Appendix C

Roadless Area Evaluation

APPENDIX C
ROADLESS AREA EVALUATION

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Roadless Area Evaluation

Introduction

According to the Oregon Wilderness Act of 1984:

"... with respect to the National Forest System lands ... which were reviewed by the Department of Agriculture in the second Roadless Area Review and Evaluation (RARE II), .. (RARE II) shall be deemed for the purpose of the initial land management plans ... to be an adequate consideration of the suitability of such lands for inclusion in the National Wilderness Preservation System and the Department of Agriculture shall not be required to review the wilderness option prior to the revision of the [Forest] plans, but shall review the wilderness options when the plans are revised which will ordinarily occur on a ten-year cycle ... [Roadless areas] shall be managed for multiple use in accordance with land management plans pursuant to Section 6 of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976, provided that such areas need not be managed for the purpose of protecting their suitability for wilderness designation prior to or during revision of the land management plans ..."

(Public Law 98-328)

Appendix C describes each of the roadless areas on the Forest studied during the Roadless Area Review and Evaluation process (RARE II). It discusses the resources and values considered in each area, the range of alternative land uses considered for these during development of the proposed Forest Plan, and the effects of those alternatives on each area.

Approximately 115,700 roadless acres were evaluated during the RARE II process. Only the Black Canyon portion of the Canyon's area was recommended for Wilderness through RARE II. The Deschutes Canyon-Steelhead Falls area was recommended for further planning. The remaining areas were recommended for nonwilderness uses.

During the Unit Planning process, the Mill Creek, Lookout Mountain, Black Canyon, and Silver Creek areas were designated as special management areas to provide high quality backpacking and hiking experiences away from roads and motorized vehicles Roadless characteristics and wilderness qualities were also to be maintained in the Deschutes Canyon-Steelhead Falls area until this analysis is completed. The remaining six areas were to be managed for big game habitat and timber production.

The Oregon Wilderness Act of 1984 (Public Law 98-328) designated the Mill Creek, Bridge Creek, and Black Canyon areas as wilderness. The other areas not designated as wilderness may be managed for nonwilderness multiple use as determined through this environmental analysis. These areas, except Deschutes Canyon-Steelhead Falls, will not be considered for Wilderness during this initial planning period. The Deschutes Canyon-Steelhead Falls further planning area will be considered for a wilderness recommendation during this process.

Boundaries of the original RARE II areas have been adjusted to reflect changes from logging or other approved management activities that do not conform to the criteria for roadless areas.

Under the authority and direction of the current Ochoco-Crooked River Land Management Plan (February 2, 1979), specific timber sale plans have

been implemented in the Broadway area, and it is therefore no longer considered a roadless area and has not been analyzed as such in the development of alternatives.

This appendix describes the resource composition, use and potential, and environmental consequences of the alternatives for each of the remaining roadless areas (Lookout Mountain, Rock Creek, Cottonwood, Silver Creek, Green Mountain, and Deschutes Canyon-Steelhead Falls) in detail. As of December 1988, approximately 54,700 acres of the Forest and Grassland remain as roadless.

Acreage Comparisons

Table C-1 displays individual roadless area acres, how the acreages relate to the original RARE II acres, and the reasons for any changes.

TABLE C-1
Acreage Comparisons by Roadless Area

Area	Original RARE II Roadless Acres	Additions	Subtractions	Roadless Criteria Boundary Acres
Lookout Mountain	15,260	1/ 393 2/ 961	1/ 681 3/ 1,660	14,273
Rock Creek	9,286	1/ 742 2/ 1,932	1/ 287 3/ 259	11,414
Cottonwood (Portion of Black Canyon Roadless Area)	11,051	1/ 422 2/ 232	1/ 1,831 3/ 97	9,777
Silver Creek	11,670	1/ 1,147 2/ 2,742	5/ 7,100	7,459
Broadway	4/ 8,680			
Green Mountain	6,630			6,630
Deschutes Canyon/ Steelhead Falls	6/ 10,000			10,000

1/ More accurate mapping
2/ Old partial cutting - area remains substantially intact
3/ Older roading and cutting - areas show substantial impact
4/ No longer roadless due to sold timber sale
(Fry Timber Sale - 14 1 MMBF - Sold 1985)
5/ No longer roadless due to sold timber sale
(D-Creek Timber Sale - 7 7 MMBF - Sold 1985)
(Short Timber Sale - 7 8 MMBF - Sold 1985)
6/ Includes Forest Service acres only

Lookout Mountain

Description

Location and Access

The Lookout Mountain unroaded area consists of approximately 14,273 acres in Crook County on the Big Summit Ranger District. It is 25 miles east of Prineville, off U.S. Highway 26, and is accessed primarily from National Forest Road 42 and a few of its tributaries. Trail access into the area can be found across Road 42 from the Big Summit Ranger Station. A series of closed and abandoned old roads are also utilized for nonmotorized access into the southern and eastern parts of this area. Private land borders on the southwest, but otherwise National Forest lands surround the roadless area. Access is normally not available through the private land

History

The Lookout Mountain unroaded area has never been intensively managed for commodities production, and is presently considered and managed as a 16,577-acre "Special Management Area" for dispersed recreation and backcountry values. It was included in the RARE II inventory as #06214, but was not recommended for wilderness designation during that process and was not included in the Oregon Wilderness Act of 1984. The Senate Committee on Energy and Natural Resources recommended that the Forest Service "examine the feasibility of continuing the current use in the National Forest Plan and determine the land allocation in the Forest Plan." Approximately 987 acres have been removed from the original RARE II acreage due to on-the-ground surveys and increased accuracy of mapping.

Geography and Topography

Lookout Mountain has unique topographic features that make it easy to distinguish from surrounding landforms. From the Big Summit Ranger Station, with a low elevation of 3,793 feet, it rises toward the southeast through dense vegetation of mixed conifer forests to a high point of 6,926 feet, where exposed, nontimbered grasslands and rock outcrops can be found. From this point, the terrain drops rapidly to the south, exceeding 100 percent slopes in isolated sections. A large acreage of relatively flat, open terrain lies in the center of the roadless area and is the favored area for winter sports activities.

From here the terrain drops off shortly again towards the northeast to the boundary of the roadless area, which borders another unique topographic feature - Big Summit Prairie.

Soils

The Lookout Mountain area contains several soil types that are common to much of The Blue Mountains of eastern Oregon, derived to a large extent, from volcanic ash depositions of thousands of years ago.

All soil types (referred to as soil mapping units) within the Lookout Mountain area, fall within three general categories:

Higher elevation soils;

Low to mid elevation soils - deep; and

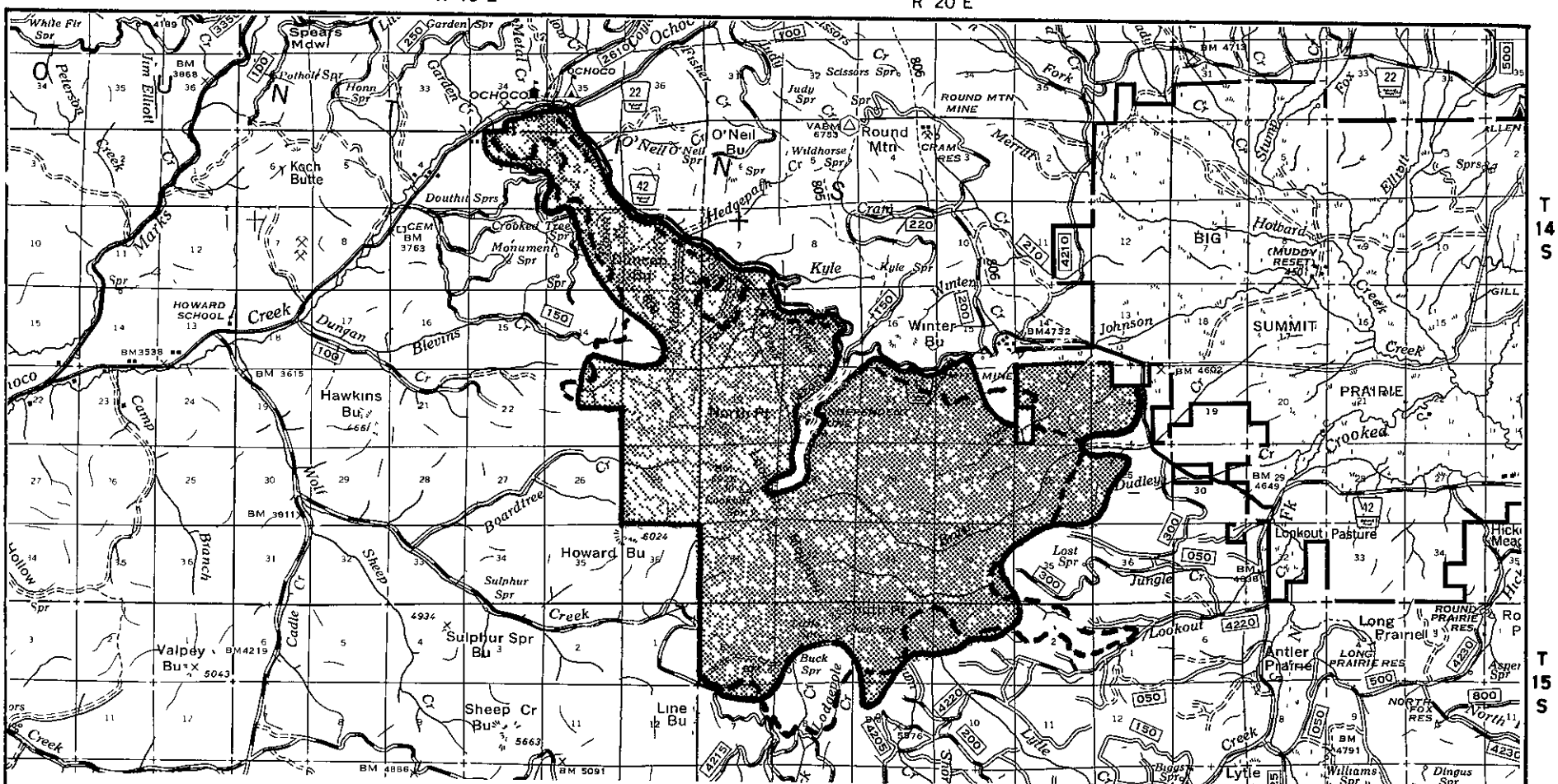
Low to mid elevation soils - shallow.

Higher elevation soils are contained in gentle to moderately steep, upland slopes and are derived from mixtures of ash, loess and residuum. Surface soils are very thin to moderately thick, sandy loams, loams and silt loams. Subsoils are absent to thin, gravelly to very gravelly loams, silt loams and silty clay loams.

Deep soils at low to mid elevations are represented by moderately deep to deep soils derived from volcanic ash over loess and residuum. Typically, these

Figure C-1

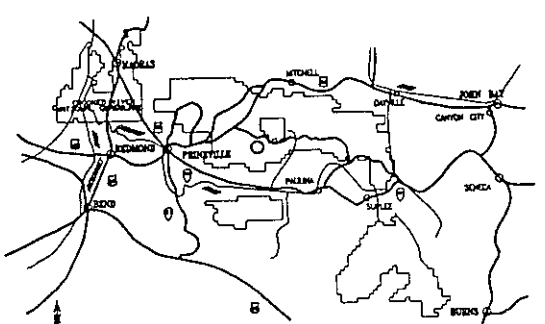
LOOKOUT MOUNTAIN



LEGEND

RARE II BOUNDARY # 06214-15260 ACRES

BOUNDARY WHICH MEETS ROADLESS CRITERIA # 14,273 ACRES



soils occur on northerly aspects of gentle to steep terrain.

Shallow soils at low to mid elevations contain thin surface layers of nongravelly to gravelly loams and subsoils that are either nonexistent or very thin clay loams to clays. These soils occur on all aspects of gentle, sloping basalt flow surfaces.

More than one-half of the acreage in the Lookout Mountain Roadless area exhibits severe erosion hazards.

Vegetation and Ecosystem Type

No less than twenty-eight different plant communities exist within the Lookout Mountain unroaded area, and contain a wide variety of plant species in various stages of succession. Many of these communities were historically maintained by fire, and are now undergoing change toward climax vegetation represented by species once restricted to isolated areas protected from fire.

Table C-2 contains a list of those plant communities, by acres, that exist in the Lookout Mountain roadless

TABLE C-2
LOOKOUT MOUNTAIN PLANT COMMUNITIES

Descriptor	Plant Community	Acres
Meadows	Dry Meadow (w/ tufted hairgrass, Kentucky bluegrass)	122
	Moist Meadows (w/ tufted hairgrass, ovalhead sedge, California catgrass)	27
Low elevation, nonforest	Bluegrass scabland (w/ sandberg bluegrass)	131
	Bunchgrass on shallow soil, gentle slopes	250
	Stiff sage scabland (w/ stiff sagebrush)	259
	Low sagebrush-bunchgrass	67
	Juniper-bunchgrass	284
	Juniper-stiff sage	9
	Juniper-low sagebrush	18
	Juniper-big sagebrush	6
Forested-ponderosa pine dominant, firs absent (to present)	Ponderosa pine, wheatgrass	48
	Ponderosa pine - fescue	30
	Ponderosa pine - bitterbrush, Ross sedge	3
	Ponderosa pine - blue wildrye	9
	Ponderosa pine - Douglas-fir - elk sedge	391
	Ponderosa pine - Douglas-fir - snowberry - oceanspray	887
	Mixed conifer - pinegrass - residual soils (w/ white fir, Douglas-fir, ponderosa pine)	700
	Mixed conifer - pinegrass ash soils (w/ western larch, white fir, Douglas-fir, ponderosa pine)	5,334
	Lodgepole - grouse huckleberry (w/ sub-alpine fir, Engelmann spruce)	749
	Lodgepole - pinegrass - grouse huckleberry (w/ white fir)	394
	White fir - twinflower (w/ Douglas-fir western larch, Columbia brome)	1,873
	White fir - grouse huckleberry	780
	White fir - big huckleberry	116
	Sub-alpine fir - grouse huckleberry (w/ Englemann spruce, larch)	12
	Subalpine fir - big huckleberry (w/ Engelmann spruce, Douglas-fir, larch)	36
	Alpine sagebrush - sedge (w/ Yarrow)	428
	Alpine sedge (w/ Hood sedge, Yarrow)	1,310

area, according to resource inventories. They are organized by similarities in dominant plants and environment.

Current Uses

Recreation

Existing management of the Lookout Mountain unroaded area allows for semiprimitive recreational activities in the summer. Other activities currently occurring include mining and grazing by sheep, cattle, and wild horses.

Current recreation use is subdivided among primary user groups of cross-country skiers, snowmobilers, horseback rider, hikers, deer and elk hunters, and mountain bikers. Skiers and snowmobilers comprise the largest group of users. The estimated capacity with current access and trail system is 7.8 thousand recreation visitor days (MRVD's). With a fully developed trail system, this area could support approximately 19.5 MRVD's.

Minerals

Two semi-active mines lie within the boundary of the roadless area. These operate only at minimum levels in order to meet annual assessment requirements.

Livestock

Both a sheep and cattle allotment overlay into the Lookout Mountain unroaded area. The Brush Creek cattle allotment provides for 533 animal unit months (AUM's) of grazing for local permittees. The Canyon Creek sheep allotment provides 3,850 sheep months of grazing.

Scenic Resources

From the west, Lookout Mountain appears somewhat ominous as it rises above the surrounding topography, especially during the winter months when snow-covered mountain meadows and rock outcrops become easily distinguishable from surrounding dense, mixed conifer forest.

Within the interior of the unroaded area, a variety of landforms and vegetative patterns are apparent. At the lower elevations, especially on southern exposures, open stands of ponderosa pine are still dominant. Even though this particular character type is slowly disappearing due to the elimination of fire, native grasses of fescue and wheatgrass, along with introduced species such as Kentucky bluegrass, complement these stands, providing a relaxing park-like setting.

At the mid to upper elevations, very dense stands of mixed conifer provide an extreme contrast to open pine stands. Large numbers of trees per acre, combined with a species mixture of ponderosa pine, Douglas-fir, western larch, white fir, and some lodgepole pine, provide a textural and color quality that is the dominant vegetation feature in the Lookout Mountain roadless area. As succession proceeds in a similar fashion to stands of ponderosa pine, white fir will become the dominant species in these stands, with western larch and ponderosa pine becoming insignificant components over time.

Interspersed throughout this large acreage of dense mixed conifer are small open meadows and draw bottoms that occasionally support groves of quaking aspen, providing the visitor with a refreshing and welcome change of scenery.

Approximately 2,500 acres of nonforested grasslands, alpine meadows and basalt rock outcrops are the dominant visual feature above 6,000 feet in elevation. Color and textural differences between these areas and adjacent timbered stands of subalpine fir, Engelmann spruce, lodgepole pine, and other more common mixed conifer species, provide a distinct visual character representation of many high altitude settings in the Blue Mountains of Eastern Oregon.

Spectacular scenery is abundant from the top of Lookout Mountain. Especially inviting is the view of the Oregon Cascade mountains to the west. No less than eleven major peaks are visible from this point. The area offers scenic beauty along all of the access trails while looking both into and out of the area.

Wildlife

The Lookout Mountain area is well-known locally for it's production of trophy, multi-antlered bull elk.

This is probably the most significant wildlife attraction in the area. Mule deer, ruffed grouse, black bear and bobcat are other hunted wildlife species that draw visitors to the area.

Nongame species inhabiting the area include pileated woodpeckers, badgers, a variety of hawk species, an occasional eagle, and numerous other indigenous animal species common to the Ochoco Mountains.

History

Gold and cinnabar mining were once very important activities in and around the Lookout Mountain area. The historic significance is well-known and documented. Several small communities grew up, then quickly vanished. The remnants of these past activities are still apparent and are adjacent to the roadless area. Of particular attraction are the two existing operational mines, Amity and Independence, which still contain remnants of buildings and other structures associated with past mining activities.

Wilderness Capability (Potential)

Manageability and Boundaries

Three different boundaries have been defined for the Lookout Mountain roadless area. They are:

RARE II Boundary - 15,260 acres

Roadless Criteria Boundary - 14,273

Manageable Boundary for Semiprimitive Recreation -15,660 acres

The Roadless Criteria Boundary is an updated RARE II boundary. The acreage differences shown are due to recent on-the-ground surveys which added some acres and deleted others because of (a) more accurate mapping and (b) re-examination of areas of past human disturbance. The boundaries resulting from these two categories are difficult to identify on the ground, especially on the south and east ends, because of indistinct topography and vegetation. The Manageable Boundary for Semiprimitive Recreation has been designated along more easily identifiable features such as roads, land survey lines, ridgetops and draws.

Natural Integrity and Appearance, Opportunities for Solitude

Even though the Lookout Mountain unroaded area has never been intensively managed for commodities production, such as timber, man's activities are apparent to the extent that most visitors would notice them. Approximately 6.1 miles of primitive road traverse the area, primarily in that portion most heavily used by sight-seers and outdoor recreationists - the summit of Lookout Mountain. Old stumps cut from previous salvage logging are visible to observant visitors, even though distributed in random fashion. Two operational mines are also distinct man-made features in easily observable locations.

National Forest Road 42 borders the unroaded area to the north and is the most heavily used timber haul road on the Big Summit Ranger District. Sites and sounds of human activity are obvious along this north face. As one approaches the top and walks into the interior or in the southern reaches of the area, the sites and sounds of this road are lost.

The most serious alteration of natural conditions in the Lookout Mountain roadless area relates to the initiation of fire prevention management at the turn of the century. Reduction of natural fire frequencies has resulted in vegetative changes that are not easily reversible. Natural fuel building is now such that allowing fires to burn uncontrolled could have serious, if not catastrophic effects on the roadless area and adjacent lands. Plant species changes are occurring rapidly to the point where once insignificant numbers of fire-intolerant Douglas-fir and white fir are becoming dominant vegetative features within the majority of roadless area timber stands. Within 75 to 100 years, succession to climax will be essen-

tially complete, barring some natural or human-induced disturbance. Ponderosa pine and western larch will be secondary species and, in fact, nonexistent within certain areas.

Primitive Recreational Opportunities and Challenging Experiences

The Lookout Mountain unroaded area has a Recreation Opportunity Spectrum (ROS) classification of semiprimitive, nonmotorized, under existing allocations. The estimated carrying capacity is 14.3 MRVD's without additional developments. Opportunities for additional primitive and unconfined recreation are somewhat restricted to certain uses, such as hiking, hunting, fishing, backpacking and photography. Because of the limited area conducive to snowmobiling and ski touring, conflicts are already apparent, and it is assumed that significant increases in these uses will further aggravate the problem. Opportunities for challenging experiences, such as mountain climbing and survival training, are limited, but dependent on the individual perceptions, age, and skills of visitors.

Wilderness Availability

Recreation

Current trends for Central Oregon indicate an increase in demand for winter sports, such as snowmobiling, cross-country skiing, day hiking, nature study, mountain biking, big game hunting, and recreational driving. The area offers a variety of terrain for day hiking, mountain biking, and nature study. The potential for satisfying increased demand for winter sports is limited by the existing natural terrain and vegetation. Alternate trail construction and redistribution of areas by user groups are potential methods for increasing carrying capacity for winter sports.

The potential for satisfying increased big game hunter demand within the area is significant, assuming that there is a direct relationship with potential numbers of elk produced, which can be increased by an estimated 36 percent over existing levels.

Wildlife

The Lookout Mountain unroaded area currently is capable of producing and maintaining an estimated 197 Rocky Mountain elk. Potentially, this can be increased to approximately 267 over time, but with a possible decrease in trophy, multi-antlered bulls.

Under existing land allocations, 5,316 acres of suitable old growth are available for supporting dependent species such as the pileated woodpecker. There is a potential for increasing old growth habitat to an estimated 10,200 acres, over time.

For cavity nesting bird species, current snag habitat is at the 100% level for maximum potential production of primary cavity users.

Fisheries

All Class II streams within the Lookout Mountain unroaded area support rainbow trout. One stream, Brush Creek, also supports brook trout. There are currently 38 acres of riparian areas in a degraded condition and 290 acres in an acceptable condition within the roadless area Potentially, all 328 acres can be improved to produce more fish.

Water

All water resources within the unroaded area contribute to irrigation use downstream, which is essential to the agricultural stability of central Oregon. However, under current conditions, annual supplies of water for this use exceed demand. The Lookout Mountain roadless area contributes an estimated 9,940 acre feet of water per year for downstream use. At sustained yield timber harvest levels, there is a potential for increasing this by 248 acre feet per year. The maximum conceivable increase, which would result only from a type conversion to grasslands, is estimated at 5,600 acre feet per year.

Livestock

Both a sheep and a cattle allotment overlay into the unroaded area, and currently support 3,850 sheep months and 533 Animal Unit Months, respectively. Potentially, these can be increased by 28 percent through use of transitory range and improved water developments.

Timber

There are currently 10,224 acres of land suitable for timber production within the Lookout Mountain unroaded area. No timber harvest currently occurs. There is approximately 187 million board feet of standing volume at present and the potential long-term sustained yield is estimated at 2.75 million board feet per year.

Minerals and Energy

There are currently 200 gold and cinnabar claims held within the management area, and activity has been increasing in the last few years. There is some potential for a major gold or mercury operation in the area. The potential for energy production from wood is significant, based on potential yield of .5 to .7 million cubic feet per year.

Cultural Resources

The most significant cultural resource known to the area are remnants of an old fire lookout at the top of Lookout Mountain, with several trails and old roads leading to it No prehistoric sites are known to be in the area, and the potential is unknown.

Management Considerations

Fire

Natural fire frequencies once played a significant role in development and maintenance of vegetation within the Lookout Mountain area. The following range of natural fire cycles by vegetation type provides an indication of the importance of fire in preventing excessive fuel accumulations and maintenance of several tree and shrub species.

Ponderosa pine	5-25 years
Mixed conifer	20-70 years
Grass, tree, shrub	5-15 years

Since the implementation of fire prevention measures at the turn of the century, fuels have been allowed to accumulate at unnatural rates, creating the potential for a major conflagration, given a certain set of environmental conditions.

TABLE C-3
RESOURCE POTENTIAL SUMMARY

	Current Levels	Potential Levels
RECREATION	Moderate but high during hunting season	7 8 MVRD's No trails 19 5 MVRD's Developed trails
WILDLIFE		
Old Growth Dependent Species	5,316 acres of suitable old growth	10,200 of capable lands for old growth
Big Game (Rocky Mtn Elk)	197 animals	267 animals
Fish (Resident and anadromous)	High	Unknown
WATER	9,940 Acre Feet	10,188 Acre Feet with 25% timber harvest level, 15,540 acre feet with conversion to grassland
LIVESTOCK	3,850 Sheep Months 533 AUM's	4,928 Sheep Months 682 AUM's with transitory range and water development
TIMBER	No timber production currently Standing volume is 187 MMBF	2 75 MMBF/year sustained yield
MINERALS AND ENERGY	200 mineral claims with little activity	High potential for mercury 1,080 acres Mod potential for mercury 2,510 acres Mod potential for gold 3,590 acres Prospectively valuable for oil and gas 3,840 acres
CULTURAL	No known prehistoric	No completed resource inventories

Insects and Disease

Infestations by a variety of insects have occurred, are occurring, and will most likely continue to occur in the Lookout Mountain roadless area. As recently as 5 years ago, a major infestation by mountain pine beetles resulted in the mortality of approximately 1,100 acres of lodgepole pine near the summit of Lookout Mountain. This was a natural event that, during historic times, was usually followed by an intense fire that prepared the site for stand regeneration.

The Lookout Mountain area, along with a large portion of central and eastern Oregon forest lands, is experiencing the end of a ten-year infestation of western spruce budworm. Continuous feeding by this insect causes a reduction in vigor and can kill trees over a period of time. Evidence shows that budworm outbreaks begin and are maintained on stands where species are unadapted to site conditions. Douglas-fir and white fir are the primary target species of the budworm. These species are dominant in the unroaded area due to a reduction in fire interactions in the environment. As long as this situation exists, there will be high potential for periodic outbreaks of spruce budworm.

Other insects that have potential for serious affects within the roadless area are:

Insect	Target Species
Larch casebearer	Western larch
Western pine beetle	Ponderosa & lodgepole pine
Tussock moth	Douglas-fir and white fir

Among the diseases occurring in the roadless area are:

Disease	Target Species
Various root rots caused by fungi	All
Indian paint fungus	White fir

Neither of these is expected to cause serious problems under the current management allocation.

Wilderness Evaluation

Public Interest and Congressional Direction

An estimated 1200 comments concerning Lookout Mountain were received. A wide variety of opinions were voiced. Among the letters with comments on this subject were those of the Crook County Courthouse, Crook County, Oregon Department of Fish and Wildlife (ODFW), Oregon State Economist, and the Oregon Department of Geology and Minerals.

There were many comments dealing with roading versus unroaded recreation. Some wanted total unroaded designation. Others urged roading into part of the area for fire and timber management.

Crook County Courthouse pointed out the exclusion of senior citizens and the handicapped when areas are roadless. The Crook County letter, however, urged keeping the area unroaded.

Some comments urged backcountry designation. The Oregon State Senate suggested protection for the area. Some even suggested wilderness designation for Lookout Mountain.

Others were concerned about winter recreation, and keeping the area open for snowmobiling.

There were comments urging new developments for the area, such as new trails, warming huts, a day use area, and a wheelchair platform at the tower site. Others pointed out that the area is being discovered by mountain bike enthusiasts and urged no further developments in the area.

Many respondents requested the area be kept open for "multiple use," in fairness to all users.

Most wished recreational values to be considered over timber interests. They stated that tourism outweighs the area's timber potential. They also requested protection for the old growth.

Prior to the time that this input was received, Congress had reviewed the Lookout Mountain roadless

TABLE C-4
Nearby Wilderness and Unroaded Areas

Wilderness Areas	Unroaded Areas *	Current Allocation	Approximate Distance from Lookout Mountain Roadless Area (Air Miles)	Acres
Bridge Creek			10	5,400
Mill Creek			7	17,400
Black Canyon			30	13,400
Strawberry Mtn			75	68,300
North Fork John Day River			95	120,800
Monument Rock			60	19,800
Mt Washington			70	52,600
Three Sisters			75	285,000
	Rock Creek	Big Game	20	11,414
	Cottonwood	Big Game	25	9,777
	Green Mountain	Big Game Production	12	6,630
	Silver Creek	Semiprimitive/ Nonmotorized	40	7,459
	Deschutes Canyon/ Steelhead Falls	Semiprimitive/ Nonmotorized	45	10,000

* Roadless Criteria Boundary Acres

area for inclusion in the National Wilderness System. Senate Report #98-465 states:

"This area is presently managed by the Ochoco National Forest as a "Special Management Area" for dispersed recreation and backcountry values. The area is not presently in the timber base. The Committee expects the Forest Service to examine the feasibility of continuing this use in the current National Forest Plan and determine the land allocation in the Forest Plan."

TABLE C-5
Distance From Population Centers

City	Population	Distance From Lookout Mtn Unroaded Area
Prineville	5,520	25
Bend	17,800	50
Redmond	6,615	40

Environmental Consequences

The variety of acre allocations shown in Table C-6 will result in an array of different outputs and environmental consequences for the Lookout Mountain area.

Table C-7 contains quantitative estimates of resource outputs and/or environmental consequences associated with each alternative. As an example, even though timber production per se is not an environmental consequence, the outputs shown indicate the increased productivity associated with long-term management of the timber resource in the Lookout Mountain area. Similarly, "Roads Built" by alternative is not an environmental consequence, but "Roads Open per square mile" indicates the emphasis of the prescription applied by alternative, which can result in an array of consequences for wildlife, water quality, and motorized recreation. Outputs shown for "Riparian" indicate the acres of riparian area that will be enhanced above minimum management requirements. Outputs shown for "Big Game" (number's of elk) reflect the management prescriptions applied to the area by alternative and are an index of the quality of habitat produced. Outputs for "Recreation" are Recreation Opportunity Spectrum classifications and indicate the type of recreational opportunities available by alternative For "Off-Road Vehicles," a plus or minus indicates either an increase or a decrease in this type of opportunity. Outputs for "Snags" indicates the percentage of snag habitat available for maximum

TABLE C-6
LOOKOUT MOUNTAIN ROADLESS AREA DESIGNATION
BY MANAGEMENT PRESCRIPTION

Lookout Mountain Roadless Area (B6214)
Total Roadless Criteria Acres - 14,273
Area Manageable For Semiprimitive Recreation = 16,577 2/

Management Prescription	Acres by Alternative				
	A/NC 1/	B-MOD 2/	C-MOD 2/	E-DEP 2/	I 2/
Dispersed Recreation					
Nonmotorized	16,581	7,550	16,260	2,950	15,660
Motorized	0	0	0	0	0
Timber/Range	0	8,110	0	12,110	0
Big Game	0	0	0	0	0
Old Growth for Dependent Wildlife	0	600	0	1200	600
Visual Retention (Road 42)	0	0	317	0	317
Visual Partial Retention (Road 42)	0	317	0	317	0
Total Acres	16,581	16,577	16,577	16,577	16,577

1/ Original acre allocation according to existing Ochoco-Crooked River Land Management Plan

2/ New manageable boundary acres

TABLE C-7
LOOKOUT MOUNTAIN SUMMARY OF RESOURCE OUTPUTS BY ALTERNATIVE

		ALTERNATIVE				
	Unit of Measure	A/NC	B-MOD	C-MOD	E-DEP	I
Timber 50 Year Period Sustained Yield	 MMBF/Yr MMCF	 0 0	 2 0 55	 0 0	 1 7 47	 0 0
Roads Built Open	 Miles /Sq Mi	 0 0	 65 All	 0 0	 60 All	 0 0
Range	AUM's Sheep Months	533 3,850	725 4,042	533 3,850	692 4,009	533 3,850
Riparian Exceeds Acceptable Condition (Excellent)	Acres	0	328	328	0	328
Big Game Elk	#	201	110	201	66	201
Recreation (ROS) SPNM RM/RN	 Acres Acres	2/ 16,581	3/ 7,550 9,027	3/ 16,577	3/ 2,950 13,627	3/ 16,577
Old Growth	Acres	6,898	2,690	7,069	1,285	3,029
Off-Road Vehicles 1/	+/-	-	+	-	+	-
Firewood	Cords	0	110	0	178	0
Snags	% of maximum potential	100%	20%	100%	100% 2,950 Ac 20% 11,323 Ac	100%
Future Wilderness Consideration		+	None	+	+ SPNM None RM/RN	+

1/ + or - indicates either a decrease or increase in this type of opportunity

2/ Original acre allocation according to existing Ochoco-Crooked River Land Management Plan

3/ New manageable boundary acres

MMCF - Million cubic feet
SPNM Semiprimitive Nonmotorized
AUM s Animal Unit Months

MMBF Million board feet
RM/RN - Roaded Modified/Roaded Natural

potential production of primary cavity users, by alternative. Outputs for "Old Growth," in acres, indicates either (a) the acres allocated by management for development alternatives, or (b) existing or potential old growth based on site capability. Outputs for remaining categories are self-explanatory.

Alternatives A, NC, and C-Modified

These alternatives would result in the highest amounts of semiprimitive environment. The entire Lookout Mountain roadless area would be allocated to this emphasis. No road building would occur and no scheduled timber harvest would result. Salvage harvest might be done, but only in order to maintain a healthy, attractive semiprimitive setting. All previously degraded riparian habitat (38 acres) would be improved to an acceptable condition by management. Big game habitat would change only through natural processes with a small projected increase in elk numbers (from 197 to 201). Old growth habitat would increase to a maximum of 10,200 acres, based on capability of the area. Snag habitat would increase to maximum potential for primary cavity nesters, but would fluctuate with natural environmental changes. Options for future wilderness designation would remain available.

Alternative B-Modified

This alternative would maintain the upper 7550 acres for semiprimitive recreational opportunities, reducing the potential by approximately 50 percent. The entire lower area would be managed with an emphasis on timber and livestock production. Approximately 65 miles of system roads would be built to access timber stands. A variety of timber management practices, such as uneven-aged selection harvest, clearcutting, shelterwoods, overstory removal, and thinning, would be applied to the lower timber stands in the Lookout Mountain area. This would reduce scenic quality and eliminate much of the opportunity for solitude. Natural processes would no longer be the major effect on succession, and species composition would be based on optimum commodities production. Even though all riparian areas would be maintained in an acceptable condition, stream sediment would increase. Forage production would increase by 192 AUM's due to transitory range from timber harvest and investments in water developments. A 'roaded modified' type of recreational setting would be provided over the lower area. Old growth habitat would be reduced to 2,690 acres.

Opportunities for motorized recreation would increase, as will winter sports opportunities. Approximately 110 cords of firewood per year would be available to local citizens. Snag habitat would be reduced to minimum management levels of 20 percent of maximum potential. Big game habitat would be reduced with a resulting decrease in elk numbers to 110 animals. Timber harvest would occur at an average per year rate of 2 MMBF. Once under a fully regulated condition, a sustained yield of .55 MMCF per year would be produced. Options for future wilderness designation would be foregone.

Alternative E-Departure

These alternatives would substantially reduce semiprimitive recreational opportunities, but would maintain a 2,950-acre parcel on top of Lookout Mountain to provide this experience. The majority of timbered lands would be managed for timber production. A full array of timber management activities would be fully evident on these acres. Natural succession would dominate only in the 2,950-acre parcel The sites and sounds of human activity would probably be noticeable from all areas. Motorized recreation and winter sports would increase with demand. Sixty miles of system roads would generally be open to provide access to recreationists and management. About 178 cords of firewood would be available yearly to local citizens. Snag habitat would be reduced to 20 percent on the majority of acres, but would remain at 100 percent potential levels in the 2,950-acre parcel. Old growth habitat would be maintained at about 1,285 acres. Stream sediment would increase from development activities, but would remain within constraints. All riparian habitat would be brought up to, and maintained in, an

acceptable condition. A "roaded modified" type of recreational setting would be available on the majority of the area. Options for future wilderness designation would be gone. Elk numbers will be reduced to about 66 animals.

Alternative I

This alternative would maintain the natural setting to provide high quality semiprimitive nonmotorized recreational opportunities in the summer. Some vegetative manipulation in the lower 8110 acres would be allowed for wildlife habitat improvement and for promoting healthy forests that are more resistant to catastrophic events. Snowmobile use would continue to be authorized during the winter months. Minimum standard roads might be designated for specific projects, but would be closed and seeded to improve wildlife habitat upon completion of the project. Projects would not dominate the landscape, nor be evident to the casual Forest visitor. As a result of these limited entries, the ponderosa pine and western larch that are valued for their appearance to recreationists would become more abundant over time. All riparian habitat (328 acres) would be improved to excellent condition by grazing management and other improvement practices. Big game habitat should be improved with these projects, and a large increase in elk populations might occur. The area would provide security from motorized activities in the summer, encouraging viewing of game and nongame species. This should also provide ideal backcountry trophy hunting opportunities. The existing old growth habitat would be maintained and levels are might increase as regulated harvest is excluded from the area. Snag habitat for cavity nesters would increase to maximum potentials, but would fluctuate with natural environmental changes. Options for future wilderness designations would remain for the upper 7550-acre area.

Rock Creek

Description

Location and Access

The Rock Creek unroaded area consists of approximately 11,414 acres in Wheeler County, Oregon, on the Paulina Ranger District. It is about 20 miles northeast of Paulina, 12 miles southeast of Dayville and is accessed primarily from National Forest Roads 38 and 32. A dirt road, #38-200, leads to Spanish Peak, which is a major viewing area for the interior of the unroaded area. Private land and public lands administered by the Bureau of Land Management border to the north, but otherwise the Rock Creek area is surrounded by National Forest lands.

History

The Rock Creek unroaded area has twice been considered for wilderness designation; once under RARE II and again during proceedings for the Oregon Wilderness Act of 1985. In both cases, the result was nonwilderness.

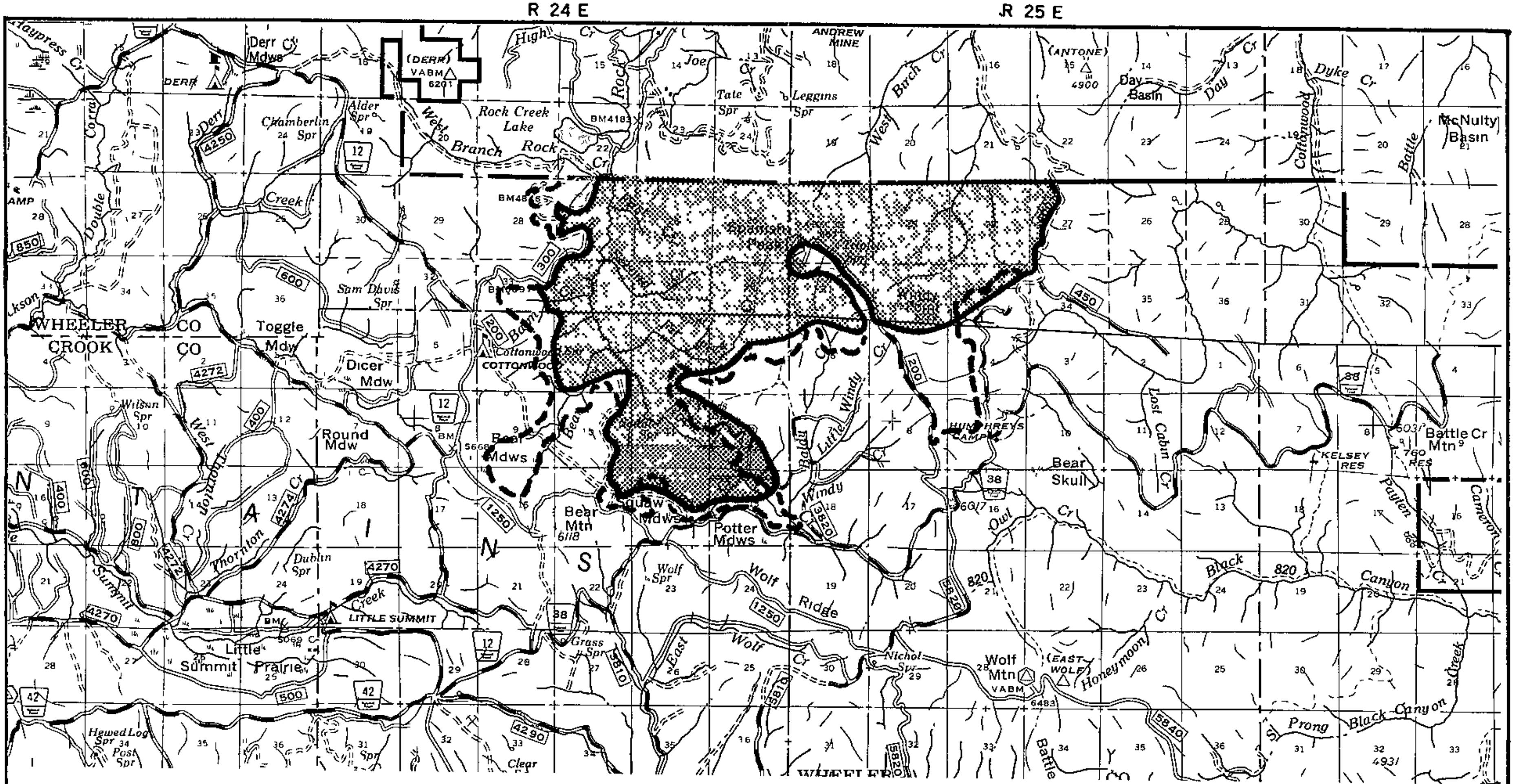
Under the existing land management plan, Rock Creek is allocated to many uses with an emphasis on big game production.

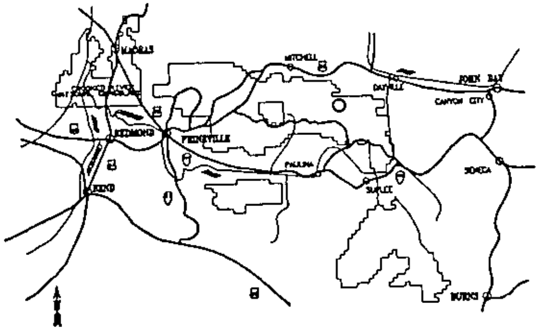
Geography and Topography

The Rock Creek area is a large north facing basin that includes the headwaters of Rock Creek and West Birch Creek Significant topographic features include: the 800 to 1000 foot deep Rock Creek canyon, which runs from the southern to the northern boundaries of the roadless area; the high ridges which run east, west, and southeast from Spanish

Figure C-2

ROCK CREEK





LEGEND

RARE II BOUNDARY # 06215–9286 ACRES

BOUNDARY WHICH MEETS ROADLESS CRITERIA # 11,414 ACRES

Peak and Windy Point; the 800-foot fault escarpment formed by the north face of Spanish Peak--with the hummocky topography left by massive debris slides at its base; and the steep, open ridges which run north/south between the tributaries of Birch Creek. Slopes in two-thirds of this area exceed 55 percent.

Elevations in the Rock Creek area range from over 6000 feet on the ridges surrounding Spanish Peak (6871), to canyon bottoms around 4200 feet in Rock Creek and 5500 feet in Birch creek where they cross the National Forest Boundary.

Soils

Three major soil types comprise most of the landbase within the Rock Creek roadless area. They are:

Soil Type	% of Area
Moderately deep and deep, sandy loam volcanic ash	50%
Very shallow loamy and clay nonforest soils	40%
Moderately deep loams and clays	10%S

Over 65% of these soils occur on slopes with potential erosion hazards.

Vegetation

Seventeen different plant communities exist within the Rock Creek unroaded area. Table C-8 lists those plant communities with acreages according to resource inventories. They are organized by similarity in dominant plants and environment.

Stream bottoms and north-facing slopes in the Rock Creek canyon are covered with dense mixed conifer forest. There are several stands dominated by lodgepole pine along Rock Creek. Ridges, and south and west facing slopes, are marked by shallow soils, basaltic cliffs, and mountain-mahogany/bunchgrass

TABLE C-8
ROCK CREEK PLANT COMMUNITIES

Descriptor	Plant Community	Acres
Meadows	Moist Meadows (w/ tufted hairgrass, ovalhead sedge, California oatgrass)	9
Low elevation, nonforest	Bluegrass scabland (w/ sandberg bluegrass)	36
	Bluegrass on deep soil, steep slopes (with Yarrow, Wyeth buckwheat)	9
	Stiff sage scabland (w/ stiff sagebrush)	235
	Low sagebrush-bunchgrass	275
	Juniper-bunchgrass	45
	Juniper-stiff sage scabland	39
	Big sagebrush - bunchgrass	336
	Curlleaf mountain mahogany - grass (with pinegrass)	73
Forested-ponderosa pine dominant, firs absent (to present)	Ponderosa pine, wheatgrass	425
	Ponderosa pine - fescue	1,273
	Ponderosa pine - Douglas-fir - elk sedge	688
	Mixed conifer - pinegrass - residual soils (w/ white fir, Douglas-fir, ponderosa pine)	1,261
	Mixed conifer - pinegrass ash soils (w/ western larch, white fir, Douglas-fir, ponderosa pine)	756
	White fir - twinflower - forb (w/ Douglas-fir western larch, Columbia brome)	5,447
	Lodgepole pinegrass -grouse huckleberry (with white fir)	12
	Alpine sagebrush - sedge (w/ elk sedge, yarrow)	495

interspersed with open ponderosa pine/Douglas-fir forest. The high ridges are dominated by native annuals and bunchgrass perpetuated by late snowpack, with "stringers" of mountain-mahogany and mixed conifer forest. The north slopes of Spanish Peak are covered with open talus slides and weather battered Douglas-fir which grades into closed ponderosa pine/mixed conifer stands on the gentler slopes of the landslide debris. Most of the Birch Creek watershed contains dense mixed conifer forest, with open ponderosa/Douglas-fir on the ridgetops.

Current Uses

Existing management of the Rock Creek area allows for a wide range of uses to occur, even though the magnitude of some uses is constrained by limited access.

Recreation

Backpacking, big-game hunting, horseback riding, hiking and fishing are the principal recreational uses presently occurring. No indicators of present use have been measured, but is estimated to be considerably less than the current potential of 3.1 thousand recreation visitor days. The potential for this area, with a completed trail system accessing all major areas, is estimated at 15.5 MRVD"s.

The area is served by 17 miles of unmaintained or user-maintained routes. Approximately 85 percent of the area is capable of supporting semiprimitive, nonmotorized recreation. The remainder supports semiprimitive motorized recreation in the southern plateau areas.

Outstanding views of the Rock Creek, Cottonwood, and Black Canyon roadless areas, large portions of the Ochoco and Malheur National Forests, the John Day River Valley, and the desert country south of the Ochoco National Forest are available from the high ridges and peaks in the Spanish Peak area.

Minerals and Energy

There has been no mineral development in the area. About 7,800 acres of oil and gas leases are held on the Rock Creek area.

Special Use Permits

One special use permit to operate and maintain a 1/4 mile water diversion ditch is held in the Rock Creek area.

Timber Production

Past timber activities have been limited primarily to salvage and selective harvest prescriptions.

Livestock Production

The Rock Creek area provides an equivalent of 410 AUM's for two existing grazing allotments.

History

Historic features include the old China ditch, built by Chinese laborers during the mid-1800's to supply water to the Spanish Gulch mining district, and a historic wagon road used to transport produce from the John Day River valley to the Paulina area. Indian artifacts are located at numerous sites in the Rock Creek area.

Fish

Rock Creek, and its major tributaries within the roadless area, provide 18.2 miles of excellent condition Class I and II streams to the John Day River. The tributaries of Birch Creek within the roadless area provide an additional 1.2 miles of excellent condition Class II stream to the John Day River. Both Rock Creek and Birch Creek support significant trout populations and is also important for spawning steelhead. It is an important supply of high quality water to the John Day River fisheries.

Wildlife

The diverse habitat types found in the Rock Creek area support a corresponding diversity of reclusive and old-growth dependent wildlife species. The area is believed to support wintering and/or breeding bald eagles and wolverines--both on the Oregon Threatened and Endangered Species list. Species of special interest which are known to nest in the area include: pileated woodpecker, goshawk, prairie falcon, and blue and ruffed grouse. Forty to fifty percent of the area is considered to be elk winter range. The Rock Creek area contains excellent habitat for a small population of older age class elk.

Wilderness Capability (Potential)

Managability and Boundaries

Three different boundaries have been defined for the Rock Creek unroaded area. They are:

RARE II Boundary - 9,286 acres

Roadless Criteria Boundary - 11,414 acres

Manageable Boundary for Semiprimitive Recreation - 9,336 acres

The current boundary is an updated RARE II boundary. The acreage differences shown are due to recent on-the-ground surveys which added some acres and deleted others because of (a) more accurate mapping and (b) re-examination of areas of past human disturbance. The boundaries of these two categories are difficult to identify on the ground, except on the north boundary, because of indistinct topography and vegetation. The Manageable Boundary for Semiprimitive Recreation has been designated along more easily identifiable features such as roads, land survey lines, ridgetops and draws.

The Rock Creek unroaded area boundary is well defined by topographic features, roads, and the surveyed National Forest boundary. Topographic features serve to shield the roadless area from intrusion of activities taking place outside the area. Most of the Rock Creek and Birch Creek watersheds, which are administered by the Forest Service, lie within the roadless boundary.

A corridor along the high-clearance road to the top of Spanish Peak is the only substantial intrusion into the roadless area. This road provides access to the communications facility near the top of Spanish Peak, access to an undeveloped campsite used by one of the livestock permittees, and views of the surrounding country to motorized visitors. Elimination of this intrusion by closing and obliterating the road is possible but not necessary to manage the area for semiprimitive recreation.

Natural Integrity and Appearance, Opportunities for Solitude

The most extensive effect on the natural integrity of the Rock Creek area has been made by the elimination of fire as the principal factor controlling vegetative change.

The overall appearance of the area is very natural away from localized disturbances. Trails, low standard roads, fences, and timber harvest activities are apparent but not overwhelming to most users on approximately 15 percent of the area. Developments outside the roadless area are apparent only to observant visitors. Historic and prehistoric cultural features, and the effects of past activities on natural processes, are apparent only to the most observant visitors at close range.

The dense vegetation and rugged topography in the area provides barriers against intrusion by the sight or sounds of other Forest users. Nonmotorized users within the roadless area will not be apparent to other users at distances greater than 200 yards in most cases. The sounds of aircraft overflights, timber harvest activities, and motor vehicles will be heard at times from some parts of the roadless area. Activities which occur outside the roadless area will only be visible from a few places, to observant visitors.

Primitive Recreational Opportunities and Challenging Experiences

Opportunities for semiprimitive nonmotorized recreation in the area include: backpacking, hiking, fishing, big-game and upland bird hunting, plant and wildlife observation, photography, riding (horse and bicycle), and backcountry ski camping.

Semiprimitive motorized recreational opportunities include on- and off-trail use of over-snow, two-, three-, and four-wheel off-road vehicles (ORV's). Motorized recreation may be combined with some of the described nonmotorized activities, or as recreation by itself. These activities are limited by

terrain to approximately 15 percent of the roadless area. The estimated carrying capacity is 1.9 MRVD's.

The Rock Creek area's steep and diverse topography, limited trail system, isolation, and low visitor density provide challenges in off-trail navigation and safe travel which require good judgement, self-reliance, and a high level of backcountry skills for most activities. All these factors are further accentuated by winter conditions. Winter recreation in this area requires complete self-reliance and a very high skill level for safe travel.

Special Features, Historical and Scientific Study

The wildlife supported by the Rock Creek area are species dependent on high quality streams (e g. resident and anadramous fish), or upon old growth habitat or lack of human disturbance (bear, cougar, wolverine, some raptors, and "trophy" elk, among others). Rock Creek provides relatively large, contiguous areas of these habitats with minimal human intrusion.

The E. O. Waterman mining ditch is a significant feature of the Spanish Gulch Mining District. The Dayville-Beaver Creek wagon road is one of a very few remnants of pre-Forest Service development in the local area. Both of these nineteenth century cultural features have been largely obliterated by other activities where they cross private and public land outside the roadless area. Within the roadless area, fifty years of disuse has reduced the obtrusiveness of these developments, but the integrity of their original form remains largely intact for scientific and interpretive purposes.

Wilderness Availability

Recreation

Present recreational use includes low levels of backpacking, hiking, fishing, big-game and upland bird hunting, plant and wildlife observation, photography, riding (horse and bicycle), and backcountry ski camping (sometimes in combination with summer and winter ORV use).

Demand for semiprimitive recreation in this area is projected to increase within the planning period, as pressure on other similar areas increases.

Carrying capacity for this area is estimated at 3.1 MRVD's per year for the manageable area without a developed trail system. Developing trails to major portions of the area could increase the capacity to 15.5 MRVD's. Present use levels have not been quantified.

Wildlife

Wildlife of particular significance in the Rock Creek area are those dependent on snags, old growth, and riparian habitats, those affected by human contacts, or activities; big game; and resident and anadromous fish. A list of old growth dependent and nonadaptive species believed to occupy the area includes: pileated woodpecker, black-backed three-toed woodpecker, northern three-toed woodpecker, flammulated owl, northern flying squirrel, mountain lion, marten, and fisher.

Forty to fifty percent of the area is considered elk winter range. The entire unroaded area is summer, or transitional, range for deer and elk. Forty-five to fifty percent of the summer range consists of good to excellent cover, well distributed over the area. Fifty to sixty percent of the winter range consists of good to excellent thermal cover. The distribution of cover in winter range is somewhat more clumped than in summer range. Because of the area's inaccessibility, it supports a higher proportion of the older age class animals attractive to trophy hunters.

Tributaries to Rock Creek and Birch Creek provide 19.4 miles of Class I and II streams in the unroaded area, with abundant spawning beds, riparian vegetation, and stream banks in excellent condition.

Dead and defective tree (snag) habitat within the unroaded area is capable of supporting greater than 80 percent of the biological potential for cavity dependent wildlife.

Water

There are no existing uses of water within the unroaded area. A special use permit to divert water from Rock Creek at the northern boundary of the unroaded area, for irrigation use, caused the small area affected to be removed from the RARE II roadless area boundary. Water rights are held to tributaries of Rock Creek within the roadless area, but they have not been exercised within the past 20-30 years. The quality, timing, and amounts of water provided to the John Day River by Rock Creek and Birch Creek have been identified by the Oregon Department of Fish and Wildlife (ODFW) as important to maintaining the quality of the John Day fisheries.

Livestock

The unroaded area is part of two grazing allotments used to graze sheep and cattle on 38,761 acres, in and out of the area. The roadless area currently supports 410 AUM's of the 962 AUM total allowed by the grazing permits.

Timber

The Rock Creek unroaded area contains 6,467 acres of suitable forest land, mostly in old growth mixed conifer species. Net annual sustained yield, in existing conditions, is estimated to be .42 MMCF.

Minerals and Energy

Oil and gas leases are held on 7,800 acres of the Rock Creek area. There has been no mineral development in the area, and none is known to be planned.

Cultural Resources

Cultural resource inventories are incomplete in the Rock Creek area.

The E.O. Waterman mining ditch and the Dayville-Beaver Creek wagon road are known to be significant historic features which are minimally disturbed only where they are within the Rock Creek area.

TABLE C-9
RESOURCE POTENTIAL SUMMARY

	Current Levels	Potential Levels
RECREATION	Low to moderate (nonquantified)	3 1 MVRD's No trails 15 5 MVRD's Developed trails
WILDLIFE		
Old Growth Dependent Species		912 acres of suitable old growth3,036 of capable lands for old growth
Big Game (Rocky Mtn Elk)		107 animals 161 animals
Fish (Resident and anadromous)		High Unknown
WATER	7,872 Acre Feet	8,840 acre feet with 25% timber harvest level, 12,224 acre feet with conversion to grassland
LIVESTOCK	410 AUM's	443 AUM's with transitory range 558 AUM's with transitory range and water developments
TIMBER	No timber production currently Standing volume is approximately 142 MMBF	42 million cubic feet per year sustained yield
MINERALS AND ENERGY	No current mineral development 7800 acres of oil and gas leases	Prospectively valuable for oil and gas
CULTURAL	Significant historic, some prehistoric	High potential based on existing findings No completed resource inventories

Management Considerations

Fire

Natural fire frequencies once played a significant role in development and maintenance of vegetation within the Rock Creek area. The following range of natural fire cycles by vegetation type provides an indication of the importance of fire in preventing excessive fuel accumulations, and maintenance of seral tree and shrub species.

Ponderosa pine	5-25 years
Mixed conifer	20-70 years
Grass, tree shrub	5-15 years

Since the implementation of fire prevention measures at the turn of the century, fuels have been allowed to accumulate at unnatural rates, creating the potential for a major conflagration, given a certain set of environmental conditions.

Insects and Disease

Both natural and unnatural infestations by a variety of insects have occurred, are occurring, and will most likely continue to occur in the Rock Creek unroaded area. As recently as five years ago, an infestation of mountain pine beetles resulted in the mortality of lodgepole pine along Rock Creek. This was a natural event that, during historic times, was usually followed by an intense fire that served to prepare the site for stand regeneration.

The Rock Creek area, along with a large portion of central and eastern Oregon forest lands, are currently in the midst of an infestation of spruce budworm, an insect introduced to the western United States from the east coast at the turn of the century. Continuous feeding by this insect causes a reduction in vigor and can inflict death over a period of time. Evidence shows that budworm outbreaks begin and are maintained on stands where species are unadapted to site conditions. Douglas-fir and white fir are the primary target species of the budworm. These species are dominant in the roadless area due to loss of fire interactions in the environment. As long as this situation exists, there will be high potential for periodic outbreaks of spruce budworm.

Other insects that have potential for serious affects within the unroaded area are:

Insect	Target Species
Larch Casebearer	Western Larch
Western Pine Beetle	Ponderosa and Lodgepole Pine
Tussock Moth	Douglas-fir and White Fir

Among the diseases occurring in the unroaded area are:

Disease	Target Species
Various root rots caused by fungus:	All
Indian Paint Fungus	White Fir

Neither of these is expected to cause serious problems under the current management allocation.

Wilderness Evaluation

Public Interest

Public comments received concerning Rock Creek were usually in conjunction with the Cottonwood roadless area Many perceive these two areas as one, sometimes referred to as the "Ochoco Canyon," even though a road divides the two. Two hundred forty-two comments were received on Rock Creek and Cottonwood Creek, and 44 addressed the 'Ochoco Canyons." Among these was a comment by ODFW which suggested managing the entire area for semi-primitive nonmotorized recreation.

The comments favored keeping Rock and Cottonwood Creeks roadless. Wilderness designation for the area was desired by a few who wished to tie it to Black Canyon Wilderness. Adjacent roads no longer needed were recommended to be closed.

TABLE C-10
Nearby Wilderness and Unroaded Areas

Wilderness Areas	Unroaded Areas *	Current Allocation	Approximate Distance from Rock Creek Roadless Area (Air Miles)	Acres
Bridge Creek			18	5,400
Mill Creek			30	17,400
Black Canyon			3	13,400
Strawberry Mtn			60	68,300
North Fork John Day River			95	120,800
Monument Rock			50	19,800
Mt Washington			85	52,600
Three Sisters			90	285,000
	Lookout Mountain	Semiprimitive/ Nonmotorized	20	14,273
	Cottonwood	Big Game Production	1	9,777
	Green Mountain	Big Game Production	34	6,630
	Silver Creek	Semiprimitive/ Nonmotorized	35	7,459
	Deschutes Canyon/ Steelhead Falls	Semiprimitive/ Nonmotorized	65	10,000

* Roadless Criteria Boundary Acres

Some recommended limited entry for logging, with roads gated or otherwise closed. Some requested the trail system be upgraded.

Reaction to timber harvest in the Rock and Cottonwood Creeks area was mixed. Some urged balloon or helicopter logging only. Others stated that the area should be logged with an emphasis on wildlife, on a 5-10 year entry. Some recommended clearcuts of under 20 acres, leaving culls standing for wildlife.

Individuals and groups provided strong support for the allocation of this area to management for wilderness, roadless, or other relatively undeveloped forms of management. This input reflected strongly held feelings about this particular area. The most common comments related to wildlife concerns were: that habitat for nonadaptive and old growth dependent wildlife should be provided in more and larger continuous areas, that on- and off-site impacts on fisheries would be too great under allocations which emphasized big game numbers or timber outputs; that old growth, nonadaptive, riparian, and stream habitat were more important than big game production in determining wildlife management objectives for the area; and that increasing numbers of elk was not the best game management goal for the area.

TABLE C-11
Distance From Population Centers

City	Population	Distance From Rock Creek Unroaded Area
Prineville	5,520	95
Bend	17,800	130
Redmond	6,615	115

Environmental Consequences

The variety of acre allocations shown in Table C-12 will result in an array of different outputs and environmental consequences for the Rock Creek area.

Table C-13 contains quantitative estimates of resource outputs and/or environmental consequences associated with each alternative. As an example, even though timber production per se is not an environmental consequence, the outputs shown indicate the increased productivity associated with long-term management of the timber resource in the Rock Creek area (e.g. 1.7 vs. 2.1 MMBF for B-Modified). Similarly, "Roads Built" by alternative is not an environmental consequence, but "Roads Open per square mile" indicates the emphasis of the prescription applied by alternative, which can result in an array of consequences for wildlife, water quality, and motorized recreation. Outputs shown for "Riparian" indicate the acres of riparian area that will be enhanced above minimum management requirements. Outputs shown for "Big Game" (number's of elk) reflect the management prescriptions applied to the area by alternative and are an index of the quality of habitat produced. Outputs for "Recreation" are Recreation Opportunity Spectrum classifications and indicate the type of recreational opportunities available by alternative. For "Off-Road Vehicles," a plus or minus indicates either an increase or a decrease in this type of opportunity. Outputs for "Snags" indicates the percentage of snag habitat available for maximum potential *production of primary cavity users, by alternative.* Outputs for "Old Growth," in acres, indicates either (a) the acres allocated by management for development alternatives, or (b) existing or potential old growth based on site capability. Outputs for remaining categories are self-explanatory.

Alternatives A And NC

These alternatives would result in a big game management emphasis for the Rock Creek area. Opportunities for semiprimitive experiences would be substantially reduced. The sites and sounds of man's intrusion would be obvious. The forces of natural succession would be substantially reduced because of vegetation manipulation for habitat. At least 50 percent of the area would be in an open (noncover) condition. Water quality would decrease as a result of road building and timber harvest, but would remain acceptable. About 382 acres of riparian habitat would be enhanced to an "exceeds acceptable" condition. Approximately 42 miles of road would be built, but only 2 miles per square mile would remain open, in order to maintain big game habitat. Elk production would increase, with the emphasis on summer range, to 96 animals. About 912 acres of old growth habitat would be maintained over time. Snag habitat would remain at relatively high levels of 80 percent of potential. Forage production would increase by about 26 AUM's, due to increased transitory range and water developments. Motorized recreation and winter sports opportunities would increase because of access, but within limits to protect wildlife habitat. A "roaded modified" type of recreational setting would be available. Approximately 155 cords of firewood would be annually available to local citizens. Timber harvest would occur at an average rate of 1.48 MMBF per year for Alternative 'A'. A sustained yield of 1.84 MMBF would be available once the area is in a regulated condition. Future options for wilderness consideration would be foregone.

Alternative B-Modified

This alternative would result in a timber/range management emphasis for the Rock Creek area. Opportunities for semiprimitive experiences would be eliminated. The sites and sounds of human activities would dominate the area. Old growth habitat would be reduced, from the current 3,036 acres, to minimum management levels of 358 acres. Vegetation manipulation would occur for maximum production of commodities (timber and forage). Natural succession would no longer be a dominant factor. About 42 miles of road would be built and generally kept open. Water quality would decrease as a result of road building and timber management activities, *but would remain within limits established for the*

TABLE C-12
ROCK CREEK ROADLESS AREA DESIGNATION BY MANAGEMENT PRESCRIPTION

Total Roadless Criteria Acres - 11,414
Area Manageable For Semiprimitive Recreation = 9,336

	Acres by Alternative 1/				
Management Prescription	A / NC	B-MOD	C-MOD	E-DEP	I
Dispersed Recreation					
Nonmotorized	0	0	9,336	9,336	6,198
Motorized	0	0	0	0	0
Timber/Range	0	11,414	0	0	5,216
Big Game	11,414	0	2,078	2,078	0

1/ Based on Roadless Criteria Acres

TABLE C-13
ROCK CREEK SUMMARY OF RESOURCE OUTPUTS BY ALTERNATIVE

		ALTERNATIVE				
	Unit of Measure	A / NC	B-MOD	C-MOD	E-DEP	I
Timber						
50 Year Period	MMBF/Yr	1 48	1 7	3	3	8
Sustained Yield	MMCF	37	42	07	06	2
Roads						
Built	Miles	42	42	8	8	16
Open	/Sq Mi	2	All	All	All	All
Range	AUM's	436	558	415	415	446
Riparian						
Exceeds Acceptable Condition (Excellent)	Acres	382	382	351	351	382
Big Game						
Elk (5th Decade)	#	161	103	127	127	79
Recreation (ROS)						
SPNM	Acres			9,336	9,336	6,198
RM/RN	Acres	11,414	11,414	2,078	2,078	5,216
Old Growth	Acres	912	358	3,036	3,036	2,390
Off-Road Vehicles 1/		+	+	-	-	+
Firewood	Cords	155	179	33	33	81
Snags	% of maximum potential	80%	20%	100% 9,336 Ac 80% 2,078 Ac	100% 9,336 Ac 20% 2,078 Ac	100% 6,198 Ac 20% 5,216 Ac
Future Wilderness Consideration		None	None	+	+	+

1/ + or - Indicates an increase or decrease in this type of opportunity

MMBF Million board feet
MMCF - Million cubic feet
RM/RN Roaded Modified/Roaded Natural
SPNM - Semiprimitive Nonmotorized
AUM's- Animal Unit Months

entire Ochoco National Forest. Elk populations would decrease to about 6 animals, over time. Three hundred and eight-two acres of riparian habitat would be improved to an "excellent" condition. Snag habitat would be reduced to 20 percent of potential for maximum production of primary cavity nesters, which is a minimum management level. Forage production would increase by 148 AUM's to 558 AUM's due to transitory range and water developments. Motorized recreation and winter sports opportunities will increase within a "roaded modified" recreational setting. About 179 cords of firewood would be annually available to local citizens. Timber harvest would occur at an average rate of about 1.7 MMBF per year. About .42 MMCF (sustained yield) would be available once the area was in a regulated condition. Options for future wilderness condition would be foregone.

Alternative C-Modified and E-Departure

These alternatives would result in semiprimitive management emphasis for 9,336 acres of the Rock Creek area, and a big game emphasis for the remaining 2,078 acres. No road building, or scheduled timber harvest would occur in the semiprimitive area, but about 8 miles of road would be built in the big game emphasis area. The sites and sounds of man's activities would generally be minimal in the unroaded portion, and natural forces would continue to have a strong influence over succession. Old growth habitat would evolve naturally towards climax, with a maximum capability of about 3,036 acres, barring natural catastrophes such as fire or insect infestation in the unroaded area. Also within the unroaded area, snag habitat would be based on natural tree mortality and fluctuate around maximum levels. Options for future wilderness consideration would also remain available.

Within the developed, roaded portion, vegetation would appear manipulated in order to produce big game habitat. At least 50 percent of the area would be in an open (noncover) condition. Forage production would increase only slightly, to about 415 AUM's due to transitory range. Snag habitat would be maintained at 80 percent of potential, a relatively high level. Opportunities of motorized and winter sports recreation would increase within a "roaded modified" recreation setting. Timber production would occur at an average rate of .3 MMBF per year with a sustained yield of .07 MMCF per year. Stream sediment would increase within constraints.

For the entire 11,414-acre combined area, elk production would increase to about 127 animals over time. About 351 acres of riparian habitat would be improved to "excellent condition."

Alternative I

This alternative would emphasize semiprimitive nonmotorized management in the 6,198-acre core area, while managing the timber stands in the 4,516-acre southern plateau area and the 700-acre northern productive area. The sights and sounds of human intrusion would be obvious in the harvested portions, and might indirectly carry into the lower reaches of the unroaded portion. Old growth would be reduced from the current 3,036 acres to 2,390 acres. Natural succession would continue to dominate the timber stands within the unroaded area. Managed stands outside the core area would dominate. About 16 miles of road would be constructed and generally kept open. The potential for a minor decrease in water quality would exist as a result of timber harvest and road building. Elk numbers would decrease in time due to: 1) timber harvest, and 2) silvicultural treatments that maximize future timber volumes, and that decrease cover and security. Snag habitat would be reduced in the harvest areas, which would reduce potential for cavity nesters. Forage production would increase in the harvest areas as transition range. Motorized recreational opportunities would be increased within the harvest areas of the southern plateau, as would the potential to supply firewood. Options for future wilderness would be maintained in the roadless core area, but would be less desirable than if the whole area was managed for SPNM opportunity.

Cottonwood

Description

The Cottonwood unroaded area consists of approximately 9,777 acres in Wheeler and Grant Counties, Oregon, on the Paulina Ranger District. It is about 23 miles northwest of Paulina, 27 miles northwest of Mitchell and 8 miles southeast of Dayville. It is accessed primarily by National Forest Road 38. Private lands, and lands administered by the Bureau of Land Management, border to the north, east, and southeast. All other borders are surrounded by National Forest lands.

History

Prior to the Oregon Wilderness Act of 1984, the Cottonwood unroaded area was part of a much larger parcel referred to as the Canyons roadless area. This larger area also contained the now officially designated Black Canyon Wilderness Area. The Canyons roadless area was subdivided into Cottonwood and Black Canyon because of a major developed road that bisected it.

The Cottonwood roadless area was included in the RARE II inventory as #B6220, but was not recommended for wilderness designation and was not included in the Oregon Wilderness Act of 1984.

Under the existing Silvies Land Management Plan, Cottonwood is allocated to big game emphasis.

Geography and Topography

The Cottonwood unroaded area is comprised largely of a north-facing basin that includes the headwaters of Cottonwood Creek, Tunnel Creek, Brown Creek, Deep Creek and Battle Creek.

The most significant topographic features are the ridges and canyons which form a steep, deeply dissected landscape. The terraced cliffs of Young's Butte drop over 1700 feet toward the South Fork of the John Day River. Slopes in more than two-thirds of the area exceed forty percent. Eighty-five percent of the area is located on slopes with potentially severe erosion hazards. The soils are comprised of 50 percent moderately deep and deep fine sandy loam volcanic ash, 25 percent shallow and moderately deep loams and clays, and 25 percent very shallow loamy and clay nonforest soils.

The highest point in the Cottonwood area is the top of Battle Creek Mountain, at just over 6000 feet. Elevations of over 5000 feet, on many ridges, drop to around 3500 feet in the canyon bottoms where Cottonwood Creek and several others cross the Forest boundary.

Vegetation

Nine different plant communities exist within the Cottonwood unroaded area. Table C-14 contains a list of those plant communities with acreages according to resource inventories. They are organized by similarity in dominant plants and environment.

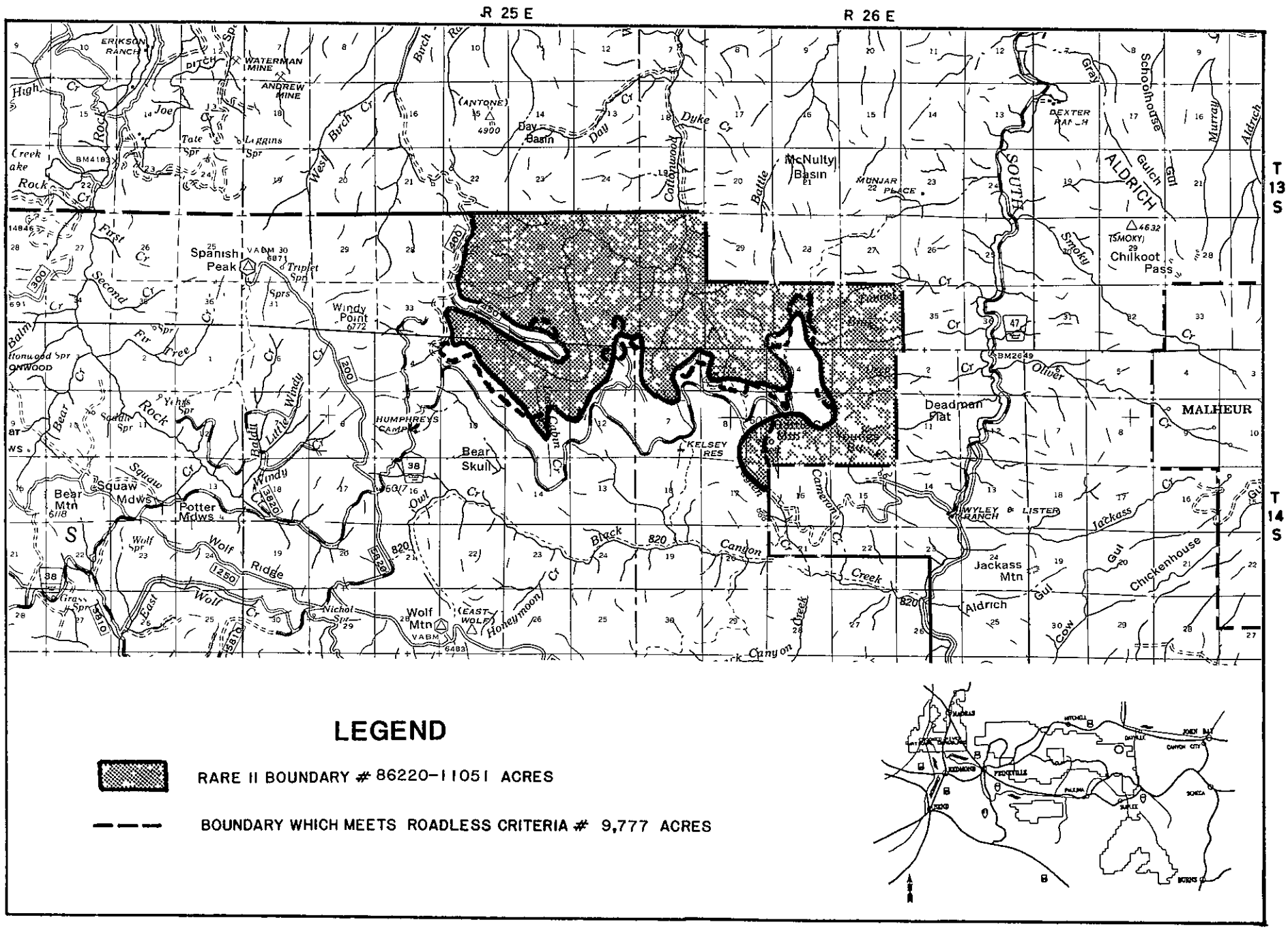
Stream bottoms and north-facing slopes in the Cottonwood area are covered with dense mixed conifer and ponderosa pine/Douglas-fir forest. Most south- and east-facing slopes, and ridgetops, are marked by shallow soils and mountain-mahogany/bunchgrass interspersed with open ponderosa pine/Douglas-fir forest. The terraces of Young's Butte are covered with scattered juniper, mountain mahogany, native bunchgrass, and a variety of smaller shrubs.

Current Uses

Existing management of the Cottonwood area allows for a wide range of uses, even though the magnitude of some uses is constrained by limited access.

Figure C-3

COTTONWOOD



LEGEND

RARE II BOUNDARY # 86220-11051 ACRES

BOUNDARY WHICH MEETS ROADLESS CRITERIA # 9,777 ACRES

TABLE C-14
COTTONWOOD PLANT COMMUNITIES

Descriptor	Plant Community	Acres
Low elevation, nonforest	Stiff sage scabland (w/ stiff sagebrush)	64
	Bunchgrass on shallow soil, gentle slopes (w/ fescue, sandberg bluegrass, Yarrow)	88
	Juniper-bunchgrass	1,684
	Juniper-low sagebrush	67
Forested-ponderosa pine dominant, firs absent (to present)	Mixed conifer - pinegrass - residual soils (w/ white fir, Douglas-fir, ponderosa pine)	3,867
	Mixed conifer - pinegrass ash soils (w/ western larch, white fir, Douglas-fir, ponderosa pine)	737
	White fir - twinflower (w/ Douglas-fir western larch, Columbia brome)	728

Recreation

Backpacking, big game hunting, horseback riding, hiking and fishing are now the principal recreational uses. Recreational use is low and no indications have been measured, but is estimated to be considerably less than the current potential of 1.6 MRVD's without a developed trail system. This potential increases to 15.9 MRVD's with a developed trail system that accesses the interior of the area from various points.

The area is served by 4.8 miles of maintained trails. Approximately 95 percent of the area is capable of supporting semiprimitive, nonmotorized recreation. The remainder supports semiprimitive, motorized recreation.

Minerals and Energy

There has been no mineral development in the area. About 2,980 acres of oil and gas leases are held on the Cottonwood area.

Timber

Over most of the Cottonwood area, few timber-related activities have occurred.

Livestock Production

The Cottonwood area provides an equivalent of 252 AUM's for four grazing allotments.

Scenic Resources

Outstanding views of Cottonwood Canyon, Black Canyon Wilderness Area, the John Day River Valley, and the canyon of the South Fork of the John Day River exist from the high points and ridges in the Cottonwood area.

Wildlife

The diverse variety of habitat types found in the Cottonwood area support a corresponding diversity of reclusive and old growth dependent wildlife species. The area is believed to support wolverine, black bear, and mountain lions. Bird species of special interest which are known to nest in the area include: pileated woodpecker, goshawk, prairie falcon, and blue and ruffed grouse. Sixty to seventy percent of the area is considered to be elk winter range. The Cottonwood area contains excellent habitat for a small population of older age class elk.

Fish

Cottonwood Creek, and its major tributaries within the area, provide 10.7 miles of excellent condition Class I and II streams to the John Day River. Stream habitat in the Cottonwood drainage supports significant trout and steelhead populations, and this drainage supplies important high quality water to John Day River fisheries.

History

Artifacts remaining from early Native American use are located at a number of sites in the Cottonwood area, along with historical features associated with early use and development on the Forest

Wilderness Capability (Potential)

Manageability and Boundaries

Three different boundaries have been defined for the Cottonwood unroaded area. They are:

RARE II Boundary - 11,051 acres

Roadless Criteria Boundary - 9,777 acres

Manageable Boundary for Semiprimitive Recreation - 9,737

The Roadless Criteria boundary is the updated RARE II boundary. The acreage differences shown are due to recent on-the-ground surveys, which added some acres and deleted others because of (a) more accurate mapping and (b) re-examination of areas of past human disturbance. The boundaries of these two categories are difficult to identify on the ground, except on the north and east boundaries, because of indistinct topography and vegetation. The Manageable Boundary for Semiprimitive Recreation has been designated along more easily identifiable features, such as roads, land survey lines, ridgetops and draws.

The Cottonwood unroaded area boundary is well defined by topographic features, roads, and surveyed National Forest boundary. Topographic features serve to shield the unroaded area from intrusion of activities taking place outside the area. Most of the Cottonwood Creek watershed which is administered by the Forest Service lies within the roadless boundary.

Corridors along the high-clearance road which follows Cougar Ridge, and the high-standard road on the main ridge of Battle Creek Mountain, are substantial intrusions into the roadless areas. These roads were constructed to provide access for timber harvest Currently, they are used for motorized access to Cottonwood Canyon by livestock permittees, recreationists, and hunters. Approximately 730 acres of timber harvest units and temporary roads are associated with the road on Battle Creek Mountain. Closure and obliteration of the road on Cougar Ridge is possible, but would cause minor inconvenience to some Forest users. The higher standard roads and the effects of logging on Battle Creek Mountain would be very difficult and expensive to restore to a natural appearance.

Natural Integrity and Appearance, Opportunities for Solitude

The most extensive effect on the natural integrity of the Cottonwood area has been made by the elimination of fire as the principal influence on vegetative change.

The overall appearance of the area is very natural, away from localized disturbances. Trails, low standard roads, and timber harvest activities are apparent, but not overwhelming, to most users. They involve less than five percent of the area. Developments outside the unroaded area are apparent from some points. Prehistoric cultural features and the effects of past activities on natural processes are apparent only to the most observant visitors at close range.

The dense vegetation and rugged topography in the area provide substantial barriers against intrusion by the sight or sounds of other Forest users. Nonmotorized users within the unroaded area will not be apparent to other users at distances greater than 200 yards, in most cases. Opportunities exist to reduce the probability of contacts by avoiding the few established trails and dispersed camps. The sounds of aircraft overflights, timber harvest activities, and motor vehicles will be heard at times from some parts of the unroaded area. Activities which occur outside the unroaded area will only be visible from a few places to observant visitors.

Primitive Recreation Opportunities and Challenging Experiences

Opportunities for semiprimitive nonmotorized recreation in the area include: backpacking, hiking, fishing, big game and upland bird hunting, riding (horse and bicycle), photography and observation of plants and wildlife. The estimated carrying capacity is 1.6 MRVD's without a developed trail system and is estimated at 15.9 MRVD's if a trail system was developed to access the interior from different points.

Semiprimitive motorized recreational opportunities include on- and off-trail use of two-, three-, and four-wheel off-road vehicles (ORV's). Motorized recreation may be combined with some of the described nonmotorized activities, or as recreation by itself. These activities are limited by dense vegetation and steep terrain to approximately five percent of the unroaded area.

The Cottonwood area's steep and diverse topography, limited trail system development, isolation, and low visitor density provide challenges in off-trail navigation and travel which require good judgement, self-reliance, and backcountry skills for most activities.

Special Features

The wildlife supported by the Cottonwood area are species dependent upon high quality streams (e.g. resident and anadramous fish), or upon old growth habitat or lack of human disturbance (wolverine, bear, mountain lion, some raptors, and "trophy" elk, among others). The Cottonwood area provides relatively large, contiguous areas of these habitats with minimal human intrusion.

Wilderness Availability

Recreation

Present recreational use includes low levels of backpacking, hiking, fishing, big-game and upland bird hunting, plant and wildlife observation, photography, and riding, sometimes in combination with ORV use.

Demand for semiprimitive recreation in this area is projected to increase within the planning period, as pressure on other similar areas increases.

Carrying capacity for this area is estimated at 15.9 MRVD's per year for the manageable area with a fully developed trail system. Present use levels have not been quantified.

Wildlife

Wildlife species dependent on snags, old growth, and riparian habitats; those adversely affected by human contacts, or activities; big game; and resident and anadromous fish are wildlife of particular significance in the Cottonwood area. A list of old growth dependent, and nonadaptive, species believed to occupy the area includes: pileated woodpecker, black-backed three-toed woodpecker, northern three-toed woodpecker, flammulated owl, northern flying squirrel, mountain lion, marten, and fisher. Black bear and wolverine are also believed to be in the area.

Sixty to seventy percent of the area is considered elk winter range. The entire roadless area is summer (transitional) range for deer and elk. Forty to fifty percent of the summer and winter range consists of

good to excellent cover, well distributed over the area. Because of the area's inaccessibility, it supports a higher proportion of the older age class animals attractive to trophy hunters.

Tributaries to Cottonwood provide 10.7 miles of Class I and II streams in the roadless area, with abundant spawning beds, riparian vegetation, and stream banks in excellent condition.

Dead and defective tree (snag) habitat within the roadless area is capable of supporting greater than 80 percent of the biological potential for cavity dependent wildlife.

Water

There are no existing uses of water within the roadless area. The quality, timing, and amounts of water provided to the John Day River by Cottonwood have been identified by Oregon Department of Fish and Wildlife as important to maintaining the quality of the John Day fisheries.

Livestock

The 9777 acres in the Cottonwood area are a part of a 32,340-acre grazing allotment used for sheep and cattle. The roadless area is capable of supporting 252 AUM's of the 690 Aum total allowed by the grazing permits.

Timber

The Cottonwood unroaded area contains 6,640 acres of suitable forest land, mostly in old growth mixed conifer species. Net annual sustained yield is estimated to be .33 MMCF.

Minerals and Energy

There has been no mineral development in the area, and none is known to be planned. Some of the area has been leased for oil and gas or recommended for lease. No activity has occurred in this area.

TABLE C-15
RESOURCE POTENTIAL SUMMARY

	Current Levels	Potential Levels
RECREATION	Low to moderate (nonquantified)	1 6 MVRD's No trails 15 9 MVRD's Fully developed trail system
WILDLIFE		
Old Growth Dependent Species	2,858 acres of suitable old growth	6,568 of capable lands for old growth
Big Game (Rocky Mtn Elk)	86 animals	134 animals
Fish (Resident and anadromous)	High	Unknown
WATER	6,742 Acre Feet	7,463 acre feet with 25% timber harvest level, 9,955 acre feet with conversion to grassland
LIVESTOCK	252 AUM's	272 AUM's with transitory range 343 AUM's with transitory range and water developments
TIMBER	No timber production currently Standing volume is approximately 106 MMBF	33 million cubic feet per year sustained yield
MINERALS AND ENERGY	No current mineral development. 2,980 acres of oil and gas leases	Prospectively valuable for oil and gas
CULTURAL	Some historic, some prehistoric	High potential based on existing findings No completed resource inventories

Cultural Resources

Cultural resource inventories are incomplete for the Cottonwood area.

Artifacts remaining from early Native American use are located at a number of sites in the Cottonwood area, along with historical features associated with early use and development of the Forest. Their integrity remains largely intact for scientific and interpretive purposes, but they are not known to be of major significance.

Management Considerations

Fire

Natural fire frequencies once played a significant role in development and maintenance of vegetation within the Cottonwood area. The following range of natural fire cycles by vegetation type provides an indication of the importance of fire in preventing excessive fuel accumulations and maintenance of seral tree and shrub species.

Ponderosa pine	5-25 years
Mixed conifer	20-70 years
Grass, tree shrub	5-15 years

Since the implementation of fire prevention measures at the turn of the century, fuels have been allowed to accumulate at unnatural rates, creating the potential for a major conflagration, given a certain set of environmental conditions.

Insects and Disease

Both natural and unnatural infestations by a variety of insects have occurred, are occurring, and will most likely continue to occur in the Cottonwood unroaded area.

The Cottonwood area, along with a large portion of central and eastern Oregon forest lands, is currently in the midst of an infestation of spruce budworm, an insect introduced to the western United States from the east coast at the turn of the century. Continuous feeding by this insect causes a reduction in vigor and can kill a tree in time.

TABLE C-16
Nearby Wilderness and Unroaded Areas

Wilderness Areas	Unroaded Areas *	Current Allocation	Approximate Distance from Cottonwood Roadless Area (Air Miles)	Acres
Bridge Creek			24	5,400
Mill Creek			36	17,400
Black Canyon			1	13,400
Strawberry Mtn			71	68,300
North Fork John Day River			95	120,800
Monument Rock			50	19,800
Mt Washington			90	52,600
Three Sisters			95	285,000
	Rock Creek	Big Game Production	1	11,414
	Lookout Mountain	Semiprimitive/ Nonmotorized	30	14,273
	Green Mountain	Big Game Production	40	6,630
	Silver Creek	Semiprimitive/ Nonmotorized	35	7,459
	Deschutes Canyon/ Steelhead Falls	Semiprimitive/ Nonmotorized	70	10,000

* Roadless Criteria Boundary Acres

Other insects with potential for serious damage are:

Insect	Target Species
Larch Casebearer	Western Larch
Western Pine Beetle	Ponderosa and Lodgepole Pine
Tussock Moth	Douglas-fir and White Fir

Among the diseases occurring in the roadless area are·

Disease	Target Species
Various root rots caused by fungi:	All
Indian Paint Fungus	White Fir

Neither of these is expected to cause serious problems under the current management allocation.

Wilderness Evaluation

Public Interest

Public comments received on the DEIS and Proposed Forest Plan concerning Cottonwood were usually in conjunction with the Rock Creek roadless area and are discussed there.

TABLE C-17
Distance From Population Centers

City	Population	Distance From Cottonwood Unroaded Area
Prineville	5,520	95
Bend	17,800	130
Redmond	6,615	115

Environmental Consequences

The variety of acre allocations shown in Table C-18 will result in an array of different outputs and environmental consequences for the Cottonwood area.

Table C-19 contains quantitative estimates of resource outputs and/or environmental consequences associated with each alternative. As an example, even though timber production per se is not an environmental consequence, the two different outputs shown indicate the increased productivity associated with long term management of the timber resource in the Cottonwood area (e g. 1.47 vs. 1.67 MMBF for B-Modified). Similarly, "Roads Built" by alternative is not an environmental consequence, but "Roads Open per square mile" indicates the emphasis of the prescription applied by alternative, which can result in an array of consequences for wildlife, water quality, and motorized recreation. Outputs shown for "Riparian" indicate the acres of riparian area to be enhanced above minimum management requirements. Outputs shown for "Big Game" (number's of elk) reflect the management prescriptions applied to the area by alternative and are an index of the quality of habitat produced. Outputs for "Recreation" are Recreation Opportunity Spectrum classifications and indicate the type of recreational experiences available by alternative. For "Off-Road Vehicles," a plus or minus indicates either an increase or a decrease in this type of opportunity Outputs for "Snags" indicate the percentage of snag habitat available for maximum potential production of primary cavity users, by alternative. Outputs for "Old Growth," in acres, indicate either (a) the acres allocated by management for development alternatives, or (b) existing or potential old growth based on site capability. Outputs for remaining categories are self-explanatory.

TABLE C-18
COTTONWOOD ROADLESS AREA DESIGNATION BY MANAGEMENT PRESCRIPTION

Total Roadless Criteria Acres - 9,777
Area Manageable For Semiprimitive Recreation = 9,737

	Acres by Alternative 1/				
Management Prescription	A / NC	B-MOD	C-MOD	E-DEP	I
Dispersed Recreation Nonmotorized Motorized	0 0	0 0	9,737 0	9,737 0	6,592 0
Timber/Range	0	9,777	0	0	3,185
Big Game	9,777	0	40	40	0

1/ Based on Total Roadless Criteria Acres

TABLE C-19
COTTONWOOD SUMMARY OF RESOURCE OUTPUTS BY ALTERNATIVE

		ALTERNATIVE				
	Unit of Measure	A / NC	B-MOD	C-MOD	E-DEP	I
Timber 50 Year Period Sustained Yield	MMBF/Yr MMCF	1 27 3	1 47 33	0 0	0 0	41 10
Roads Built Open	Miles /Sq Mi	39 2	34 All	0 0	0 0	11 All
Range	AUM's	268	343	252	252	297
Riparian Exceeds Acceptable (Excellent) Condition	Acres	0	0	0	0	0
Big Game Elk (5th Decade)	#	137	68	89	89	99
Recreation (ROS) SPNM RM/RN	Acres Acres	9,777	9,777	9,737 40	9,737 40	6,592 3,185
Old Growth	Acres	850	465	3,832	3,832	2,188
Off-Road Vehicles 1/	+/-	+	+	-	-	+
Firewood	Cords	133	154	0	0	50
Snags	% of maximum potential	80%	20%	100%	100%	90%
Future Wilderness Consideration		None	None	+	+	+

1/ + or - Indicates an increase or decrease in this type of opportunity

MMBF - Million board feet
MMCF - Million cubic feet
RM/RN Roaded Modified/Roaded Natural
SPNM - Semiprimitive Nonmotorized
AUM s- Animal Unit Months

Alternatives A and NC

This alternative would result in a big game management emphasis for the Cottonwood area. Opportunities for semiprimitive experiences would be substantially reduced. The sites and sounds of human intrusion would be obvious. Manipulation of vegetation for habitat production would substantially reduce the importance of natural succession. At least 50 percent of the area would be in an open (noncover) condition. Water quality would decrease as a result of road building and timber management, but would remain within limits. All riparian habitat would be maintained in an "acceptable" condition. Approximately 39 miles of road would be built to access the area, but only 2 miles per square mile would remain open. Elk production will increase to 137 animals. About 850 acres of old growth habitat would be maintained over time. Snag habitat would be maintained at relatively high levels - 80 percent of potential. Forage production would increase slightly, by about 16 AUM's due to increased transitory range. Motorized recreation and winter sports opportunities would increase because of access, but within limits to protect wildlife habitat. A "roaded modified" type of recreational setting would be available. Approximately 133 cords of firewood would be annually available to local citizens. Timber harvest would occur at an average rate of 1.27 MMBF per year, with an eventual long-term sustained yield of about .3 MMCF per year. Future options for wilderness designation would be foregone.

Alternative B-Modified

This alternative would result in a timber/range management emphasis for the Cottonwood area. Opportunities for semiprimitive experiences would be eliminated. The sites and sounds of human intrusion would dominate the area. Vegetation manipulation would occur for maximum production of commodities (timber and forage). Natural succession would no longer be a dominant factor About 34 miles of road would be built and generally remain open. Water quality would decrease as a result of road building and timber management activities, but within constraints. All riparian habitat would remain in an "acceptable" condition Elk numbers would decrease to about 5 animals over time. A minimum management level of 465 acres of old growth habitat would be maintained, and snag habitat would be reduced to 20 percent of potential, also a minimum management level. Forage production would increase by about 75 AUM's due to transitory range from timber harvest and increased investments in water developments. Motorized recreation and winter sports opportunities would increase within a "roaded modified" recreation setting. Timber harvest would occur at an average rate of 1 47 MMBF per year. Sustained yields of .33 MMCF would be produced once the area was in a fully managed condition. Options for future wilderness designation would be foregone. About 154 cords of firewood would be available annually to local citizens

Alternatives C-Modified and E-Departure

These alternatives would maintain the Cottonwood area (9,737 acres manageable boundary) in a semiprimitive condition. The sites and sounds of human activities would be minimal. No road building or scheduled timber harvest would occur, and vegetation would continue to evolve under the forces of natural succession. Climax conditions would be reached, but fire-induced forces would eventually reduce areas to seral conditions because of natural fuel accumulations, insect and disease infestations, and predicted fire frequencies About 3,832 acres of old growth habitat would naturally evolve, based on site capabilities. Snag habitat would be based on natural tree mortality and fluctuate around maximum levels. Elk production would increase slightly, to about 89 animals over time. Opportunities for motorized recreation would be reduced. Other winter sports opportunities would remain at about current levels Opportunities for future wilderness designation would remain.

Alternative I

This alternative would emphasize semiprimitive nonmotorized recreation management in the 6,592-

acre core area, while managing the timber stands in the 1,365-acre southern plateau area and the 1,820-acre northern productive area. The sights and sounds of human intrusion would be obvious in the harvested portions and might indirectly carry into the lower reaches of the unroaded portion, especially during helicopter logging. Old growth would be reduced from the current 3,832 acres to 2,188 acres. Natural succession would continue to dominate the timber stands within the unroaded area. Managed stands outside this core area would dominate. About 11 miles of road would be constructed and generally remain open. The potential for a minor decrease in water quality would exist as a result of timber harvest and road building. Elk numbers would increase slightly to 99 animals Snag habitat would be reduced in the harvest areas, which would reduce potential for cavity nesters. Forage production would increase in the harvest areas as transition range. Motorized recreational opportunities would be increased within the harvest areas of the southern plateau as would the potential to supply firewood. Options for future wilderness would be maintained in the roadless core area, but would be less desirable than if the whole area was managed for semiprimitive nonmotorized opportunity.

Silver Creek

Description

Location and Access

The Silver Creek area consists of approximately 7,459 acres in Harney County, Oregon, on the Snow Mountain Ranger District. It is about 40 air miles northwest of Burns and can be reached from National Forest Road 45, Road 4540 and Road 4150 via Howard Point. Private land and land administered by the Bureau of Land Management borders three sections to the southeast, but otherwise the entire area is surrounded by National Forest lands.

History

The Silver Creek area was included in RARE II studies and was not designated for further study. Under the existing Silvies-Malheur Land Use Plan, 2,510 acres are allocated to an unroaded management emphasis, 4,949 acres are allocated to a timber/range emphasis.

Geography and Topography

In general, the Silver Creek area contains gently sloping plateaus dissected by steep canyons, which are partially rimmed by basalt rock outcops. It is the major confluence for Silver Creek, a Class I stream, and contains major stream lengths for Delinquent, Short, and Dodson Creeks. Elevations range from 4,400 to 5,600 feet and the major aspect is south.

Soils

Soil on the tablelands is generally shallow gravelly silt, or sandy loam Sideslopes and draws have similar

soil characteristics but at greater depths. The side drainages and upper portions of the main tributaries contain many large boulders. Parent materials are rhyolites and/or welded tuffs.

Vegetation

Eleven different plant communities exist within the Silver Creek roadless area. Table C-20 contains a list of those plant communities with acreages according to resource inventories.

Current Uses

Livestock

The most pronounced use occurring in the Silver Creek area is livestock grazing. It contributes approximately 574 AUM's to five permittees within two allotments.

Recreation

Recreational use is low, but the potential is approximately 5,594 RVD's. The primary activities occurring are fishing, big game hunting, hiking and horseback riding. The area has no developed campsites or trail system.

Research Natural Area

Approximately 845 acres of the area currently provides a study area for ecosystem management.

Minerals and Energy

No oil and gas leases are held on the area. No mining development or exploration has occurred. Potential for mineral deposits is negligible.

Timber

Mature ponderosa pine with a pine understory dominates 72% of the area. Fifteen percent is open and the balance is mixed conifer stands. In the Silver Creek area, few timber related activities have occurred.

Wildlife

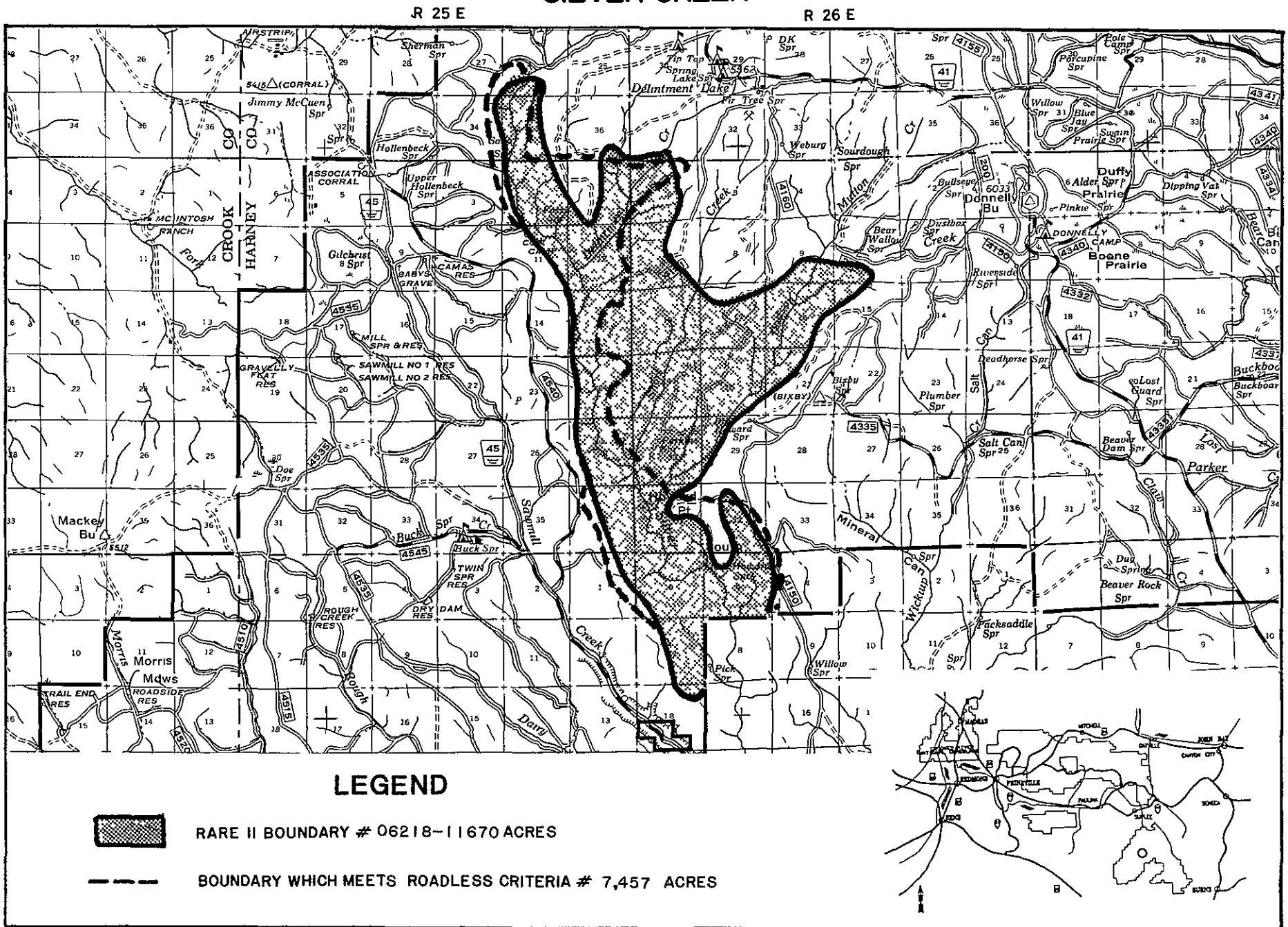
The Silver Creek area supports a year-round mule deer population. A resident elk herd and antelope

TABLE C-20
SILVER CREEK PLANT COMMUNITIES

Descriptor	Plant Community	Acres
Meadows	Moist Meadows (w/ tufted hairgrass, oathead sedge, California oatgrass)	75
Low elevation, nonforest	Bunchgrass on shallow soil, gentle slopes	56
	Low sagebrush-bunchgrass	53
	Juniper-low sagebrush	973
	Juniper-big sagebrush	313
	Big sagebrush - bunchgrass	51
Forested-ponderosa pine dominant, firs absent (to present)	Ponderosa pine, wheatgrass	1,891
	Ponderosa pine - fescue	465
	Ponderosa pine - Bitterbrush - elk sedge	3,068
	Mixed conifer - pinegrass - residual soils	1,261

* The two major ecosystem types represented in the area considered for a Research Natural Area contain
1 Ponderosa pine / bitterbrush
2 Ponderosa pine / pinegrass

SILVER CREEK



may be found adjacent to the open ridges on the south end of the area. There is a small beaver population.

Fish

A resident rainbow trout population has light fishing pressure due to limited access. It is found principally in Silver Creek, but there are limited numbers of fish in the feeder streams also.

Geology

An interesting geologic feature exists in the area in the form of Soda Spring. This spring emits water which has a high mineral content similar to soda. Algae growth in this spring is greater than in other spring locations throughout the Forest.

Cultural Resources

There are no known cultural features. It is possible, however, that the area has been frequented by Native Americans over time.

Wilderness Capability (Potential)

Manageability and Boundaries

Three different boundaries have been defined for the Silver Creek unroaded area. They are·

RARE II Boundary - 11,670 acres

Roadless Criteria Boundary - 7,459 acres

Manageable Boundary for Semiprimitive Recreation - 3,226 acres

The RARE II and Roadless Criteria boundaries are, by definition, the same. The acreage differences shown are due to recent on-the-ground surveys which added some acres and deleted others because of more accurate mapping and of re-examination of areas of past human disturbance The boundaries of these two categories are difficult to identify on the ground, except on the north boundary, because of indistinct topography and vegetation. The Manageable Boundary for Semiprimitive Recreation has been designated along more easily identifiable features such as roads, land survey lines, ridgetops and draws.

Natural Integrity and Appearance, Opportunities for Solitude

Livestock grazing and control of wildfires are the only elements affecting the natural integrity of the Silver Creek area.

The Silver Creek area has a very natural overall appearance, except where livestock grazing occurs. This activity occurs during the summer season for a period of one to two months within the roadless area. Forest management activities outside the area are usually not visible due to the terrain and timber canopy.

The activity of nonmotorized visitors will usually not be apparent due to vegetative cover and topography. The sounds of aircraft, timber harvest activity, and motor vehicles will be heard at times. The area has no trails to direct or concentrate visitors.

Primitive Recreational Opportunities and Challenging Experiences

Opportunities for semiprimitive nonmotorized recreation include camping, hiking, fishing, horseback riding and big game hunting. The estimated carrying capacity is 7.1 MRVD's

Opportunities for semiprimitive motorized recreation are limited to off-trail use. The vegetation and steep terrain limit this use to about 5% of the roadless area. The estimated carrying capacity is 400 RVD's.

The Silver Creek area does not challenge backcountry skills. The lack of a trail system may challenge safe travel, good judgement, and physical condition.

Wilderness Availability

Recreation

Present recreational use includes low levels of backpacking, hiking, fishing, big game and upland bird hunting, plant and wildlife observation, photography, and riding, sometimes in combination with ORV use

Demand for semiprimitive recreation in this area is projected to increase within the planning period, as pressure on other similar areas increases.

Carrying capacity for this area is estimated at 2.3 MRVD's per year for the manageable area with a fully developed trail system. Present use levels have not been quantified.

Wildlife

Wildlife species dependent on snags, old growth, and riparian habitats; those adversely affected by human contacts or activities; big game; and resident and anadromous fish are wildlife of particular significance in the Silver Creek area. A list of old growth dependent, and nonadaptive, species believed to occupy the area includes: pileated woodpecker, black-backed three-toed woodpecker, northern three-toed woodpecker, flammulated owl, northern flying squirrel, mountain lion, marten, and fisher. Black bear and wolverine are also believed to be in the area.

Because of the area's inaccessibility, it supports a higher proportion of the older age class animals attractive to trophy hunters.

Silver Creek provides opportunities for brook trout fishing. The potential for this fishery has not been assessed. Riparian vegetation and stream banks are in excellent condition.

Dead and defective tree (snag) habitat within the unroaded area is capable of supporting greater than 80% of the biological potential for cavity dependent wildlife.

TABLE C-21
RESOURCE POTENTIAL SUMMARY

	Current Levels	Potential Levels
RECREATION	Low (nonquantified)	1 7 MVRD's No trails 2.3 MVRD's Developed trails
WILDLIFE		
Old Growth Dependent Species	1,643 acres of suitable old growth	2,035 of capable lands for old growth
Big Game (Rocky Mtn Elk)	No current production	21 animals
Fish (Resident and anadromous)	Moderate	Unknown
WATER	5,147 Acre Feet	5,596 acre feet with 25% timber harvest level, 7,084 acre feet with conversion to grassland
LIVESTOCK	553 AUM's	597 AUM's with transitory range 1,569 AUM's with transitory range and water developments
TIMBER	No timber production currently Standing volume is approximately 58 MMBF	26 million cubic feet per year sustained yield
MINERALS AND ENERGY	No current mineral development 5,450 acres of oil and gas leases	Prospectively valuable for oil and gas
CULTURAL	Some minor historic, probably prehistoric	No completed resource inventories

Water
There are no existing uses of water within the unroaded area.

Livestock
The Silver Creek area is capable of supporting 597 AUM's with transitory range. With water developments the capacity increases to 1,569 AUM's.

Timber
The Silver Creek area is dominated by old growth/mixed conifer forest. Net annual sustained yield is estimated to be 1.3 MMBF.

Minerals and Energy
There has been no mineral development in the area, and none is known to be planned. Oil and gas leases have been obtained on 5,450 acres of the area. The area is classified as being prospectively valuable for oil and gas.

Cultural Resources
Cultural resource inventories have not been initiated in the Silver Creek area. Minor occurrences of prehistoric artifacts probably exist.

Management Considerations

Fire
Natural fire frequencies for most of the area range from 5 to 25 years. Since the implementation of fire prevention measures at the turn of the century, fuels have been allowed to accumulate at unnatural rates, creating the potential for a major conflagration, given a certain set of environmental conditions.

Insects and Disease
Forest insects most likely to do damage in the Silver Creek area include various species of bark beetles. These can be kept to endemic levels with natural fire interaction in existing ecosystems.

Elytroderma, a native needle disease agent on ponderosa pine, has had a historic, cyclical influence on the area, as has dwarf mistletoe.

Wilderness Evaluation

Public Interest
Ninety-three comments were received on the Silver Creek area. Among the respondents were the Oregon State Economist and Crook County.

Most of the comments dealt with the size of the roadless allocation in the area. Various recommendations were made ranging from dedication of 14,125 acres of Silver Creek as wilderness to opening the entire area to timber harvest.

Most of the comments, however, recommended retaining Silver Creek as roadless, and protecting the old growth and watershed values.

Those urging harvest of the old growth in the area suggested that it be spread over a two- to three-decade period to lessen impacts on riparian zones.

The Oregon State Economist agreed with semi-primitive nonmotorized recreation management and acreage allocated to that in Alternative E-Departure for Silver Creek.

Crook County desired the addition of roadless allocation acres to the Silver Creek roadless area identified in the DEIS.

TABLE C-22
Nearby Wilderness and Unroaded Areas

Wilderness Areas	Unroaded Areas *	Current Allocation	Approximate Distance from Silver Creek Roadless Area (Air Miles)	Acres
Bridge Creek			45	5,400
Mill Creek			55	17,400
Black Canyon			30	13,400
Strawberry Mtn			50	68,300
North Fork John Day River			125	120,800
Monument Rock			80	19,800
Mt Washington			100	52,600
Three Sisters			90	285,000
	Rock Creek	Big Game Production	35	11,414
	Cottonwood	Big Game Production	31	9,777
	Green Mountain	Big Game Production	60	6,630
	Lookout Mountain	Semiprimitive/ Nonmotorized	40	14,273
	Deschutes Canyon/ Steelhead Falls	Semiprimitive/ Nonmotorized	80	10,000

* Roadless Criteria Boundary Acres

Environmental Consequences

The variety of acre allocations shown in Table C-24 will result in an array of different outputs and environmental consequences for the Silver Creek area.

Table C-25 contains quantitative estimates of resource outputs and/or environmental consequences associated with each alternative. As an example, even though timber production per se is not an environmental consequence, the two different outputs shown indicate the increased productivity associated with long-term management of the timber resource in the Silver Creek area (e g. 1.4 vs. 1.62 MMBF for B and B-Departure). Similarly, "Roads Built" by alternative is not an environmental consequence, but "Roads Open per square mile" indicates the emphasis of the prescription applied by alternative, which can result in an array of consequences for wildlife, water quality, and motorized recreation. Outputs shown for "Riparian" indicate the acres of riparian area that will be enhanced above minimum management requirements. Outputs shown for "Big Game" (number's of elk) reflect the management prescriptions applied to the area by alternative and are an index of the quality of habitat produced. Outputs for "Recreation" are Recreation Opportunity Spectrum classifications and indicate the type of recreational experiences available by alternative. For "Off-Road Vehicles," a plus

TABLE C-23
Distance From Population Centers

City	Population	Distance From Silver Creek Unroaded Area
Prineville	5,520	100
Bend	17,800	125
Redmond	6,615	120

or minus indicates either an increase or a decrease in this type of opportunity. Outputs for "Snags" indicate the percentage of snag habitat available for maximum potential production of primary cavity users, by alternative. Outputs for "Old Growth," in acres, indicate either (a) the acres allocated by management for development alternatives, or (b) existing or potential old growth based on site capability. Outputs for remaining categories are self-explanatory.

Alternatives A and NC

This alternative would result in two different management emphases for the Silver Creek area. Out of the 7,459 total roadless criteria acres, 2,510 acres would be managed for semiprimitive nonmotorized recreation. The remaining 4,949 acres would be managed with a timber/range emphasis. This would foreclose on future options for wilderness consideration because of the limited size.

In the semiprimitive area, no road building or scheduled timber harvest would occur. The sites and sounds of human activities would still be somewhat noticeable because of the dimensions of the area, but would be substantially reduced below that of adjacent areas. Old growth habitat would decrease from 2,035 acres to 1,879 acres. Snag habitat would be based on natural tree mortality, and would generally be at optimum levels. Motorized recreational opportunities would decrease and winter sports opportunities would remain the same. Forage production would generally decrease as a result of tree canopy closure. Lack of fire or other disturbances would lead to species changes in tree stands from mostly ponderosa pine to a mixture of ponderosa pine, Douglas-fir, and white fir. Natural fuel buildup would result in a high fire risk condition, with an eventual fire induced return to seral conditions, depending on the degree of fire management/prevention in the area. Big game production would increase slightly due to increased cover.

In the developed area, tree stand composition would generally be based on maximum timber production. Trees would be widely spaced at regular intervals. Ponderosa pine would be the dominant species. About eight miles of road would be built and generally remain open. Forage production would increase, because of timber management activities and water developments, to 685 AUM's. Elk numbers would decrease due to reduced cover and increased activity. Snag habitat would be managed at minimum management levels - 20 percent of potential. Motorized and winter sports opportunities would increase within a "roaded modified" recreational setting. Timber harvest would occur at an average rate of .67 MMBF per year with a sustained yield of .86 MMBF. Options for future wilderness designation would be eliminated.

Alternatives C-Modified and E-Departure

These alternatives are all similar in that the Silver Creek area is divided into three different management emphasis areas. For these alternatives, 3,226 acres would be managed for semiprimitive, nonmotorized recreation. Natural succession would remain intact, and old growth habitat will increase to about 2,035 acres under Alternative C-Modified, and to about 1879 acres under Alternative E-Departure. Human intrusions would be minimal, with no road construction or scheduled timber harvest. Motorized recreation would decrease and winter sports opportunities would remain the same.

Also, for all of these alternatives, 845 acres would be managed as a Research Natural Area. This is similar to semiprimitive in that no scheduled timber harvest or road building would occur. Natural succession would proceed, substantially unaltered, except for research purposes (such as prescribed burning)

For Alternative 'C-Modified', the remaining 3,388 acres would be managed for a big game emphasis. About 6 miles of road would be built for access, and timber management would proceed with an objective of habitat manipulation Much of the area (at least 50%) would be in an open condition. Elk production would increase slightly, due to increased cover Snag habitat would be available at relatively high levels - 80 percent of maximum. Timber harvest

TABLE C-24
SILVER CREEK ROADLESS AREA DESIGNATION BY MANAGEMENT PRESCRIPTION

Total Roadless Criteria Acres - 7,459
Area manageable for Semiprimitive Recreation - 3,226

	Acres by Alternative 1/				
Management Prescription	A/NC	B-MOD	C-MOD	E-DEP	I
Dispersed Recreation					
Nonmotorized	2,510	3,110	3,226	3,226	3,110
Motorized	0	0	0	0	0
Timber/Range	4,949	3,504	0	3,388	3,504
Big Game	0	0	3,388	0	0
Research Natural Area	0	845	845	845	845

1/ Based on Roadless Criteria Acres

TABLE C-25
SILVER CREEK SUMMARY OF RESOURCE OUTPUTS BY ALTERNATIVE

		ALTERNATIVE				
	Unit of Measure	A/NC	B-MOD	C-MOD	E-DEP	I
Timber						
50 Year Period	MMBF/Yr	67	47	41	47	.47
Sustained Yield	MMCF	17	12	12	12	12
Roads						
Built	Miles	8	6	6	6	6
Open	/Sq Mi	All	All	2	All	All
Range	AUM's	685	644	573	644	644
Riparian						
Excellent Condition	Acres	0	505	505	505	505
Big Game						
Elk (5th Decade)	#	16	20	21	21	20
Recreation (ROS)						
SPNM	Acres	2,510	3,110	3,226	4,071	3,110
RM/RN	Acres	9,949	3,504	3,388	3,388	3,504
Old Growth	Acres	1,879	1,475	2,035	1,879	1,931
Off-Road Vehicles 1/	+/-	+ RM/RN	+ RM/RN	+ RM/RN	+ RM/RN	+ RM/RN
Firewood	Cords	70	40	43	50	40
Snags	% of max potential	100% 2,510 Ac 20% 4,949 Ac	100% 3,110 Ac 20% 3,504 Ac	100% 3,226 Ac 80% 3,388 Ac	100% 4,071 Ac 20% 3,388 Ac	100% 3,110 40% 3,504 Ac
Future Wilderness Consideration		None	None	None	None	None

1/ + or - indicates either an increase or decrease in this type of opportunity

MMBF Million board feet
MMCF - Million cubic feet
RM/RN Roaded Modified/Roaded Natural
SPNM - Semiprimitive Nonmotorized
AUM s- Animal Unit Months

would occur at an average rate of .41 MMBF per year with a sustained yield of .12 MMCF. The area would appear managed and stream sediment would increase, but would remain within constraints.

For Alternative 'E-DEPARTURE', the remaining 3,388 acres would be managed for a timber/range emphasis. Human intrusion into the area would be obvious. About six miles of road would be built for access, and timber management would proceed with an objective of maximum commodities production. Most of the area would be in an open condition, as trees would be spaced at wide, regular intervals. Snag habitat would be held at 20 percent of potential, or minimum management levels. Forage production would increase by 91 AUM's due to transitory range and water developments. Timber harvest would occur at an average rate of .47 MMBF per year with a long-term sustained yield of .59 MMBF per year.

In total, the Silver Creek area would be subdivided by these alternatives into different management areas. The end result would be a likely foreclosure on future wilderness options because of the area's dimensions.

Alternatives B-Modified and I

These alternatives would maintain 3,110 acres in a roadless condition, managed for semiprimitive, nonmotorized recreational opportunities. Natural succession would continue in this area, and the old growth ecosystem would be maintained at capacity in this portion of the area, barring a catastrophic event. The 845-acre Research Natural Area (RNA) would be maintained for research purposes with no harvest or other management activities except for research. Snag levels would be at the 100 percent level.

The remaining 3,504 acres would be managed for timber and range production. This portion of the area would receive additional scheduled timber harvest to the already partially harvested timber stands. Additional roading would be required. Snag levels would drop off to the 20 percent level for Alternative B-Modified, and to 40 percent for Alternative I.

Overall, the unique portion of the roadless ecosystem would be maintained for both wildlife and people searching for solitude This small island in the midst of the intensively managed area of timber would become a refuge for both game and nongame animals, and for people. Options for wilderness designation would be moot due to the small size of the area.

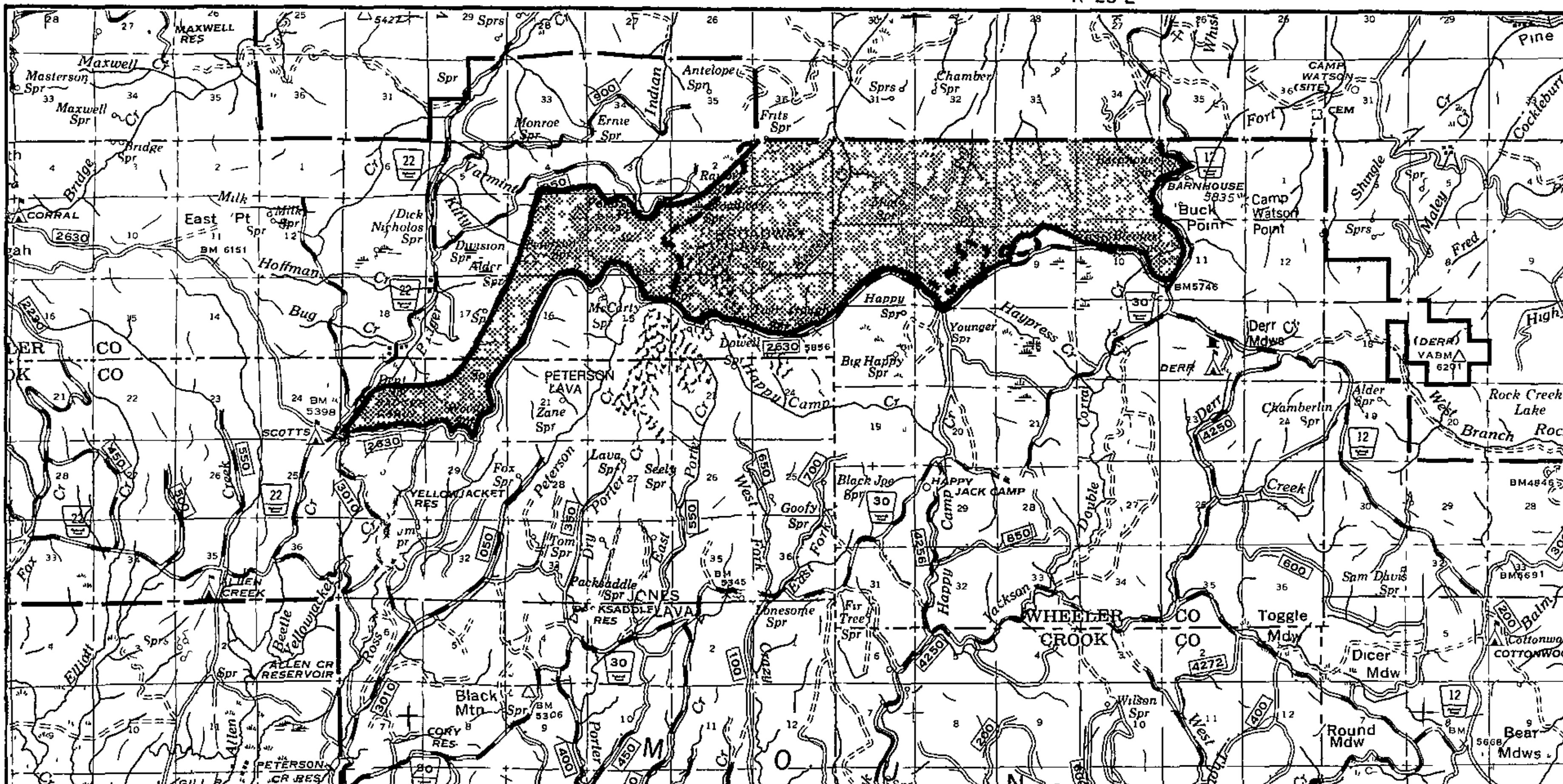
Broadway

The Broadway area consists of approximately 6,461 acres in Wheeler County, Oregon, on the Paulina Ranger District. It is about 12 miles southeast of Mitchell and 23 miles north of the town of Paulina. Under the authority and direction of the current Ochoco-Crooked River Land Management Plan (February 2, 1979), specific timber sale plans have been implemented in the area, and it is therefore no longer considered a roadless area and has not been analyzed as a roadless area in the development of alternatives.

The specific timber sale implemented in the area is Fry Timber Sale, 14.1 MMBF, sold fiscal year 1985.

Figure C-5

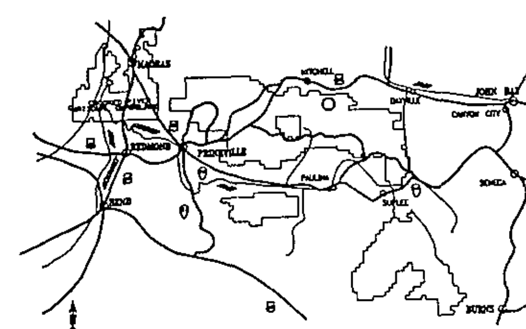
BROADWAY



LEGEND

RARE II BOUNDARY # 06219-8680 ACRES

BOUNDARY WHICH MEETS ROADLESS CRITERIA # 6461 ACRES



Green Mountain

Description

Location and Access

The Green Mountain unroaded area consists of approximately 6,630 acres in Crook County, Oregon, on the Prineville Ranger District It is about 12 air miles northwest of the city of Prineville and can be reached from National Forest Road 33 and one of its tributaries, Road 3380. Five sections of the roadless area border private land to the west, but otherwise it is surrounded by National Forest lands.

History

The Green Mountain unroaded area was included in RARE II studies and received a nonwilderness allocation. It was not included in the Oregon Wilderness Act of 1984.

Geography, Topography, and Soils

The terrain is rough and broken as a consequence of the canyons draining the area. Elevations vary from 3,500 feet in the valley bottom to 5,600 feet at the crest of Green Mountain. Three-fourths of the area is located on slopes with potentially severe erosion hazards. The soils comprise nearly 40 percent moderately deep, sandy loam, volcanic ash soils, 10 percent moderately deep loams and clays, and over 50 percent very shallow loamy and clayey nonforest soils.

Streams in the area include the main branches of McKay, Poppy, Water Trough and Lincoln Canyons.

Vegetation

Six different plant communities exist within the Green Mountain unroaded area. Below is a list of those plant communities and acreages, according to resource inventories.

Current Uses

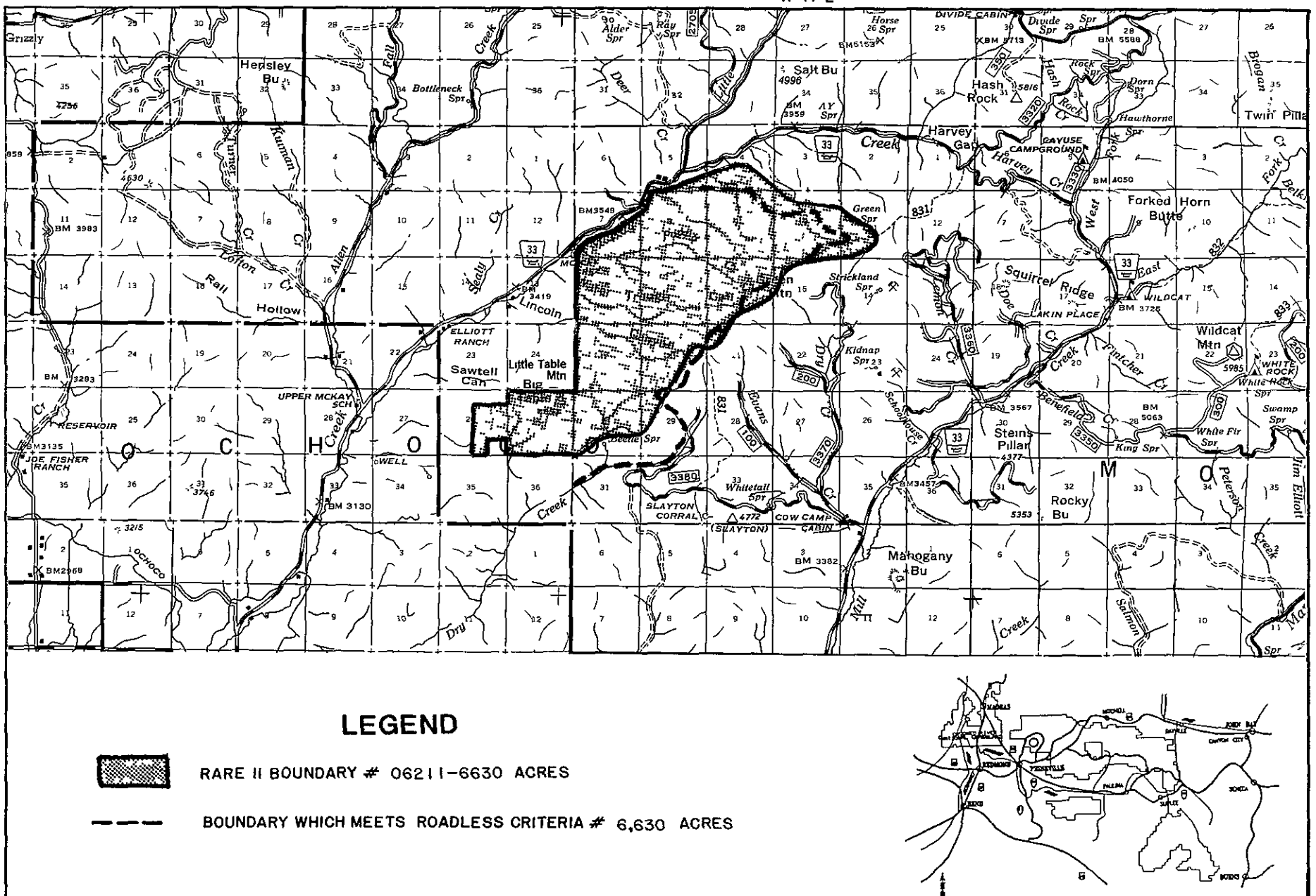
Existing management of the Green Mountain area allows for a wide range of uses with an emphasis on big game production.

TABLE C-26
GREEN MOUNTAIN PLANT COMMUNITIES

Descriptor	Plant Community	Acres
Low elevation, nonforest	Juniper-bunchgrass	410
Forested-ponderosa pine dominant, firs absent (to present)	Ponderosa pine, wheatgrass	290
	Ponderosa pine - fescue	2,316
	Ponderosa pine - Douglas-fir - elk sedge	1,178
	Mixed conifer - pinegrass - residual soils	713
	Mixed conifer - pinegrass ash soil	1,723

Figure C-6

GREEN MOUNTAIN



LEGEND

RARE II BOUNDARY # 06211-6630 ACRES

BOUNDARY WHICH MEETS ROADLESS CRITERIA # 6,630 ACRES

Recreation
Off-road vehicle use along the Green Mountain trail constitutes the majority of the recreational use. Hunting provides another significant recreational use.

Special Use Permits
A special use permit for a .09-acre water transmission line is held within the Green Mountain unroaded area.

Livestock Production
The Green Mountain area provides an equivalent of 650 AUM's for two existing grazing allotments.

Timber Production
Intensive timber management has never occurred in the Green Mountain area because of the steep, rugged topography. As a result of previous wildfires, some areas have been planted with ponderosa pine and later thinned to recommended spacing.

Wildlife
Green Mountain, because of its unroaded character and vegetative mosaic, provides excellent habitat for deer and elk, with approximately 50 percent of the area located within a big game winter range. Additionally, the area provides habitat for numerous nongame birds and mammals, and designated old growth areas provide sufficient habitat for nonadaptive wildlife species.

Wilderness Capability (Potential)

Manageability and Boundaries
Three different boundaries have been defined for the Green Mountain unroaded area. They are:

RARE II Boundary - 6,630 acres
Roadless Criteria Boundary - 6,630 acres
Manageable Boundary for Semiprimitive Recreation - 7,000 acres

The RARE II and Roadless Criteria acres are the same. The boundary differences shown are due to recent on-the-ground surveys which added some areas and deleted others. This resulted from (a) more accurate mapping, (b) re-examinaton of areas of past human disturbance and (c) disassociated areas included in RARE II by error. The boundaries of these two categories are difficult to identify on the ground, except on the north and east, because of indistinct topography and vegetation. The Manageable Boundary for Semiprimitive Recreation has been designated along more easily identifiable features such as roads, land survey lines, ridgetops and draws

Natural Integrity and Appearance, Opportunities for Solitude
The most extensive effect on the natural integrity of the Green Mountain area has been accomplished by the elimination of fire as a principal factor controlling vegetation changes.

The mixed stands of timber on the north slopes, coupled with the vegetative mosaic of the south slopes and associated draw bottoms, contribute to a high natural diversity for the area.

The opportunity for solitude is limited because of the size of the area. However, the broken terrain

provides an opportunity to travel throughout the area with minimal disruption from activities occurring adjacent to Green Mountain.

Primitive Recreational Opportunities and Challenging Experiences

There is very little opportunity for primitive recreation due to the small size and proximity to roads. ORV use is the main recreational use in the area, with occasional horseback riding and mountain biking. If motorized use were restricted, foot and horse travel would likely increase. Little change in hunting would result if motorized use was restricted.

The area is relatively small, and therefore is limited in offering challenging experiences. It is difficult to have a feeling of self-reliance or challenge knowing that the improved road system of Road 33 is just a short distance away.

Wilderness Availability

Recreation

Present recreational use is dominated by ORV use on the Green Mountain Trail. Carrying capacity for this area is estimated at 6.5 MRVD's per year for the manageable area with a fully developed trail system. Present use levels have not been quantified.

Wildlife

Wildlife species dependent on snags, old growth, and riparian habitats; those adversely affected by human contacts, or activities; big game; and resident and anadromous fish are wildlife of particular significance in the Silver Creek area. A list of old growth dependent, and nonadaptive, species believed to occupy the area includes: pileated woodpecker, black-backed three-toed woodpecker, northern three-toed woodpecker, flammulated owl, north-

TABLE C-27
RESOURCE POTENTIAL SUMMARY

	Current Levels	Potential Levels
RECREATION	Low to moderate (nonquantified) Primarily off-road vehicles	6 5 MRVD's No trails
WILDLIFE		
Old Growth Dependent Species	1,570 acres of suitable old growth	3,756 of capable lands for old growth
Big Game (Rocky Mtn Elk)	35 animals	62 animals
Fish (Resident and anadromous)	Low	Limited
WATER	4,509 Acre Feet	4,887 acre feet with 25% timber harvest level, 6,197 acre feet with conversion to grassland.
LIVESTOCK	650 AUM's	702 AUM's with transitory range 884 AUM's with transitory range and water developments
TIMBER	No timber production currently Standing volume is approximately 54 MMBF	2 million cubic feet per year sustained yield
MINERALS AND ENERGY	No current mineral or energy developments	Moderate potential for mercury and gold 3,200 acres Prospectively valuable for oil and gas
CULTURAL	Low historic, low prehistoric	No completed resource inventories

ern flyingsquirrel, mountain lion, marten, and fisher. Black bear and wolverine are also believed to be in the area.

Because of the area's inaccessibility, it supports a higher proportion of the older age class animals attractive to trophy hunters.

The fishery resource is limited.

Dead and defective tree (snag) habitat within the unroaded area is capable of supporting 80 percent of the biological potential for cavity dependent wildlife.

Water

There are no existing uses of water within the unroaded area.

Livestock

The Green Mountain area is capable of supporting 702 AUM's with transitory range. With water developments the capacity increases to 884 AUM's.

Timber

The Green Mountain area is dominated by old growth/ mixed conifer forest Net annual sustained yield is estimated to be .2 MMCF.

Minerals and Energy

There has been no mineral development in the area, and none is known to be planned. None of the area has been subjected to oil and gas leasing.

Cultural Resources

Cultural resource inventories have not been initiated in the Green Mountain area. Minor occurrences of prehistoric artifacts probably exist.

Management Considerations

Fire

Natural fire frequencies once played a significant role in development and maintenance of vegetation within the Green Mountain area. The following range of natural fire cycles by vegetation type provides an indication of the importance of fire in preventing excessive fuel accumulations and maintenance of seral tree and shrub species.

Ponderosa pine	5-25 years
Mixed conifer	20-70 years
Grass, tree shrub	5-15 years

Since the implementation of fire prevention measures at the turn of the century, fuels have been allowed to accumulate at unnatural rates, creating the potential for a major conflagration, given a certain set of environmental conditions.

Insects and Disease

Within the area, heavy infestations of root rot have been identified in localized areas. Additionally, the north slope along Poppy Creek contains varying degrees of Douglas-fir mistletoe, and spruce budworm occurs throughout the area.

Wilderness Availability

Public Interest

During the public review for the DEIS and Proposed Forest Plan, 41 letters, including one from ODFW, contained comments on Green Mountain. Most recommended semiprimitive nonmotorized recreation management, very few supported semiprimitive motorized recreation management for the area.

Some urged roaded recreation blended with timber and recreational activities be emphasized in the area These respondents suggested a limited amount

of logging to maintain the natural appearance of the area.

Others desired protection from ORV's for Green Mountain. Those who supported motorized recreation urged further regulations to keep ORV's on established trails and out of wetland areas.

The damage to the Green Mountain trail system was noted be some. Recommendations were made to reconstruct trails or to ban motorized use in the area.

Several respondents voiced concern about protection of an old growth grove on the top of Green Mountain.

The status of the Rattle Pop timber sale was questioned and opposition was voiced to clearcutting in that area

Environmental Consequences

The variety of acre allocations shown in Table C-30 would result in an array of different outputs and environmental consequences for the Green Mountain area.

Table C-31 contains quantitative estimates of resource outputs and/or environmental consequences associated with each alternative. As an example, even though timber production per se is not an environmental consequence, the two different outputs shown indicate the increased productivity associated with long term management of the timber resource in the Green Mountain area (e.g. .98 vs. 1.0 MMBF for B-Departure). Similarly, "Roads Built" by alternative is not an environmental consequence, but "Roads Open per square mile" indicates the emphasis of the prescription applied by alternative, which can result in an array of consequences for

TABLE C-28
Nearby Wilderness and Unroaded Areas

Wilderness Areas	Unroaded Areas *	Current Allocation	Approximate Distance from Green Mountain Roadless Area (Air Miles)	Acres
Bridge Creek			20	5,400
Mill Creek			2	17,400
Black Canyon			45	13,400
Strawberry Mtn			80	68,300
North Fork John Day River			95	120,800
Monument Rock			50	19,800
Mt Washington			75	52,600
Three Sisters			80	285,000
	Rock Creek	Big Game Production	42	11,414
	Cottonwood	Big Game	43	9,777
	Lookout Mountain	Semiprimitive/ Nonmotorized	15	14,273
	Silver Creek	Semiprimitive/ Nonmotorized	60	7,459
	Deschutes Canyon/ Steelhead Falls	Semiprimitive/ Nonmotorized	27	10,000

* Roadless Criteria Boundary Acres

TABLE C-29
Distance From Population Centers

City	Population	Distance From Green Mtn Unroaded Area
Prineville	5,520	12
Bend	17,800	47
Redmond	6,615	30

wildlife, water quality,and motorized recreation. Outputs shown for "Riparian" indicate the acres of riparian area that will be enhanced above minimum management requirements. Outputs shown for "Big Game" (number's of elk) reflect the management prescriptions applied to the area by alternative and are an index of the quality of habitat produced. Outputs for "Recreation" are Recreation Opportunity Spectrum classifications and indicate the type of recreational experiences available by alternative. For "Off-Road Vehicles," a plus or minus indicates either an increase or a decrease in this type of opportunity. Outputs for "Snags" indicate the percentage of snag habitat available for maximum potential production of primary cavity users, by alternative. Outputs for "Old Growth," in acres, indicates either (a) the acres allocated by management for development alternatives, or (b) existing or potential old growth based on site capability. Outputs for remaining categories are self-explanatory.

Alternatives A and NC

These alternatives would result in a big game management emphasis for the Green Mountain area. Vegetation would appear manipulated in order to provide habitat conditions for big game. Natural succession would no longer proceed unhindered over most of the area, with the exception of 498 acres managed for old growth habitat. Timber harvest and road building would be evident and therefore, opportunities for semiprimitive recreation would be very limited Options for future wilderness consideration would be foregone.

AlternativesB-Modified and I

These alternatives would result in a timber/range management emphasis for the Green Mountain area. Timber stands would be managed for maximum commodities production and an extensive road system would be visible and open. About 278 acres of old growth would be maintained over time.

Alternatives C-Modified and E-Departure

These alternatives would result in a semiprimitive motorized management emphasis for the Green Mountain area. Primitive type roads would be built and timber harvest would occur, but with an objective of maintaining a visual character consistent with a semiprimitive environment. Timber stands would have an uneven, more natural appearance, rather than an even, regulated appearance. About 844 acres of old growth habitat would be maintained over time. Options for future wilderness consideration would be foregone.

TABLE C-30
GREEN MOUNTAIN ROADLESS AREA DESIGNATION BY MANAGEMENT PRESCRIPTION

Total Roadless Criteria Acres - 6,630
Area Manageable for Semiprimitive Recreation = 7,000

	Acres by Alternative 1/				
Management Prescription	A/NC	B-MOD	C-MOD	E-DEP	I
Dispersed Recreation					
Nonmotorized	0	0	0	0	0
Motorized	0	0	7,000	7,000	0
Timber/Range	0	7,000	0	0	7,000
Big Game	7,000	0	0	0	0

1/ Based on Area Manageable for Semiprimitive Recreation

TABLE C-31
GREEN MOUNTAIN SUMMARY OF RESOURCE OUTPUTS BY ALTERNATIVE

		ALTERNATIVE				
	Unit of Measure	A/NC	B-MOD	C-MOD	E-DEP	I
Timber						
50 Year Period	MMBF/yr	85	98	4	18	98
Sustained Yield	MMCF	18	2	33	33	2
Roads						
Built	Miles	27	23	18	18	23
Open	/Sq Mile	2	All	All	All	All
Range	AUM's	691	884	650	650	884
Riparian						
Exceeds Acceptable Condition (Excellent)	Acres	0	0	0	0	0
Big Game						
Elk (5th Decade)	Number	62	11	32	32	11
Recreation (ROS)						
SPM	Acres			7,000	7,000	
RM/RN	Acres	7,000	7,000			7,000
Old Growth	Acres	498	278	844	844	278
Off-Road Vehicles 1/	+/-	+	+	+	+	+
Firewood	Cords	89	103	42	20	103
Snags	% of maximum potential	80%	20%	80%	80%	20%
Future Wilderness Consideration		None	None	None	None	None

1/ + or - Indicates an increase or decrease in that type of opportunity

MMBF Million board feet
MMCF - Million cubic feet
RM/RN - Roaded Modified/Roaded Natural
SPNM - Semiprimitive Nonmotorized
AUM s- Animal Unit Months

Deschutes Canyon Steelhead Falls Wilderness Study Area

Introduction

This report is an analysis of the Deschutes Canyon-Steelhead Falls Wilderness Study Area #6321. It provides the information concerning suitability, availability, need, and manageability to determine which management option to recommend from the following options:

1. Wilderness designation for the full area,
2. Wilderness designation for a modified area,
3. Special management area to maintain roadless character for semiprimitive nonmotorized recreation, or
4. Nonwilderness resource management.

This report is also designed to assist in developing long term management direction for each of the alternatives considered in the Ochoco National Forest and Crooked River National Grassland's Forest Plan Final Environmental Impact Statement. The area was initially overlooked during the RARE II process due to the large percentage of the land that contained impacts of early development, homesteading and previous overgrazing. Public support for this area influenced the decision to inventory it as area #6321 in 1978, and later designated as a "further planning area."

The Bureau of Land Management (BLM) inventoried the Steelhead Falls area (WSA OR 005-14) during its Wilderness Inventory Program in 1978. In 1982, it was agreed that the Deschutes Canyon area would be jointly studied by the Forest Service and BLM with the Forest Service being the lead agency.

While the wilderness study was underway, the Crooked River National Grassland completed its Land Management Plan EIS in 1982. The plan recommended that lands in the area under Forest Service jurisdiction should not become wilderness, but rather be used for dispersed recreation. This decision was appealed by various conservation groups on the grounds that the RARE II process had not been completed and the entire area had not been analyzed for wilderness designation. The appeal was upheld.

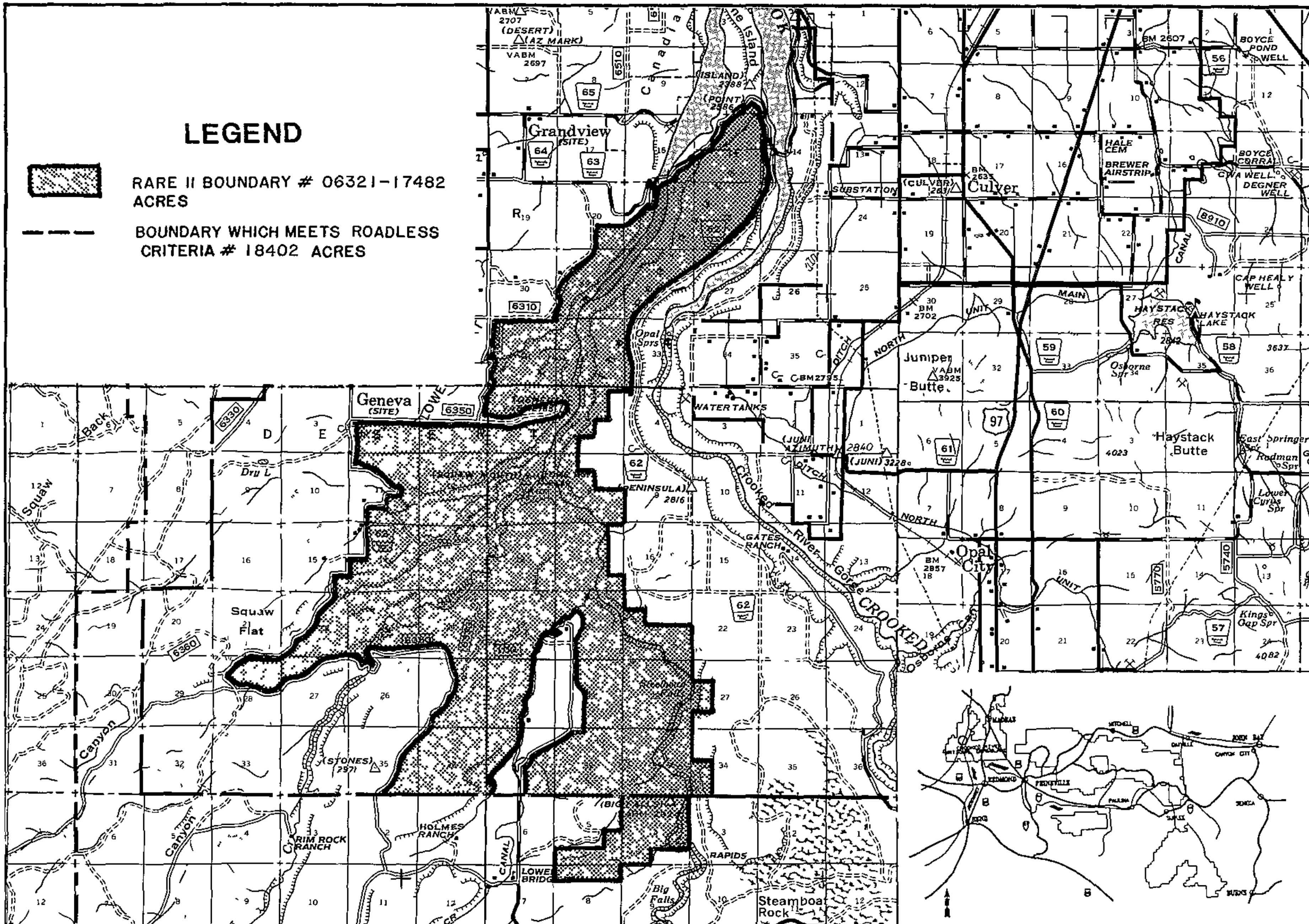
This report is the result of the combined efforts of both agencies, focusing on the wilderness characteristics and potentials for wilderness manageability. Total area included in this further planning area is 18,402 acres. (BLM - 3,240 acres, State of Oregon - 40 acres, Private Lands - 4,891, F S. - 10,231.)

Summary

Results of this study indicate that the study area in its entirety is not very suitable or manageable for wilderness. There are many conditions, both past and current, that restrict the study area's manageability as wilderness: 1) included private land, 2) proximity to heavily developed areas like the Cove Palisades State Park, 3) the remains of early homesteading, and 4) existing improvements for current activities such as roads, powerlines, and fences. Wilderness management for the entire area would be very difficult or impossible. Management of this area as wilderness would eliminate the majority of the grazing due to the need for daily water haul by a motorized vehicle.

In order to consider a more manageable situation, the study area was further analyzed by dividing it into smaller areas called units, identified by letters A through M (see Figure C-13). Implementing a boundary change to exclude units A through K eliminates

DESCHUTES CANYON-STEELHEAD FALLS



C-57

the majority of the incompatible activities and features. Conflicts with motorized recreational uses, potential intensive range projects, and impacts on private property have also been minimized with this boundary adjustment proposal. Even with this boundary change, a good portion of the grazing would be eliminated due to the need for daily water haul. This modified area (Area II, Figure C-12) establishes a more suitable, manageable area for potential wilderness designation. A few potential wilderness manageability problems still exist in Area II.

A third area was developed and analyzed to eliminate conflicting, nonconforming features and the included private lands. This enhanced modified area (Area III, Figure C-14) is the preferred area to recommend for wilderness. This area contains approximately 5,200 acres, including 2,500 acres of land administered by the Grassland, 2,660 acres by the BLM, and 40 acres by the State of Oregon.

All other alternatives considered protecting the canyon areas either as a Scenic River Corridor with riparian enhancement in Squaw Creek, or with a semiprimitive nonmotorized recreation management emphasis. The degree of further management on the plateau area varies by alternative, from a no further development semiprimitive nonmotorized area, to a full grazing emphasis. In all cases, the canyons receive protection from development and motorized use.

Description

Location and Access

The Deschutes Canyon-Steelhead Falls Study Area (6321) is located in a triangle formed by the towns of Madras, Redmond and Sisters, in Central Oregon. The study area is roughly triangular in shape, about seven miles wide by eleven miles long. The study area boundary is a combination of property lines and roads (see Figure C-8, page C-82).

The Deschutes River and the one-half mile corridor associated with it (one-quarter mile each side of the high water line) has been designated as a National Scenic River by the Oregon Wild and Scenic Rivers Bill. This same bill federally designated the Crooked River as a Recreation River corridor.

The 18,402-acre area is composed of rocky sagebrush and juniper plateaus, and steep, rocky canyons with dramatic views. The Deschutes River and its tributary Squaw Creek meander in the canyon bottoms.

The land now receives widely varying use, including farming, grazing, hunting, hiking, and fishing. Twenty-seven percent of the study area is privately owned. The west half of the area is critical deer winter range, and the canyons are also winter habitat range for bald eagles.

The area is surrounded by the Crooked River Ranch (a private resort area) to the east, Lake Billy Chinook to the north, and by low-density rural populations to the west and south.

Some of the plateaus and valleys of the study area were once homesteaded, but many areas have returned to a more natural appearance. The rugged canyons do not contain road intrusions and remain essentially in a natural condition.

The general area of the Deschutes River Canyon Wilderness Study Area is accessible from all directions: Crooked River Ranch on the east, Road 63 through Cove Palisades State Park to the north, Road 6300 road systems on the west, and Lower Bridge Road to the south. There is no direct road access to the river on the Crooked River National Grassland. Year-round access is available to Steelhead Falls from a Crooked River Ranch road.

Although roads provide many convenient access opportunities to the plateaus, good access into the river is limited due to the steep cliffs and long rimrock areas. There are five routes into the canyon that are most frequently used. Users in these locations have developed path-of-least-resistance trails to the river:

1. Crooked River Ranch - BLM site at Steelhead Falls

2. Lower Bridge Road - access across private land to the west bank in the Steelhead Falls area.
3. Road 6370 - trail to Alder Springs on Squaw Creek - then down to the Deschutes River.
4. Road 6350 Geneva Overlook - trail down to river.
5. Road 6310 - trail down side canyon to the river.

Travel up and down the river is moderately difficult due to willow and alder thickets, rocky slopes, talus and cliffs. User-developed trails exist along the river in the easier areas.

History

Prehistoric Occupation

Cultural resources within the Deschutes River study area represent approximately 8,000 years of human land use and occupation. Earliest use was probably by hunter-gatherers from nearby basin-lake or river cultures.

Euro-American Occupation

Land surveyors under contract to the Federal government were the first to systematically observe, record, and report information about the soils and vegetation of central Oregon. This was in 1869, and the 1870's, and they crisscrossed the country establishing township, section, and even quarter section corners. Soon, rumors of the lush western grasslands already spread by the U.S. Army were being confirmed by the official and specific surveyors' notes. This was encouraging to the homesteading movement of the 1880's and soon the pioneers came. They staked out their 160 acres, cleared the bunchgrass off the land and began grain farming. Also a family found that they could not make a decent income on a 160-acre farm. The early travelers and surveyors had not recorded rainfall amounts, which as it turned out were inadequate for grain.

So the crops began to fail and homesteaders left, abandoning their farms and homes. The results were devastating and far reaching. Farmers had already removed much of the natural ground cover, including bluebunch wheatgrass. In the 50 years since then, bluebunch wheatgrass has been impossible to restore. Although Jefferson County issued a moratorium (in the 1920's) on land takeover by tax delinquency, by 1935 about 35 percent of the 700 homesteads and ranches were taken over by Federal Land Banks and private mortgage banks in foreclosures. The balance of the land was still in private ownership.

Legislation soon began at the urging of local county officials. They had lost their tax base, the land was idle and bare. This was the time of the dustbowl and it was happening in Central Oregon, as well as in Oklahoma, Texas, Wyoming, Nebraska and the Dakotas. So the Federal government began, in 1935, to buy the land back from the homesteaders. This was done under the Resettlement Administration. On July 22, 1937, the Bankhead-Jones Farm Tenant Act was passed, authorizing and directing the Secretary of Agriculture to "develop a program of land conservation and land utilization.... in order thereby to correct maladjustments in land use." The repurchased lands were titled Land Utilization Projects, and management and restoration began under the jurisdiction of the Soil Conservation Service in 1937.

In January 1954, the jurisdiction of certain Land Utilization projects was transferred to the Forest Service.

On June 20, 1960, nineteen Land Utilization projects were officially designated as National Grasslands. Four days later the Secretary of Agriculture issued an Administrative Order that stated that all Forest Service regulations and policies apply to the Grasslands as well as issuing broad management guidelines. These guidelines provided that Soil Conservation Service concepts would be continued by directing that the Forest Service "... demonstrate sound and practical principles of land use for the areas in which the [grasslands] are located ..." and "... exert a favorable influence for securing sound land conservation practices on associated private lands..." In addition, this Administrative Order provided for multiple use management of the resources that occurred on the national grasslands. "The national grasslands shall be administered under sound and progressive principles of land conservation and

multiple use..." This additional direction had to be provided due to the fact that the Multiple Use Sustained Yield Act was passed on June 12, 1960, eight days before the grasslands became a permanent part of the Forest Service.

Geology

The geology of this area is, in general, that of younger volcanic formations superimposed on recent lake sediments and river deposits. The walls of the three canyons that converge at Cove Palisades State Park (the Deschutes, Crooked River, and Metolius River Canyons) have excellent examples of recent volcanic formations (lavas) and recent lake and river sediments. There are also examples of intricate relationships that exist between older and younger volcanic flows.

A visitor to this area can travel back through geologic time and history by descending from the top of the plateau near Culver, Oregon to the canyon bottom. Hundreds of thousands of years of geologic time and history can be seen with remarkable detail. Some of the features visible in this "geologic journey through time" include:

Faulting

Disconformities (ancient erosional surfaces)

Ancient depositional surfaces

Cross-bedding (caused by wind deposition) in ancient sand deposits.

Contract-metamorphic zones (changes in mineralization and texture of rock due to intensive heat) between volcanic flows and the sedimentary lake and river deposits over which lava flowed.

Spectacular examples of columnar jointing in lava flows (due to unusual cooling conditions).

Other geologic features that can be observed in these canyons include examples of massive and smaller landslides and mass-wasting landforms, along with spectacular discharges of many springs from the sides of these canyons into the rivers. Some of these spring discharges result in beautiful waterfalls or pools of water, enhancing the scenic quality of the geologic formations in this canyon.

Topography

The unit is characterized by plateaus eroded by the Deschutes River and Squaw Creek which is a tributary of this river. The plateaus are about 2700 to 2900 feet above sea level, and range from flat to gently rolling. The Deschutes River drops, from about 2400 feet above sea level at the southern end of the study area, to 1945 feet on Lake Billy Chinook at the northern end. Squaw Creek drops from about 2500 feet to 2100 feet in elevation where it flows into the Deschutes River. The canyons become deeper as the river and creek flow northward (see Figure C-9, page C-83). One of the highest viewpoints is called Geneva at 2785 feet. It is located along the western canyon rim and looks down 735 feet into the canyon to the river. Back from the canyon rims one can look across from plateau to plateau and barely perceive the existence of the canyon.

Soils

Soils in the upland areas are generally shallow, somewhat rocky, and of low productivity. Surface layers are composed of ash, weathered material and some aeolian (windblown) accumulation. They are well drained. Surface soils lie over a volcanic (basalt) substrate.

Soils over 50 percent of the area are arid, light brown loams less than 20 inches deep to a sandstone bedrock. These contain less than 10 percent cobbles and gravels.

About 30 percent of the area soils are brownish gray to dark brown grassland soils. These average 20 inches deep and gradually increase in gravel content to a calcium hardpan at 25-30 inches.

The remaining 20 percent of the area is rubble or scabland. These have very shallow, stony soil.

Vegetation

The vegetation varies greatly from the plateaus to the canyon bottoms. The vegetation on top consists of juniper, big sage, bitterbrush, rabbitbrush, and numerous grass species.

The canyon walls are very sparsely vegetated due to the near vertical character of the slope and the constant erosive forces and natural weathering of the basalt cliffs. There are numerous talus slopes at the base of the cliffs that are devoid of vegetation.

Riparian vegetation occurs along the streambanks. The riparian vegetation includes willow, alder, juniper, spirea sedges, wildrose, Redoiser Dogwood, and Penstemon.

There are also a few ponderosa pine and unusually large juniper along the streambank. There is one small side canyon in the southwest corner of the study area which has a small, open stand of ponderosa pine.

Grazing has eliminated the shrubby vegetation in a few places along the streambanks and has also contributed to bank erosion.

Upland and canyon sideslope plant associations are:

CJSB-11 Western juniper/big sagebrush/bluebunch wheatgrass - Idaho fescue (mound), and Sandberg bluegrass (swale).

SD91-31 Stiff sagebrush/Sandberg bluegrass - bigseed lomatum, scabland.

CJS2-31 Western juniper/sagebrush - rock spirea/ bluebunch wheatgrass - arrowleaf balsamroot, (steep s. canyon).

CJS2-32 Western juniper/big sagebrush - green rabbitbrush/Idaho fescue - arrowleaf balsamroot, (steep n. canyon).

CJS2-91 Western juniper/gray rabbitbush - big sagebrush/crested wheatgrass. (This is the only non-native type).

Streamside riparian vegetation types occur along perennial and intermittent water in canyons and foothills and are characterized by rose, currant, willow, snowberry, alder, dogwood, Kentucky bluegrass, monkey flower, bedstraw, veronica herbaceous sage and other riparian forbs and grasses.

Seeps and springs are characterized by western juniper, big sage, willow, mockorange, baltic rush, Kentucky bluegrass, sedge and numerous other forbs and grasses.

According to the Baily-Kuchler Classification System, the Deschutes Canyon-Steelhead Falls Study Area contains 17,482 acres of the Intermountain-Sagebrush/sagebrush-steppe ecosystem. The classification of ecosystems is based upon climate, vegetation, soils, and landform.

Wild and Scenic Rivers

The one-half mile corridor along the Deschutes River was designated as a national Scenic River corridor by the Omnibus Oregon Wild and Scenic Rivers Bill of 1988.

Current Uses

The public lands within the area are currently used for grazing, hunting, fishing, hiking, sightseeing and nature studies.

Privately owned land (27 percent of the entire area) within the study area is used for dryland and irrigated farming or ranching, or is combined with Federal land into grazing allotments.

Both Forest Service and BLM public land is partially fenced into grazing allotments. There are three small BLM allotments (111 AUMs total), three Forest Service allotments (759 AUMs total), and parts of three other Forest Service allotments (526 AUMs).

Currently, recreational use of the area is low. However, the area has a high level of significance to a variety of users. The area is not well known and most users are local people, or people introduced to the area. No comprehensive Recreation Visitor Days estimates are available. However recent fish and wildlife data indicated over 4,000 RVD's from fishing occur annually within this study area.

Types of recreational use are varied. Most use is during deer hunting season due to easy access and short distance to local population centers. Limited bird hunting occurs, although there are only small populations of upland game birds. Fishing is excellent for trout and other game fish. On the opening weekend of fishing season there are fishermen at most accessible fishing locations.

The majority of campers and hikers in the area use the river canyon and stream areas. However, hiking the canyon bottoms is rough and difficult in many areas, so some hikers walk overland to their destination. Distant landmarks provide many points of reference for cross country hiking.

Bird watching for songbirds, waterfowl, and raptors encompassing over 200 different species is a popular recreational activity.

Four-wheel drive and motorcycle travel is another recreational pursuit, although the area is bisected by many small drainages. Plateaus covered with rock also limit vehicle use mainly to existing roads and established trails.

Appearance

Landform

The main canyons are very scenic with steep cliffs and talus slopes. The canyons terrace down in multiple layers in many places. Although the smaller side canyons are not as deep as the Deschutes Canyon, they often have unusual geologic formations and layering. The plateaus are rolling and bisected by side canyons. The upland plateaus also offer many spectacular views of the Cascade Mountains.

Water

The Deschutes River and Squaw Creek are the scenic focal points of the area. The water changes from the quiet pools to rushing whitewater rapids and falls.

Vegetation

The study area vegetation is composed mainly of juniper, sagebrush and grasses. The size of juniper and distribution of sagebrush and bitterbrush forms a mosaic pattern depending on historic fire frequency and extent.

The predominate colors are dusty desert greens, golds and browns. The area is also highlighted with golden yellows when bitterbrush and rabbitbrush are blooming. Tall pines in the canyon bottoms are an interesting contrast to the steep canyon walls. Green riparian canyon vegetation creates an oasis effect that forms a strong color contrast with the surrounding canyon desert vegetation.

Surroundings

Lands immediately surrounding the study area are generally rural. The primary industries of the local communities of Madras, Culver, Metolius, and Terrebonne are farming and ranching. Timber is another local industry that helps support the towns of Redmond, Madras, Prineville, and Sisters.

Seven miles east of the study area is Highway 97, which is a major route north to the Columbia River and south to California.

Bordering the study area to the east is the 11,000-acre Crooked River Ranch. This popular resort development area is divided into 2,600 lots. Most have been purchased. Currently there are approximately 250 year-round residences and 90 vacation homes constructed. The resort also offers a golf course, club house, and other facilities.

The land south and west of the planning area is either undeveloped Federal or private land, or is farmed in small areas by isolated land owners. Some undeveloped private and public land is fenced together into large Federal grazing allotments.

Immediately north of the study area is Cove Palisades State Park and Lake Billy Chinook which are popular developed camping and boating areas. Lake Chinook Village and Airpark is a small private resort area located just north of the study area, west of the peninsula.

Four miles north, across the Metolius River Canyon, is the southern border of the Warm Springs Indian Reservation.

Wildlife

This plateau and canyon country provides both dryland range and complex riparian habitat types that support a large number and variety of wildlife species.

Mule deer, coyote, cottontail and jack rabbits, ground squirrels, marmot, and porcupine are commonly seen on the upland areas. In addition, beaver, river otter, badger, owls and numerous song birds frequent the river and stream edges. Eagles and hawks may be observed within the canyon, and swallows nest along the cliff edges.

The streams and rivers contain at least four species of game fish (German Brown, Rainbow, Dolly Varden, and Kokanee) as well as nongame species such as squawfish and suckers. Reptiles include garter, gopher, racer, and rattlesnakes, and several species of lizards.

The bald eagle is the only federally listed threatened or endangered fish or wildlife species known to occur in the area.

Major Streams, Lakes, and Scenic Landmarks

Two rivers and one creek are associated with this study area. The Crooked River is to the east of the study area, and its gorge rim top forms part of the eastern study area boundary along the area labeled "The Penninsula" (Figure C-7). The Deschutes River flows from the southeast corner of the study area and along the west side of "The Penninsula," where it also empties into Lake Billy Chinook. Squaw Creek flows from the southwest part of the study area to the center of the study area, where it empties into the Deschutes River.

The Deschutes River flows through a canyon which has eroded through basalt and sandstone formations to a depth of approximately 400-1,000 feet. Side canyons enter the main river canyon and enhance the scenic quality of this canyon. The river channel occupies 85 percent to 95 percent of the canyon floor. Although the stream gradient is not steep, there are several short rapids and the river meanders.

Major landmarks within the canyons are the unusual columnar basalt or sandstone formations, numerous springs, and the confluences of the Deschutes River and Squaw Creek.

Both the Deschutes River and the Crooked River canyons have been found to have outstandingly remarkable features and have been designated as National Scenic and Recreation Rivers, respectively, by the Omnibus Oregon Wild and Scenic Rivers Bill.

Squaw Creek has been studied for eligibility as a Wild and Scenic River, and it also has been found to have outstandingly remarkable features that make it eligible for scenic river designation. The suitability study and a recommendation will be scheduled during the first decade of the planning period.

Plateaus permit a highly scenic view of the nearby Cascade Mountains, especially the Three Sisters, Mt. Washington, Three-Fingered Jack, and Mt. Jefferson. To the east, buttes such as Gray Butte, Juniper Butte, and the distant Ochoco Mountains also form a scenic skyline.

Wilderness Capability (Potential)

Manageability and Boundaries

There are many conditions both past and current that restrict the Study Area's manageability as wilderness. Included private land; proximity to heavily developed areas like the Cove Palisades State Park and Crooked River Ranches; the remains of early homesteading; and existing improvements for current activities, such as roads, powerlines, and fences make wilderness management for the entire Study Area very difficult or impossible.

In order to consider a more manageable area, the Study Area was further analyzed by dividing it into smaller areas called Units. These Units, identified

by letters A through M (see Figure C-14) were separately investigated for compatibility and manageability based upon the wilderness qualities such as naturalness, opportunities for solitude and primitive recreation. The following are the results of this analysis:

Unit A - Known as The Penninsula, this area contains a number of man made improvements such as dirt roads, allowing vehicles access and a large woodpole utility powerline which bisects the area in an east-west direction. In addition, the area was once homesteaded, as evidenced by rock walls and cleared fields. Modern off-site human impacts include powerlines, water tanks and water ponds.

Outside sights and sounds from Lake Billy Chinook significantly depreciate the quality of solitude and primitive recreational opportunities. These include powerboats on the lake as well as traffic on local roads below The Penninsula. Unit A has limited opportunities for experiencing solitude or primitive types of recreation. The quality of naturalness in this area is also depreciated by the imprints of man

Unit B - Approximately nine areas labeled "B" are located above the canyon rim on the east side of the Deschutes River.[1] This part of the study area is either heavily influenced or subject to influence by the Crooked River Ranch homes and related developments. Approximately 1500 feet of the Deschutes River runs through private, Crooked River Ranch property.

Additionally, there are several vehicle access routes bisecting these areas and conflicts would occur. For these reasons, manageability, naturalness, and the ability to experience solitude are very limited in area B.

Unit C - Area C is a 920-acre "arm" of public land projecting south of the study area. Its small size and shape and immediate proximity to working farms precludes the ability to experience outstanding opportunities for solitude or primitive, unconfined types of recreation. A pumping facility down by the river also significantly reduces the naturalness of this area.

Unit D - Most of this area is privately owned farmland. Public lands within area D are very limited, irregular in shape and easily accessed by vehicles from private and public land. Private farms can be seen and farm operations are also heard from most locations. These factors significantly affect its ability to offer naturalness, solitude, primitive types of recreation for manageability as wilderness.

Unit E - Area E is a high juniper covered plateau Although tall water storage tanks are visible in the distance from various locations there are no on-site signs of human activity. However, a large percentage of the area is privately owned, which creates size and shape manageability problems.

Although the area is in a natural condition, the ability to experience solitude or primitive types of recreation are limited due to its size, topography, vegetative features, close proximity to a public access road, and private lands within the same unit. Manageability of the area as wilderness would also be limited for these reasons.

Unit F - This small area is physically cut off from the rest of the study area by a constructed road. It is unlikely that this road could revert back to a natural condition. For this reason, this road itself became part of the boundary of area II.

Although area F itself is essentially natural in appearance, the ability to experience solitude is severely compromised due to its limited size, and by the presence of this road and occasional traffic on it. In addition, opportunities for primitive types of recreation are also limited.

Unit G - The southern half of area G contains limited naturalness because it is heavily influenced by ranching and farming activities. These impacts include roads, fences, powerlines, and water ponds.

The northern half contains the old Geneva townsite. Two old homestead structures also remain Most of the northern half of the area has primitive vehicle routes, fences, and water developments Opportunities for solitude and primitive recreation are insufficient due to limited topographic and vegetative screening qualities.

[1]This area includes the dispersed camping sites for high clearance vehicles in the Steelhead Falls area

Much of area G also contains privately owned ranchland and farmland. This presents a manageability problem, as well as potential conflicts with motor vehicles.

Unit H - Most of this unit is privately owned and has a cabin with a dirt road to it. A natural appearance dominates most of the area, due to the rolling topography which masks the human imprint on the area. The area is just south of an interesting side canyon of the Deschutes. The area's southern border is the road to Geneva Viewpoint. Unit H would present manageability problems however, because of the 160 acres of private land and the road to Geneva Viewpoint. Opportunities for outstanding solitude or primitive types of recreation are also limited, due to the limited size and shape of public lands in this unit.

Unit I - This 160 acres is very rocky juniper-covered private property with one cabin on it. This area could provide access to nearby areas having a high degree of naturalness and solitude. Access across this private land, however, would not be encouraged without the consent of the private landowner.

Unit J - This area is heavily imprinted by an airstrip with associated structures, a borrow pit, and numerous primitive vehicle routes. It is not natural in character or appearance and does not contain opportunities for solitude or primitive, unconfined types of recreation.

Unit K - This area is the upper part of Lake Billy Chinook where Lake Billy Chinook is backed up to a gauging station along the Deschutes River. Solitude could be interrupted at any time by a powerboat, or by vehicle traffic on the bridge just north of this area.

During the BLM Wilderness Intensive Inventory it was determined that 720 acres of this area is part of an active power withdrawal (project numbers 2030 and 2259). It is no longer considered under BLM jurisdiction and was excluded from the BLM Intensive Wilderness Inventory. Based on these facts and the dominant outside sights and sounds resulting from Lake Billy Chinook, it was determined that unit K contained limited opportunities for solitude and primitive, unconfined types of recreation, and was not manageable as wilderness.

Units L & M - These areas are privately owned and have been imprinted by a few roads and primitive vehicle routes. However, approximately 500 acres of these two Units have outstanding scenery with tall pines, and the meandering Deschutes River and Squaw Creek Canyons which have steep and generally vertical walls. These areas, even with their imprints, would be valuable additions, have generally retained their naturalness, and provide opportunities to experience solitude.

This analysis concludes that by implementing a boundary change to exclude Units A, B, C, D, E, F, G, H, I, J, and K; the majority of the incompatible activities can be eliminated. The remaining area (Area II, as shown in Figure C-13, page C-87) would be more capable and more manageable as wilderness. This area generally encompasses a high degree of natural appearance and integrity, few manageability problems, and has wilderness qualities Area II is the heart of the entire Study Area.

Area II, approximately 8,513 acres in size, contains 7,933 acres of public land administered by the U.S. Forest Service and BLM, 540 acres of private land, and 40 acres of State Fish & Wildlife Department lands. Conflicts with motorized recreational uses, potential intensive range projects, and conflicts with private property owners have been minimized but not eliminated with this boundary adjustment proposal.

A few potential wilderness manageability problems still exist in Area II. These include the following:

The wood pole utility powerline crossing Squaw Creek;

Private land of the Crooked River Ranch along 1500 feet of the Deschutes River in NENE Sec. 17, T.13S., R.12E;

Approximately 540 acres of private lands (Units L & M) along two portions of Squaw Creek;

Existing road systems on the plateau area in sections 22, 23, 24, 25, T.13S., R.11E., and sections 19 and 30, T.13S., R.12E; and

Allotment boundary and pasture fences would remain in the area. Grazing would continue if the area is designated for wilderness.

Area III, approximately 5200 acres, eliminates these nonconforming features and included private lands. This area is suitable and manageable as wilderness. Opportunities for solitude away from nonwilderness features are high in this area.

Within the Deschutes River Canyon, however, are two areas with outside sights and sounds that limit naturalness, solitude, and primitive types of recreation. Both are north of Steelhead Falls. The Crooked River Ranch property crosses to the west and contains a small portion of the Deschutes River. A subdivision with houses overlooks the eastern canyon rim. The other area is also private land that extends down from the western canyon rim, to the Deschutes River. A water pump, road and powerlines dominate the landscape in this location.

Within most of this canyon and the Squaw Creek canyons, however, the topographic and vegetative screening qualities completely shield visitors from all other outside imprints. One's attention becomes focused on the canyon walls, the meandering river, riparian vegetation and the sounds of the river rapids. Although the outside sights and sounds in the Deschutes Canyon do adversely affect naturalness, solitude, and primitive uncontained types of recreation within their immediate vicinity, they do not adversely affect these qualities beyond a short distance due to the excellent topographic and vegetative screening qualities within these canyons For these reasons wilderness qualities within both canyons was still determined to be high. There is concern that this area is too small and tied to the canyon to be managed as wilderness. The designation of wilderness in this confined small area may attract more attention than the area can support.

Natural Integrity

Natural integrity refers to long-term ecological processes and the extent that human influences have altered these processes.

The Deschutes Canyon and western plateaus remain essentially primeval in character. The area has been utilized by Euro-americans for 130 years, resulting in impacts ranging from imperceptible to substantially noticeable. Yet, due to low rainfall, shallow soil and the barriers of the Deschutes and Squaw Creek Canyons, the area remains essentially unaffected.

In general, the natural integrity of the canyon area is still intact. This is evidenced by the type and variety of plant and animal life present. There are several naturalist groups (Oregon Native Plant Society, Portland Audubon Society) currently using the canyons, primarily in undisturbed native communities, for field study of Central Oregon plants and animals.

Natural integrity on the plateaus has been somewhat compromised. Over time, the major deviations from "natural ecological processes" are due to fire suppression and overgrazing by both livestock and wildlife. These changes in ecological condition have resulted in the proliferation of shrubs and juniper trees over native bunch grasses. This area at one time appeared more open with juniper trees confined to rocky rims and canyons. More obvious changes in natural integrity have resulted from rock piles, rock fences, range improvements, such as water developments, fences, and vehicle ways. Some crested wheat plantings were also completed in the 1940's. These are noticeable, but have largely grown over with native shrubs and junipers.

The ecological connections between canyon and plateau, have not been well documented. It is known that deer herds primarily use the plateau areas, but also utilize the canyons for up to several weeks during very severe winters. Raptors also nest in canyon areas and use the plateaus for hunting territory. The Metolius deer herd, raptor species, and other native animals use these plateaus.

In summary, natural ecological processes are somewhat intact within the canyons. The natural integrity on the plateaus has been somewhat compromised.

Natural Appearance

Although portions of this study area contain some imprints of humans, a large portion of this area still appears to be natural. Many changes to the landscape have weathered and faded to obscurity.

A field survey was made, both within and outside the WSA, to inventory imprints which affect naturalness.

Evidence of past homesteads remain in places on the plateaus, indicated by piles and walls of rock which had been cleared to prepare the land for farming. These old fields are generally natural in appearance, since time has rendered them almost indistinguishable from the native surroundings, except for the remaining rock piles and rock fences.

There are several unimproved vehicle routes on the plateaus. They could be rehabilitated through scarification and reseeding.

There are two powerlines within the WSA that significantly detract from the area's natural appearance. These powerlines are one-and two-pole wood towers. They are difficult to distinguish from distances greater than one-quarter mile, except in places where they are skylighted on ridgelines.

Other imprints within the area include water troughs, fences, water ponds, and seeded fields.

Practically all of the canyon areas within the Deschutes and Squaw Creek Canyons have retained their natural appearance. Human imprints are limited and influence small areas due to excellent topographic and vegetative screening qualities. Some examples of these imprints include fences, an old mining building, an abandoned water pump sled, a road, and a powerline.

Natural appearance and integrity on 4,891 acres of private land (over 27 percent of this study area) is generally very limited except for private lands in the Squaw Creek and Grandview areas. Most of the remaining private lands are either dry farmed, irrigated, or managed for beef production. Most of these lands also contain homes, other ranch buildings, and roads leading to these locations. Human activity associated with these lands also depreciates both natural area solitude and primitive recreational opportunities on adjacent public lands.

It is not realistic to assume that all of these lands could be exchanged into public land ownership. Some of these private lands significantly depreciate naturalness, solitude, some types of primitive recreation, and adversely affect wilderness manageability.

Opportunities for a Wilderness Experience

Opportunities for Solitude

The Deschutes River, Squaw Creek, and their tributary side canyons, afford the best opportunity to be alone. They start out at the south end as small narrow canyons and become progressively deeper and wider downstream. It is difficult to follow the river or creek far because, in many places, the canyons get very narrow, steep, and rocky. Access into the canyons is also limited. There are three or four primary access points with unmaintained trails into established dispersed campsites. Encounters with other hikers and backpackers can be expected in the Deschutes and Squaw Creek Canyons. In order to find solitude, users have to travel into more difficult areas in the side canyons, away from trails and traditionally used camp spots. The side canyons offer the best opportunities to find a secluded spot. Some of the plateaus west of Deschutes Canyon are also good places to find secluded spots because they are outside major travel corridors and high use areas.

As soon as one travels from the high plateaus and into the inward oriented canyons, the topographic screening is dramatic. It is a completely different feeling. One's attention becomes focused on the river or stream in the bottom or focuses on the interesting canyon walls and riparian vegetation. The canyons also meander, creating more topographic screening. Topographic screening also exists on a few plateaus surrounding these canyon areas.

The juniper trees and tall sage hide many imprints once the viewer is several hundred feet away from

them. The small, unmaintained dirt road and fence near Geneva Point illustrate this point. The impact of human development such as water troughs, fences and trailers is also less intrusive and apparent, due to the sage and juniper vegetation in many areas.

Opportunities for Primitive Recreation

Opportunities for primitive and unconfined recreation are outstanding in portions of the study area. Topographic diversity is provided by the open rolling country and table top plateaus, bisected by deep canyons, ravines, and rimrock ridges. Rivers, waterfalls, springs, and streams flowing through riparian vegetation and numerous species of fish and wildlife provide outstanding opportunities for several different types of primitive recreation, such as hiking and fishing.

Within most of the Deschutes River and Squaw Creek Canyons, the topographic and vegetative screening qualities completely shield the visitors from all other outside imprints. One's attention becomes focused on the canyon walls, the meandering river, the sounds of river rapids and riparian vegetation. The outside sights and sounds in the Deschutes Canyon do not adversely affect naturalness beyond a short distance, due to the excellent topographic and vegetative screening qualities within these canyons.

Hiking and Backpack Camping

A valuable characteristic of this study area is its location and wide-open appearance. The looming snow capped peaks of the Cascades dominate the western landscape. In addition, the desert plateaus evoke a strong sense of a natural environment to the cross country hiker.

Feelings of discovery and challenge are enhanced as one hikes across the study area. From a distance the country appears relatively smooth and easily negotiable to the hiker. However, ravines, draws, streams, and precipitous cliffs, unnoticed from afar, reveal themselves as impediments to straight line travel. These features force the hiker to climb, wade, or backtrack.

Most camping occurs in the canyon bottoms where water is available. Easily accessible sites show some signs of regular camping use. However, more remote stretches are accessible only on game trails, and are seldom used. Springs and streams also provide excellent camping spots. Camping between towering walls of rock, highlighted by sounds of roaring water, provide campers with a sense of remoteness, despite the close proximity of population centers.

Fishing

Fishing in the study area is outstanding. There are four species of game fish. These include rainbow and German Brown trout, Dolly Varden, and Kokanee. Other species include squawfish and suckers. Numerous springs and pools, and the riparian vegetation provide excellent water quality and temperature for these species. However, some stretches of the river are rarely fished due to difficult access, rocky terrain, and rattlesnakes. For the intrepid fisherman willing to venture into these canyons, however, the chances of catching a large fish are good.

Hunting

This study area receives heavy deer hunting pressure in the fall, due to easy road access, mainly around the perimeter, and close proximity to local communities. However, most hunters do not venture far from the roads. A few parties backpack during hunting season, but hunter success ratios for deer is low because most deer are at higher elevations during hunting season.

Upland game hunting is also popular in the area although game bird populations are moderate to low.

Rock Climbing

Although the Deschutes Canyon area appears to have excellent opportunities for rock climbing with steep canyons and tall rock pinnacles, the structure of the rock does not lend itself to safe climbing. The rock, as evidenced by the talus piles beneath canyon walls, is easily separated from its parent slope. However, those hikers and climbers content to scale

less challenging escarpments than those found at nearby Smith Rock, will find many opportunities. Climbing out of box canyons and ravines and bouldering are some of the opportunities available to a person with an inkling to climb.

Bird Watching

Bird watching is outstanding. More than 200 species of birds have been identified in and around the study area. The river canyons, cliffs, plateaus, and grasslands within the study area provide habitat for a wide assortment of birds. Among these are owls, eagles, ospreys, hawks, swallows, water fowl, and numerous song birds. Bald eagles are the only known threatened and endangered species found in the area.

Sightseeing and Photography

Scenic views from the study area on a clear day are impressive. The Cascade peaks and surrounding desert country provide excellent scenery for sightseeing and photography. Opportunities for these activities are also excellent from the canyon rims. Visitors only need to walk a short distance to get a look at the dramatic views of the Deschutes River canyon.

Water Sports

Squaw Creek is too shallow and rough for rafting or kayaking. Although the Deschutes River is very rocky and rough, it is not known if kayaking or rafting is possible. In the summer, swimming in the cool clear pools is excellent and secluded in all but the most easily accessible spots.

Challenging Experiences

The study area offers some unusual opportunities for challenge Cross-country travel can be especially challenging in this area.

The Deschutes Canyon-Steelhead Falls area is an excellent area for a hiker to travel cross-country. The open country, with numerous landmarks, allows a hiker to set out on a course of his choosing without benefit of trails and signs. The challenge of discovery, the need to conquer natural barriers by climbing down ravines and fording rivers or streams, offers exciting opportunities to experience wild country like those who first passed through it. This activity, when combined with fishing, also provides a very different kind of primitive recreational experience, and is also very challenging.

Special Features

Features which contribute to the uniqueness of this area are:

-A significant and diverse sport fishery resource;

-numerous Native American and Historical sites;

-Metolius deer herd winter range;

-bald eagle winter range,

-great horned owl wildlife nesting area;

-opportunities for botanical and geological study; and

-desert and canyon ecosystems providing habitat for otter, raccoon, skunk, badger, bobcat, and beaver.

Wildlife species of interest are discussed in more detail in the wildlife section.

The bald eagle is the only federally listed threatened or endangered species known to occur within the study area. However, there are several unusual species located immediately upriver which have a high probability of occurring in the study area even though no comprehensive survey has been done.

Two species of rare plants, (*Artemisia ludoviciana* ssp *estesii*-Prairie sage and *Hackelia hispida*-rough stickseed) are believed to exist within the Study Area but have not been verified.

The *Hypsiglema torquata* (desert night snake), an animal on the review list has also been reported near the Study Area.

The following educational, historical, and scientific opportunities exist for a number of disciplines:

1) Geology

The study area is in a zone where a number of geologic strata merge

2) Archaeology

Several major archaeological surveys have been conducted in the Deschutes River Canyon. These surveys documented numerous native American and historical sites. However, a survey of the Deschutes River Canyon from the south end of Lake Billy Chinook to the southern Grassland border (including this study area) has never been conducted.

3) Terrestrial and Aquatic Biology

The interface between Cascade and Desert-Canyon ecosystems provides an unusually rich array of wildlife. Many species are dependant on the availability of caves, rock shelves, or talus, such as many raptor species which inhabit the area. The fisheries resource is also outstanding due to a high availability of riparian habitat river/creek characteristics and many natural springs and seeps which supplement the Deschutes River and Squaw Creek.

4) Botany

The springs, seeps, and shelter provided by these canyons support many interesting plants. Currently the Audubon Society of Portland, the Native Plant Society, and other naturalists use this area for study of native Central Oregon vegetation in a primarily undisturbed ecosystem. Due to warmer sheltered conditions of the canyons in spring, many plants are blooming up to a month earlier than in more exposed desert ecosystem plant species.

Effect of Size and Configuration

The study area totals 18,402 acres. Although this area is quite large, it is relatively narrow in several locations. The area generally follows the Deschutes River Canyon and its tributary, Squaw Creek. There are also several interesting side canyons. The study area varies in width from less than one-half mile to more than four miles, with an average of about two miles. Its length also varies from seven to ten miles.

Human activities on lands surrounding the study area adversely affect the quality of naturalness in some portions. Outside sights are particularly significant in some places. The Cove Palisades State Park is a popular water recreation area north of this study area. Motor boats can travel up to three miles on either side of The Peninsula, into and around the northern plateau rim of the study area. Sights and sounds from this recreational activity are significant and detract from naturalness in this portion of the study area.

The Crooked River Ranch borders most of the study area to the east. This ranch is a planned community with permanent residences and summer vacation homes. Some lots overlook the Deschutes River Canyon, and a few homes are visible from the canyon bottom and western canyon rim. However, most homes in this community can not be seen because they are away from this canyon rim and are surrounded by juniper trees.

There are two farms that visually dominate in the southern portion of this study area. Several roads, primitive vehicle routes, irrigation systems, and distant farmlands are also visible from high elevation points in this study area. There are also three water tanks located together, northeast of this study area (T.12S., R.12E., Section 3). These tanks are a silver-gray color and contrast sharply with the brown hills behind them.

Except for a few vantage points on the canyon rim, and the higher elevated plateaus, outside sights and sounds do not have a significant adverse affect on the overall naturalness of this study area. Vegetative screening from juniper trees and sagebrush helps camouflage many of these intrusive sights.

Within the Deschutes River Canyon, however, are two areas where outside sights and sounds do limit naturalness, solitude, and primitive types of recreation. Both are north of Steelhead Falls. The Crooked River Ranch property crosses to the west and contains a small portion of the Deschutes River. A subdivision with homes overlooks the eastern canyon rim. The other area is also private land that extends down from the western canyon rim, down to the Deschutes River. A water pump, road and powerlines dominate the landscape in this location. Vegetative and topographic screening limit the impacts of these intrusions.

Impacts of sounds on this study area are generally limited to the north end, where water ski boats and vehicle traffic can be seen and heard from the Cove Palisades State Park. Although these sights and sounds do not totally dominate these units, they do have an adverse effect on the quality of naturalness and solitude in these areas. Although aircraft may occasionally be heard in this study area, these sounds do not adversely affect naturalness or solitude.

Wilderness Availability

Recreation

Recreation use on the river is low, and the area does not significantly contribute to current recreational use patterns in central Oregon. However, the area has a high level of significance to users in Central Oregon. Low use could also be attributed to the area not being well known. Users tend to be local people. The area has a great potential for recreational opportunities. Total recreation visitor days information for most recreational activities in the Study Area is generally not available. However, recent Oregon Department of Fish and Wildlife data indicates that over 4,000 fishing visitor days occur annually in the Deschutes River and Squaw Creek areas.

The plateau portions of units A-O would classify as "semiprimitive motorized" characterization as delineated in the ROS Users Guide. These categories include the physical setting, evidence of humans, remoteness, capacity, size, ongoing activities, and experience potential.

Area II fits closer to the primitive end of the ROS spectrum but most of this area would classify as a semiprimitive nonmotorized area due to the proximity of the roads. Within the canyon areas, there is a high to moderate probability of experiencing isolation from the sights and sounds of humans, a closeness to nature and tranquility, and self-reliance through application of outdoor skills in an environment which offers challenge.

Wildlife

The variety of wildlife in the study area is similar to that found on the Grassland and other lands in the area. The study area, a large section of public land, affords an excellent opportunity to manage for all types of indigenous wildlife within its boundary.

Major wildlife habitat categories that occur on the study area include: Mule deer winter range (see Figure C-10, page C-84), riparian, fish, raptor, and cavity nester's habitat. There is also upland game and nongame habitat.

The Deschutes River and its tributary Squaw Creek (lower portion) support excellent cold water fisheries. Rainbow and German brown trout, dolly varden, and kokanee can be caught along the portion of the Deschutes River from Lake Billy Chinook to Steelhead Falls. The kokanee spawn upstream from Lake Billy Chinook within this study area. From Steelhead Falls up river, the predominant trout species is the German Brown trout. Nongame fish, such as Squawfish and suckers can also be found down river from Steelhead Falls, which precludes them from going further up river.

Some fishermen claim to have caught Chinook salmon in the study area, and claim that there are landlocked Chinook salmon spawning in the Deschutes River and Squaw Creek. The Oregon Department of Fish and Wildlife has netted Chinook salmon in Lake Billy Chinook, but has not been able to verify that they spawn in the Deschutes or Squaw Creek (based on personal conversation with Ted Fies, Oregon Department of Fish and Wildlife, Bend, Oregon).

This diverse fishery is maintained by adequate water flow levels on the Deschutes River and the excellent habitat condition, a result of the numerous springs, seeps and lush streambank riparian vegetation.

A portion of the Deschutes in the Study Area also supports an unusually large and vigorous population of fresh water mussels (Margaritifera sp.). In some places it completely covers the river bottom and sides. This freshwater mollusk has proliferated here for some time. It was well known and utilized by aboriginal peoples

Although the Grassland, on the East Cascades Plateau, contains less than eight percent of the winter deer range for the Metolius herd, it contains 70 percent of the winter population of about 5,600 animals. The study area comprises about one-third of this winter range. However, a large portion of the most heavily used winter range next to the Grassland is private property, where the government has no game habitat control. This makes the Grassland winter range, especially the study area portion, very critical winter habitat for this deer herd.

Possible habitat improvement on public deer winter range includes the use of prescribed fire to control juniper encroachment on large areas. This is discussed in more detail under the Fire section.

Upland birds include populations of chukar, quail, Hungarian partridge and doves.

The canyons, cliffs, talus slopes, and caves provide unique habitats for raptors. These are characterized by relatively high, secluded canyon environments, and predictable airflow patterns.

Many raptors, including golden eagles and numerous species of hawks, can be observed. Bald eagles commonly spend the summer at higher elevations and concentrate on Lake Billy Chinook and Lake Simtustus (downstream from Lake Billy Chinook) during the winter months. The Study Area is within the bald eagle's winter range. They are often observed soaring the canyons. Actual nesting populations of bald eagles within the Study Area are low, (3-4 documented sites). The bald eagle is the only federally listed threatened or endangered species known to occur on the Study Area (listed as threatened by the U.S. Fish and Wildlife Service).

Water

Two thousand two hundred acres of BLM public land are under a power site withdrawal. A power withdrawal classification on public land means that there is a potential for the canyons to be flooded through the creation of a power dam. This does not mean that the area will be inundated by a dam, only that one could be built if it becomes economically advantageous to do so. The Federal Energy Regulatory Commission could issue a Power Project Withdrawal to the utility company, giving them jurisdiction over these public lands.

On May 6, 1981, the Bureau of Land Management State Office requested that the Minerals Management Service Conservation Division, based in Portland, Oregon, consider a partial revocation of Power Site Reserves 26 and 480, and Power Site Classification 25. The Minerals Management Service denied this request July 27, 1981. The denial was due to their value for "waterpower potential." Correspondence with a representative of this agency (Mr. Kenneth J. St. Mary, Conservation Division, Waterpower Section) on October 13, 1982, indicated that the portion of the Deschutes River within this study area could be developed for hydroelectric power by diversion-conduit methods, by a high dam with an adjacent powerhouse, or by a series of low dams and adjacent powerhouses. Mr. St. Mary further stated that Steelhead Falls and Geneva Sites have been considered for such development, and are described in a 1969 report, *Review of Waterpower Classifications and Withdrawals, Deschutes River Basin,* Oregon. Mr. St. Mary concluded his memorandum by stating, "...Although this reach does have significant hydroelectric power potential, we are not aware of any active plans to develop this potential." (This letter is filed in both the USDA and BLM offices. The BLM public comment letter is OR-5-C-97.)

Dam construction would conflict with Wilderness Management designation of these areas.

United States Geologic Survey gauging station #76,500 is located in the Deschutes River near Culver and measures the combined flow of Squaw Creek and the Deschutes River before entering Lake Billy Chinook. Average discharge over 30 years is 655,700 acre ft./yr.

There is an irrigation diversion located within the Study Area at T.13S, R.12E., Sec. 20, NESE.

Spring runoff is controlled by upstream reservoirs on the Deschutes River.

Water flow in Squaw Creek and the Deschutes River greatly decreases after the spring runoff.

However, they are kept flowing by numerous springs and seeps along the banks.

Livestock

Currently the total AUMs present on both Forest Service and Bureau of Land Management allotments within the WSA total 1396 AUMs yearly. This is equivalent to 212 cows and calves for a five month grazing season.

Forest Service Allotments and AUM's

Part of Lower Desert Allotment (currently no permittee)	141
Part of Holmes-Squaw Creek Allotment (H. Dunnegan)	335
Part of Falls Allotment (D. Williams)	50
Peninsula Allotment (no term permittee)	495
Williams Allotment (H. Kidson)	211
Clevenger Allotment (B. Davis)	53
	1285

BLM Permittees
(Five small pastures along Deschutes River)

Glen Cooper	27
Benjamin Davis	26
Donald Williams	58
	111

There are a number of range improvements in these pastures and allotments. These include several wells, water pipelines, water troughs, and storage tanks, fences, and vehicle ways. Most of these developments are in fair or poor condition. Water must be trucked into most pastures on a daily basis.

Several crested wheat seedings, done in the 1940's are located within the area. These have largely been inundated by native shrub species or juniper seedlings.

There is no cattle access into the river canyon within the F.S. allotments. The Clevenger and Falls pastures in Sections 21, 28, and 33, T.13S., R.12E. extend to the canyon rim and include areas within the 1/2 mile corridor along the river. The Squaw Creek pasture also extends down to the river. However, due to topography the cattle do not travel down into the lower portion of the pasture or to the river. BLM allotments are located along the southern portions of the Deschutes River and allow cattle access to some segments of the river.

Ecological

The management strategy to maintain bald eagle winter range and nesting habitat is to continue to provide a secluded environment by restricting development near habitat areas.

Other species currently inhabiting the Study Area do so because the unique environment satisfies critical needs at one or more periods during their lifecycle. The winter range is very important for survival of the Metolius Deer herd. Restricting human harassment during winter months conserves energy for these animals.

Also range improvements, such as prescribed range burning, would provide increased deer forage in some areas. In very hard winters, deer are known to descend into Squaw Creek and the Deschutes River Canyon seeking food and shelter. Maintaining proper use by cattle in the riparian areas therefore has a direct effect on survival rates on this wintering herd.

Excellent water quality and riparian vegetation condition is necessary to maintain and support the diverse fishery resource in the Deschutes River and Squaw Creek segments of the Study Area.

Timber

There is no merchantable timber available in the Study Area. Isolated ponderosa pines grow in the Deschutes and Squaw Creek Canyons. There are 83 acres of noncommercial ponderosa pine timber land located within the Study Area near Squaw Flat.

There are juniper trees in the canyon and above the rim, but not in sufficient quantities to be utilized in the firewood program.

Minerals and Energy

No mining claims have been identified on the USFS/BLM public lands within this study area. The 1983 U.S. Geological Survey summary report (Mineral Investigation of the Deschutes Canyon RARE II Area (no. 6321) Jefferson and Deschutes Counties, Oregon on file at Supervisor's Office USFS, Prineville) states: "There are no producing or developing mines, or active mining claims in the Deschutes Canyon RARE II Study Area. Only two prospects were found; they have no identified potential for mineral resources. Thin diatomite deposits occur in the Pliocene Madras Formation. Development of sand and gravel deposits in the area could not favorably compete with similar deposits in the surrounding area which are closer to points of use."

The subsurface rights of all USFS/BLM public lands within this study remain with these respective public land managing agencies, according to the most current BLM Master Title Plat records reviewed on October 6, 1982.

A spot check of Leasable Mineral Plat Records (dated April 1984) indicates that oil and gas leases have either been issued or applied for on all federal lands within the area. No exploration activities have occurred in the area.

According to the most current information available, no geothermal resources are known to exist within the Study Area.

Cultural Resources

Surveys Completed

Several extensive cultural resource surveys have been conducted along the lower Deschutes drainage north of the Study Area, mostly in conjunction with development projects (Round Butte Dam and Reservoir Area). These surveys identified a large number of both Native American and Euro-American sites.

The lower Deschutes River and adjacent land in T.13S., R.12E., from Lake Billy Chinook to the southern boundary of the Crooked River National Grassland has never been systematically surveyed for cultural resources. The information described from surveys in the vicinity of Lake Billy Chinook suggests that structures, sites, and surface features relating to prehistorical and historical development of the greater central Oregon region are well represented. Parts of the Peninsula have been surveyed (Ochoco National Forest Report Cove Land Exchange). Several homestead sites were found there.

Along the river south of Lake Billy Chinook (T.13S., R.12E) Native American sites have been recorded on land administered by the Bureau of Land Management.

Typical Site Types

The Lower Deschutes River Cultural Resource Survey (Hibbs, 1976) identifies the general categories of sites indicative of typical aboriginal occupation: house depressions, rock shelters, campsites, shell middens, quarry sites, flaking stations, talus depressions, cairns, petroglyphs and pictographs.

Euro-American sites along the river are also numerous in type deriving primarily from mining, homesteading, stock grazing, roads and trails and hunting and fishing activities.

There are fifteen known historical sites in the Study Area. These are old homesteads on the plateaus. The land was originally prairie grassland and was homesteaded around 1900. After the government began managing the lands following the Great Depression, almost all the structures were dismantled, burned or bulldozed over, with much of the debris shoved down and covering the old wells. Very little remains of these homesteads except for the piles and walls of rocks made when the land was cleared for farming.

Hibbs, Gannon, Williams, 1976. *Lower Deschutes River Cultural Resources Survey.* Report on file at the Prineville District Office, BLM.

Land Use Authorization

Much of the canyon (2,200 acres) is under power withdrawals. The canyoned area closest to Lake Billy Chinook is under an active power withdrawal encompassing 720 acres (see Map 4 and the Water Resources section).

There are two utility powerline rights-of-way within the Study Area. One is a single wood-pole utility powerline that runs in an east-west direction for two miles, and also crosses Squaw Creek Canyon. The other powerline right-of-way is in the north end of the Peninsula, Unit A. The two wood-pole powerlines branch in two directions, north-south and east-west, for a total of 2.5 miles.

Numerous access roads exist in the plateau areas, none of which are under permit. They are mainly wheel tracks.

Land Ownership

The entire Study Area contains approximately 18,402 acres. Of this total: U.S. Forest Service (USFS) manages 10,231 acres, Bureau of Land Management (BLM) manages 3,240 acres, private parties (non-Federal) own 4,891 acres, and the State of Oregon owns 40 acres. See Figure C-8 for the location of these areas.

Management Considerations

Fire

Historically, fire was a key element of Grassland ecosystems. Most of the Grassland was probably burned on a frequency of less than thirty years by lightning-caused fires. Portions of the Grassland now support mature juniper stands with little or no grass or brush understory. These stands are generally fireproof and will only carry fire under high wind conditions. Fire will generally retard ecological succession of communities that would move toward a climax of juniper. Hall (1973) and Volland (1976) cite several plant communities which may move toward juniper dominance without the disturbing influence of fire or a similar agent. In the pioneer stage, grasses and forbs generally dominate. Rabbitbrushes and horsebrush may be common, depending on their frequency before burning and availability of seed after burning.

As succession proceeds into the seral stages, sagebrush and bitterbrush may become dominant, depending on the site. Grasses generally become less prominent, and composition may change from the pioneer types, such as bottlebrush squirreltail, to the wheatgrasses and fescues. Heavy grazing may enhance movement toward shrub and juniper dominance, and also reduce the frequency and cover of wheatgrass and fescue in favor of the pioneer grasses or the exotic cheatgrass. Scattered juniper of varying sizes and ages now appears.

Historic fire management in the Grassland's ecosystems has been suppression. This has retarded ecological succession. Historically, fire has long been a key element of juniper, shrub, and grass ecosystems.

With time and the absence of fire, succession would probably proceed to a juniper dominated climax in which the shrubs and grasses are very much subdued. Under present conditions, allowing fire to again become a part of the natural succession could become damaging if not reintroduced gradually in the form of planned ignitions.

Insects and Disease

There are no known problems with insects or disease. Potential for these problems is low.

Non-Federal Lands

It is not realistic to assume that all the private lands (4,891 acres) could be exchanged into public ownership. Most of this private land is a vital part of the local ranch/farm operations. Few of these lands would meet wilderness standards.

Wilderness Evaluation

Public Input

The information regarding the Deschutes Canyon-Steelhead Falls Area was gathered from several procedures.

The Bureau of Land Management conducted public meetings and gathered public comments for wilderness studies to determine potential for wilderness. The Forest Service conducted public meetings and gathered comments for the RARE II Analysis and the Crooked River National Grassland Unit Plan which included the Deschutes Canyon Area.

During the more recent planning efforts for Forest Planning, the two areas were combined into one WSA as directed by the Oregon Wilderness Act of 1984. A Memorandum of Understanding between the Forest Service and BLM was developed, and the Forest Service, by virtue of the percentage of land involved, was identified as the lead agency.

Information obtained prior to the joint effort was considered with input gained during Forest planning and during the BLM Wilderness Study. These are on file at the Forest Service Office.

When the BLM requested public input for the Steelhead Falls Study Area in 1980, they received letters from 62 individuals. Sixty expressed support of the proposal to designate Deschutes-Steelhead Falls as a wilderness study area Many desired the BLM canyon area to be managed as wilderness, even though it was less than 5,000 acres in size. Two comments were against the designation of WSA for the Deschutes Canyon. One expressed concern that wilderness would limit fish management activities.

The WSA was supported for wilderness designation by local chapters of several organizations, including the Oregon Environmental Council, Wilderness Society, Sierra Club, Mazamas, Audubon Society, Central Oregon Fly Fishers, and the SAGE Desert Study Group. These organizations exhibit varying degrees of involvement, from very active support specifically for the Deschutes Canyon, to general listing of support for a number of wilderness study areas,including the Deschutes Canyon/Steelhead Falls area.

The Jefferson County Comprehensive Plan recommended against any additional wilderness within the county.

During the public review period for the DEIS/Forest Plan, 135 letters were received with comments on Deschutes Canyon/Steelhead Falls WSA. Among these were letters from ODFW and the Oregon Parks and Recreation Division.

The majority favored wilderness designation for the river corridor, and many proposed enlarging the wilderness acreage to include all or part of the canyon rim and the Squaw Creek area. Most respondents felt that the proposed 5,200 acres was too small, and recommended a range of acreages up to 20,000 for the wilderness area.

Some of those responding did not favor wilderness designation, believing that semiprimitive nonmotorized recreation management was more appropriate.

Respondents generally opposed any development in the area and urged protection for the area's wildlife, scenic, and recreation values. They generally opposed livestock grazing and timber harvest in the area.

ODFW supported the 5,200 acres of wilderness classification proposed in Alternative E-Departure. This alternative proposed protection for the canyon rim.

The Oregon Parks and Recreation Division supported the Forest Service requirement to maintain wilderness values until the area was designated wilderness or released from consideration by Congress.

In summary, the Deschutes Canyon-Steelhead Falls WSA received some support for wilderness recommendation. Others felt the wilderness character had already been compromised. Most respondents did appreciate the scenic and recreational qualities of what they considered to be a rather noteworthy canyon area

Congressional Interest

This study area has not surfaced in any new bills presented at the Congressional level. It apparently has not generated Congressional interest to date. The release language of the Oregon Wilderness Act formally designated the WSA directing decisions on it be made through the Forest Plan.

Need for Ecosystem Representation

Ecosystem/landform diversity was determined by using the Baily/Kuchler system to classify ecosystem geography. The classification of ecosystems is based climate, vegetation, soils, and landform.

Utilizing the Baily-Kuchler Classification System, the Deschutes Canyon/Steelhead Falls Study Area contains 17,482 acres of Intermountain-Sagebrush/ sagebrush-steppe ecosystem. According to a BLM State Officer's Wilderness Report in August 1981, this ecosystem was not currently represented in the National Wilderness System. However, the Poker Jim Ridge managed by the U.S. Fish and Wildlife Service may be the first area with this ecosystem type that is recommended for wilderness designation. (Poker Jim Ridge is on the Hart Mountain National Wildlife Refuge in Southern Oregon, approximately sixty miles northeast of Lakeview) This area encompasses 15,500 acres and has been endorsed by the President. It is also pending before congress, according to the same BLM State Office report. In addition, this report identified 63 other BLM study areas encompassing over 1.7 million acres, (primarily within the State of Oregon) having the same ecosystem type. (A list of these study areas is available at the BLM State Office or the Prineville District Office.) Some of these study areas may eventually be included within the National Wilderness Preservation System. In addition, U.S. Forest Service correspondence, in response to an appeal over the most current Crooked River National Grassland preferred land use alternative for this area, indicated that the Jarbidge Wilderness, on the Humboldt National Forest in Nevada, also contains landforms, ecosystem, and wildlife similar to Deschutes Canyon Study Area. The same basic vegetative type, landform, waterflow, and ecosystem type can also be found in the Owyhee and Snake River Canyon areas.

Distance from Population Centers

Population centers are defined as standard metropolitan statistical areas having population areas of at least 100,000. There are six population centers within a one day drive (determined by Wilderness criteria to be five hours) to the Deschutes Canyon/Steelhead Falls Study Area These areas are: Eugene-Springfield, Portland, and Salem, Oregon; and Richland-Kennewick, Tacoma, and Yakima, Washington.

Nearby Wilderness Areas and Their Use

There are several wilderness areas managed by the Forest Service relatively close to the Deschutes Canyon-Steelhead Falls Study Area. These areas are Mt. Jefferson Wilderness 30 air miles to the northwest, Mt. Washington Wilderness approximately 30 air miles to the west, and the Three Sisters Wilderness approximately 40 air miles to the southwest along the Cascades. Black Canyon Wilderness approximately 80 air miles to the east, Mill Creek Wilderness approximately 30 air miles to the east and Bridge Creek Wilderness approximately 50 air miles to the east are recently designated in the Ochoco National Forest. Strawberry Mountain, also on the Oregon Wilderness Bill, lies approximately 120 air miles to the east and is located on the Malheur National Forest. These areas generally do not provide year-round recreation use as they are generally not accessible during the winter months.

Environmental Consequences

Some resources are determined to be unaffected, or insignificantly affected, by the different management activities prescribed by the various alternatives. The canyon area is protected from development in all alternatives by the lack of commodity production potential, steep terrain, and potential adverse impact to soil and water resources. The plateau area is currently partially developed for livestock production, with primitive roads, water developments, and fences. Commodity oriented alternatives further develop the plateaus. All wilderness alternatives call for the removal of roads and other nonconforming features when feasible. Wilderness designation also eliminates the opportunities to improve wildlife habitat. These wilderness alternatives would also withdraw the areas from mineral entry, and included energy leases would be terminated according to the lease stipulations.

Nonwilderness alternatives keep open the option to develop for energy production and mineral exploration, and allow opportunities to improve wildlife habitat. Since there is no commercial timber land included in any of the areas, timber is unaffected by the various alternatives. Cultural resources are protected in all alternatives and potential for impact varies only slightly in the plateau areas between alternatives. Possible ground disturbing activities on the plateaus vary from removing facilities for wilderness to a limited improved transportation system designed to accommodate grazing and protect or

TABLE C-32
DESCHUTES CANYON - STEELHEAD FALLS WILDERNESS STUDY AREA
Designation By Management Prescription

Total Acres - 18,402 (includes all ownership)
Wilderness Capability Acres - 10,000 (lands administered by the Grassland)
BLM Administered Land - 3,240 Acres

	Acres by Alternative 1/				
Management Prescription	A/NC	B-MOD	C-MOD	E-DEP	I
Dispersed Recreation					
Nonmotorized					
F S	9,350	700			5,138
BLM	3,240	2,031			
Timber/Range					
F S		8,650			
BLM		1,209			
Big Game					
F S				7,500	4,212
BLM				580	1,164
Wilderness					
F S			9,350	1,850	
BLM			3,240	2,660	
Wild & Scenic River					
F S	650	650	650	650	650
BLM	2,076	2,076	2,076	2,076	2,076

1/ Based on Wilderness Capability Acres

enhance wildlife habitat. Water quality should remain relatively constant due to the limited activity proposals in all alternatives.

The key resources affected by the differences between alternatives are wilderness, recreational opportunities, land uses, livestock grazing, and the associated social and economic effects. These will be discussed in the following alternatives comparison.

Alternatives A and NC

This alternative would focus on the current management situation. The existing direction for wilderness study requires that the wilderness quality and attributes be maintained, and current resource activities would continue at current levels.

Effects on Wilderness Attributes

The current wilderness attributes of the area would be protected. Nonconforming features and uses would continue at the current levels and no new commitments would be made that would adversely affect future designation as wilderness.

Effects on Nonwilderness Resources

Recreation

Motorized vehicles would be restricted in the canyon areas which are managed for semiprimitive, nonmotorized recreational opportunities. Limited motorized use of the plateau areas would continue. Hunting in the plateaus utilizing vehicles would continue.

Livestock Grazing

Grazing would continue at the current levels. Water would be trucked into the area on a daily basis.

Land Uses

Nonconforming features and uses would continue.

Land Ownership

Existing situation of ownership would continue.

Social/Economics

The existing conditions would remain unchanged.

Alternatives B-Modified and I

These alternatives were developed in response to public input to the DEIS and Proposed Forest Plan and to management concerns. The ideas incorporated into these alternatives focused on maintaining a pristine area while enlarging the area to make it more manageable for the more primitive backcountry recreation opportunities. Enlarging the area brought in features that were not acceptable for inclusion of wilderness but did not detract from the overall backcountry opportunities. Enlarging the area also included going outside this Wilderness Study Area, crossing the main access in this part of the Grassland to include the upper reaches of Squaw Creek. This portion offers additional canyon opportunities for backcountry recreation even though it is bisected by the access road. The road will be closed seasonally during the winter period that is so critical for the Metolius deer herd. The main Deschutes River and Crooked River canyons are protected through Wild and Scenic River management.

Effects on Wilderness Attributes

The area within the wilderness study area that is included in the Squaw Creek management area and the Wild and Scenic corridors will have the included wilderness attributes protected under the backcountry recreation emphasis. The area outside of the Squaw Creek management are not included in the Wild and Scenic River corridor will be managed for the wintering deer herds and may require vegetative manipulation that could conflict with preserving the wilderness attributes.

Effects on Nonwilderness Resources

Recreation

The Squaw Creek management area emphasizes the backcountry semiprimitive nonmotorized recreation opportunities. Trails will be developed to offer some challenge and maintain the pristine nature of the area as will as providing access to the Wild and Scenic River corridors. Current off-road motorized recreation will be eliminated.

Livestock Grazing
Grazing would continue at the current level unless conflicts with the wintering deer herds begin to occur. Trucking of water to maintain grazing will continue as needed.

Land Use
The powerlines thru the Squaw Creek area will be allowed to remain until they are no longer needed. The main access road through the Squaw Creek area will be open to use outside of the winter period which requires closure to protect the wintering deer herds.

Land Ownership
Private lands within the Squaw Creek management area should be acquired as they become available.

Social and Economic
A small increase in the local economy may occur from additional backcountry recreation opportunities as more people become aware of the Squaw Creek and the Wild and Scenic River areas.

Alternative C-Modified
This alternative emphasizes "nonmarket" resources such as water, visuals, fish, wildlife and dispersed recreation. The full area is recommended for wilderness in this alternative.

The total area will be closed to motorized vehicles and the access routes rehabilitated as necessary to prevent erosion and eliminate future motorized use. Overall, the area will appear similar to the existing condition with many of the non-conforming features and included private lands remaining. The plateaus will not offer a challenging, remote natural wilderness experience. There would be little opportunity for solitude away from the influence of the sounds and sights of human activity from the outside area.

Effects on Wilderness Attributes
There are many conditions both past and current that restrict the plateau portion of the study area's manageability as wilderness. Included private land, developed areas like the Cove Palisades State Park and Crooked River Ranches, the remains of early homesteading, and existing improvements such as roads, power lines, and fences make wilderness management for the entire study area very difficult.

The canyon areas offer opportunity for a more primitive type of recreational experience and can be managed for wilderness. This portion of the area generally has a high degree of natural appearance and natural integrity, with limited manageability problems.

Effect on Nonwilderness Resources
Recreation
Management under the Wilderness Recreation Opportunity Spectrum (WROS) would be directed toward the semiprimitive management classification objectives. These objectives would be accomplished in the canyon areas, but not in the plateaus. Current motorized use of public lands on the plateau area would need to be eliminated and this would create a difficult law enforcement problem.

Livestock
Livestock grazing would essentially be eliminated unless use of motorized vehicles on a daily basis to haul water could be approved. Current administration of wilderness areas allows occasional use of vehicles for established grazing needs Stock watering on the allotments within the study area requires hauling in water on a daily basis. There is a possible loss of 900 to 1000 AUM/year.

Land Use
Nonconforming features such as roads and power lines would need to be removed and their evidence obliterated as much as feasible. Power line rerouting will be very expensive. Private lands that become public through exchanges will require extensive work and costs to remove nonconforming features. Even after rehabilitation, most of these lands would still have very limited wilderness qualities.

Land Ownership
It is not realistic to assume that all private lands could be exchanged into public ownership. Most of these lands have features that do not conform to

wilderness standards and are important to the local ranch operations.

Social/Economic

The impact due to the loss of grazing could put three or four ranchers out of business. Extensive tracts of private lands exchanged into public ownership would no longer be included in the county tax base. There would be a loss of revenue with the loss of 1000 AUM/year. The loss of motorized access on the plateaus will shift the demand for this recreation to other areas.

Alternative E-Departure

This alternative emphasizes the "nonmarket" resources and roadless area management. The enhanced modified area (Area III), approximately 5200 acres, is recommended as wilderness. Of this 5200 acres approximately 2500 acres is administered by the Grassland, 2660 acres by the BLM, and 40 acres by the State of Oregon (see Figure C-14). Management of lands outside this recommended wilderness would be managed for big game/wildlife. The plateau area will show patterns of man's manipulation to improve wildlife habitat.

Effects on Wilderness Attributes

Area III is manageable area for wilderness, due to the elimination of the majority of the manageability problems. The adjusted boundary for this area eliminates the private lands and most of the nonconforming features on public administered lands. Opportunities for solitude and challenging experiences are great in this area with current use. Wilderness designation could attract too much use to maintain the wilderness standards due to the small size and the area that would concentrate use.

Effects on Nonwilderness Resources

Recreation

Management would be guided by the Wilderness Recreation Opportunity Spectrum (WROS) for the semiprimitive management classification objectives. These objectives can be met on the majority of the area. The plateau area outside wilderness will be managed for wildlife and range resources, and the transportation system would allow for the semiprimitive, motorized as well as some roaded natural recreation opportunities. Hunting opportunities will increase.

Livestock Grazing

Grazing would continue at the current level and would possibly be increased as range improvements in the plateau area increase capacities. The trucking of water to maintain grazing would continue as the watering tanks and access routes are outside the wilderness.

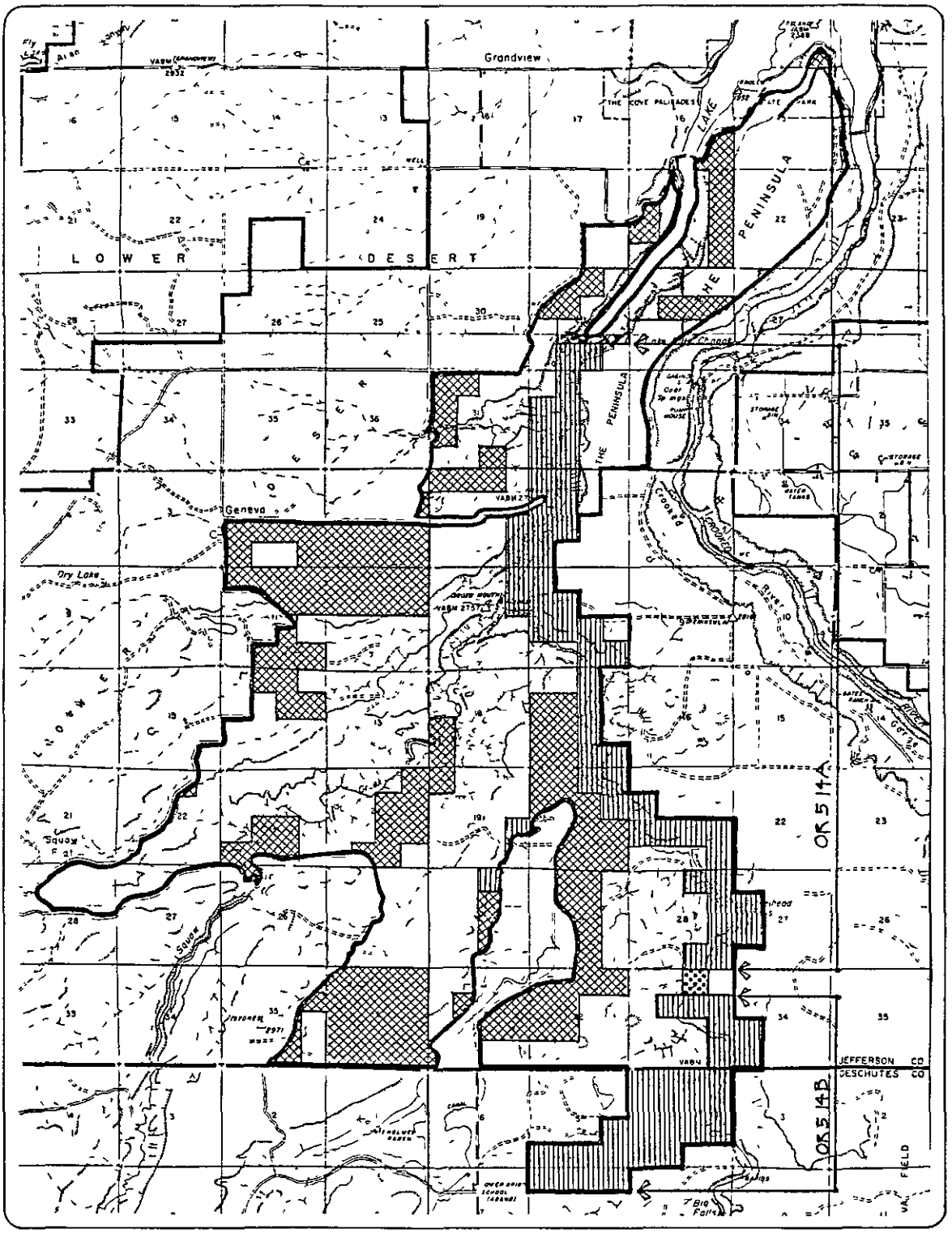
Land Uses

All nonconforming land uses, including access roads and power lines, are outside the wilderness.

Social/Economic

There will be no effect on the social/economic status by this alternative. The ranching community dependent on this area is unaffected and the people dependent on the power line will not be affected.

Figure C-8 DESCHUTES CANYON - STEELHEAD FALLS (LAND STATUS)



DESCHUTES CANYON - STEELHEAD FALLS WSA - UNIT 6321

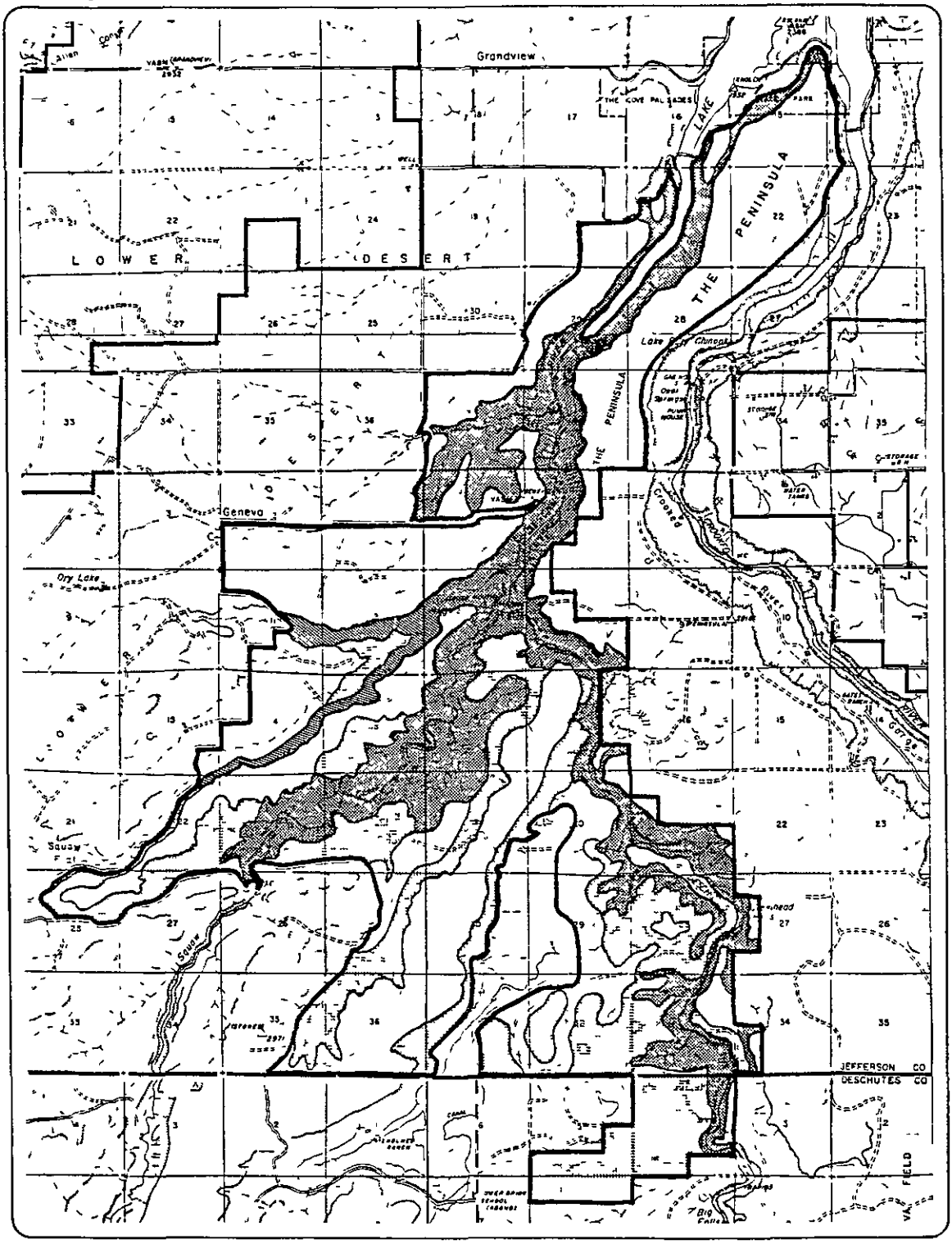
LAND STATUS

TLS 7-2-82
OCHOCO NF -
R-6, USDA

LEGEND

- U.S. FOREST SERVICE
- B L M.
- OREGON STATE GAME
- D O R POWER WITHDRAWAL (ACTIVE)
- PRIVATE

Figure C-9 DESCHUTES CANYON - STEELHEAD FALLS (TOPOGRAPHY)



DESCHUTES CANYON - STEELHEAD FALLS WSA - UNIT 6321

TOPOGRAPHY

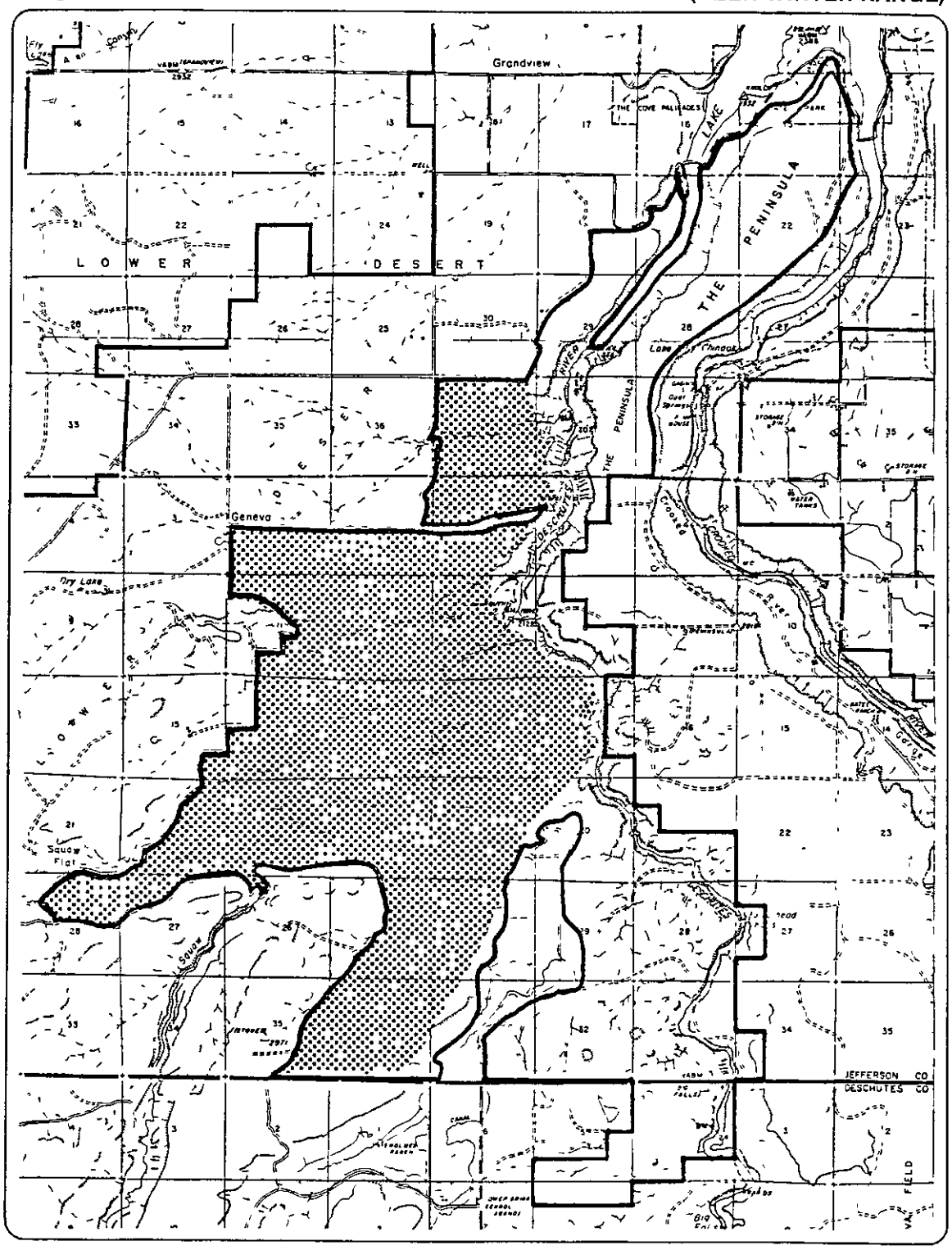
LEGEND

- 0 - 10% SLOPE
- 10 - 20% SLOPE
- 20% SLOPE, OR MORE

NOTE. THIS MAP SIMPLIFIED FOR CLARITY

TLS 7-2-82
OCHOCO N.F.
R-6 USDA

Figure C-10 DESCHUTES CANYON - STEELHEAD FALLS (DEER WINTER RANGE)



DESCHUTES CANYON - STEELHEAD FALLS WSA - UNIT 6321

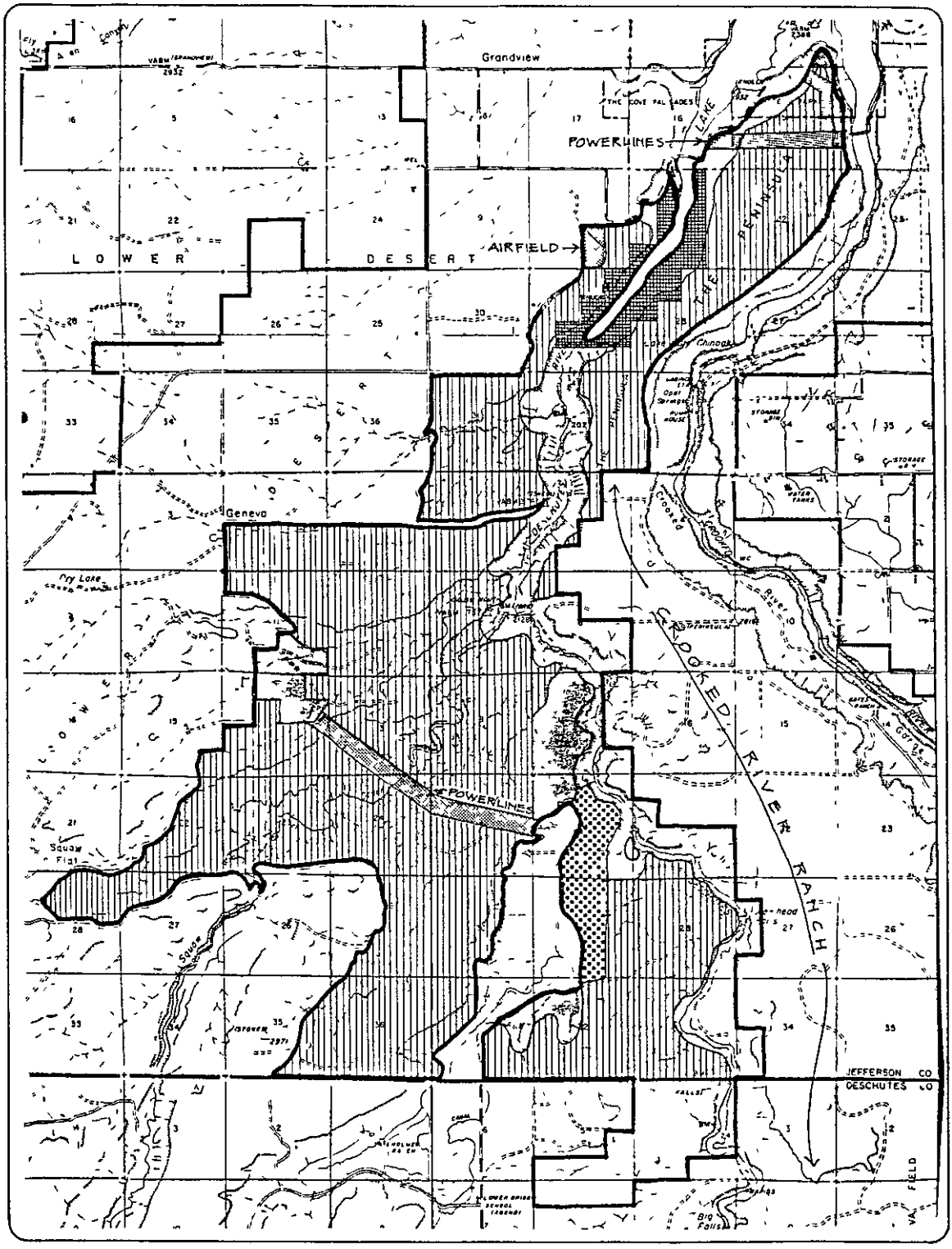
DEER WINTER RANGE

LEGEND

WINTER RANGE

TL.S 7-2-82
OCHOCO NF-
R-6 USDA

Figure C-11 DESCHUTES CANYON - STEELHEAD FALLS (COMMERCIAL USE OF LAND)



DESCHUTES CANYON - STEELHEAD FALLS WSA - UNIT 6321

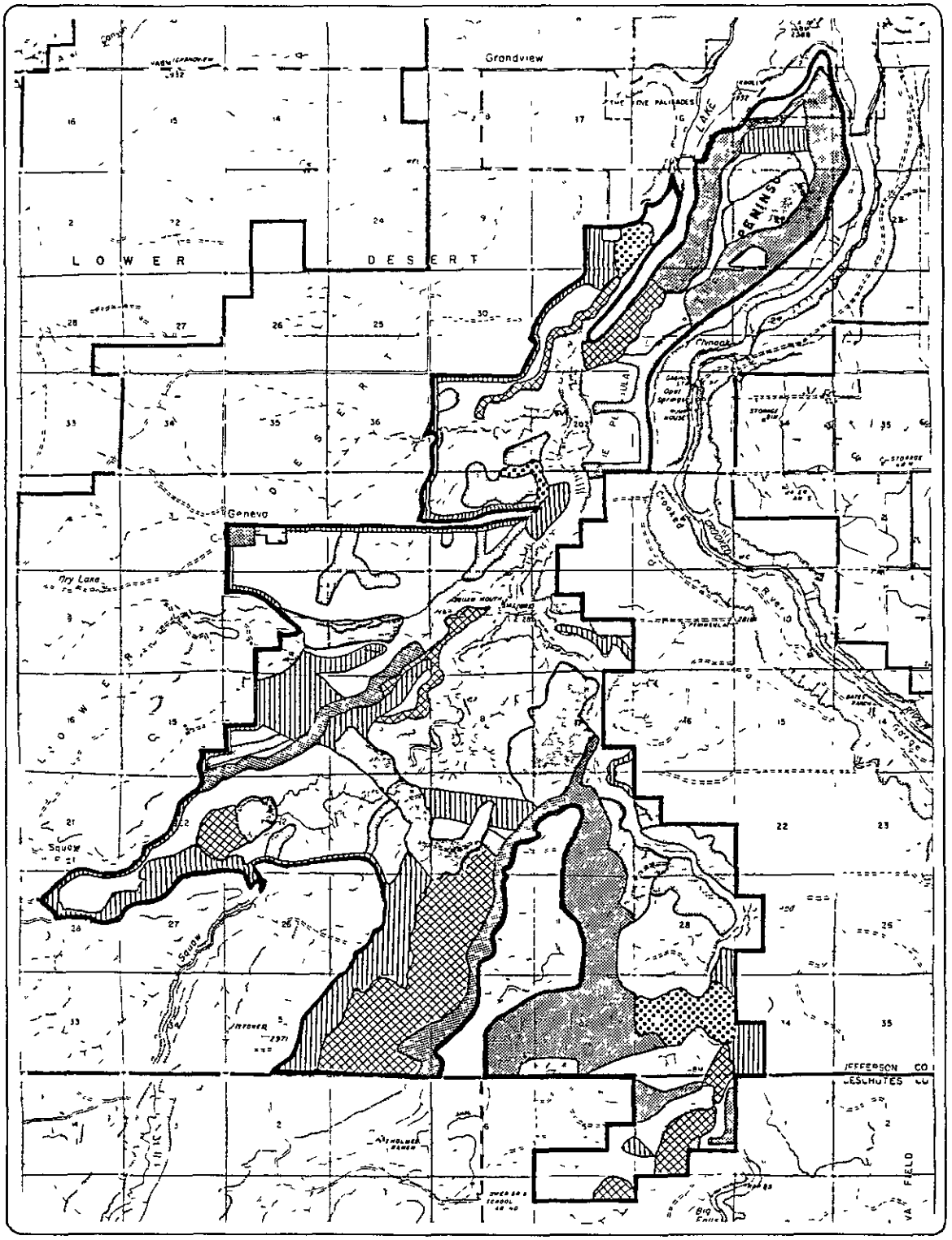
COMMERCIAL USE OF LAND

LEGEND

- RANCHING
- GRAZING
- SPECIAL USES
- FARMING
- ACTIVE POWER WITHDRAWAL

TLS 7-6-82
OCHOCO NF
R-6 USDA

Figure C-12 DESCHUTES CANYON - STEELHEAD FALLS (NATURALNESS MAP - AREAS IMPRINTED)



DESCHUTES CANYON - STEELHEAD FALLS W.S.A. - UNIT 6321

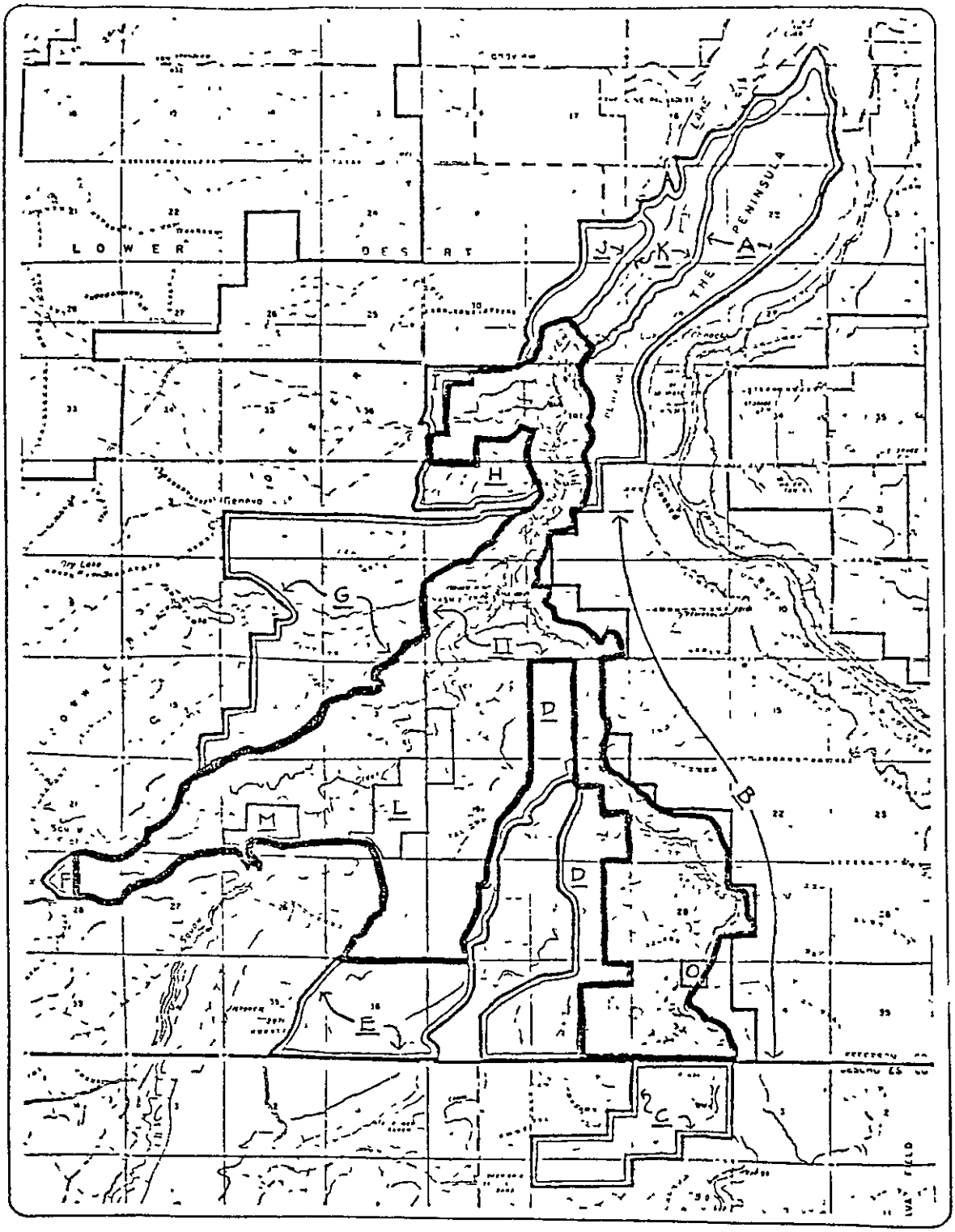
NATURALNESS MAP - AREAS IMPRINTED

LEGEND

- NO IMPRINTS
- ONE MINOR ON SITE IMPRINT
- ONE MAJOR ON SITE IMPRINT
- ONE MAJOR OFF SITE IMPRINT
- MULTIPLE MINOR ON SITE IMPRINTS
- MULTIPLE MAJOR & MINOR ON SITE IMPRINTS
- MULTIPLE MAJOR OFF SITE IMPRINTS

TLS 6-30-82
OCHOCO N.F. -
R-6, USDA

Figure C-13 DESCHUTES CANYON - STEELHEAD FALLS (BOUNDARY ALTERNATIVES)



DESCHUTES CANYON - STEELHEAD FALLS WSA - UNIT 3321

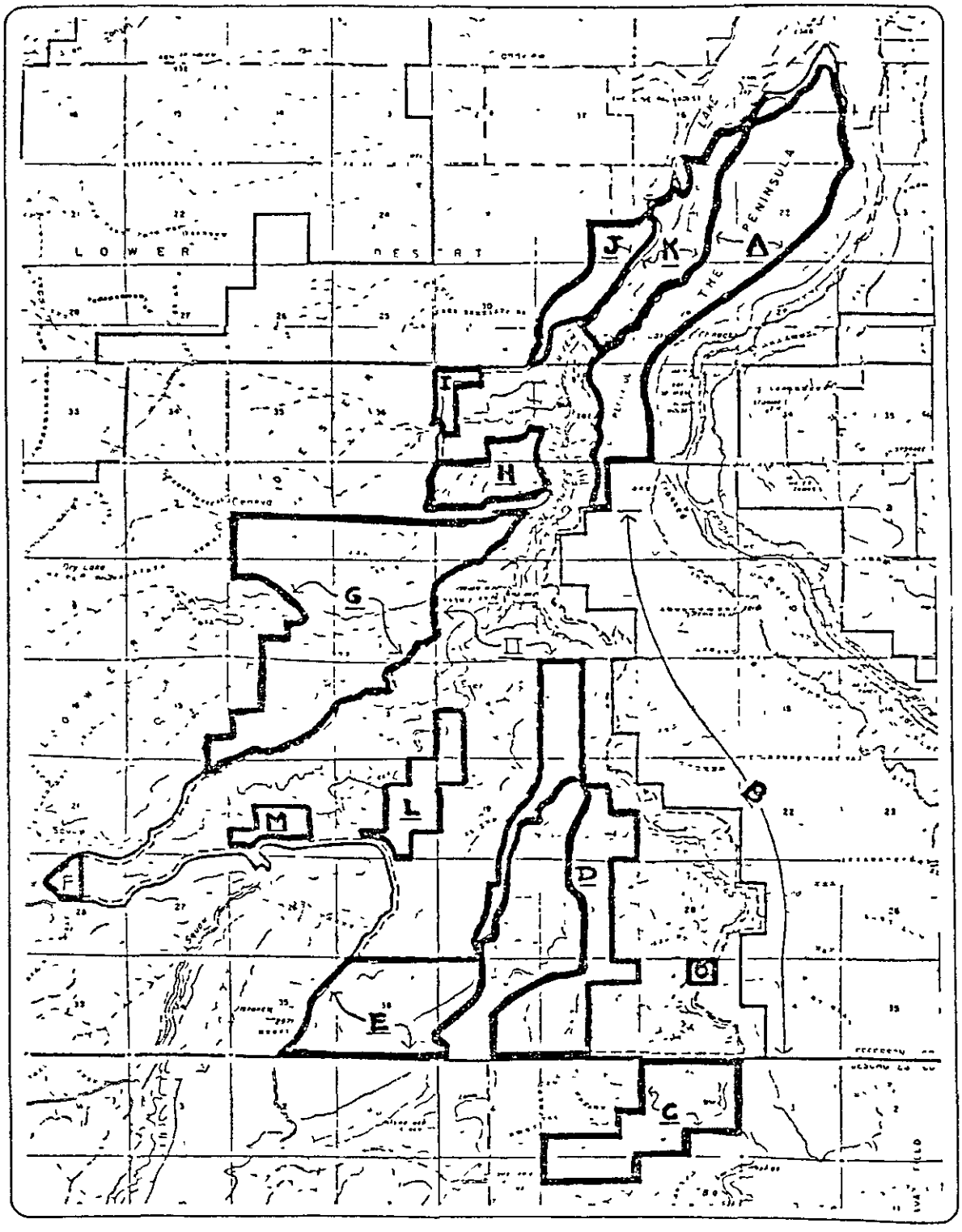
BOUNDARY ALTERNATIVES
AREA II (IN HEAVY LINE)

LEGEND

——— WSA - UNIT 6321 AREA I
AREA II
A-O AREAS DESCRIBED IN TEXT

TL 5 7-16-82
OCHOCO NF -
R-5 - USDA

Figure C-14 DESCHUTES CANYON - STEELHEAD FALLS (BOUNDARY ALTERNATIVES)



DESCHUTES CANYON - STEELHEAD FALLS WSA - UNIT 6321

BOUNDARY ALTERNATIVES

LEGEND

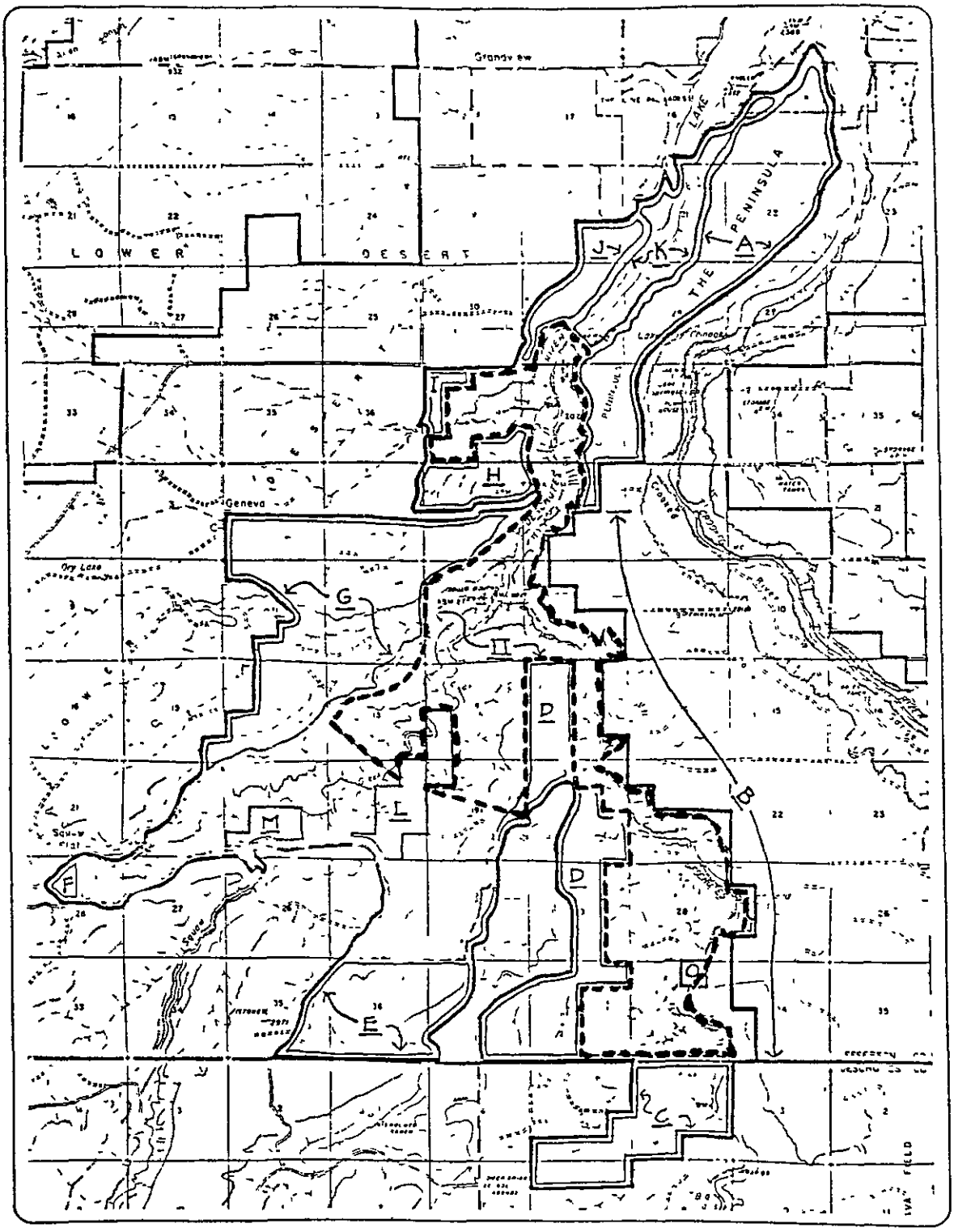
——— WSA - UNIT 6321 AREA I

- - - - - AREA II

—A-O— AREAS DESCRIBED IN TEXT

TL S 7-16-82
OCHOCO NF -
R-6 - USDA

Figure C-15 DESCHUTES CANYON - STEELHEAD FALLS (ENHANCED MODIFIED AREA)



DESCHUTES CANYON - STEELHEAD FALLS WSA - UNIT 6321

ENHANCED MODIFIED AREA
(AREA III)

LEGEND

——— WSA - UNIT 6321
- - - - - AREA III
A-O AREAS DESCRIBED IN TEXT

TLS 7-16-82
OCHOCO NF -
R-6 - USDA