necessary to ensure that management actions are consistent with RMP objectives if the District Manager finds that a plan amendment is necessary, an environmental analysis of the proposed change will be conducted and a recommendation on the amendment made to the State Director. If approved, it may be implemented 30 days after public notice. A plan amendment may be initiated because of need to consider monitoring findings, new data, new or revised policy or a proposed action that may result in a change in the scope of resource uses or a change in the terms, conditions and decisions of the approved plan.

Potential minor changes, refinements or clarifications in the plan may take the form of maintenance actions. Maintenance actions incorporate minor data changes and are usually limited to minor refinements and documentation. 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 RMP. Maintenance actions are not considered plan amendments and do not require a formal public involvement and interagency coordination process.

Alternatives Dropped From Detailed Study

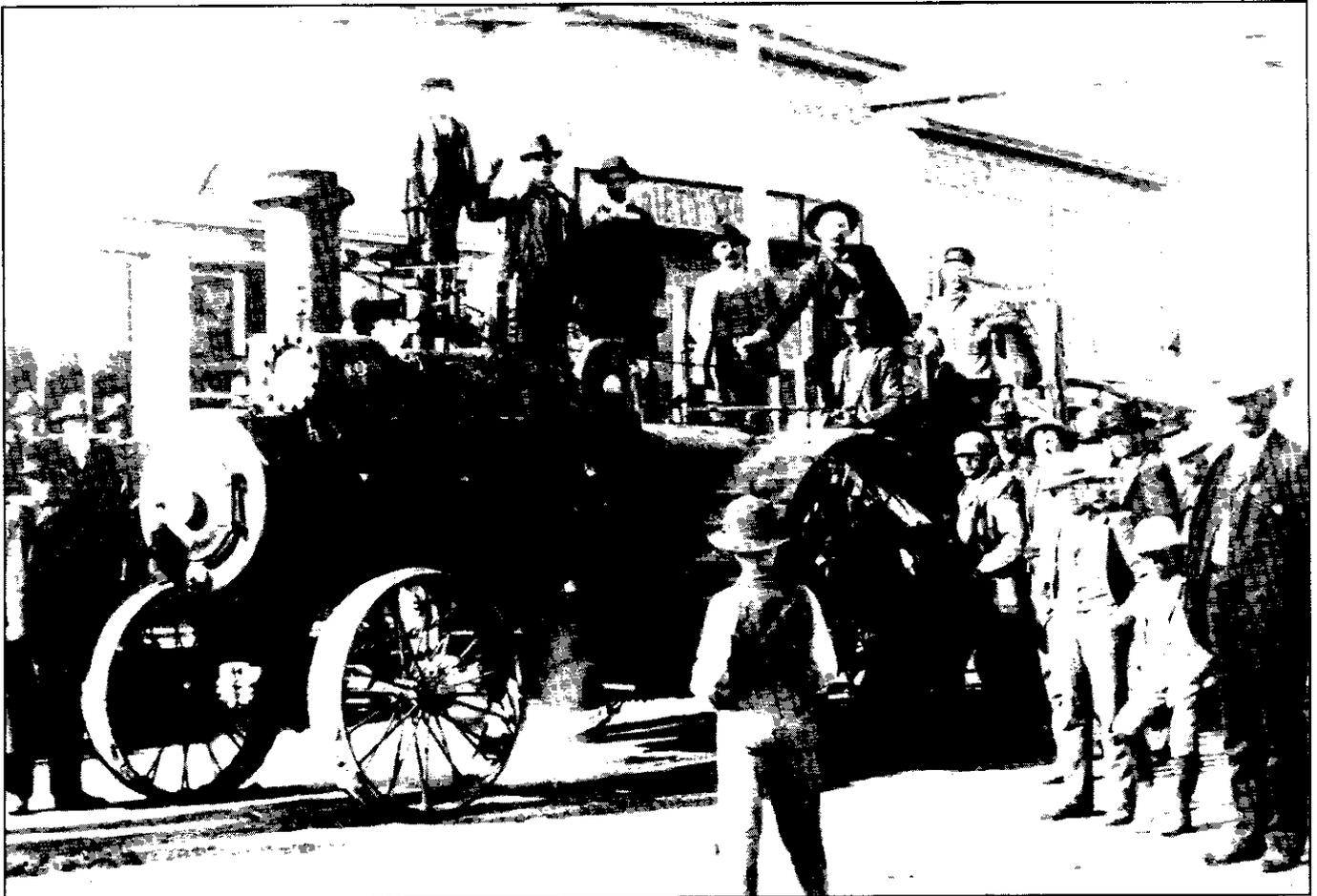
Several alternatives were considered in addressing specific issues in the Three Rivers RA, but were dropped from further study. Among these were alternatives which promoted unconstrained production or protection, or targeted specific resources (e.g., the elimination of livestock grazing). Such alternatives were considered inappropriate because they failed to meet planning criteria for alternative formulation, one or more of the Federal Land Policy and Management Act of 1976 (FLPMA) planning criteria, or would be in direct violation of one or more federal laws, regulations or agency policies.

Detailed Description of the Alternatives

Table 2.1, a large format "slip-in" table, presents a detailed description of the alternatives. The large format table has been utilized to facilitate reader understanding and comparison of all of the management actions that would occur under each of the five alternatives considered in detail. The reader will note that some management actions are common to all alternatives. For example, the management actions for Air Quality do not change from alternative to alternative. By contrast, the management actions under Water Quality do differ substantially from alternative to alternative. The combined effects of these management actions form the basis from which the environmental consequences are analyzed in Chapter 4.

Chapter 3

Description of the Affected Environment



First Steam Engine, Burns, circa 1915 - Marcus Haines Photo

Introduction

This chapter presents baseline information on the resources of the Resource Area (RA). Generally, this information includes the amounts and locations of the respective resources, existing condition and the nature of known management problems or conflicts. The material is presented in a resource by resource organization.

Climate

The Three Rivers Resource Management Plan/ Environmental Impact Statement (RMP/EIS) area has a semiarid climate with long, cool, moist winters and short, warm, dry summers. The area has a winter precipitation pattern with about half of the total annual precipitation occurring from November through February.

Precipitation tends to be elevation dependent, ranging from less than 10+inches in Harney Basin (4,000 feet elevation) to 20 inches in the lower reaches of the Blue Mountains (5,000 to 6,000 feet elevation). The major portion of the area receives 10 to 15 inches of precipitation annually.

Normal temperatures in the RMP/EIS area range from winter lows of below zero to summer highs over 100 IF. Average frost-free periods range from 111 days in Burns to 30 days in the higher elevations.

Air Quality

Air quality is generally excellent in the RMP/EIS area. Periodic temperature inversions in the winter months cause trapping of smoke from lumber mill operations and wood stoves in the Burns-Hines area. There are no records available for the area indicating that violations of total suspended particulate or other standards have occurred.

Air quality-climate monitoring activities conducted by the Bureau of Land Management (BLM) Burns District from 1980 to the present indicate a normal year-round visual range in excess of 70 miles. A review of photographs and weather records maintained for these monitoring activities, indicates that impacts to visibility in the area are normally associated with natural weather conditions.

Water Quality

Ground Water

Ground water data are very limited in the RA and primarily based on isolated well logs from wells in the lower Harney Lake Basin. No comprehensive studies of subsurface hydrological systems have been conducted in the RA, so inferences of the effects of surface management practices on ground water quality are severely limited. As a result of these data limitations, further analysis of ground water quality in the RMP/EIS will not be attempted at this time.

Surface Water

Water resources in the Three Rivers RA lie within the Malheur Lake Basin and the Malheur River Basin. There are approximately 126.55 miles of streams, about 4,491 acres of major flat water, and an undetermined amount of ground water. Other water sources include livestock reservoirs, many of which do not maintain water yearlong. Of the streams, 82.5 miles have poor water quality and 20.65 miles fair (see Table 3.1). Major impacts to water quality in the planning area are from sedimentation, lack of shade and concentrations of fecal coliform bacteria. Appendix 1, Table 1, provides details of water quality for individual streams.

The State of Oregon recognizes beneficial uses for the waters in the Malheur Lake Basin and the Malheur River Basin. These are summarized in Appendix 1, Tables 2 and 3, respectively.

Table 3.1. Water Quality

Condition	Stream (Miles)				Flat Water (Acres)			
	Improving	Declining	Static	Unknown	Improving	Declining	Static	Unknown
Poor	7.45	64.05	11.00		390.00	5.w	50.00	
Fair	3.60	10.20	6.65		786.00	0.03	3,215.W	
Gwd	0.00	0.00	0.00		0.00	0.00	45.w	
Excellent	0.00	0.00	0.00		0.00	0.00	0.00	
Unknown				23.4				0.00
Total(Units)	ii.05	74.25	17.85	234	1,176.00	5.W	3,310.00	0.00
(Percent)	8.73	58.67	14.1	18.5	26.19	0.11	73.70	0.00

Major conflicts with water resources in the planning area are livestock grazing and timber harvest practices (both past and present). Other conflicts include roads (non-timber harvest related) and natural sources. In several streams, upstream impacts outside of the planning area are adversely impacting water resources inside the planning area.

Soils

A National Cooperative Soil Survey is currently being conducted in Harney County. Cooperators on this survey include the Soil Conservation Service (SCS), the BLM and the Oregon Agricultural Experiment Station, with a scheduled completion date of 1995. General soils information is furnished in this document in lieu of specific information which will be available upon completion of the cooperative survey. The general information provided here is subject to revision as more specific soils data become available.

A breakdown of soil types by moisture and temperature regimes, and physiography for the planning area is shown on Map S-1. This is a general classification and each category is actually composed of many different soils. Total acreage figures are listed by soil category in Table 3.2. Existing survey information from "Oregon's Long Range Requirement for Water," appendix I-10, I-12, Lovell et al., 1969; "Soil Inventory of the Drewsey-Van-Stinkingwater Area", Pomerening et al. 1974; "General Soils Map of Oregon", SCS, 1986; and unpublished BLM soil survey data were used to compile general soil characteristics for the different categories. These are listed in Table 3.3.

Because of the somewhat dated nature of the available soils surveys, existing erosion conditions on the planning area were evaluated on a total erosion basis using the Soil Surface Factors Method, (BLM Form 7310-12). While this method is no longer widely used, it does evaluate soil movement, surface litter, surface rock, pedestalling, flow patterns, rills and gullies to assess erosion conditions. Results were then divided into erosion condition classes based on severity (Map S-2). Erosion was measured on a total basis due to the difficulty in separating natural from accelerated erosion.

Table 3.2. General Soil Categories

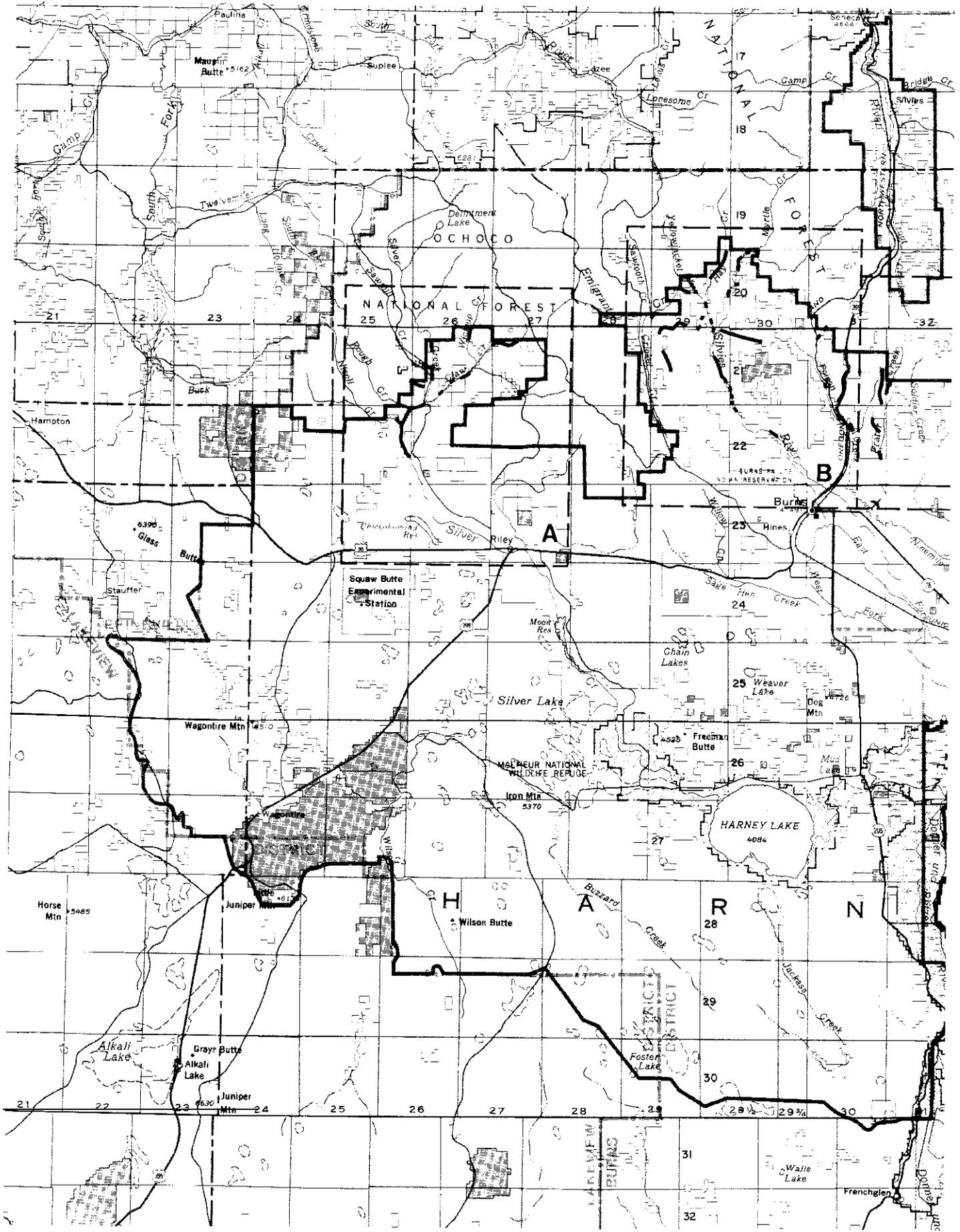
General Soil Category	Acres ¹
Aquic frigid and cryic soils of basins and valleys.	350,257
Xeric frigid soils on forested mountains and plateaus.	69,326
Xeric frigid soils on grass-shrub uplands.	476,898
Xeric/aridic mesic soils on terraces and floodplains.	98,683
Xeric/aridic mesic soils on grass-shrub uplands.	25,886
Xeric/aridic frigid soils on grass-shrub uplands.	844,518
Aridic/xeric frigid soils on terraces and in basins.	387,457
Aridic/xeric frigid soils on plateaus and uplands.	827,998
Xeric frigid soils on terraces and floodplains.	35,562
Lava flows.	6,582
Other (standing water, etc.)	34,487
Total	2,957,654

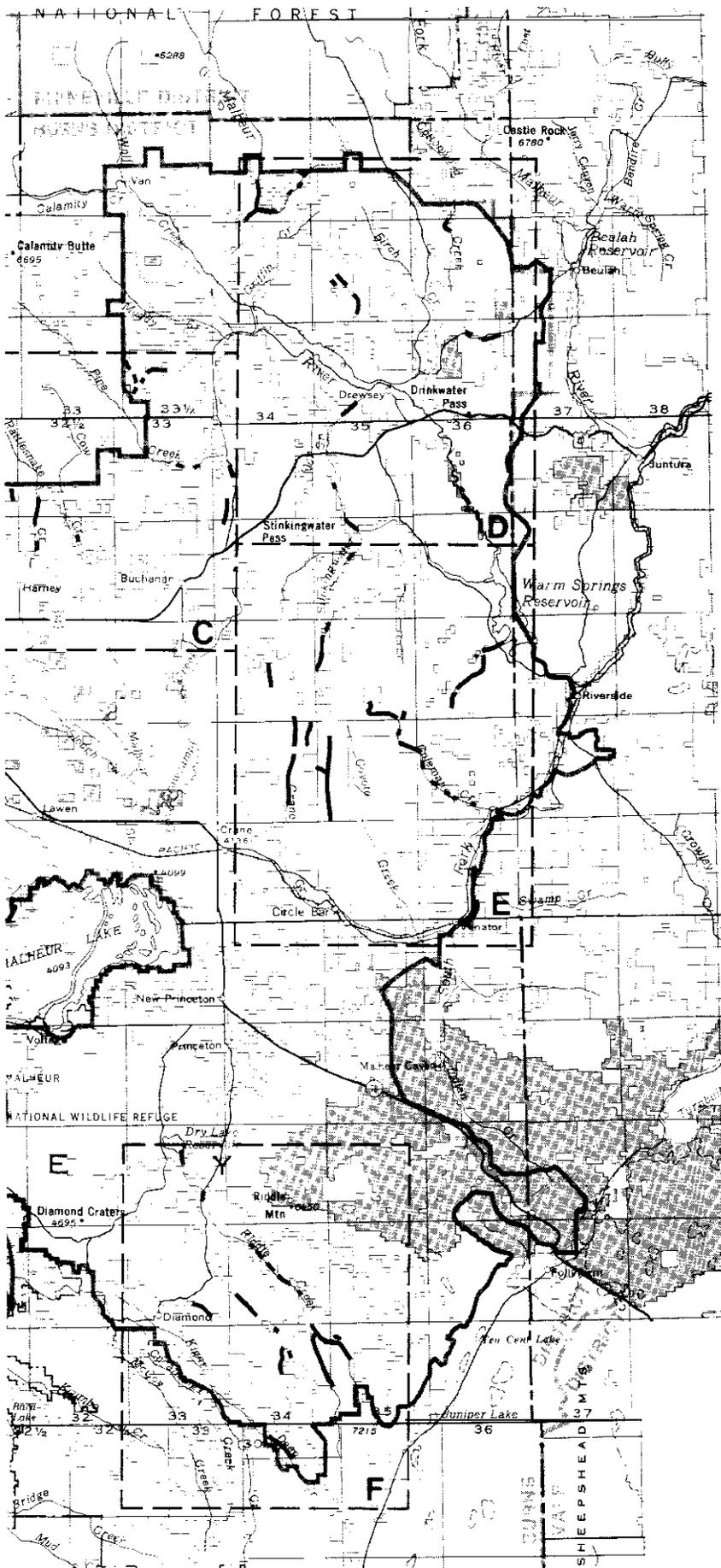
¹Soil acreages reported are in mixed ownership.

Forestlands and Woodlands

Forestlands

There are approximately 13,307 acres of forestland in the Three Rivers RA. Of this amount, 9,291 acres are classified as commercial forestland. Approximately 8,873 acres of this commercial forestland are within the timber base used to derive the average sustainable annual harvest volume of 621 thousand board feet (MBF). See Table 3.4 and Map F-1 for a summary of forestland acreages.





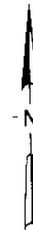
OREGON

— water Quality Segments

[A]

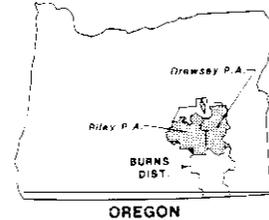
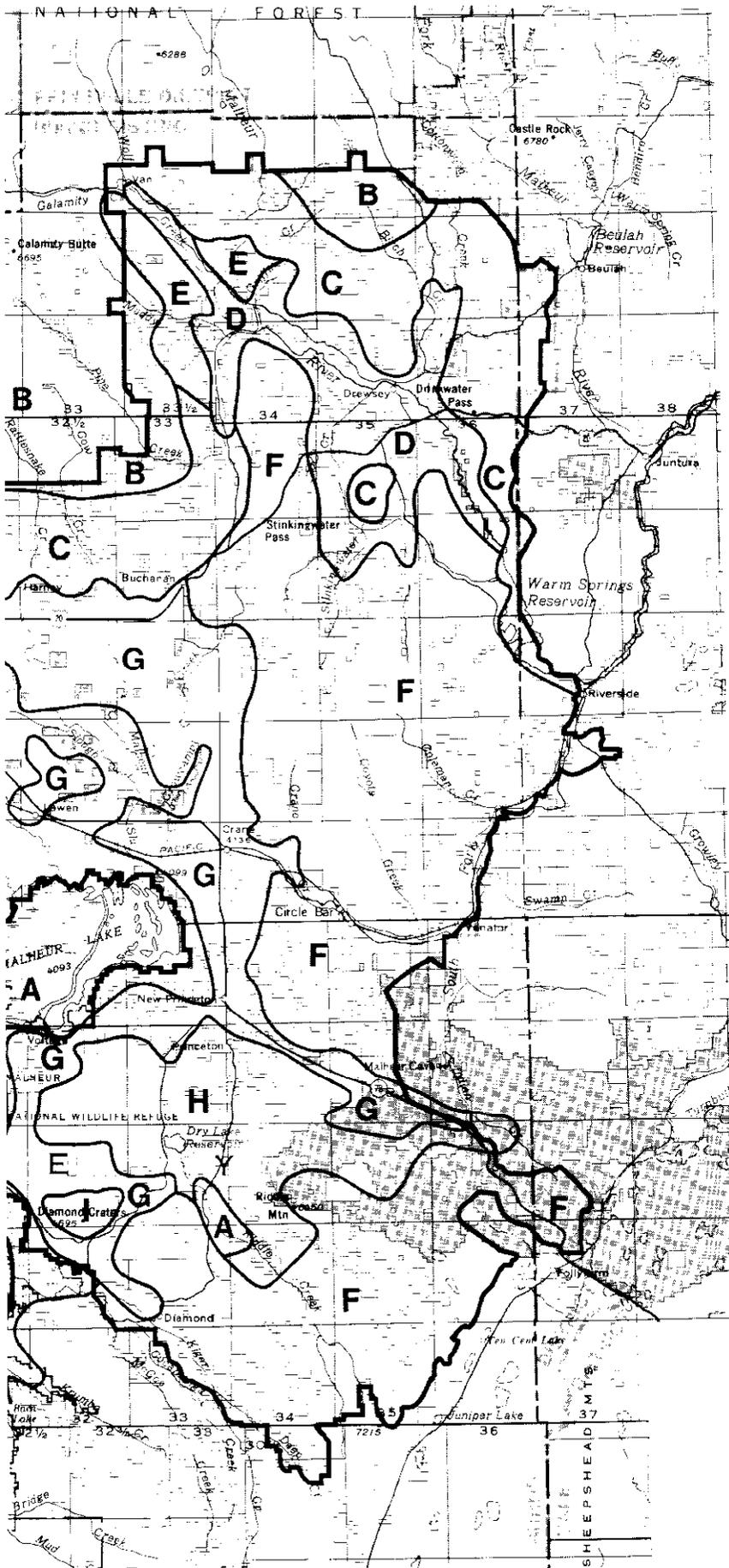
Water Quality Areas

- A-Silver Cr., Rough Cr., Nicoll Cr., Sawmill Cr., Wickiup Cr., Claw Cr., and Tributaries
- B-Silvies River, Poison Cr., Myrtle Cr., Hay Cr., Yellowjacket Cr., Emigrant Cr., and Tributaries
- C-Prater Cr., Rattlesnake Cr., Cow Cr., Pine Cr., and Tributaries
- D-Malheur River, Cottonwood Cr., Stinkingwater Cr., and Tributaries
- E-S. Fk. Malheur R., Coleman Cr., Stinkingwater Cr., Crane Cr., and Tributaries
- F-Riddle Cr., Deep Cr., and Tributaries



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 BURNS DISTRICT
 September 1989
 THREE RIVERS RESOURCE AREA

**MAP WQ-1
 WATER QUALITY**



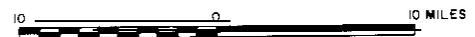
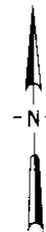
OREGON

A

- A-AQUIC FRIGID AND CRYIC SOILS OF -BASINS AND VALLEYS.
- B-XERIC FRIGID SOILS ON FORESTED MOUNTAINS AND PLATEAUS.
- C-XERIC FRIGID SOILS ON GRASS-SHRUB UPLANDS.
- D-XERIC/ARIDIC MESIC SOILS ON TERRACES AND FLOODPLAINS.
- E-XERIC/ARIDIC MESIC SOILS ON GRASS-SHRUB UPLANDS.
- F-XERIC/ARIDIC FRIGID SOILS ON GRASS-SHRUB UPLANDS.
- G-ARIDIC/XERIC FRIGID SOILS ON TERRACES AND IN BASINS.
- H-ARIDIC/XERIC FRIGID SOILS ON PLATEAUS AND UPLANDS.
- I-LAVA FLOWS
- J-XERIC FRIGID SOILS ON TERRACES AND FLOODPLAINS.

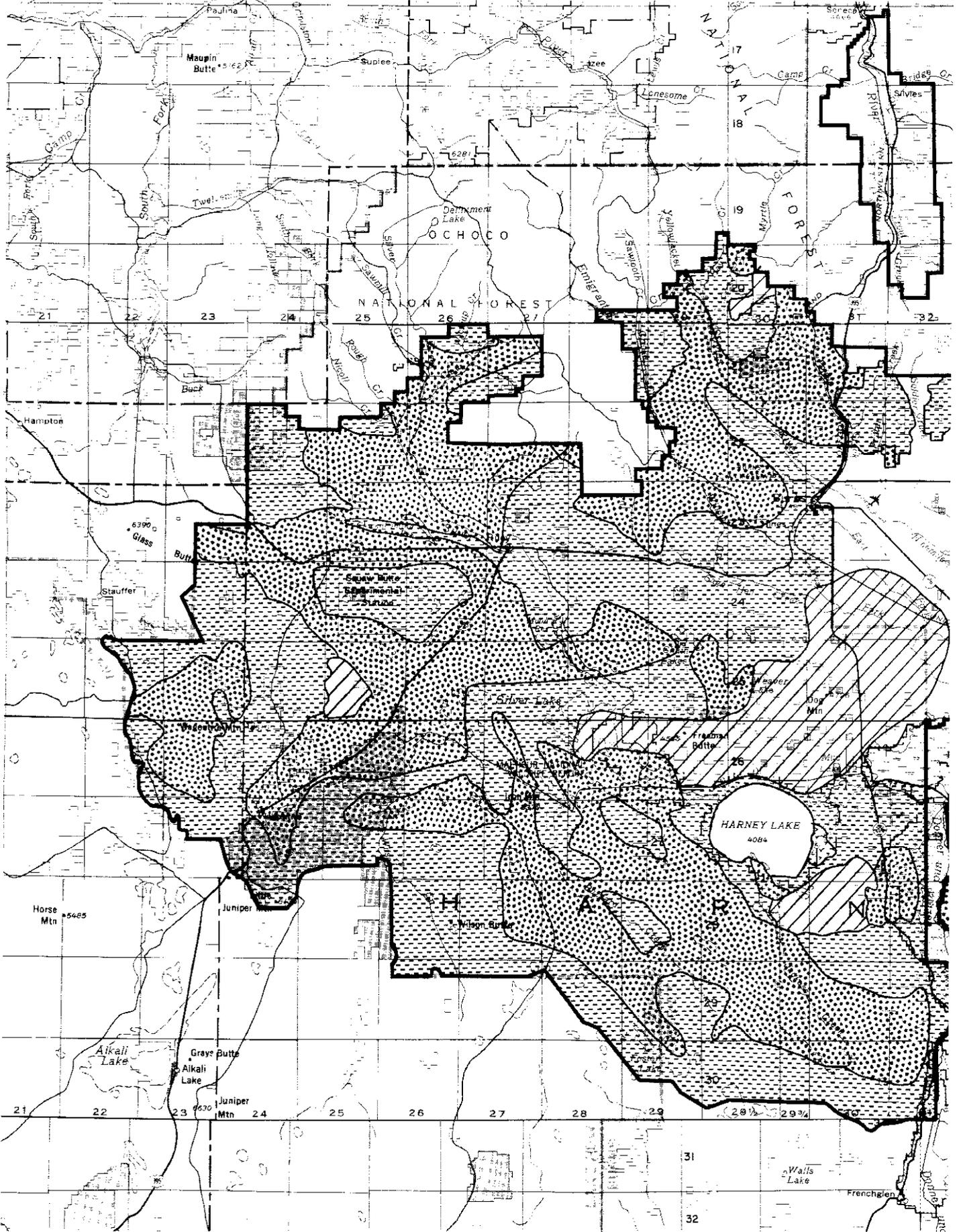
NOTE: This general soils map is not designed to show the kind of soil on a specific site. A site inspection is required to best evaluate specific soils and land capabilities.

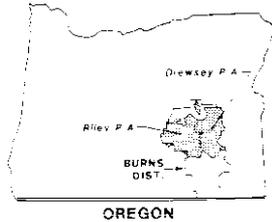
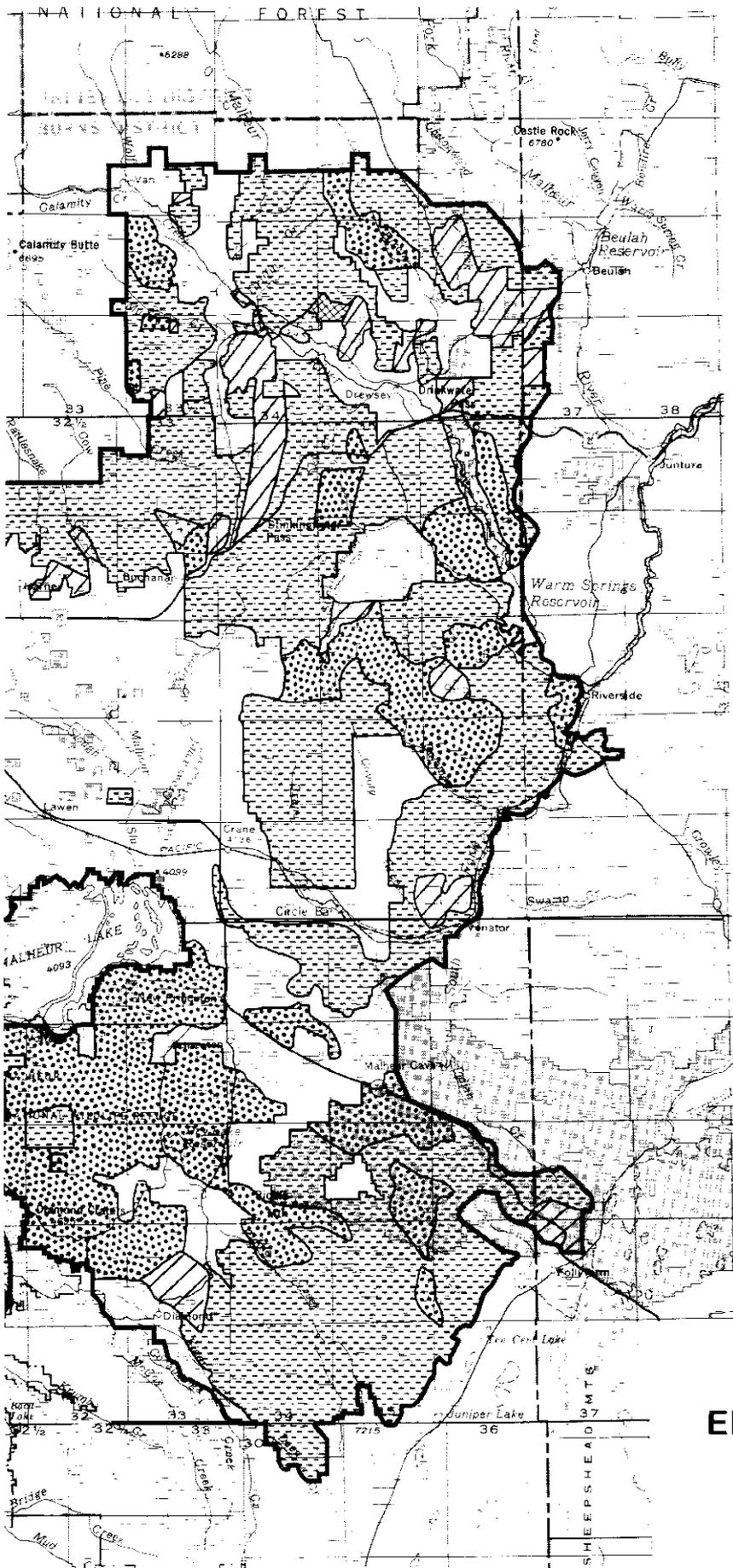
COMPILED FROM: USDA-SCS, General Soils Map, State of Oregon, 1986



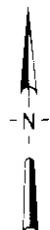
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 BURNS DISTRICT
 September 1989
 THREE RIVERS RESOURCE AREA

**MAP S-I
 GENERAL SOILS**





-  Stable
-  Slight
-  Moderate
-  Critical
-  Severe
-  Unclassified



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 THREE RIVERS RESOURCE AREA
MAP S-2
EROSION CONDITION CLASSES
(Soil Surface Factors)

Table 3.3. General Soil Characteristics¹

Soil Category ²	Mean Annual Precipitation (In)	Mean Annual Air Temp. (F)	Frost Free Period (Days)	Erosion Hazard ³		Other General Soils Characteristics
				Wind	Water	
Aquic frigid and cryic soils of basins and valleys.	8-14	40-45	20-90	Moderate	Slight	Many of these soils are wet during most of the growing season.
Xericigid soils on forested mountains and plateaus.	18-26	43-45	50-100	Slight-Moderate	Moderate-Severe	
Xeric frigid soils on grass-shrub uplands.	10-16	43-45	50-110	Moderate-Severe	Slight-Severe	
Xeric/ardic mesic soils on terraces and floodplains.	10-14	45-47	100-150	Moderate	Slight-Moderate	Many of these soils have potential for cultivation. Much of the private land in this soil group is cultivated to alfalfa and wheat.
Xeric/ardic mesic soils on grass-shrub uplands.	10-14	45-47	100-150	Slight-Severe	Moderate-Severe	
Xeric/ardic frigid soils on grass-shrub uplands.	10-14	42-45	40-100	Moderate	Slight-Moderate	
Ardic/xeric frigid soils on terraces and in basins.	12	43-45	70-100	Moderate	Slight Moderate	Many of these soils have potential for cultivation. Much of the private land in this soil group is cultivated to alfalfa and pasture.
Ardic/xeric frigid soils on plateaus and uplands.	8-12	42-45	50-90	Moderate	Slight-Severe	
Xeric frigid soils on terraces and floodplains.	14-18	43-45	50-100	Slight-Moderate	Slight-Moderate	Many of these soils have potential for cultivation. Much of the private land in this soil group is cultivated to alfalfa and pasture.

¹This table was developed from existing, incomplete survey information and is subject to modification as more information becomes available.

²These categories were developed for general planning purposes. Each of these categories is composed of many different soils.

³Erosion hazard refers to potential natural erosion as opposed to accelerated erosion, or the erosion caused by human activities, as defined in the "Soil Survey Manual" (USDA-Soil Conservation Service, 1981).

The sustainable annual harvest is met over a 10-year decadal period. Table 3.5 lists the Three Rivers RA's current 10-year Timber Sale Plan, planned and prepared jointly with the BLM Prineville District, through 1996, (subject to change).

Currently, timber is managed on the commercial forestlands by such practices as overstory removal (OSR), commercial thinning (CT), precommercial thinning (PCT) and seed tree (ST) cutting. In overstory removal, approximately 60 to 90 percent of the mature stems are harvested. Stems left on the site are primarily for future seed source (reforestation) and for future wildlife snags. The commercial thinning practice is primarily intended for improving stocking and spacing of commercial size stems. Precommercial thinning is used to improve the spacing of noncommercial size stems. Seed tree harvesting is used to remove merchantable timber that has been severely damaged by fire, insects or disease. This method encourages natural regeneration. If natural regeneration is unsuccessful, manual tree planting is commonly performed.

Following a timber harvest, some degree of slash treatment is necessary. To enhance nutrient replacement into the forest soils, 12 tons per acre is used as a guideline for fuel loads left on the site. If the slash load exceeds approximately 12 tons per acre, some form of slash treatment is usually necessary. On slopes less than 35 percent, slash is treated by machine crushing or machine piling and is followed by pile burning or prescribed fire. On slopes greater than 35 percent, slash is treated by lop and scatter, hand piling, or gross yarding and is sometimes followed by pile burning or prescribed fire.

Two tree planting areas exist in the north Silvies Valley area. One 12-acre unit and one 10-acre unit were harvested by the seed tree method in 1983. Tree planting of ponderosa pine and Douglas-fir took place in 1985. Results of a stocking survey in the fall of 1986 showed a survival rating of 65 to 70 percent. Most seedlings have been damaged by animal browsing (primarily wildlife) but are still alive.

Table 3.4. Forestland and Woodland Classification

Total Forestland-Woodland ¹ (acres)	244,233
Total Forestland (acres)	13,370
Forestland unavailable for intensive management for forest products ² (acres)	4,434
Forestland available for intensive management of forest products (acres)	8,873
Average Annual Sustainable Harvest (MBF) ³	621
Total Woodland ⁴ (acres)	234,942
Woodland unavailable for harvest of woodland products ⁵ (acres)	234,942
Average Annual Sustainable Harvest ⁶ (cords)	3,000

¹Includes all acreages listed as ponderosa pine and juniper in the RA.
²Other uses include wildlife habitat requirements, riparian, water quality, fisheries, etc.
³The average productivity in this inventory unit is estimated at 70 board feet per acre per year on commercial forestland timber base acres.
⁴Includes all noncommercial forestland and woodland acres.
⁵Current planning stipulates that fuelwood and post and pole harvests will be confined to site-specific areas designated for such uses through the NEPA process. Currently, four harvest areas totaling approximately 1,282 acres have been established in the RA. Additional areas could be authorized at the Area Manager's discretion as demand requires.
⁶Estimate only. Systematic volume and production inventories for juniper based woodlands have not been conducted in the RA.

Woodlands

There are an estimated 234,942 acres of predominantly juniper woodlands in the Three Rivers RA. Existing planning authorizes and National Environmental Policy Act (NEPA) documentation analyses four fuelwood harvest areas which total approximately 1,282 acres. Additional harvest areas can be established as needed. The portion of the Riley planning unit north of U.S. Highway 20 and west of U.S. Highway 395 has been designated as a juniper bough harvesting area. Demand for woodlands products from the RA has traditionally been low. Records for the RA show that in the 5-year period of 1983 to 1988, permits for approximately 100 cords of fuelwood, 1,020 post and poles, and 27,500 pounds of juniper foliage were sold. The woodlands in the RA have been managed for the enhancement of other uses, especially wildlife and livestock. Because of this, the generally low site productivity of the woodland areas and the low demand for woodland products in the area, woodlands inventories to establish standing volumes annual production rates have not been justified. However, for analytical purposes, it is assumed that an average annual harvest of approximately 13 cords per 1,000 acres of woodlands could be sustained (based on projections made in Brothers/La Pine Proposed RMP Final EIS for similar woodlands stands in the Brothers area). Table 3.4 provides a summary of woodlands information for the RA.

Table 3.5. 10-Year Timber Sale Plan'

Fiscal Year	Sale Name	Tract No.	Legal Description			Quarter Sold	Estimated Volume (MMBF)	NO. Acres
			T.	R.	Sec.			
89	Trout Creek	69-1	18 S 19 s 19 S	31 E 31 E 32 E	2, 11, ; ; 14, 24, 25, 17, 21, 22	3rd	2.000	1,050
92	South Silvies	92-1	20 s	32 E	10, 21	3rd	.500	116
95	Negotiated	95-1	Scattered ² Tracts			4th	2.000	² 1,050 (est)
96	Dry Mountain	96-1	21 s 22 s	21 E 26 E		3rd	1.500	496

¹Actual sites may differ based on revised inventories, timber markets, legal access, catastrophic events, etc.
²For analytical purposes it was assumed that the FY 95 harvest areas would be the same as the FY 89 sale.



herding at Three Mile Place. Roaring Springs Ranch
 Jeff & Mary Fine photo

Livestock Grazing

Livestock grazing in the Three Rivers RA is administered in 195 allotments (see Map RM-1). Licenses for grazing in these allotments are issued annually to approximately 140 permittees. Management of the allotments is currently administered under three Selective management categories with 56 allotments in the improve management (I) category, 55 in the maintain management (M) category and 64 in the custodial (C) category. Appendix 3, Table 1, displays the allotment categorization process with details for each allotment.

Grazing Systems and Treatments

The grazing systems and treatments in effect in the RA have been established over time in cooperation with the various permittees and were presented in the Drewsey and Riley Grazing EISs and the John Day RMP (for the Silvies Valley section).

The Drewsey EIS outlined grazing systems for all the allotments in existence at the time of the EIS. Seventeen of those systems are still in place as they were outlined in the EIS. Changes have been made to 45 of the systems. Generally, these changes were made to fine tune the EIS systems as they were tried out on the ground. Three allotments did not exist at the time of the EIS and three allotments have no system.

US DEPARTMENT OF THE INTERIOR
Bureau of Land Management

BURNS DISTRICT

September 1989

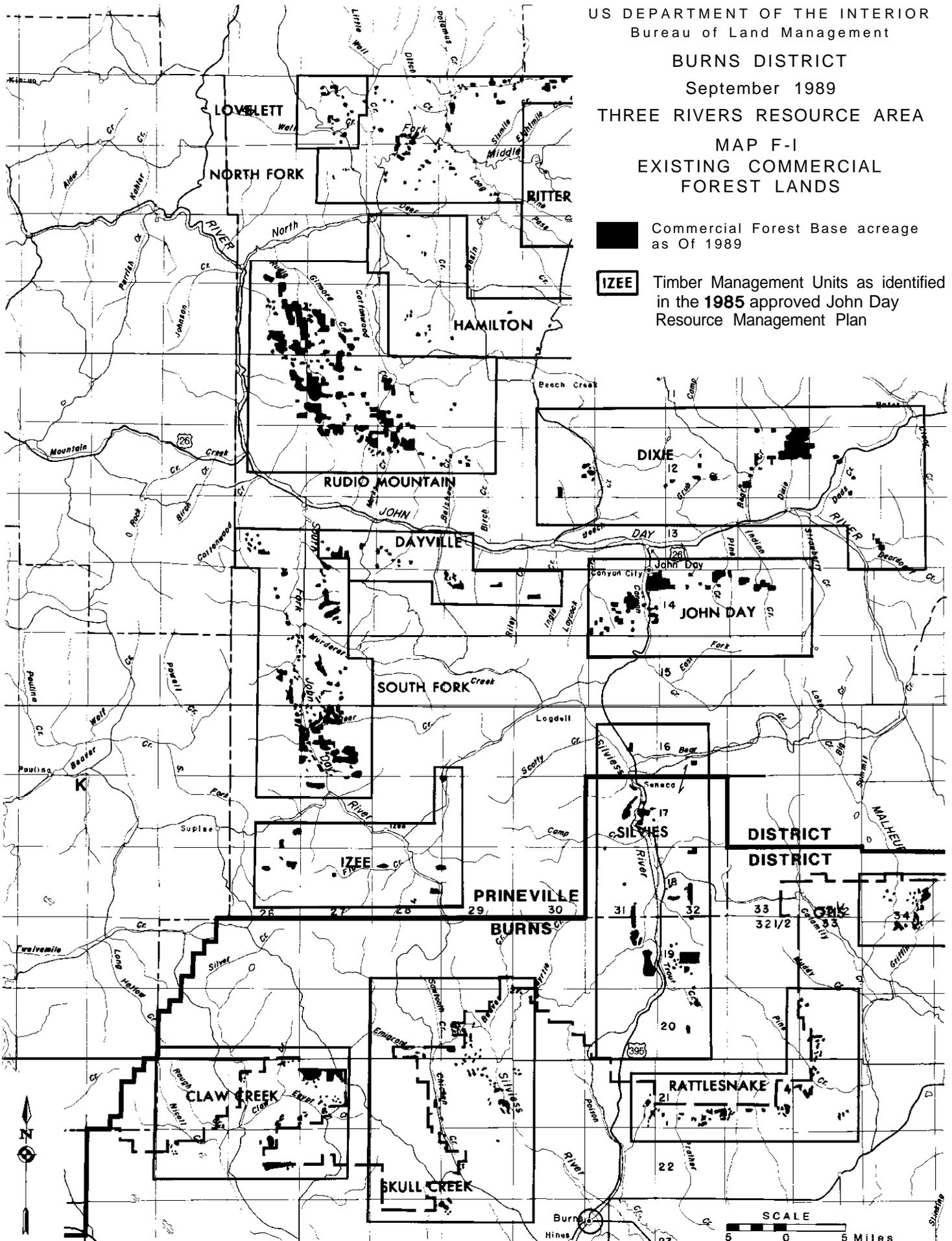
THREE RIVERS RESOURCE AREA

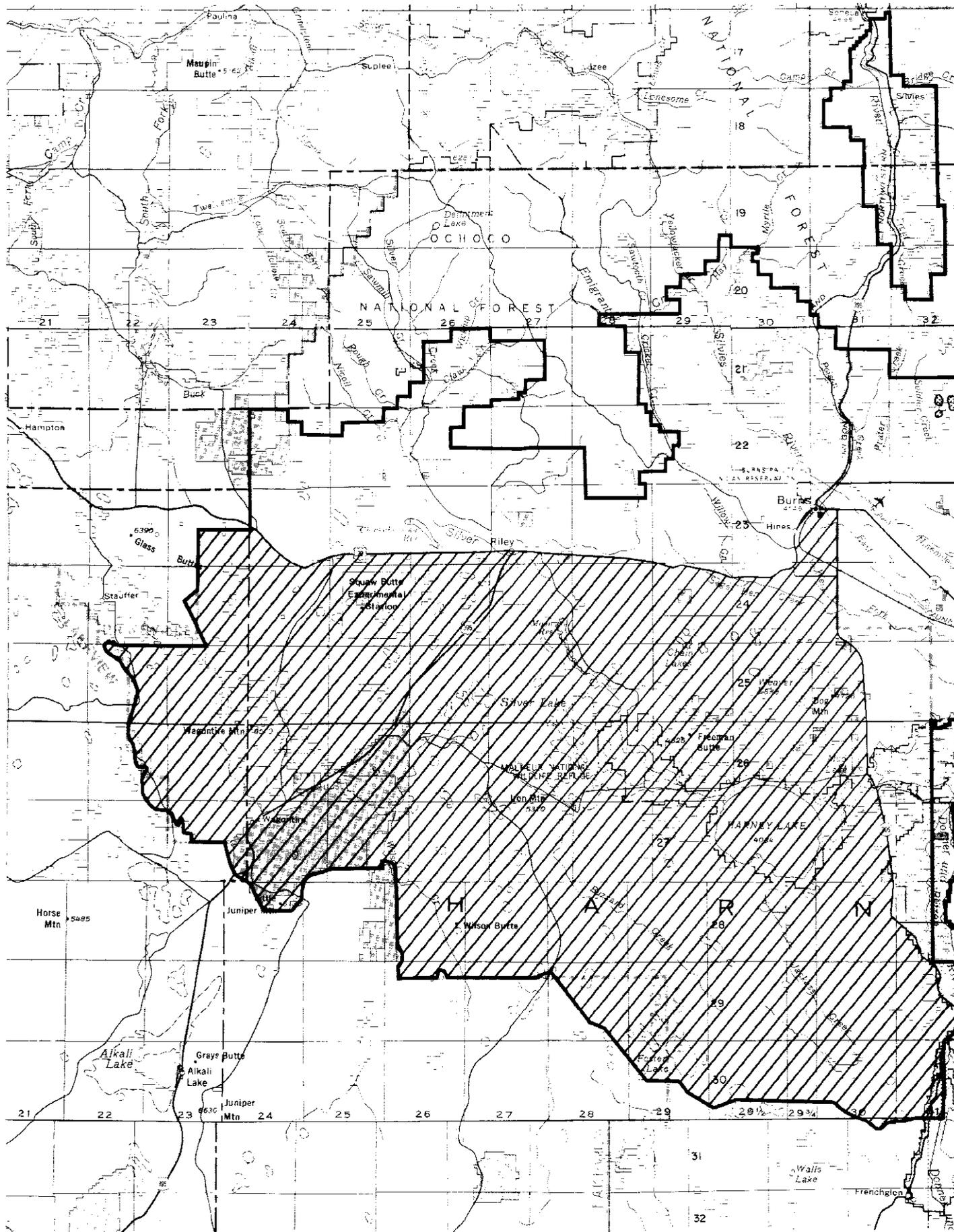
MAP F-1

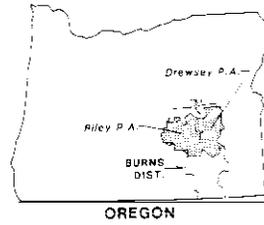
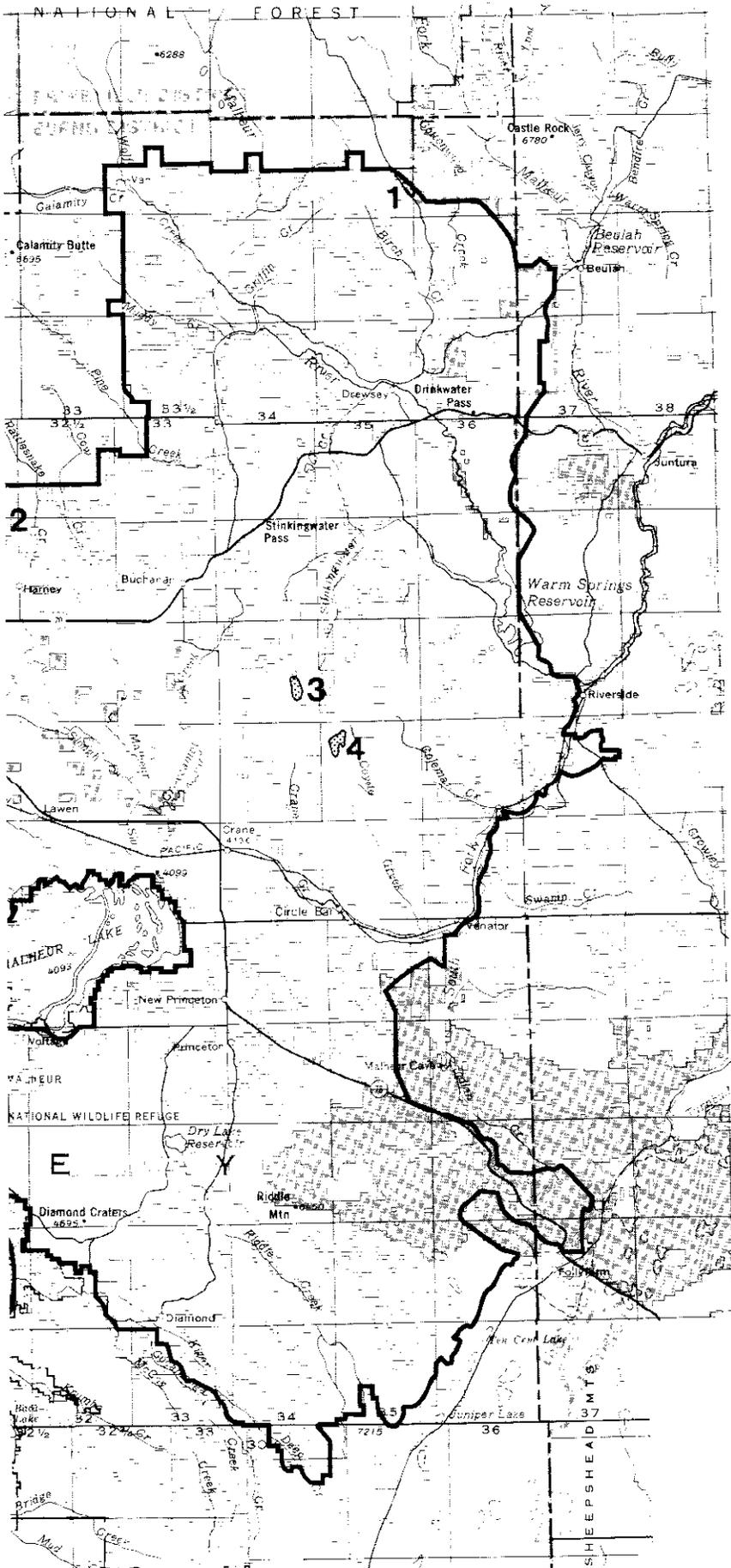
EXISTING COMMERCIAL
FOREST LANDS

 Commercial Forest Base acreage
as of 1989

 Timber Management Units as identified
in the 1985 approved John Day
Resource Management Plan





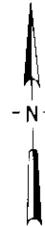


Fuelwood Harvest Prohibited



Designated Fuelwood Harvest Areas

1. Squaw Creek Area
2. Mill Creek Area
3. Crow Camp Area
4. Alder Creek Area



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MAP F-2 WOODLANDS

In the Riley planning unit, 20 systems are in place as specified in the Riley and John Day EISs, 16 allotments have had modifications made to the systems. Appendix 3, Table 2, shows the grazing systems and treatments currently in place in the RA.

Allotment Management Plans (AMPs)

An AMP is a document which prescribes the manner and extent to which, livestock grazing is conducted and managed to meet multiple use, sustained yield, economic and other objectives. A grazing system is generally incorporated into the plan.

An AMP is considered implemented when it is incorporated into the permit or lease and accepted by the permittee or lessee(s). An AMP is operational when supporting range improvements and the grazing system have been initiated.

Since completion of the Drewsey EIS, AMPs have been written or updated for almost all I and M category allotments. Many of the grazing systems have been modified. There are 63 implemented AMPs in the Drewsey planning unit. Of these, 55 are operational. Two allotments need AMPs developed. In the Riley planning unit there are 19 AMPs. Eighteen of these are operational. Another nine allotments have grazing systems, but they have not been incorporated into AMPs. Twenty-four allotments need to have grazing systems established.

The RA is currently evaluating all I and M category allotments, as monitoring data are collected and interpreted, to determine the adequacy of existing grazing systems to meet allotment objectives. AMPs and grazing systems will be amended for those systems which are shown by evaluations to need modification (Appendix 3, Table 3, shows the current status of the implementation of the existing AMPs in the RA).

Forage Allocation

There are currently 152,642 AUMs allocated to livestock. There are 18,923 Animal Unit Months (AUMs) in suspended nonuse and 150,472 AUMs are active preference. There are 8,973+ AUMs allowed as exchange-of-use for unfenced private land inside allotments. Average actual use for the past 6 years (1981-1987) is 149,307+ AUMs. Appendix 3, Table 4, shows the amount of forage in AUMs initially allocated to livestock, wildlife and wild

horses in the Three Rivers RA. Appendix 3, Table 6, shows the current commitment to livestock in the form of active and suspended preference. The table also shows the average use that has been made in the past 6 years.

Rangeland Improvements

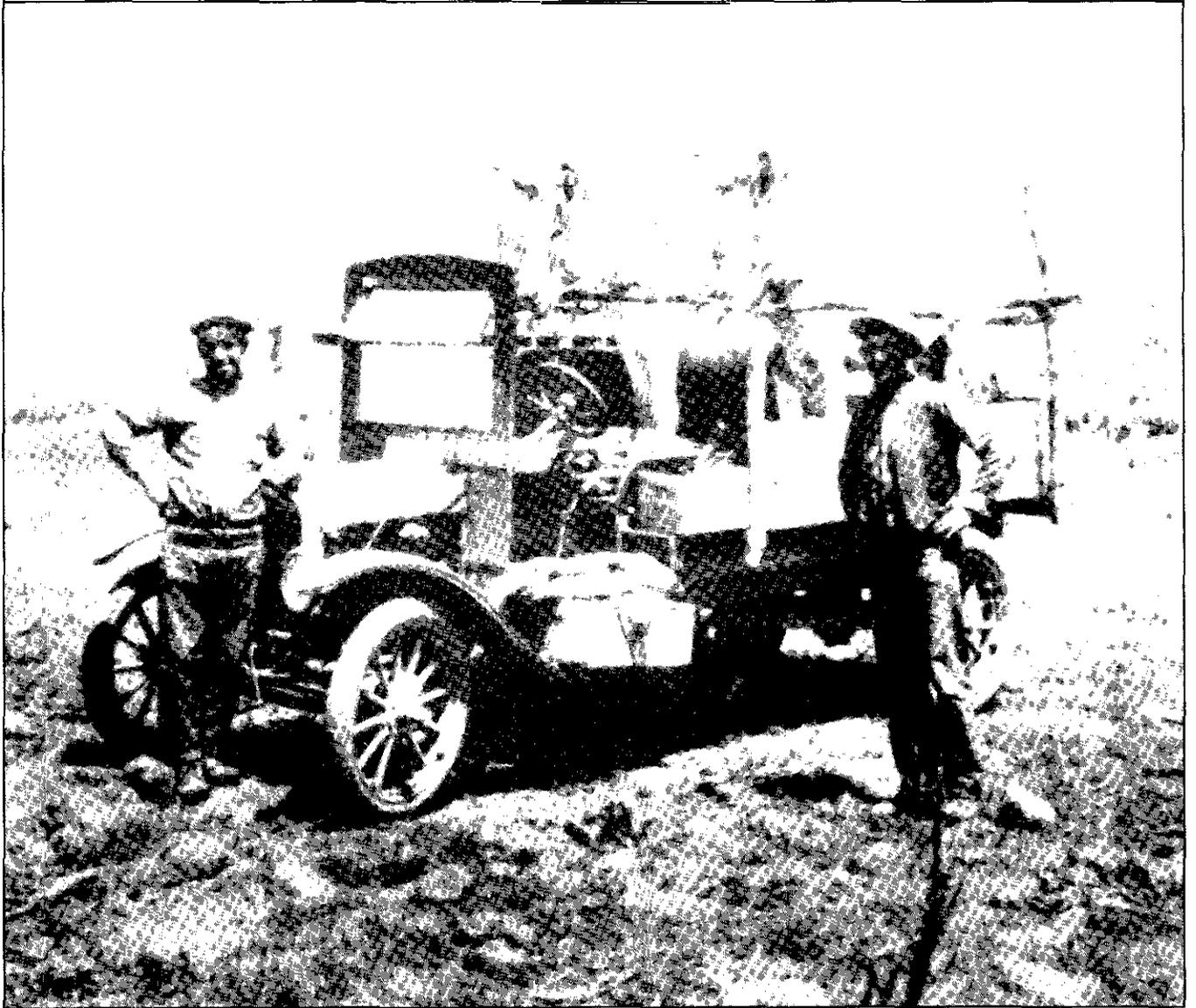
Rangeland improvements have been developed in the Three Rivers RA to provide livestock forage, improve livestock distribution and to provide for more intensive management of livestock through implementation of grazing systems. These range improvements are also used to protect areas from livestock use. Existing range improvements are shown in Appendix 3, Table 5.

Funding for range improvements comes from the grazing permittees, BLM funds, Grazing Advisory Board funds (12.5 percent of the grazing fees paid; in Harney County these funds are administered by the County Court), cooperative agreements with other organizations and agencies and combinations of all these sources.

The Final Range Improvement Policy (1982) and the Range Improvement Policy for Oregon and Washington (1983), specified that permittees would have responsibility for maintaining livestock management fences, reservoirs and waterholes used primarily by livestock; spring developments that benefit livestock; and pipelines and wells. The BLM is responsible for maintenance of enclosure and riparian zone fences (if not part of a livestock management fence), cattleguards on BLM-maintained roads, and nonstructural improvements such as seedings, brush and weed control and prescribed burns.

Management Conflicts and Concerns

Nineteen categories of management conflict with existing grazing practices have been identified for the Three Rivers RA (see Table 2.1, Livestock Grazing). These include forage demand, livestock distribution, physiological needs of key forage species, livestock forage condition, wildlife habitat condition, riparian habitat condition, erosion, wild horses, water quality, trespass, recreation and mining. Appendix 3, Table 6, details the management conflicts and concerns in each allotment.



Vintage Ford truck hauling sheep herding burros for Frank Kueny (on right) circa 1923 - Bill & Ida Renwick photo.

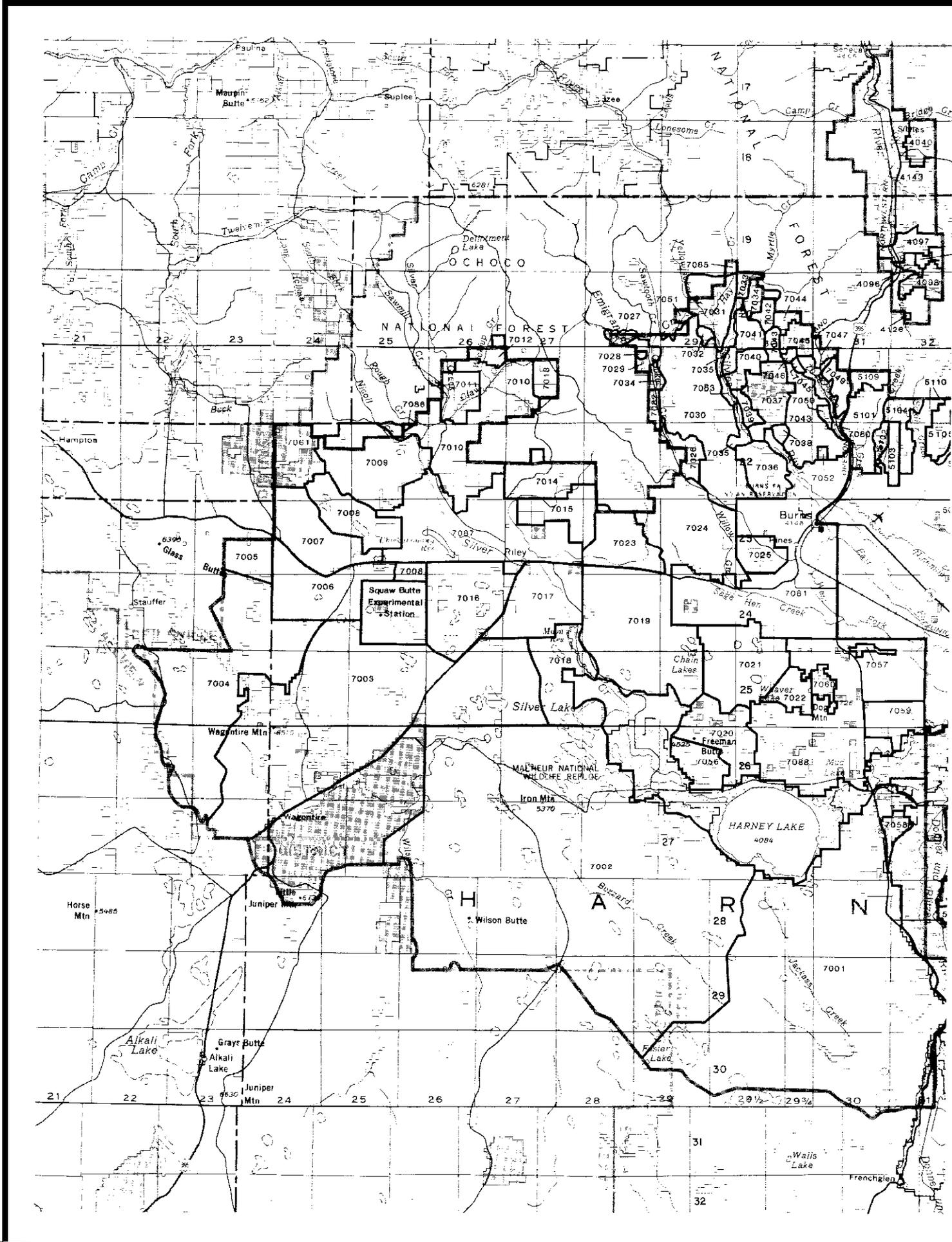
Wild Horses

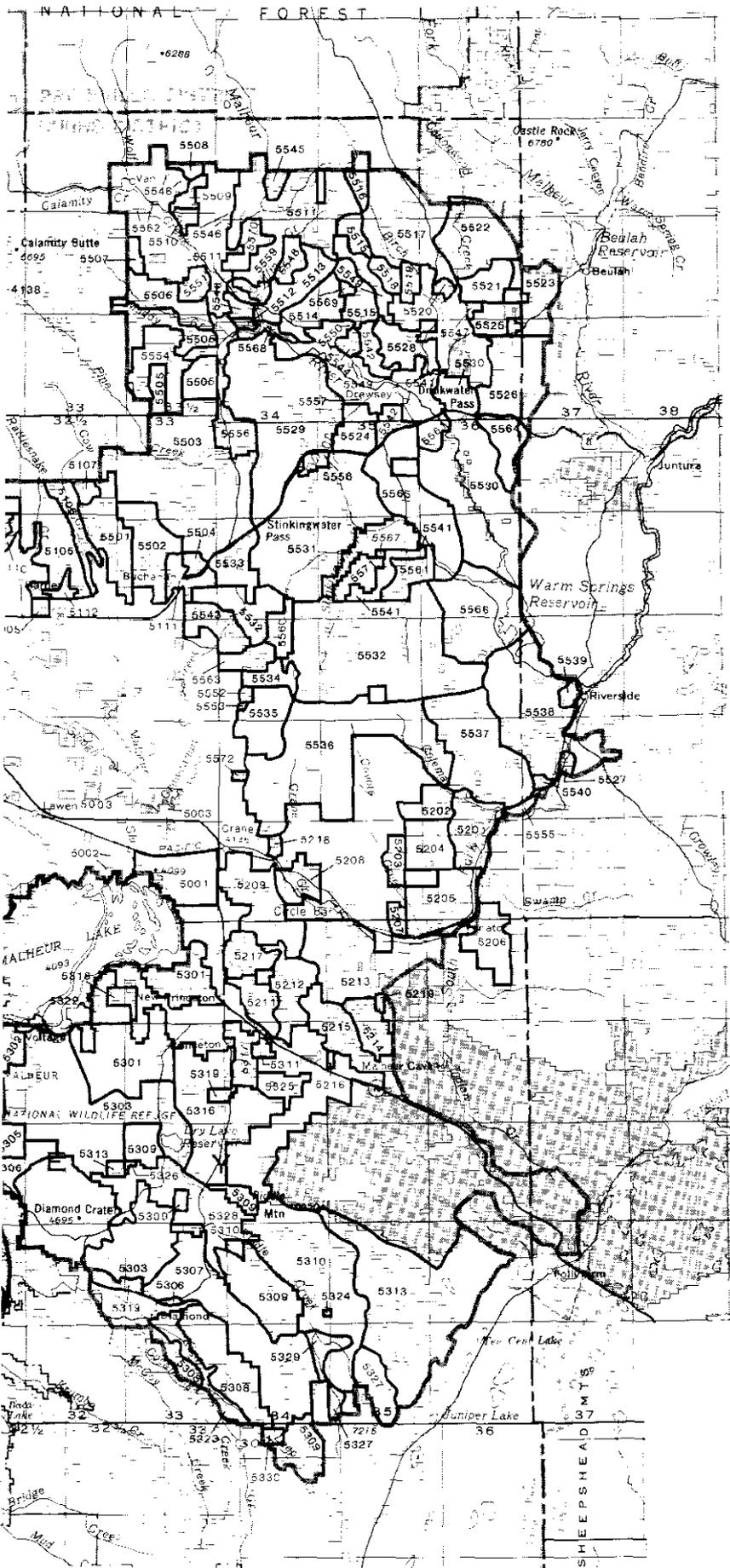
The Three Rivers RA maintains viable wild horse herds in five active wild horse Herd Management Areas (HMAs, see Map WH-1), with herd management levels ranging from 267 to 484 animals. Burros are found only in the Warm Springs HMA. The HMAs provide habitat for wild horses and burros consistent with their wild and free-roaming nature. Four HMAs have become inactive through previous land use planning and environmental analysis. The horses were removed due to resource damage, restrictive fencing, lack of water, change in landownership or other reasons that made it infeasible to maintain the herd.

The HMAs contain fences which provide barriers to wild horse movement. These are necessary to control livestock. After livestock are removed from these areas each year, gates are left open to allow horse movement. This is critical during the winter when water and forage supplies are more limited. Open gates prevent entrapment of horses that could lead to malnutrition and death of healthy animals, especially during the winter.

Herd Management

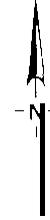
Established herd numbers ensure that horse habitat in the HMAs is maintained in satisfactory condition and resource damage is minimal. Forage allocations





5314

Allotment Boundary and Number



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**MAP RM-1
 LIVESTOCK GRAZING
 ALLOTMENTS**

are based on the maximum number of horses (Table 3.6). These herd sizes were established based on available resources, reproductive rates, other range uses and public input. Horses are allowed to run free until their numbers reach the established maximums, then excess horses are gathered. To prevent resource overuse and conflict, gathering is scheduled to occur at 3- to 4-year intervals; however, this is dependent on the number of animals, funding, public interest and other special management considerations. Gathering takes place as a herd reaches its maximum established level. The details of gathering are determined at the time of each gather. Horses are usually herded into a trap with the aid of a helicopter, which is the most cost-efficient and least stressful method. After horses are in the trap they are loaded and trucked to the Burns horse corrals. There they receive veterinary care and are sorted. Some of the best horses are returned to the range to reestablish the minimum herd size; the remainder are held until they are adopted or sent to adoption centers.

Preservation of Special Types

The Kiger and Riddle HMAs are managed for wild horses exhibiting Spanish mustang characteristics. These horses are often referred to as the Kiger mustangs and possess the physical color characteristics called the “dun factor.” The color classifications of the dun factor are dun, red dun, grulla, buckskin (claybank) and variations of these colors. Markings on these animals include dorsal stripes; zebra stripes on the knees and hocks; chest, rib and arm bars; shoulder patches and sawtooth marks alongside the dorsal

stripes: dark color outlining the ears; the top one-third of the ears on their backside darker than the body color: fawn color inside the ears; multi-colored manes and tails; cobwebbing on the face: and face masks. The less white these horses have, the stronger the dun factor. Horses having the dun factor have many, but not all of these markings. The Kiger mustangs have the physical conformation of Spanish mustangs which have characteristics of both the Tarpan and Oriental hotblood horses, from which they had their origin. The Kiger mustangs are slightly smaller than many present-day breeds of horses and usually stand 13, to 15 hands high and weigh 750 to 1,000 pounds. They have small, round bones and small feet. Ear tips of these animals are very hooked and the females tend to have very fine muzzles. Very little if any feather is seen on their fetlocks and legs, They are a unique breed of wild horse and are recognized as being the kind of horse that played a large part in our early American history and western heritage.

The Palomino Buttes HMA has historically had light-colored horses present. For this reason, the Palomino Buttes herd is being managed for palominos, buckskins, duns, red duns and sorrel colored saddle-type horses These animals usually stand 14-16 hands high and weigh 950 to 1,300 pounds.

The wild horses in Warm Springs HMA are being managed for saddle-type horses of virtually every color. However, the Warm Springs herd has historically produced some very colorful appaloosas and because of this, the herd will continue to be managed for some horses of this type.

Table 3.6. Wild Horse Herd Numbers

HMA	Minimum Herd Size	Maximum Herd Size	Alloted AUMs
Kiger	51	82	984
Palomino Buttes	32	64	768
Stinkingwater	40	80	960
Riddle Mountain	33	56	672
Warm Springs'	111	202	2,424
Total	267	484	5.808

'Includes 15 to 34 burros.

The horses in the Stinkingwater HMA are managed for saddle-type animals of various colors. Overtime, this herd has been noted for red and blue roan animals along with appaloosas and other colors.

Wild horses in all of the herds will be managed for quality in that they should be pleasing to the eye. The horses are managed for good conformation first with color being secondary.

Vegetation

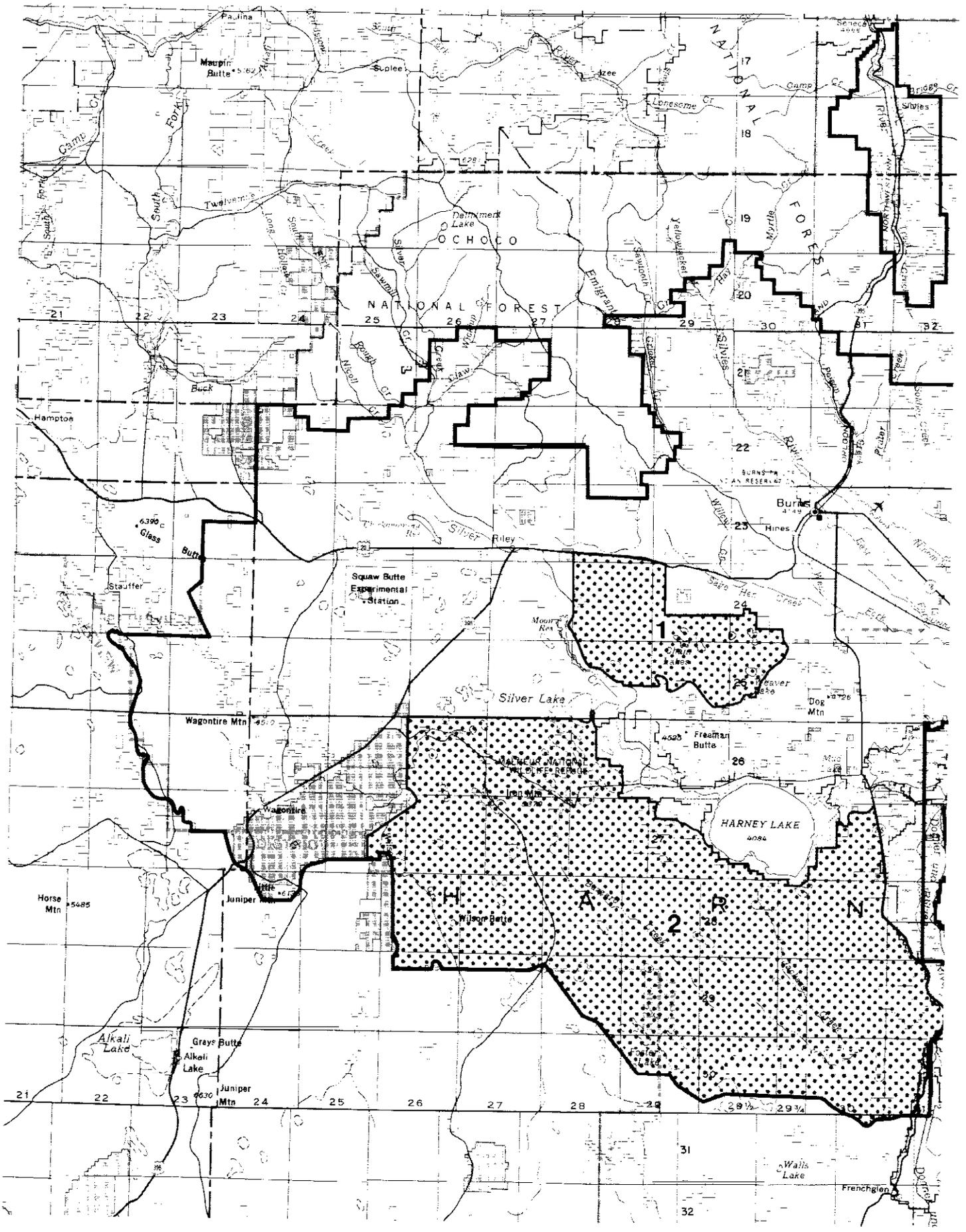
Vegetation in the Three Rivers RA is classified in 11 broad types (see Table 3.7). Ninety-four percent of the area is dominated by four types: big sagebrush (62 percent), low sagebrush (13 percent), western juniper (**13+percent**), and crested wheatgrass (5 percent). The remaining 6 percent of the area is divided into seven small types ranging from riparian areas in drainages to a forest type on the upper elevations.

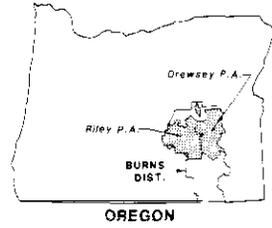
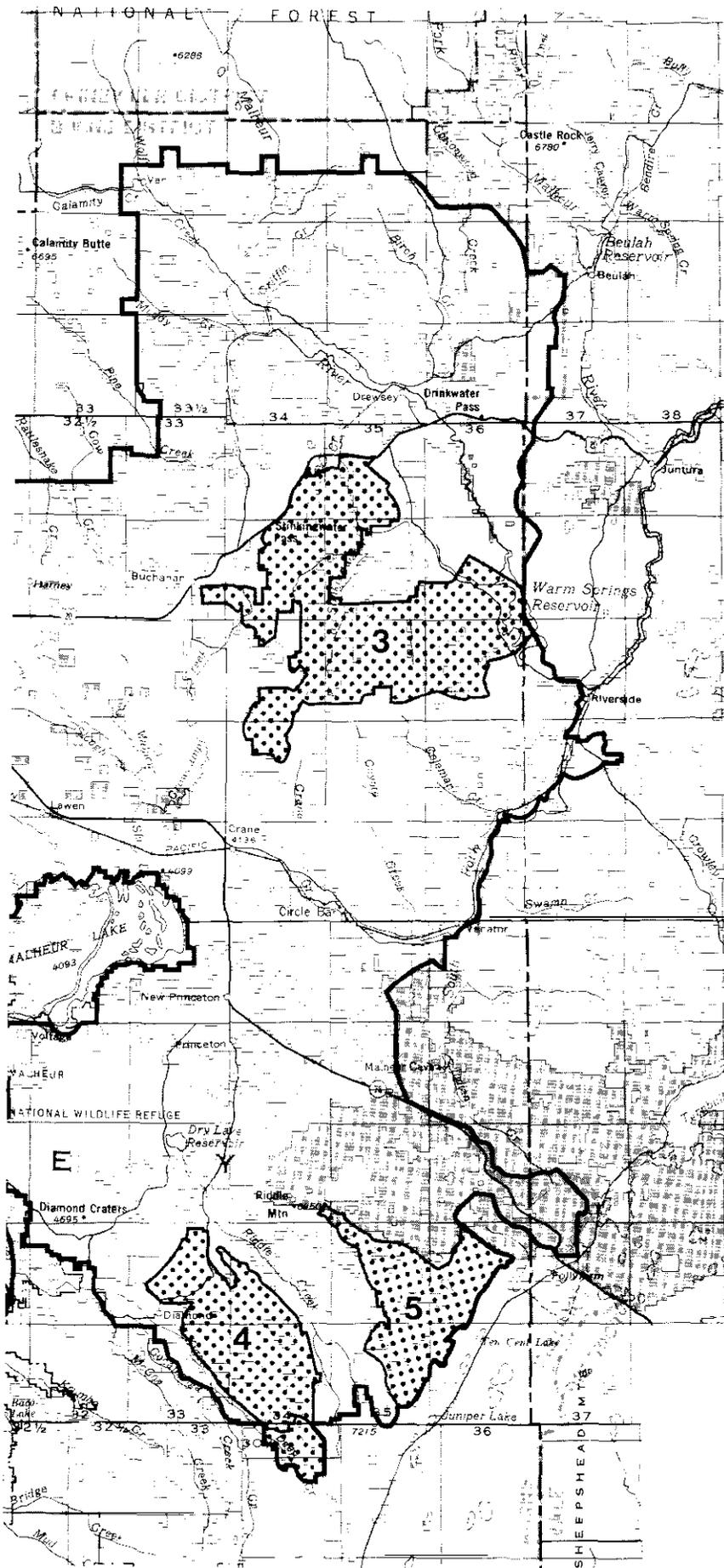
Poisonous and noxious plants are present throughout the RA, but generally do not occur in concentrations that are a significant threat to livestock. Control methods including grazing management as well as chemical/mechanical and biological methods are used as part of an integrated pest management control program, subject to site-specific environmental analyses. Control methods are not considered unless weeds are confined to public lands. Control efforts are coordinated with owners of adjacent infested lands. (A multi-state BLM environmental impact statement has been completed for Oregon, Washington, Idaho, Montana and Wyoming. Copies are available for review at the Burns District Office.)

The Oregon Natural Heritage Plan (ONHP), as mandated by the Oregon Natural Heritage Act of 1979 and adopted by the Oregon State Land Board (Oregon State Land Board, 1988), provides statewide guidance for the preservation of all representative natural areas and features. Typical and uncommon native plant communities that occur on public lands in

Table 3.7. Vegetation Types In the Three Rivers RA

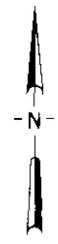
Vegetation Types	Public Land Acres Drewsey	Riley	Stivies valley	Total	% of RA	Common Assoc. Plant Species
Big Sagebrush	325,679	757,740	13,231	1,096,650	62.49	big sagebrush, rabbit brush, bluebunch wheatgrass, Idaho fescue, Sandberg's bluegrass, cheatgrass, wild buckwheat, bottlebrush squirreltail, needlegrass, aster, lupine, phlox, squawapple, bitterbrush
Juniper	93,633	130,222		223,655	12.76	western juniper, big sagebrush, low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandbag's bluegrass, curleaf mountain mahogany, bitterbrush
Low Sagebrush	90,283	130,550		220,833	12.56	low sagebrush, Sandberg's bluegrass, Thurber's needlegrass, Idaho fescue, bluebunch wheatgrass, bottlebrush squirreltail, lupine, balsamroot, phlox
Stiff Sagebrush	33,441			33,441	1.91	stiff sagebrush, Sandberg's bluegrass, bottlebrush squirreltail, bighead clover, Idaho fescue, bluebunch wheatgrass, onion, wild buckwheat, biscuitroot
Crested Wheatgrass	81,120	25,419		106,539	6.07	crested wheatgrass, sweetclover
Greasewood	8,069	12,600		20,899	1.19	greasewood, basin wildrye, saltgrass, bottlebrush squirreltail
Ponderosa Pine	6,337	9,801	4,240	20,378	1.16	ponderosa pine, big sagebrush, Idaho fescue, bluebunch wheatgrass, bitterbrush, Douglas fir, yarrow
Silver Sagebrush		12,610		12,610	0.73	silver sagebrush, Nevada bluegrass, weeping wildrye
Desert Shrub		1,400		1,400	0.06	spiny hopsage, shadscale
Riparian	656	504		1,162	0.07	willow, alder, rose, rush, Kentucky bluegrass, sedge, smooth brome, quaking aspen, matmuhly, knotweed, cottonwood
Diamond Craters	16,696			16,696	0.96	big sagebrush, phlox, moss
	656,146	1,081,246	17,471	1,754,863	100.0	





 HERD MANAGEMENT AREA (HMA)

1. Palomino Buttes HMA
2. Warm Springs HMA
3. Stinkingwater HMA
4. Kiger HMA
5. Riddle Mtn. HMA



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MAP WH-1
ACTIVE WILD HORSE AND
BURRO HERD MANAGEMENT
AREAS

the RA may be considered Natural Heritage Resources under the ONHP, especially when designated as Research Natural Areas (RNAs)/Areas of Critical Environmental Concern (ACECs). Natural Heritage Resources include plant communities for terrestrial “cells”, aquatic ecosystems for aquatic “cells”, and geologic features for geologic Yells”, as well as habitats for special status species. “Cells” contain ecosystem elements and provide the basic ONHP organizational units for inventory classification, and evaluation of natural areas in Oregon. “Ecosystems” are groupings of organisms together with the physical environment supporting them.

Two ACECs for vegetation-related values have been previously designated in the RA. The Silver Creek RNA/ACEC was established to fill multiple ONHP cells, including terrestrial and aquatic ecosystems.

The South Narrows ACEC protects critical habitat for the recovery of the federally listed endangered Malheur wirelettuce (*Stephanomeria malheurensis*). Table 3.16 summarizes the nature and scope of the natural values in these protected areas.

Special Status Species

Special status species include plant and animal species which are state or federally listed threatened or endangered, Bureau sensitive and federal candidate species (see Glossary under Special Status Species). There are 14 species of plants (excluding district sensitive plants) and 17 animal species under special status in the Three Rivers RA. Table 3.8 presents a summary of these species and Map SS-1 shows known distributions.

Table 3.8. Special Status Species

Special Status Animals Species		
Common Name	Scientific Name	Status
Fish		
Malheur mottled sculpin	<i>Cottus bairdi</i> ssp.	c
Redband trout	<i>Oncorhynchus</i>	C
Birds		
American peregrine falcon	<i>Falco peregrinus anatum</i>	LE & S
Bald eagle	<i>Haliaeetus leucocephalus</i>	LT & S
Ferruginous hawk	<i>Buteo regalis</i>	C & S
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	C & S
Long-billed curlew	<i>Numenius americanus</i>	C
Western sage grouse	<i>Centrocercus urophasianus phaios</i>	C
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	C
White faced ibis (Great Basin population)	<i>Plegadis chihi</i>	C
Mammals		
Gray Wolf	<i>Canis lupus</i>	LE & S
California wolverine	<i>Gulo gulo luteus</i>	C & S
California bighorn sheep	<i>Ovis canadensis californiana</i>	C
North American lynx	<i>Felis lynx canadensis</i>	C
Preble’s shrew [Malheur shrew]	<i>Sorex preblei</i>	c
Spotted bat	<i>Euderma maculatum</i>	c

Table 3.8. Special Status Species (continued)

Special Status Plant Species (Group 1)

Common Name	Scientific Name	Status
Brandegee's onion	<i>Allium brandegei</i>	B
Sierra onion	<i>Allium campanulatum</i>	B
Weak milkvetch	<i>Astragalus solitarius</i>	C
Bristle-flowered collomia	<i>Collomia macrocalyx</i>	C
Barren valley collomia	<i>Collomia renacta</i>	B
Cusick's buckwheat	<i>Eriogonum cusickii</i>	C
Prostrate buckwheat	<i>Eriogonum prociduum</i>	C
Bogg's Lake Hedge Hyssop	<i>Gratiola heterosepaia</i>	C
Biddle's lupine	<i>Lupinus biddlei</i>	C
Cusick's lupine	<i>Lupinus cusickii</i>	C
Rock melic	<i>Melica stricta</i>	B
Columbia cress	<i>Rorippa columbiae</i>	C
Malheur wirelettuce	<i>Stephanomeria malheurensis</i>	LE & S
Leiberg's clover	<i>Trifolium leibergii</i>	C

Potential District Sensitive Plant Species (Group 2)

Common Name	Scientific Name	Status
Narrow-leaved water plantain	<i>Alisma gramineum</i>	D
Kellogg's onion	<i>Allium anceps</i>	D
Two-stemmed onion	<i>Allium bisceptrum</i>	D
Clay-bank onion	<i>Allium lemmonii</i>	D
Rock onion	<i>Allium macrum</i>	D
Little onion	<i>Allium parvum</i>	D
Onion	<i>Allium punctum</i>	D
Three-tip sage	<i>Anemisia tripanita</i>	D
Pallid milkweed	<i>Asclepias cryptoceris</i>	D
Four-wing milk vetch	<i>Astragalus tetrapterus</i>	D
Hairy balsamroot	<i>Balsamorhiza hirsuta</i>	D
Dwarf corkseed	<i>Cymopterus corrugatus</i>	D
Bailey's ivesia	<i>Ivesia baileyi</i>	D
Desert parsley	<i>Lomatium henderonii</i>	D
Inch-high lupine	<i>Lupinus uncialis</i>	D
Club mouse-tail	<i>Myosurus clavicaulis</i>	D
Rigid nemacladus	<i>Nemacladus rigidus</i>	D
Long-flowered lousewort	<i>Pedicularis centranthera</i>	D
Narrow-leaved penstemon	<i>Penstemon seorsus</i>	D
Suksdorf's bluegrass	<i>Poa suksdorfii</i>	D
Dwarf desert knotweed	<i>Polygonum heterosepalum</i>	D
Red buttercup	<i>Ranunculus andersonii</i>	D
Few-leaved catchfly	<i>Silene scaposia</i> var. <i>lobata</i>	D

B = Bureau Sensitive; C = Federal Candidate 1 & 2; D = District Sensitive; LE = Listed Endangered (Federal); LT = Listed Threatened (Federal); S = State Listed

The critical habitat for a federally listed endangered plant, *Stephanomeria malheurensis*, was previously designated as a 160-acre ACEC to provide administrative protection. That portion of the ACEC where the greatest concentrations of the species were observed has been fenced to physically restrict ORV use and livestock grazing, and to minimize uncontrolled influences that might affect on-going botanical studies. (See Appendix 7, Table 1, for a summary of management uses and constraints for this and other ACECs).

Wildlife Habitat

Wildlife habitat in the Three Rivers RA is comprised of a broad range of individual and overlapping habitat types. Primary among these are big game, raptor, aquatic, riparian, wetland and nongame/upland game habitat. Each of these is discussed below.

Big Game Habitat

There are four big game species in the planning area which are wholly or partially dependent upon BLM lands to complete their life cycle. The four big game species are California bighorn sheep, Rocky Mountain elk, mule deer and pronghorn antelope. California bighorn sheep is a Category 2 candidate for listing as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) and is covered in the Special Status Species section. The ranges of the big game species are shown on Maps WL-1 and WL-2. Antelope range throughout most of the planning area at sometime during the year. The exceptions to this are heavily forested areas and large expanses of big sagebrush. Two other big game species, the black bear and the cougar, are occasionally seen on lands within the planning area. Table 3.9 summarizes existing big game habitat conditions in the RA.

An estimated 5,000 antelope, 14,003 deer and 1,500 elk winter on public lands in the planning unit during a normal year. Approximately 4,300 antelope, 13,000 deer and 300 elk summer on these lands.

Current forage commitments for big game are listed in Appendix 3, Table 4, and are taken from the Drewsey AMPs and the Riley EIS/ROD. Future demands for big game forage by allotment are shown in Appendix 5, Table 1. Big game numbers were furnished by the Oregon Department of Fish and Wildlife (ODFW).

Table 3.9. Big Game Habitat Condition (acres)

	Satisfactory	Unsatisfactory
Deer Winter Range	334,910	195,571
Deer Summer Range	376,670	325,293
Elk Winter Range	234,211	21,340
Elk Summer Range	105,380	43,100

Raptor Habitat

There are 13 species of raptors known to nest or roost on public lands within the planning area.

Several other raptor species are known to occur on public lands in the planning area. Short-eared owls, pygmy owls, barn owls, northern harriers, Coopers hawks and sharp-shinned hawks are believed to nest within the planning area; however, inventory data to verify nest sites is lacking. The rough-legged hawk is a common wintering species within the planning area and uses public lands extensively for hunting. The turkey vulture is a summer resident but no roost or nest sites have been identified on public land in the planning area.



Murphy Buch; Early 1930's vintage Chevrolet car - Roy & Ernestine Crutchlow photo.



"Fishin" Charlie Laythe - 1930 - Jim McDade photo.

Aquatic Habitat

Aquatic habitat includes perennial and intermittent streams (lotic habitat) and flat water (lakes and reservoirs or lentic habitat) which support fish through at least a portion of the year. In the Three Rivers RA there is a total of 83.65 miles of stream and 4,066 surface acres of flat water aquatic habitat. Table 3.10 presents a summary of aquatic habitat condition and trend for the RA. Appendix 6, Table 1, provides detailed information by stream for the RA.

Approximately 1 mile of perennial Silver Creek adjacent to the Ochoco National Forest has been previously designated as an RNA/ACEC, in part to protect a representative aquatic ecosystem (i.e., a first to third order stream originating in the ponderosa pine forest zone in the Blue Mountains) (see Map ACEC-1).

Riparian Habitat

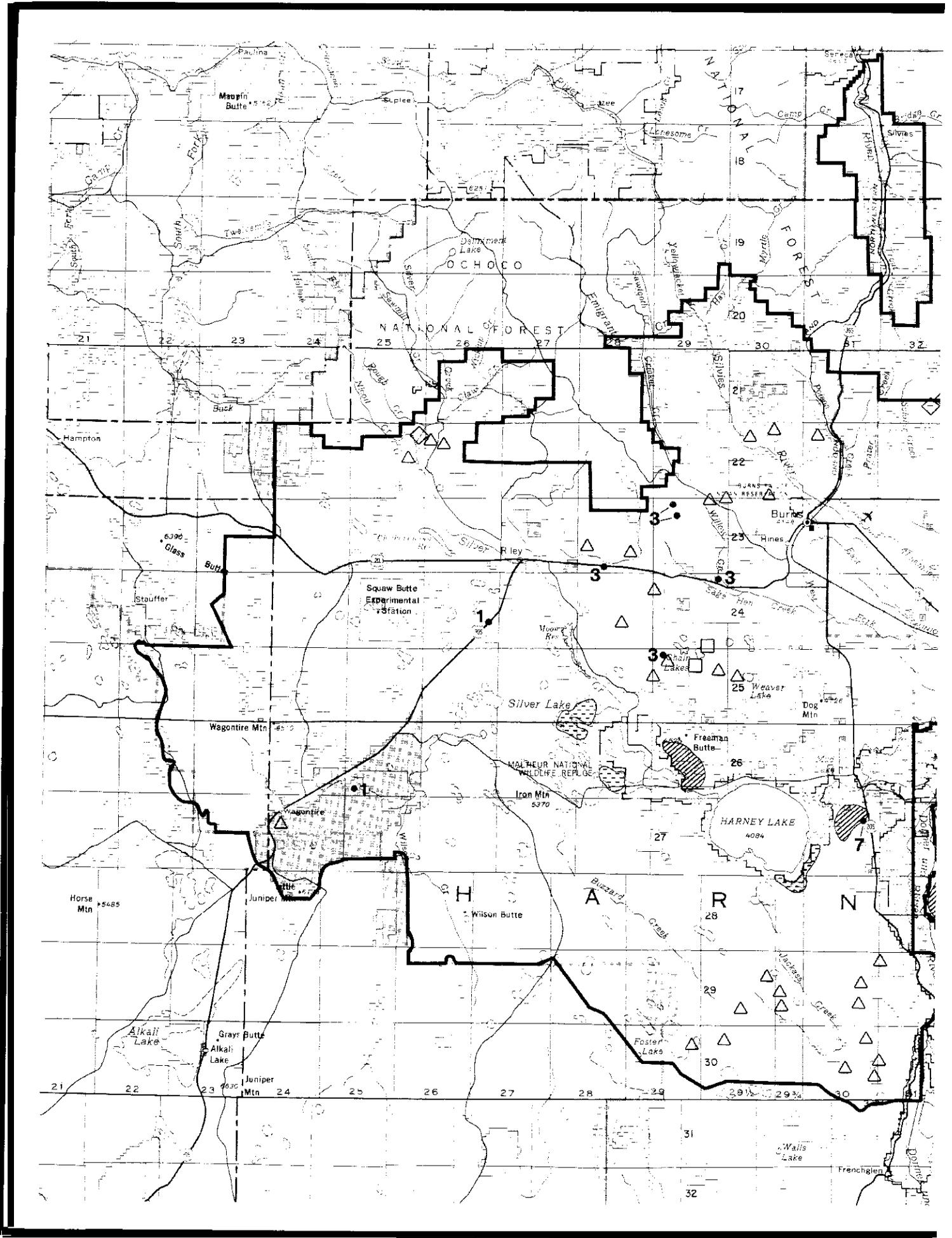
Riparian habitat (see Glossary) is a critically important habitat type for wildlife in the RA because an estimated 70 percent of all wildlife species in the Three Rivers RA is partially or totally dependent upon riparian habitat for food, water and cover. Table 3.11 shows the cumulative miles and acres of streamside riparian habitat by condition class in the RA. These totals are displayed by stream in Appendix 5, Table 2.

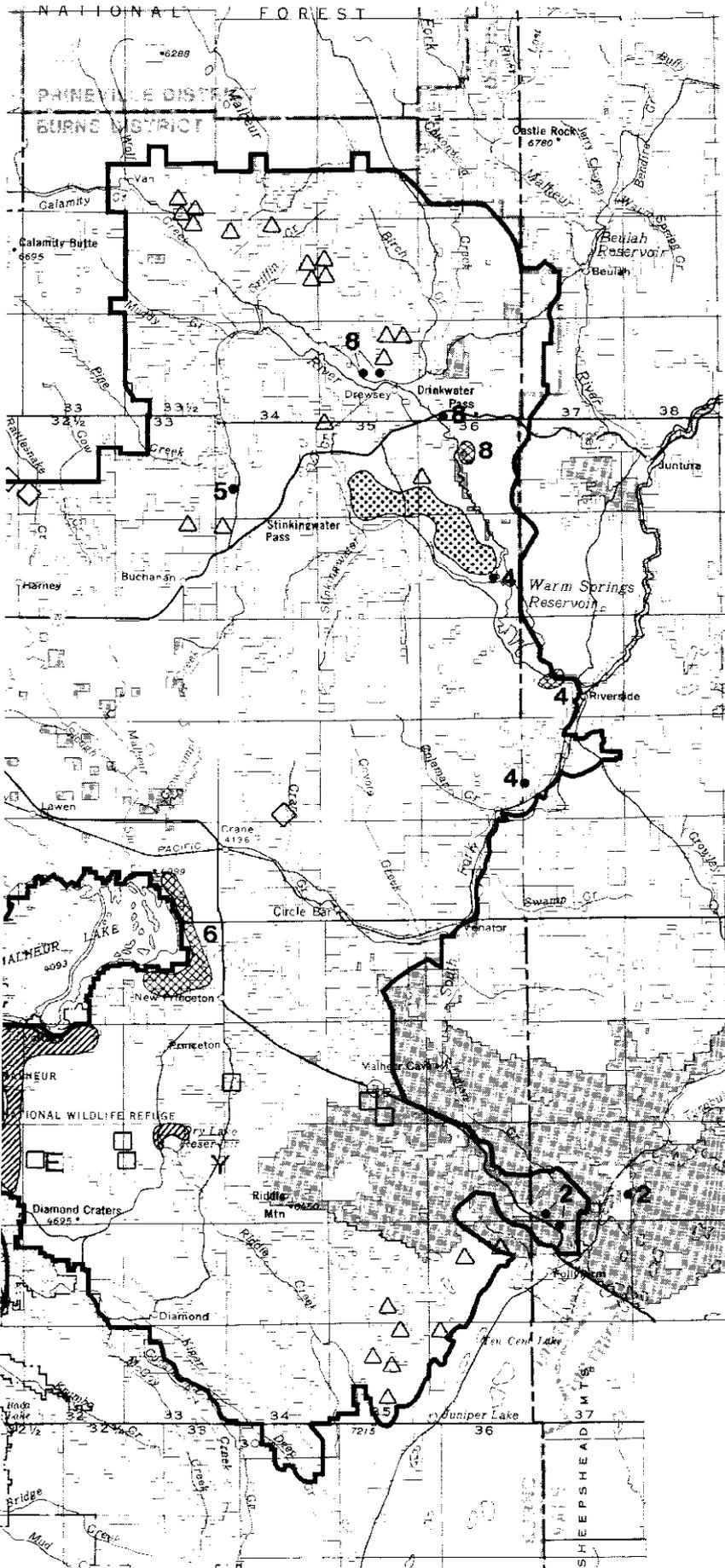
Wetland Habitat

Wetland habitat (see Glossary) provides habitat for a large number of wildlife species in the planning area. Table 3.12 presents a summary of wetland habitat condition in the RA. These acreages include surface water acres at reservoir full pool and the water associated vegetation surrounding reservoirs or wetland areas. Numerous small livestock watering reservoirs exist throughout the planning area. Acres and condition for these reservoirs have not been quantified and are not included in this table. The larger and more important playas have been quantified by public acres; however, condition and trend data for these areas are not available. Many smaller playas also occur in the planning area. Acreage figures for these playas have not been tallied. Appendix 5, Table 3, shows public acreage, condition and trend for specific wetlands and reservoirs. It also shows public acreages for the larger playas.

Table 3.10. Aquatic Habitat Condition and Trend

Condition	Stream (Miles)				Flat water (Acres)			
	Improving	Declining	Static	Unknown	Improving	Declining	Static	Unknown
Poor	15.15	22.90	3.65	-	7.00	5.00	0.00	
Fair	5.90	13.70	6.80	-	24.00	0.00	3,870.00	
Good	0.00	0.50	7.60		0.00	0.00	100.00	
Excellent	0.00	0.00	0.00		0.00	0.00	0.00	
Unknown	—	—	—	7.45	—	—	—	0.00
Total (Units)	21.05	37.10	18.05	7.45	31.00	5.00	3,970.00	0.00
(Percent)	25.16	44.35	21.58	8.91	0.77	0.12	99.10	0.00





WILDLIFE SPECIES

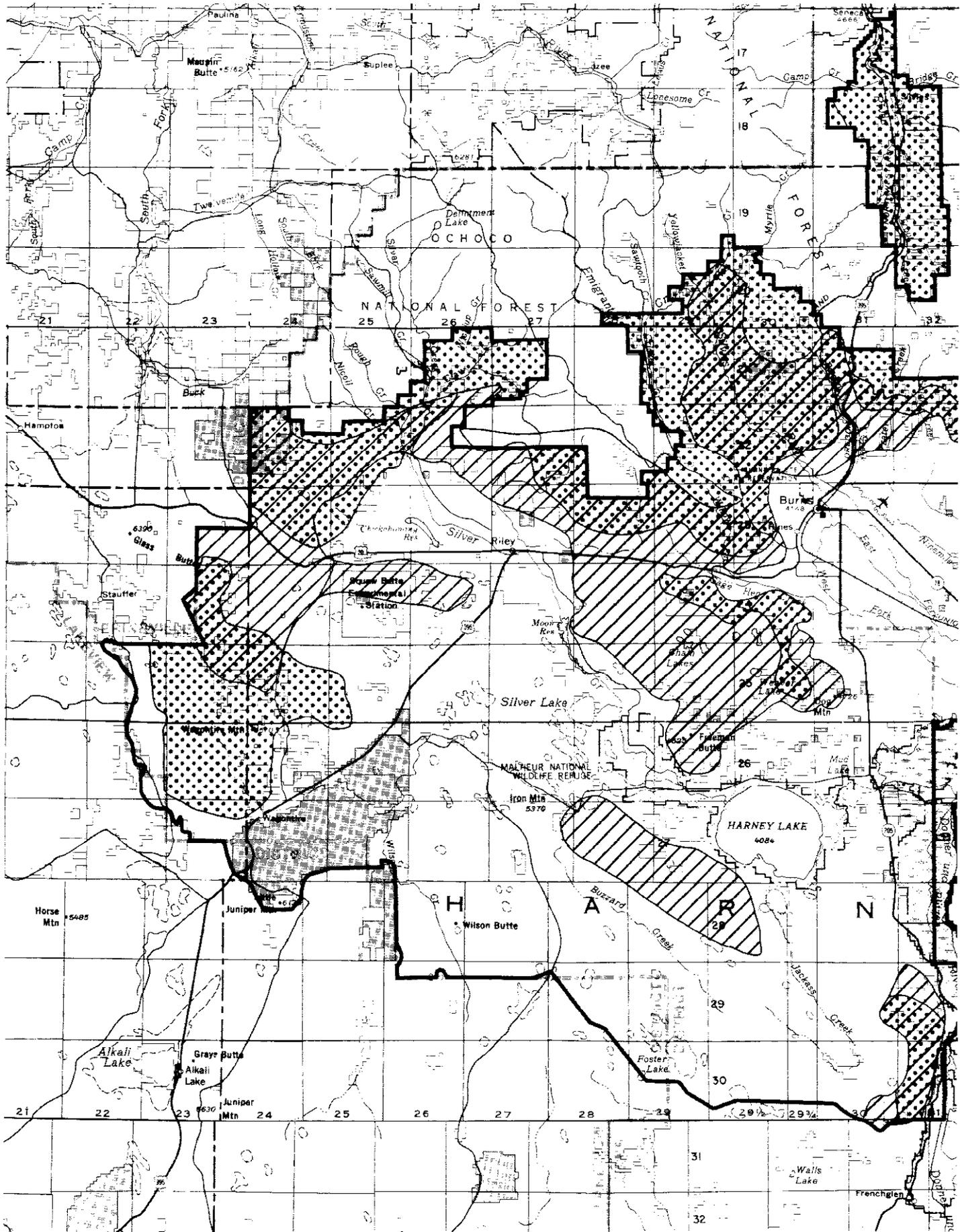
-  Snowy Plover Nesting Habitat
-  Long-billed Curlew Nesting Habitat
-  California Bighorn Sheep Habitat
- 0** Bald Eagle Winter Roost Areas
-  Ferruginous Hawk Nests
-  Sage Grouse Strutting Grounds

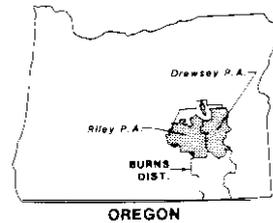
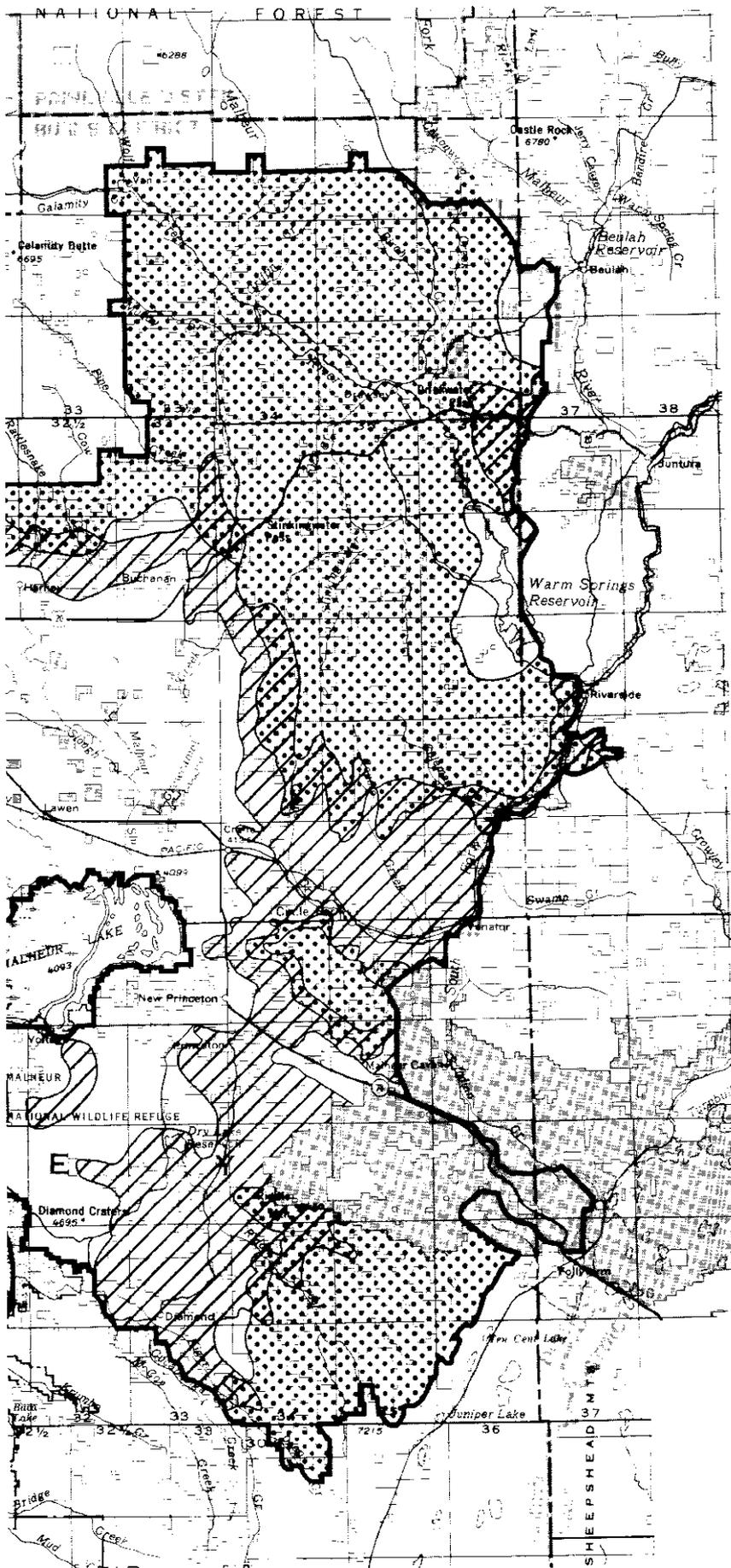
PLANT SPECIES

-  1. *Allium brandegei*
- 2. *Collomia renacta*
- 3. *Eriogonum cusickii*
- 4. *Lupinus biddlei*
- 5. *Lupinus cusickii*
- 6. *Rorippa columbiae*
- 7. *Stephanomeria malheurensis*
- 8. *Trifolium leibergii*

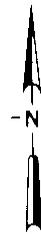


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 THREE RIVERS RESOURCE AREA
MAP SS-1
SPECIAL STATUS SPECIES

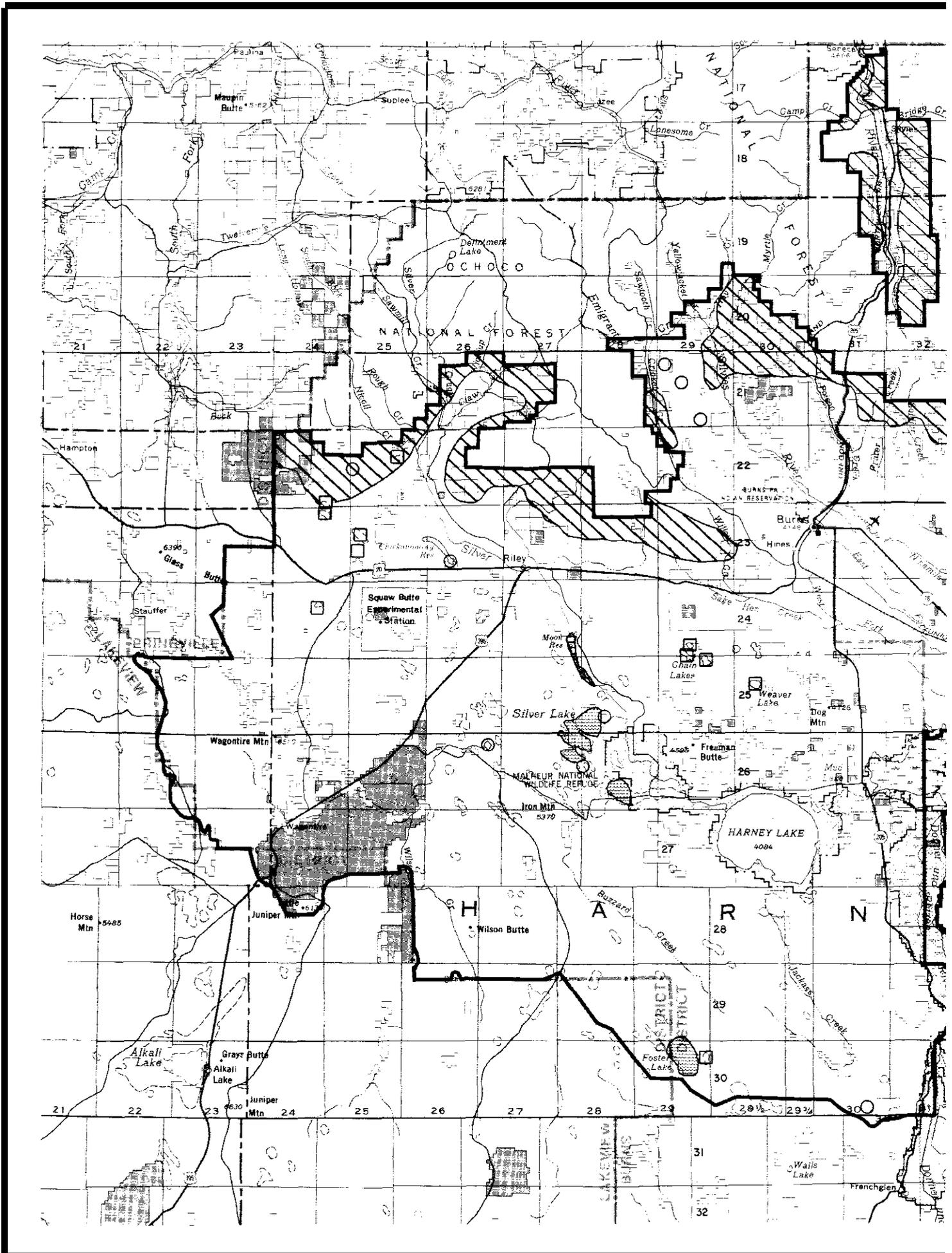


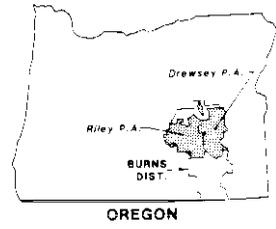
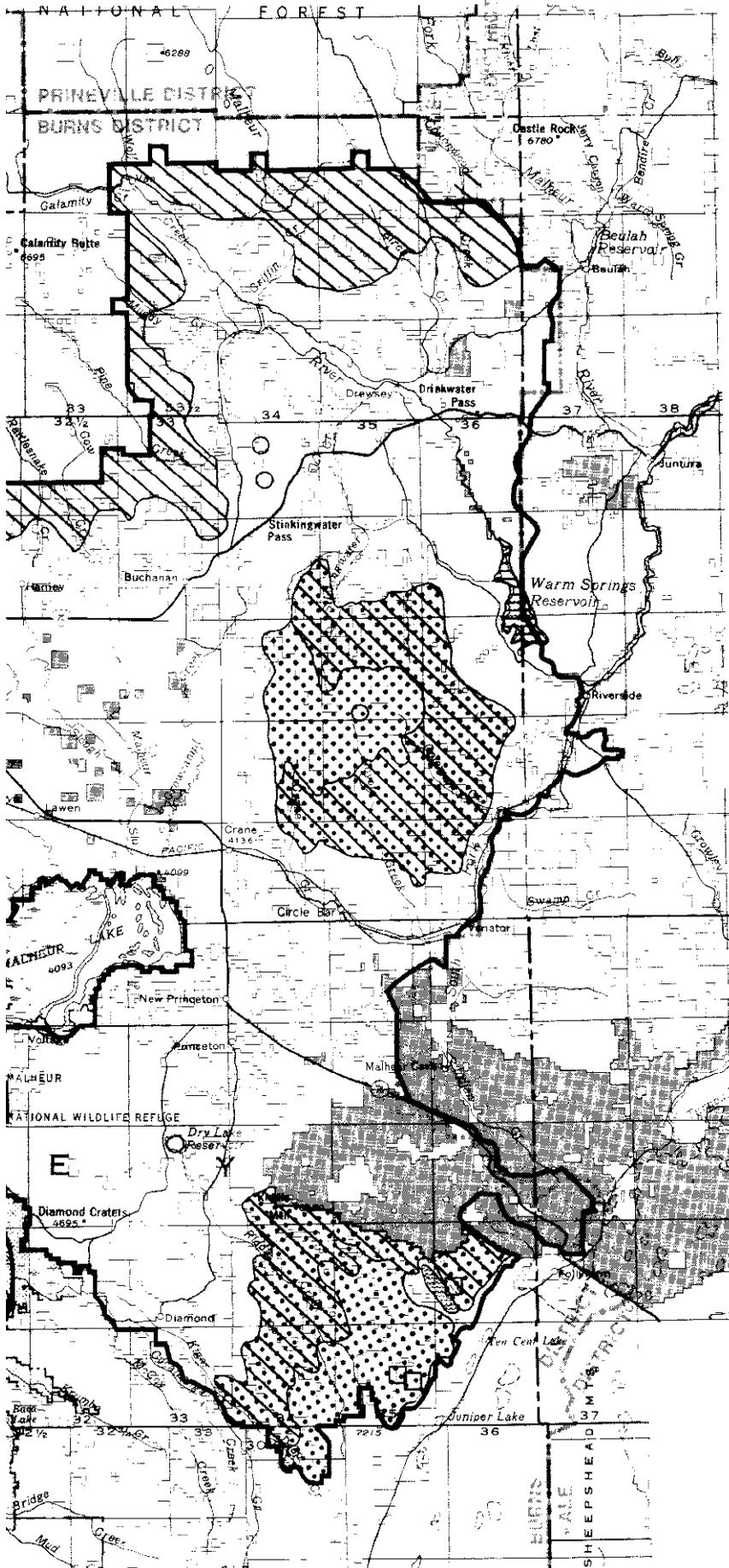


-  Mule Deer Summer Range
-  Mule Deer Winter Range

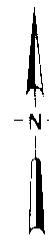


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 THREE RIVERS RESOURCE AREA
MAP WL-1
MULE DEER RANGE





-  Wetland/Reservoir Habitat
-  Major Playas
-  Elk Winter Range
-  Elk Summer Range



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 THREE RIVERS RESOURCE AREA

MAP WL-2
ELK RANGE and
WETLAND/PLAYA HABITATS

Table 3.11. Streamside Riparian Habitat Condition Summary

Condition	Stream Miles	Percent of Total Miles	Surface Acres	Percent of Acres
Good	17.75	15	118.20	16
Fair	41.60	34	249.80	34
Poor	31.95	26	203.50	28
Unknown	29.35	25	166.00	22
	120.65		737.50	

Table 3.12. Wetland Habitat Condition Summary

Condition	Surface Acres	Percent
Good	50	1.0
Fair	911	20.3
Poor	390	8.7
Uncontrollable ¹	3,140	69.9
Total	4,491	
Expansion	200	

¹Due to large water level fluctuations on Warm Springs, Moon and Chickahominy Reservoirs.

Nongame Animals and Upland Game Birds

Approximately 254 of these species are known or suspected to inhabit the RMP/EIS area. Representatives of this grouping include the black-tailed jackrabbit, beaver, sage thrasher, horned lark, western rattlesnake and spotted frog. Virtually every vegetative type has a component of nongame or upland game species which depend upon it for all or a portion of their life cycle. Some species such as the beaver have highly specialized habitat requirements; others, such as the deer mouse are widespread over the entire RA. The highest number of species occurs in riparian areas.

No comprehensive survey of nongame or upland game species has been conducted in the RA. There-

fore, no population condition or trend data are available on these species. All subsequent analyses in this document are based on inference from anticipated changes in vegetative types.

Fire Management

All wildfires in the Three Rivers RA are aggressively suppressed. Full suppression fire protection is applied by BLM to 1,709,918 acres of public land and nearly 31,000 acres of State and privately owned lands. Fire suppression activities and occasional emergency fire closures are fully coordinated with the Ochoco National Forest, Snow Mountain Ranger District, and the Malheur National Forest, Burns Ranger District, as well as the Oregon Division of Lands and Forestry

Over the 15-year period of 1972 through 1986, the RA averaged approximately 44 fires and 12,400 acres burned per year. However, for the 5-year period of 1982 through 1986, nearly the same number of fires per year yielded an average of over 28,800 acres burned per year. This dramatic increase in acres burned is attributed to 5 years of significantly above normal winter and spring precipitation (115 to 150 percent of normal) resulting in above average fire fuel build up.

The use of prescribed fire in the RA during the past 5 years has been minimal. Over this period, six burns, totaling 1,181 acres, have been used to meet a variety of resource management objectives.

The RA has been evaluated for risk to resource values by fire. Values at risk classes have been established and range from Class 1 (the lowest values at risk) to Class 6 (the highest or special consideration values at risk) and are shown on Map

FM-I. On the basis of the values at risk and other resource objectives, fire use zones (see Glossary) can be determined for the RA.

Recreation

Recreation activities in the Three Rivers RA are predominantly of an unstructured, extensive nature associated with hunting, fishing, rockhounding, camping, sightseeing and driving for pleasure. Area-wide there are estimated to be around 98,000 recreation visits per year resulting in approximately 657,000 visitor hours of recreation use, according to the Burns District Recreation Management Information System.

The area currently has three moderate to high intensity use areas (see Map R-1). Chickahominy Reservoir provides outstanding trout fishing opportunities and is managed cooperatively with Harney County, ODFW, the Oregon State Marine Board and BLM. A small recreation site is managed by the BLM at the reservoir. A second reservoir area, Warm Springs Reservoir, is administered by the Bureau of Reclamation and provides fishing and boating opportunities. The BLM services county sanitation facilities provided for the public at the reservoir. The Diamond Craters Outstanding Natural Area/Area of Critical Environmental Concern (ONA/ACEC) was designated for its

outstanding volcanic features and scientific values. It is the only designated Special Recreation Management Area in the RA.

Existing conflicts with recreational activities are generally associated with livestock grazing in areas where fishing and camping occur.

Off-Road Vehicle Use (ORV)

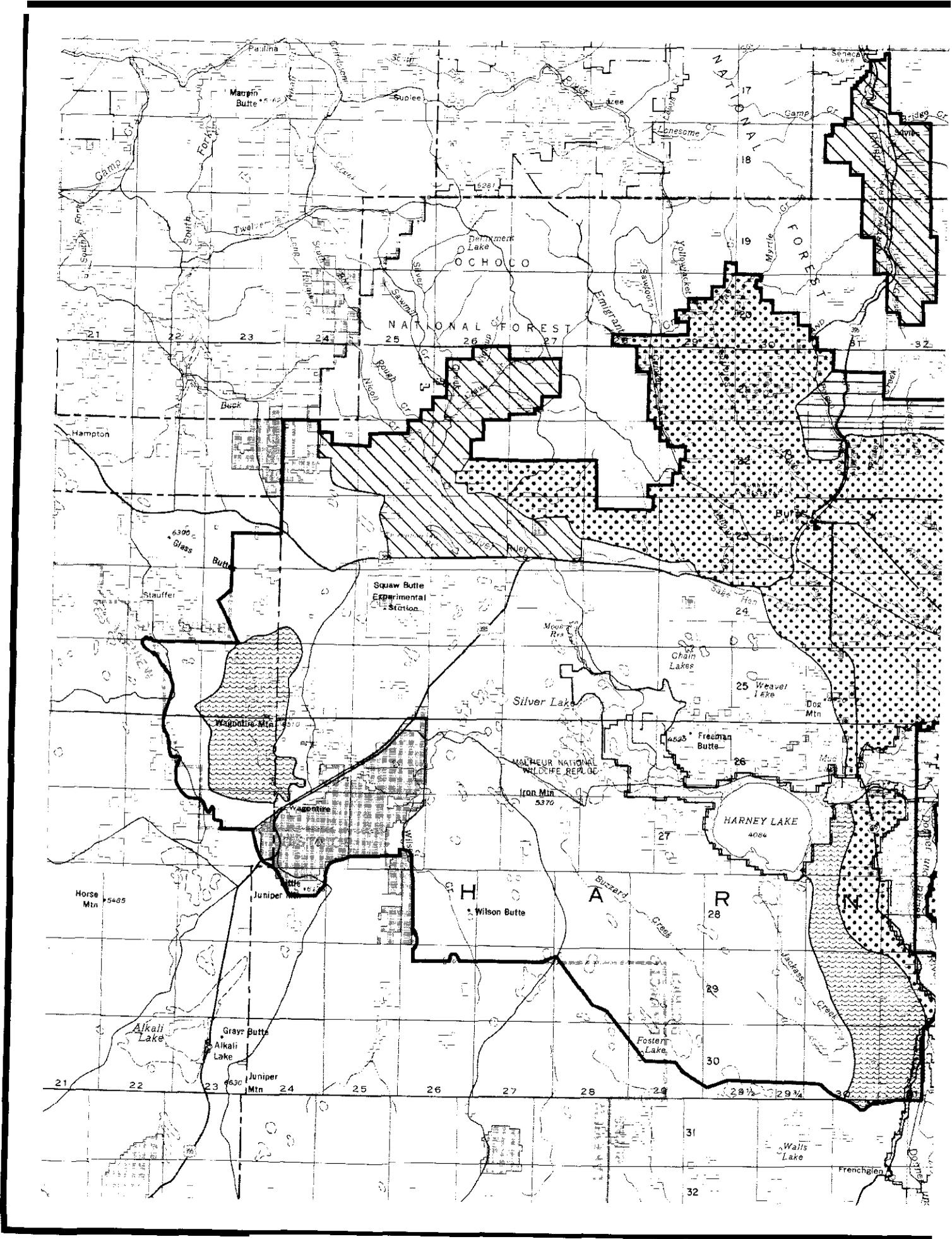
Off-Road Vehicle Use (ORV)

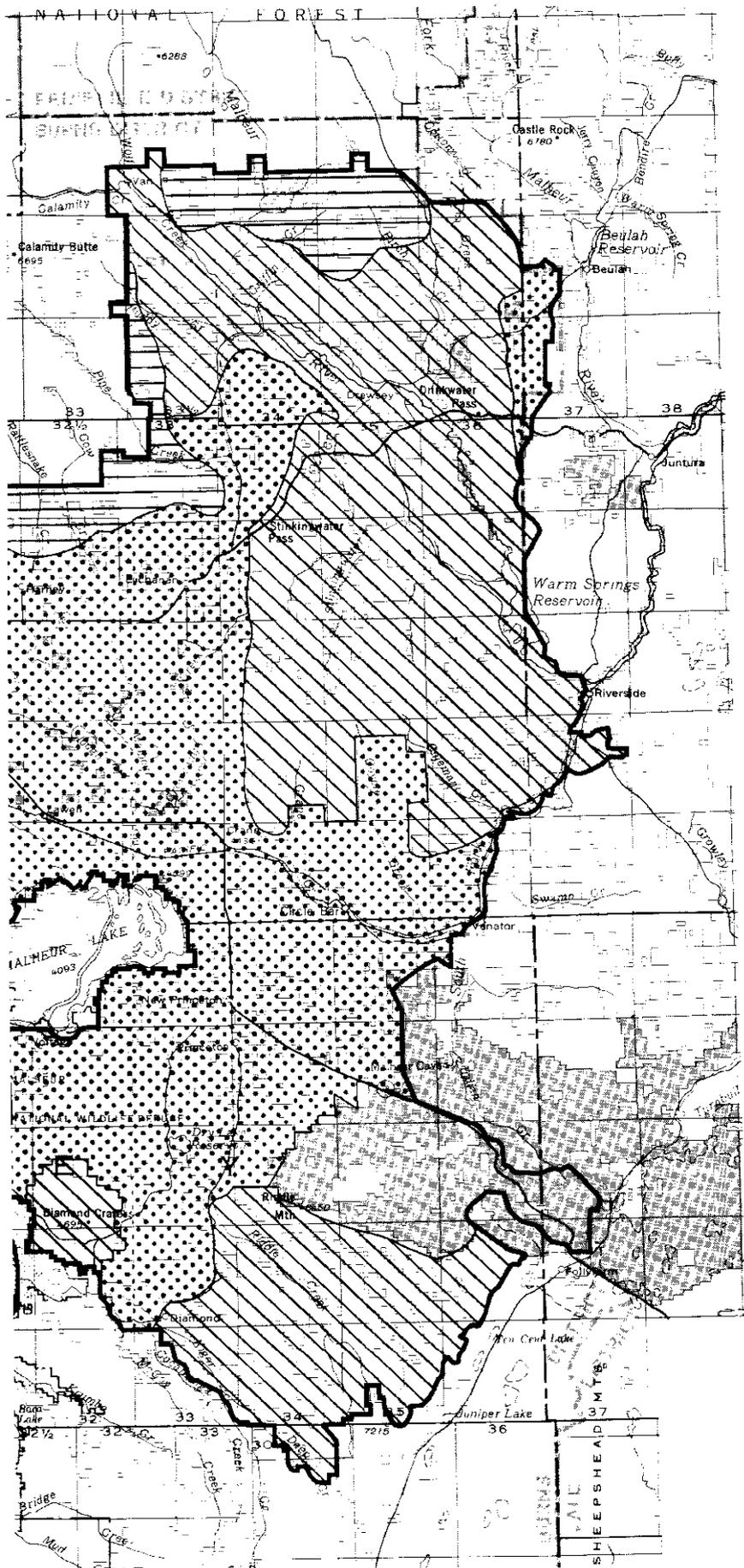
ORV use in the area is primarily associated with hunting, fishing and driving for pleasure. There are no extensive high use ORV areas in the RA. One 240-acre intensive use area near Hines (see Map R-1), receives concentrated all-terrain vehicle (ATV), motorcycle and 4-wheel drive use in the warmer months and sledding and tubing use in the winter months because of its immediate accessibility to the population centers of Burns and Hines.

All BLM-administered lands in the RA have been designated for ORV management. There are approximately 10,000 acres of public lands closed to ORV use and approximately 100,000 acres where ORV use is limited to existing roads and trails (see Map R-1). The remainder is designated open for ORV use. Table 3.13 summarizes the restrictions placed on ORV use.



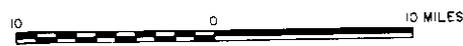
Freight hauling circa 1900-1910 Harney County - Marcus Hanes photo.



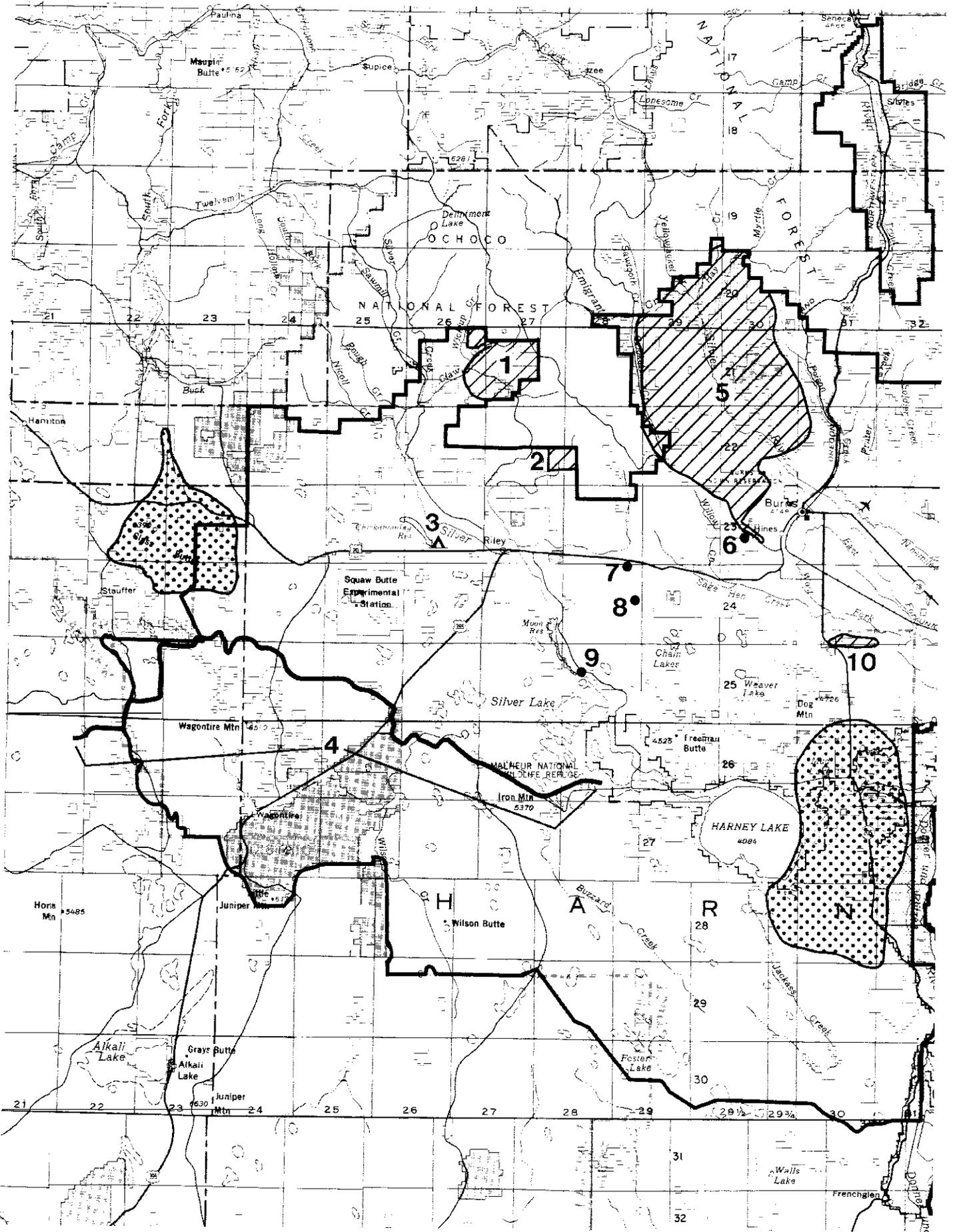


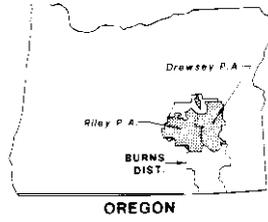
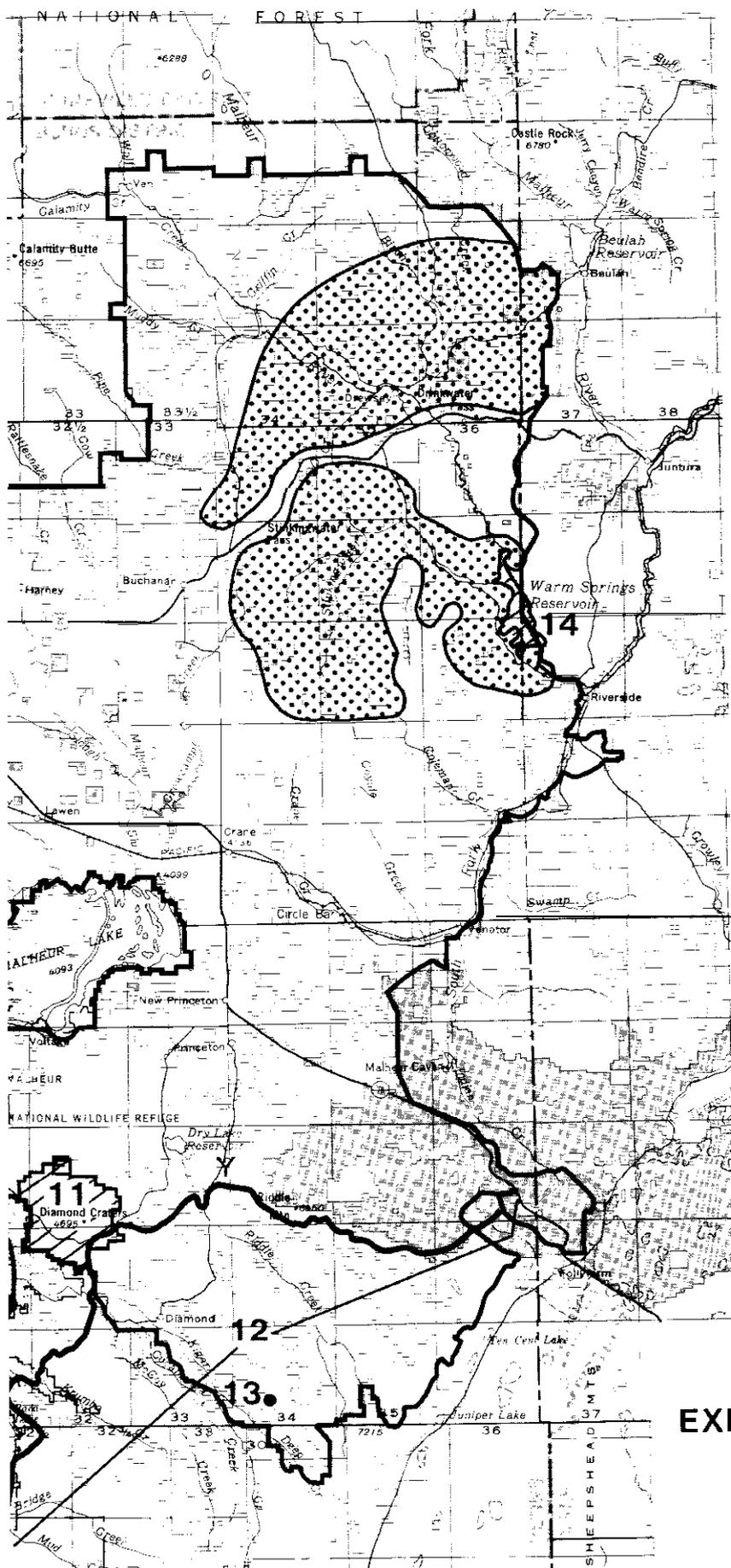
RESOURCE VALUES AT RISK

-  Class 1 (LOW Value)
-  Class 2
-  Class 3
-  Class 4
-  Class 5
-  None Class 6 (High Value)



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 THREE RIVERS RESOURCE AREA
MAP FM-I
RESOURCE VALUES AT RISK



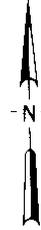


RECREATION "SE AREAS

1. Snowmobile Use
2. Snowmobile "se
3. Chickahominy Recreation Site
4. Burns to Send ORV Race Route
5. Cross-Country Skiing, Sledding, Tubing, Snowmobiling
6. Radar Hill OR" Area
7. Sagehen Hill Nature Trail
8. Wild Horse Viewing Area
9. Moon Reservoir Recreation Site
10. Wrights Point Geologic Area
11. Diamond Craters ONA
12. Desert Trail Route
13. Wild Horse Viewing Area
14. Warm springs Recreation Area



Public Rockhounding Areas



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THREE RIVERS RESOURCE AREA

**MAP R-I
 EXISTING RECREATION USE AREAS**

Wild and Scenic Rivers

Table 3.13. Existing Off-Road Vehicle Designations

Open	1,599,764 acres
Closed	
Malheur River/Bluebucket Creek WSA	2,080 acres
Squaw Lake	6,500 acres
Hat Butte	30 acres
Windy Point	280 acres
Devine Canyon	1,040 acres
South Narrows ACEC	160 acres
Total	10,090 acres
Limited (existing roads and ways)	
Diamond Craters ONA/ACEC	16,656 acres
Malheur River/Bluebucket Creek WSA	3,480 acres
Stonehouse WSA	14,825 acres
Warm Springs Reservoir	23,811 acres
ODFW Hunting Areas	49,652 acres
Silver Creek RNA	640 acres
Total	100,064 acres

The National Wild and Scenic Rivers System was created by Congress (Public Law+90542) to preserve selected rivers in natural, free-flowing conditions. There are no river segments in the RA that were identified in the Nationwide Rivers Inventory, the Statewide Comprehensive Outdoor Recreation Plan's Rivers Inventory or the State Scenic Waterways Designations. However, a Wild and Scenic Rivers Inventory for possible inclusion as components of the National Wild and Scenic Rivers System was completed for Three Rivers RA (see Map WSR-1, and Appendix 11, Table 1). Tables 3.14 and 3.15 summarize the results.

The Middle Fork Malheur River, which flows through the Malheur River/Bluebucket Creek WSA (see Map WSR-2), possesses resource values sufficient for consideration for inclusion in the National Wild and Scenic River System. BLM has not previously proposed this river segment because less than 3 miles flow through BLM-administered lands and this has not been considered sufficient to provide adequate management. However, 13.7 contiguous upstream

Table 3.14. Eligibility Assessment and Potential Classification

River Name	Free-Flowing Values		Outstandingly Remarkable Values							Potential Classification			Eligibility Determination	
	Yes	No	a	b	c	d	e	f	g	Wild	Scenic	Recreational	Eligible	Noneligible
Silvies River (Segment A)	X													X
Silvies River (Segment B)		X												X
Middle Fork Malheur River (Segment A)	X		X									X ²		X
Middle Fork Malheur River (Segment B)	X													X
Middle Fork Malheur River (Segment C)	X													X
Middle Fork Malheur River (Segment D)			X											X
S. Fork Malheur River (Segment A)	X													X

a - Scenic
b - Recreational
c - Geological
d - Fish and Wildlife
e - Historical
f - Cultural
g - Other (including Ecological)

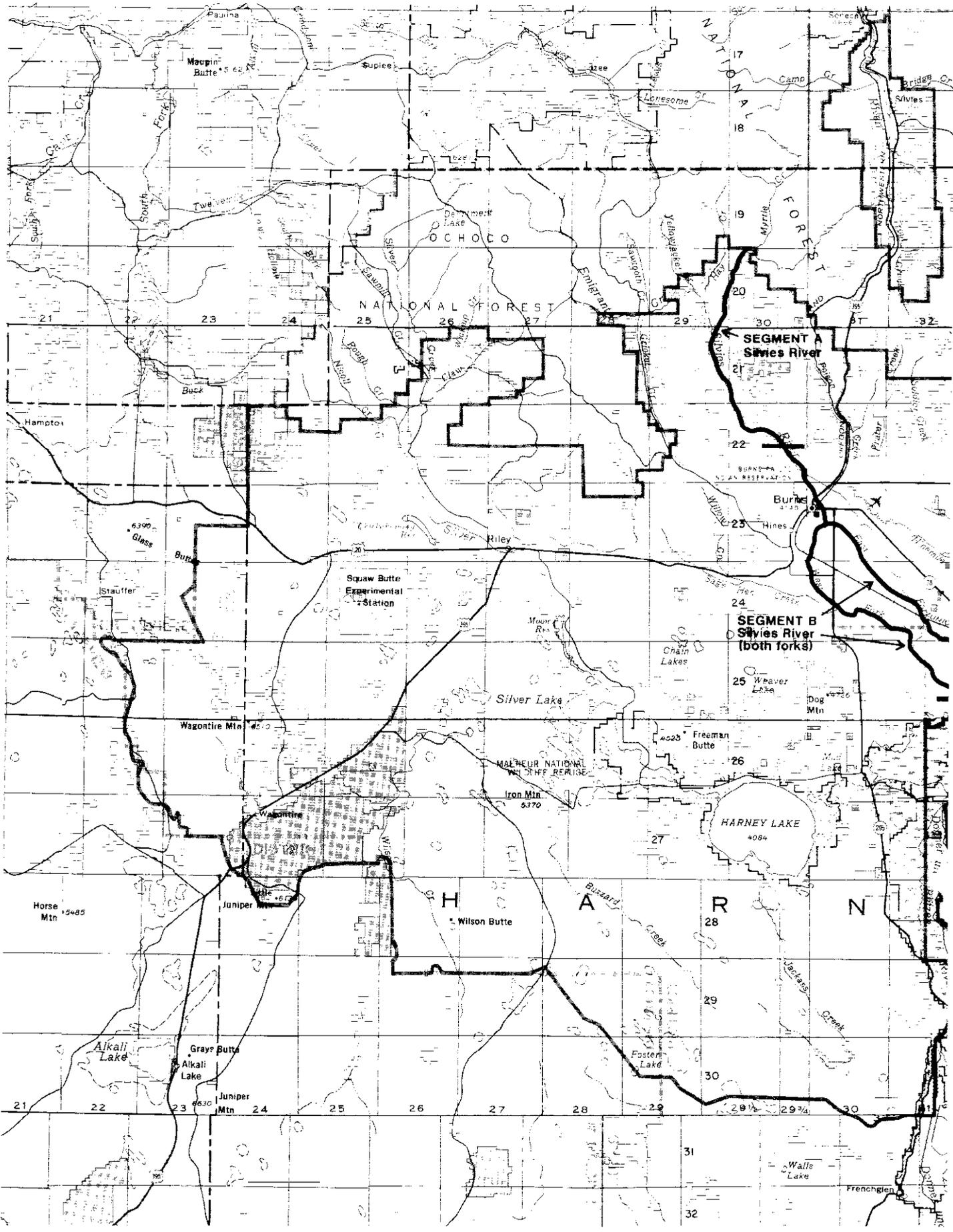
²Solitude and primitive types of recreation

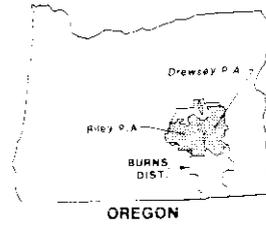
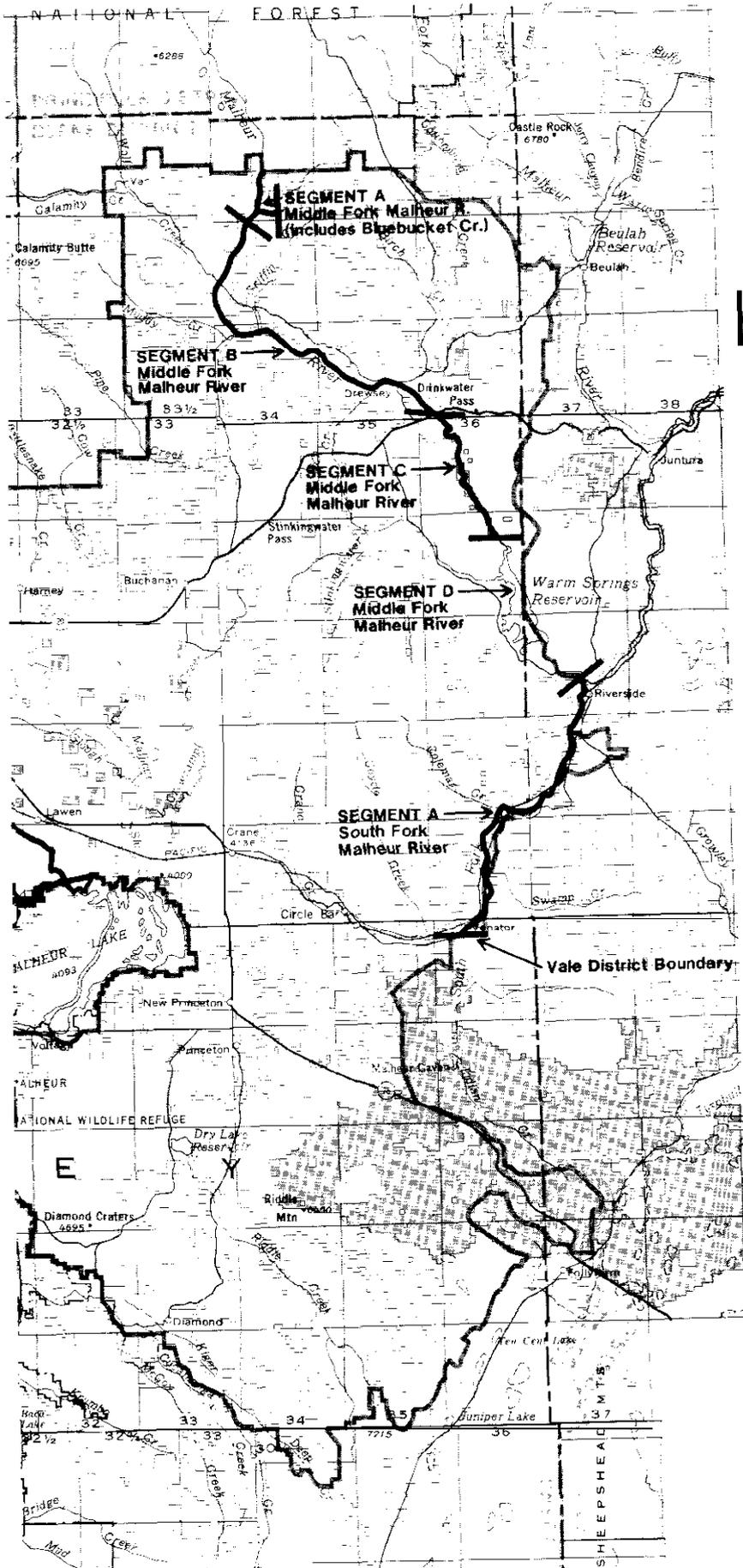
Table 3.15. Evaluation of Outstandingly Remarkable Values

River Name	Description of Values - Either Outstandingly Remarkable or Lack Thereof and Evaluation Statement of Free-flowing Character
Silvies River (Segment A)	-free-flowing low rainbow trout populations; moderate smallmouth bass populations limited rafting in springtime lacks outstandingly remarkable values
Silvies River (Segment B)	- moderate populations of smallmouth bass; non-free-flowing, due to irrigation diversions and channelization; lacks outstandingly remarkable values
Middle Fork Malheur River (Segment A)	free-flowing -outstanding scenery throughout corridor -outstanding solitude and opportunities for primitive recreation variety of vegetation
Middle Fork Malheur River (Segment B)	-free-flowing - low rainbow trout populations limited rafting in springtime lacks outstandingly remarkable values
Middle Fork Malheur River (Segment C)	-free-flowing - low rainbow trout and smallmouth bass populations limited rafting in springtime - lacks outstandingly remarkable values
Middle Fork Malheur River (Segment D)	- non-free-flowing due to irrigation diversions; values associated with reservoir waters lacks outstandingly remarkable values
S. Fork Malheur River (Segment A)	-free-flowing low rainbow trout populations limited jump shooting of waterfowl lacks outstandingly remarkable values

miles of the river in the Malheur National Forest have been designated Wild in the Omnibus Oregon Wild and Scenic Rivers Act of 1988. This would make management of the BLM-administered segment as part of a larger system practical. In addition, 1.4 miles of a tributary, Bluebucket Creek, has also been included as part of the river segment in the BLM proposal. Another 1.3 miles of the Middle Fork Malheur River, between the FS and BLM managed land is also included in our analysis, bringing the total river study (Segment A) mileage to 5.4 miles.

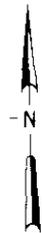
The proposed boundaries are shown on Map WSR-2. Note that the boundaries are generally one-quarter of a mile on either side of the mean high water level of the river and creek. These boundaries follow the rim of the canyon and encompass all of the outstandingly remarkable visual resource and areas with significant biological diversity. These values can be protected within these boundaries. Expansion of the boundary onto the plateaus would not increase protection of the river corridor.





WILD AND SCENIC RIVERS SEGMENTS

- Silvie's River SEGMENTS A,B
- Middle Fork Malheur River SEGMENTS A,B,C,D
- South Fork Malheur River - SEGMENT A



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 THREE RIVERS RESOURCE AREA
MAP WSR-1
WILD AND SCENIC RIVERS

Areas of Critical Environmental Concern (ACECs)

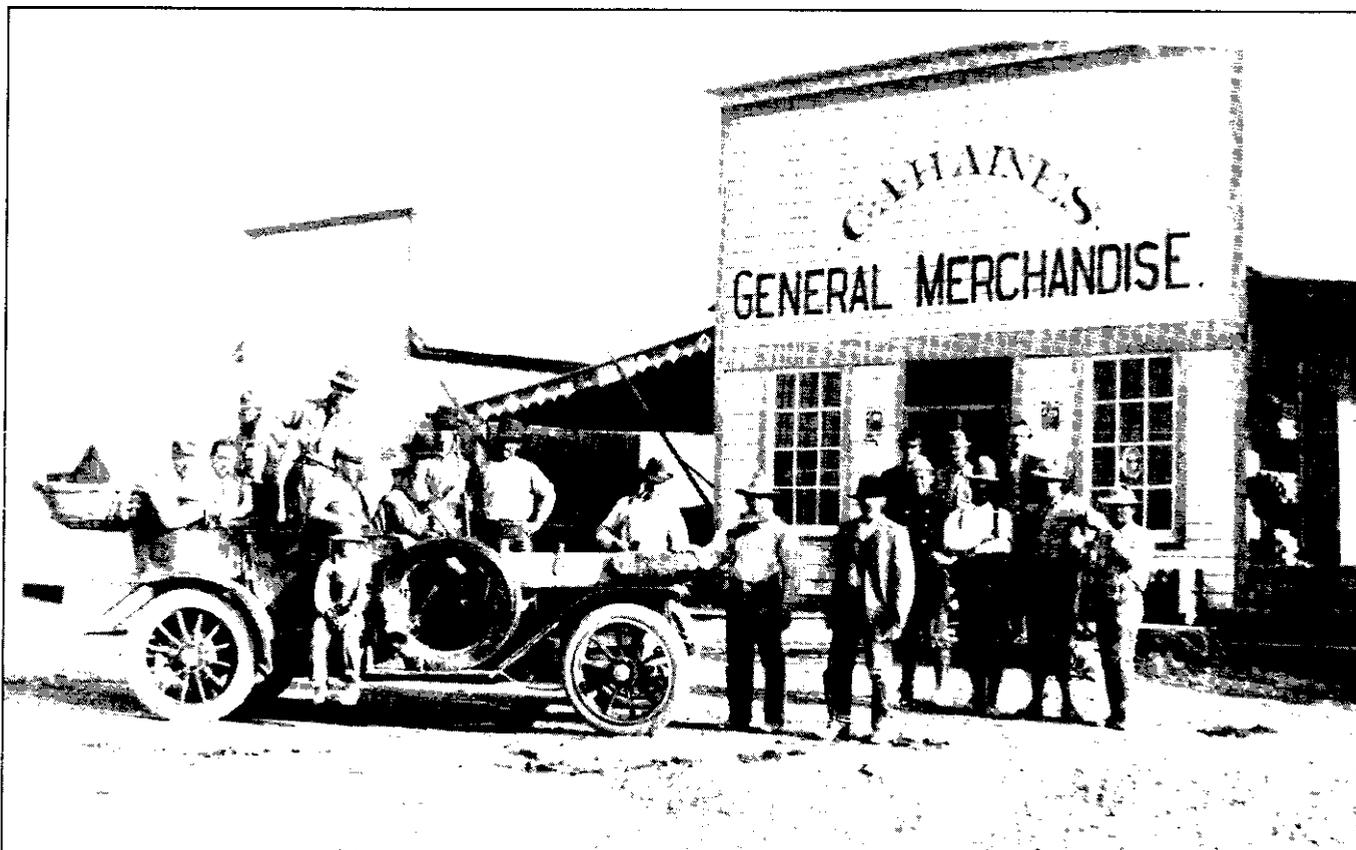
At the present time, the Three Rivers RA manages three ACECs: the Silver Creek RNA/ACEC, the Diamond Craters ONA/ACEC, and the South Narrows ACEC (see Map ACEC-1). These areas encompass 17,456 acres of public land in total.

Through the public participation process and internal assessments, nine additional ACECs or extensions to existing ACECs have been proposed. The general location of these areas, the special values represented in each, and the public land acres potentially included are described in Appendix 7, Table 2.

Table 3.16 summarizes an interdisciplinary assessment of each of the existing and potential ACECs against the importance and relevance criteria prescribed in BLM Manual 1613.1. The conclusions of the interdisciplinary assessment process regarding which potential ACECs meet the importance and relevance criteria and which do not is also presented in the table. Refer to Appendix 7, Table 2, for detailed site descriptions of each of the potential ACECs.

Visual Resources

Visual resources are categorized in a two phase process. They are first assessed through an inventory process which considers scenic quality (key factors include landform, vegetation, water, color, adjacent scenery, scarcity, and existing cultural modifications), sensitivity (key factors include type of user, amount of use, public interest, adjacent land uses, special areas), and distance zones (key factors include foreground-middleground distance zones, background distance zone and seldom-seen areas). Inventory classes are assigned based on the combination of scenic quality, sensitivity, and distance zones. However, they do not by themselves establish management direction. Visual Resource Management (VRM) classes are assigned through the planning process. All actions proposed in the RMP/EIS that would result in surface disturbance must consider the importance of visual values. Existing management classes (see Glossary for VRM Classes I-IV) established through previous planning include Class I - 8,610 acres, Class II - 120,621 acres, Class III 425,600 acres, and Class IV - 1,155,087 acres. A more detailed description of the acreage classifications is presented in Appendix 8, Table+3. Map VRM-1 depicts areas of high visual sensitivity in the RA



Charlie A. Haines Store, Narrows, Oregon 1907. 1905 Buick car - Marcus Haines photo.

Cultural Resources

The cultural resources program involves the management of archaeological, paleontological and traditional resource values. The Three Rivers RA is known to include approximately 572 archaeological sites (prehistoric and historic), numerous fossil localities and several Native American traditional use locations.

Archaeological (Prehistoric/Historic)

Less than 2 percent of the RA has been inventoried for archaeological resources. These inventories indicate that an estimated 27,000 archaeological sites could be present.

Identified prehistoric sites consist of hunting-related lithic scatters, occupation sites, toolstone quarries, rock shelters, rock art and rock structures. These reflect Native American culture over a time span from at least 10,000 years ago to the recent past (Bright, n.d.). This area is where the Great Basin and the Columbia Plateau meet. As such, it provides an excellent opportunity for the archaeological investigation of Paleo-Indian use of the region, the interface between Plateau and Great Basin cultures, use of aridlands, wetland adaptations in an arid region, lithic quarrying practices, aboriginal trade networks, obsidian sourcing and rock art.

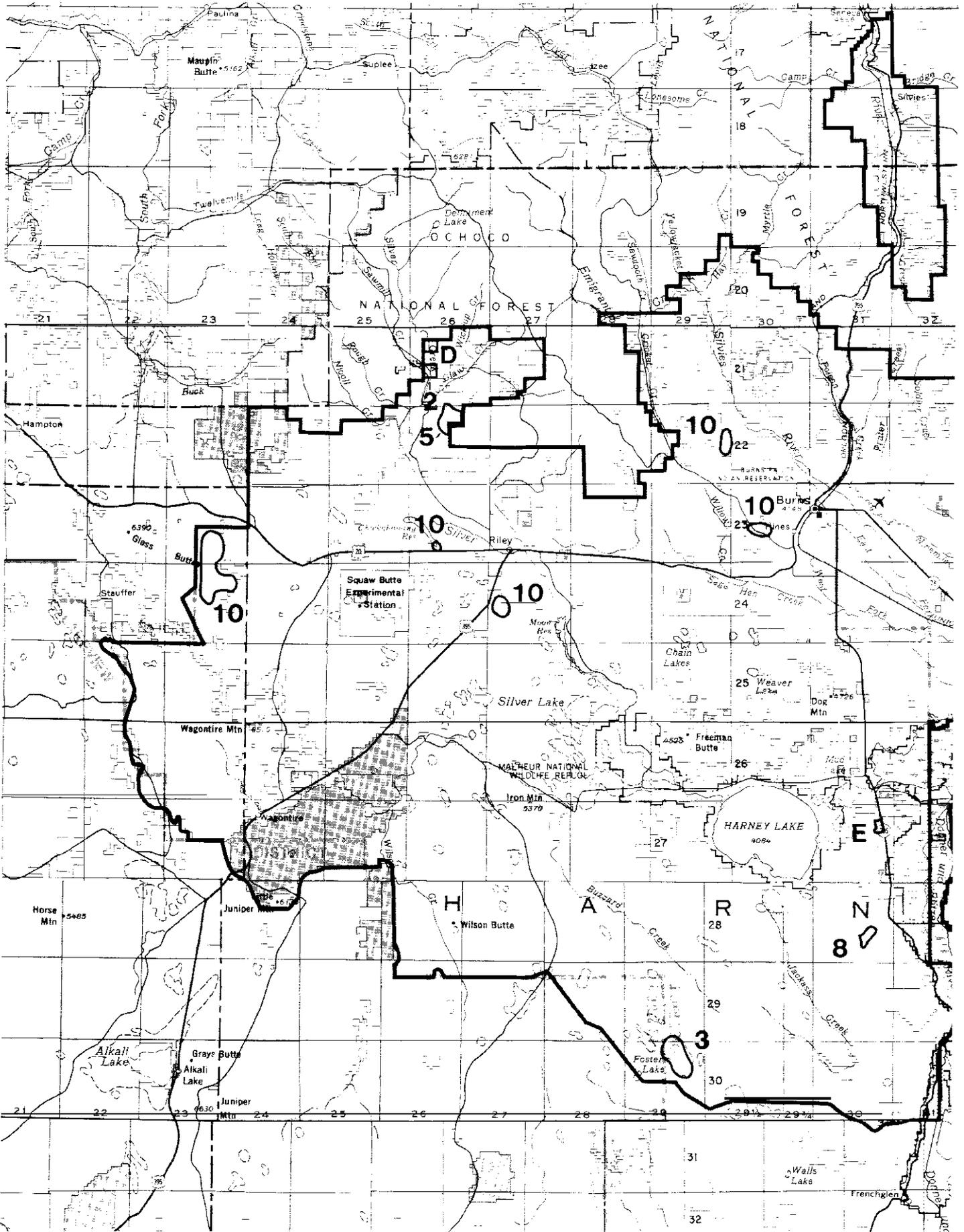
Identified historic sites consist of homesteads, Civilian Conservation Corps camps, historic roads, trash dumps, log troughs and fences, primarily reflecting settlement and use of the region from the period of 1918 through the Depression Era. These sites may not possess extensive research/data value, but they do represent a distinct and important period in the history of southeastern Oregon, particularly the settlement and homesteading of the region for livestock raising and agricultural pursuits.

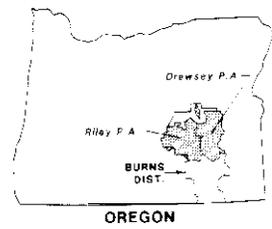
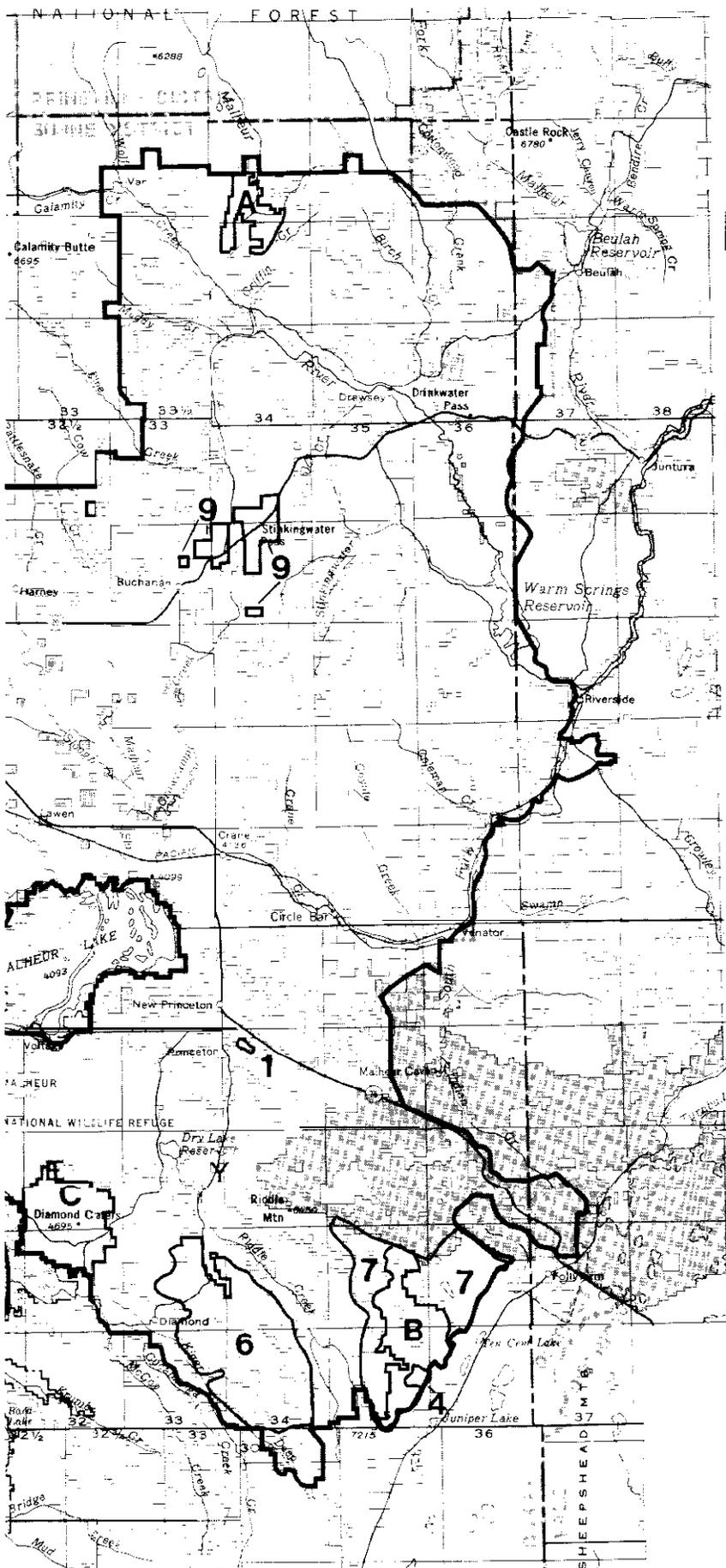
The condition of currently identified sites ranges from good to severely impacted, with approximately 28 percent good, 51 percent fair/somewhat impacted and 21 percent poor/severely impacted (see Table 3.17). Agents of deterioration include, in frequency order, natural erosion and weathering; livestock trampling and trailing; disturbance from projects such as fences, roads, seedings, etc., and vandalism. The overall trend is downward due primarily to erosion and vandalism.

The significance of known sites ranges from National Register eligible (8+percent) to potential National Register eligible/high data value (30 percent), to with lesser data value (62 percent). At present, no sites in the RA are listed on the National Register of Historic Places. Table 3.17 displays site significance, current condition, and impacts information on the known archaeological sites in the RA



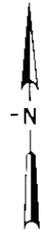
Chief Louis of the Paiute Tribe, circa 1915-1920.
Gene Lyckey photo.





- A** EXISTING SPECIAL MANAGEMENT AREAS
- A. Malheur River - Bluebucket Creek WSA
 - B. Stonehouse WSA
 - C. Diamond Craters ONA/ACEC
 - D. Silver Creek RNAIACEC
 - E. South Narrows ACEC

- 3** POTENTIAL ACECS
- 1. Hatt Butte RNAIACEC
 - 2. Silver Creek RNA/ACEC Addition
 - 3. Foster Flat RNAIACEC
 - 4. Squaw Lake RNAIACEC
 - 5. Dry Mountain RNAIACEC Addition
 - 6. Kiger Herd ACEC
 - 7. Riddle Mountain Herd ACEC
 - 8. Saddle Butte RNAIACEC
 - 9. Biscuitroot ACEC
 - 10. Obsidian ACEC



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 THREE RIVERS RESOURCE AREA
MAP ACEC-1
SPECIAL MANAGEMENT AREAS

Table 3.16. Assessment of Relevance and Importance - Existing and Potential

Existing or Potential ACEC	Nomination Source	Historic Value	Cultural Value	Scenic Value	Relevance Criteria								
					Special Status	Habitat Fw	Special Status	Relic Plant Site	Rare Geologic Features	Flood Hazard Areas	Landslide Hazard Area	Seismic Hazard Area	
Existing ACECs													
South Narrows ACEC	ELM	N/A	N/A	N/A	N/A	H	H	N/A	NA	NA	N/A	N/A	
Diamond Craters ONA/ACEC	BLM	N/A	N/A	N/A	N/A	M	M	N/A	H	N/A	NA	N/A	
Silver Creek RNA/ACEC	BLM	N/A	N/A	M	N/A	H	N/A	M	NA	N/A	N/A	N/A	
Potential ACECs													
HaTt Butte RNA/ACEC	Public	N/A	N/A	N/A	N/A	M	N/A	M	M	N/A	N/A	N/A	
Silver Creek RNA/ ACEC Addition	Public	N/A	N/A	NA		H	N/A	M	N/A	NA	N/A	N/A	
Foster Flat RNA/ACEC	Public	N/A	N/A	NA	N/A	M	N/A	N/A	N/A	N/A	N/A	N/A	
Squaw Like RNA/ACEC	Public	N/A	N/A	N/A	N/A	L	N/A	N/A	N/A	N/A	N/A	N/A	
Dry Mtn. RNA/ACEC Addition	Public	N/A	N/A	N/A	N/A	H	N/A	N/A	N/A	N/A	N/A	N/A	
Saddle Butte RNA/ACEC	Public	N/A	N/A	N/A	N/A	L	N/A	N/A	N/A	N/A	NA	N/A	
Kiger Mustang Wild Hone ACEC	Public	M	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Biscuitroot Cultural ACEC	BLM	H	H	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA	
Obsidian Cultural ACEC	BLM	N/A	H	N/A	N/A	N/A	N/A	N/A	M	N/A	N/A	N/A	

Paleontological Resources

Few field inventories of fossil resources have been performed in the RA. Site-specific academic studies, which have been published, and independent field observations form the baseline information currently available for the RA. The known paleontological sites are from the Miocene and Pliocene epochs (Shotwell, 1970 and BLM, 1981). Vertebrate, invertebrate and floral fossils and petrified wood sites have been noted in the RA. The vertebrate and floral remains have been subjected to limited academic studies, while the petrified wood has been intensively collected by hobbyists and commercial dealers for years. The known locales include areas by Harney Lake, Saddle Butte, the Drewsey area and the Stinkingwater Mountains. Most invaluable finds are the result of exposure due to erosion.

Native American Traditional Values

Known Native American traditional values involve gathering and processing of various edible root crops at several localities in the northeastern portion of the planning area. Such uses by Northern Paiutes, as well as other Indian people, have been documented (Couture, 1978 and Couture, Ricks, and Housley, 1981). These traditional use areas are considered to be of high value due to the quality and quantity of roots available, and the intrinsic role they play in Indian cultural identity.

There is no specific management guidance provided in the existing land use plans. There are no formal cultural resource use allocations for known sites and localities, although repeatedly vandalized sites and Native American traditional use areas are afforded management consideration. One site, the Gap Ranch, has had protective fencing and roof reconstruction provided to maintain the facility.

Table 3.16. Assessment of Relevance and Importance - Existing and Potential (continued)

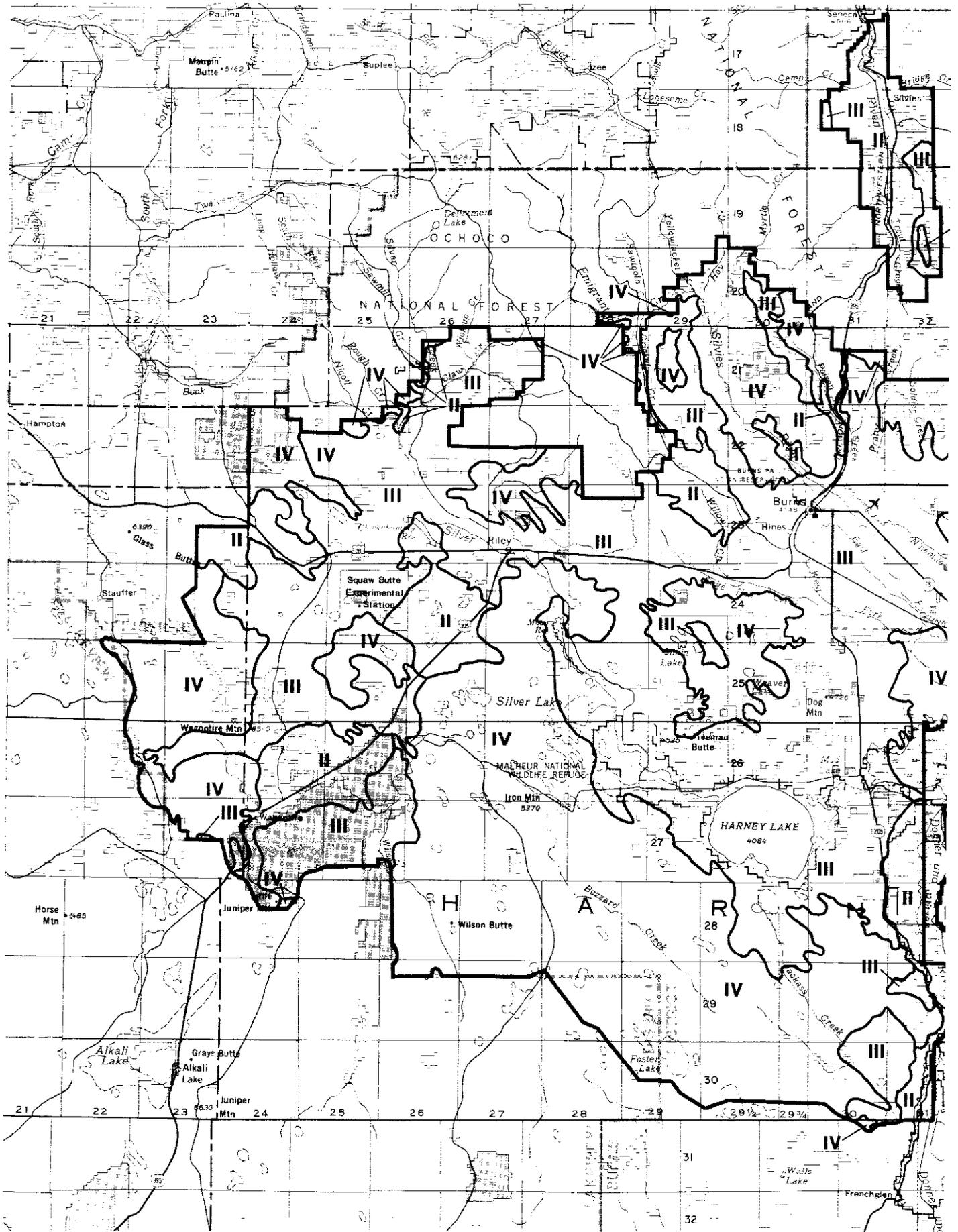
More than Local Significance	Vulnerable TO Adverse Change	Priority/ FLPMA Protection	Importance Criteria				Meets Importance Criterion	ID Team Recommendation (Yes - No)
			Public Safety/ Welfare	Treat to Life or Property	Meets Relevance Criterion			
H	H	Y	N	N	H	H	Yes	
M	M	Y	N	N	H	M	Yes	
M	M	Y	N	N	H	M	Yes	
M	L	N	N	N	M	M	NO	
M	M	Y	N	N	H	M	Yes	
M	M	Y	N	N	M	M	Yes	
L	L	N	N	N	L	L	NO	
M	H	N	N	N	H	H	Yes	
N	L	N	N	N	L	L	NO	
M	L	Y	N	N	M	M	Yes	
M	M	Y	N	N	H	M	Yes	
M	M	N	N	N	H	M	Yes	

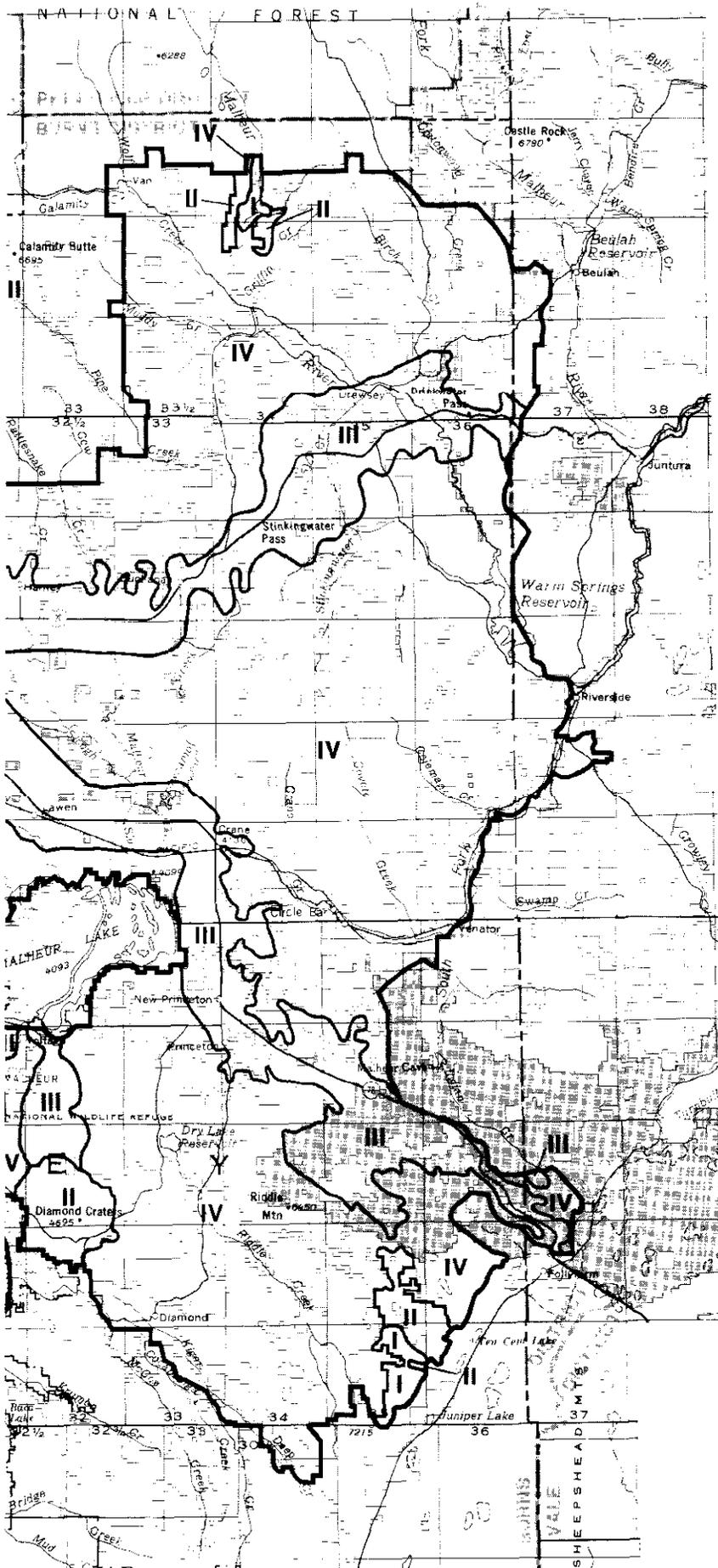
An interagency agreement for the management of paleontological resources is in effect with the BLM Burns and Prineville Districts and the National Park Service, John Day Fossil Beds National Monument. This agreement provides for an exchange of technical expertise and other services needed for management

Several current cultural resource management conflicts have been identified in this RA. Archaeological sites are affected by hobbyist/commercial relic collection, mineral development, livestock grazing practices and natural weathering. Paleontological sites are affected by hobbyist/commercial collection, mineral development and natural weathering. Traditional use areas are affected by mineral development activities and livestock grazing.

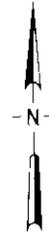
Energy and Minerals

The RA has a broad spectrum of energy and mineral resources. Exploration and development of these resources has been sporadic in the area. As a consequence, an extensive knowledge of the nature and extent of the energy and minerals in the RA has not been developed. However, data from mining claims, past leasing activity, various geological surveys, and input from industry indicate the presence of, or potential for, such energy resources as oil and gas, geothermal, coal and uranium; such locatable or leasable minerals as cinnabar, diatomite, zeolite, potassium and feldspar; mineral materials such as obsidian, cinders, sand and gravel, and building stone; and recreation minerals including obsidian, thundereggs, petrified wood and agate. Each of these categories is briefly described below.





- I** CLASS I-Preservation
- II** CLASS II-Retention of the Landscape Character
- III** CLASS III-Partial Retention of the Landscape Character
- IV** CLASS IV-Modification of the Landscape Character
- V** CLASS V-Rehabilitation or Enhancement of the Landscape Character



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 THREE RIVERS RESOURCE AREA
MAP VRM-1
VISUAL RESOURCE
MANAGEMENT CLASSES

Table 3.17. Known Archaeological Sites

NO. of Sites	Percent of Total	Site Type	Significance (Percent of Sites)			Condition (Percent of Sites)			Agents of Impact (Percent of Sites Affected)			
			NR	PNR/HD	L D	G	F	P	N	C	L	V
371	65	Lithic Scatter (P)	2	12	86	29	55	16	63	44	42	14
66	15	Occupation/Camp (P)	33	57	10	24	59	15	42	51	42	34
37	6	Quarry (P)	16	62	22	40	46	14	41	54	41	19
31	5	Rock Shellers (P)	6	81	13	19	23	58	39	3	23	74
19	3	Rock Art(P)	0	95	5	5	26	68	42	0	11	74
11	2	Trash Dumps(H)	0	18	82	40	20	40	73	18	0	27
6	1	Structures (H)	0	67	33	0	17	83	100	0	0	67
11	2	Other (P)(H)	18	36	45	70	30	10	45	0	9	9
572	100	Totals	8	30	62	28	51	21	58	40	38	23

(P) Prehistoric
(H) Historic

NR - National Register Eligible
PNR Potential National Register Eligible
HD - High Data Value
L D Lesser Data Value

G - Good
F Fair/Somewhat Impacted
P Poor/Severely Impacted

N Natural
C - Construction
L Livestock
V Vandalism

Note: Paleontological sites and Native American traditional use areas are not included due to their relatively low frequency of occurrence and the lack of data on their condition.

Energy Minerals

Energy minerals either known or inferred to occur in the RA include coal, tar sands, oil and gas, geothermal and uranium. A minor occurrence of coal has been noted in an area northwest of Drewsey (see Map M-1). Very little data on this deposit has been found pertaining to BTU value (heat per unit weight), sulfur content, ash content, recoverable reserves, overburden depth, etc. C.D. Gregory in a 1962 masters thesis entitled "Geology of the Stinkingwater Creek Area," notes the presence of "an extremely poor quality coal deposit, 6 to 10 feet thick in the Pliocene Juntura formation in northeastern Harney County" (see Map M-1). Table 3.18 displays a summary of coal potential acres for the RA. This area is not considered a potential coal development area within the life of this plan. Therefore, as required by BLM Manual 1624.1, the RA is considered unacceptable for further consideration for coal leasing and development at this time.

Tar sands have been discovered in an isolated deposit in the area of Dog Mountain, approximately 12 miles south of Burns. This deposit is at such depth that it is not considered economically developable.



Freight Wagons near Burns, OR, circa early 1900's.
Cliff & Mary Fine photo

Table 3.18. Summary of Mineral Potential in the Three Rivers RA (public land acres):

	LOW Potential	Moderate Potential	High Potential	Unknown Potential	Total ²
Coal	2,181,348	34,855	0	0	2,216,203
Oil and Gas	1,985,959	230,244	0	0	2,216,203
Geothermal	1,424,133	792,070	0	0	2,216,203
Diatomite	2,201,583	0	14,620	0	2,216,203
Mercury/Cinnabar	2,065,463	0	150,740	0	2,216,203
Zeolite/Potassium Feldspar	2,001,701	175,542	38,960	0	2,216,203

¹ Acreage estimates from Maps M-1, M-2, and M-3.

² Includes split-estate acreage where BLM has administrative responsibility for minerals

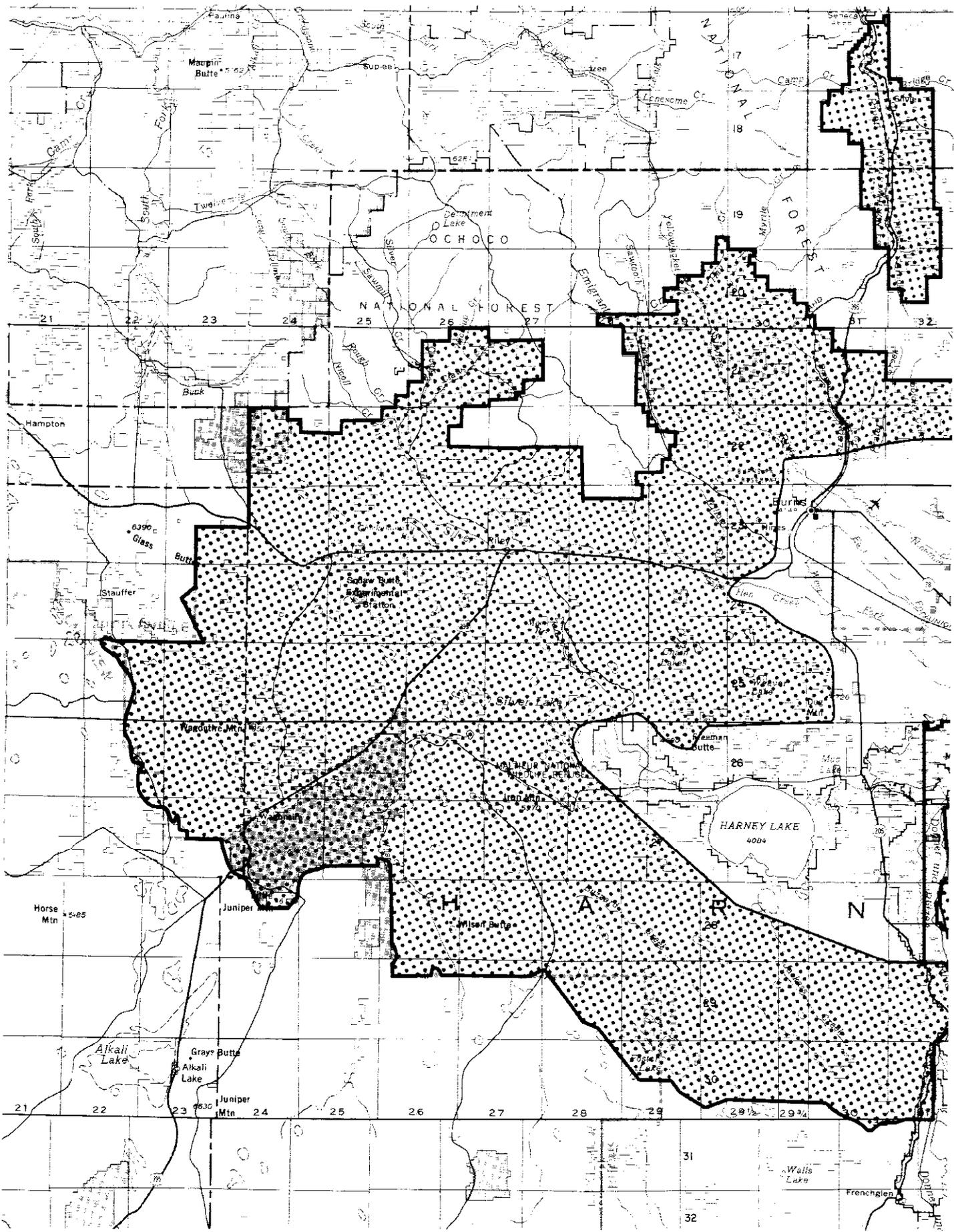
The planning area has had past competitive oil and gas and geothermal leases. The majority of these leases have been terminated by the lessees. All leases have been terminated as of July 25, 1988. Maps M-1 and M-2 display the portions of the RA that have a moderate to low potential for occurrences of oil and gas or geothermal resources, respectively. Table 3.18 displays a summary of fluid energy mineral potentials in the RA. The remainder of the RA is considered to have low potential. Development of fluid energy minerals (oil, gas and geothermal) is usually accompanied by surface disturbances of 2-3 acres per well. To protect sensitive resources from such disturbance, while still supporting the opportunity for energy development, the BLM has developed a system of lease stipulations which requires that the acres in the RA be categorized in one or more of four leasing categories: 1) open to leasing subject to standard terms and conditions; 2) open to leasing subject to seasonal no surface occupancy or similar minor constraints; 3) open to leasing subject to no surface occupancy and similar major constraints; and 4) closed to leasing. Appendix 9, Table 1, displays existing lease stipulations and acreages affected.

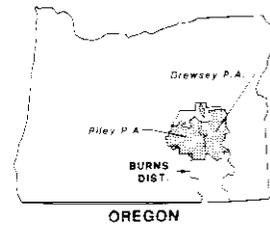
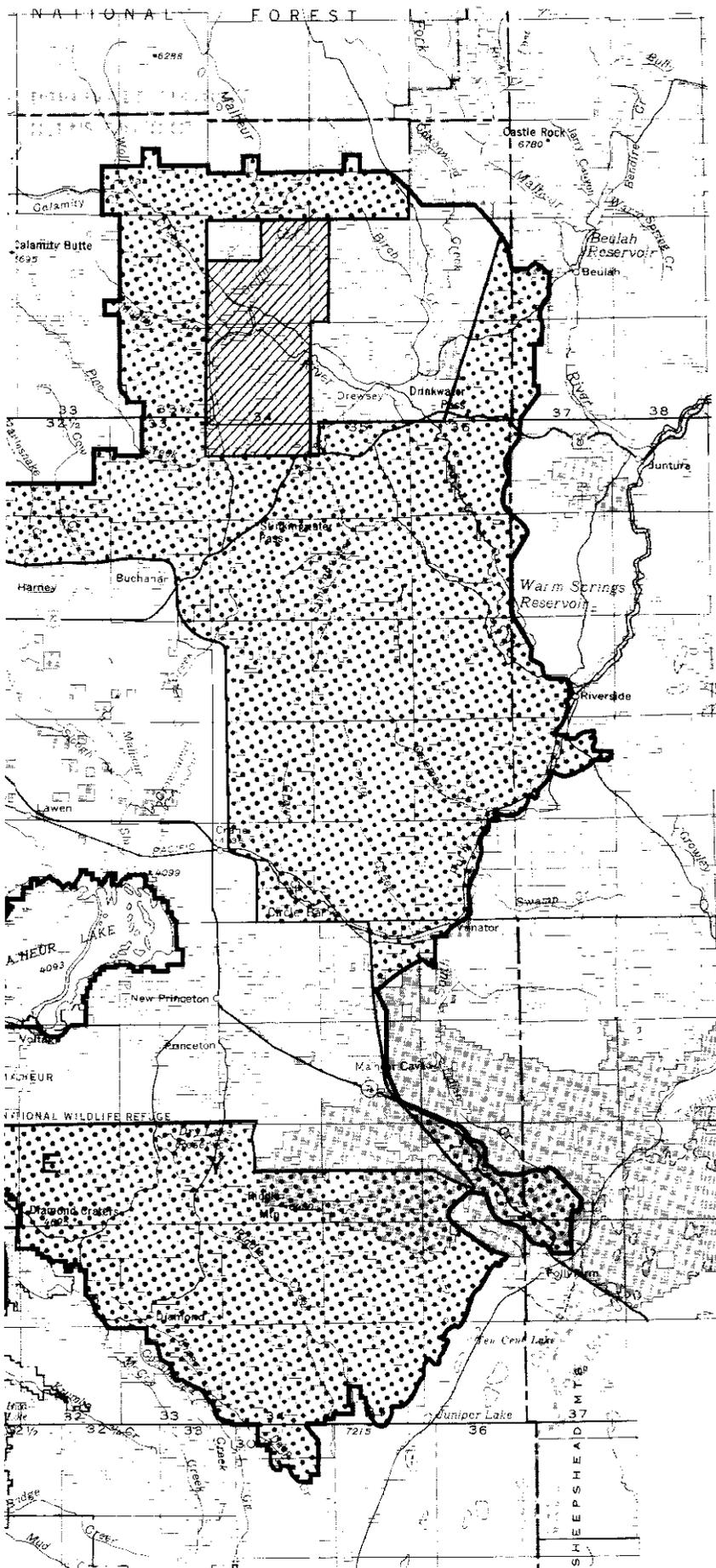
Uranium is inferred to occur in the RA because of its frequent association with deposits of mercury or cinnabar. Areas of the highest potential for uranium occurrence are displayed on Map M-3. No commercial development of uranium has occurred in the RA.

Locatable and Solid Leasable Minerals

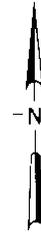
Several locatable or solid leasable minerals are known to occur in the RA. Primary among these are diatomite, with an active mining operation northeast of Drewsey; mercury/cinnabar, with past substantial claim activity south of Drewsey and in the Glass Butte area; and, zeolite a volcanic ash material - in the area of Harney Lake. Also present, in association with zeolite, are potassium (a solid leasable mineral) and feldspar. Of these minerals, only diatomite is currently under commercial production. Map M-3 displays the areas of high and moderate potential for occurrence of these minerals. Mining law allows for exploration, location/leasing and development of mineral resources on public lands unless otherwise restricted. Generally, such restrictions result from either land classifications (see Glossary) or withdrawals. Table 3.19 displays a summary of the nearly 45,000 acres in the RA which are closed (withdrawn) to the operation of the mining laws.

A significant amount of gold/silver exploration and potential development is currently occurring in the Vale District, just to the east and south of the RA. The RA contains many volcanic structural and mineralogical characteristics which are known to be associated with epithermal (see Glossary) gold deposition. There is a moderate to high potential for the localized occurrence of gold in the RA.





-  Oil/Gas - Low Potential
-  Oil/Gas Moderate Potential
-  Coal Moderate Potential (All other areas not identified are low potential.)



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 THREE RIVERS RESOURCE AREA

MAP M-I
COAL, OIL AND GAS
POTENTIAL

Table 3.19. Summary of Acreage **Closed**¹ to the Operation of the Mining Laws

	Discretionary ² Withdrawals	Nondiscretionary Withdrawals	Total
Closed, nonmetaliferous acres)	160	3,520.63	3,680.63
Closed, except for mineral easing (acres)	298.69	37,944.14	38,242.83
Closed, all (acres)	298.69	2,988.39	2,988.39
		Total	44,911.85

¹Refer to Appendix 10, Table 3, for detailed description of closures.
²See Glossary for definition of discretionary and nondiscretionary.

Minerals Materials

There is a variety of mineral materials in the RA. Most prominent among these are cinders, sand and gravel, building stone, and obsidian. Map M-4 displays the general distribution of these mineral materials resources in the RA.

Recreation and Minerals

There are four general types of minerals in the RA which receive significant amounts of interest for rockhounding or recreational collection: obsidian, thundereggs, petrified wood and agate. Map M-4 displays locations of concentrations of obsidian. Map M-5 displays general locations of thundereggs, petrified wood and agate. At the present, the RA is open for the recreational collection of these minerals except for the Diamond Craters ONA/ACEC which is restricted.

Lands

Land Status

Table 3.20 depicts the various ownership in terms of surface acres in the planning area. The table shows that more than two-thirds of the land in the planning area is under federal ownership, primarily BLM-administered land. Table 3.20 includes acreage only within the planning area boundary as shown on Map GEN-2. Other federal acreage, additional to that

shown on Table 3.20, exists in the northern half of Harney County and is located primarily within the Ochoco and Malheur National Forests and that portion of the Malheur National Wildlife Refuge outside of the planning area boundary

Access

Physical access in the RA is generally good. However, as demand for resources on the public lands increases, the need for legal public access to some areas will increase (see Map L-1).

Acquisitions in the Three Rivers RA have been limited to easement acquisitions. Easements are normally acquired to 1) provide access to timber sales, 2) facilitate BLM administrative responsibilities, and 3) to provide public access to the RA's high use recreational areas such as Warm Springs Reservoir.

Rights-of-Way Corridors

Rights-of-way which have been granted in the RA are primarily small-scale electric distribution lines; logging, residential and rural access roads; ditches; canals; and, reservoir sites. Large scale transmission lines are limited to a 500 kV facility built in 1980 which traverses the RA from east to west. Right-of-way corridors have been designated in various land use plans (see Map L-2); however, no new facilities have been placed in these corridors since designation.

Communication Sites

Three communication sites of record are located in the RA. At this time, they are not well-developed sites.

Table 3.20. Summary of Landownership in Three Rivers Planning Area

Ownership	Acres	Percent
Public land	1,709,918	87.8
Private land	1,027,506	34.7
State land	138,398	4.6
USFWS	59,896	2.0
USDA	13,938	<1.0
BOR	7,201	<1.0
BIA (administered trust lands)	797	<1.0
	2,957,654	

with only one user at each site. Wagontire and Riddle Mountains both have communication site potential being high elevation points with existing access. Overall, the RA has a low potential for communication development due to its low population density and lack of existing communication corridors between larger population centers.

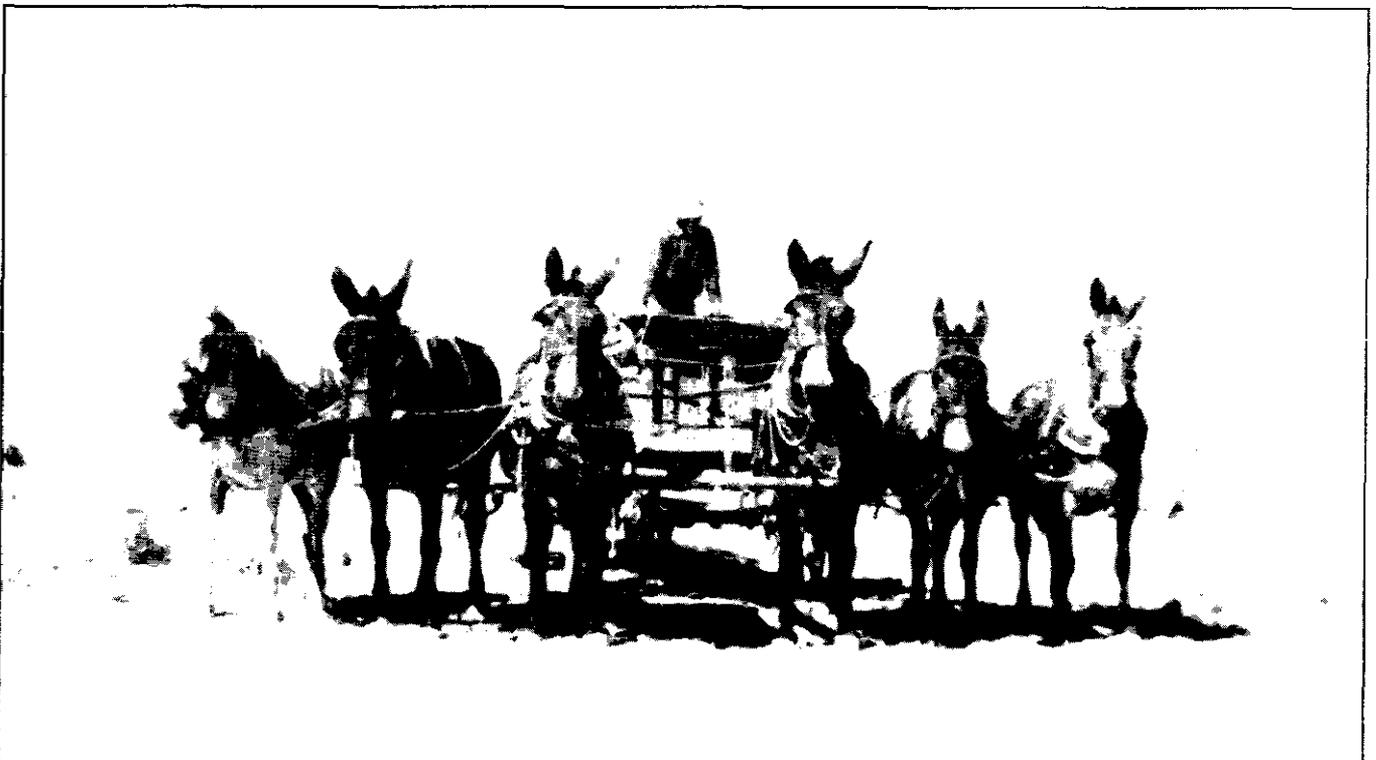
Unauthorized Use

Some unauthorized use exists in the RA. Specific examples include small unauthorized dumps, agricultural trespass and occasional mining claim occupancy. Normally, these have been resolved by legitimizing the use by issuance of permits and leases under Federal Land Policy and Management Act (FLPMA) 302 authority and the Recreation and Public Purposes (R&PP) Act.

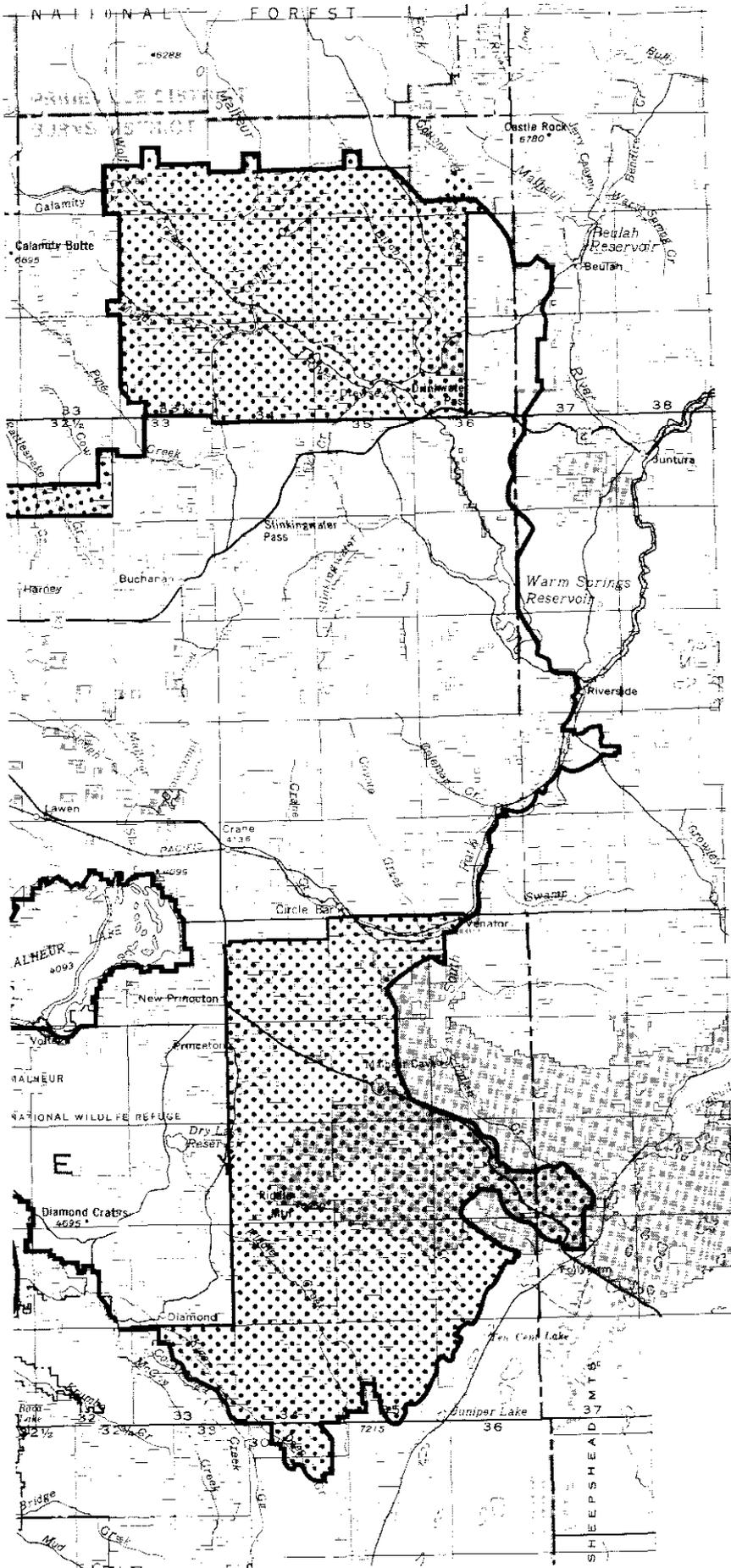
Withdrawals and Classifications

The major withdrawals and classifications existing within the RA include those covering Warm Springs Reservoir, administered by the Bureau of Reclamation; Squaw Butte Range Experiment Station, United States Department of Agriculture (USDA); Malheur National Wildlife Refuge, USFWS; and, various withdrawals and classifications including powersites, public water reserves and Diamond Craters ONA/ ACEC administered by the BLM (see Appendix 10, Table 3).

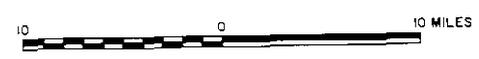
Several multiple-use classifications covered most of the RA prior to 1982-83 when they were terminated during the FLPMA mandated classification review process. These classifications generally segregated



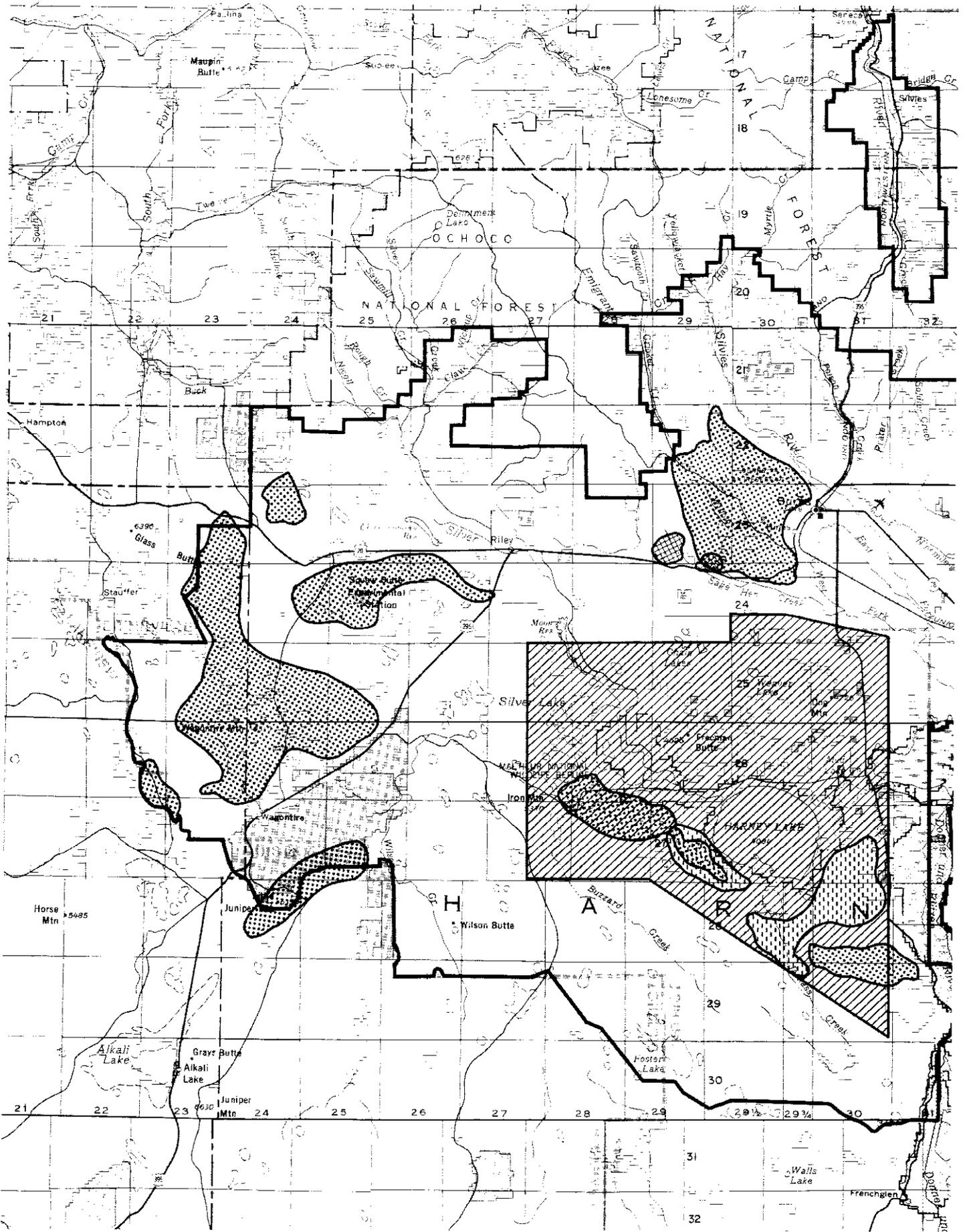
Jim Wagon with 6 mules abreast hook-up, circa 1920's - Cliff & Mary Fine photo

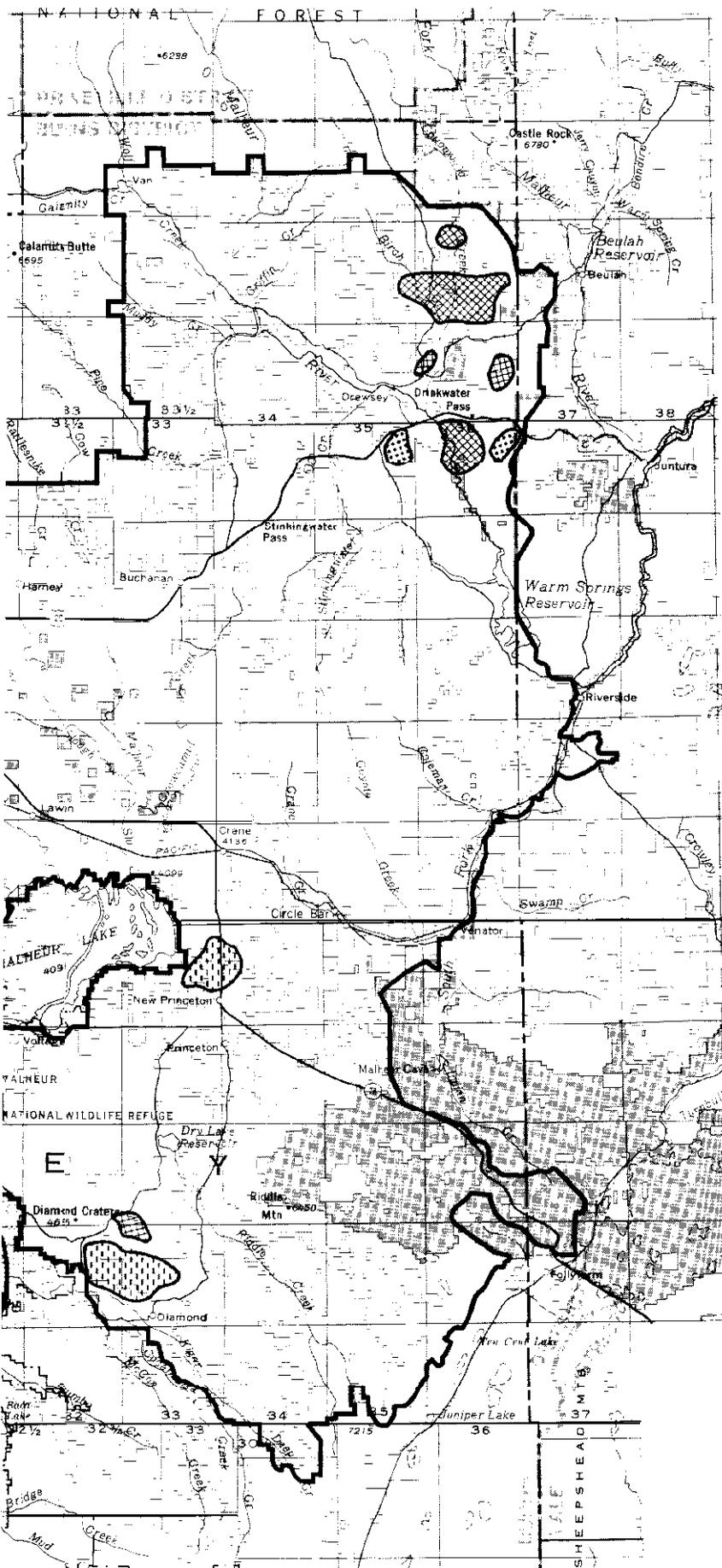


-  Moderate Potential
-  Low Potential



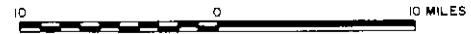
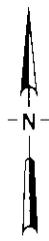
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 THREE RIVERS RESOURCE AREA
MAP M-2
GEOHERMAL RESOURCES
POTENTIAL



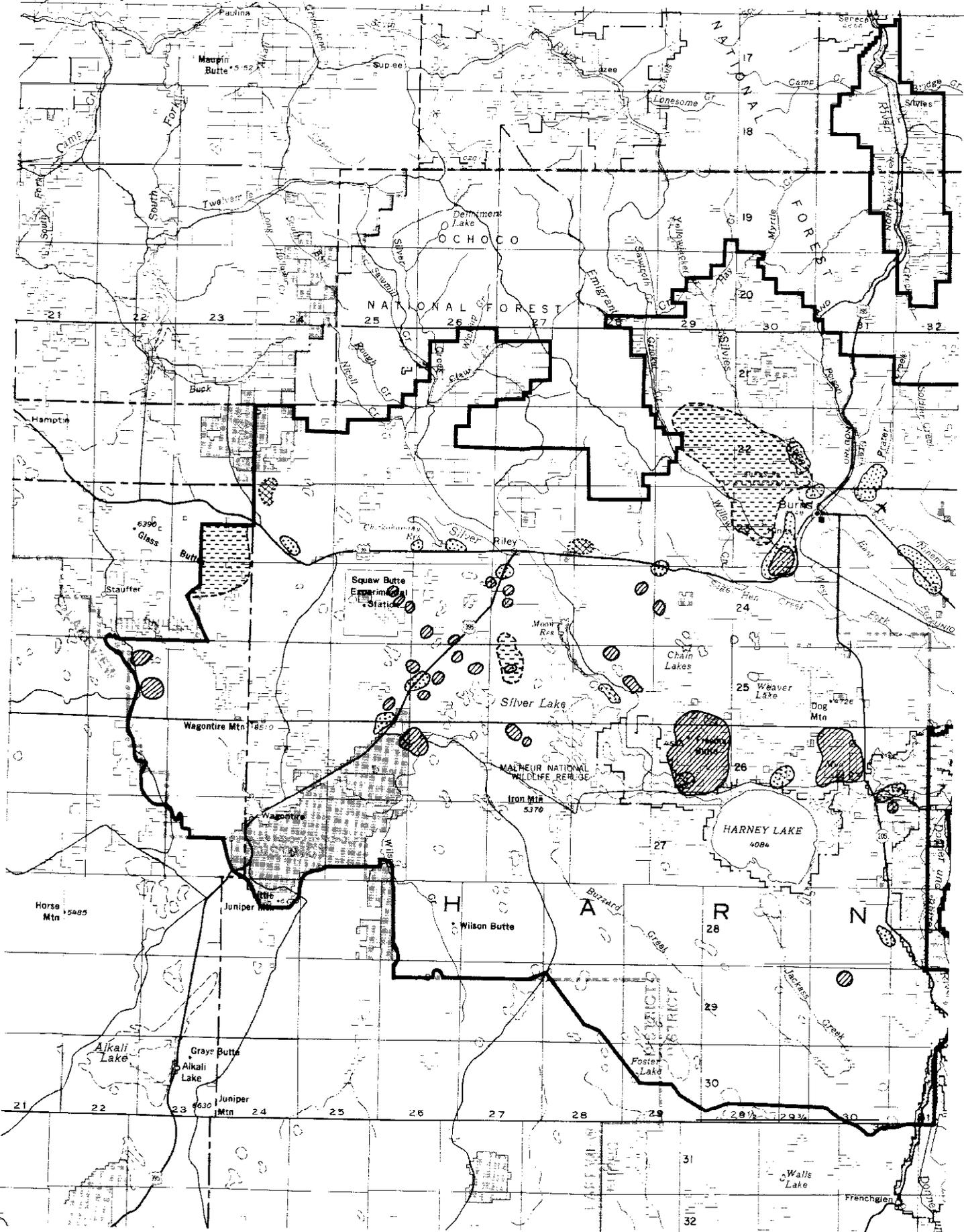


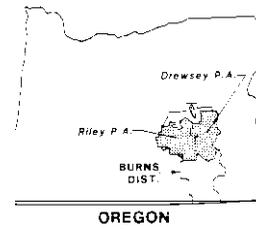
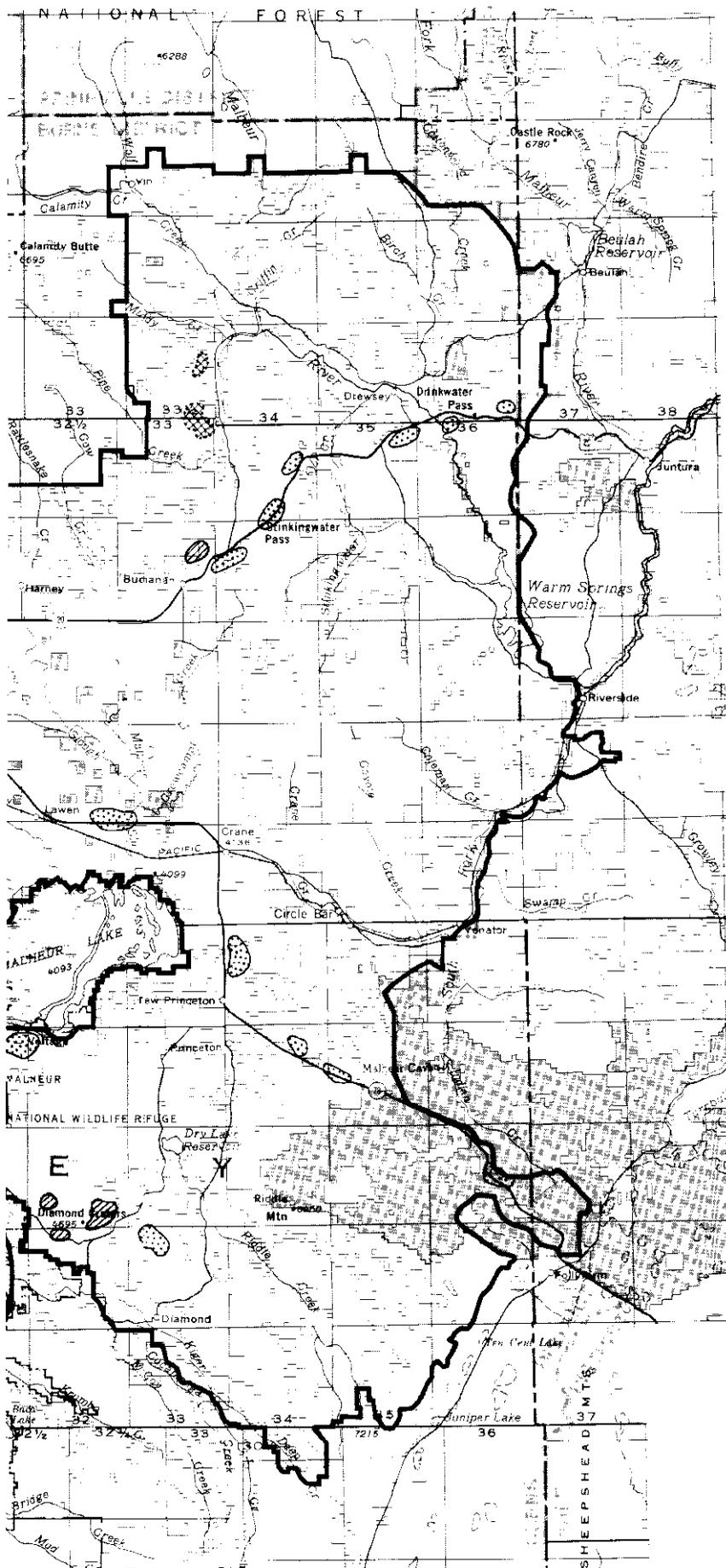
-  Mercury Cinnabar, Uranium - High Potential
-  Diatomite - High Potential
-  Zeolite, Potassium Feldspars, (Known) - High Potential
-  Zeolite, Potassium Feldspars - Moderate Potential

Note: All other areas are low potential.

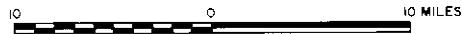
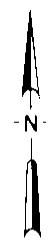


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 THREE RIVERS RESOURCE AREA
MAP M-3
MAJOR LOCATABLE MINERALS
POTENTIAL

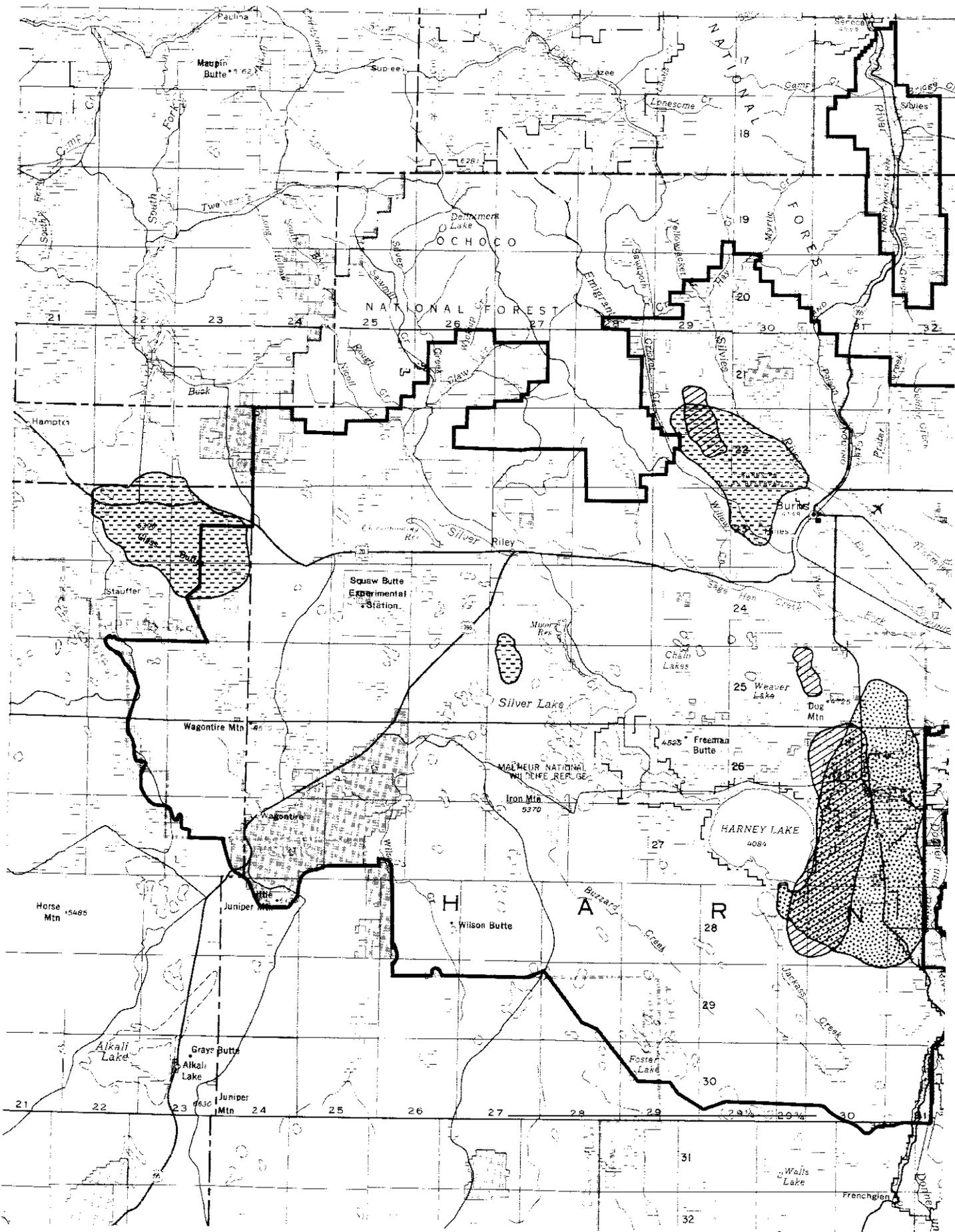


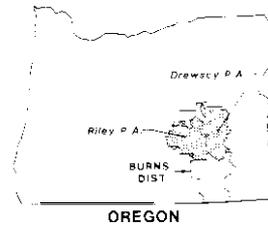
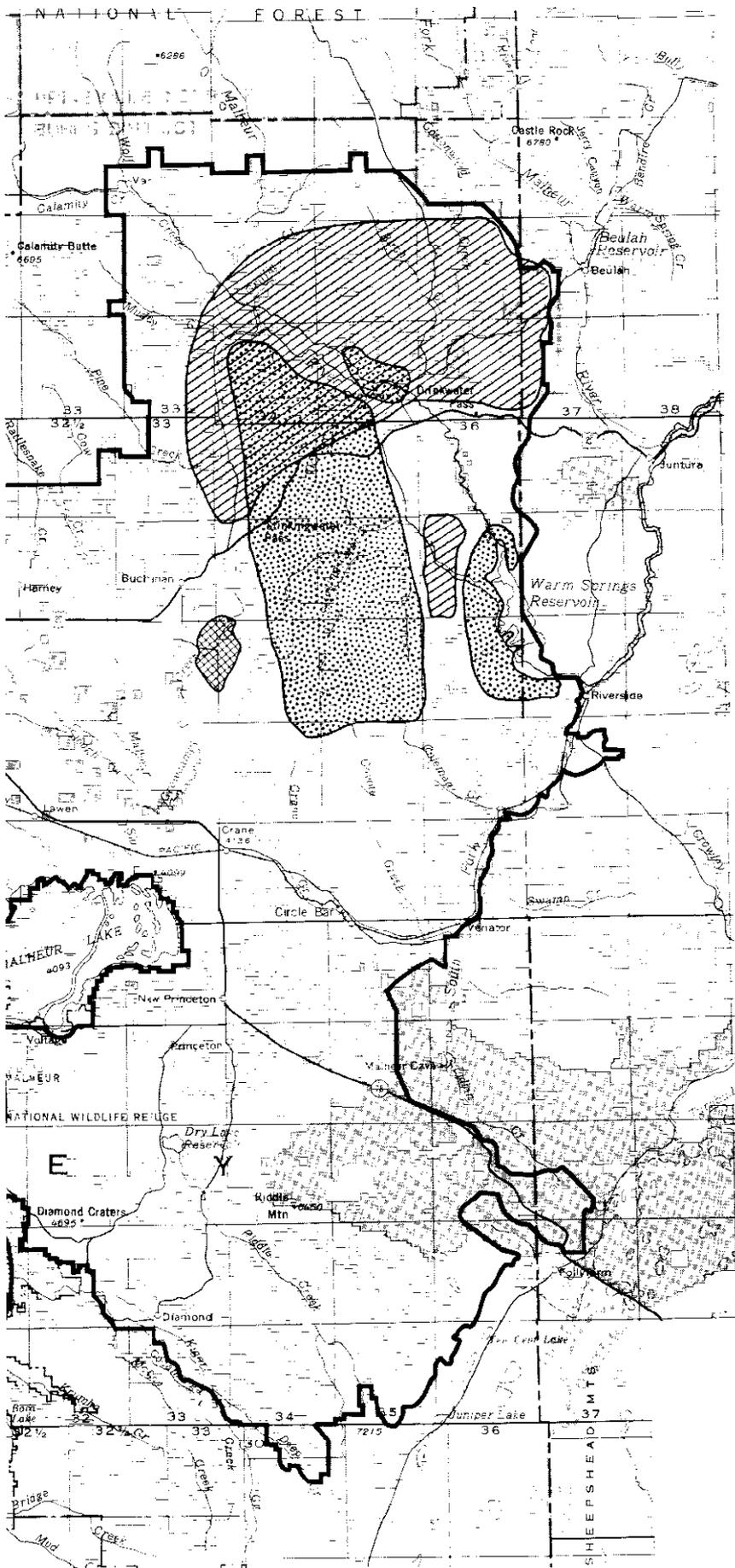


-  Obsidian
-  Cinders
-  Building Stone
-  Sand, Gravel (Known)
(All of the R.A. has potential for sand, gravel, rock material.)

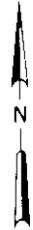


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 THREE RIVERS RESOURCE AREA
MAP M-4
MINERAL MATERIALS





-  Petrified Wood
-  Thunder Egg
-  Obsidian
-  Agate



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 THREE RIVERS RESOURCE AREA
MAP M-5
RECREATIONAL MINERALS

the lands from agricultural entry and sales under the now repealed Revised Statute 2477. Only four withdrawals in the RA remain to be reviewed through the FLPMA withdrawal review process. They are identified by an asterisk on Appendix 10, Table 3.

Recreation and Public Purposes (R&PP)/Community Expansion

R&PP actions which have occurred over the past 10 years include leases to Hamey County for landfills, a lease for a primitive park for recreational vehicles (RV) near Wright's Point and a sale to the Sod House School District to relocate their school house on higher ground during flooding of Malheur Lake in 1984. Several other improvements, including county roads and powerlines, were also relocated during the flooding, requiring rights-of-way across public land in the RA.

Land Tenure

The RA has been heavily involved in land exchanges (see Appendix 10, Table 1). The table shows a large discrepancy in total acreages traded. This can be attributed primarily to the State exchanges where many of the lands acquired in the exchange by the

U.S. were outside of the Burns District. Appendix 10, Table 2, shows documented exchange proposals. In addition to those which are documented, other inquiries and verbal proposals are received on a regular basis. Some of the proposals on Appendix 10, Table 2, have been informally rejected or have been indefinitely postponed, but have never been officially closed.

Only one land sale has occurred in the RA in the past 10 years. It involved a small (80 acres) isolated parcel north of Malheur Lake.

Administrative Sites

The only BLM administrative site in the RA covered by withdrawal is the Wild Horse and Burro Corrals just west of Burns, off U.S. Highway 20. Two BLM fire lookouts are in the RA, one on Wagontire Mountain on private land under easement, and one on Riddle Mountain on public land.

Economic Conditions

The Three Rivers RA is located in northern Hamey County, with small portions in Grant, Malheur and Lake Counties. The majority of wage and salary



U.S. Post Office, Burns, OR, circa early 1900's - Delmar Clemmens photo.



John Neal, farmer/rancher at Folly Farm, Oregon, circa 1910-1915 - Bill and Ida Renwich photo.

Table 3.21. Harney County Population Figures

	1980 Census	1988	2000 Projected
Burns/Hines	5,211	4,300	N/A
Unincorporated Areas	3,103	3,080	N/A
County	8,314	7,400	8,500

Source: Center for Population Research and Census, Portland State University

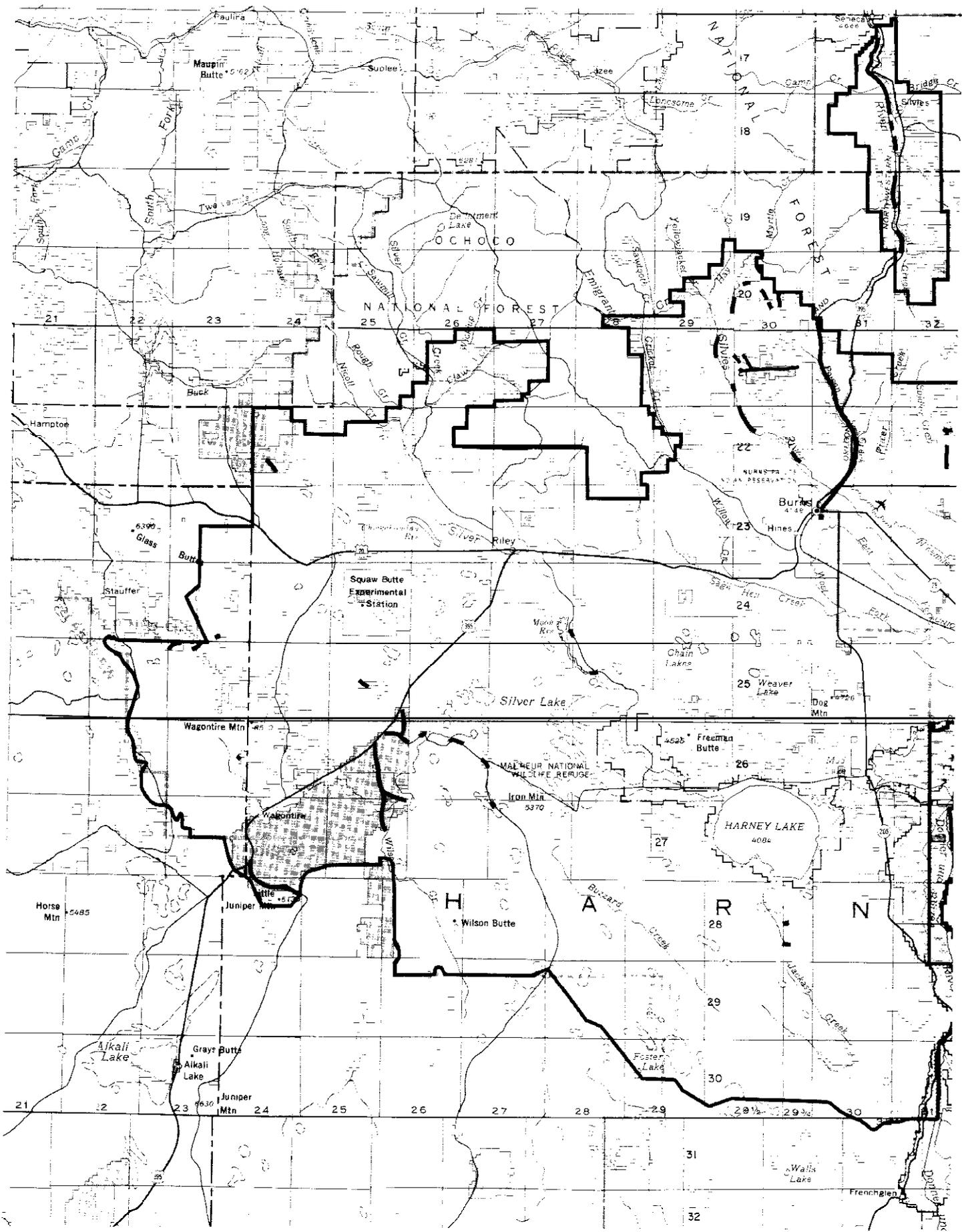
workers reside in the incorporated areas of Burns and Hines. In the remaining rural areas, ranching is the predominate industry. Camping, hunting and fishing are the dominate recreation activities on BLM lands. The Malheur National Wildlife Refuge is also in the planning area and attracts many visitors.

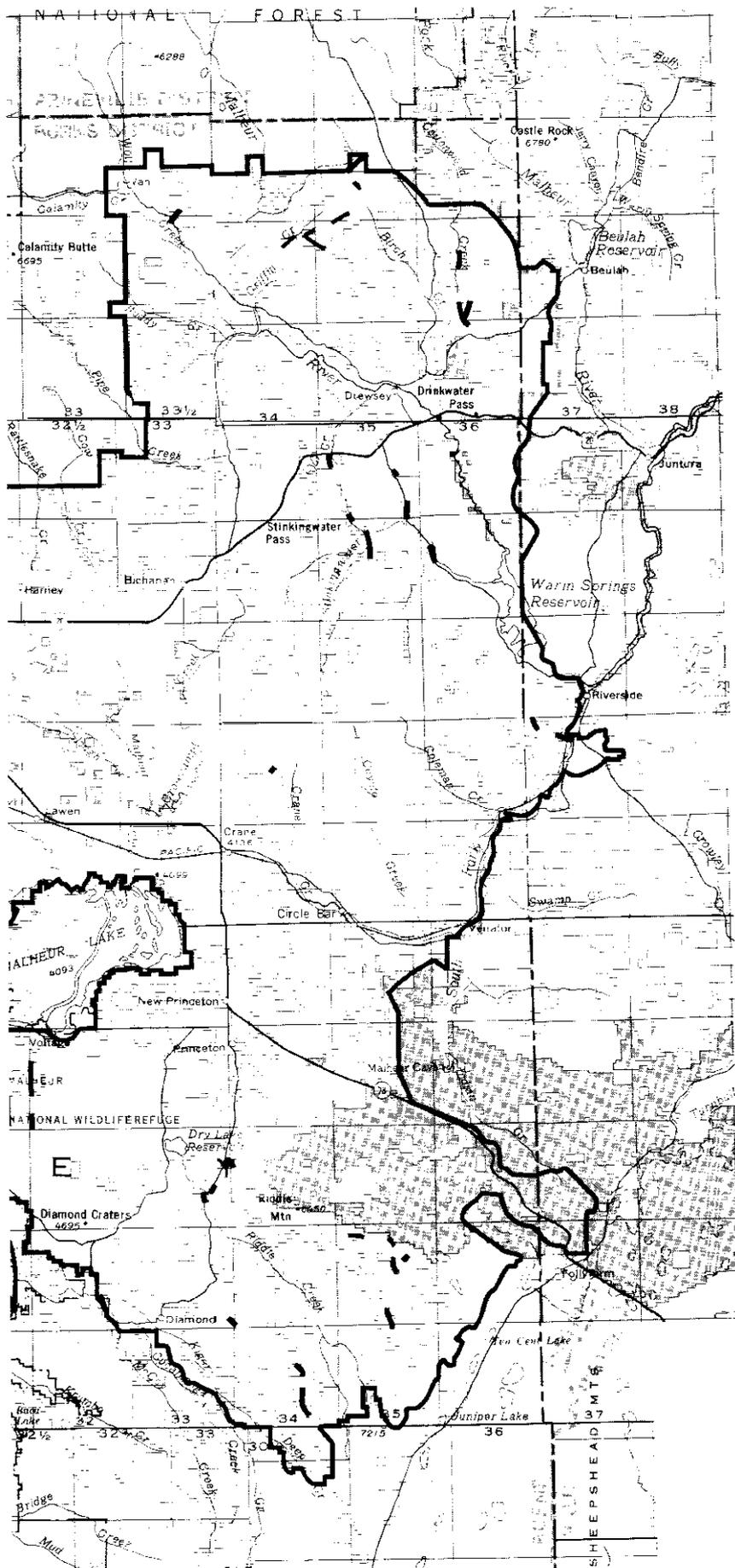
Since 1981, unemployment in the region has been 2 to 4 percentage points above the state average. Because of an 11 percent decrease in the county's population since 1980, the recent drop in the unemployment rates probably is due to unemployed workers relocating out of the county (Table 3.21).

Government and wood products manufacturing are the two largest employment sectors in the area. The wood products industry in Harney County relies on harvests in Crook, Lake, Grant and Harney Counties. Historically, very little timber has been harvested from BLM lands in the planning area when compared to FS and private sales. Thus, BLM plans for this area have little overall affect on the local wood products industry'. The trade and service sectors also employ a large number of people. A portion of these jobs depends on destination and nondestination visitors.

Raising calves and cattle is the dominate industry in the rural areas of the RA. In Harney County, 79 percent of all gross agricultural sales are of calves and cattle. Additional income is derived from the sale of grains, hay, silage and other livestock. Cattle and calves is also the largest grossing agricultural sector in Oregon with sales totaling over \$392 million in 1987.

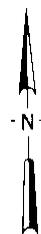
In Harney County, farm income fluctuates with agricultural prices. As reported by the Bureau of Economic Analysis, average farm income (1983-1987) was \$8,377,000. This represents 10.2 percent of total personal income. Statewide farm income averages 20 percent of total person income compared to other regions of Oregon. Harney County has a high dependence on agricultural production.



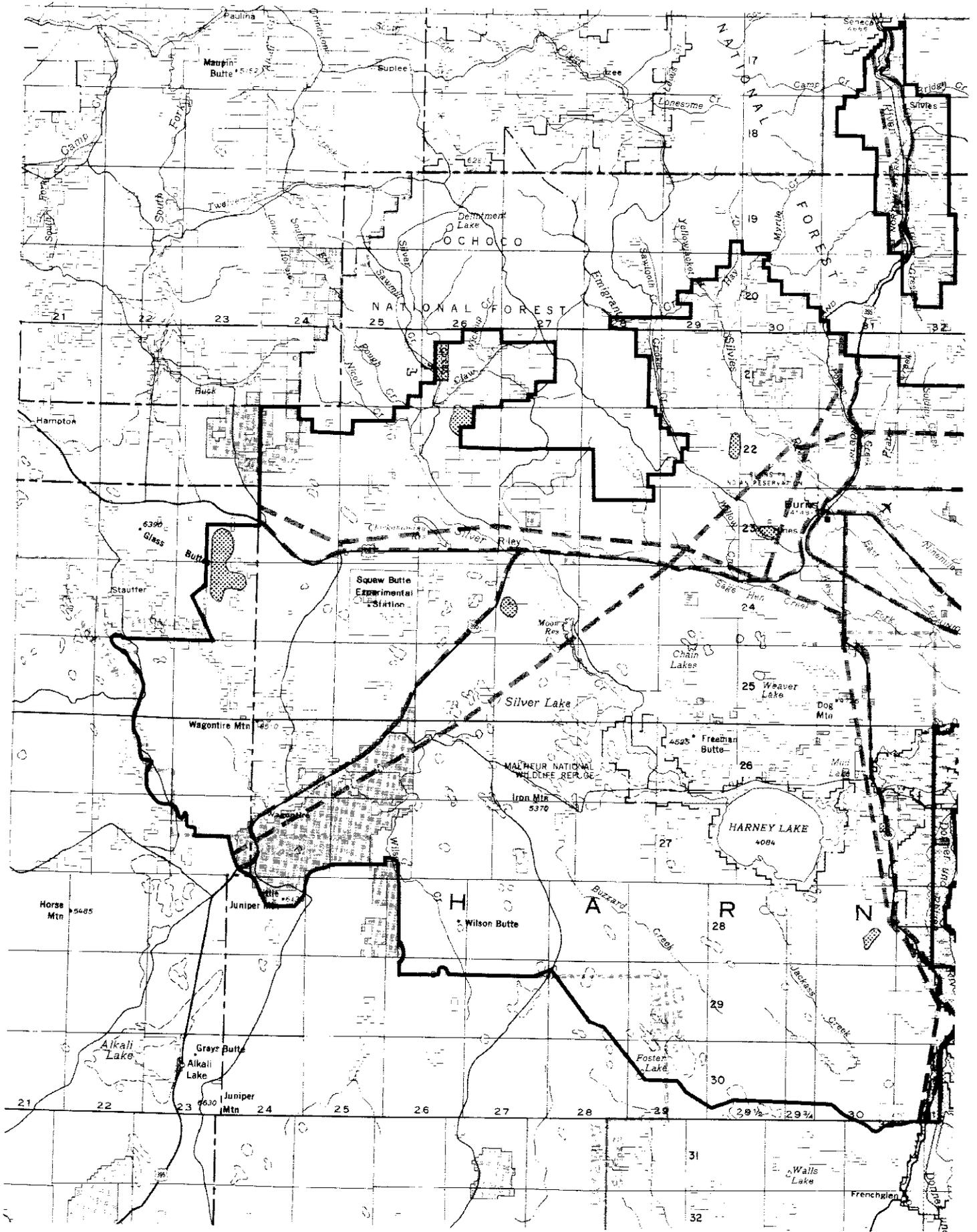


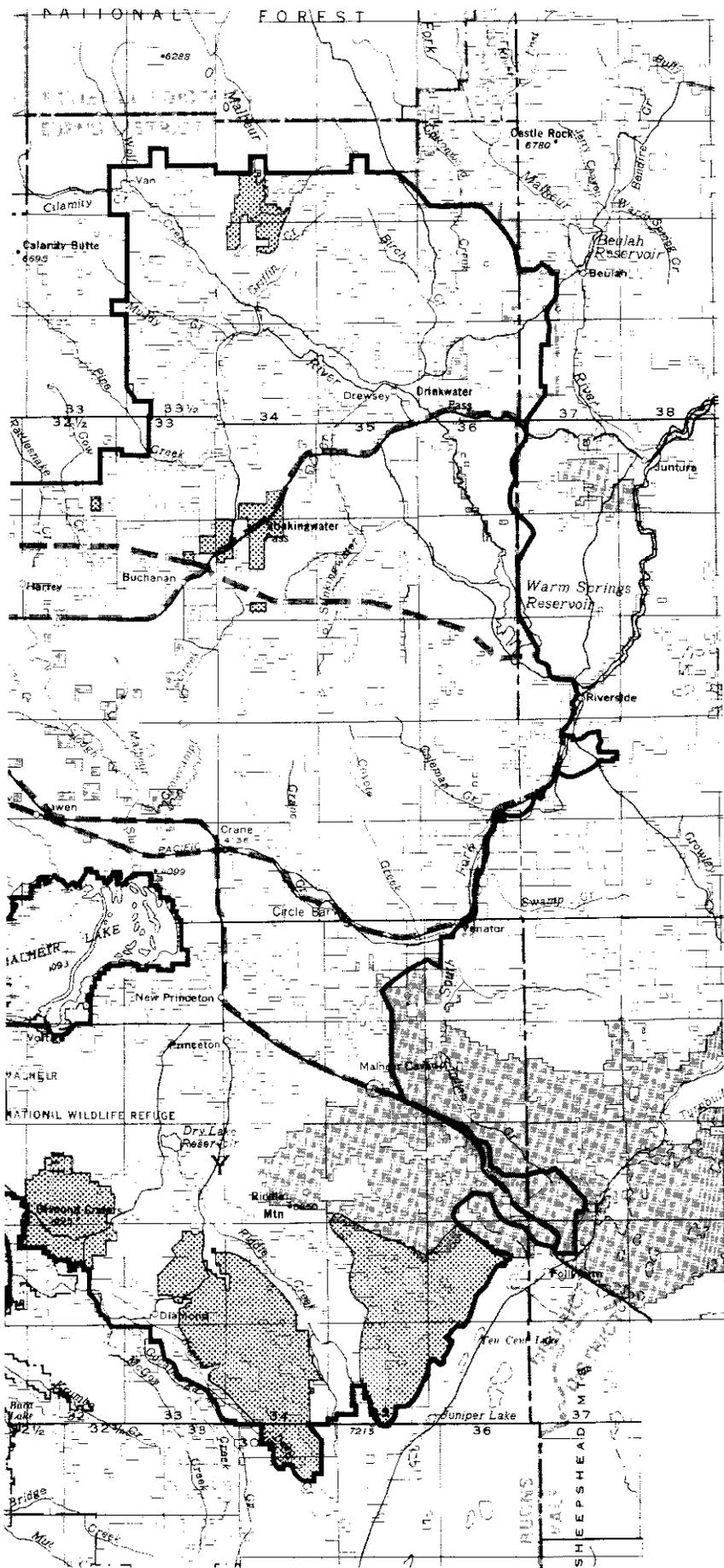
OREGON

— Priority Access Needs



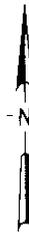
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MAP L-I
ACCESSNEEDS





 Right-of-Way Exclusion/Avoidance Zones

 Right-of-Way Corridors



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 THREE RIVERS RESOURCE AREA
MAP L-2
RIGHT-OF-WAY CORRIDORS

Chapter 4 Environmental Consequences



Hot game of poker - Roaring Springs Ranch - July 7, 1946 - *Cliff & Mary Fine photo.*

Introduction

This chapter identifies, summarizes and compares the environmental consequences projected to occur as a result of implementing each of the five alternatives: Alternative A (Emphasize Natural Values), Alternative B (Emphasize Natural Values with Commodity Production), Alternative C (The Preferred Alternative), Alternative D (Emphasize Commodity Production with Natural Values) and Alternative E (Emphasize Commodity Production). Impacts are generally discussed in relation to two timeframes: short-term-where impacts are expected to occur during project implementation (within 10 years of approval of the RMP/EIS); and long-term -where impacts are expected to occur more than 10 years in the future.

Analysis indicates that no impacts of regional significance would result from implementing any of the alternatives. While interest in and concern for many of the resources in the RA are regional or national in nature, the environmental consequences are significant to the immediate area of implementation, but not beyond.

Assumptions -

The following assumptions have been made in the analyses presented in this chapter:

1. Funding and personnel would be sufficient to implement any alternative described;
2. Monitoring studies would be completed as indicated. and adjustments or revisions would be made as indicated by evaluations;
3. Standard operating procedures would be followed; and,
4. Appropriate maintenance would be carried out to **maintain** the functional capability of all developments,
5. **The RMP/EIS** would remain in effect for IO-15 years.

Critical Elements of the Human Environment

Analysis indicates that there would be no known **significant** adverse impacts to critical elements of the human environment, air quality, floodplains, Areas of Critical Environmental Concern (**ACECs**), cultural/paleontological resources, prime or unique farmlands, **Native** American religious concerns, threatened or

endangered species, designated or potential Wild and Scenic Rivers, Wilderness or Wilderness Study Areas (**WSAs**). These critical elements will be considered, as appropriate, in site-specific project design and implementation processes.

Air Quality

Alternatives A, B, C, D and E

No significant impacts to air quality would be expected. Prescribed burning would be confined within established annual acreage (or tonnage) limits. All prescribed burning projects that may affect the Strawberry Mountains Wilderness (Class I airshed) would be reviewed for potential impacts by the Malheur National Forest. All other BLM-authorized actions would consider the potential for deterioration of air quality and apply appropriate mitigations through the National Environmental Policy Act (NEPA) process.

Water Quality

Alternative A

Management activities having a positive effect on water quality would occur from changes in management of range, forestry, lands, realty and aquatic habitat. The removal of livestock from all streams and a 30 percent utilization limit on uplands would lead to an increase in vegetative cover which would in turn lead to decreased sediment loads and water temperatures. Removal would also increase late season streamflows through reduced streambank and overland erosion and improved **riparian** shading. The restriction of new road construction to ridge tops, benches or other areas not impacting streams and leaving no-cut buffers along each side of streams, springs and seeps would also reduce sediment loads and water temperatures and increase late season streamflows. Streambank stabilization projects would further and/or more quickly reduce sediment loads and increase riparian shading.

The removal of livestock from reservoirs and their contributing drainages would lead to reduced siltation and turbidity through increased vegetative cover. Erosion from upland areas and stream courses, in the contributing drainages, would be reduced with increased residual ground cover. Shoreline erosion from wave action would be reduced with improved vegetative cover.

No specific actions have been identified that would adversely affect water quality or aquatic ecosystems under this alternative. Any insufficiently mitigated surface disturbances would have the potential for negative impacts (see Appendix 1, Table 4, for a brief description of the effects of minerals development induced impacts).

Under this alternative, stream and river water quality would improve dramatically (see Table 4.1). Of the 126.55 total miles of perennial streams in the planning area, 113.75 miles or 89.9 percent would improve to, or maintain, good water quality. Another 2.9 miles or 2.3 percent would improve to excellent quality. Stream miles with poor water quality would decline by 93 percent to 6.15 miles or only 4.9 percent of the total.

Water quality in reservoirs would also improve dramatically (see Table 4.2). Of a total of 4,491 acres of flat water, 3,090 acre or 68.8 percent would improve to, or maintain, good water quality. This would be an increase of 6,767 percent. Another 1,351 acres or 30.1 percent would improve to excellent. Only 50 acres or 1.1 percent would remain with poor water quality and this is Seiloff Dikes, a playa with naturally elevated turbidities and alkalinities.

Alternative B

Management activities having a positive effect on water quality would occur from changes in management of range, forestry, lands, realty, aquatic and water quality. The exclusion of livestock for **5+years** from streams with poor water quality, followed by implementation of grazing systems designed to encourage rapid recovery of riparian and upland vegetation and the immediate implementation of these systems on streams with fair or good water quality, would decrease sediment loads and water temperatures and increase late season streamflows through reduced streambank and overland erosion and improved riparian shading. Timber management consistent with Guidelines for Stream Protection in Logging Operations, with the addition of no-cut buffer strips along each side of streams, springs and seeps, would reduce sediment loads and water temperatures and increase late season streamflows. Streambank **stabilization** projects would improve water quality in streams.

Similar improvements to reservoirs in the planning **area** would be realized under this alternative. The exclusion of livestock from **16+reservoirs** would lead to increased vegetative cover which would reduce siltation and turbidity. Increased vegetative cover

around the shorelines of these reservoirs would reduce erosion by wave action and filter overland flows into the reservoirs.

No specific actions have been identified that would adversely affect water quality or aquatic ecosystems under this alternative. Any insufficiently mitigated surface disturbances would have the potential for negative impacts (see Appendix 1, Table 4, for a brief description of the effects of minerals development induced impacts).

Under this alternative, stream and river water quality would improve (see Table 4.1). Of the total 126.55 miles of perennial stream, 116.65 or 92.2 percent would improve to, or be maintained with, good water quality. None would reach excellent and 6.15 miles or 4.9 percent would remain or decline to poor water quality. It is assumed that 2 miles of these would be the result of mining impacts.

Water quality in reservoirs would improve substantially with 4,441 acres or 98.9 percent improving in, or maintaining, good water quality (see Table 4.2). Only 50 acres or 1.1 percent would remain with poor water quality and this is the Seiloff Dikes, a **playa** with naturally elevated turbidities and alkalinities.

Under this alternative, recovery would be slow. The habitat currently in poor condition (69.6 percent stream and 9.9 percent reservoir) would not reach predicted levels until the end of the planning timeframe (**10-15** years) and then only if management actions were taken immediately after plan approval.

Alternative C

Management activities having a positive effect on water quality would occur from changes in management of range, forestry, lands, realty, aquatic habitat and water quality. Livestock would be temporarily removed from streams with poor water quality until conditions have improved to fair, with the exception of those reaches where impacts from non-ELM lands preclude achieving fair water quality. Grazing systems designed to encourage rapid recovery of riparian habitat and upland vegetation would be implemented, once these reaches have reached fair, with the noted exceptions, and immediately on all other streams. This could be expected to reduce sediment loads and water temperatures and increase late season streamflow through reduced streambank and overland erosion and improved shading (Meehan and Platts, 1978). Coliform levels could also be expected to decrease (Bowers, Hosford, Oakley and Bond, 1979).

Table 4.1. Stream Water Quality Condition and Trend by Alternative

Condition Trend	Baseline (Miles)	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Poor						
Improving	7.45	0.00	0.00	0.00	0.60	1.30
Declining	64.05	0.00	0.00	1.00	8.35	0.00
Static	11.00	6.15	6.15	6.80	62.60	8.95
	82.50	6.15	6.15	7.80	71.55	10.25
Fair						
Improving	3.60	0.00	0.00	0.00	1.55	2.20
Declining	10.20	0.00	0.00	0.00	0.00	0.00
Static	6.85	3.75	3.75	3.75	34.15	108.40
	20.65	3.75	3.75	3.75	35.70	110.60
Good						
Improving	0.00	37.80	32.70	32.85	0.00	0.00
Declining	0.00	0.00	0.00	0.00	0.00	0.00
Static	0.00	75.95	83.95	82.15	5.15	5.70
	0.00	113.75	116.65	115.00	5.15	5.70
Excellent						
Static	0.00	2.90	0.00	0.00	0.00	0.00
	0.00	2.90	0.00	0.00	0.00	0.00
Unknown						
Unknown	23.40	0.00	0.00	0.00	14.15	0.00
	23.40	0.00	0.00	0.00	14.15	0.00

Tirrbber management consistent with Guidelines for Stream Protection in Logging Operations, with the **addition** of a variable no-cut buffer strip along each side of streams, springs and seeps, would reduce sediment loads and water temperatures and increase lateseason streamflows (Cole and Megahan, 1989; **anc** Megahan, Platts and Kuleszay. 1980).

Streambank stabilization projects on streams with less than 90 percent stable streambanks would also **improve** water quality in streams. These projects **would** reduce streambank erosion and assist in **streambank** revegetation.

Similar improvements to reservoirs and other flat water in the planning area would be realized under this alternative. The exclusion of livestock from 12 **reservoirs** would reduce siltation and turbidity. Increased vegetative cover around the shorelines of these reservoirs would reduce erosion by wave action and filter overland flows into the **reservoirs**. Livestock water would of course continue to be provided from these reservoirs.

No specific actions have been identified that would adversely affect water quality or aquatic ecosystems under this alternative. Any insufficiently mitigated **surface** disturbances would have the potential for negative impacts (see Appendix 1, Table 4, for a brief description of the effects of minerals development induced impacts).

Mineral development activity has the potential to impact water quality in many of the same ways as mentioned in Appendix 1, Table 4. However, lease stipulations proposed under this alternative would mitigate most, if not all, oil and gas leasing impacts, resulting in little or no degradation of water quality from this activity.

Under this alternative, stream and river water quality would improve substantially (see Table 4.1). Of the total of 126.55 miles of perennial stream, 115.00 miles or 90.8 percent would improve to, or be maintained, with good water quality. None would reach excellent and 7.8 miles or 6.2 percent would remain or decline to poor water quality. It was assumed that 2

Table 4.2. Reservoir Water Quality Condition and Trend by Alternative

Condition Trend	Baseline (Acres)	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Poor						
Improving	390.00	0.00	0.00	0.00	0.00	0.00
Declining	5.00	0.00	0.00	0.00	0.00	0.00
Static	50.00	50.00	50.00	50.00	55.00	3,255.00
	445.00	50.00	50.00	50.00	55.00	3,255.00
Fair						
Improving	786.00	0.00	0.00	0.00	0.00	0.00
Declining	0.00	0.00	0.00	0.00	0.00	0.00
Static	3,215.00	0.00	0.00	3,140.00	3,560.00	411.00
	4,001.00	0.00	0.00	3,140.00	3,560.00	411.00
Good						
Improving	0.00	0.00	0.00	0.00	0.00	0.00
Declining	0.00	0.00	0.00	0.00	0.00	0.00
Static	45.00	3,090.00	4,441.00	1,301.00	876.00	825.00
	45.00	3,090.00	4,441.00	1,301.00	876.00	825.00
Excellent						
Static	0.00	1,351.00	0.00	0.00	0.00	0.00
	0.00	1,351.00	0.00	0.00	0.00	0.00
Unknown						
Unknown	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00

miles of these would be the result of mining impacts. This assumption was based on impacts if one large mine were developed within the impact zone of live water and was used only as a basis for projecting impacts at various levels of activity. The reader may then use this analysis in conjunction with their own prediction of future mining activity levels.

The major difference in this alternative, as compared to Alternative B, is the use of allotment categories to prioritize timing of facility construction and grazing changes. Under this alternative, streams in custodial (C) allotments (3 stream miles or 2.6 percent) would continue under existing management, improve (I) allotments would receive first priority in funding followed by maintain (M) allotments. At the end of the life of this plan, all I and M allotments would have facilities and/or grazing systems in place to meet objectives. The actual condition would vary depending on when these changes were made. For analysis purposes, it was assumed that these changes would be put into effect upon completion of this plan. It should be noted also that this analysis was based on a 10 to 15 year plan life.

Water quality in reservoirs and other flat water would improve significantly with 1,301 acres or 29 percent improving to, or maintaining, good water quality (see Table 4.2). Only 50 acres or 1.1 percent would remain with poor water quality and this is the Seiloff Dikes, a playa with naturally elevated turbidities and alkalinities. Even here, benefits would be realized by waterfowl. The major difference between this alternative and Alternative 6 is in the reservoirs covered. Four reservoirs, Dry Lake, Warm Springs Reservoir, Moon Reservoir and Chickahominy Reservoir, would continue to be managed the same as now. Dry Lake would continue to improve as the present management is effective. Warm Springs and Moon Reservoirs are too large, and in the case of Moon Reservoir, have too much private shoreline and watershed to effectively exclude livestock. Chickahominy Reservoir has extremely limited federal ownership. In these three cases, conditions would remain static, with the possible exception of Chickahominy Reservoir, which will be largely under control of the Oregon Department of Fish and Wildlife (ODFW) and managed for

game fish production. The same discussion appearing above dealing with recovery times and priorities for streams would hold true for reservoirs.

Alternative D

Management activities having a positive effect on water **quality** would occur from actions taken by range, timber and fisheries to protect and/or enhance water quality and aquatic habitat. Improvements in water **quality** resulting from existing **exclosures** and grazing systems would continue. New grazing systems to improve water quality would be implemented in some cases. Timber harvest would continue to follow **accepted** practices to limit adverse impacts to streams. Streambank stabilization projects would improve stream water quality. Major positive effects would be reduced sediment loads and water temperatures and increased late season streamflow.

Mineral activity would have the potential to negatively impact water quality. However, it is extremely difficult to **predict** the nature, extent and timing of mineral activities in sufficient detail to support adequate impact analysis (see Appendix 1, Table 4, for discussion).

Under this alternative, stream and river water quality would improve to a limited degree (see Table 4.1). Of the total 126.55 miles of perennial streams, the amount in poor condition would decline 12 percent to 71.55 miles. Habitat in fair condition would increase 56 percent to 35.70 miles and habitat in good condition would increase from 0 to **5.15+ miles**. However, this would only represent 4.1 percent of the total and none would improve to excellent.

Reservoir water quality would improve slightly more with **831 acres** improving from poor or fair to good water quality (see Table 4.2). However, once again only 876 acres or 19.5 percent would have good water quality and none excellent.

Much of the above improvement is predicted on the implementation of grazing systems and/or projects not yet approved **and/or** funded.

Alternative E

Management activities having a positive effect on water **quality** would occur related to livestock grazing and recreation. Corridor fencing on all streams affecting water quality, and rehabilitation on eroding **streambanks** through grazing and aquatic habitat management actions would decrease sediment loads, water temperatures and late season streamflows through reduced sediment loads, improved bank

storage and riparian shading. However, a lack of significant improvement in watershed conditions would limit improvements in water quality. Erosion from unfenced, intermittent stream courses would continue to impact water quality in receiving streams. Peak flows would continue to be elevated above levels expected from an unaltered watershed and would occur earlier and be of shorter duration. Restrictions on ORV use in areas where water quality is being adversely affected would reduce sediment loads and present riparian damage.

Forest management and minerals activities would be expected to adversely impact water quality compared to existing conditions. Under this alternative, no-cut buffer strips would be eliminated and significantly narrower buffers would be intensively managed for timber production with few large trees left in the riparian zone. This would result in increased sediment loads and increased water temperatures.

Minerals development activities could adversely impact water quality through erosion from surface disturbance such as pad leveling, mud pits and access road construction, etc. These impacts would be realized only if such surface disturbance was within the direct impact zone of live water (see Appendix 1, Table 4, for discussion).

Under this alternative, stream and river water quality would improve significantly over existing conditions (see Table 4.1). However, without significant improvement in watershed conditions, water quality in most streams would not be expected to improve beyond fair. Of the 126.55 miles of streams in the planning area, 110.60 miles or 87.4 percent would improve to, or remain in fair condition. Stream miles with poor water quality would be reduced by 87 percent to 10.25 miles or 8.1 percent of the total. Stream miles with good water quality would increase from the current 0 to 5.7 miles or 4.5 percent of the total.

Reservoir water quality would decline dramatically (see Table 4.2). Flat water with poor water quality would increase 631 percent to 3,255 acres or 72.5 percent of the total, compared to the current 445 acres or 9.9 percent of the total. Acres of fair water quality would decline by 90 percent to 411 acres or 9.2 percent of the total compared to the current 4,001 or 89.1 percent of the total. Due to the existing fence around Dry Lake, the current upward trend would be expected to continue, increasing the amount of flat water with good water quality by 18.4 percent to 825 acres.

Soils

Alternatives A, B and C

Changes on management of range and forestlands which result in an increase in ground cover or minimize soil disturbances should have a positive effect on soils. Limiting utilization on uplands to 30 percent, limiting timber harvest and controlling off-road vehicle use may decrease sediment loss, reduce headcutting, and lower the amount of sediment delivered to streams. Proper maintenance and rehabilitation of ELM roads may reduce the concentration of storm runoff and as a result, reduce soil erosion and gully-ing. The rehabilitation of gullies and headcuts on uplands will decrease soil erosion. Treatment projects such as juniper thinning and brush control may have short-term negative effects on soil losses, yet can have positive or negative effects on soils depending upon the condition of the site prior to treatment and the characteristics of the specific site. Closing and rehabilitating known unauthorized mineral material sites should have a positive effect on soils on the mined sites.

Mineral activities may have potentially negative effects on soils. Localized increases in sediment production and gully-ing, increased runoff and increased sediment delivery to streams may result from mining activities.

Under these alternatives, accelerated soil erosion would decrease significantly. Headcutting and sediment delivery to streams would also decrease. Vegetation management and range improvements will determine the condition and trend of soil erosion and stability. No significant negative impacts to the beneficial functions of floodplains have been identified under these alternatives.

Alternatives D and E

Protection of some areas will improve soil conditions on a localized basis. Construction and maintenance of BLM roads to meet minimum standards will minimize soil loss and runoff from roads. Closing roads and allowing the sites to revegetate will decrease sediment production in some areas. Rehabilitation of headcuts and gullies will reduce soil erosion and sediment delivery to streams.

Actions which emphasize commodity production have the potential to decrease soil stability and result in an increase in soil loss and gully-ing on uplands. This may, in turn, result in increased sediment delivery to streams. Mineral activities and mining have the potential to negatively impact soils by increasing soil

loss, runoff and sediment delivery to streams. Off-road vehicle use may also impact soils negatively by increasing soil disturbance and removing vegetation.

Under these alternatives, soil conditions would degrade in many areas and remain stable or improve in other areas. Logging and grazing systems, and range improvements will determine future condition and trend of soils on specific sites. No significant negative impacts to the beneficial functions of floodplains have been identified under these alternatives.

Forestlands and Woodlands

Forestlands

Alternative A

Prohibiting timber harvest in perennial and intermittent drainages, where harvest would adversely impact water quality, riparian and aquatic habitat, would have major negative effects on the amount of timber harvested annually. Maintaining 30 to 60-acre blocks of thermal cover, prohibiting harvest activities within one-quarter of a mile of raptor nests and visual resource management stipulations would be expected to have low or no negative impacts. Under this alternative, commercial forestland acres would be reduced to 4,868 acres; therefore, the annual allowable sale volume would decrease to an annual total of 341 MBF, resulting in a 45 percent decrease. The significance of this reduction would be very high.

Alternatives B and C

The most significant negative impacts to commercial forestry would be incurred through restrictions imposed to protect water quality, perennial streams and meadow areas, and aquatic and riparian habitat. Enforcement of variable width buffer strips for these areas would result in an estimated reduction of commercial forestland to 8,263 acres. This would result in a proportionate reduction in average annual allowable harvest of 578 MBF. This would be a 9.3 percent reduction from current levels.

Other restrictions would also have an impact on commercial forestry. Included in this group would be

maintaining desired big game thermal/hiding cover, protecting raptor nest trees and providing for raptor perch trees. The impacts from these restrictions would affect sale block layout activities and timber harvest timing in some cases. These effects would not have an impact on annual harvest levels, but would be expected to complicate sale administration.

Alternative D

Retaining a 100-foot buffer strip along each side of all perennial streams and riparian zones, and other stream courses and meadows which can significantly impact the perennial streams and riparian zones, and leaving a 50-foot buffer along each side of all nonperennial streams on a case-by-case basis, water sources and meadows would have a negative effect on the amount of timber harvested annually. There is an impact since this current practice differs slightly from what was presented in the John Day RMP. The John Day RMP did not account for the buffering of all nonperennial streams, springs and seeps. Therefore, commercial forestland acres would be reduced to 8,710 acres and the annual allowable sale volume would be decreased to an annual total of 609 MBF resulting in a 2 percent decrease. The significance of this reduction is low.

Alternative E

Allowing timber harvest to meet Oregon Forest Practices Act standards, relative to water quality and aquatic habitat, would allow harvesting commercial forest products within buffer strip areas. Buffers would be maintained with noncommercial timber species and brush. This practice would have a positive effect on the amount of timber harvested annually. Commercial forestland acres would be increased to 9,291 acres. Allowing selective timber harvest within riparian zones would have a positive effect on the amount of timber harvested annually. Acquiring lands with potential for producing timber would have a positive impact on the annual sale volume. This significance would depend on the amount of commercial forestland acquired.

The annual allowable sale volume would increase to an annual total of 650+MBF, resulting in a 5 percent increase. The significance of this isolated increase would be low.

Table 4.3 presents a summary of impacts to forestry for all alternatives.

Woodlands

Alternatives A, B, C, D and E

Impacts to woodlands would be very similar in all alternatives. The woodlands in the RA would continue to be managed primarily for the enhancement of other values. It is anticipated that demand for woodland products in the RA will continue to be significantly below sustainable harvest levels. Table 4.3 presents a summary of impacts to woodlands.

Livestock Grazing

Alternative A

Combined effects of reductions for water quality, aquatic habitat, riparian habitat, wildlife habitat and wild horses under this alternative would result in a reduction of 95,581 AUMs from the active preference of 150,472 AUMs in the RA.

Restricting livestock grazing on big game ranges to between April 1 and July+31, would require the modification of the grazing seasons on 74 allotments. Appendix 3, Table 2, shows currently authorized grazing seasons.

Range condition would improve due to the exclusion of livestock from much of the RA. However, the changes in condition class would be very slow (requiring at least 20 years) in the absence of land treatments. Appendix 3, Table 7, shows potential projects by allotment.

This alternative would result in extremely negative impacts to livestock grazing in the RA. The only objective that would be met would be to maintain the good condition range. Other condition objectives would be only partially met. Only one-third of the objective to provide approximately 160,000 AUMs for livestock would be realized.

Alternative B

Livestock grazing would be negatively affected in this alternative. Treatments would increase forage production by over 9,100 AUMs; however, the combined effects of reduced utilization levels called for in the actions for water quality, aquatic habitat, wild horses, wildlife habitat management and special status species would reduce grazing levels by over 60,000 AUMs. The net decrease of 51,000 AUMs would be a very negative impact to livestock grazing.

Table 4.3. Impacts to Forestlands and Woodlands

Land Classifications	Alternative	Alternative A	Alternative B	Alternative C	Alternative D ¹	Alternative E
Total Forest/Woodland (acres) ²		244,233	244,233	244,233	244,233	244,233
Forest/Woodland nonsuitable for production of forest products (acres)		-234,942	-234,942	-234,942	-234,942	-234,942
Forestland set aside for other uses (acres) ³		-4,423	-1,028	-1,028	-591	0
Forestland available for intensive management for forest products (acres)		4,868	8,263	8,263	8,700	9,291
Average Sustainable Annual Harvest (MBF) ⁴		341	578	578	609	650
Total Woodland (acres) ⁵		234,942	234,942	234,942	234,942	234,942
Woodland unavailable for harvest of woodland products (acres) ⁶		-41,600	-41,600	-41,600	0	0
Woodland available for harvest of woodland products (acres)		193,342	193,342	193,342	234,942	234,942
Average Sustainable Annual Harvest (cords) ⁷		2,500	2,500	2,500	3,000	3,000

¹Alternative D differs from the existing situation for forestlands because the John Day RMP did not account for buffering of all nonperennial streams, springs and seeps. Such buffering is accepted practice by BLM.

²Includes all acreage listed as ponderosa pine and juniper in the Resource Area.

³Other uses include wildlife habitat requirements, riparian, water quality, fisheries, etc.

⁴The average productivity in this inventory unit is estimated at 70 board feet per acre per year on commercial forestland timber base acres.

⁵Includes all noncommercial forestland and woodland acres.

⁶Woodlands set aside for maintenance of big game winter range.

⁷Estimate only. Systematic volume and production inventories for juniper based woodlands have not been conducted in the Resource Area.

Table 4.4. Impacts to Livestock Grazing, Alternative A

	Base	Proposed Level	Total Change	Timeframe
Active Preference (AUMS)	150,472	54,891	-95,581	5 years
Condition Class (Acres)				
Good	590,141	716,805	+126,664	15-20 years
Fair	813,652	731,704	-81,948	
Poor	251,646	206,930	-44,716	
	1,655,439	1,655,439		

Grazing systems for the restoration and enhancement of big game and special status species habitat would be required on 27 allotments. Likewise, 48 allotments would need riparian systems implemented. Appendix 3, Table 6, shows the specific conflicts in each allotment.

Most livestock forage condition improvement would come from the land treatments. These changes would occur within 5 years of the treatments. Reduced utilization would also cause condition improvement but the changes would not be evident for 10-20 years. See Table 4.9 for a summary of projects by alternative. Appendix 3, Table 7, shows potential projects by allotment.

Under this alternative, negative impacts to livestock grazing in the RA would be very significant. Reductions in livestock grazing for water quality, aquatic habitat and wild horses would cause a net reduction of 51,039 AUMs (33.9 percent) from the active preference of 150,472 AUMs in the RA. Actions to balance livestock use with forage production would affect most allotments in the RA (see Appendix 3, Table 6).

Alternative C

The short-term effects under this alternative could have a negative impact on livestock in the RA. Without building new fences, excluding livestock from pastures with streams with poor water quality would cause an initial reduction of 28,937 AUMs. After

implementation of grazing systems, these AUMs would again be available. The short-term reduction would be less with additional fences. Any reduction needed to bring utilization levels to 30 percent cannot be calculated at this time, but would have to be determined through the allotment evaluation process.

Land treatments would make an additional 8,916 AUMs of livestock forage available. This would cause an overall improvement in range condition. Keeping utilization levels at 30 percent would improve range condition in the long-term. See Table 4.9 for a summary of projects by alternative. Appendix 3, Table 7, shows potential projects by allotments. The additional forage allocation to wildlife would have a moderately negative effect. Most of this allocation will be available in the temporary exclusion areas. The long-term effects will be positive. Sufficient forage will be available after grazing systems are implemented in poor water quality areas and implementation of range improvements to meet active preference and other demands on livestock forage such as wildlife and wild horses.

Two points are very significant in this alternative. The first is that total preference will not be met. There may be some forage production in excess of active preference levels after installation of the range improvements, but it will not be sufficient to meet total preference.

The second significant point is that increases in use of off-site forage would be needed to offset the tempo-

Table 4.5. Impacts to Livestock Grazing, Alternative B

	Base	Proposed Level	Total Change	Timeframe
Active Preference (AUMs)	150,472	107,283	-51,039	5 years
Condition Class (Acres)				
Good	590,141	612,512	+22,371	15-20 years
Fair	813,652	831,031	+17,379	
Poor	251,464	211,896	-39,568	
	1,655,439	1,655,439		

Table 4.6. Impacts to Livestock Grazing, Alternative C

	Base	Proposed Level	Total Change	Timeframe
Active Preference (AUMs)	150,472	133,208	-17,284	0-5 years
		162,145	+11,643	10 years
Condition Class (Acres)				
Good	590,141	667,142	+77,001	15-20 years
Fair	813,652	809,510	-4,142	
Poor	251,464	178,787	-72,677	
	1,655,439	1,655,439		

rary reductions in several of the allotments for water quality improvement. It is expected that this would cause some public controversy where permittees are temporarily assigned to other allotments in which forage is available.

Alternative D

Continuing implementation of the grazing systems and range improvements proposed in the Riley EIS would have a positive effect on livestock grazing. Land treatments would produce an additional 10,750 AUMs of livestock forage within 5 years of the treatment. Continuing the existing grazing systems and the additional systems to be implemented would have a positive effect on forage condition. Range improvements would be limited to unimplemented Riley EIS projects. Appendix 3, Table 7, shows potential projects by allotment. Improvement would be slow through implementation of systems, but forage condition **would** be expected to improve.

This alternative would have an overall low positive impact on livestock grazing. Forage demands for total preference can be met if the range improvements and grazing systems called for in the Riley EIS are implemented. Many of the existing systems need to be modified and could be limited if such changes require additional range improvements.

Alternative E

Under this alternative, there would be a positive effect on livestock grazing. Land treatments would increase forage production by an estimated 20,000 AUMs. Due to restrictions from the combined effects of water quality, aquatic habitat and wildlife habitat management, there would be a shortfall of approximately **7,300+AUMs** from meeting the total preference objective of 170,000 AUMs. The season-of-use restrictions for special status wildlife species would be a low impact. Land treatments would generate an increase in the acres in good forage condition and an equivalent decrease in poor and fair forage condition range. Most of the condition class increases would be realized in 5 years. See Table 4.9 for a summary of projects by alternative (Appendix 3, Table 7, shows potential projects by allotment).

This alternative would have a positive impact on livestock grazing. Additional forage produced through land treatments would allow most permittees to graze livestock at their full preference levels. Range condition would improve significantly (with nearly 42 percent of the range in good condition as compared with approximately 35 percent currently).

Table 4.7. Impacts to Livestock Grazing, Alternative D

	Base	Proposed Level	Total Change	Timeframe
Active Preference (AUMs)	150,472	161,222	10,750	5 years
Condition Class (Acres)				
Good	590,141	789,844	+199,503	15-20 years
Fair	813,852	705,217	-108,435	
Poor	251,464	160,578	-91,068	
	1,655,439	1,655,439		

Table 4.8. Impacts to Livestock Grazing, Alternative E

	Base	Proposed Level	Total Change	Timeframe
Active Preference (AUMs)	150,472	164,622	+14,150	5 years
Condition Class (Acres)				
Good	590,141	688,663	+98,522	15-20 years
Fair	813,652	796,266	-17,386	
Poor	251,646	170,510	-81,136	
	1,655,439	1,655,439		

Table 4.9. Summary of Potential Projects by Alternative

Project Type		Unit	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Big Game	Guzzler	(each)	8	8	8	8	8
Brush Prescribed	Control Bum	(acre)	0	11,000	61,275	48,196	71,376
Total		(acre)	0	11,000	69,535	48,196	81,376
Cattleguard		(each)	0	1	5	0	5
Fence		(mile)	1.5	117.7	203.2	143	412.2
Juniper Burning		(40-acre blocks)	111	111	111	111	111
Juniper Control (woodcutting)		(acre) area	0	0	1,000	0	1,000
Pipeline		(mile)	0	32	88	44	88
Reservoir		(each)	0	37	96	56	98
Road	Maint.	(mile)	43.5	43.5	43.5	43.5	43.5
Seeding		(acre)	0	36,500	46,960	42,231	78,981
Springs		(each)	0	8	21	7	21
Trough		(each)	0	8	21	7	21
Well		(each)	0	3	10	4	10

Other (all alternatives)
 Ryegrass Spring Brood Ponds 2 each
 Lake-on-the-Trail .5 mile dike, 4 nest islands
 Silver Lake Pond 2 nest islands
 Silvies Valley 1,000 feet dike, 6 potholes, 2 miles fence
 West Chain Lake .5 mile dike. 2 miles fence

¹Added to existing 1,282 acres of designated harvest.

Wild Horses

Alternative A

Removal of livestock from all riparian areas would improve the forage condition in the Kiger and Stinkingwater Herd Management Areas (HMAs). These changes would be expected to support slight long-term increases in birth rates, increased winterforage, decreased winter deaths and a general improvement in herd health.

Removal of livestock from drainage areas above some reservoirs would make more forage available for wild horses in the Warm Springs, Stinkingwater and Palomino Buttes HMAs.

Within the Kiger Wild Horse ACEC, horses would have exclusive use of the Yank Springs Pasture with no forage competition from livestock.

Seasonal closures of certain roads, from December 15 to March 1, in big game winter ranges would impede normal horse gathering operations in most HMAs.

The overall effects to wild horses and burros under this alternative would be of moderate positive significance (see Table 4.10).

Table 4.10. Impacts to Wild Horses, Alternative A

	Baseline	Alternative A	Total Change
Stinkingwater			
Good	36,778	62,078	25,300
Fair	42,853	17,553	25,300
Poor	0	0	0
Kiger			
Good	12,985	22,693	9,708
Fair	23,831	14,123	9,708
Poor	0	0	0
Riddle Mountain			
Good	6,000	6,000	0
Fair	22,021	22,021	0
Poor	0	0	0
Warm Springs			
Good	133,064	138,064	5,000
Fair	199,926	195,926	4,000
Poor	123,824	122,824	1,000
Palomino Buttes			
Good	22,068		
Fair	35,300		
Poor	12,681	0	12,681
ACEC Acreage	0	66,244	68,244

Alternative B

Implementation of grazing systems on all I and M category allotments in **HMA**s could change the condition class from fair to good on approximately 103,895 acres in 10 to 20 years, where the systems are strictly followed (see Table 4.11).

When livestock use is balanced with **forage production** in the Stinkingwater, Mountain and Warm Springs

Allotments, horses and burros would be assured of adequate forage during the summer and prior to winter. This would assist in maintaining the viability of the herds in these areas.

Maintaining utilization levels below 30 percent on uplands influencing water quality and fisheries streams would benefit the horses in both the Kiger and Stinkingwater **HMA**s by making additional forage available for horses both in summer and winter.

Maintaining a utilization level of 40 percent or less on all other areas within the HMAs, would also assure adequate forage availability in maintaining the health and viability of the herds.

Acquisition of riparian areas and wetlands would assure water availability for horses in the Kiger, Stinkingwater and Warm Springs HMAs throughout the year.

Designation of 36,619 acres in the Kiger HMA as the Kiger Mustang ACEC would ensure that horses with Spanish Mustang traits would have an adequate area available for perpetuating the traits present in these horses.

Riparian corridor fencing of Stinkingwater Creek and Smyth Creek would impede movement of horses in the Stinkingwater and Kiger HMAs. Fencing is proposed for riparian habitat, water quality and aquatic habitat protection. Although only a small amount of forage would be made unavailable through fencing, much more forage effectively would become inaccessible on the uplands because supporting water sources would not be available.

Grazing systems that require additional fencing are not beneficial to wild horse and burro movements. Fences are proposed by range for the Palomino Buttes and Warm Springs Allotments. The 21.5 miles of fence proposed in the Warm Springs HMA could be enormously significant if placed in an area of traditional major wild horse movements.

Fences restricting or influencing wild horse and burro movements are the factors with the greatest impact in this alternative. The long-term changes in forage condition, through implementation of grazing systems, would have a positive effect on wild horse and burro health, reproduction rates and winter survival. These changes, however, would be expected to take at least 10-20 years to be realized.

Alternative C

Implementation of grazing systems on all I and M category allotments in the HMAs could change the condition class from fair to good on approximately 103,895 acres in 10 to 20 years, where systems are strictly followed.

Balancing livestock use with forage production in the Stinkingwater, Warm Springs and Mountain Allotments, would assure adequate forage for horses and burros during the summer and prior to winter.

The proposed 30,000-acre seeding in the West Warm Springs Allotment, where an estimated 25 percent reduction in livestock grazing use is projected, would be a major benefit to the wild horses and burros in this HMA.

Maintaining utilization levels below 30 percent on uplands influencing water quality, and fisheries streams would benefit the horses in both the Kiger and Stinkingwater HMAs by making additional forage available for horses both in summer and winter.

Acquisition of riparian areas and wetlands would assure water availability for horses in the Kiger, Stinkingwater and Warm Springs HMAs throughout the year.

Designation of the 36,619 acres of the Kiger HMA as a wild horse ACEC would provide an area in which horses exhibiting Spanish mustang characteristics could be specifically and intensively managed. Highlighting this area as the primary location in which to perpetuate this unique strain of wild horses will help to ensure their long-term existence.

Corridor fencing of Stinkingwater Creek and Smyth Creek would impede movement of horses in the Stinkingwater and Kiger HMAs. Fencing is proposed for water quality and aquatic habitat protection. Although only a small amount of forage would be made unavailable through fencing, much more forage effectively would become inaccessible on the uplands because supporting water sources would not be available.

Grazing systems that require additional fencing are not beneficial to wild horse and burro movements. Fences are proposed by range for the Palomino Buttes and Warm Springs Allotments. The 21.5 miles of fence proposed in the Warm Springs HMA could be enormously significant if placed in an area of traditional major wild horse movements.

Fences restricting or influencing wild horse and burro movements are the factors with the greatest impact in this alternative. The long-term changes in forage condition, through implementation of grazing systems, would have a positive effect on wild horse and burro health, reproduction rates and winter survival (Table 4.12). These changes, however, would be expected to take at least 10 to 20 years to be realized.

Table 4.11. Impacts to Wild Horses, Alternative B

	Baseline	Alternative B	Total Change
Stinkingwater			
Good	36,778	51,269	14,491
Fair	42,853	28,362	14,491
Poor	0	0	0
Kiger			
Good	12,985	15,225	+2,240
Fair	23,831	21,591	-2,240
Poor	0		
Riddle Mountain			
Good	6,000	7,223	+1,223
Fair	22,021	20,797	-1,223
Poor	0		
Warm Springs			
Good	133,064	225,525	+92,461
Fair	199,926	137,485	-62,461
Poor	123,824	93,824	-30,000
Palomino Buttes			
Good	22,068	45,368	+23,300
Fair	35,300	12,000	-23,300
Poor	12,681	12,681	0
ACEC Acreage	0	36,619	36,619

Alternative D

Implementation of grazing systems on all I and M category allotments could change the condition class from fair to good on 103,895 acres in 10 to 15 years (see Table 4.13), if the systems are strictly followed.

Returning high-quality horses to the **HMA**s after a gathering helps to maintain very viable, healthy herds.

Gathering horses, as funding becomes available, with no reduction in livestock use levels, results in over-grazing and reduced forage availability for wild

horses. This causes poor health for wild horses prior to and during winter.

There would be potential negative impacts to wild horses as Allotment Management Plans (AMPs) are implemented where fences are proposed to develop grazing systems. Fences can be allowed in some areas if horses movements are not significantly affected.

Wild horse and burro herds under the current situation are thriving; maximum numbers are reached in a 3 to 4-year period after gathering. The viability of the

Table 4.12. Impacts to Wild Horses, Alternative C

	Baseline	Alternative C	Total Change
Stinkingwater			
Good	36,778	51,269	14,491
Fair	42,853	28,362	14,491
Poor	0	0	0
Kiger			
Good	12,985	15,225	+2,240
Fair	23,831	21,591	-2,240
Poor	0	0	0
Riddle Mountain			
Good	6,000	7,223	+1,223
Fair	22,021	20,797	-1,223
Poor	0	0	0
Warm Springs			
Good	133,064	195,525	+62,461
Fair	199,926	137,465	-62,461
Poor	123,824	123,824	
Palomino Buttes			
Good	22,068	50,368	+28,300
Fair	35,300	12,000	-23,300
Poor	12,681	12,681	-5,000
ACEC Acreage	0	36,619	36,619

herds will become more secure as allotment management plans continue to be implemented. The current program of returning high-quality, young horses to the range after gathering ensures that the herds are highly reproductive and is probably one of the most significant factors influencing the viability of the herds.

Alternative E

Water developments constructed in the Kiger, Stinkingwater, Warm Springs and Palomino Buttes HMAS would ensure that adequate water would be available during dry periods.

Retention of all riparian areas would ensure water availability for horses in all of the HMAS.

Interpretive sites developed in the HMAS would increase the public awareness and understanding of the management of wild horses.

Retention of all high forage value lands protects the viability of all the herds.

Corridor fencing of all streams supporting fish would seriously affect the free-roaming nature of horses in the Stinkingwater and Kiger HMAS. Even with water

Table 4.13. Impacts to Wild Horses, Alternative D

	Baseline	Alternative D	Total Change
Stinkingwater			
Good	36,778	51,269	+14,491
Fair	42,853	28,326	-14,491
Poor	0	0	0
Kiger			
Good	12,985	15,225	+2,240
Fair	23,831	21,591	-2,240
Poor	0	0	0
Riddle Mountain			
Good	6,000	7,223	+1,223
Fair	22,021	20,793	-1,223
Poor	0	0	0
Warm Springs			
Good	133,064	195,525	62,461
Fair	199,926	137,465	-62,461
Poor	123,824	123,824	0
Palomino Buttes			
Good	22,068	45,368	+23,300
Fair	35,300	12,000	-23,300
Poor	12,681	12,881	0
ACEC Acreage	0	0	0

gaps, free movement would be limited. This limitation could considerably affect the integrity and structure of these two herds.

Implementation of grazing systems requiring cross fencing would have the same effects mentioned above. Cross-fencing is proposed for range management purposes in allotments affecting the Palomino Buttes, Warm Springs and Stinkingwater HMAS.

Under this alternative (see Table 4.14), the most significant impacts on the wild horses are the fences, both corridor and cross fences. Although water gaps

may be a mitigating measure, the fences would seriously impact movement. These two issues greatly affect the wild horse and burro objectives.

Range improvements and grazing systems would probably show the most significant increase or change in range condition. More acres would be moved from poor to fair or good and from fair to good in this alternative.

Table 4.14. Wild Horse Impacts, Alternative E

	Baseline	Alternative E	Total Change
Stinkingwater			
Good	36,778	51,269	+14,491
Fair	42,853	28,362	-14,491
Poor	0	0	0
Kiger			
Good	12,985	15,225	+2,240
Fair	23,831	21,591	-2,240
Poor	0	0	0
Riddle Mountain			
Good	6,000	7,223	cl ,223
Fair	22,021	20,797	-1,223
Poor	0	0	0
Warm Springs			
Good	133,064	225,525	+92,461
Fair	199,926	137,465	-62,461
Poor	123,824	93,824	-30,000
Palomino Buttes			
Good	22,088	50,368	28,300
Fair	35,300	12,000	23,300
Poor	12,681	7,681	5,000
ACEC Acreage	0	0	0

Vegetation

Alternatives A, B and C

Under these alternatives, several management actions would have a positive effect on overall vegetative diversity in the RA. Significant among these actions are the retention of two **ACECs**, the Silver Creek **RNA/ACEC** (640 acres) and the South Narrows ACEC (160 acres); and the designation of three additional **RNA/ACECs** (5,070 acres). Intensive management of and protection of aquatic, riparian, wetlands and **playa** habitats would contribute signifi-

cantly to the protection, restoration and enhancement of vegetative diversity in the RA. Conservation of special status plant species would be conducted through participation in Recovery Plans and **HMPs**. Incorporation of special status species management objectives in allotment monitoring and evaluation processes would provide for long-term management of those species and would contribute to their maintenance and restoration.

Vegetation diversity could be adversely affected under Alternatives B and C through brush control and seeding activities. The potential for significant loss of

diversity through such actions would be moderated by controls imposed under Standard Operating Procedures (see Appendix 3, Table 8) and multiple use constraints (see Appendix 3, Table 6, Constraints).

Overall, these alternatives would have a significantly positive effect on the protection, restoration and enhancement of vegetative diversity in the RA.

Alternatives D and E

Under these alternatives, there would be only a minimal positive impact on overall vegetative diversity in the RA. The existing designation and management of Silver Creek RNA/ACEC and South Narrows ACEC would be continued, but no additional RNA/ACEC would be designated. Conservation of special status plant species would be conducted through participation in Recovery Plans and HMPs. Incorporation of special status species management objectives in allotment monitoring and evaluation processes would provide for long-term management of those species and would contribute to their maintenance and restoration.

Vegetation diversity could be adversely affected under Alternatives D and E through brush control and seeding activities. The potential for significant loss of diversity through such action would be moderated by controls imposed under Standard Operating Procedures (see Appendix 3, Table 8) and multiple use constraints (see Appendix 3, Table 6, Constraints).

Overall, these alternatives would have a low positive effect on the protection, restoration and enhancement of vegetative diversity in the RA.

Wildlife

Big Game Habitat

Alternative A

Management actions having a positive effect on big game habitat would occur from changes in management of range, forestlands, realty and wildlife habitat. The allocation of 7,800 AUMs of cattle type forage to big game would ensure adequate forage availability. Single tree juniper burning in 40-acre or smaller blocks would improve browse vigor. Junipers would not be removed in areas where the thermal cover is sparse. Forb availability for antelope during late summer months would increase.

Wildfires would be aggressively suppressed in deer and elk winter ranges. Timber harvest would be

limited to areas exhibiting a cover to forage area ratio greater than 40:60, and larger than 60 acres in size. These actions would maintain or enhance the current thermal and hiding cover on elk and deer ranges.

Guzzlers would be installed in areas that are currently water deficient. This action would make better use of otherwise satisfactory deer and elk habitat.

Motorized vehicle travel would be prohibited from December 15 to March 1, yearly, on all roads in deer and elk winter range, except U.S. and State Highways and County roads. This action would reduce vehicle-invoked stress on wintering deer and elk.

Mineral activities would have the potential to negatively impact big game habitat. However, the anticipated amount of mineral activities in the next 10 to 15 years would have a negligible effect on big game range.

The positive effects to big game habitat that would occur under this alternative would be highly significant. Ninety-five percent of the mule deer range would be in satisfactory condition and all elk range would be satisfactory.

Although antelope habitat has not been delineated into condition classes, the impacts from this alternative would be positive.

Table 4.15 shows the habitat condition that these actions would generate 10 years after implementation.

Alternative B

Management actions having a positive effect on big game habitat would occur from changes in management of range, forestlands and wildlife habitat. The allocation of 7,800 AUMs of competitive forage to big game, and the implementation of deferred or rotational grazing systems on all allotments in big game range, would ensure adequate forage for big game. Single tree juniper burning in 40-acre or smaller blocks would improve browse vigor. Junipers would not be removed in areas where thermal cover is sparse. Forb availability for antelope during late summer months would increase.

Wildfires would be aggressively suppressed in deer and elk winter ranges. Timber harvest would be limited to areas exhibiting a cover to forage area ratio greater than 40:60, and larger than 60 acres in size. These actions would maintain or enhance the current thermal and hiding cover on elk and deer ranges.

Guzzlers would be installed in areas that are currently water deficient. This action would make better use of otherwise satisfactory deer and elk habitat.

The proposed 11,000 acres of brush control includes 5,000 acres within deer winter range. Crested wheatgrass would be seeded on these 5,000 acres plus 30,000 more acres that were burned in a wildfire. An estimated 12,500 of these acres would be unsatisfactory deer winter range.

Mineral activities would have the potential to negatively impact big game habitat.

The improvements to big game habitat under this alternative would be highly significant. Ninety-one percent of the deer winter range and 88 percent of the deer summer range would be in satisfactory condition. An estimated 96 percent of elk winter range and 85 percent elk summer range would be in satisfactory condition.

Although antelope habitat has not been delineated into condition classes, the impacts from the alternative would be positive.

Table 4.15 shows the predicted big game habitat conditions 10 years after full implementation of this alternative.

Alternative C

Management actions having a positive effect on big game habitat would occur from changes in management of range, forestlands and wildlife habitat. The reallocation of an additional 2,622 AUMs of competitive cattle forage to big game and implementing deferred or rotational grazing systems on all allotments in big game ranges, with priority given to I and M allotments, would ensure adequate forage availability. Single tree juniper burning in 40-acre or smaller blocks would improve browse vigor. Junipers would not be removed in areas where thermal cover is sparse. Forb availability for antelope during late summer months would increase.

Wildfires would be aggressively suppressed in deer and elk winter range. Timber harvest would be limited to areas exhibiting a cover to forage area ratio greater than 40:60, and larger than 60 acres in size. These actions would maintain or enhance the current thermal and hiding cover on elk and deer ranges.

Guzzlers would be installed in areas that are currently water deficient. This action would make better use of otherwise satisfactory deer and elk habitat.

The 69,535 acres of brush control would include 15,540 acres within deer winter range and 5,000 additional acres in summer range. Deer winter range occurs on 9,460 acres of the proposed 46,960 acres of crested wheatgrass seeding. It is estimated that approximately 5,500 of these acres would be unsatisfactory.

Minerals activity would have the potential for negative impacts.

The improvements to big game habitat under this alternative would be highly significant. Eighty-seven percent of deer summer range and 88 percent of the deer winter range would be in satisfactory condition. An estimated 96 percent of all elk winter range and 85 percent of elk summer range would be in satisfactory condition. This would be a significant improvement in habitat condition.

Although antelope habitat has not been delineated into condition classes, the impacts from the alternative would be positive.

Table 4.15 shows the predicted big game habitat condition 10 years after full implementation.

Alternative D

Management actions having a positive effect on big game habitat would be the implementation of the grazing systems and lower livestock stocking rates in big game range outlined in the Riley Grazing EIS/ROD. Single tree juniper burning in 40-acre or smaller blocks would improve browse vigor. Junipers would not be removed in areas where thermal cover is sparse.

Antelope habitat would be expected to improve within the 47,000 acres of big sagebrush control.

Wildfires would be aggressively suppressed in deer and elk winter range. Guzzlers would be installed in areas that are currently water deficient. This action would make better use of otherwise satisfactory deer and elk habitat.

Five thousand of the proposed 48,196 acres of brush control would be in deer winter range. The same 5,000 acres would be seeded as part of the proposed 42,231 acres of seeding.

The allocation of 5,276 AUMs of cattle type forage for big game would fall 2,522 AUMs short of the estimated demand.

Mineral activities have the potential to negatively impact big game habitat.

Under this alternative, deer range would improve dramatically while elk range would show little change in condition. Ninety percent of deer winter range and 80 percent of deer summer range would be in satisfactory condition. However, the shortfall in allocated forage would result in deterioration of the improved conditions in the long-term.

Although antelope habitat has not been delineated into condition classes, the impacts from the alternative would be positive.

Table 4.15 shows the predicted big game habitat condition 10 years after full implementation of these actions and continuation of current management. Alternative E

Management actions having a positive effect on big game habitat in this alternative would include changes in range and wildlife habitat management. The reallocation of an additional 2,622 AUMs of competitive cattle forage to big game would ensure adequate forage availability. Single tree juniper burning in 40-acre or smaller blocks would improve browse vigor. Junipers would not be removed in areas where thermal cover is sparse.

Guzzlers would be installed in areas that are currently water deficient. This action would make better use of otherwise satisfactory deer and elk habitat.

Approximately 26,100 of the proposed 71,376 acres of brush control would take place in deer winter range. Many of these acres are currently unsatisfactory and would be expected to remain unsatisfactory. Timber harvest would remain at current levels and would not necessarily meet the 40:60 cover to forage ratio needed for optimum big game habitat.

Minerals activities have the potential to negatively impact big game habitat.

Table 4.15 shows the projected changes in big game habitat 10 years after full implementation of this alternative.

Under this alternative, 70 percent of deer winter range and 67 percent of deer summer range would be in satisfactory condition. Elk range would remain in current condition. It is significant to note that virtually all of the positive effects of habitat improvement projects are negated by the range and timber proposals.

Raptors

Alternative A

Under this alternative, all nest sites and perch sites within 660 feet of nest sites would be protected. Disturbing activities would not be allowed within one-quarter mile of nest sites during the nesting season. A

Table 4.15. Impacts to Big Game Habitat Condition by Alternative (acres)

	Current		Alternative A		Alternative B		Alternative C		Alternative D		Alternative E	
	Sat.	Unsat.	Sat.	Unsat.	Sat.	Unsat.	Sat.	Unsat.	Sat.	Unsat.	Sat.	Unsat.
Deer Winter Range	334,910	195,571	505,396	25,085	481,298	49,193	482,938	47,516	478,238	52,243	372,961	157,520
Deer Summer Range	376,670	325,293	669,808	32,155	616,371	85,592	611,371	90,592	564,784	137,179	472,257	229,706
Elk Winter Range	234,211	21,340	255,551	0	245,631	9,920	245,631	9,920	234,211	21,340	234,211	21,340
Elk Summer Range	105,380	43,100	148,480	0	127,680	20,800	127,680	20,800	105,380	43,100	105,380	43,100

wider variety of prey would become available with improved native plant community conditions resulting from reduced livestock grazing.

No negative impacts have been identified under this alternative.

The positive impacts to **raptor** habitat under this alternative would be highly significant. Table 4.16 shows the impacts to **raptor** habitat relative to the current situation.

Alternative B

Positive effects will result from the protection of nest sites and perch sites within 660 feet of the nest sites. Component deficient **raptor** habitat would be identified and management actions would be implemented to correct the deficiencies.

Under this alternative, 36,500 acres could be seeded to crested wheatgrass. Numbers of prey species would be expected to decrease in these areas; however, hunting may become easier for some **raptor** species.

Management actions under this alternative would result in a moderately significant positive impact. Table 4.16 shows the impacts to **raptor** habitat relative to the current situation.

Alternative C

Positive effects will result from the protection of nest sites and perch sites within 660 feet of the nest sites. Component deficient **raptor** habitat would be identified and management actions would be implemented to correct the deficiencies.

Under this alternative, 46,960 acres could be seeded to crested wheatgrass. Numbers of prey species would be expected to decrease in these areas; however, hunting may become easier for some **raptor** species.

Management actions under this alternative would result in a low positive impact. Table 4.16 shows the impacts to **raptor** habitat relative to the current situation

Alternative D

Under current management, **raptor** nests are protected and seasonal restrictions are imposed when conflicts are identified.

Under this alternative, 42,231 acres could be seeded to crested wheatgrass. Numbers of prey species would be expected to decrease in these areas; however, hunting may become easier for some **raptor** species. Currently perch sites are seldom identified prior to project implementation.

Impacts from management actions under this alternative are neither positive nor negative. Impacts from other alternatives are listed in Table 4.16 relative to this alternative.

Alternative E

Positive effects will result from nest site protection and management actions to correct identified habitat component deficiencies.

Under this alternative, 78,991 acres would be seeded to crested wheatgrass. Numbers of prey species would be expected to decrease in these areas; however, hunting may become easier for some **raptor** species. Perch sites would receive no added protection.

Management actions under this alternative would result in a low negative impact. Table 4.16 shows the impacts to **raptor** habitat relative to the current situation.

Table 4.16. Impacts to Raptor Habitat by Alternative

	Alternative A	Alternative a	Alternative c	Alternative D	Alternative E
Degree of Impact	High	Moderate	Low	None	LOW
Type of Impact	Positive	Positive	Positive	—	Negative

Aquatic Habitat

Alternative A

Management activities having a positive effect on aquatic habitat would occur from changes in management of range, forest, lands, realty and fish habitat. The removal of livestock from all streams and a 30 percent utilization limit on uplands would decrease sediment loads and water temperatures and increase late season streamflows through reduced streambank and overland erosion and improved riparian shading. The restriction of new road construction to ridge tops, benches or other areas not impacting streams and leaving no-cut buffer strips along each side of streams, springs and seeps would also reduce sediment loads and water temperatures and increase late season streamflows. Fish habitat and streambank stabilization projects would improve and/or expand fish/aquatic habitat in streams.

Similar improvements to flat water aquatic habitat in the planning area would be realized under this alternative. The removal of livestock grazing from the contributing drainages of specified reservoirs, lakes, springs and ponds would reduce siltation and turbidity. Erosion of upland areas and stream courses in the contributing drainages would be reduced with increased residual ground cover. Wave erosion of the reservoir shores above average pool would decrease with improved vegetation cover. Fish habitat projects would expand and/or improve fish/aquatic habitat in these reservoirs.

No specific actions have been identified that would adversely affect aquatic ecosystems under this alternative. Any insufficiently mitigated surface disturbances would have the potential for negative impacts (see Appendix 1, Table 4, for a brief description of the effects of minerals development induced impacts).

Under this alternative, stream and river aquatic habitat would improve significantly (Table 4.17). Of the 83.65 miles of stream habitat in the planning area, 73.9 miles or 68.3 percent would improve to, or be maintained in, good condition. Another 0.6 mile or 0.8 percent would improve to excellent condition. Conditions on ELM-administered lands in the planning area would improve to the point where conditions better than those summarized above would be possible, if all of the contributing drainages were managed similarly to BLM lands under this alternative.

Flat water aquatic habitat would also improve dramatically (Table 4.16). Of the total of 4,006+ acres of

perennial aquatic habitat, 4,006 acres or 100 percent would reach excellent condition relative to the species present.

Alternative B

Management activities having a positive effect on aquatic habitat would occur from changes in management of range, forestry, lands and realty, fish and water quality. The exclusion of livestock, for 5 years, from streams with poor aquatic habitat, followed by implementation of grazing systems designed for rapid recovery of riparian and upland vegetation and the immediate implementation of these systems on streams with fair or good aquatic habitat would decrease sediment loads and water temperatures. This, in turn, would and increase late season streamflows through reduced streambank and overland erosion and improved riparian shading. Timber management consistent with Guidelines for Stream Protection in Logging Operations, with the addition of no-cut buffer strips along each side of streams, springs and seeps, would reduce sediment loads and water temperatures and increase late season streamflows. Fish habitat and streambank stabilization projects would improve and/or expand fish/aquatic habitat in streams.

Similar improvements to flat water aquatic habitat in the planning area would be realized under this alternative. The exclusion of livestock from specified reservoirs, lakes, springs and ponds would reduce siltation and turbidity. Increased vegetative cover around the shore lines of these reservoirs would reduce erosion by wave action and would filter overland flows into the reservoirs. Fish habitat projects would expand and/or improve fish/aquatic habitat in these reservoirs. New reservoir construction suitable for warm-water game fish production would expand that habitat.

No specific actions have been identified that would adversely affect aquatic ecosystems under this alternative. Any insufficiently mitigated surface disturbances would have the potential for negative impacts (see Appendix 1, Table 4, for a brief description of the effects of minerals development induced impacts).

Under this alternative, stream and river aquatic habitat would improve (Table 4.17). Of the total 83.65 miles of stream habitat, 74.50 miles or 89 percent would improve or be maintained in good condition. None would be expected to reach excellent and 2.2 miles or 2.6 percent would remain or decline to poor condition. It is assumed that 2 miles of these would be the result of mining impacts.

Flat water aquatic habitat would improve substantially with 3,988 acres or **97+percent** improving to or maintaining good condition (Table 4.18). Eighteen acres would reach excellent condition relative to the species present.

Under this alternative, recovery would be slow. The habitat currently in poor condition (55 percent stream and 0.3 percent reservoir) would not reach predicted levels until the end of the planning timeframe (**10-15** years), and then only if management actions were taken immediately after plan approval.

Alternative C

Management activities having a positive effect on aquatic habitat would occur from changes in management of range, forestlands and realty, aquatic habitat and water quality. Livestock would be temporarily removed from streams with poor condition aquatic habitat until conditions improve to fair, with the exception of those reaches where impacts from **non-BLM** lands preclude achieving fair condition aquatic habitat. Grazing systems designed for rapid recovery of riparian and upland vegetation would be implemented once these reaches, with noted exceptions, have reached fair condition and immediately for all other streams. As discussed under water quality, this could be expected to reduce sediment loads and maximum summer temperatures and increase late season streamflows through reduced streambank and overland erosion and improved shading (Meehan and Platts, 1978, and Brinson et al., 1981). Along those reaches with the potential to produce trees, additional benefits would be realized.

Large organic debris originating from a healthy, mature riparian zone has been shown to increase aquatic productivity. Bryant (1980) was only one of many authors to document this relationship. Additionally, the beneficial input from a healthy riparian zone, ranging from vegetative material utilized by the aquatic insects to terrestrial insects utilized by fish, is extremely important to maintaining aquatic productivity (Lants, 1971).

Timber management consistent with Guidelines for Stream Protection in Logging Operations, with the addition of variable width no-cut buffer strips along each side of streams, springs and seeps, would reduce sediment loads and summer water temperatures and increase late season streamflows (Cole and Megahan, 1980; and Megahan, Platts and Kuleszay, 1980). Fish habitat and streambank stabilization projects would improve and/or expand fish/aquatic habitat in streams.

Similar improvements to flat water aquatic habitat in the planning area would be realized with this alternative. The exclusion of livestock from specified reservoirs, lakes, springs and ponds would reduce siltation and turbidity. Increased vegetative cover around the shorelines of these reservoirs would reduce erosion by wave action and filter overland flows into the reservoirs. Livestock water would continue to be provided from the water bodies. Fish habitat projects would expand and/or improve fish/aquatic habitat in these reservoirs. New reservoir construction suitable for warm-water game fish production would expand that habitat.

No specific actions have been identified that would adversely affect aquatic ecosystems under this alternative. Any insufficiently mitigated surface disturbances would have the potential for negative impacts (see Appendix 1, Table 4, for a brief description of the effects of minerals development induced impacts).

Under this alternative, stream and river aquatic habitat would improve substantially (Table 4.17). Of the total 83.65 miles of aquatic habitat, 73.50 miles or 87.9 percent would improve, or be maintained in good condition. None would be expected to reach excellent and 2.7 miles or 3.2 percent would remain or decline to poor condition. It is assumed that 2 miles of these would be the result of mining impacts. The same assumption was used here as under Water Quality.

Under this alternative, streams in custodial allotments (2.35 miles or 2.6 percent) would continue under present management, I category allotments would receive first priority for funding, followed by M+category allotments.

Flat water aquatic habitat would improve significantly with 898 acres or **22.4+percent** improving to or maintaining good condition aquatic habitat (**Table+4.18**). Eighteen acres would reach excellent condition relative to the species present (warm-water). The major difference between this alternative and Alternative B is in the reservoirs covered. Again, this is discussed under the Water Quality section.

Alternative D

Management activities having a positive effect on aquatic habitat would occur from actions taken by range, timber and fisheries to protect and/or enhance aquatic habitat. Improvements in aquatic habitat resulting from existing **exclosures** and grazing systems would continue. New grazing systems to improve aquatic habitat would be implemented in some cases. Timber harvest would continue to follow

accepted practices to limit adverse impacts to streams. Fish habitat and streambank stabilization projects would improve both stream and reservoir aquatic habitat. Major positive effects would be reduced sediment loads and water temperatures and increased late season streamflows and **instream** cover.

Mineral activity would have the potential to negatively impact aquatic habitat (see Appendix 1, Table 4).

Mineral development would have the potential to impact aquatic habitat through erosion from surface disturbance, such as pad leveling, mud pits and access road construction. These impacts would occur only if such surface disturbance were within the direct impact zone of live water. Lease stipulation would limit the severity of these impacts.

Under this alternative, stream and river aquatic habitat would improve to a limited degree (see Table 4.17). Of the total 83.65 miles of stream habitat, the amount in poor condition would decline 50 percent to 21 miles. Habitat in fair condition would increase 81 percent to 47.90 miles and habitat in good condition would increase 82 percent to 14.75 miles. However, only 14.75 miles or **21+percent** would be in good condition and none in excellent condition.

Flat water aquatic habitat would improve slightly more with 789 acres improving from poor or fair to good condition (Table 4.18). However, once again, only 889 acres or 22.2 percent would be in good condition and none in excellent condition.

Much of the above improvement is predicted on the implementation of grazing systems and/or projects not yet approved **and/or** funded.

Alternative E

Management activities having a positive effect on aquatic habitat would occur from changes in range, recreation and aquatic habitat management. Corridor fencing on all streams supporting fish and the stabilizing of eroding streambanks through range and aquatic habitat management activities would decrease sediment loads and water temperatures. This, in turn, would increase late season streamflows through reduced streambank erosion and improved filtration of overland flows, bank storage and riparian shading. However, a lack of significant improvement in watershed conditions would limit improvements in water quality, primarily siltation and turbidity. Fish habitat projects would improve **fish/aquatic** habitat condition in reservoirs supporting fish. Restrictions on

ORV use in areas where water quality is being adversely affected would reduce erosion and prevent riparian damage.

Forest management, oil and gas exploration, and minerals activities would adversely impact aquatic habitat. Under this alternative, no-cut buffers would be eliminated and significantly narrowed buffers would be intensively managed for timber production, with few large trees left in the riparian zone. This would result in increased sediment loads and water temperatures and reduced beneficial input and future **instream** cover through the loss of potential large woody debris.

Mineral activity in zones actively influencing live water would have the potential to adversely impact aquatic habitat (see Appendix 1, Table 4).

Mineral development could adversely impact aquatic habitat similarly to that which would occur under Alternative D. Reduced No Surface Occupancy (NSO) stipulations would increase the potential of this type of impact.

Under this alternative, stream and river aquatic habitat conditions would improve significantly over existing conditions (Table 4.17). However, without significant improvement in watershed condition, aquatic habitat in most streams would not be expected to improve beyond fair condition. Of the 63.65 miles of stream habitat, 67.75 miles or 80.9 percent would improve to, or remain in, fair condition. Habitat in good condition would increase by 4.8 miles or 59 percent to 12.9 miles. However, this would still represent only 15.4 percent of the total and none would improve to excellent.

Flat water aquatic habitat would show improvement (Table 4.18). Good condition habitat would increase from 100 acres to 615 acres or 20.3 percent of the total. Fair condition habitat would decline 18 percent to 3,186 acres and poor condition habitat 58 percent to 5 acres.

Riparian Habitat

Alternatives A, B, C and E

Under these alternatives, the various grazing treatments proposed would all result in positive effects on riparian habitat. Design features and constraints on road building and timber harvest methods would also enhance or maintain riparian values. Streambank stabilization projects would provide for more rapid

Table 4.17. Impacts to Stream Aquatic Habitat Condition and Trend by Alternative

Condition Trend	Baseline (Miles)	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Poor						
Improving	15.15	0.00	0.20	0.00	2.50	0.00
Declining	22.90	0.00	0.00	0.50	7.50	0.00
Static	3.65	2.20	2.00	2.20	11.00	3.00
	41.70	2.20	2.20	2.70	21.00	3.00
Fair						
Improving	5.90	1.60	5.35	1.60	8.55	2.20
Declining	13.70	0.00	1.60	0.00	0.00	0.00
Static	6.80	5.35	0.00	5.85	39.35	65.55
	26.40	6.95	6.95	7.45	47.90	67.75
Good						
Improving	0.00	17.75	54.90	19.10	0.00	0.00
Declining	0.50	0.00	19.60	0.00	0.00	0.00
Static	7.60	56.15	0.00	54.40	14.75	12.90
	8.10	73.90	74.50	73.50	14.75	12.90
Excellent						
Static	0.00	0.60	0.00	0.00	0.00	0.00
	0.00	0.60	0.00	0.00	0.00	0.00
Unknown						
Unknown	7.45	0.00	0.00	0.00	0.00	0.00
	7.45	0.00	0.00	0.00	0.00	0.00

Table 4.18. Impacts to Reservoir Aquatic Habitat Condition and Trend by Alternative

Condition Trend	Baseline (Miles)	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Poor						
Improving	7.00	0.00	0.00	0.00	0.00	0.00
Declining	5.00	0.00	0.00	0.00	0.00	0.00
Static	0.00	0.00	0.00	0.00	5.00	5.00
	12.00	0.00	0.00		5.00	5.00
Fair						
Improving	24.00	0.00	0.00	0.00	0.00	0.00
Declining	0.00	0.00	0.00	0.00	0.00	0.00
Static	3,870.00	0.00	0.00	3,090.00	3,112.00	3,186.00
	3,894.00	0.00	0.00	3,090.00	3,112.00	3,186.00
Good						
Improving	0.00	0.00	0.00	0.00	0.00	0.00
Declining	0.00	0.00	0.00	0.00	0.00	0.00
Static	100.00	0.00	3,988.00	898.00	889.00	815.00
	100.00		3,988.00	898.00	889.00	815.00
Excellent						
Static	0.00	4,006.00	18.00	18.00	0.00	0.00
	0.00	4,006.00	18.00	18.00	0.00	0.00
Unknown						
Unknown	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00

improvement in Alternatives A and B. Ten years after implementation the results from these alternatives would be the same.

Alternatives C and E would be somewhat slower at achieving the objectives, but the objectives would be reached 10 years after full implementation.

Minerals activities have the potential to negatively affect riparian habitat (see Appendix 1, Table 4), but minimal minerals activity is expected during the life of the plan.

Under these alternatives, riparian habitat would improve dramatically. Of the 120.05 miles of streamside riparian, 81.60 miles or 68 percent would be in good condition. Some of the 28.75 miles of riparian whose condition is unknown would also be expected to improve; however, the lack of data prohibits condition class predictions at this time.

Table 4.19 shows the projected condition of streamside riparian habitat 10 years after full implementation of this alternative.

Alternative D

Under this alternative, existing riparian enclosures and pastures would be maintained and these areas would continue to improve.

Riparian areas with a declining trend would continue to deteriorate. Areas which do not have riparian systems implemented and are currently in poor static condition would remain in poor condition.

Under this alternative, 17.6 miles of the 120.05 miles of riparian, or only 14.7 percent, would be in good condition. This would result in a huge shortfall from the objective of 75 percent good condition. Also, 37.95 miles or 31.6 percent would be in poor condition, this is an increase of 19 percent above the current poor condition riparian. Table 4.19 shows the projected condition of streamside riparian habitat 10 years after full implementation of this alternative.

Wetland/Playa/Meadow Habitat

Alternatives A, B and C

Under these alternatives, the Three Rivers portion of the Burns District Wetlands HMP would be implemented. However, under Alternative C these actions would not be fully implemented until 1997 while Alternatives A and B would provide for implementation by 1992. Baseline data would be collected on 18 playa lakebeds to determine condition and management action needs. Playa habitat would be grazed only prior to July 31, yearly, in Alternative A and grazing systems would be implemented in Alterna-

Table 4.19. Impacts to Streamside Riparian Habitat Condition by Alternative

Condition	Baseline Level (Stream Miles)	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Good	17.75	81.60	81.60	81.60	17.60	81.60
Fair	41.60	6.60	6.60	6.60	35.75	6.60
Poor	31.95	3.10	3.10	3.10	37.95	3.10
Unknown	28.75	28.75	28.75	28.75	28.75	28.75
Total	120.05	120.05	120.05	120.05	120.05	120.05

Condition	Baseline Level (Acres)	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Good	118.20	511.00	511.00	511.00	116.70	511.00
Fair	249.80	40.75	40.75	40.75	230.80	40.75
Poor	203.50	19.75	19.75	19.75	224.00	19.75
Unknown	166.00	166.00	166.00	166.00	166.00	166.00
Total	737.50	737.50	737.50	737.50	737.50	737.50

tives B and C. Implementation of grazing systems and fencing of overflow areas at all spring developments would improve meadow habitat.

Alternatives 8 and C have 36,500 and 46,960 acres of seeding proposed, respectively. An estimated 300 acres of **playa** in Aiternative B and 1,500 acres of **playa** in Alternative C would be adjacent to these seedings. These acreages would have a declining trend due to the increased livestock use associated with the seedings.

Alternatives A, B and C would result in dramatic improvement of wetland habitat with no wetland habitat in poor condition. **Playa** habitat adjacent to the proposed seedings in Alternatives B and C would have a **downward** trend while all **playa** habitat in Alternative **A** would have an upward trend. Meadow habitat would show an upward trend under these alternatives.

Table 4.20 shows the condition of wetland and reservoir acreage and the trend for **playa** lakebeds. It is important to note that the acreage listed as uncontrollable is in poor condition and is expected to remain in poor condition due to extreme water level fluctuations.

Alternatives D and E

The major actions having a positive effect on wetland habitat under these alternatives would be the implementation of the actions listed in the Bums District Wetlands HMP. Overflow areas would also be fenced at new spring developments.

Approximately 500 acres of **playa** habitat in **Alternative D** and 1,800 acres of **playa** habitat in Alternative E would be adjacent to the 42,231 and 78,991 acres proposed for seeding in Alternatives D and E, respectively. The increased livestock use in Alternative E would also negatively affect meadows and **playa** habitat in areas not adjacent to the seedings.

Under both alternatives, wetland habitat would improve dramatically due to implementation of the District Wetlands HMP. This would result in 71 percent of the wetland habitat in good condition and none in poor condition.

Playa habitat trend in Alternative D would remain static, except for the 500 acres adjacent to the proposed seedings, which would have a downward trend. All **playa** acreage would have a downward

Table 4.20. Impacts to Wetland Habitats by Alternative

Condition Class	Baseline Acres ¹	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Good	50	971	956	956	956	956
Fair	911	395	395	395	395	395
Poor	390	0	0	0	0	0
Poor Uncontrollable ²	3,140	3,140	3,140	3,140	3,140	3,140
Subtotal	4,491	4,491	4,491	4,491	4,491	4,491
Potential Expansion	200	670	300	490	200	200
Total	4,691	5,161	4,791	4,981	4,691	4,691

Playa Habitat Trend (Acres) by Alternative

Condition Class	Baseline Acres ¹	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Upward	0	8,655	8,350	7,155	0	0
Static	8,655	0	0	0	8,155	0
Downward	0	0	300	1,500	500	1,655

Meadow Habitat Trend by Alternative

Baseline Trend	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Static	Upward	Upward	Upward	Static	Downward

¹Acreage includes water surface acres at capacity plus associated vegetation. If the wetland vegetation is in a particular condition, total acres were placed in that condition class.
²Due to large water level fluctuations on Warm Springs, Moon and Chickahominy Reservoirs.

trend in Alternative E due to increased livestock use. Meadow habitat trend would be static in Alternative D and downward in Alternative E due to increased livestock use. Table 4.20 shows condition and trend for wetland, **playa** and meadow habitat for each alternative.

Nongame Animals and Upland Game Birds

All Alternatives

Very little direct data on this diverse grouping of animals has been developed in the **EIS** area. That is, no broadscale population studies, monitoring studies, etc., have been conducted. As a consequence, all subsequent analyses for **nongame** animals and upland game birds are based entirely on inference through projected impacts to the habitats upon which they depend.

To provide a generalized means of comparing the potential overall effects of each alternative on these species, they have been grouped on the basis of their dependence on any of several broad habitat categories (see Appendix 5, Table 4). This qualitative comparison is presented in Table 4.21.

Special Status Species

Implementation of **BLM** actions within the planning area, as listed in the Pacific Bald Eagle, Peregrine Falcon and Malheur Wirelettuce Recovery Plans, will greatly improve the habitat and well-being of these species under all **alternatives**. Table 4.22 shows the expected degree of impacts to these species by alternative.

Alternative A

Inventory, monitoring and evaluation of special status species would benefit the species by refining knowledge of the species' range and determining its biological requirements, detecting trend in species and alerting any need for management action to conserve the species. Acquiring federal ownership of parcels having sensitive species will benefit the sensitive species by having them protected and conserved by law aid policy.

Preparation and implementation of **HMPs** for special status species would aid in the protection, restoration and enhancement of these species and their habitat.

Livestock grazing only prior to July 31, yearly, would provide more forbs for western sage grouse on **playa lakebeds** and not implementing any brush control would allow for adequate nest sites.

Long-billed curlew nesting habitat would benefit from management actions of no livestock grazing from April 1 to June 30.

Prohibiting a livestock class change, from cattle to sheep, and not constructing additional livestock water in the California bighorn sheep habitat would benefit the sheep and their habitat.

Correcting habitat deficiencies of ferruginous hawk prey species within 2 miles of nest sites and providing more nest sites would benefit ferruginous hawks and their habitat.

All of the aquatic stream habitat management actions would result in positive impacts to the **redband** trout and Malheur mottled sculpin habitat in the planning area.

Conducting record searches and application of appropriate mitigation measures prior to project implementation will be a positive impact for all special status species. Also, a site examination, at the appropriate season, before project implementation will be a positive impact and provided needed information for some species.

Allowing no surface disturbing activities within the habitat of plant group **#1** and mitigating all surface disturbing activities within the habitat of plant group **#2** (see Special Status Species, Chapter 3) would have a positive impact on all of **the** habitat for these species. Also, the reduced livestock grazing pressure would benefit some of these species.

No negative effects to special status species under this alternative were identified.

These actions would result in medium to high positive benefits for all the species and their habitats. Table 4.22 shows the degree of impact relative to current management.

Alternative B

Inventory, monitoring and evaluation of special status species would benefit the species by refining knowledge of the species' range and determining its biological requirements, detecting trend in species and alerting any need for management action to conserve the species. Acquiring or retaining federal

Table 4.21. Impacts to Nongame Animals and Upland Game Birds

Wildlife Species Group	Brush Control Alternatives					Seeding Alternatives					Timber Harvest Alternatives					Wetland and Riparian Improvement Projects Alternatives					Juniper Burning Alternatives					Water Development Alternatives					Grazing System Implementation Alternatives				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Old Growth Dependent Species	0	L	M	L	M	0	L	M	L	M	0	0	0	0	0	L	L	L	L	L	0	0	0	0	0	See Water Dependent Species Below	L	L	L	L	L				
Burgrass Dependent Species	0	L+	M+	L+	M+	0	L+	M+	L+	M+	0	0	0	0	0	M+	L+	L+	0	L+	0	0	0	0	0	See Water Dependent Species Below	L+	L+	L+	L+	L+				
Old Growth Dependent Species	0	0	0	0	0	0	0	0	0	0	L	M	M	M	M	0	0	0	0	0	0	0	0	0	0	See Water Dependent Species Below	0	0	0	0	0				
Uneven-Aged Stand Dependent Species	0	0	0	0	0	0	0	0	0	0	L+	M+	M+	M+	M+	0	0	0	0	0	0	0	0	0	0	See Water Dependent Species Below	0	0	0	0	0				
Juniper Woodlands Dependent Species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L	L	L	L	L	See Water Dependent Species Below	0	0	0	0	0				
Late-Seral Stage Wetland Dependent Species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	H	H	H	H	H	0	0	0	0	0	See Water Dependent Species Below	0	0	0	0	0				
Early-Seral Stage Wetland Dependent Species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	H	H	H	H	H	0	0	0	0	0	See Water Dependent Species Below	0	0	0	0	0				
Free-Standing Water Dependent Species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	L+	L+	L+	L+	L+	0	0	0	0	0	L+	L+	M+	M+	M+					

0 indicates effects are thought to be positive for the habitat category and management action
 L indicates effects are thought to be negative for the habitat category and management action
 M indicates effects are expected to be negligible for the habitat category and management action
 L+ indicates the expected degree of habitat change (whether positive or negative) is high relative to the present
 M+ indicates the expected degree of habitat change (whether positive or negative) is moderate relative to the present
 0 indicates the expected degree of habitat change (whether positive or negative) is low

ownership of parcels having sensitive species will benefit these species by having them protected and conserved by law and policy.

Preparation and implementation of HMPs for special status species would aid in the protection, restoration and enhancement of these species and their habitat.

Implementation of grazing systems would improve forb availability for western sage grouse. No big sagebrush removal within 2 miles of a strutting ground would largely protect current nesting areas.

Positive impacts would also result from livestock grazing systems which would improve forb quantity and availability. These actions would result in a medium, positive impact on western sage grouse habitat.

Allowing no livestock grazing on half of the long-billed curlew nesting habitat from April 1 to June 30, yearly, would benefit curlews and their habitat.

Prohibiting a livestock class change, from cattle to sheep, and not constructing additional livestock water in the California bighorn sheep habitat would result in a positive impact to the bighorn sheep and their habitat.

Correcting habitat deficiencies of ferruginous hawk prey species within 2 miles of nest sites and providing more nest sites would benefit ferruginous hawks and their habitat.

The management actions to protect and improve aquatic stream habitat would have positive impacts on the redband trout and Malheur mottled sculpin habitat in the planning area.

Conducting record searches and application of appropriate mitigation measures prior to project implementation will be a positive impact for all special status species. Also, a site examination, at the appropriate season, before project implementation will be a positive impact and provide needed information for some species.

The proposed 11,100 acres of brush control would have the potential to negatively affect sage grouse wintering habitat. However, proposed areas are not within known sage grouse wintering habitat. The proposed brush control and the proposed 36,500 acres of seeding could negatively affect the habitat of sensitive plant species. However, areas of known or newly discovered populations would be avoided.

The combination of these actions would have a low to moderate positive effect on these species and their habitats. Table 4.22 shows the degree of impact relative to the current management.

Alternative C

Inventory, monitoring and evaluation of special status species would benefit the species by refining knowledge of the species' range and determining its biological requirements, detecting trend in species and alerting any need for management action to conserve the species. Acquiring or retaining federal ownership of parcels having sensitive species will benefit these species by having them protected and conserved by law and policy.

Preparation and implementation of HMPs for special status species would aid in the protection, restoration and enhancement of these species and their habitat.

Western sage grouse habitat would be protected by not allowing removal of big sagebrush within 2 miles of strutting grounds, if that removal would be detrimental to sage grouse nesting habitat. Livestock grazing systems which would improve forb availability would also have a positive effect on sage grouse habitat.

Grazing systems on long-billed curlew nesting habitat would allow at least one-third of the habitat to be undisturbed through the critical nesting period.

Prohibiting a livestock class change, from cattle to sheep, and managing the Bartlett Mountain - Upton Mountain area for the long-term enhancement of California bighorn sheep habitat will result in a positive impact.

Correcting habitat deficiencies of the ferruginous hawk within 2 miles of nest sites would result in a positive impact to this species and its habitat.

All of the aquatic stream habitat management actions would result in positive impacts to the redband trout and Malheur mottled sculpin habitat in the planning area.

Conducting record searches and application of appropriate mitigation measures prior to project implementation will be a positive impact for all special status species. Also, a site examination, at the appropriate season, before project implementation will be a positive impact and provide needed information for some species.

Post project implementation site examinations would **not** be a site-specific positive impact. However, knowledge gained from these inspections would be a benefit to long-term species survival and expansion.

The proposed 61,275 acres of brush control would have the potential to negatively affect sage grouse wintering habitat. However, proposed areas are not within known sage grouse winter habitat. The proposed brush control and the proposed 46,960 acres of seeding could negatively affect the habitat of sensitive plant species. However, areas of known or newly discovered populations would be avoided.

The combination of these actions would have a low to moderate positive effect on these species and their habitats. Table 4.22 shows the degree of impact relative to the current management.

Alternative D

Inventory, monitoring and evaluation of special status species would benefit the species by refining knowledge of the species' range and determining its biological requirements, detecting trend in species and alerting any need for management action to conserve the species. Acquiring and retaining federal ownership of parcels having sensitive species will benefit them by having them protected and conserved by law and policy.

Western sage grouse habitat would continue to be impacted positively from the ban on big sagebrush removal within 2 miles of strutting grounds. However, upland meadow condition, forb production and **playa** conditions would not change noticeably overtime.

There are no management actions currently in effect which would have a predictable impact on the habitat of the following species: California bighorn sheep, Swainson's hawk, ferruginous hawk, western snowy plover and long-billed curlew.

The riparian habitat projects currently in place would result in a low, positive impact on **redband** trout and Malheur mottled sculpin habitat. This impact would be due to the continuing improvement in these **riparian** areas.

Conducting record searches and application of appropriate mitigation measures will be a positive impact for all special status species. Also a site examination at the appropriate season will be a positive impact and provide needed information for some species.

The proposed 48,196 acres of brush control would have the potential to negatively affect sage grouse wintering habitat; however, proposed areas are not within known sage grouse winter habitat. The proposed brush control and the proposed 42,231 acres of seeding could negatively affect the habitat of sensitive plant species. However, areas of known or newly discovered populations would be avoided or otherwise mitigated.

Under this alternative, habitat conditions for all species, with the exception of **redband** trout and Malheur mottled sculpin, would remain static. **Redband** trout and Malheur mottled sculpin habitat would improve slightly due to projects already completed. Table 4.22 shows the degree of impact expected under all alternatives.

Alternative E

Inventory, monitoring and evaluation of special status species would benefit the species by refining knowledge of the species' range and determining its biological requirements, detecting trend in species and alerting any need for management action to conserve the species. Acquiring and retaining federal ownership of parcels having sensitive species will benefit these species by having them protected and conserved by law and policy.

Preparation and implementation of **HMPs** for special status species would aid in the protection, restoration and enhancement of these species and their habitat.

Implementation of specific grazing systems which would enhance forb availability for brood rearing would take place on a small portion of western sage grouse range.

Implementation of grazing systems on newly developed brush control projects near large water bodies which keep half of the area from being grazed from April 1 to June 30, yearly, would have a positive effect on long-billed curlew nesting habitat. However, only about 6,000 acres of the proposed brush removal projects would occur within 5 miles of large water bodies or **playas**.

Prohibiting a livestock class change, from cattle to sheep, would result in a positive impact to the bighorn sheep.

Correcting habitat deficiencies of **ferruginous** hawk prey species within 2 miles of nest sites would result in a positive impact to this species.

Table 4.22. Impacts to Special Status Species by Alternative

species	Alternative A	Alternative B	Alternative C	Alternative D ¹	Alternative E
Bald Eagle	H+	H+	H+	H+	H+
Peregrine Falcon	H+	H+	H+	H+	H+
California Bighorn Sheep	M+	M+	H+	O	L-
White-faced Ibis	M+	L+	M+	O	O
Ferruginous Hawk	M+	M+	M+	O	L+
Western Sage Grouse	H+	M+	M+	O	L-
Western Snowy Plover	H+	M+	L+	O	O
Long-billed Curlew	H+	M+	M+	O	O
Redband Trout	H+	M+	H+	L+	M+
Malheur Mottled Sculpin	H+	M+	H+	L+	M+
Malheur Wirelettuce	H+	H+	H+	H+	H+
Plant Group #1 ²	M+	M+	M+	O	M+
Plant Group #2 ²	M+	L+	L+	O	L-

H = High Impacts
M = Medium Impacts
L = Low Impacts
O = No Change
+ = Positive Impacts
- = Negative Impacts

¹Alternative D represents current management; therefore O was used where specific plans or policy for species habitat improvement are not currently in effect or where current impacts have not been determined.
²See Special Status Species, Chapter 3

All of the aquatic stream habitat management actions would result in a positive impact to the redband trout and Malheur mottled sculpin habitat in the panning area.

Conducting record searches and application of appropriate mitigation measures will be a positive impact for all special status species. Also, a site examination at the appropriate season will be a positive impact and provide needed information for all species.

Big sagebrush removal would take place within 2 miles of five known strutting grounds, Up to one-half of the big sagebrush could be removed within 2 miles of strutting grounds.

Construction of two additional livestock watering developments in the California bighorn sheep areas would increase cattle use in the primary bighorn sheep areas.

A low negative impact would result to western sage grouse habitat due to some of the proposed 71,376 acres of brush control.

Low positive effects would occur to the long-billed curlew habitat from implementation of grazing systems on newly established seedings.

Low negative impacts would be the cumulative effect of projects proposed within California bighorn sheep range. Table 4.22 shows expected impacts to special status species.

A low positive impact would occur to ferruginous hawk habitat from habitat deficiency correcting actions.

Redband trout and Malheur mottled sculpin habitat would be impacted positively.

Medium positive impacts would occur to special status plant species.

Table 4.22 shows the degree of impacts expected under all alternatives.

Fire Management

Alternative A

Additional restrictions on access to riparian areas and restricted access in cultural areas will hamper suppression efforts. Removal of cattle from grazing areas will allow those areas to build a fuel bed of fine fuels and the proposed leaving of all dead and downed woody fuels in the timber areas could be setting the stage for catastrophic fire within the next 10 to 15 years.

The increased accessibility into recreation areas will increase visitor use days and in turn, increase the hut-tan-caused fire potential.

Keeping current access roads to public domain lands will assist fire management with suppression efforts. Identified prescribed fire parameters and the yearly treatments of juniper stands will break up some fuel concentrations and provide future fire breaks. Changes in fire suppression class acreages are displayed in Table 4.23.

The overall significance to fire management from **additional** restrictions would be low. However, the increased fuel loading could be very significant if ignitions occur in these areas.

Alternative B

See Alternatives D and E

Alternative C

Additional restrictions on access through riparian and cultural areas will come into conflict, at various times, with fire suppression efforts.

Removal of cattle from grazing areas may allow those areas to build a fairly heavy bed of highly flammable finefuels. If ignition occurs within one of these areas it **may** be impossible to contain fire spread within 1 mile of perennial waters.

Improved accessibility into recreational areas will increase visitor use and, in turn, increase the chance of **human-caused** fire starts.

Keeping current access roads to public lands open and maintained will assist the fire management program suppression efforts.

Identified prescribed fire areas and parameters, including yearly treatment of juniper stands will break up **fuel** concentrations and provide fire breaks that could be used for control lines in future suppression efforts. Designing site-specific slash treatments, with fire management input, for all thinning and timber sale contracts will ensure that concerns for fire management are addressed.

Consolidating land ownership patterns in Silvies **Valley** would greatly improve fire protection responsibilities both logistically and tactically in that area.

Changes to fire suppression class acreages are displayed in Table 4.23.

The significance to the fire management program from additional restrictions and increased recreation use should be minimal.

Areas of increased fine fuel loading will play a much more significant role in years with normal or above dry lightning storm activity.

Overall, because of more clearly defined objectives, this alternative will assist the fire management program as a whole.

Alternatives B, D and E

Additional restrictions for access through riparian areas and restricted access around cultural areas could conflict, at times, with fire suppression efforts

Slash accumulations of 10 to 12 tons from commercial timber harvest or thinning operations may pose a major fire management problem if such fuels are layered in depth or contain large amounts of red needles that provide a ladder affect to other fuels.

The increased accessibility into recreation areas will increase visitor use days and in turn increase the potential for human-caused fire.

Keeping current access roads to public lands will support fire management and suppression efforts. Identified prescribed fire parameters and the yearly treatments of juniper stands will break up some fuel concentrations and provide future fire breaks.

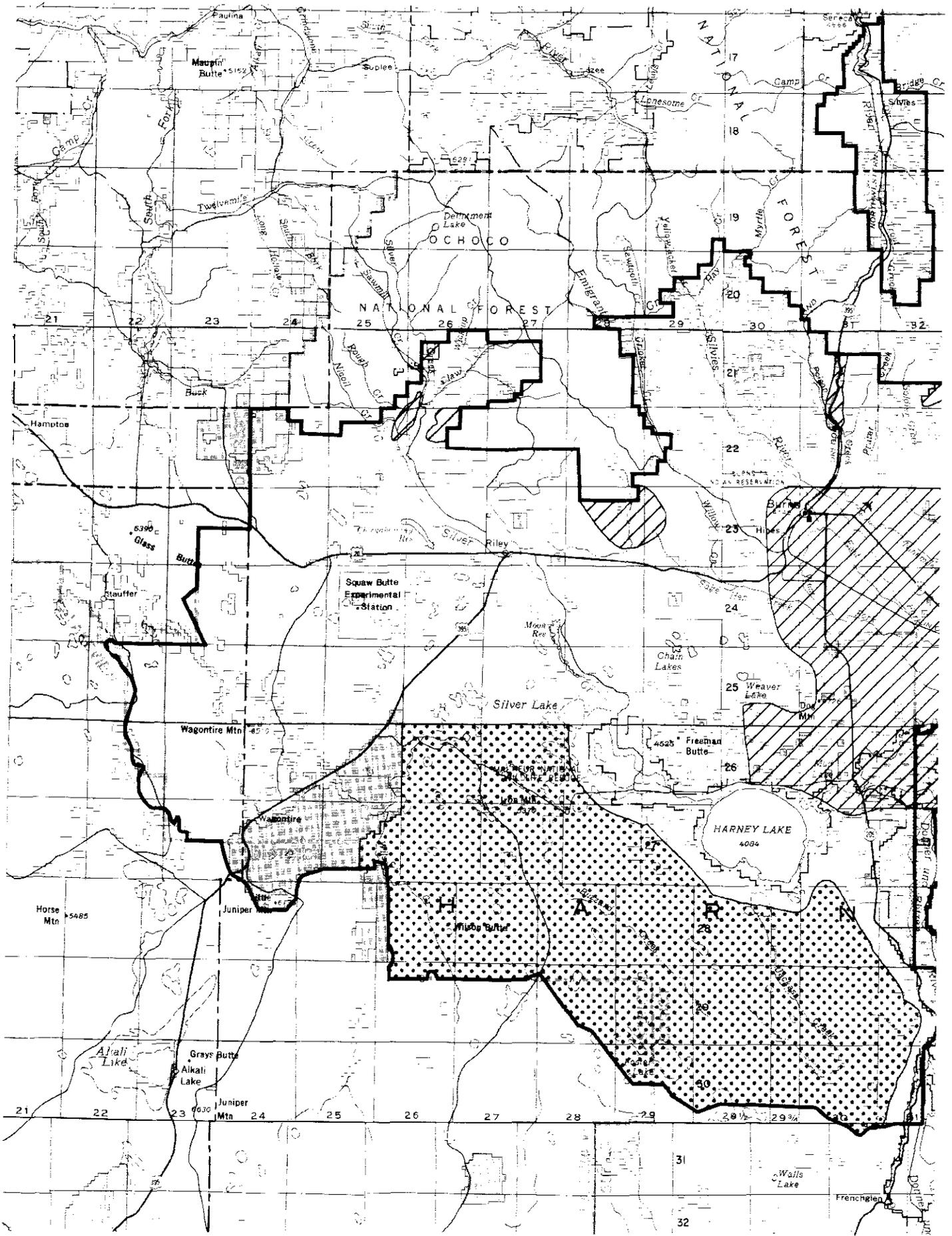
Changes in fire suppression class acreages are shown in Table 4.23.

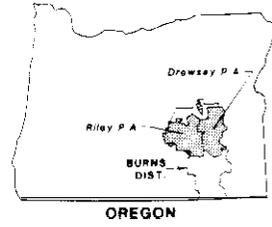
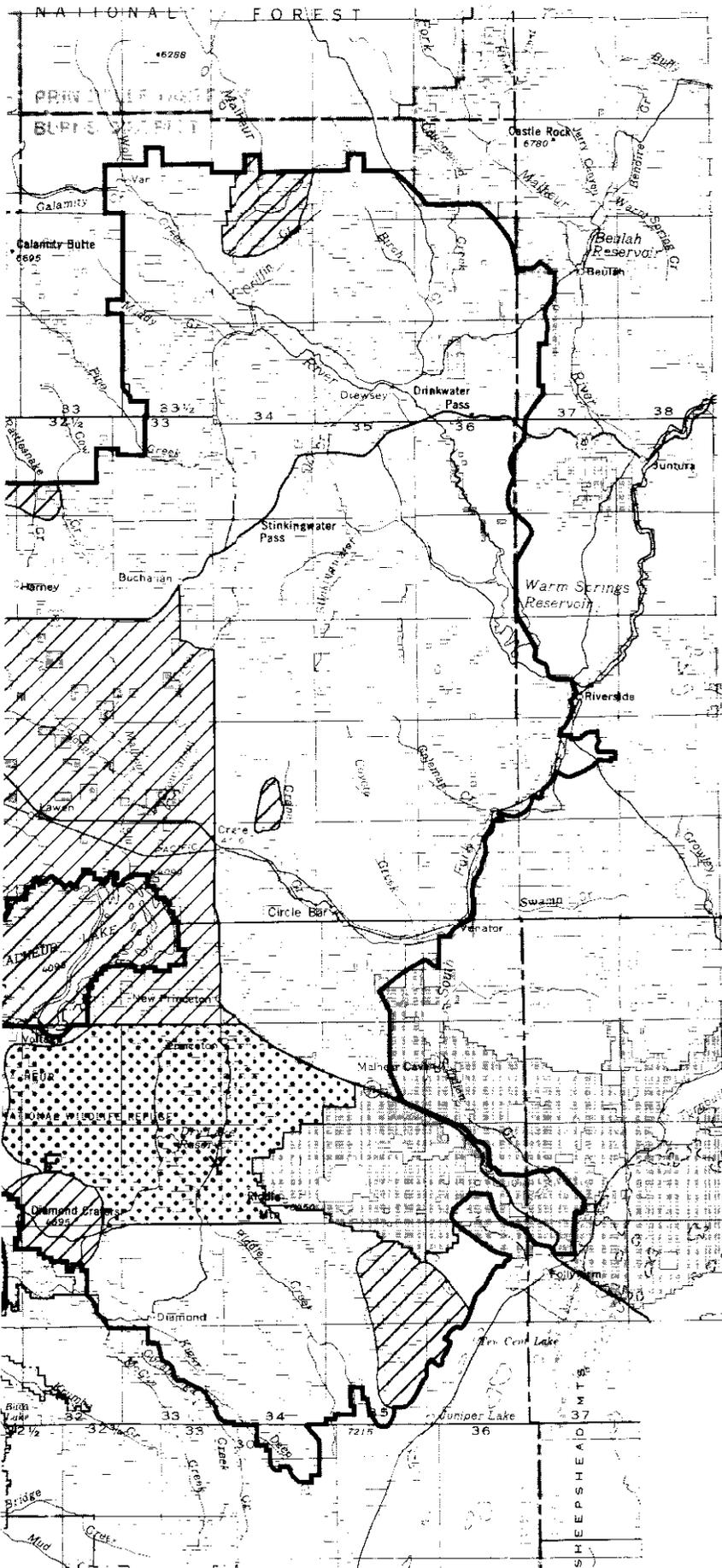
The overall significance to the fire management program from additional restrictions would be low. However, the increased fuel loading could have a high significance if ignitions occur in those areas.

Recreation

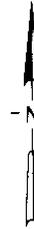
Alternative A

Actions to improve and enhance soil, air and water quality, wildlife and aquatic habitat would produce a positive effect on nonmotorized recreation resource uses and aesthetic values. Such actions include removing livestock from streams and certain reser-





-  Full suppression Only
-  Conditional Fire Use
-  Full Suppression & Prescribed Burning



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 FIRE MANAGEMENT
 ZONES**

voirs; prohibiting timber harvest in perennial streams and intermittent drainages; protecting deer, elk and antelope ranges; fire suppression; reducing livestock grazing; installing guzzlers, retention and enhancement of wetlands and raptor habitat; and, not allowing new road construction and closing existing roads in specific areas, and not allowing new road construction.

Actions such as closing existing roads in certain areas, not allowing new road construction, designating special areas and closing them to ORV use,

closing of big game winter range to motorized vehicle travel and establishing maximum levels for collecting obsidian would have a negative effect on ORV use and other recreation utilizing motorized vehicles for access.

While this alternative would provide maximum protection to natural aesthetic values and enhance nonmotorized and nonconsumptive recreation uses, the overall changes, as compared to current conditions, are not considered to be significant. The changes shown in limited ORV use and restricted camping are

Table 4.23. Fire Suppression Class Acres

	Alternative D	Alternatives A, B, C and E
Full Suppression, No Prescribed Fire	0	67,724
Conditional Suppression	0	462,080
Full Suppression, With Prescribed Fire	1,709,918	1,180,114
Total	1,709,918	1,709,918

Table 4.24. Impacts to Recreation, Alternative A

	Baseline (acres)	Proposed Level (acres)	Total Change (acres)
1. SRMAs	16,656	17,176	+520
2. ORV Use			
a. Closed	10,090	10,090	0
b. Limited	100,064	788,434	+688,370
c. Open	1,599,764	911,704	-688,060
3. Rockhounding			
a. Prohibited	16,816	17,296	+480
b. Restricted	0	13,900	+13,900
c. Open	1,693,102	1,678,722	-14,380
4. Camping			
a. Prohibited	0	0	0
b. Restricted	18,846	707,178	+707,176
c. Open	1,691,072	1,002,742	-707,176

linked to proposed management of big game ranges. ORV use and camping are restricted naturally by weather conditions during the winter season.

Alternative B

Actions to enhance and protect soils, water and air quality and wildlife and aquatic habitat would create a positive effect on nonmotorized recreation uses and aesthetic values. Examples of such actions include removal of livestock from specific reaches of streams, **implementing** grazing systems in aquatic habitat, **reducing** livestock on overstocked areas, closing open ORV areas susceptible to damage, and prohibiting **timber harvest** in riparian areas.

Actions reducing vehicular access by closing some existing roads, closing specific areas now open to ORV use, managing scenic values for optimum protection, imposing maximum levels for collecting obsidian and withdrawing specific areas from mining laws would have a negative **effect** on ORV use, rockhounding, camping and other recreation utilizing motorized vehicles for access.

This **alternative** would provide more protection to natural aesthetic values and enhance nonmotorized and nonconsumptive uses than the current situation. A **change** in intensive ORV use can be expected because of a permanent closure of 4,000 acres in the **Gouldin** Allotment. However, the overall changes to this **recreation** activity as well as the restrictions to

camping are not considered to be significant.

Alternative C

Actions to reach a balance between commodity production and enhancement of natural values would provide a positive effect on both motorized recreation activities and nonmotorized activities and aesthetics. Positive actions for motorized recreation uses are keeping areas open to **ORVs**, except where unacceptable resource impacts would result, and developing usable intensive ORV areas and cross-country routes. Positive actions for nonmotorized recreation activities and aesthetics include removal of livestock for various time periods from certain reaches of stream with implementation of grazing systems in aquatic habitat, closing and rehabilitating unauthorized mineral material sites; protection of deer, elk and antelope ranges; pursuing land exchanges to enhance wetlands; and, designation/protection of special management areas.

Actions such as closing or limiting ORV use in special areas, closing and rehabilitating roads not needed for administration and fire protection, and protecting specific wildlife habitats have a negative effect on ORV use and motorized recreation activities. Natural values and aesthetics are negatively impacted by implementing brush control and seedings to increase livestock forage, providing access for commodity values, continuing intensive ORV use near population centers and timber harvesting on small, scattered

Table 4.25. Impacts to Recreation, Alternative B

	Baseline (acres)	Proposed Level (acres)	Total Change (acres)
1. SRMAs	16,656	17,176	+520
2. ORV Use			
a. Closed	10,090	14,090	+4,000
b. Limited	100,064	124,834	+24,770
c. Open	1,599,764	1,570,994	-28,770
3. Rockhounding			
a. Prohibited	16,816	17,296	+480
b. Restricted	0	13,900	+13,900
c. Open	1,693,102	1,678,722	-14,380
4. Camping			
a. Prohibited	0	0	0
b. Restricted	18,846	43,976	+25,130
c. Open	1,691,072	1,665,942	-25,130

Table 4.26. Impacts to Recreation, Alternative C

	Baseline (acres)	Proposed Level (acres)	Total Change (acres)
1. SRMAs	16,656	17,176	+520
2. ORV Use			
a. Closed	10,090	10,090	0
b. Limited	100,064	143,003	+42,939
c. Open	1599,764	1,556,825	-42,939
3. Rockhounding			
a. Prohibited	16,816	17,296	+480
b. Restricted	0	0	0
c. Open	1,693,102	1,692,622	-480
4. Camping			
a. Prohibited	0	0	0
b. Restricted	18,846	25,126	+6,280
c. Open	1,691,072	1,684,792	-6,280

This alternative would provide protection to natural aesthetic values and enhance nonmotorized and non-consumptive uses, while also accommodating ORV and motorized recreation use. The overall changes are not considered to be significant.

Alternative D

Actions under this alternative which would provide a positive effect on recreation include allowing the majority of the planning unit to remain open to ORV use, continued use and maintenance of existing roads, improving access through mineral leasing, mining and timber harvest. Development of large seedings would eliminate brush and provide additional vehicle access. Natural values would also be enhanced by maintaining special designated areas, maintaining existing enclosures on streams and reservoirs, regulating timber harvest with modifications, implementing streambank stabilization and closing specific areas to ORV use.

Actions such as closing and rehabilitating roads not needed for administration and fire protection, closing large areas of big game winter range to ORV use on an as-needed basis and acquiring public access only as the need arises have a negative effect on ORV use and motorized recreation activities. Natural values are

negatively impacted by continuing some current livestock practices, such as using land treatments and seedings to increase forage, and continuing present management of riparian areas. Natural values are also impacted by construction of new roads, continued ORV use near the population center, timber harvesting on small, scattered stands and mineral development.

By projecting existing trends in management of resource values, the overall change to recreation use is not considered to be significant.

Alternative E

Actions to improve and enhance timber harvesting, mineral leasing, mining and livestock grazing would maximize ORV use and other recreation activities utilizing motorized vehicles for access. Such activities as rockhounding, camping, hunting, fishing and sightseeing would be enhanced, but only to the point where basic resource (i.e., fish numbers, game and waterfowl populations, scenic values) are not reduced or negatively impacted. Actions to construct new roads, maintain present roads or remove vegetation all contribute to opening areas to vehicle access.

Table 4.27. Impacts to Recreation, Alternative E

	Baseline (acres)	Proposed Level (acres)	Total Change (acres)
1. SRMAs	16,656	16,696	+40
2. ORV Use			
a. Closed	10,090	10,090	0
b. Limited	100,064	115,444	+15,380
c. Open	1,599,764	1,584,384	-15,380
3. Rockhounding			
a. Prohibited	16,656	16,656	0
b. Restricted	0	13,900	+13,900
c. Open	1,693,102	1,679,202	-13,900
4. Camping			
a. Prohibited	0	0	0
b. Restricted	18,846	34,666	+15,820
c. Open	1,691,072	1,675,252	-15,820

Actions which produce a positive effect for vehicle uses can produce a negative effect for nonmotorized recreation activities and aesthetic values. Actions providing access for commodity values, seedings, brush removal, water developments to make forage available for livestock and selling lands with commodity values (timber, minerals and livestock forage) would have a negative effect on nonmotorized recreation values.

This alternative would provide the least protection to natural aesthetic values and nonmotorized uses while providing maximum use of motorized vehicles. Changes in limited ORV use and restricted camping are linked to proposed management of the Biscuitroot and Obsidian ACECs. However, the overall changes as compared to current conditions are not considered to be significant.

Wild and Scenic River Designation

Alternatives A and C

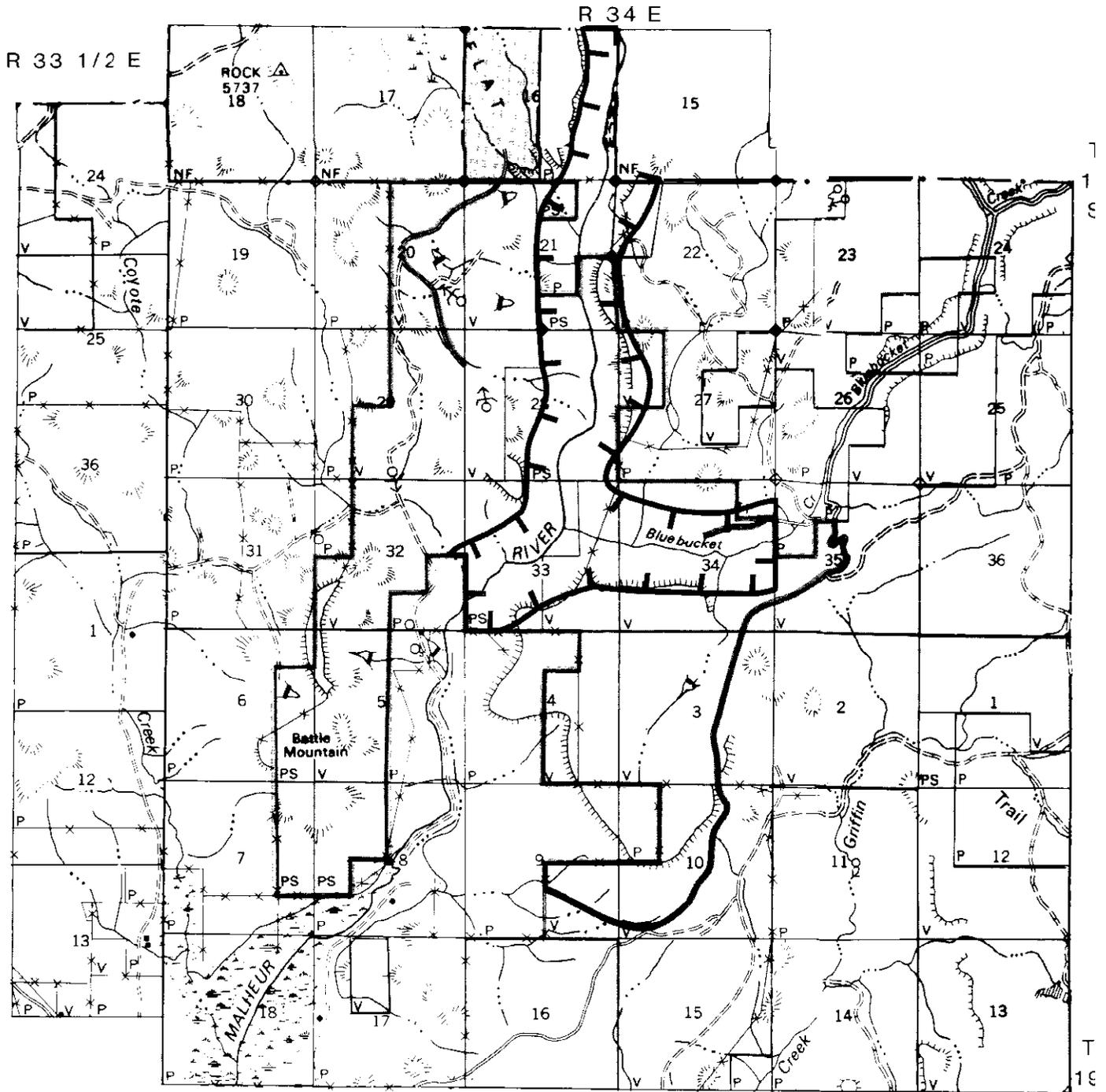
Actions to designate approximately 1,730 acres (1,275 BLM, 355 private, 100 FS) associated with 5.4 miles of the Middle Fork Matheur River and Bluebucket Creek as Wild (classification) and actions in

other programs to enhance and protect water quality and fisheries would create a positive effect on Wild River reaches. Examples of such other actions are removing livestock from designated streams, prohibiting timber harvest in perennial streams, closing and rehabilitating roads in perennial stream drainages and not allowing new road construction in areas influencing in perennial stream drainages. An established VRM Class I area within a WSA would continue to have a positive effect if classified Wild by Congress.

The contiguous 13.7 miles of river reach within the Malheur National Forest has been designated as Wild in the Omnibus Oregon Wild and Scenic Rivers Act of 1988. The proposed 5.4 miles of river (including a portion of Bluebucket Creek) below the forest boundary will also be designated Wild and the total 19.1 miles would be cooperatively managed by both agencies.

Full (unmodified) fire suppression would be limited to prevent negative effects by allowing no permanent human-caused changes (i.e., mechanized tracks, trails, fire lines, cut timber) to become evident.

If classified Wild by Congress, an automatic mineral withdrawal would foreclose future mining claims and development on 1,730 acres. The area would be designated as Category 4, No Leasing, for leasable minerals.



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MAP WSR-2
MALHEUR RIVER AND BLUEBUCKET CREEK

LEGEND

Wilderness Study Area



Proposed Wild or Scenic River Area



Approximately 22 acres of commercial forest would be removed from the available base acreage which would reduce the potential harvest by approximately 1.5 MBF per year.

Linear rights-of-way would be excluded.

The overall changes as compared to current conditions, are not considered to be significant. In comparison with the de facto protection of the wild and scenic character of the Middle Fork Malheur River and Bluebucket Creek currently provided under Wilderness (Interim Management Policy) IMP, designation as a Wild and Scenic or a Scenic River would not provide a significant managerial change.

Alternative B

Designation of 1,730 acres associated with 5.4 miles of the Middle Fork Malheur River and Bluebucket Creek as a Scenic (classification) River in conjunction with actions in other programs to enhance and protect water quality and fisheries would create a positive effect on Scenic River reaches. Examples of such actions having positive effects on the identified river reaches are implementing grazing systems on streams with aquatic habitat, retaining vegetation in a strip along each side of perennial streams, excluding livestock grazing from riparian areas in fair to poor condition, implementing fish habitat enhancement projects and reestablishing the area as VRM Class II. (The area is currently in a VRM Class I within a WSA which this plan will not address until Wilderness designations are established.)

Negative effects would be the same as Alternative A, except mineral development would require a plan of operation and mineral leasing would have special stipulations or no leasing designations.

Actions to construct roads in drainages containing perennial streams, allowing timber harvest with mitigating measures and fire suppression could increase management costs to avoid negative effects of human-caused changes to scenic values.

The overall changes, as compared to current conditions, are not considered to be significant. In comparison with the de facto protection of the wild and scenic character of the Middle Fork Malheur River and Bluebucket Creek currently provided under Wilderness IMP, designation as a Wild and Scenic or a Scenic River would not provide a significant managerial change.

Alternative D

This alternative portrays the present situation where no Wild or Scenic River designations are in effect (or would be recommended, regardless of eligibility and suitability). Approximately 1,250 acres of the 1,730 acres of the river corridor are located within the Malheur River-Bluebucket Creek WSA which is managed under Wilderness IMP.

Lands under wilderness review shall be managed to avoid impairment of the suitability of study areas for preservation as wilderness. The interim protective management for eligible Wild and Scenic Rivers is similar to the Wilderness IMP in that river components shall be administered in such a manner as to protect and enhance the values which caused them to be included in the system. Under IMP or primitive recreation management, no timber harvest, surface occupancy, rights-of-ways, ORV use or livestock improvements are allowed. Conditional fire suppression is also in effect. The BLM-administered lands within the corridor are also within a VRM Class I area established by previous planning decisions which also established an area administered (but not designated) for primitive values. The reach of the Middle Fork of the Malheur River and Bluebucket Creek considered for Wild and Scenic designation is within the 2,080-acre administered primitive management area. The primitive management area is within the boundaries of the WSA. Approximately 1.27 river miles and 495 acres (355 private, 40 BLM, 100 FS) are not in the WSA and not under IMP.

Under this alternative, there would be no positive or negative effects in comparison with the existing situation.

Alternative E

Under this alternative, no wild or scenic designations would be pursued. The corridor would be open to timber harvest, rights-of-ways, fisheries and livestock developments and other uses.

Changes to the reach of river could occur if the Malheur River-Bluebucket Creek WSA is not designated wilderness and the river is managed for commodity production (livestock, timber, mining).

Table 4.28. Impacts from Wild and Scenic River Designation by Alternative (acres)

Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
+1,730	+1,730	+1,730	0	0
(Recommended as Wild)	(Recommended as Scenic)	(Recommended as Wild)	(Current Management)	(Not Recommended)

Areas of Critical Environmental Concern (ACECs)

Alternatives A, B and C

For a comprehensive summary of the management and use constraints of ACEC designations under each alternative, see Appendix 7, Table 1.

No significant negative impacts to designated ACECs would be expected. Acreages would be slightly less in designations under Alternative C, yet a large increase over current management is proposed. **Nondesignated** acreages and areas would be managed in the same manner as adjacent public lands. A beneficial effect of designation would be the requirement for a Plan of Operations for any locatable mineral development scenarios, although this benefit is not particularly significant as mines have been successfully developed within ACECs with Plans of Operation. An additional benefit would be the augmentation of the Oregon Natural Heritage Plan.

No significant positive impacts would occur to currently designated ACECs. There would be no change from present management for established ACECs,

while those proposed under these alternatives will be moderately enhanced as compared to present management.

Alternatives D and E

No significant negative impacts to previously designated ACECs would be expected. No additional ACEC designations would be made under these alternatives.

Visual Resources

Alternative A

Actions which would maintain or enhance the landscape character are those which promote protection of natural features, elimination and rehabilitation of certain human developments and disallowance of new developments. Such actions include removal of livestock from streams and certain reservoirs; prohibiting timber harvest in perennial streams and intermittent drainages; reduced livestock grazing; controlled burns; retention, addition and enhancement of wetlands; streambank stabilization; and, not allowing new road construction and closing of existing roads in specific areas.

Table 4.29. Impacts to **Visual** Resource Management Categories, Alternative A

	Existing Classifications (acres)	Proposed Classifications (acres)	Total Change (acres)
1. Class I	8,610	8,580	-30
2. Class II	120,621	131,131	+10,510
3. Class III	425,600	419,550	-6,050
4. Class IV	1,155,087	1,150,657	-4,430

Actions **having** a negative effect on the visual resource include construction of new roads, timber cutting, developing large seedings, ORV use and developing water, recreation, mining projects and energy transmission corridor projects.

The overall changes, as compared to current conditions, are no: considered to be significant.

Alternative B

Actions **to** maintain or enhance the landscape character are usually tied to actions to enhance natural values (i.e., wildlife, fisheries, cultural, recreation). Examples of such actions are streambank stabilization, removal of livestock grazing from certain reaches of streams, closing open ORV areas susceptible to damage, retaining vegetative strips and buffers along **streams** and around meadows, withdrawing specific areas from mineral laws and designation of special areas.

Actions having a negative effect include developing ORV intensive use areas, allowing roads in riparian areas, developing commercial use of rockhounding areas, **energy** transmission projects in corridors, timber harvesting mineral production and developments to enhance livestock grazing.

The overall changes, as compared to current conditions, are not considered to be significant.

Alternative C

Actions having a positive effect on the visual character are those which enhance water quality, protect riparian areas and wildlife habitat and maintain the natural qualities of the landscape. Examples of such actions are removing livestock for various time periods from certain streams with implementation of grazing systems after such times, maintaining existing **enclosures** on certain streams and reservoirs, restricting vegetative conversion and prescribed fire treatment within 1 mile of perennial streams, designating special management areas, closing and rehabilitating unauthorized material sites and closing and rehabilitating roads not needed for administration and fire protection purposes.

Actions having a negative effect include developing ORV intensive use areas, developing land treatments and seedings to produce additional livestock forage, new road construction, energy transmission projects in corridors, timber **harvesting** and mineral production.

Table 4.30. Impacts to Visual Resource Management Categories, Alternative B

	Existing Classifications (acres)	Proposed Classification (acres)	Total Change (acres)
1. Class I	6,610	8,580	-30
2. Class II	120,621	131,131	+10,510
3. Class III	425,600	419,550	-6,050
4. Class IV	1,155,087	1,150,657	-4,430

Table 4.31. Impacts to Visual Resource Management Categories, Alternative C

	Existing Classifications (acres)	Proposed Classification (acres)	Total Change (acres)
1. Class I	8,610	8,580	-30
2. Class II	120,621	126,581	+5,960
3. Class III	425,600	421,770	-3,830
4. Class IV	1,155,087	1,152,987	-2,100

The overall changes, as compared to current conditions, are not considered to be significant.

Alternative D

Actions having a positive effect on the visual character are those that enhance water quality, protect the riparian areas and maintain the natural qualities of the landscape. Examples of such actions are maintaining existing enclosures on streams and reservoirs, timber harvest on commercial lands with modifications, fencing overflow areas at spring developments, retaining existing special designation areas and closing and rehabilitating roads not needed for administration and fire protection in perennial stream drainages.

Actions having a negative effect include developing ORV intensive use areas, developing commercial use of rockhounding areas, continuing current livestock grazing practices, developing land treatments and seedings to produce additional livestock forage, continuing existing grazing systems on certain reaches of streams and allowing roads to be built in riparian zones.

Alternative E

Actions to enhance wildlife and aquatic habitat and to protect special features would also affect the visual character of the landscape in a positive manner. Such actions include the implementation of corridor fencing on streams, closing and rehabilitating roads not needed for administration and fire protection in drainages containing perennial waters and restricting controlled burns to 400 acres or less in big game winter ranges.

Actions having a negative effect on visual resources include potential new road construction, extraction of timber and minerals, livestock grazing, selling of land with commodity values, energy transmission projects and land treatments including water developments to enhance the use of livestock forage.

The overall changes, as compared to current conditions, are not considered to be significant.

Cultural Resources

Alternative A

Positive effects would be appreciable from actions taken to actively manage cultural sites (Table 4.33), enhance natural values associated with water quality, forestry, livestock, riparian habitat, fish habitat, energy and minerals, and lands and realty. Most significant are the riparian-related actions provided by these programs, together with the minerals withdrawals and lands acquisitions promoted in this alternative. Less pronounced yet still positive effects will be from actions taken for water quality, livestock, wetlands, fisheries, recreation and lands. These results are associated with actions that generally affect areas considered sensitive for cultural resources, but where no specific values are identified as yet.

Negative impacts would result from actions proposed under the recreation, minerals and lands programs, but these tend to be less significant. They primarily affect areas with some cultural resource potential, and are associated with increasing public use of localities that probably have moderate to high cultural values which are not clearly documented due to the nature of the action or gaps in the cultural data base.

The overall effect over the duration of the plan would be generally positive, with the result being a lessening or minimizing of apparent down trends to cultural sites, primarily those lithic scatters, occupation sites and historic trash dumps that occur in riparian zones. These site types at such locations would be enhanced by approximately 30 to 50 percent.

Table 4.32. Impacts to Visual Resource Management Categories, Alternative E

	Existing Classifications (acres)	Proposed Classification (acres)	Total Change (acres)
1. Class I	8,610	8,580	-30
2. Class II	120,621	122,061	+1,440
3. Class III	425,600	424,190	-1,410
4. Class IV	1,155,087	0	0

Alternative B

Positive effects would be appreciable from actions taken to actively manage cultural sites (Table 4.33) protect natural values associated with water quality. Also important, but more moderate, are measures provided for water quality, energy and minerals and lands and realty programs. Most significant are the riparian-associated actions which would protect, stabilize and retain streams zones in public domain, where important cultural values are known and expected. Other significant measures are those which limit consumptive land-uses, minimize surface disturbance, and limit the extent of land treatments. Examples are actions taken for water quality, wild horses, wildlife habitat, wetlands, riparian habitat, aquatic habitat and recreation. These are positive, yet less significant since they tend to be broad scale and primarily affect potential cultural values rather than known values.

Negative effects are not appreciable, but would result from actions taken on behalf of water quality, livestock grazing, wild horses, aquatic habitat, recreation and lands and minerals. These actions result in increasing access in lesser used areas and providing for surface-disturbing land treatments. The impacts of such actions on cultural resources would be expected to be of a general negative nature. However, due to the nature of these actions and gaps in the cultural data base, a detailed description of impacts at this time is not possible.

The overall effect over the duration of the plan would be somewhat positive. There would be some reduction in apparent down trends to known and suspected cultural resource values, primarily those associated with riparian zones. This is partially offset by a slight increase in use pressure at recreationally used water zones, where cultural values may be subject to greater vandalism.

Alternative C

Positive effects are limited and will come from program actions related to active management of cultural sites (Table 4.33), water quality, forestry, livestock grazing, special status species, riparian habitat, aquatic habitat, recreation and lands and realty. These actions will directly and indirectly benefit cultural resources by reducing access, stabilizing and avoiding disturbance in riparian zones, increasing riparian acreages managed and protecting values in Native American traditional use areas. These benefits are limited, since they are of low to moderate benefit to known cultural values, or are not locality-specific and may benefit potential cultural values rather than known significant values.

Negative effects are limited and would come from program actions related to water quality, livestock grazing, wild horses and burros, aquatic habitat, recreation and lands and realty. These actions will directly and indirectly impact cultural resource values by improving access and other resource use pressure in less disturbed zones and by goals for land treatments. These impacts are considered to be of limited extent as they either slightly affect areas with known moderate cultural resource values or are not locality specific and may affect potential cultural values rather than known significant values.

The great majority of the proposed actions would have no apparent effect upon cultural resources due to the nature of the action or the lack of cultural resource data from which to make an assessment at this time. The overall effect of this alternative would be slightly positive. Down trends are abated in areas suspected or known to have moderate to high cultural values, while projected impacts may occur in areas with potential cultural values.

Alternative D

Positive effects are limited and would come from program actions related to active management of cultural sites (Table 4.33), water quality, livestock grazing, wetlands, riparian habitat, aquatic habitat and recreation. Such actions include timber sale buffers, stream stabilization, access limitations, riparian protection and spring enclosures. These effects are limited since they generally are not locality-specific and involve potential cultural resource values rather than known significant values.

Negative effects are limited and would come from program actions related to water quality, livestock grazing, aquatic habitat, recreation, energy and minerals, and lands and realty. Such actions include continued livestock use of riparian zones, increased grazing pressure in less utilized areas, land treatments, access improvements, ORV management, salable minerals use, land tenure actions and utility corridors. These impacts are limited since they generally are not locality-specific and primarily involve potential cultural resource values rather than known significant values.

The overall effect of current management is generally neutral. Down trends are abated in certain locations and continue to worsen in others. Stabilization of cultural resources does occur, but not to a significant degree. In general, riparian areas will maintain the condition of cultural resources that may be present, while most other areas will gradually worsen.

Alternative E

Positive effects to **cultural** resources under this **alternative** would be minimal. Some program actions for active management of cultural sites (Table 4.33) water quality, livestock, grazing, special status species, wetland, riparian **habitat**, aquatic habitat and fire would be marginally beneficial. These actions involve retention of riparian areas in public ownership, protection of riparian zones and selective fire suppression actions.

Negative effects to **cultural** resources under this alternative would be appreciable from certain recreation program actions associated with **ORV** management which would allow broad scale ORV use with few constraints and thus affect the full array of cultural resource values. Limited to moderate negative effects would result from program actions associated with water quality, forestry, livestock grazing, wild horses, special status species, riparian habitat, aquatic habitat, fire, recreation, energy and minerals and lands and realty. Such actions involve improving access to lesser **used** areas, land treatments in areas with known or potential cultural values, increased recreational opportunities and other focused consumptive activities. Most of these actions affect potential or known cultural values of lesser significance.

The overall effect over the plan duration would be somewhat negative (Table 4.33). Apparent down trends in cultural resource values would either continue unabated or become worse. Down trends would not be limited to riparian zones, as is currently the

case. A broader category of site types and potential site environments would be subject to some disturbance. The negative trend would be partially offset by limited protection efforts.

Energy and Minerals

Fluid Energy Minerals

Alternative A

Under this alternative, there would be a minor negative impact to the opportunity for the development of fluid energy minerals. This would result from an increase in the amount of acreage in Category 2 and Category 3 over present leasing stipulations. **Additionally**, only 9 percent of the public land acres identified as having moderate potential for the occurrence of oil and gas would be available under the least restrictive leasing category (Category 1). An additional negative impact to the potential for development of fluid energy minerals under this alternative would be the limitations on the placement of roads in order to meet water quality requirements. This should not affect geophysical exploration, but could limit potential development and production. Tables 4.34 and 4.35 present summaries of the acreages under each leasing category for oil and gas and for geothermal resources, respectively.

A more detailed presentation of the resource values and leasing restrictions can be found in Appendix 9, Tables 3 and 4.

Table 4.33. Cultural Sites with Active Management by Alternative

Site Type	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Lithic Scatter	371	51	51	51	6
Occupation/Camp	86	77	77	77	26
Quarry	37	29	29	29	6
Rock Shelter	31	27	27	27	2
Rock Art	19	16	18	18	0
Trash Dump	11	2	2	2	0
Structure	6	4	4	4	0
Other	11	6	6	6	2
Total	572	214	214	214	44

Table 4.34. Impacts to Oil and Gas Leasing Categories, Alternative A

Lease category	LOW (Acres)	Moderate (Acres)	High (Acres)	Unknown (Acres)	Total (Acres)	Current (Acres)	Change (Acres)
category	1,118,219	20,850	0	0	1,134,069	1,328,111	-189,042
category2	776,322	114,266	0	0	890,588	787,517	103,071
Category 3	183,766	280	0	0	184,046	98,075	85,971
category4	18,483	94,848	0	0	113,331	113,331	0
Total	2,096,790	230,244	0	0	2,327,034	2,327,034	0

Table 4.35. Impacts to Geothermal Leasing Categories, Alternative A

Lease Category	Low (Acres)	Moderate (Acres)	High (Acres)	Unknown (Acres)	Total (Acres)	Current (Acres)	Change (Acres)
category 1	1,038,612	129,965	0	0	1,165,577	1,328,111	-162,534
Category2	461,711	402,369	0	0	664,080	787,517	76,563
category3	29,081	154,965	0	0	164,046	98,075	85,971
category4	5,560	107,771	0	0	113,331	113,331	0
Total	1,534,964	792,070	0	0	2,327,034	2,327,034	0

Due to the low current and anticipated levels of fluid energy mineral activity in the RA for the foreseeable future, these impacts are considered to be of low significance.

Alternatives B and C

Under these alternatives, there would be a minor positive impact to the opportunity for the development of fluid energy minerals. This would result from a modest decrease in the acreage currently subject to Category 2 stipulations and an increase in the acreage available for leasing under Category 1. There would be a slight (1 percent of total) increase in acreage subject to Category 3. An additional negative impact to the potential for development of fluid energy minerals under this alternative would be the limitations on the placement of roads in order to meet water quality requirements. This should not affect geophysical exploration, but could limit potential development and production. Tables 4.36 and 4.37 for Alternative B and Tables 4.38 and 4.39 for Alternative C present summaries of the acreages under each leasing category. A more detailed presentation of the resource values being protected and leasing restrictions can be found in Appendix 9, Tables 5 and 6 (Alternative B) and 7 and 8 (Alternative C).

Due to the low current and anticipated level of fluid energy mineral activity in the RA for the foreseeable future, these impacts are considered to be of low significance.

Alternative D

Under this alternative, there would be no impact on the current opportunity for the development of fluid energy minerals. When the existing lease stipulations were developed, they were not broken out on the basis of the potential for occurrence of the resource. Therefore, only RA totals are presented in Table 4.40. A more detailed presentation of the resource values being protected and leasing restrictions can be found in Appendix 9, Table 1.

Alternative E

Under this alternative, there would be a moderate positive impact to the opportunity for the development of fluid energy minerals. This would result from a 69 percent increase in the amount of acreage in Category 1, with a commensurate decrease in the amount of acreage subject to both Category 2 and 3 restrictions. Tables 4.41 and 4.42 present summaries of the

Table 4.36. Impacts to Oil and Gas Leasing Categories, Alternative B

Lease Category	LOW (Acres)	Moderate (Acres)	High (Acres)	Unknown (Acres)	Total (Acres)	Current (Acres)	Change (Acres)
Category 1	1,390,575	63,456	0	0	1,442,231	1,328,111	114,120
category2	126,457	280	0	0	126,737	787,517	-142,782
Category 3			0	0		98,075	
Category 4	18,483	94,846	0	0	113,331	113,331	28,662
Total	2,096,790	220,244	0	0	2,327,034	2,327,034	0

Table 4.37. Impacts to Geothermal Leasing Categories, Alternative B

Lease Category	Low (Acres)	Moderate (Acres)	High (Acres)	Unknown (Acres)	Total (Acres)	Current (Acres)	Change (Acres)
Category 1	1,138,111	262,061	0	0	1,400,172	1,328,111	72,061
category2	370,771	316,023	0	0	686,794	787,517	-100,723
category3	20,522	106,215	0	0	126,737	98,075	28,662
category4	5,560	107,771	0	0	113,331	113,331	0
Total	1,534,964	792,070	0	0	2,327,034	2,327,034	0

Table 4.38. Impacts to Oil and Gas Leasing Categories, Alternative C

Lease Category	LOW (Acres)	Moderate (Acres)	High (Acres)	Unknown (Acres)	Total (Acres)	Current (Acres)	Change (Acres)
category 1	1,431,481	67,548	0	0	1,499,029	1,328,111	170,918
Category2	535,419	67,568	0	0	602,987	787,517	-184,530
category3	111,407	280	0	0	111,687	98,075	13,612
category4	18,483	94,848	0	0	113,331	113,331	0
Total	2,096,790	230,244	0	0	2,327,034	2,327,034	0

Table 4.39. Impacts to Geothermal Leasing Categories, Alternative C, (Acres)

Lease category	LOW (Acres)	Moderate (Acres)	High (Acres)	Unknown (Acres)	Total (Acres)	Current (Acres)	Change (Acres)
Category 1	1,178,861	331,433	0	0	1,510,294	1,328,111	182,183
category 2	336,771	254,951	0	0	591,722	787,517	-195,795
category3	13,772	97,915	0	0	111,667	98,075	13,612
category4	5,560	107,771	0	0	113,331	113,331	0
Total	1,534,964	792,070	0	0	2,327,034	2,327,034	0

Table 0.40. Impacts to Oil, Gas and Geothermal Leasing Categories, Alternative D

Lease Category	Total Acres
Category 1	1,328,111
Category 2	787,517
Category 3	98,075
Category 4	113,331
Total	2,327,034

acres under each leasing category. A more detailed presentation of the resource values being protected can be found in Appendix 9, Tables 9 and 10.

Due to the low current and anticipated levels of fluid energy mineral activity in the RA for the foreseeable future, these impacts are considered to be of low significance.

Locatable and Solid Leasable Minerals

Alternatives A and B

Under Alternatives A and B, an additional 14,620 and 12,990 acres, respectively, would be withdrawn from the operation of mining laws, primarily for the protection of sensitive resources in ACECs and Wild River designation (Alternative A only). Of these amounts, 160 acres in the South Narrows ACEC and 640 acres in the Squaw Butte Experiment Station block are in an area identified as having high potential for the occurrence of locatable/solid leasable minerals (zeolite/potassium feldspar and mercury/uranium, respectively). All other withdrawals fall within areas classified as having low potential for the occurrence of locatable minerals (refer to Map M-3). Existing zeolite claims in the South Narrows ACEC would be unaffected by the withdrawal.

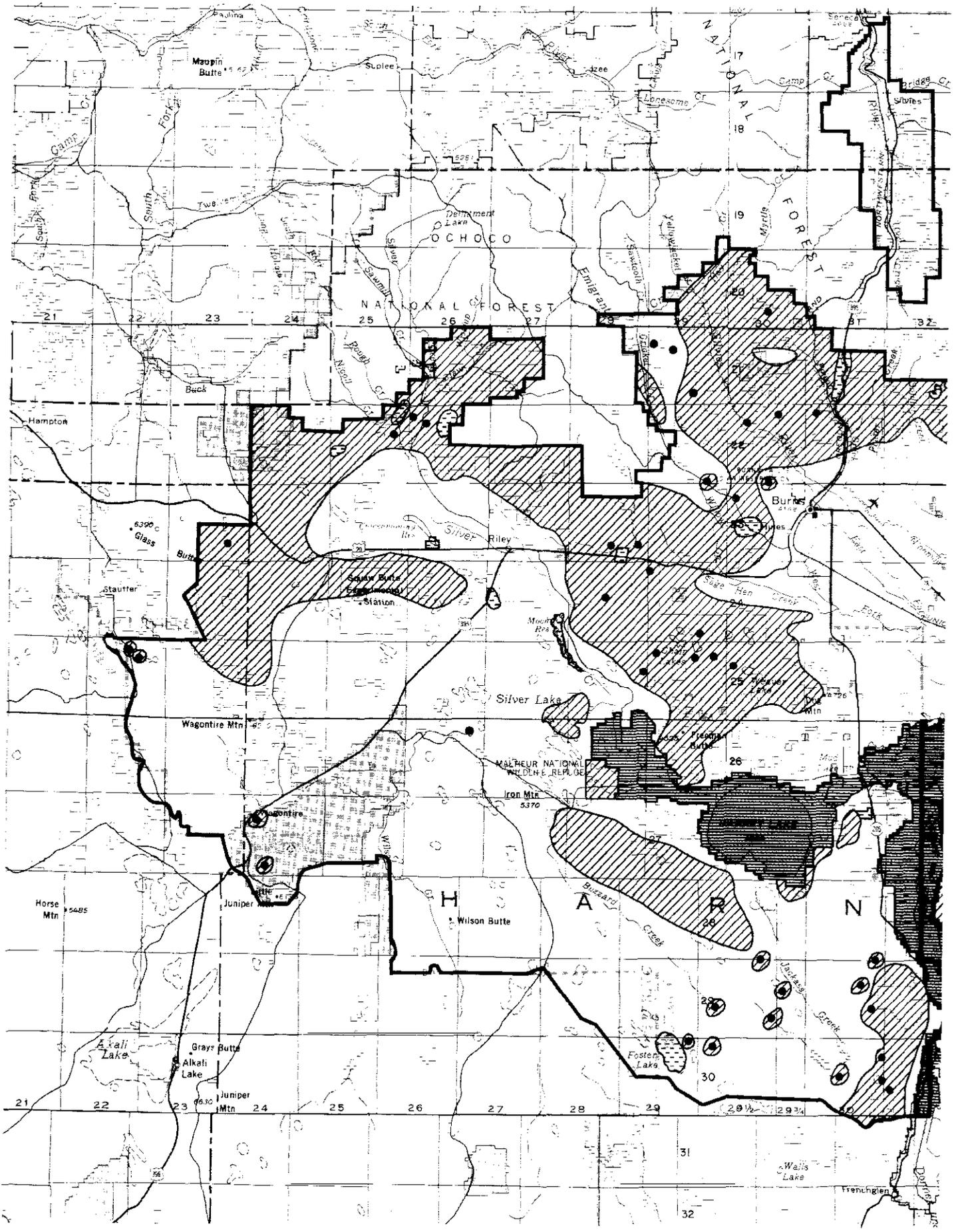
Additionally, restrictions on such mineral development support functions as access road building would be likely to have a minor negative effect on mineral development in the RA. These restrictions would not preclude mineral development, but would be likely to add to the cost of exploration and development. With the combination of low current mineral development

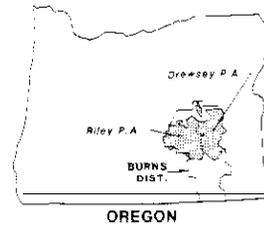
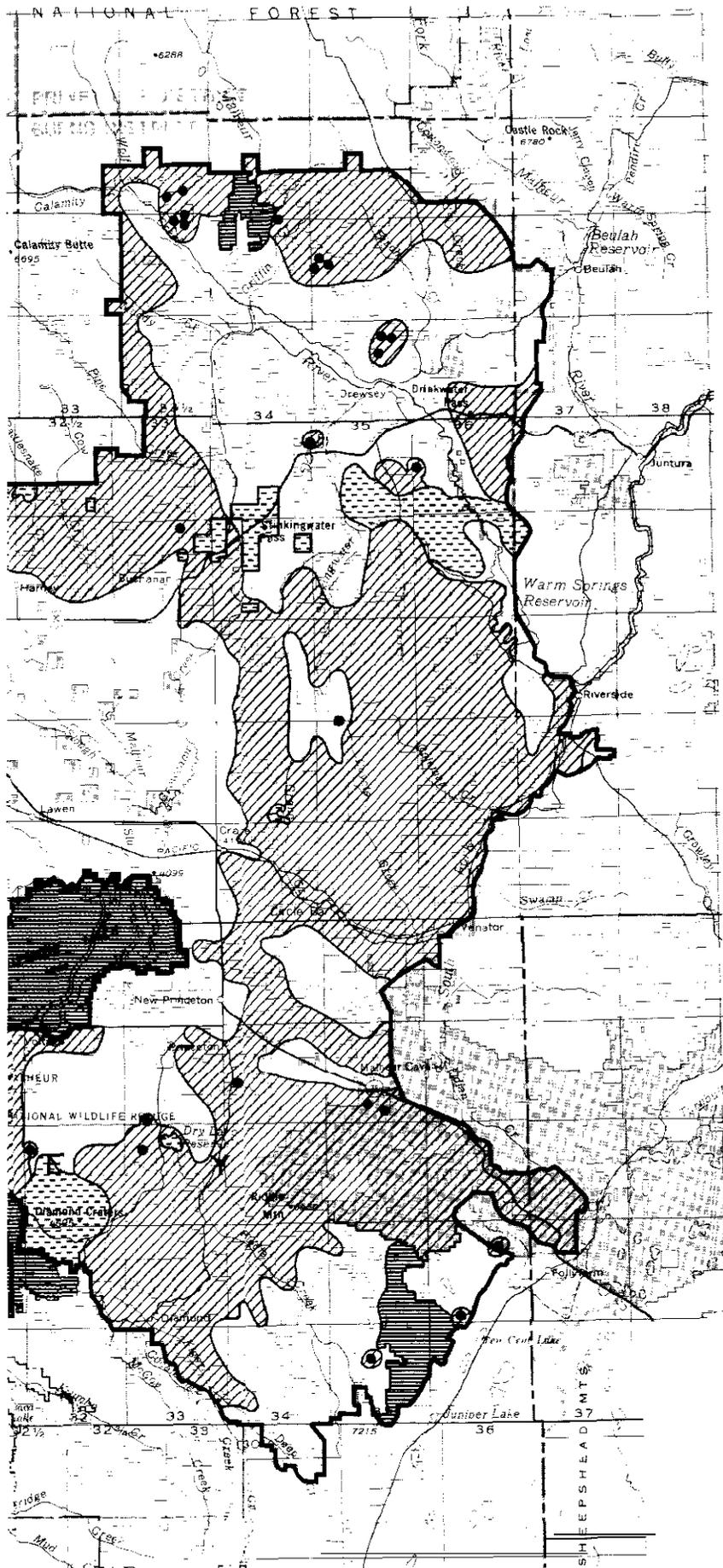
Table 1.41. Impacts to Oil and Gas Leasing Categories, Alternative E

Lease Category	Low (Acres)	Moderate (Acres)	High (Acres)	Unknown (Acres)	Total (Acres)	Current (Acres)	Change (Acres)
Category 1	2,031,348	135,110	0	0	2,166,464	1,328,111	838,353
Category 2	0	280	0	0	0	787,517	-787,517
Category 3	46,959	0	0	0	47,239	98,075	-50,836
Category 4	18,483	94,848	0	0	113,331	113,331	0
Total	2,096,790	230,244	0	0	2,327,034	2,327,034	0

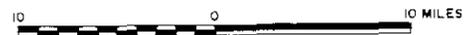
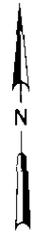
Table 6.42. Impacts to Geothermal Leasing Categories, Alternative E

Lease Category	Low (Acres)	Moderate (Acres)	High (Acres)	Unknown (Acres)	Total (Acres)	Current (Acres)	Change (Acres)
Category 1	1,523,122	643,342	0	0	2,166,464	1,328,111	838,353
Category 2	0	0	0	0	0	787,517	-787,517
Category 3	6,282	40,957	0	0	47,239	98,075	-50,836
Category 4	5,560	107,771	0	0	113,331	113,331	0
Total	1,534,964	792,070	0	0	2,327,034	2,327,034	0





-  Seasonal or Other Minor Restrictions
-  No Surface occupancy or Other Major Restrictions
-  No Leasing



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MAP M-6
SENSITIVE RESOURCE VALUES
EFFECTING FLUID ENERGY
MINERAL LEASING

activity and light impacts to areas identified as having high or moderate potential for the occurrence of locatable/solid leasable minerals, it is concluded that negative impacts to minerals under these alternatives are of low significance (Appendix 9, Table 12, provides a scenario of the possible impacts that could result if a substantial gold development were to occur in the RA).

Alternative C

Under this alternative, an additional 2,750 acres would be withdrawn from the operation of mining laws. Of this amount, 640 acres in the Squaw Butte Experiment Station block are in an area identified as having high potential for the occurrence of mercury/uranium. The remaining 2,110 acres fall within areas classified as having low potential for the occurrence of locatable minerals (refer to Map M-3).

Restrictions on such mineral development support functions as access road building would be likely to have a minor negative effect on mineral development in the RA. These restrictions would not preclude mineral development, but would be likely to add to the cost of exploration and development. With the combination of low current mineral development activity and light impacts to areas identified as having high or moderate potential for the occurrence of locatable/solid leasable minerals, it is concluded that negative impacts to minerals under these alternatives are of low significance (Appendix 9, Table 12, provides a scenario of the possible impacts that could result if a substantial gold development were to occur in the RA).

Alternatives D and E

No direct limitations have been placed on the opportunity for the exploration for and development of locatable and solid leasable minerals. Those areas currently open to the operation of the mining laws would remain so. Recommended termination of existing withdrawals on 7,031 acres (Alternative D) would be a minor positive impact. As is currently the case, Plans of Operation on all operations, regardless of size within existing ACECs, would continue to be required. However, minerals operations within ACECs would not be precluded. Impacts to locatable and solid leasable minerals under these alternatives are considered to be of low significance (Appendix 9, Table 12, provides a scenario of the possible impacts that could result if a substantial gold development were to occur in the RA).

Mineral Materials

Alternatives A, B and C

Under these alternatives, the primary impact to the potential for the development of mineral materials in the RA would be the prohibition or restriction of mineral materials sites within ACECs, WSAs and scenic corridors. The acreages affected under ACECs vary by alternative from 99,145 acres (Alternative A), to 81,845 acres (Alternative B), to 64,315 acres (Alternative C). Acreages affected by WSAs and the Devine Canyon Scenic Corridor are the same for all alternatives at 17,885 acres and 1,040 acres, respectively. Prohibitions or restrictions of existing authorized material sites would not be affected under these alternatives except for an existing county material site in the Pine Creek area which would be closed to meet management objectives for the potential Biscuitroot ACEC. This could be a moderate localized impact on future mineral material demands for road surfacing. However, optional material site locations are available in the vicinity, so mineral materials could be made available to satisfy such demands. Use of alternate sites could result in increased operational costs to the county through site preparation, increased haul distances, etc. On an overall basis, these impacts are considered to be of low significance because of the abundance of mineral materials and authorized material sites within the RA that would remain unaffected by the prohibitions or restrictions.

Alternatives D and E

No significant impacts would be incurred by mineral materials under these alternatives.

Recreational Minerals

All Alternatives

The RA would remain open for the collection of recreational minerals under all alternatives except for 160 acres in the South Narrows ACEC and 17,136 acres in the Diamond Craters ONA/ACEC. Rockhounding in the South Narrows ACEC would be prohibited in Alternatives A and B, but the site would be open under all other alternatives. Diamond Craters would be closed under all alternatives except Alternative D. Under Alternative D, rockhounding would be restricted. Since these areas comprise only 1 percent of the RA, the impacts of the closures are considered to be of low significance.

Lands

Alternative A

Under this **alternative**, the major emphasis in structuring land tenure zones is on the retention/acquisition of sensitive **resources** and lands of high resource value in public ownership.

The opportunity for land tenure adjustment would significantly increase from the baseline, utilizing the zoning concept, due to more land being available for exchange or disposal. However, under Alternative A, a large percentage of the public lands in Three Rivers RA will be zoned for retention (Zone 1). This will protect most public lands with high resource values from disposal, but will also severely limit exchange **opportunities**, and thus, the ability to acquire other lands with high resource **values**.

Although a large increase from baseline is noted in Zone 3 lands, it is doubtful that a significant portion of

these lands would be disposed of through outright sale, due to current policy and budget directives which emphasize land exchanges. Some Zone 3 lands, after further review, may not meet the FLPMA 203 criteria or may have currently undiscovered significant resource values which would limit disposal by sale during final clearance procedures.

Under this alternative, the major emphasis in structuring land tenure zones is on the retention/acquisition of sensitive resources and lands of high aesthetic resource value in public ownership.

Under Alternative B, nearly the same amount of land has been identified for retention (Zone 1) as under the existing situation. Lands identified for exchange (Zone 2) are somewhat lower than the baseline. However, a larger number of exchanges would undoubtedly occur under this alternative for several reasons.

a. Zone 2 lands, under Alternative B, are contained within dispersed zones throughout the RA which would provide for more flexibility and result in more exchange opportunities.

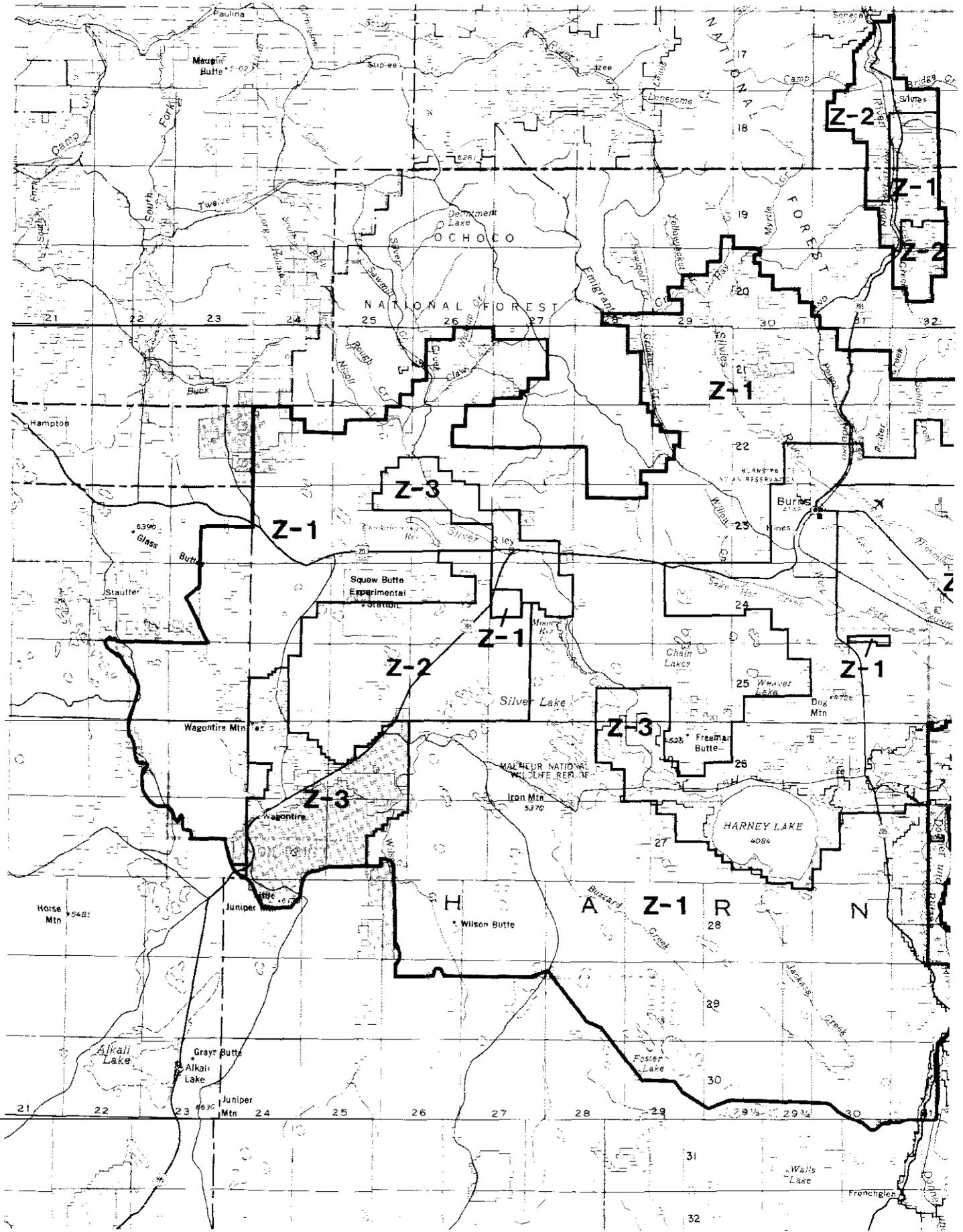
Table 4.43. Impacts to Land Tenure Zones, Alternative A

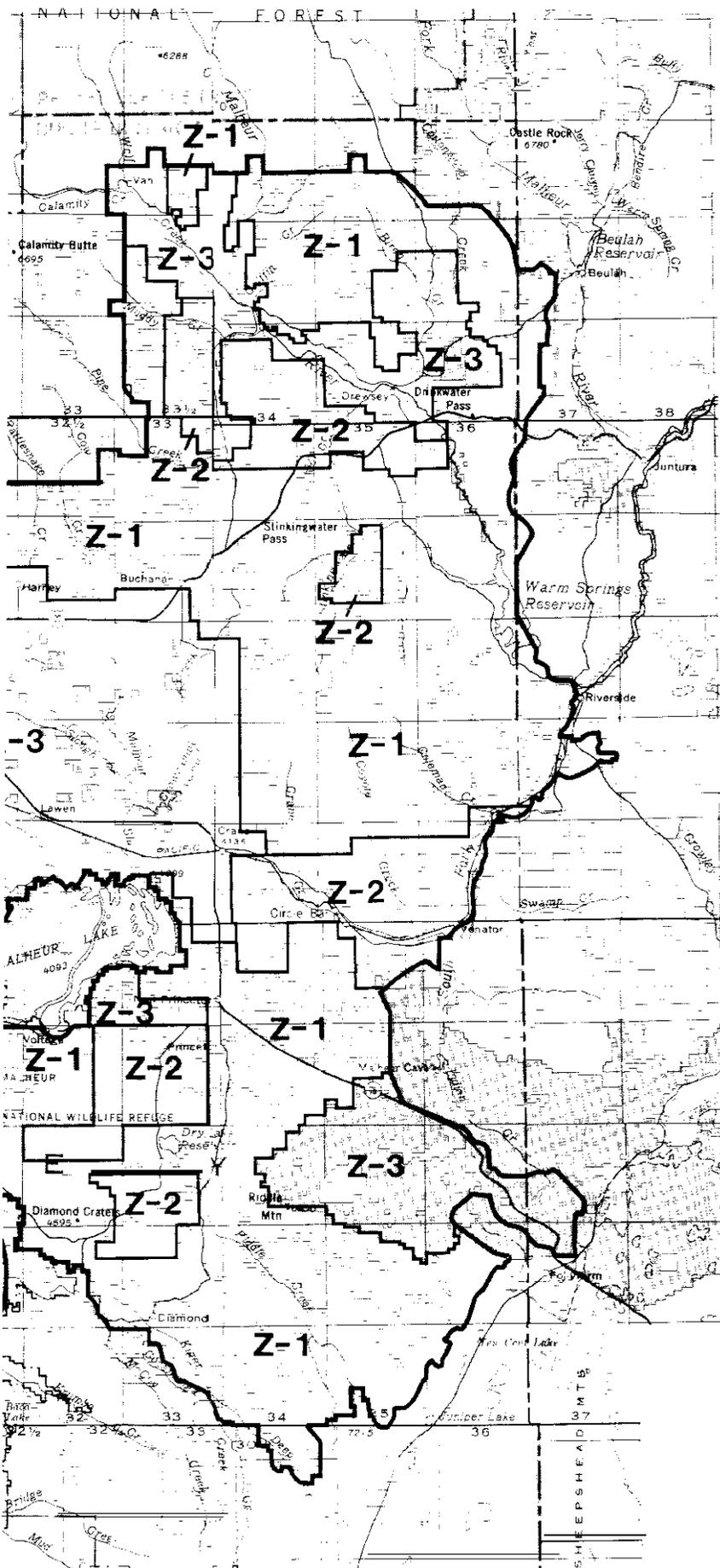
	Zone 1 (acres)	Zone 2 (acres)	Zone 3 (acres)
Baseline	11,577,559	² 121,559	³ 10,800
Alternative A	1,469,864	199,220	40,834
Total Change	-107,695	77,661	30,034

¹Includes 1,482,267 acres which were not specifically identified for exchange or disposal in existing planning and are presumed to be identified for retention. In the Andrews-Drewsey Management Framework Plan Amendment (MFPA), approved February 17, 1989, 95,292 acres were Zoned "1".
²Includes 18,060 acres specifically identified for exchange in the Drewsey and Riley MFPA. The balance (103,499 acres) were Zoned "2" in the Andrews-Drewsey MFPA.
³Includes 7,120 acres specifically identified for disposal in the Riley MFP. The balance (3,680 acres) were Zoned "3" in the Andrews-Drewsey MFPA.

Table 4.44. Impacts to Land Tenure Zones, Alternative B

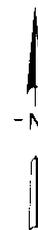
	Zone 1 (acres)	Zone 2 (acres)	Zone 3 (acres)
Baseline	1,577,559	121,559	10,800
Alternative B	1,575,597	93,599	40,722
Total Change	-1,962	-27,960	+29,992





Z-1

Land Tenure Zone



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**MAP L-3
LAND TENURE ZONES
(Alternative A)**

b. Those remaining parcels specifically identified for exchange in existing planning documents were taken from exchange proposals on file at the time the plan was prepared. The proposals are now, for one reason or another, infeasible. Therefore, little or no new proposals could be considered under the existing situation.

c. Lands in Zone 3 (which have increased significantly from the baseline) would be utilized for exchange, if an opportunity exists. Land sales would continue to be below priority.

Zoning under this alternative was relatively resource specific which would protect lands with high resource values from disposal while providing more lands for use as an exchange base. Consequently more opportunity would exist for acquiring other lands with high resource values.

Management actions, initiated by other ELM programs, that would improve the quality and productivity of the public lands would have an indirect positive effect on the lands program due to an increase in land values.

Those actions or resources which would limit or restrict lands available for exchange would create a negative impact on the lands program. Those same resources could have a positive effect on the program if acquiring that resource was one of the objectives of a specific land tenure adjustment action.

Alternative C

Under this alternative, the major emphasis in structuring land tenure zones is on the retention/acquisition of sensitive resources and lands of high aesthetic resource value in public ownership.

Under this alternative, less land is identified for retention than the baseline. However, the opportunity for land tenure adjustment is higher, particularly for land exchanges, than from the baseline. This is not only due to the fact that significantly more lands are in Zone 2, but they are also dispersed through most of the RA. Most lands with highly sensitive values including ACECs, WSAs, deer and elk winter range, riparian and wetland areas, as well as large contiguous blocks of public land would be protected from disposal, either by exchange or sale. A significantly larger amount of land has been identified for sale than the baseline. It is not expected, under current policy direction, that much more land would be offered for sale than is currently being offered.

Alternative D

Under this alternative, land tenure adjustment would be limited to those lands identified for sale or exchange in existing land use plans.

Under this alternative, land tenure adjustment could be severely limited by lack of lands available for exchange. Much of the land in Zone 2 is in the southeastern corner of the RA, where the Andrews-Drewsey MFLPA was recently completed. It could be expected that most of the exchanges taking place would be in this area. Most existing exchange proposals involving the remaining lands in Zone 2 have been determined to be infeasible for one reason or another. Those that would take place outside the Andrews/Drewsey MFLPA area would be very limited in size and scope.

Some increase in land sales may be predicted under this alternative. This would be due to the fact that past emphasis has primarily been on exchanging lands. With a lower rate of exchanges being consummated, sales which have been deferred because of funding constraints, could now be completed.

Table 4.45. **Impacts to Land** Tenure Zones, Alternative C

	Zone 1 (acres)	Zone 2 (acres)	Zone 3 (acres)
Baseline	1,577,559	121,559	10,800
Alternative C	1,478,091	193,304	38,523
Total Change	-99,468	71,745	27,723

A scenario could develop where those Zone 2 lands in the southeastern part of the RA may become the trading stock for the RA, and for that matter, the rest of the **district**. This is especially true since this area contains large crested wheatgrass seedings and other rangeland improvements, commodities which many exchange proponents seek.

Alternative E

Under this alternative, the major emphasis in structuring land tenure zones is on the retention/acquisition of **commodity** producing lands in public ownership.

The opportunity for land tenure adjustment is greatest under this alternative and is significantly higher than the baseline.

An increased number of land exchanges could be expected over all other alternatives because of the large **amount** of acreage in Zones 2 and 3. However, these exchanges may not be as beneficial for acquisition of public resource values. In fact, under this alternative some significant values could be lost from public ownership. In many instances, the BLM would be forced to consider exchange proposals that may not be in the public interest.

As with other alternatives, land sales would not be expected to increase, even though a significantly larger acreage is identified under this alternative, for outright disposal (Zone 3). This is primarily due to budget priorities, low demand and significant resource values **which** may be present on potential sale tracts.

Most commodity producing areas with potential for timber harvest, mineral production and livestock grazing would be retained in public ownership under this alternative.

Realty Management

Alternative A

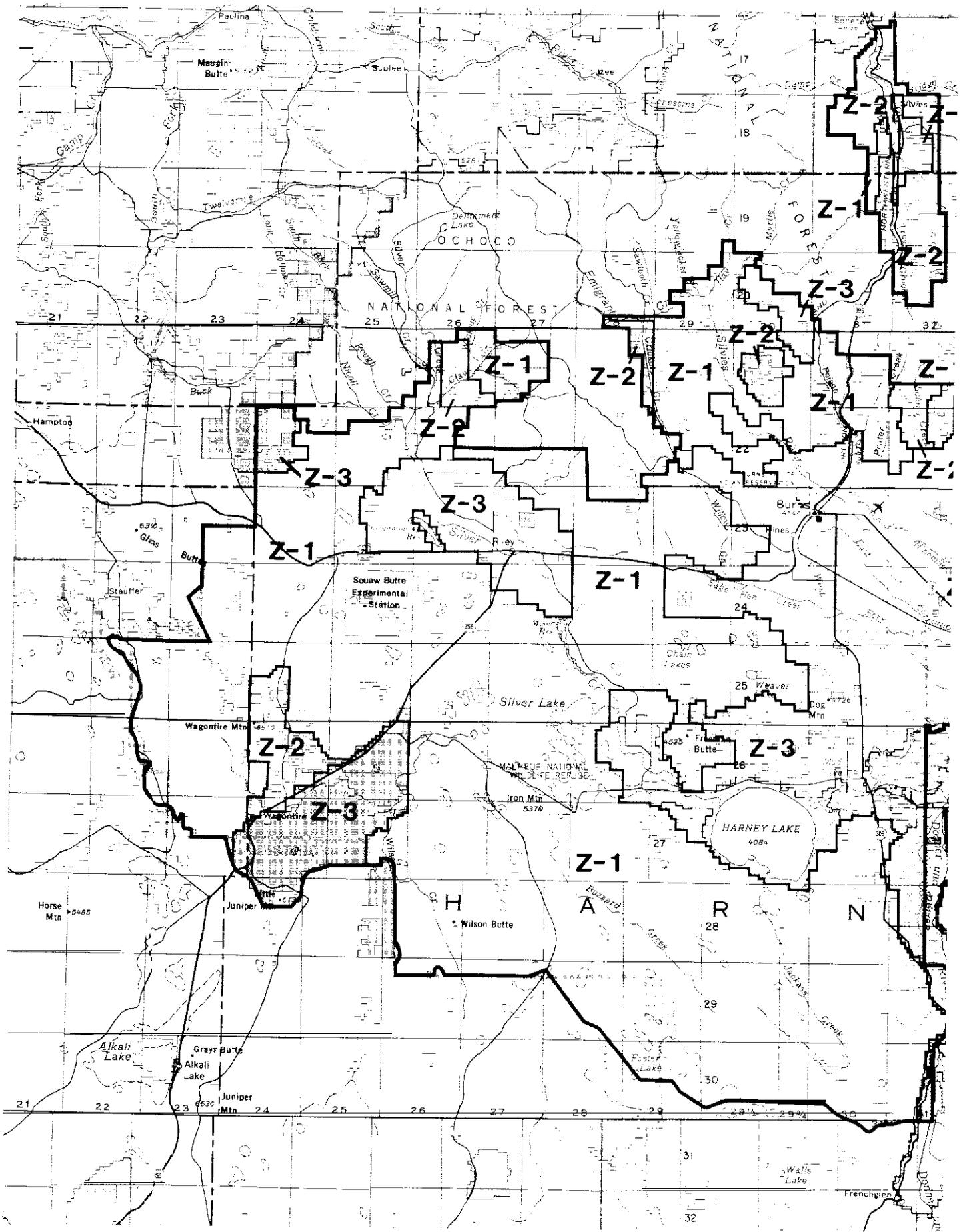
Management actions under this alternative, which would generate the greatest demands for realty authorizations (rights-of-way, various use permits, etc.), would include various minerals activities and limber harvesting. Management actions which would place constraints on the number and kind of realty management authorizations that could be affected would include road building constraints imposed under water quality, riparian habitat and aquatic habitat; surface disturbance constraints for special status species, wildlife and **raptor** habitat; prohibition of the introduction of hazardous materials on public lands; recreation area emphasis; and the designation of six special management areas. Major management actions within the realty management program include the designation of right-of-way corridors and exclusion areas.

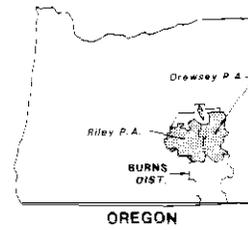
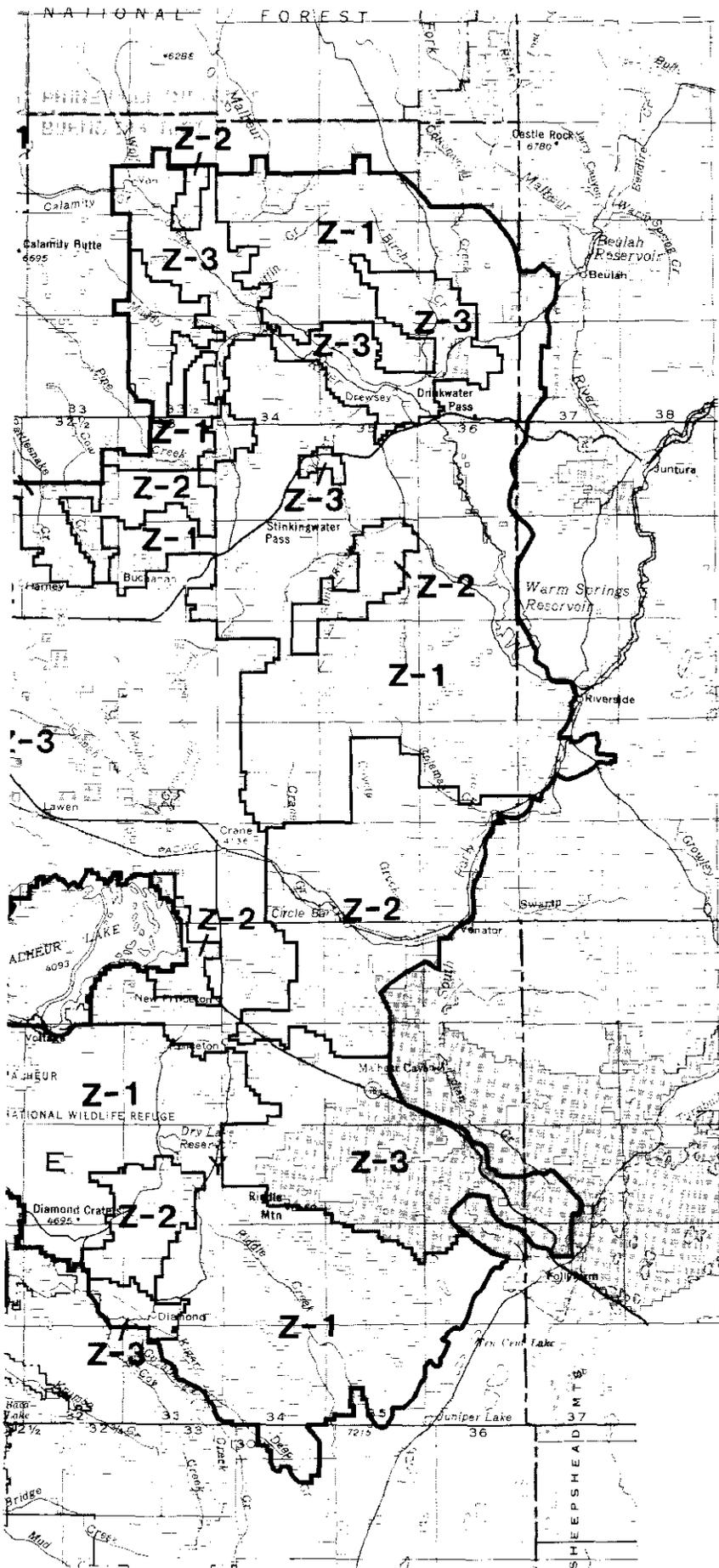
Even though a large acreage will be designated in right-of-way exclusion areas, the significance of such designation should be minimal. This is due to the fact that most of the exclusion areas are in isolated, unpopulated areas where demand is low, or are small enough parcels where proposed facilities could be rerouted to avoid these areas. One exception would be the Diamond Craters **ONA/ACEC** where a county road and existing power and telephone facilities cross through the extreme eastern edge of the ACEC. Future proposals which could parallel these existing facilities would have to follow a different route outside the ACEC.

The increase in corridor mileage is probably insignificant and can be attributed to the addition of corridors which were not clearly identified in the Drewsey MFP.

Table 4.46. Impacts to Land Tenure Zones, Alternative D

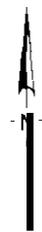
	Zone 1 (acres)	Zone 2 (acres)	Zone 3 (acres)
Baseline	1,577,559	121,559	10,800
Alternative D	1,575,559	121,559	10,800
Total Change	0	0	0



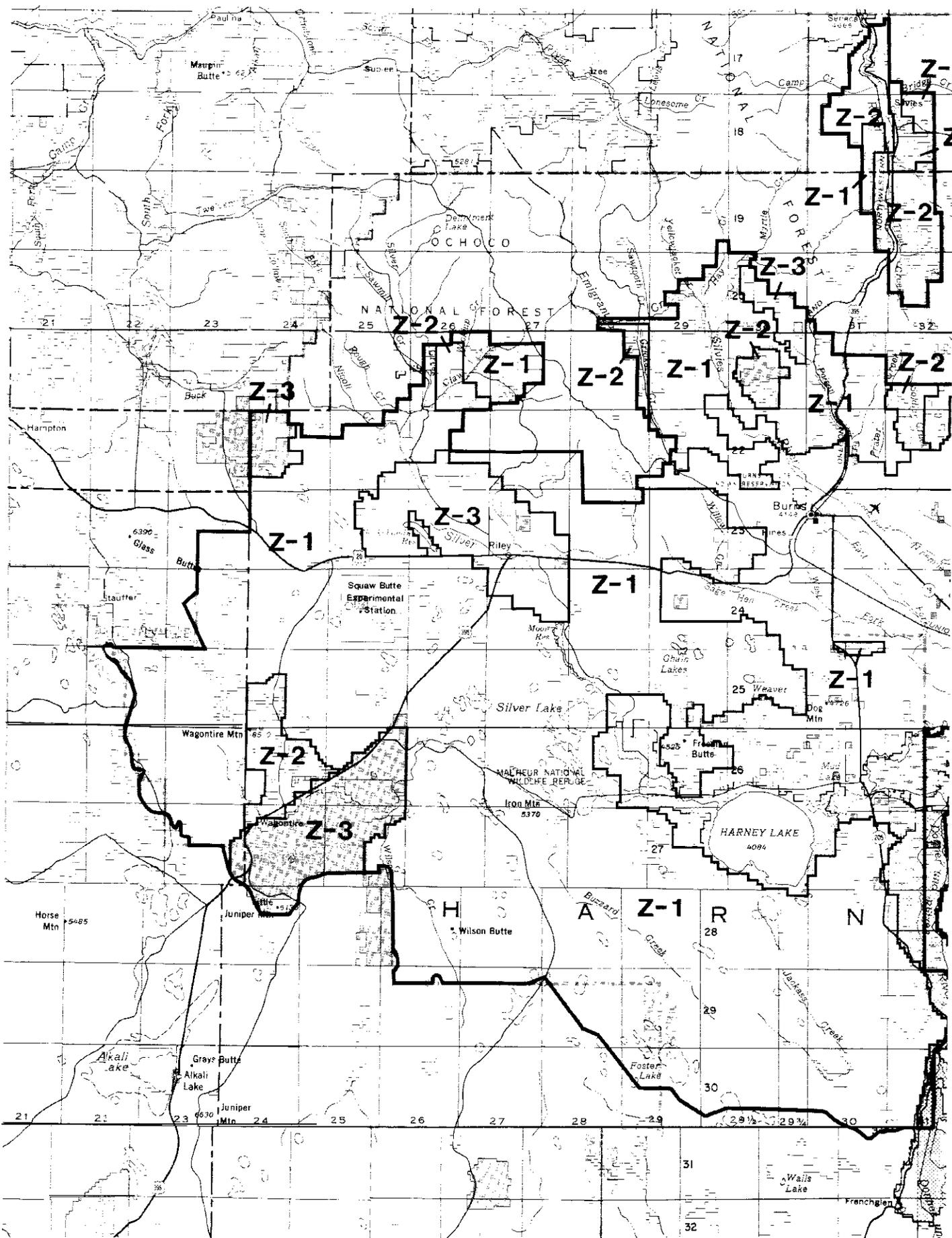


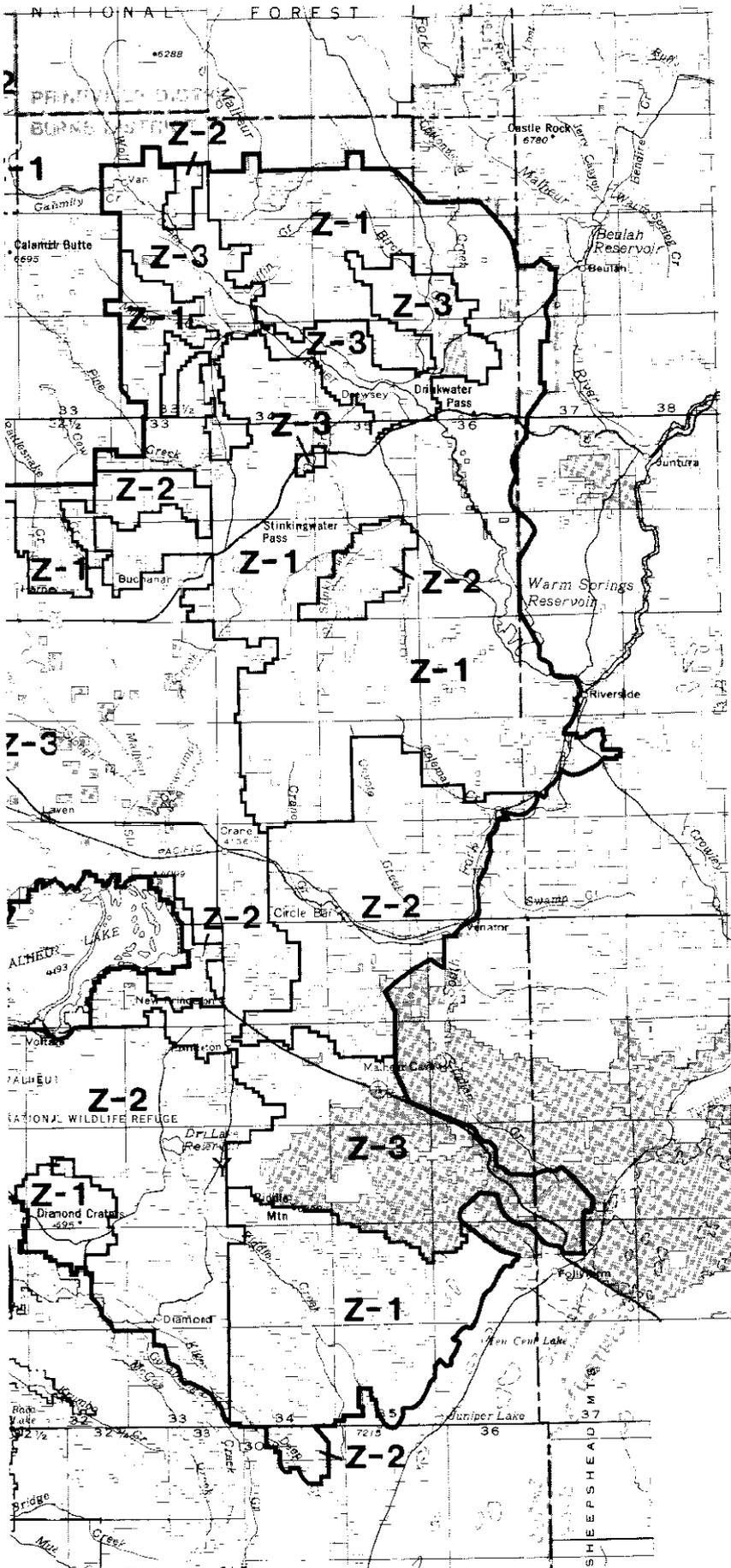
Z-1

Land Tenure Zone



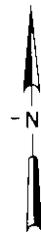
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 September 1989
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MAP L-4
LANDTENUREZONES
(Alternative B)





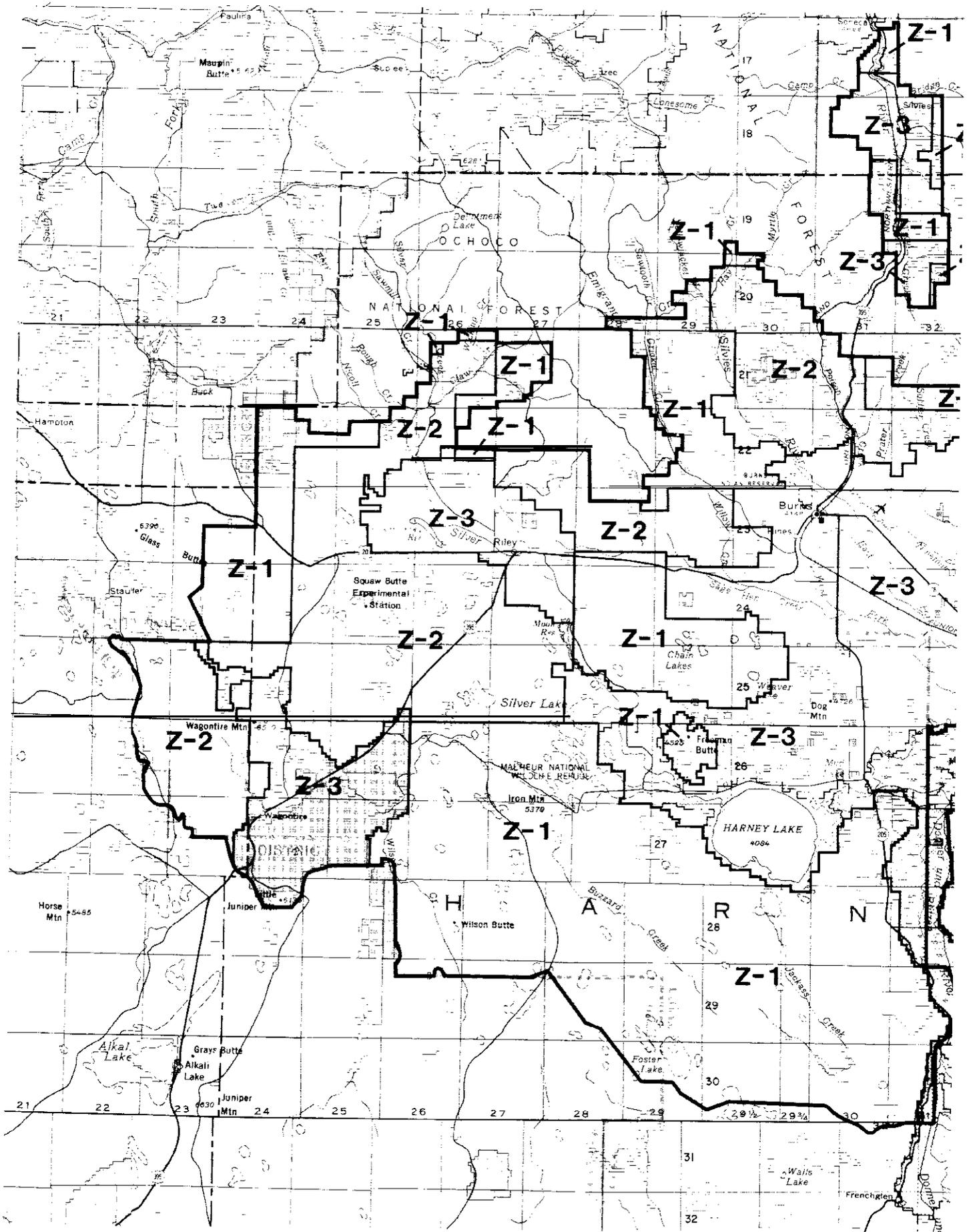
Z-1

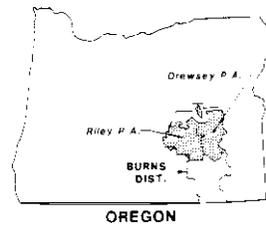
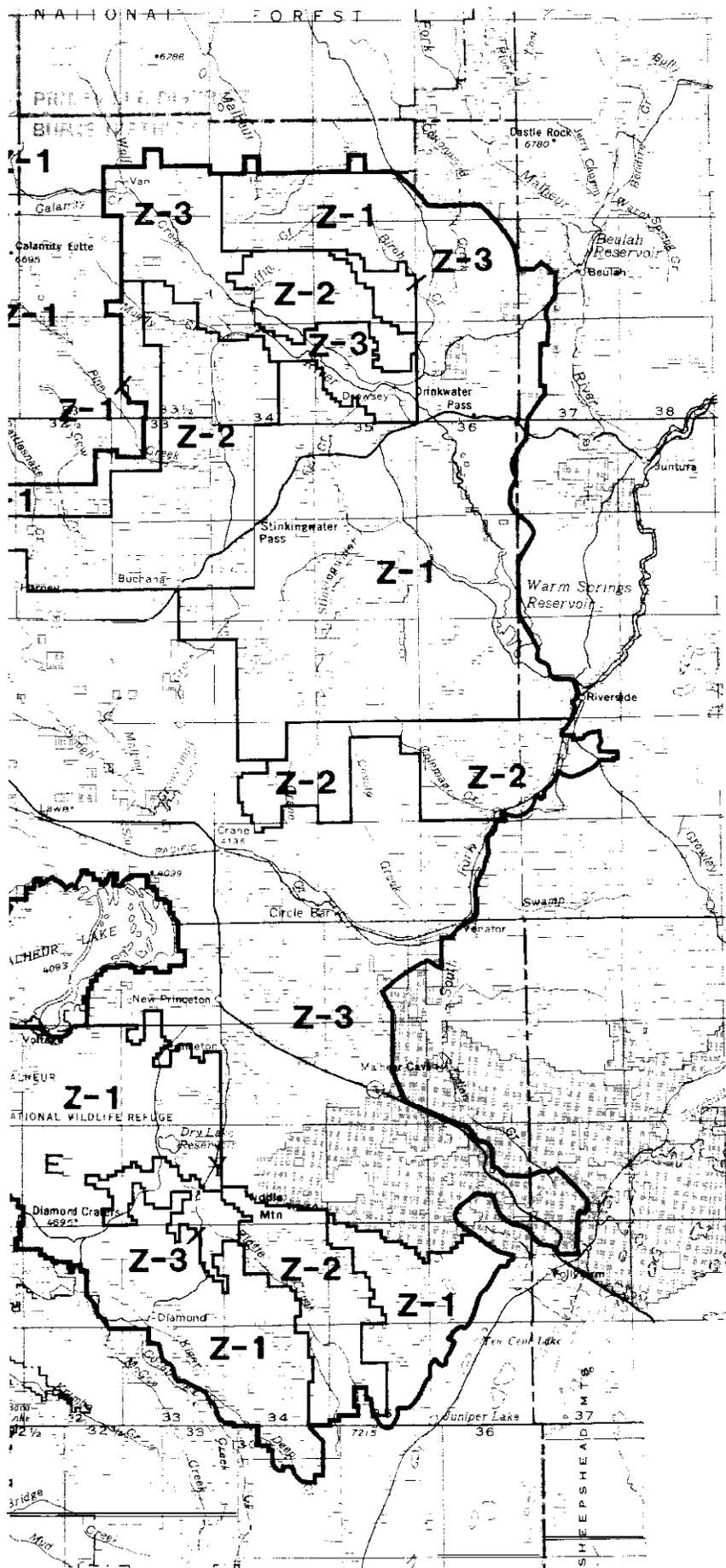
Land Tenure Zone



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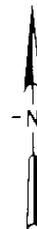
**MAP L-5
 LANDTENUREZONES
 (Alternative C)
 (Preferred)**





OREGON

I Z-1 I Land Tenure Zone



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 THREE RIVERS RESOURCE AREA

MAP L-6
LANDTENUREZONES
(Alternative E)

These unidentified corridors, in many cases, are merely extensions of facilities which were designated as corridors in the Riley MFP and John Day RMP and have been considered “de facto” corridors. Due to low demand in the RA, limiting proposed major facilities to designated corridors would probably not be a significant impact to the right-of-way industry as whole. The proposed corridor designations are also adequate to allow a major facility to cross the RA within a corridor from a variety of directions. See Table 4.48 for a summary.

Alternative E

Management actions under this alternative, which would generate the greatest demands for realty authorizations (rights-of-way, various use permits, etc.), would include various minerals activities and timber harvesting. Management actions which would place constraints on the number and kind of realty management authorizations that could be affected under this alternative would include road building constraints imposed under water quality, riparian habitat and aquatic habitat; surface disturbance constraints for special status species, wildlife and raptor habitat; prohibition of the introduction of hazardous material on public lands; recreation area emphasis; and the designation of six special management areas. Major management actions with the realty management program include the designation of right-of-way corridors, exclusion areas and avoidance areas.

Exclusion/Avoidance zones identified in this alternative could possibly limit realty-related development in some areas, particularly the larger special management areas, as these would be more difficult to avoid. However, avoidance zones rather than absolute exclusion zones would allow some development, if necessary, and if compatible with the purposes of the designation.

Under this alternative, large scale facilities would be required to locate within designated corridors. This may not be a hindrance to large scale right-of-way development due to the overall low current and projected demand in the RA, as well as the proposed corridor system which allows for several location options. See Table 4.48 for a summary.

Alternative C

Management actions under this alternative, which would generate the greatest demands for realty authorizations (rights-of-way, various use permits, etc.), would include various minerals activities and timber harvesting. Management actions which would place constraints on the number and kind of realty management authorizations that could be affected under this alternative would include road building constraints imposed under water quality, riparian habitat and aquatic habitat; surface disturbance constraints for special status species, wildlife and raptor habitat; prohibition of the introduction of hazardous materials on public lands; recreation area emphasis; and the designation of six Special Management Areas. Major management actions with the realty management program include the designation of right-of-way corridors and exclusion/avoidance areas.

Exclusion/Avoidance zones identified in this alternative could possibly limit realty-related development in some areas, particularly the larger special management areas, as these would be more difficult to avoid. However, avoidance zones rather than absolute exclusion zones would allow some development, if necessary, and if compatible with the purposes of the designation.

A large increase in the amount of acreage included in right-of-way avoidance zones is attributable to the increase in acres identified for the Kiger Mustang ACEC even after subtracting acres within the Obsidian Cultural ACEC which was dropped from consideration under this alternative. Most development scenarios would probably be compatible with the purposes of the Kiger Mustang ACEC. Demand for rights-of-way in this area is also low due to its remoteness. Therefore, impact of the designation on right-of-way development should be limited.

Applicants for large scale facilities would be encouraged to locate within designated corridors. This would provide industry with general guidance during the planning of facilities while still allowing flexibility to locate outside corridors, if necessary. Due to low demand, several corridor options and the inherent flexibility, there would be little impact of the designation on the realty program. See Table 4.48 for a summary.

Table 4.47. Impacts to Land Tenure Zones, Alternative E

	Zone 1 (acres)	Zone 2 (acres)	Zone 3 (acres)
Baseline	1,577,559	121,559	10,800
Alternative E	1,081,509	531,764	96,646
Total Change	-496,050	410,205	85,846

Alternative D

Under the existing situation, there is no continuity of corridors, because the Riley MFP designated them while the Drewsey MFP was unclear.

There may be some impact to sensitive resource values from major new rights-of-way because no avoidance or exclusion area would be designated in this alternative. Because of low demand for transdistrict rights-of-way, this generally has not been a problem.

There could be a negative impact to potential applicants who, while planning a new facility could easily avoid a significant resource value if it were identified in an avoidance/exclusion area. The applicant could also be reasonably assured of little conflict by locating in designated corridors. See Table 4.48 for a summary.

Alternative E

Management actions under this alternative, which would generate the greatest demands for realty authorizations (rights-of-way, various use permits, etc.), would include various minerals activities and timber harvesting. Management actions which would place constraints on the number and kind of realty management authorizations that could be accomplished would include road building constraints imposed under water quality, riparian habitat, and aquatic habitat; surface disturbance constraints for special status species, wildlife and raptor habitat; prohibition of the introduction of hazardous materials on public lands; recreation area emphasis; and the designation of six special management areas. Major management actions within the realty management program include the designation of right-of-way corridors and exclusion areas.

Exclusion zones identified in this alternative could limit realty-related development in some areas. No

current demand for such development has been identified in the areas designated as exclusion zones.

Additional corridor designation is probably not a significant factor in the RA due to a low demand for right-of-way development. This significance is lessened to a greater degree because the BLM would only be encouraging applicants for major projects to locate in corridors. No avoidance areas are designated under this alternative, and all rights-of-way applications affecting special areas will be assessed on a case-by-case basis. Again, this probably would not be a significant factor since most special areas are isolated on the low demand for development in these areas. See Table 4.48 for a summary.

Access

Alternatives A, B, C, D and E

High priority access needs are portrayed on Map L-1. In addition to those portrayed, legal access of a somewhat lower priority have also been identified for many roads depicted on the District Transportation Plan. Most of these roads are primitive and are rarely utilized by the public. However, they are used occasionally by BLM personnel and permittees. Therefore, acquiring administrative access in these areas would generally suffice.

An aggressive access acquisition program in the RA would have significant positive impacts on many resource programs. Access acquisition would dilute human pressures on resource bases; limit access to those areas with high resource sensitivity and provide for better relations between landowners, the BLM and the public.

Those resource programs which would restrict road location or use would negatively impact the access program as it would limit options available during the negotiating process.

Table 4.48. Impacts to Right-of-Way Corridors and Right-of-Way Exclusion/Avoidance Zones by Alternative

	Baseline	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Designated corridors (linear miles)		185	185	185	123	123
Exclusion Areas (acres)	0	114,710	20,365	20,385	0	20,385
Avoidance Areas (acres)	0	0	79,525	64,475	0	0

¹This figure includes only those corridors identified and designated in the Riley MFP and John Day RMP. The exact location and width of all corridors in the Drewsey MFP planning area were unclear or not specified.

Economic Conditions

The sectors of the local economy that are most likely to be directly or indirectly affected through implementation of any of the alternatives are forestry and wood products, agriculture, trade and service, and mining. Impacts to, or support of these sectors would result from management actions affecting forestland/woodlands, livestock grazing, recreation, and energy and minerals, respectively. Each of these is detailed individually below,

Forestland and Woodlands

Forestland

Within the Three Rivers RA the lumber and wood products industry currently employs approximately 670 persons' The industry relies on harvests in Crook, Lake and Harney Counties. As Table 4.49 displays, harvests from BLM lands in the RA and surrounding counties are not a significant portion of the total harvest. It is likely that ELM timber sales in the RA substitute for timber sales on nearby national forest lands. The benefits of this substitution is negligible. None of the alternatives would have a measurable effect on employment or income in the wood products industry.

Woodlands

The BLM currently meets the demand for woodland products (firewood, posts and poles) with four designated cutting areas totaling 1,282 acres. These designated areas represent 0.7 percent of woodland acres available under Alternatives A to C and 0.5 percent of maximum available woodland acres under Alternatives D and E. Future demands for woodland products can be met under all alternatives.

livestock Grazing

Administratively the BLM bills and tracks permits by operator number. Often several permits are held by a single operator number. Each operator number represents to BLM an independent operation. However, in practice, a single person, family, company or corporation may be assigned several operator numbers. The size of each operation (a single operator number) was determined to be the total number of cows currently permitted to use BLM allotments. Three hundred herd was selected as the size of operation likely to function as a self-contained business.

¹Oregon Resident Labor Force. Oregon Employment Division, March 1989.

Under Alternative A, direct long-term reductions in AUMs would be made to 42 operations with 300 or more head permitted on BLM lands. The remaining reductions would be borne by 92 smaller operations. The same distribution applies to Alternative B, but AUM reductions would be to a lesser degree.

With the long-term reductions proposed under Alternatives A and B, ranchers would be required to make permanent changes in their operations. In addition, the ability of some ranch operations to service long-term debt would be reduced. Likely business responses to the required reductions would be as follows:

- Reduce herd size, absorb income loss.
- Change seasons of use on base property
- Cease ranching operations, early retirement is an option for some.
- Lease alternative forage on private lands.
- Sublease ELM forage, if available
- Redistribution of herds, capital and other factors of production to maintain viable operations is an option for operators with multiple operations.
- Expand and diversify ranching operations with new crops and/or livestock types.
- Capital expenditures on base property to increase productive capacity.
- Combine operations with other individuals, family members, companies or corporations to maintain viable size of operation.
- Seek full or part-time employment in non-agricultural sector.

Alternative C proposes reduction in AUMs in the short-term. With implementation of the proposed treatments and structures, long-term forage availability is expected to increase above current levels. How these future increases would be allocated is unknown. Immediate reductions proposed under Alternative C would impact 26 operations of 300 or more head and 22 smaller operations. Business response would be the same as in Alternatives A and B but to a lesser degree. Because of an expected return to current forage levels in the future, many ranchers could choose to delay capital replacement, when possible, and cover only the cash costs of the ranching operation until forage availability is restored.

Table 4.49. Total Timber Harvest 1980-98-Harney, Crook, Lake and Grant Counties

(MBF - Scribner Log Scale)

County	Total Harvest	ELM	BLM (% of Total)
Harney	546,717	794	0.15
Crook	607,994	1,899	0.31
Lake	1,410,800	0	0
Grant	1,668,590	17,021	1.02

Source: Oregon State Department of Forestry

Alternative D (the Continue Present Management Alternative) and Alternative E propose achieving within 5 years an increase in forage availability. In the short-term, Alternative E would reduce forage availability for 24 ranch operations with 300 or more cattle on BLM lands and 34 smaller operations. Although the proposed long-term increases are only 7 percent and 9 percent increases over the current baseline, some operations (sizes unknown) may be able to expand operations. Financing these expansions will commit operations to long-term debt servicing based on the long-term availability of additional forage.

Table 4.50 shows the number of operations incurring specific percentages of forage adjustments under each alternative. Alternative D, continue present management, is not displayed.

Operations were grouped by size for information only. A given percentage reduction in BLM forage made available will not reduce cow-calf or cattle production by the same percentage. Sources of forage used by area ranchers include FS, state, private and other federal lands in addition to BLM lands. Any BLM reductions will increase scarcity of forage, most likely causing a slight increase in the costs of private forage. (BLM and FS prices are administratively set and do not change with market conditions).

Each alternative proposes a specific level of range improvement and enhancement. Expenditures to build fences, pipelines, reservoirs, wells, and big game guzzlers and to provide brush control, juniper burning and seedings are as follows:

Alternative A =	\$490,196
Alternative B =	\$1,590,521
Alternative C =	\$3,700,821
Alternative D =	\$2,287,906
Alternative E =	\$4,355,131

The major portion of the materials used for these improvements will be purchased outside the RA. However, temporary local labor requirements and equipment rentals for these projects would contribute to the local economy.

Recreation

All alternatives propose varying acreages open to ORV use, rockhounding and camping. Acreage available for these dispersed use activities will remain plentiful under all alternatives. No change in support of local trade and service sectors is foreseen due to changing patterns of recreation use under any alternative.

Minerals

Recreational mineral collection is one activity that makes the RA a visitor destination. Alternatives A, B and D slightly reduce areas available to recreational mineral collection. However, the reductions proposed in these alternatives are minor and should not reduce the desirability of the area to collectors.

Twenty-four pits are designated on BLM lands for the removal of mineral materials. Two are commercial pits

Table 4.50. Impacts to Ranching Operations by Alternative

	Alternative A		Alternative B		Alternative C		Alternative E	
	Smaller ¹	Larger ²	Smaller ¹	Larger ¹	Smaller ¹	Larger ²	Smaller ¹	Larger ²
0 Percent Reduction	0	0	0	0	70	16	58	18
1/4 09.9 Percent Reduction	0	0	0	0	3	4	20	19
10-24.9 Percent Reduction	1	1	1	1	3	6	11	5
25-49.9 Percent Reduction	63	14	69	39	3	6	2	0
50 Percent Reduction	26	27	2	2	13	6	1	0
Total Numbers of Operations	92	42	92	42	92	42	92	42

¹Less than 300 head.
²Greater Than 300 head.

while the remainder are for use by local communities. Thirteen free use permits have been granted to local communities. **Without** free use permits these communities would be **required** to purchase mineral materials. This BLM program directly assists local communities The value of materials removed under free use permit has not been established. No changes in these permits would be **made** under any of the proposed alternatives. Under all alternatives, mining activities at the Eagle Pitcher Diatomite mine are unaffected.

Exploration and development of oil and gas, geothermal and gold resource in the planning area is permitted by all alternatives. The intensity of future exploration and development is unknown. Three scenarios have been developed in conjunction with the RMP/ EIS. Employment estimates in these scenarios range from 25162 depending on the type of exploration or development hypothesized. See Appendix 9, Table 12.

Chapter 5 Consultation and Distribution



Canyon City to Burns stage route, circa 1900 • *Jim McDade photo.*

Introduction

The Three Rivers **Draft Resource Management Plan/ Environmental Impact Statement (RMP/EIS)** has been prepared by an **interdisciplinary** team of resource specialists from the Burns District BLM Office. Compilation of the **Draft RMP/EIS** began in the winter of 1988; however, a complex process that began in September of 1987 preceded the writing phase. The **Draft RMP/EIS** process has included consolidation of resource data, public participation, interagency coordination and **analysis** of the management situation. Consultation and coordination with various agencies, organizations and individuals occurred throughout the planning process.

Public Involvement

A notice was published in the Federal Register (Vol. 52, No. 187) on **September 28, 1987**, and in the local news media **announcing** the formal start of the planning process. At that time, a planning brochure was sent to the public requesting comment on planning issues, goals and objectives for the Three Rivers Resource Area (**RA**).

In February of 1989, nearly 500 copies of an information brochure were mailed to interested agencies, organizations and individuals. This brochure presented the final planning issues, the alternatives to be analyzed in the **Draft RMP/EIS**, and the planning criteria guiding the overall process.

Agencies and Organizations Contacted or Consulted

Federal Agencies

USDA, Forest Service
USDA, Soil Conservation Service
USDE, Bonneville Power Administration
USDI, Fish and Wildlife Service
USDI, Bureau of Reclamation
USDI, Bureau of Indian Affairs
Pacific Northwest Research Natural Area Committee
USDI, Bureau of Mines

State and Local Government

Harney County Planning Department
Harney County Court
Malheur County Planning Department

Grant County Court
Malheur Field Station
Oregon Department of Environmental Quality
Oregon Department of Fish and Wildlife
Oregon Department of Geology and Mineral Industry
Oregon Department of Transportation
Oregon Division of State Lands

Organizations and Advisory Boards

The Nature Conservancy
Oregon Cattleman's Association
Oregon Natural Resources Council
Kiger **Mesteno** Association
The Burns District Multiple Use Advisory Board
The Audubon Society of Portland
The Burns Paiute Tribe
The Confederated Tribes of the Warm Springs Reservation
Oregon Hunter's Association

List of Agencies, Organizations and Individuals to Whom Copies of the Draft RMP/EIS Have Been Sent

Federal Agencies

Committee on Interior and Insular Affairs
Environmental Protection Agency
Federal Energy Regulatory Commission
National Marine Fisheries Service (NOAA)
Pacific NW Forest and Range Experiment Station
Small Business Administration, Regional Office
U.S. Air Force
U.S. Army Corps of Engineers
USDA, Forest Service
USDA, Soil Conservation Service
USDE, Bonneville Power Administration
USDI, Bureau of Mines
USDI, Bureau of Reclamation
USDI, Fish and Wildlife Service
USDI, Geological survey
USDI, Minerals Management Service
USDI, Park Service
US. Department of Transportation

State and Local Government

Grant County Court
Harney County Court
Lake County Court

Malheur County Court
 Clearinghouse, Executive Department
 Intergovernmental Relations Division
 Ida-Ore Regional Planning and Development
 Commission
 Malheur Field Station
 Mid-Columbia Council of Governments
 Oregon Department of Agriculture
 Oregon Department of Energy
 Oregon Department of Environmental Quality
 Oregon Department of Fish and Wildlife
 Oregon Department of Forestry
 Oregon Department of Geology and Mineral Industry
 Oregon Department of Land Conservation and
 Development
 Oregon Department of Transportation
 Oregon Division of State Lands
 Oregon Economic Development Department
 Oregon State Forestry Department
 Oregon State Parks and Recreation Division
 Oregon State Historic Preservation Officer
 Oregon Water Resource Department

Interest Groups and Organizations

1000 Friends of Oregon
 Agri-Business Council of Oregon
 The American Alpine Club
 American Cave Conservation Association
 American Fisheries Society
 American Forest Institute
 American Horse Protection Association
 American Humane Association
 American Mustang & Burro Association
 American Mustang Association
 American Wilderness Alliance
 Amoco Production Company
 Animal Protection Institute
 Associated Oregon Industries
 Associated Oregon Loggers, Inc.
 Association of NW Steelheaders
 Association of O&C Counties
 Association of Oregon Archaeologists
 Association of Oregon Counties
 Atlantic Richfield Company
 Central Oregon Audubon
 National Audubon Society
 Audubon Society of Portland
 Berry Botanic Garden
 Blue Mountain forest Products
 Burns Paiute Tribal Reservation
 Cascade Holistic Economic Consultants
 Columbia River Inter-Tribal Fish Comm.
 Committee for Idaho's High Desert
 Confederated Tribes of the Umatilla Indian
 Reservation

Confederated Tribes of Warm Springs
 Defenders of Wildlife
 Desert Trail Association
 Eastern Oregon Mining Association
 First Interstate Bank of Oregon
 Fort Bidwell Indian Community, California
 Fort McDermitt Shoshone-Paiute Tribe, Nevada
 Geothermal Resources Council
 International Society for the Protection of Mustangs
 and Burros
 Idaho Snowmobile Association
 Izaak Walton League
 Public Lands Restoration Task Force
 Kiger Mesteno Association
 League of Cities
 Mazamas
 National Assn. of Conservation Districts
 Ntnl Assoc. of Reversionary Prop. Owners
 National Mustang Association
 National Specelological Society
 National Wildlife Federation
 Native Plant Society of Oregon
 Natural Resources Defense Council, Inc.
 The Nature Conservancy
 NW Coalition for Alter. to Pesticides
 NW Environmental Defense Center
 NW Federation of Mineralogical Societies
 NW Forestry Association
 Northwest Mineral Prospectors Club
 NW Mining Association
 NW Timber Association
 Northwestern Petroleum Assoc.
 NW Power Planning Council
 Oregon Public Lands Advisory Council - Southeast
 Oregon Cattlemen's Association
 Oregon Council of Rock & Minerals Clubs
 Oregon Environmental Council
 Oregon Equestrian Trails
 Oregon Farm Bureau Federation
 Oregon Forest Industries Council
 Oregon Horseman's Association
 The Oregon Hunter
 Oregon Hunters Association
 Oregon League of Women Voters
 Oregon Natural Desert Assn.
 Oregon Natural Heritage Program
 Oregon Natural Resources Council
 Oregon Nordic Club
 The Oregon Rivers Council
 Oregon Sheep Growers
 Oregon Small Woodlands Association
 Oregon Sportsmen & Conservationist
 Oregon State Snowmobile Association
 Oregon Trout
 Oregon Watershed Improvement Coalition
 Oregon Wild Horse Association
 Oregon Wildlife Federation

Oregon Wildlife Heritage Foundation
Pacific Logging Congress
Pacific NW 4-Wheel Drive Association
Pacific Wild Horse Club
Range Ecology Group
Sagecountry Alliance for Good Environment
Sierra Club
Snow Mountain Pine
Society for Range Management
Society of American Foresters
Southern Utah Wilderness Alliance
Trout Unlimited, Oregon Council
Trust For Public Lands
Western Council- Lumber Production and
Industrial Workers
Western Forest Industries Assoc.
Western Forestry and Conservation Assoc.
Western Wood Products Association
The Wilderness Society
Wildlife Management Institute
The Wildlife Society
Individuals

Approximately 350 additional individuals and organizations who have expressed an interest in use and management of public lands in the planning area were also sent copies of the draft RMP/EIS. Included in this group are all grazing lessees within the planning area, members of the Oregon legislature, U.S. Congressional delegation and various educational institutions.

Chapter 6 List of Preparers, References, Glossary and Index



Harriman Hotel, Harriman, Oregon, July 4, 1913 - *Marcus Haines photo.*

List of Preparers.

Although individuals **have** primary responsibility for preparing sections of an environmental impact statement or a resource **management** plan, the document itself is an interdisciplinary team effort. An internal review of the document was conducted at each stage of its preparation. Specialists at the district level and the state level of the **Bureau** of Land Management reviewed the analysis and supplied information. Contributions by individuals in the **preparation** of the document may be subject to revision by other BLM specialists and by management staff 'members during the internal review **process**.

Name	Primary Responsibility	Discipline	Related Professional Experience
Craig M. Hansen	Policy Guidance. Decision Making	Area Manager, Three Rivers Resource Area	5 years Management, BLM, 5 years, Mineral Management Service, USGS Conservation Division in Mineral Development 6 years, Water Resource Division Water Resource Monitoring/Studies, USGS 2 years. Geology/Engineering. Bureau Reclamation 2 years, Private Engineering/Oil Gas Companies 6 years. Range Conservationist, BLM
Bill Andersen	Wild Horses and Burros	Range Conservationist -Wild Horse Coordinator for the Three Rivers Resource Area	
Liz Appelman	Editorial/Word Processing	Editorial Assistant	2 years, Editorial Assistant, BLM 3 years, Clerk-Typist, ELM
Mark Armstrong	Editorial, Nongame Species	Public Affairs Officer/Planning and Environmental Coordinator	3 years, Public Affairs/Planning and Environmental Coordinator, BLM 13 years, Range Conservationist, BLM
John Barber	Soils	Soil Scientist	1 year, Soil Scientist, ELM 2 years, Hydrologist Coop Ed. Student, BLM , year, Chemistry Lab Tech. Lebanon, OR University of Nevada, Reno 2 years, Hydrologic Research Technician, 13 years, Geologist and Soil Scientist, ELM 2 years, Cartographic Technician. ELM 7 years, Cartographer/Physical Scientist, Defense Mapping Agency 6 years, Planning & Environmental Coordination 4 years, Regional Economist, BLM 2 years, Remote Sensing, Forest Inventory. State of Idaho
Roger Britton Elise Eruch	Energy and Minerals Map Preparation	District Geologist Cartography	1 year, Clerk Typist, BLM 3 years, VA Medical Center, Secretary, Chief, Psychiatry Service 13 years, Archaeologist, BLM
Jay K. Carlson	Planning Team Leader	Project Manager, Technical Coordinator. Public Affairs	
Doris cooper	Word Processing	Clerk/Typist	
Bruce Crespin	Cultural Resources, Areas of Critical Environmental Concern	Archaeology/Anthropology	
Leslie Frewing Mike Hartwell	Economics Fire Management	Economist District Fire Management Officer, District Aviation Officer, District Prescribed Fire Manager	1 year Economist , BLM 17 years, Fire Program-11 years in Management 10 years, Aviation Program
Cheryl McCaffrey	Special Status Species (Botany)	Botanist, Oregon State Office	1 year, Oregon State Office Coordinators, Special Status Species-Plants 4 years. Eastern Oregon Zone Botanist. BLM 3 years, Various positions in mapping & photo interpretation in New York, Georgia&Alaska 6 years Realty Specialist, BLM 3 years, Range Conservationist, BLM 10 years, Wildlife Biologist, ELM 2 years, Biological Technician and Range Technician, BLM
Skip Renschler	Lands and Realty	Realty Specialist	
Fred Taylor	Wildlife, Riparian, Wetlands, Special Status Species (Animals)	Wildlife Biologist	

<i>Name</i>	Primary Responsibility	Discipline	Related Professional Experience
Nora Taylor Dave Vickstrom	Livestock Grazing Recreation, Wild and Scenic Rivers, Visual Resource Management	Range Conservationist Outdoor Recreation Planner	10 years, Range Conservationist, BLM 17 years, Outdoor Recreation Planner, BLM 5 years, Outdoor Recreation Planner, National Park Service
Bob Vidourek Ron Wiley	Forestry Water Quality/Aquatic Habitat	Forester Water Quality	14 years, Forester, BLM 8 years, Fisheries Biologist, BLM 3 years Fish and Wildlife Biologist, USFWS

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Glossary of Terms

Accelerated Erosion Erosion processes increased by the activities of humans. See "Erosion."

Active Preference -That portion of the total grazing preference for which grazing use may be authorized.

Activity Planning Site-specific planning which precedes actual development. This is the most detailed level of BLM planning.

Actual Use -The amount of AUMs consumed by livestock based on the numbers of livestock and grazing **date**s submitted by the livestock operator and confirmed by periodic field checks by the BLM.

Adjustments - Changes in animal numbers, periods of use, **kinds** or class of animals or management practices as **warranted** by specific conditions.

Adverse Location (TPCC) - A subclass of problem sites which, **because** of its physical isolation, is difficult or **impossible** to manage for sustained yield timber production.

Allotment - An area of land where one or more livestock operators graze their livestock. Allotments generally consist of BLM lands but may also include other federally managed, state owned and private lands. An allotment may include one or more separate pastures. Livestock numbers and periods of use are specified for each allotment.

Allotment Categorization - Grazing allotments and rangeland areas used for livestock grazing are assigned to an allotment category during resource management planning. Allotment categorization is used to establish priorities for distributing available funds and personnel during plan implementation to achieve cost-effective improvement of rangeland resources. Categorization is also used to organize allotments **into** similar groups for purposes of developing multiple **use** prescriptions, analyzing site-specific and cumulative impacts and determining trade offs.

Allotment Management Plan (AMP) -A written program of livestock grazing management, including **supportive** measures if required, designed to attain specific management goals in **a** grazing allotment.

Animal Unit Month (AUM) -A standardized measurement of **the** amount of forage necessary for the sustenance **of** one cow unit or its equivalent for **1** month (approximately 800 pounds of forage).

Anadromous - Fish which migrate from the ocean to breed in fresh water. Their offspring return to the ocean.

Aquatic - **Living or growing in or on the water.**

Archaeological Quarry Sites - Places where minerals occur which were a source of raw material for pre-historic/historic peoples.

Archaeological Site - **Geographic locale containing** structures, artifacts, material remains and/or other evidence of past human activity.

Area of Critical Environmental Concern (ACEC) - Places within the public lands where special management attention is required to protect and prevent irreparable damage **to** important historical, cultural or visual values, fish and wildlife resources, other natural systems or processes or to protect life and safety from natural hazards.

Avoidance Areas - Areas with sensitive resource values where rights-of-way and Section 302 permits, leases and easements would be strongly discouraged. Authorizations made in avoidance areas would have to be compatible with the purpose for which the area was designated and not be otherwise feasible on lands outside the avoidance area.

Best Forest Management Practices-General forest management practices which are consistent for all timber harvest and treatment activities.

Big Game Animals - Elk, mule deer, antelope and bighorn sheep.

Board Feet -A unit **of** solid wood, one foot square and one inch thick.

Browse To browse (verb) is to graze a plant; also, browse (noun) is the tender **shoots**, twigs and leaves of trees and shrubs often used as food by livestock and wildlife.

Buffer Strip -A protective area adjacent to an area of concern requiring special attention or protection. In contrast **to** riparian zones which are ecological units, buffer strips can be designed to meet varying management concerns.

C Category - Custodial Management (see Selective Management Categories).

Camp Site - Area utilized by Native Americans for one or more tasks, which also shows evidence of occupation by the presence of housepits, hidden deposits and/or hearths.

Carrying Capacity -The maximum stocking rate possible without damaging vegetation or related resources.

Catchment **A structure** built to collect and retain water.

Channel -An open conduit either naturally or artificially created which periodically or continuously contains **moving** water or forms a connecting link between two bodies of water.

Channel Stability -A relative term describing erosion or movement **of** the channel walls or bottom due to waterflow.

Characteristic Landscape - The visual characteristics of existing landscape features (including man-made) within a physiographic province. The term does not necessarily mean naturalistic character but rather could refer to landscapes which exhibit both physiographic **and** land use similarities.

Class I Cultural inventory - An inventory of the existing literature and a profile of the current data base for cultural resources, frequently utilized to guide field inventories.

Class ii Cultural Inventory A sample-oriented field inventory which is representative of the range of cultural **resources** within a finite study area.

Class iii Cultural inventory -An intensive field inventory **designed** to locate and record, from surface and exposed profile, all cultural resources within a specified area.

Climax -The culminating stage in plant succession for a given site where vegetation has reached a highly stable condition.

Commercial Forestland (TPCC) Forestland which is capable of producing **20+cubic** feet per acre of wood per **year of** commercial tree species.

Commercial **Tree** Species (TPCC) - Tree species whose yields are reflected in the allowable cut: pines, firs, spruce, Douglas-fir and larch.

Competitive Forage -Those forage species utilized by two or more animal species.

Conditional Suppression - Suppression actions based on predetermined, stringent conditions, i.e., fire location, weather condition, forces available and fire size. Monitoring must be done throughout the fire's duration and direct suppression will be taken if any one condition is exceeded.

Critical Growth Period -A specified period of time in which plants need to develop sufficient carbohydrate reserves and produce seed, e.g., approximately the months of May and June for bluebunch wheatgrass.

Critical Habitat -The area of land, water and air-space required for the normal needs and survival of a federally listed threatened or endangered species.

Cultural Resources - Fragile and nonrenewable elements of the environment including archaeological remains (evidence of prehistoric or historic human activities) and sociocultural values traditionally held by ethnic groups (sacred places, traditionally utilized raw materials, etc.).

Cultural Site-Any location that includes prehistoric and/or historic evidence of human use, or that has important sociocultural value.

Deferment -The withholding of livestock grazing until a certain stage of plant growth is reached.

Deferred Grazing - Discontinuance of livestock grazing on an area for specified period of time during the growing season to promote plant reproduction, establishment of new plants or restoration of the vigor by old plants.

Deferred Rotation Grazing Discontinuance of livestock grazing on various parts of a range in succeeding years, allowing each **part** to rest successively during the growing season. This permits seed production, establishment of new seedlings or restoration of plant vigor. Two, but more commonly three or more, separate pastures are required.

Depth of Slash -The vertical distance from the litter surface to the highest slash particle in a sampling plot. A fuels inventory measures the fuel loading of dead and downed woody materials.

Diet Overlap -The presence of the same forage plant in the diet of several herbivores.

Discretionary Closures -Areas where the BLM has determined that energy and/or mineral leasing, entry or disposal, even with the most restrictive stipulations or conditions would not be in the public interest.

Disposal - Any BLM authority which transfers title out of public ownership.

Distribution - The uniformity of livestock grazing over a range area. Distribution is affected by the availability of water, topography and type and palatability of vegetation as well as other factors.

Drainage (Internal Soil) -The property of a soil that permits the downward flow of excess water. Drainage is reflected in the number of times and in the length of time water stays in the soil.

Endangered Species -A plant or animal species whose prospects for survival and reproduction are in immediate jeopardy, as designated by the Secretary of the Interior, and as is further defined by the Endangered Species Act of 1973, as amended.

Ephemeral Stream -A stream that flows only after rains or during snowmelt.

Epithermal - A term applied to those ore deposits "...formed in and along fissures or other openings in rocks by deposition at shallow depths from ascending hot solutions. They are distinguished from mesothermal and hypothermal lodes by the minerals they contain, by their textures and by the character of the alteration of their wall rocks." (Stokes and Varnes p. 48 1955 after Emmons)

Epithermal Deposit - Deposit formed in and along fissures or other openings in rocks by deposition at shallow depths from ascending hot solutions.

Erosion -The wearing away of the land surface by running water, wind, ice or other geological agents.

Exchange of Use - Grazing authorization issued to a permittee free of charge for unfenced, intermingled private lands within an allotment.

Exclusion Area Areas with sensitive resource values where rights-of-way and 302 permits, leases and easements would not be authorized.

FFR Fenced Federal Range -generally a small amount of public land fenced with a large amount of private land.

Federal Candidate Species - See Special Status Species

Federal Land **Policy** and Management Act of 1976 (FLPMA) **Public Law** 94-579. October 21, 1976, often referred to as the **BLM's** "Organic Act", which provides the majority of the **BLM's** legislated authority, direction, policy and basic management guidance.

Fire Hazard Reduction -Any management action, including **treatment** of fuels, that reduces the threat of ignition intensity and spread of fire.

Fire Use Zone

Zone A - Full Suppression Area with NO Prescribed Fire - Because of resource values and special considerations, all fires will have aggressive suppression action taken regardless of cause or location. No prescribed or conditional burning will be allowed within this zone.

Zone B -Conditional Suppression Area - Natural ignition fires within this zone that occur within the predetermined conditional parameters would be allowed to burn but would be constantly monitored. All human-caused fires and fires that do not meet the designated conditions will be suppressed.

Zone C - Full Suppression with Prescribed Fire - All unplanned fire ignitions will be aggressively suppressed. However, to achieve identified resource habitat treatment objectives, approved prescribed burning projects will be allowed as need and funding occur.

Flat Water Surface water of lakes and reservoirs

Floodplain - The relatively flat area or lowlands adjoining a body of standing or flowing water which has been or might be covered by floodwater.

Fluid Energy Minerals - Oil, gas and geothermal energy.

Forb - A broad-leafed herb that is not grass, sedge or rush.

Forestland - Land which is now, or is capable of being, at least 10 percent stocked by forest trees, and is not currently developed for nontimber use.

Forest Treatment Area - The immediate and surrounding terrain of an area to be harvested, commercial thinned, precommercial thinned, etc. The treatment area generally consists of the immediate drainage within which a treatment occurs.

Formation - A sequence of rock strata which are recognizable over a large area.

Fragile Site (TPCC) -A subclass of problem sites whose timber growing potential is easily reduced or destroyed, loss of timber growing potential results from soil erosion.

Geomorphic - Pertaining to the form of the earth or its surface features.

Grazing System -The manipulation of livestock grazing to accomplish a desired result.

Ground Cover - Vegetation, mulch, litter, rock, etc.

Groundwater Water contained in pore spaces of consolidated and unconsolidated surface material.

Habitat -A specific set of physical conditions that surround a species, group of species or a large community. In **wildlife** management, the major constituents of habitat are considered to be food, water, cover and living space.

Habitat Management Plan (HMP) A plan for management of habitat.

Herd Management Area Plan (HMAP) • An action plan that prescribes measures for the protection, management and control of wild horses and burros and their habitat on one or more herd management areas, in conformance with decisions made in approved management framework or resource management plans.

Historic - Refers to period wherein non-native cultural activities took place, based primarily upon European roots, having no origin in the traditional Native American culture(s).

I Category - Improve Management (see Selective Management Categories).

Intermittent Stream - A stream which flows most of the time but occasionally is dry or reduced to pool stage.

Issue -A subject or question of widespread public discussion or interest regarding Resource Area management, identified through public participation.

Interseeding -The practice of seeding native or introduced plant species into native range in combination with various mechanical treatments. Interseeding differs from range seeding in that only part of the native vegetation is removed to provide a **seedbed** for the seeded species.

Key Species - Major forage species on which range management should be based.

LCDC Goals Oregon's statewide planning goals for the coordination of land use planning the the state. Administered by the Department of Land Conservation and Development.

Land Classification - A process required by law for determining the suitability of public lands for certain types of disposal or lease under the public land laws or for retention under multiple use management.

Land Treatment -All methods of range improvement and soil stabilization such as reseeding, brush control (burning and mechanical), pitting, furrowing, water spreading, etc.

Leasable Minerals - Minerals subject to lease by the federal government including oil, gas and coal.

Lithic -A stone or rock that may be either abraded into the proper form for use as a tool or shaped by knocking pieces (flakes) off. A cluster of flakes is called a "lithic scatter."

Livestock Forage Condition • Based on percent of desirable forage in the composition for livestock and the existing erosion condition of a site. Condition of the range must include consideration of vegetation quality and quantity and soil erosion characteristics.

Livestock Operation -The management of a ranch or farm so that a significant portion of the income is derived from the continuing production of livestock.

Locatable Minerals - Generally the metallic minerals subject to development specified in the General Mining Law of 1872.

M Category - Maintain Management (see Selective Management Categories).

Management Situation **Analysis** (MSA) -A comprehensive display of physical resource data and an analysis of the current use, production, condition and trend of the resources and the potentials and opportunities within a planning unit, including a profile of ecological values.

Mineral Entry-The location of mining claims by an individual to protect his right to a valuable mineral.

Mitigation Measures • Methods or procedures committed to by BLM for the purpose of reducing or lessening the impacts of an action.

Multiple Use - Balanced management of the various surface and subsurface resources, without permanent impairment of the productivity of the land, that will best meet present and future needs.

National Register of Historic Places (**NRHP**) -A register of districts, sites, buildings, structures and objects, significant in American history, architecture, archaeology and culture, established by the Historic Preservation Act of 1966 and maintained by the Secretary of the Interior.

National Register Potential -Status of a cultural resource which is deemed qualified for the NRHP, prior to formal documentation and consultation; managed as if it were actually listed.

Nondiscretionary Closures Areas specifically closed to energy and/or mineral leasing, entry or disposal by law, regulation, Secretarial decision or Executive Order.

Noncommercial Forestland (TPCC) - Forestland which is not capable of producing 20 cubic feet per acre of wood per year of commercial tree species.

Noncommercial Tree Species (TPCC) - Species whose yields are not reflected in the allowable cut, regardless of their salability. Includes all hardwoods, juniper and mountain mahogany.

Nonoperable(TPCC) - Forestlands unsuitable for any type of timber harvest activity due to their 1) physical features: for example, extremely rocky, boulder fields, rim rocks, rock outcrops and unsafe for logging operations and/or 2) forestlands on which logging activity will result in the loss of the site's potential for producing commercial tree species, for example loss of soil through erosion, slope failure and/or the inability to reforest the site within acceptable time limits (usually 5 to 15 years) even with special reforestation techniques.

Nonproblem Site (TPCC) -A subclass of commercial forestland which requires no special harvesting, reforestation or other restrictive measures in order to be managed on a sustained yield basis.

Nonrestricted Forestland (TPCC) Nonproblem sites in the timber base on which no special techniques are required for harvest, reforestation and other management practices.

Nonuse -Available grazing capacity in AUMs which is not permitted during a given time period.

Not Currently Available (TPCC) - Those lands which have been set aside due to other resource management considerations (e.g., wildlife, fisheries/riparian, bald eagles, recreation, etc.)

Off-Road Vehicle (ORV) -Any motorized vehicle capable of, or designed for, travel on or immediately over land, water or other natural terrain, excluding (1) any nonamphibious registered motorboat, (2) emergency vehicles, and (3) vehicles in official use.

Peak Discharge - The highest stage or channel flow attained by a flood, usually expressed as the volume

of water in cubic feet passing a given point in a One second time period, hence, cubic feet per second.

Percentage of Use - Grazing use of current vegetation growth, usually expressed as a percentage of volume removed.

Perennial (Permanent) Stream -A stream that ordinarily has running water on a year-round basis.

Period of Use -The time of livestock grazing on a range area based on type of vegetation or stage of vegetative growth.

Permit/Leases (Grazing) - Under Section 3 of the Taylor Grazing Act, a permit is a document authorizing use of public lands within grazing districts for the purpose of grazing livestock. Under Section 15 of the Taylor Grazing Act, a lease is a document authorizing livestock grazing use of public lands outside grazing districts.

Permit Value -The market value of a ELM grazing permit which is often included in the overall market value of the ranch.

Petroglyph -A figure, design or indentation carved, abraded or pecked onto a rock.

Pictograph -A figure or design painted onto a rock.

Prehistoric - Refers to the period wherein Native American cultural activities took place which were not yet influenced by contact with historic non-native culture(s).

Prescribed Fire -A planned burning of live or dead vegetation under favorable conditions which would achieve desired management objectives.

Presuppression -All actions involved in the location or allocation of suppression resources in order to be prepared to suppress wildland fires.

Problem Site (TPCC) A subclass of commercial forestland which consists of adverse location, fragile sites and problem reforestation areas. This subclass of land is either withdrawn from the timber production base or remains in the base subject to restrictions which call for the application or prohibition of certain management practices.

Proper Use -The degree and time of use of the current year's plant growth which, if continued, will either maintain or improve the range condition consistent with conservation of other natural resources.

Proper Use Factor - The degree of use a kind of grazing animal will make of a particular plant when the range is properly grazed.

Public Lands-Any land and interest in land (e.g. mineral estate) owned by the United States and administered by the Secretary of the Interior through the BLM. May include public domain or acquired lands in any combination.

Range Improvement - A structure, excavation, treatment or development to rehabilitate, protect or improve public lands to advance range betterment. "Range Development" is synonymous with "Range Improvement."

Range Seeding - The process of establishing vegetation by mechanical dissemination of seed.

Range Trend - The direction of change in range condition and soil.

Raptor Bird of prey with sharp talons and strongly curved beaks, e.g., hawks, owls, vultures, eagles.

Recreation and Public Purposes Act (R&PP Act) - This act authorized the Secretary of the Interior to lease or convey public lands for recreational and public purposes under specified conditions of states or their political subdivisions, and to nonprofit corporations and associations.

Recreational Collection (Minerals) - Rockhounding

Recreational Opportunity - Those outdoor recreation activities which offer satisfaction in a particular physical, social and management setting in the EIS areas: these activities are primarily hunting, fishing, wildlife viewing, photography, boating and camping.

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

Residual Ground Cover-That portion of the total vegetative ground cover that remains after the livestock grazing season.

Restricted Forestland (TPCC) Problem sites in the timber base on which special techniques are required to protect the timber growing potential or to ensure adequate regeneration within a specified time (usually 5 years).

Right-of-Way-A permit or an easement which authorizes the use of public lands for certain specified purposes, commonly for pipelines, roads, telephone lines, electric lines, reservoirs, etc.; also, the lands covered by such an easement or permit.

Riparian Habitat - Riparian habitat is defined as a specialized form of wetland restricted to areas along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, also, periodically, flooded lake and reservoir shore areas, as well as lakes with stable water levels with characteristic vegetation.

Rock Art Sites Petroglyphs or pictographs.

Rockshelter - Naturally formed recess in a rock formation which provided shelter to prehistoric occupants.

Runoff -The water that flows on the land surface from an area in response to rainfall or snowmelt. As used in this RMP/EIS, runoff from an area becomes streamflow when it reaches a channel.

Salable Minerals - High volume, low value mineral resources including common varieties of rock, clay, decorative stone, sand and gravel.

Sallnity -A measure of the mineral substances dissolved in water.

Satisfactory Big Game Habitat Condition - Big game habitat which does not have any habitat component deficiencies.

Scenic Quality -The degree of harmony, contrast and variety within a landscape.

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

Seasonal (Season Long) Grazing - Grazing use throughout a specific season.

Sediment - Soil, rock particles and organic or other debris carried from one place to another by wind, water or gravity.

Selective Management Categories-Three categories broadly define rangeland characteristics, potential, opportunities and needs. The three categories are Maintain, Improve and Custodial, for which the respective **objectives** are to:

- a. Maintain the current resource condition.
- b. Improve the current resource condition.
- c. Custodially manage the existing resource values.

Shrub-A low, woody plant, usually with several stems, that may provide food and/or cover for animals.

Silviculture - The science and art of producing and tending a forest.

Slash -The branches, bark, tops, cull logs and broken or uprooted trees left on the ground after logging has been completed.

Socio-Cultural Use - May be applied to any area or cultural resource that is perceived by a specified social and/or cultural group (e.g. Native Americans) as having attributes which contribute to maintaining the heritage or existence of that group, and signifies that the cultural resource or area is to be managed in a way that takes those attributes **into account**.

Special Status Species - Includes the following;

(1) Proposed species are species that have been officially proposed for listing as threatened or endangered by the Secretary of the Interior. A proposed rule has been published in the Federal Register.

(2) Threatened/Endangered species are those officially listed as threatened or endangered by the Secretary of the Interior under the provisions of the Endangered Species Act. A final rule for the listing has been published in the Federal Register.

(3) Candidate species are those species designated as candidates (**categories** 1 and 2) for listing as threatened or **endangered** by the U.S. Fish and Wildlife Service/National Marine Fisheries Service (USFWS/NMFS). A list has been published in the Federal Register.

(4) State listed species are those proposed for listing or listed by a State in a category implying potential endangerment or extinction. Listing is either by legislation or **regulation**.

(5) Sensitive species are those designated by a State Director, usually in cooperation with the State agency

responsible for managing the species, as sensitive. They are those species that are: (1) under status review by the FWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary; or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats.

Stocking Rate-The amount of animal units on a specified area at a specific time, usually expressed in **acres/AUM**.

Streambank (and Channel) Erosion -This is the removal, transport, deposition, recutting and **bedload** movement of material by concentrated flows.

Suspended Nonuse -Temporary withholding of a grazing preference from active use.

Sustainable Annual Harvest - The yield that a forest can produce continuously from a given level of management.

Thermal Cover-Vegetation or topography that prevents radiational heat loss, reduces wind chill during cold weather, and intercepts solar radiation during warm weather.

Threatened Species -A plant or animal species that the Secretary of the Interior has determined to be likely to become endangered within the foreseeable future throughout all or most of its range.

Timber Base - (TPCC) Commercial forestland judged to be environmentally and economically suitable and available for the continuous production of timber; the land from which the allowable cut is calculated and harvested.

Timber Production Capability Classification (TPCC) - The process of partitioning forestland into major classes indicating relative suitability to produce timber on a sustained yield basis.

Total Dissolved Solids-The dry weight of dissolved material, organic and inorganic, contained in water.

Total Preference -The total number of animal unit months of livestock grazing on public lands, apportioned and attached to base property owned or controlled by a permittee or lessee. The active preference and suspended preference are combined to make up the total grazing preference.

Tradition Longstanding, socially conveyed, customary patterns of thought, cultural expression and behavior, such as religious beliefs and practices,

social customs and land or resource uses (e.g. root gathering). Traditions are shared generally within a social and/or cultural group and span generations.

Turbidity -An interference to the passage of light through water due to insoluble particles of soil, **organics**, micro-organisms and other materials.

Unsatisfactory Big Game Habitat Condition - Big game habitat which has a deficiency in one or more of the major **habitat components**.

Value-at-Risk Classes - Six value classes (I-6, low-to-high) derived through interdisciplinary team evaluation of resource values for an area. Point values given an area by individual disciplines are combined to determine general values-at-risk classification for an area.

Vegetation Manipulation - Alteration of present vegetation by using fire, plowing or other means to manipulate natural successional trends.

Visitor Day-Twelve visitor-hours, which may be aggregated continuously, intermittently or simultaneously by one or **more** persons. Visitor-days may occur either as recreation visitor-days or as nonrecreation visitor-days.

Visual Resource(s) -The land, water, vegetation, animals and other features that are visible on all public lands.

Visual Resource Management Classes (VRM) -The degree of alteration that is acceptable within the characteristic landscape. It is based upon the physical and sociological characteristics of any given **homogenous** area.

VRM Class I areas (preservation) provide for natural ecological changes only. This class includes primitive areas, some natural areas, some wild and scenic rivers and other similar sites where landscape modification activities should be restricted.

VRM Class II (retention of the landscape character) includes areas where changes in any of the basic elements (form, line, color or texture) caused by management activity should not be evident in the characteristic landscape.

VRM Class III (partial retention of the landscape character) includes areas where changes in the basic elements (form, line, color or texture) caused by management activity may be evident in the characteristic landscape. However, the changes should remain subordinate to the visual strength of the existing character.

VRM Class IV (modification of the landscape character) includes areas where changes may subordinate the original composition and character; however, they should reflect what could be a natural occurrence within the characteristic landscape.

Water Quality -The chemical, physical and biological characteristics of water with respect to its suitability for a particular use.

Watershed -All lands which are enclosed by a continuous hydrologic drainage divide and lie **upslope** from a specified point on a stream.

Watershed Cover -The material (vegetation, litter, rock) covering the soil and providing protection from, or resistance to, the impact of raindrops and the energy of overland flow, and expressed in percent of the area covered.

Wetlands Permanently wet or intermittently flooded areas where the water table (fresh, saline or brackish) is at, near or above the soil surface for extended intervals, where hydric wet soil conditions are normally exhibited and where water depths generally do not exceed two meters.

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

Wilderness Study Area (WSA) -A roadless area that has been inventoried and found **to** be wilderness in character, having few human developments and providing opportunities for solitude and primitive recreation, as described in Section 603 of the Federal Land Policy and Management Act and Section 2(c) of the Wilderness Act of 1964.

Woodland - A forest community occupied primarily by noncommercial species; e.g., juniper, mountain mahogany or aspen groves.

Acronyms.

ACEC:	Area of Critical Environmental Concern
AMP:	Allotment Management Plan
AMS:	Analysis Of Management Situation
APHIS:	Animal and Plant Health Inspection Service
ATV:	All Terrain Vehicle
AU:	Animal Unit
AUM:	Animal Unit Month
BLM:	Bureau of Land Management
BFMP:	Best Forest Management Practices
BPA:	Bonneville Power Administration
CEQ:	Council of Environmental Quality
CFL:	Commercial Forest Land
CFR:	Code of Federal Regulations
CRMP:	Coordinated Resource Management Plan
CT	Commercial Thinning
DEQ:	Department of Environmental Quality
DOGAMI:	Department of Geology and Mineral Industry
EIS:	Environmental Impact Statement
FLPMA:	Federal Land Policy and Management Act
FS:	Forest S ervice
FUP:	Free Use Permit
FY:	Fiscal Year - 10/1 to 9/30
GEM:	Geology-Energy-Minerals
HMA:	Herd Management Area
HMAP:	Herd Management Area Plan
HMP:	Habitat Management Plan
IM-OR:	instruction Memorandum-Oregon (BLM)
IM-WO:	Instruction Memorandum-Washington, DC. (BLM)
LCDC:	Land Conservation and Development Commission
LWCF:	Land and Water Conservation Funds
MBF:	Thousand Board Feet
MFP:	Management Framework Plan
MNF:	Malheur National Forest
LISA:	Management Situation Analysis
NEPA:	National Environmental Policy Act
NMFS:	National Marine Fisheries Service
NRHP:	National Register of Historic Places
NPS:	National Park Service
NWR:	National Wildlife Refuge
OAESIS:	Oregon Automated Ecological Site Information System
ODF:	Oregon Department of Forestry
ODFW:	Oregon Department of Fish and Wildlife
ORV:	Off-Road Vehicle
OSR:	Overstory Removal
ONA:	Outstanding Natural Area
ONHP:	Oregon Natural Heritage Plan
PCT:	Precommercial Thinning
PL:	Public Law
PMOA:	Programmatic Memo of Agreement
RA:	Resource Area
R&PP:	Recreation and Public Purposes Act
RNA:	Research Natural Area
RMP:	Resource Management Plan
RV:	Recreational Vehicle

Acronyms (Continued)

SCS:	Soil Conservation Service
SHPO:	State Historical Preservation Officer
SRHA:	Stock Raising Homestead Act
ST:	Seed Tree
SWCC:	Soil and Water Conservation Commission
TPCC:	Timber Production Capability Classification
USDA:	U.S. Department of Agriculture
USDI:	U.S. Department of Interior
USFS:	U.S. Forest Service
USFWS:	U.S. Fish and Wildlife Service
VRM:	Visual Resource Management
WMU:	Wildlife Management Unit
WSA:	Wilderness Study Area

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