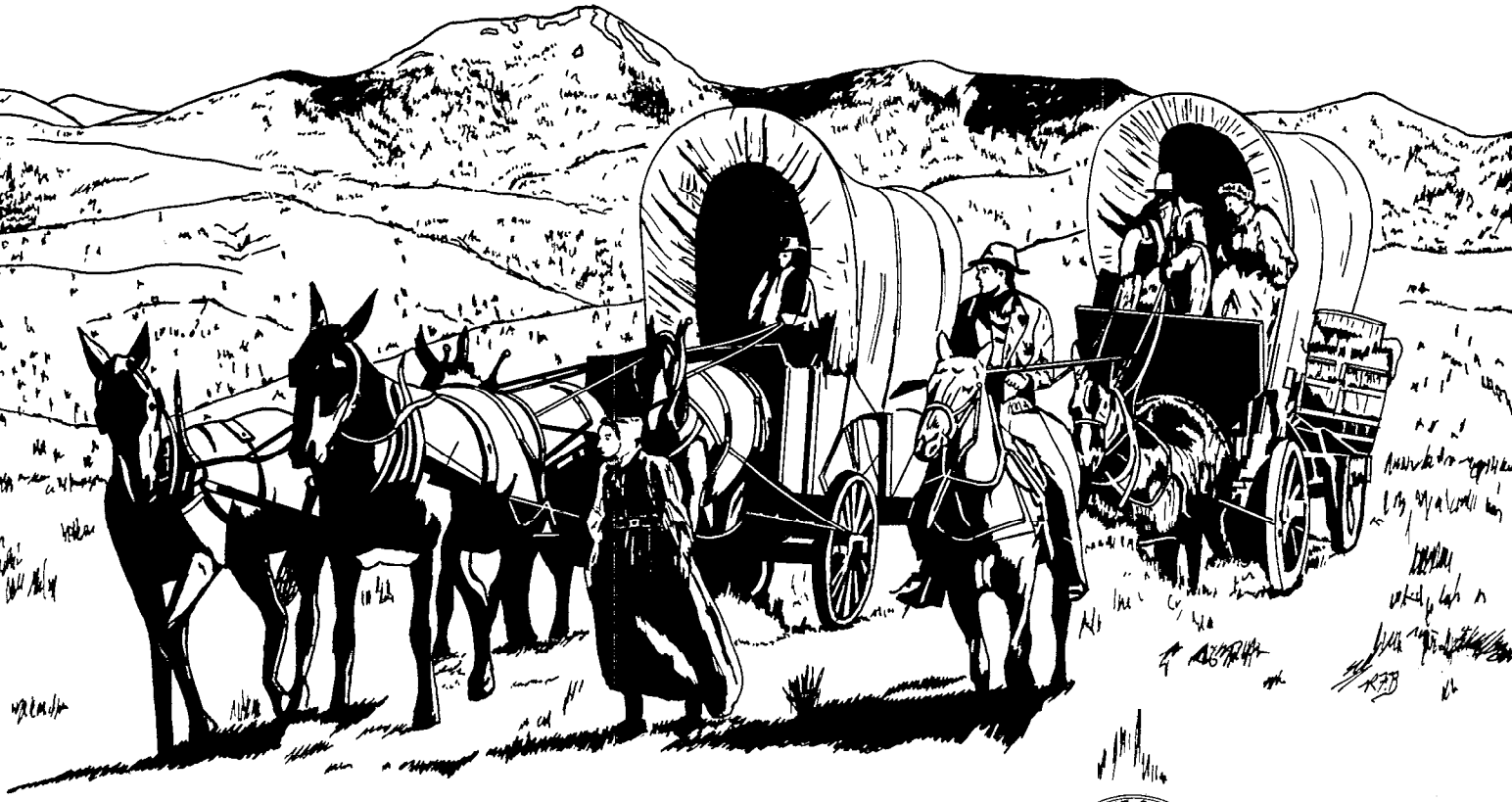
Draft

IRONSIDE

Grazing Management Environmental Impact Statement



Oregon State Office

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

IN REPLY REFER TO:

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

OREGON STATE OFFICE
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Portland, Oregon 97208

APR 1 1980

Enclosed for your review and comment is the Draft Ironside Grazing Management Environmental Impact Statement. The statement analyzes the impacts which would result from the proposed livestock management program and five alternatives. The purpose of the statement is to disclose in advance the probable environmental impacts and to assure that these impacts are considered along with economic, technical and other considerations in the decisionmaking process.

Comments concerning the adequacy of this statement will be considered in the preparation of the final environmental impact statement. The comment period will be 60 days beginning after the draft is filed with the Environmental Protection Agency and the Notice of Availability is published in The Federal Register. The notice is anticipated in late April 1980, Oral and/or written testimony will be accepted at two public hearings which will be held in Ontario and Baker, Oregon, June 3 and 4, 1980, respectively, Details of these hearings will be announced through the public media.

If changes suggested through the public comment process are minimal, this draft would be incorporated into the final by reference only. The final would consist of public comments and responses and any needed changes of the draft. Therefore, the draft should be retained for use with the final.

Comments received after the 60-day review period will be considered in the decision process, even though they may be too late to be specifically addressed in the final environmental impact statement.

Your comments should be sent to:

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Sincerely yours,

Frank A. Edwards

Acting State Director

DEPARTMENT OF THE INTERIOR

DRAFT

ENVIRONMENTAL IMPACT STATEMENT

IRONSIDE GRAZING MANAGEMENT PROGRAM

Prepared by

BUREAU OF LAND MANAGEMENT

DEPARTMENT OF THE INTERIOR

[redacted]

IRONSIDE PROPOSED GRAZING MANAGEMENT

Draft (x) Final ( ) Environmental Impact Statement

Department of the Interior, Bureau of Land Management

1. Type of Action: Administrative (x) Legislative ( )

2. Abstract: The Bureau of Land Management proposes to implement livestock grazing management on 1,001,964 acres of public land in eastern Oregon. Intensive grazing management is proposed on 914,005 acres (172 allotments), nonintensive management on 71,131 acres (167 allotments), unalloted status on 14,219 acres and elimination of livestock grazing on 2,609 acres (1 allotment). Implementation of the proposed action includes allocation of vegetation to livestock, wild horses, wildlife and nonconsumptive uses; establishment of grazing systems; and construction of range improvements. Vegetation condition would improve and forage production would increase. Overall watershed conditions would improve. Certain wildlife habitat would improve, and the numbers of upland game birds, nongame animals and fish would increase. There would be an initial decrease of 38,437 animal unit months (AUMs) in 151 allotments and an increase of 3,339 AUMs in 51 allotments for a net decrease of 25 percent. In the short term, 39 permittees would have losses exceeding 10 percent of their annual forage requirements under the proposed action. Direct and indirect community personal income would be reduced by approximately $360,000 annually in the short term and increase by approximately $17,000 over existing conditions in the long term.

3. Alternatives Analyzed:

a. No Action
b. Eliminate Livestock Grazing
c. Limit Downward Adjustments
a. Optimize Livestock Grazing
e. Optimize Wildlife, Wild Horses and Nonconsumptive Uses

4. Draft statement made available to EPA and the Public April 1980. The comment period will be 60 days beginning after the draft is filed with the Environmental Protection Agency and the Notice of Availability is published in The Federal Register. This notice is anticipated in April, 1980.

5. For further information contact:
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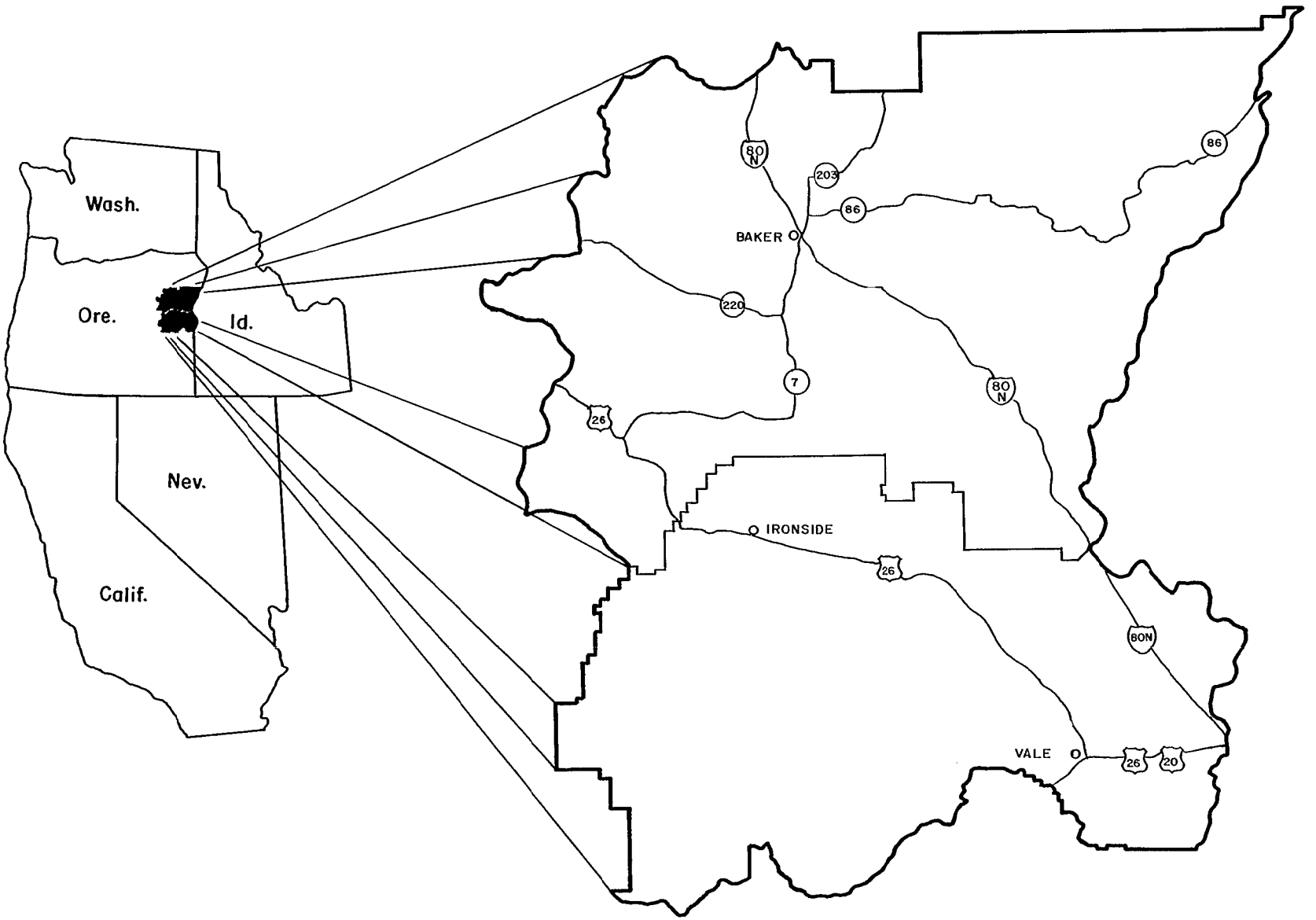
SUMMARY

VICINITY MAP

IRONSIDE IS



SUMMARY

This environmental impact statement (EIS) describes and analyzes the environmental impacts of implementing a livestock grazing management program in a portion of the Baker and Vale Districts in eastern Oregon. The proposed action, the result of the Bureau planning system and public input, is the preferred alternative. Five other alternatives are also described and analyzed for environmental impacts.

The proposed action consists of vegetation allocation and implementation of intensive grazing management on 172 allotments covering 914,005 acres of public land, nonintensive management on 167 allotments covering 71,131 acres, continued unallotted status (no authorized livestock grazing) on 14,219 acres and elimination of livestock grazing on 2,609 acres.

The purpose of the proposed action is to implement planning decisions needed for management, protection and enhancement of the rangeland resources. The time frame involved would be 5 years for implementation and 10 additional years to assess impacts. The proposal would thus cover a 15-year period from the time actions are initiated.

The existing forage production of 127,216 AUMs would be allocated to livestock (107,020 AUMs), wildlife (7,619 AUMs), wild horses (600 AUMs) and nonconsumptive uses (11,977 AUMs). The allocation to livestock constitutes a 25 percent reduction from the 1978 authorized livestock use of 142,118 AUMs.

Livestock grazing would be reduced initially by 38,437 AUMs in 151 allotments. These reductions range from 1 to 3,264 AUMs by individual allotment.

Livestock grazing would be increased by 3,339 AUMs in 51 allotments. These increases range from 1 to 999 AUMs by individual allotment.

Spring grazing would be implemented on 36,762 acres, spring/summer grazing on 56,051 acres, spring/fall grazing on 54,389 acres, deferred rotation grazing on 361,694 acres, and rest rotation grazing on 380,828 acres.

Proposed range improvements include 74 reservoirs, 82 springs, 5 wells, 91 miles of pipeline, 245.7 miles of fence and 11 guzzlers. Proposed vegetative manipulations include brush control on 39,716 acres and preparation for seeding on 18,535 acres, primarily by spraying 2,4-D herbicide; seeding 24,593 acres; and juniper control on 520 acres by hand falling with chain saws.

Five alternatives to the proposed action were considered:

1. No Action - Under this alternative, there would be no change from present management conditions, No additional range improvement projects or grazing systems would be undertaken.

2. Eliminate Livestock Grazing - This alternative would eliminate all authorized livestock grazing from all public lands except trailing use. No range improvements would be constructed.

3. Limit Downward Adjustments - This alternative would limit initial downward adjustments in livestock use to 20 percent of active qualifications or one-third of the adjustment identified in the proposed action, whichever is greater. Reductions would be phased over 5 years. Range improvements would be implemented throughout the 5-year period with grazing systems implemented as promptly as conditions permit. Additional reductions, not to exceed the total amount in the proposed action, would be imposed if resource objectives were not being met.

4. Optimize Livestock Grazing - This alternative would initially provide an additional 14,425 AUMs above the proposed action by allocating less forage to wildlife, wild horses and nonconsumptive uses. An additional 10,191 AUMs would result from implementation of the range improvements in the proposed action and the following additional improvements: 26,292 acres seeding, 53,429 acres brush control, 2,850 acres juniper control, 345 miles of fence, 0.5 miles of pipeline, 1 spring and 6 guzzlers.

5. Optimize Wildlife, Wild Horses and Nonconsumptive Uses - This alternative would result in 32,054 AUMs less for livestock than the proposed action by allowing a maximum of 196 wild horses, allocating forage to support 'the highest historic big game populations, limiting grazing systems to 40 percent utilization of key species and constructing 700 miles of fence to exclude livestock from riparian areas. No other range improvements would be constructed.

During the planning phase of the EIS, public input identified a major area of controversy over planned reductions in livestock use based on BLM's suitability requirements. No AUMs were allocated to cattle on areas with slopes greater than 50 percent, which accounted for major reductions on several allotments. As a result of public input, Alternative 4 includes encouraging sheep use on steep-sloped pastures, for an initial increase of 6,909 AUMs above the proposed action.

Environmental Consequences

Vegetation

The vegetation allocation, grazing systems and range improvements under the proposed action and Alternatives 3 and 4 would increase forage production and residual ground cover, and improve ecosite condition. The 40 percent utilization of key species under Alternative 5 and no grazing under Alternative 2 would also lead to increases in forage production, ground cover and ecosite condition. Overgrazing in Alternative 1 would lead to decreases in these vegetative characteristics, Fencing riparian vegetation under the proposed action and Alternatives 3 and 5, and elimination of grazing under Alternative

2 would improve the condition of some riparian vegetation. The implementation of grazing systems would also improve some riparian vegetation under the proposed action and Alternative 3 and 4, but to a lesser extent than no grazing. Overgrazing in Alternative 1 would cause deterioration of riparian vegetation.

	Proposed Action land Alt. 3	Alt. 1	Alt. 2	Alt. 4	Alt. 5
Ecosite Condition					
Climax	76,323	32,026	167,266	75,994	64,147
Late	278,371	137,467	266,556	360,749	206,443
Middle	299,987	254,036	362,486	299,891	296,440
Early	126,377	357,529	20,750	44,424	214,028
Residual Ground Cover					
Ac. Increasing	667,663	1,000,423	1,000,423	667,663	851,145
Ac. Static	49,474	0	0	49,474	2,556
Ac. Decreasing	197,044			197,044	43,953
Vegetation Production					
AUMs	163,548	123,850	203,780	173,739	145,600
Riparian Vegetation Trend					
Ac. Improving	402	116	1,541	109	1,497
Ac. Static	907	1,015	0	1,248	0
Ac. Declining	114	317	0	108	0

Soils

The increase in residual ground cover would reduce soil erosion under the proposed action and Alternatives 2, 3, 4 and 5. Overgrazing under Alternative 1 would reduce ground cover and thus increase erosion. Elimination of livestock grazing under Alternative 2 and fencing of riparian areas under Alternative 5 would decrease streambank erosion on 336 stream miles. Implementing the spring grazing system and fencing riparian areas would decrease streambank erosion on 53 stream miles under the proposed action and Alternative 3, on 26 miles with Alternative 4, and on 22 miles under Alternative 1.

Water

Construction of range improvements would cause short-term increases in sediment yield of less than 1 percent under the proposed action and

Alternatives 3 and 4. In the long term, the increase in residual ground cover would reduce sediment yield by 92.3 acre-feet per year (ac-ft/yr) under the proposed action and Alternatives 3 and 4, by 250.4 ac-ft/yr under Alternative 5, and by 487.6 ac-ft/yr under Alternative 2. Overgrazing under Alternative 1 would lead to an increase in sediment yield of 52.6 ac-ft/yr. Runoff would remain the same under Alternative 1, and would decrease by 5,890 ac-ft/yr with the proposed action and Alternatives 3 and 4, by 9,635 ac-ft/yr with Alternative 5, and by 19,270 ac-ft/yr under Alternative 2.

Wildlife

There would be no substantial impacts to big game under the proposed action and Alternatives 1 and 3. Long term vegetation stagnation under Alternative 2 would reduce forage available to deer and elk. Forage competition between deer and livestock for the fall "green up" would occur on approximately 5,000 acres each year under deferred rotation and rest rotation in the proposed action and Alternatives 3 and 4. The 700 miles of fence to be built along riparian areas in Alternative 5 would increase deer mortalities. Increases in residual ground cover would benefit upland game birds, other birds, other mammals, reptiles and amphibians under the proposed action and Alternatives 2, 3 and 5. Decreases in cover from overgrazing in Alternative 1 and vegetative manipulation in Alternative 4 would decrease habitat for these animals. Increases in bank stability and riparian vegetation under the proposed action and Alternatives 2, 3 and 5 would improve fish habitat. Bank stability and riparian vegetation would decline under Alternatives 1 and 4, thus decreasing fish habitat.

Recreation

Total recreational use would increase by 208,060 visits per year under the proposed action and Alternative 3, by 253,490 visits per year under Alternative 2, by 224,700 visits per year under Alternative 5 and by 132,660 visits per year under Alternative 1. Under Alternative 4, total recreational use would increase by 71,140 visits per year but hunting visitor use would not increase significantly due to the loss of deer cover from vegetative manipulation.

Cultural Resources

The grazing systems and range improvements in the proposed action and Alternatives 3, 4 and 5 could disturb unidentified cultural sites and the integrity of known sites,

Visual Resources

The grazing systems and range improvements would create visual contrasts under the proposed action and Alternatives 3 and 4, but in the long term, esthetics would improve as range condition improves, Overgrazing under Alternative 1 would decrease the value of visual resources. The elimination

of grazing under Alternative 2 would improve visual quality. Alternative 5 would improve visual quality in the same manner as the proposed action but to a greater extent.

Wild Horses

The construction of range improvements under the proposed action and Alternative 3 would cause a short-term disturbance to the horses. Wild horses would be eliminated under Alternative 4, would be allowed to increase to a maximum of 196 head under Alternative 5, and would be maintained at a level of 30 to 50 head under the proposed action and Alternatives 1, 2 and 3.

Ecologically Significant Areas

The construction of range improvements under the proposed action and Alternatives 3 and 4 would decrease ecologically significant values by destroying sage. grouse habitat in one site (BA-31:Unnamed).

Energy Use

Fossil fuel energy would be consumed during the construction of range improvements and maintenance of proposed and existing projects.

Socioeconomics

In the short term, 39 permittees would have losses exceeding 10 percent of their annual forage requirements under the proposed action. These permittees, 14 percent of the total, would lose an average 520 AUMs per permittee, causing an average direct personal income loss to each permittee and their employees of about $3,000.

The average reduction in return above cash cost would be 10 to 20 percent of normal depreciation.

Due to the proposed reductions in livestock grazing, local personal income would be reduced by approximately $360,000 annually. Compensating increases due to construct ion projects would result in a net reduction in local personal income of $90,000 annually. Short-term adverse impacts to local personal income for Alternative 2 would be about four times the magnitude of the proposed action, Alternative 5, two times, and Alternatives 1, 3 and 4 would be about half.

Long-term impacts on personal income for the proposed action would be positive after the expected improvement of range conditions. The increase over existing conditions would amount to $32,000 ($17,000 due to improved grazing and $15,000 due to potential increases in hunting and fishing opportunities) , Alternative 4 would result in approximately $286,000 increase in local personal income and Alternative 5 a $655,000 decrease, as compared to existing conditions.

PURPOSE AND NEED

PURPOSE AND NEED

This environmental impact statement (EIS) analyzes the impacts of implementing a livestock grazing management program in a portion of the Baker and Vale Districts (in eastern Oregon) referred to as the Ironside EIS area (see Figures l-la & b).

The Bureau of Land Management (BLM) is responsible for management of livestock grazing use on public lands in a manner that would maintain or improve the public land resources including soil, water, vegetation and wildlife habitat. The Bureau's principal authority and direction to manage lands are found in the Taylor Grazing Act of 1934, Federal Land Policy and Management Act of 1976 (FLPMA) and Public Rangelands Improvement Act of 1978.

The proposed action is a livestock grazing program consisting of vegetation allocation and implementat ion of grazing systems and range improvement projects. This action is needed to equitably allocate the vegetation to the competing user and maintain and or improve ecosite conditions. The purpose of the proposed action is to implement planning decisions needed for management, protection and enhancement of the rangeland resources. The proposal would cover a 15-year period from the time actions are initiated.

The proposed Management Framework Plans (MFP) have established guidelines which would benefit livestock grazing and protect resource and social values. Land and resource use alternatives were considered during the MFP process.

Appendix A contains a summary of significant MFP recommendations, conflicts and decisions affecting the livestock grazing program.

The proposed action was developed through the Bureau planning system including pub lic input, and is the preferred alternative. Five other alternatives are also described and analyzed for environmental impacts.

CHAPTER I

PROPOSED ACTION AND ALTERNATIVES

CHAPTER 1 PROPOSED ACTION AND ALTERNATIVES

The proposed action would modify the existing management and amount of livestock grazing. It consists of vegetation allocation based on the forage production available as a result of the level of proposed management, The levels of proposed management include intensive management, nonintens ive management and no authorized grazing (unal lotted). See Table l-l for a summary by type of proposed management.

Table l-l Summary by Proposed Management Type

Management Type	Number Allotments	Acres Public Lands	1978 Act ive Use (AUMs)	Proposed Initial Livestock Use (AUMs)	Projected Livestock Use (AUMs)
Intensive	172	914,005	132,122	100,583	136,769
Nonintens ive	167	71,131	9,811	6,437	6,437
Unallotted	0	14,219	0	0	0
Elimination of Livestock Grazing	1	2,609	185	0	0
Total	340	1,001,964	142,118	107,020	143,301

The proposal would directly involve 1,001,964 acres of public land. There are an additional 9,925 acres of other Federal land, 14,012 acres of State land, and 613,407 acres of private land within the allotments (as shown in Figure 1-1).

The general objectives are to:

- Improve and/or maintain. riparian vegetation on 1,196 acres by use of grazing systems and on 301 acres by exclusion of livestock grazing.
- Improve water quality in 297 stream miles by implementation of intensive livestock management.
- Provide forage for wildlife by allocating 7,619 AUMs of livestock forage.
- Maintain a herd of 30 to 50 wild horses in the Hog Creek Herd Management Area by al locating 600 AUMs of livestock forage.
- Reduce erosion by improving plant ecosite condition (see Glossary).
- Increase long-term vegetation al location . to livestock from 107,020 to 143,301 AUMs by increasing forage production.

Vegetation Allocation

Initially, the proposal would allocate the present livestock forage production of 127,216 AUMs to: livestock (107,020), wild horses (600), wildlife (7,619), and nonconsumptive uses (11,977). This is a reduction of 35,098 AUMs in livestock use from the 1978 authorized use of 142,118 AUMs or 25 percent. The existing livestock grazing (1978 active use) and proposed vegetation allocation by allotment are shown in Table l-2. Presently there is no allocation of livestock forage to wild horses and only limited amounts to wildlife. In most areas of the Baker District, forage needed to support big game is found on areas which have been determined unsuitable for livestock grazing. Where forage from unsuitable areas would not be sufficient, additional allocations are proposed for big game.

Grazing in 51 allotments would be increased by a total of 3,339 AUMs. Grazing in 151 allotments would be reduced by a total of 38,437 AUMs. The proposed increases are the result of successful establishment of seedings and/or past management. The downward adjustments in livestock use are proposed to balance livestock grazing and other resource needs with the present useable forage production as shown in Table l-2.

Present forage production was determined using the inventory procedures described in Appendix B, Methodologies. Reductions in livestock use (13,903 AUMs) were made in 1978 in 20 allotments to reduce overgrazing (see Table l-3). These reductions were made by BLM range permittee agreement and will remain in effect until issuance of the decision document which follows this EIS. Present livestock active use (1978), shown in Table l-2, reflect these reductions.

Over the lo-year period following full implementation, the proposed action is expected to increase annual forage production by 36,281 AUMs. For the purposes of impact analysis, all increased forage production will be allocated to livestock. Allocation of competitive forage for wildlife, wild horses and nonconsumptive uses would remain at the same level as shown in Table l-2. In general, mule deer populations are at Oregon Department of Fish and Wildlife (ODFW) goal levels for most of the EIS area.

Table 1-2 Management, Period of Use and Vegetation Allocation

Allotment Number and Name	Public Lands (acres)	Other Lands (acres)	Proposed Management 1/	Existing Period of Use 3/	Proposed Period of Use	Present Forage Production (AUMs)	Proposed Allocation Wild-life (AUMs)	Proposed Allocation Noncon-sumptive (AUMs)	Live-stock (AUMs)	Present 4/ Livestock Active Use (AUMs)	Proposed Livestock Adjustmen (AUMs)	Pro- 5/ jected Forage Increase
101 Alkali Spring	56,677	8,320	I	04/01-10/31	04/01-10/03	7,763	192	90	7,481	10,492	-3,011	4,046
102 Cottonwood	33,459	1,989	I	04/01-09/30	04/01-10/31	2,737	422	89	2,226	5,274'	-3,048	981
103 Poall Creek	2,967	1,553	I	04/16-08/31	04/01-10/31	291	27	1	263	556	-293	175
104 West Bench	1,111	135	I	04/16-06/30	04/01-10/31	46	2	0	44	113	-69	0
105 Willow Creek (Lvstk)	3,837	1,111	I	04/01-06/30	04/01-10/31	226	3	0	223	486	-263	790
106 Jamieson	80	352	N			6	1	0	5	24	-19	0
107 Grove Road	360	4,233	N			26	4	0	22	64	-42	0
108 Golden Eagle Mine	400	1,801	N			53	7	0	46	34	12	0
109 Bridge Creek	40	440	N		–	7	1	0	6	4	2	0
110 Reservoir Butte	1,000	1,110	N			71	10	0	61	182	-121	0
111 Lyman Creek	80	2,580	N			13	2	0	11	7	4	0
112 Ironside Mountain (W)	1,003	3,880	N			144	20	0	124	'124	0	0
113 Boston Horse Camp	764	1,543	N			96	13	0	83	245	-162	0
114 Ironside Mountain (E)	2,197	13,750	N		-	264	36	88	140	140	0	0
115 Cow Valley	594	29,927	N			50	7	0	43	80	-37	0
116 East Moores Hollow	872	4,130	N			62	8	0	54	110	-56	0
117 Becker Creek	1,272	7,626	N			106	14	0	92	567	-475	0
118 Malheur Reservoir	775	3,327	N		–	65	9	0	56	80	-24	0
119 Lost Valley	800	4,730	N			67	9	0	58	210	-152	0
120 Boswell Spring	1,502	4,582	N		–	125	20	75	30	120	-90	0
121 Middle Willow Creek	480	2,743	N		–	48	7	0	41	43	-2	0
122 Sheep Corral Creek	1,318	6,851	I		–	352	8	7	337	212	125	0
123 Wickiup Gulch	1,905	3,708	N		–	136	18	0	118	140	-22	0
124 Bridge Gulch	2,730	1,340	N		–	195	26	0	169	488	-319	0
125 Phipps Creek	1,751	1,465	I		04/01-10/31	245	62	20	163	155	a	147
127 Thorn Flat	3,412	615	I		04/01-10/31	446	26	10	410	802	-392	129
129 Dry Gulch	863	1,242	N		–	72	10	0	62	140	-78	0
130 Malheur City	1,351	3,603	I	04/01-10/31	04/01-10/31	136	7	0	129	273	-144	68
131 Baldy Mountain	3,292	1,599	I	05/01-10/15	04/01-10/31	369	22	1	346	444	-98	221
132 Bully Creek	5,151	3,580	I	03/01-12/14	04/01-10/31	323	16	0	307	707	-400	0
133 Kivett	240	2,417	N		–	30	4	0	26	46	-20	0
134 Juniper Mtn.	874	1,925	N	–		146	20	0	126	126	0	0
135 Dry Creek Indiv.	1,601	2,357	N		–	114	15	0	99	280	-181	0
136 King Field Indiv.	850	2,562	N			71	10	0	61	76	-15	0
137 Phipps Creek (E)	580	2,790	N	–		41	6	0	35	84	-49	0
138 Boulder Creek	358	4,913	N			36	5	0	31	84	-53	0
139 Phipps Creek (N)	3,767	2,350	I	04/16-01/15	04/01-10/31	509	39	9	461	784	-323	305
140 Cottonwood Creek	701	740	I		03/01-06/30	46	8	0	38	87	-49	28
141 Ferriers Gulch	320	4,240	N			32	4	0	28	54	-26	0
142 Ironside School	40	1,213	N			4	1	0	3	4	-1	0
143 Alder Creek	1,212	2,179	I	04/16-10/31	04/01-10/31	197	8	0	189	198	-9	118
144 Cow Creek	1,299	2,301	N			130	18	0	112	330	-218	0
145 Bridge Creek (E)	900	4,650	N			90	12	0	78	165	-87	0
146 Eldorado Creek	360	1,240	N	–		36	5	0	31	60	-29	0
147 Quarry	80	76	N			6	1	3	2	15	-13	0
148 Brogan Canyon	1,666	810	I	04/16-09/15	03/01-06/30	224	55	38	131	300	-169	135
149 Wheel Gulch	817	1,207	N			58	8	0	50	a2	-32	0
150 Butterfield Spring	628	4,590	N			45	6	0	39	74	-35	0
151 Canyon Creek	480	1,514	N			40	5	0	35	60	-25	0
152 Canal	272	1,253	N			19	3	0	16	57	-41	0
153 South Willow Creek	1,632	5,127	N			234	32	117	85	85	0	0

Table 1-2 Continued

Allotment Number and Name	Public Lands (acres)	Other Lands (acres)	Proposed Management 1/	Existing Period of Use 3/	Proposed Period of Use	Present Forage Production (AUMs)	Proposed Allocation Wildlife (AUMs)	Proposed Allocation Nonconsumptive (AUMs)	Proposed Allocation Livestock (AUMs)	Present 4/ Livestock Active Use (AUMs)	Proposed Livestock Adjustmen (AUMs)	Projected 5/ Forage Increase
154 Shasta Butte	510	3,437	N			24	3	0	21	61	-40	0
155 Amelia Butte	240	4,387	N			20	3	0	17	13	4	0
157 Stripe Mountain	4,328	1,623	I	04/01-10/31	04/01-10/31	1,000	86	80	834	863	-29	157
201 Allotment #2	46,352	4,423	I	04/01-10/31	03/01-10/31	4,756	196	346	4,214	7,431	-3,217	2,054
202 Allotment #3	76,866	15,564	I	04/01-10/31	03/01-10/31	10,900	586	893	9,421	11,141	-1,720	4,275
203 Allotment #4 2/	57,548	1,903	I	04/01-10/31	03/01-10/31	7,167	164	807	5,596	5,502	94	1,286
204 Allotment #6	6,938	501	I	03/25-05/09	03/01-06/30	854	71	203	580	1,210	-630	512
205 Rail Canyon	22,884	2,970	I	04/01-10/31	03/01-10/31	3,100	203	132	2,765	3,023	-258	1,381
206 Dearmand/Murphy	35,096	12,333	I	04/01-11/30	03/01-10/31	3,812	324	384	3,104	4,293	-1,189	1,246
208 Ringe Butte	440	3,240	N			37	5	0	32	105	-73	0
209 Oregon Canal	1,280	3,770	N			109	15	0	94	21	73	0
210 Clover Creek Indiv.	5,600	20,500	N			560	77	0	483	888	-405	0
211 Castle Rock	23,212	20,437	I	04/01-11/15	04/01-10/31	4,698	245	169	4,284	4,188	96	1,150
212 Butte Tree	640	2,240	N			80	11	0	69	123	-54	0
214 Richie Flat	17,599	607	I	04/08-10/31	04/01-10/31	2,509	225	147	2,137	3,022	-885	1,287
216 Whitley Canyon	14,201	4,757	I	04/01-10/31	04/01-10/31	1,325	261	215	849	1,979	-1,130	357
217 Beulah Reservoir	35,997	13,574	I	03/01-11/15	03/01-10/31	4,039	463	885	2,691	5,460	-2,769	1,585
218 Buck Brush	22,637	3,495	I	04/16-10/31	04/01-10/31	3,312	102	56	3,154	3,704	-550	871
219 Malheur River	640	1,080	I		03/01-06/30	64	11	0	53	170	-117	38
222 Willow Basin	41,639	9,189	I	04/01-10/31	03/01-10/31	4,791	341	62	4,388	6,385	-1,997	3,464
223 Lava Ridge	11,168	1,344	I	04/01-11/15	04/01-10/31	2,099	183	102	1,814	1,722	92	242
224 Lockhart Mountain	1,600	2,560	I	04/01-10/31	04/01-10/31	241	27	0	214	159	55	0
225 Chukar Park	540	540	N			40	5	0	35	105	-70	0
226 Cottonwood Creek	950	920	N			79	11	0	68	192	-124	0
227 Westfall	1,442	280	I	04/16-10/31	04/01-10/31	149	25	17	107	126	-19	89
228 Scratch Post Butte	920	6,560	N			153	21	0	132	84	48	0
233 Squaw Butte	320	2,000	N			40	5	0	35	64	-29	0
244 Post Creek	1,140	3,280	N			114	16	0	98	320	-222	0
*402 North Harper	29,030	2,991	I	04/01-09/15	04/01-10/31	5,184	207	228	4,749	3,750	999	1,848
409 Vale Butte (N)	80	28	I		04/01-10/31	7	2	0	5	10	-5	0
413 Vale Butte (S)	445	28	I		04/01-10/31	38	2	0	36	72	-36	0
1001 Snake Rvr-Sisley Ck	23,477	2,790	I	05/01-09/30	05/01-10/31	2,615	229	887	1,499	4,763	-3,264	0
1002 Iron Mountain	4,809	157	I	04/16-10/31	04/16-10/31	967	12	19	936	767	169	1,010
1003 Cave Creek	4,873	1,258	I	04/16-10/31	05/01-10/31	981	79	364	538	795	-257	170
1004 Durkee	9,154	1,392	I	04/16-10/31	05/01-10/31	1,114	75	202	837	1,027	-190	65
1005 Woods Gulch	268	325	N	04/01-11/30		28	0	0	28	28	0	136
1006 Huntington	9,790	3,660	I	04/01-10/31	04/16-10/31	1,976	170	498	1,308	1,980	-672	0
1007 School Section	606	0	I	04/16-06/15	04/16-11/30	63	0	0	63	63	0	170
1008 Lime Plant	364	1,888	N			48	0	0	48	48	0	10
1009 Slaughterhouse Mtn.	797	190	I	04/16-06/15	04/16-10/31	112	11	44	57	112	-55	0
1010 West Highway	253	1,580	N			30	0	0	30	30	0	20
1011 South Durbin Ck	775	40	I	06/16-11/16	04/16-10/31	168	0	0	168	168	0	0
1012 Cavanaugh Ck	118	4,235	N			16	0	0	16	16	0	20
1013 Benson Ck	3,359	186	I	05/01-11/30	04/16-10/31	858	0	0	858	858	0	225
1014 Freeway	533	302	I	04/01-11/30	04/01-11/30	122	0	0	122	122	0	30
1015 East Table Mtn.	1,240	661	I	04/01-10/31	04/16-11/30	279	8	48	223	279	-56	60
1016 Table Mtn.	7,678	1,255	I	04/16-10/31	05/01-10/31	1,033	0	8	1,025	2,212	-1,187	195
1017 Burned	1,254	53	I	04/16-10/31	04/16-10/31	343	0	0	343	343	0	25
1018 Upper Durbin Ck	1,004	346	I	04/01-10/31	04/16-10/31	197	0	0	197	197	0	50
1019 Marshall Ck	194	1,757	N			23	0	0	23	23	0	0
1020 Dixie Creek	2,933	1,243	I	04/16-11/30	05/01-11/30	404	69	0	335	404	-69	24

Table 1-2 Continued

Allotment Number and Name	Public Lands (acres)	Other Lands (acres)	Proposed Management 1/	Existing Period of Use 3/	Proposed Period of Use	Present Forage Production (AUMs)	Proposed Allocation Wildlife (AUMs)	Proposed Allocation Nonconsumptive (AUMs)	Proposed Allocation Livestock (AUMs)	Present 4/ Livestock Active Use (AUMs)	Proposed Livestock Adjustmen (AUMs)	Pro- 5/ jected Forage Increase
1021 Pedro Mtn.	2,700	8,789	I	06/01-11/30	06/01-10/31	552	69	0	483	552	-69	30
1022 Bowman Flat	245	122	I	04/01-07/31	05/01-11/30	65	0	0	65	65	0	5
1023 Rattlesnake Gulch	402	309	I	04/16-10/31	05/01-11/30	92	0	46	46	92	-46	10
1024 Upper Shirttail Ck	501	243	I	04/16-09/30	04/01-11/30	98	0	8	90	98	-8	4
1025 Baldy Mountain	80	472	I		05/01-11/30	10	0	0	10	10	0	0
1026 No. Dixie Ck	980	2,150	I	04/16-11/30	05/01-11/30	195	0	33	162	195	-33	20
1027 Lost Basin	1,337	6,730	N			283	0	0	283	283	0	0
1028 Upper Cave Ck	105	720	N		-	27	0	0	27	27	0	0
1029 True Blue Gulch	62	2,211	N			14	0	0	14	14	0	0
1030 Hollow Field Canyon	301	385	N	06/16-08/31		42	0	6	36	42	-6	0
1031 Shirttail Ck	806	901	N	04/16-07/15		1 5 2	0	8	144	152	-8	0
1032 French Ck	954	1,135	I	04/01-11/30	04/16-11/30	143	0	14	129	143	-14	15
1.033 Fur Mountain	399	1,661	N	04/01-10/31		48	0	0	48	48	0	0
1034 Clough Gulch	18	259	N			2	0	0	2	2	0	0
1035 Upper Clough Gulch	95	535	N		-	35	0	0	35	35	0	0
1036 Weatherby Mtn.	210	1,799	N			28	0	0	28	28	0	0
1037 Rye Valley	2,740	120	I	04/01-11/30	04/16-11/30	668	0	38	630	668	-38	55
1038 Beaver Creek	341	694	N	04/01-05/31		47	0	0	47	47	0	0
1039 Turner Gulch	3,746	444	I	04/16-11/30	04/16-11/30	484	19	128	337	484	-147	15
1040 Little Valley	3,199	1,595	I	04/16-11/30	04/16-11/30	695	0	26	669	695	-26	132
1041 Cinder Butte	1,540	1,617	I	04/16-11/30	04/16-11/30	246	0	0	246	245	1	20
1043 Whiskey Gulch	80	479	N			27	0	0	27	27	0	0
1044 Juniper Mtn.	2,072	260	I	04/16-11/30	04/16-11/30	318	8	205	105	318	-213	20
1045 Jordan Creek	607	60	N			91	0	0	91	91	0	0
1046 Durkee Timber	859	1,513	I	06/16-09/15	06/01-10/31	122	0	0	122	122	0	57
1048 Nodine Creek	3,054	8,035	I	06/01-11/30	06/01-11/30	684	10	111	563	684	121	35
1049 Lower Manning Ck	479	3,219	N			40	0	0	40	40	0	0
1050 No. Swayze Ck	320	40	N	04/01-05/31		24	0	0	24	24	0	0
1051 Alder Creek	141	371	N			13	0	0	13	13	0	0
1052 Trail Creek	885	3,308	N	-	-	107	0	0	107	107	0	0
1053 Spring Gulch	38	145	N			7	0	0	7	7	0	0
1054 Pipeline	110	153	N			12	0	0	12	12	0	0
1055 No. Manning Ck	509	505	I	04/16-05/15	04/16-10/31	50	0	5	45	50	-5	5
1056 Horseshoe	204	81	N	05/16-08/31		8	0	0	8	8	0	0
1057 Hibbard Ck	160	240	N			24	0	0	24	24	0	0
1058 Plano School	40	250	N	-	-	6	0	0	6	6	0	0
1062 Powell Ck	630	3,240	N			39	0	0	39	39	0	0
1063 Bayhorse	242	1,330	N	-		36	0	0	36	36	0	0
1064 Gold Creek	370	4,051	I		04/16-10/31	41	0	0	41	41	0	4
1065 Pearce Gulch	63	568	I		04/16-10/31	6	0	0	6	6	0	1
1066 Farewell Bend	738	300	I	04/01-07/15	04/16-10/31	162	0	0	162	162	0	70
1067 Tunnel	21	1,268	N		-	4	0	0	4	4	0	0
1301 South Bridgeport	18,705	2,150	I	05/01-09/30	05/01-09/30	3,242	226	156	2,860	2,726	134	0
1302 North Bridgeport	11,114	7,404	I	05/16-10/15	05/16-10/15	1,268	0	577	691	944	-253	50
1318 Mormon Basin	9,734	2,825	I	05/01-09/16	05/01-09/15	1,445	0	147	1,298	1,298	0	187
1320 Mill Gulch	1,243	536	I	04/16-05/15	05/01-10/31	114	0	23	91	98	-7	15
1326 Brinker Creek	20	507	I		05/01-09/30	2	0	0	2	2	0	1
1327 Meyer Gulch	167	2,351	I		05/01-09/30	18	0	0	18	15	3	3
1329 Pine Creek	520	0	I		05/01-09/30	72	0	0	72	60	12	8
1330 Juniper Hill	217	2,024	N			16	0	0	16	17	-1	0
1333 Marble Creek	84	1,118	I		05/01-09/30	14	0	0	14	14	0	0

Table 1-2 Continued

Allotment Number and Name	Public Lands (acres)	Other Lands (acres)	Proposed Management 1/	Existing Period of use 3/	Proposed Period of Use	Present Forage Production (AUMs)	Proposed Allocation Wildlife (AUMs)	Proposed Allocation Nonconsumptive (AUMs)	Proposed Allocation Livestock (AUMs)	Present 4/ Livestock Active Use (AUMs)	Proposed Livestock Adjustmen (AUMs)	Projected 5/ Forage Increase
2002 Sunnyslope	160	2,092	N			21	0	0	21	21	0	0
2003 Powder River	210	0	I	04/16-05/15	04/16-12/15	18	0	0	18	35	-17	15
*2004 Five Mile	1,423	49	I	04/16-05/15	04/16-11/30	158	5	0	153	158	-5	35
2005 Second Creek	3,132	46	I	04/15-11/30	04/16-12/15	450	0	0	450	408	42	100
2006 Crystal Palace	103	0	N			6	0	0	6	6	0	0
*2007 Sardine Creek	613	2,326	N			105	0	1	104	104	0	0
*2008 River Indiv.	252	1,334	N	-		42	10	0	32	58	-26	0
2010 Bone Gulch	201	914	N			7	0	0	7	7	0	0
2011 Beagle Creek	110	745	N			7	0	0	7	7	0	0
2012 Big Creek	2,868	230	I	04/15-11/30	04/16-12/15	310	25	5	280	267	13	50
2013 Highway #203	120	810	N			4	0	0	4	4	0	0
2015 Magpie Peak	2,120	520	I	04/16-05/15	04/16-11/30	428	0	0	428	357	71	20
2017 West Magpie Peak	760	1,192	I	04/16-05/31	04/16-07/15	123	0	25	98	123	-25	10
2019 Salt Creek	2,076	2,446	I	04/16-05/15	04/16-12/15	343	0	3	340	265	75	55
2020 Crews Creek	2,996	960	I	04/16-07/15	04/16-07/15	420	0	0	420	573	-153	180
2021 Seeding Indiv.	400	0	I	04/16-06/15	04/16-07/15	125	5	0	120	79	41	8
2022 Ridley Creek	78	16	I	04/16-05/15	04/16-07/15	10	0	0	10	10	0	4
2023 Pittsburg Gulch	350	7	I	06/16-07/15	06/01-08/31	35	13	0	22	35	-13	10
2024 Table Rock	2,117	40	I	04/16-12/15	04/16-12/31	336	73	0	263	336	-73	80
2025 Upper Spring Creek	555	330	I	04/16-11/30	05/01-12/15	60	0	0	60	135	-75	20
2026 Lower Spring Creek	206	240	N			15	0	0	15	30	-15	0
2027 West Balm Creek	175	10	I	05/16-05/31	05/01-06/30	25	0	5	20	25	-5	10
2028 Sawmill Creek	180	20	I	05/01-05/31	05/01-07/31	27	0	5	22	27	-5	4
2030 Lower Powder	556	40	I	11/01-12/31	04/16-06/30	78	7	0	71	78	-7	15
2031 Bulldozer	4,006	367	I	04/16-07/15	04/16-06/31	1,116	0	0	1,116	1,001	115	100
2032 Goose Creek	3,876	540	I	04/16-12/15	04/16-12/31	477	0	0	477	477	0	55
2033 Lower Salt Creek	262	392	N			26	0	0	26	26	0	0
2034 Love Creek	2,019	88	I	04/16-05/31	04/16-12/31	193	0	0	193	193	0	60
2035 Waterspout	1,896	63	I	04/16-12/15	04/16-12/31	605	0	0	605	605	0	10
2036 Table Mountain	720	0	I	04/16-05/15	05/16-06/30	58	0	10	48	58	-10	10
2037 Balm Creek	4,059	40	I	0 5/1-07/15	05/01-11/15	250	76	0	174	250	-76	70
2038 West Goose Creek	155	10	N	04/16-05/15		4	0	0	4	4	0	0
2039 Lower Big Creek	221	1,803	N			6	0	0	6	4	2	0
2040 Spring Creek	1,432	0	I	04/16-08/31	04/16-12/15	70	29	0	41	17	24	25
2041 Cottonwood Creek	250	1,235	I	04/16-08/31	05/01-11/30	30	0	0	30	14	16	5
2042 Lower Houghton Creek	319	0	I	04/16-07/15	04/16-12/15	110	0	0	110	60	50	5
2043 Langrell Gulch	119	1,638	N			3	0	0	3	3	0	0
2048 Upper Clover Creek	839	394	I	04/16-05/15	04/16-12/15	119	46	0	73	107	-34	15
2050 Upper Ritter Creek	2,688	3,484	I	04/16-12/15	04/16-12/15	499	0	0	499	499	0	30
2051 Gale Place	62	727	N			11	0	0	11	11	0	0
2055 Clover Creek	1,070	1,940	I		04/16-12/15	70	6	0	64	84	-20	70
2060 Farley Hills	432	2,921	N			42	0	0	42	40	2	0
2062 Magpie Creek	86	3,216	N			9	0	0	9	17	-8	0
2063 Upper Crews Creek	200	2 597	N		-	16	0	0	16	16	0	0
2066 Baldock	39	786	N			5	0	0	5	8	-3	0
2067 Ranch Creek	262	820	N			36	0	0	36	36	0	0
2068 Rosebud Mine	180	1,624	N			10	0	0	10	8	2	0
2069 Lone Pine Mountain	296	3,027	N			30	0	0	30	30	0	0
2070 Summit Pasture	1,569	427	I	04/16-04/30	04/16-04/30	140	0	0	140	122	18	30
2071 McCann Springs	1,787	0	I	04/16-04/30	04/16-12/31	385	0	0	385	361	24	150
2073 Oregon Trail	380	1,644	N			25	0	0	25	25	0	0

Table l-2 Continued

Allotment Number and Name	Public Lands (acres)	Other Lands (acres)	Proposed Management 1/	Existing Period of use 3/	Proposed Period of Use	Present Forage Production (AUMs)	Proposed Allocation Wildlife (AUMs)	Proposed Allocation Nonconsumptive (AUMs)	Proposed Allocation Livestock (AUMs)	Present 4/ Livestock Active Use (AUMs)	Proposed Livestock Adjustmen (AUMs)	Pro- 5/ jected Forage Increase
2074 Pritchard Creek	13,562	1,351	I	04/16-08/31	04/16-10/31	2,000	35	91	1,874	2,383	-509	290
2075 Unity Creek	570	1,415	N			87	0	0	87	87	0	0
2076 Pritchard Flat	446	6,464	N			47	0	0	47	40	7	0
2077 South Ritter Creek	770	392	I	04/16-12/15	04/16-06/30	154	0	0	154	133	21	22
2078 North Flagstaff	1,802	62	I	06/16-12/15	04/16-12/15	232	0	0	232	142	90	45
2079 South Flagstaff	170	640	N			8	0	0	8	8	0	0
2081 Upper Houghton Creek	330	35	I	04/16-11/30	04/16-12/15	45	0	0	45	36	9	48
2083 Big Rattlesnake	104	1,009	N			13	1	0	12	18	-6	0
2084 Powder River Canyon	1,314	178	I	05/01-06/30	04/16-06/30	131	0	64	67	100	-33	10
2085 West Clover Creek	545	140	I	04/16-05/15	04/16-12/31	156	0	0	156	95	61	25
2086 White Swan Mine	475	180	I	04/16-05/15	04/16-05/31	65	0	13	52	65	-13	5
2087 First Creek	596	4,077	N			66	0	0	66	51	15	0
2092 Canyon Creek	200	2,500	N			8	0	0	8	8	0	0
2094 North Bacher Creek	135	0	I	04/16-10/15	04/16-12/31	33	0	0	33	33	0	5
2095 Homesite	80	309	N			11	0	0	11	11	0	0
2096 Virtue Mine	4,252	6,604	I	04/16-08/31	04/16-11/30	540	0	8	532	500	32	70
2097 Dry Gulch	40	850	N			6	0	0	6	6	0	0
2099 Virtue Hills	240	0	I	04/01-08/31	05/01-08/31	24	0	0	24	24	0	4
2100 Encina	40	550	N			2	0	0	2	2	0	0
2101 Quartz Creek	40	1,013	N			4	0	0	4	4	0	0
2102 North Sardine Creek	185	316	N			19	0	0	19	19	0	0
2103 Lawrence Creek	50	796	N			9	0	0	9	9	0	0
2104 Interchange	250	691	N			16	0	0	16	16	0	0
2105 Love Pasture	1,278	23	I	04/16-06/30	04/16-12/31	317	0	0	317	252	65	85
2106 Christy Springs	200	525	N			31	0	0	31	31	0	0
2108 Keating Highway	4,386	55	I	04/16-06/30	04/16-12/15	500	0	0	500	396	104	280
2109 Ruckles Creek	5,903	649	I	04/16-12/31	04/16-12/31	700	0	0	700	410	290	430
2111 Bacher Creek	782	1,238	I	04/16-05/15	04/16-07/31	110	0	23	87	87	0	12
2112 Maiden Gulch	1,043	2,196	N	05/16-06/30		99	21	0	78	99	-21	0
2114 Little Lookout Mtn.	665	10,370	N			68	0	0	68	68	0	0
2115 Tucker Creek	1,475	728	I	04/16-06/30	04/16-07/15	293	33	0	260	293	-33	40
*2116 East Balm Creek	1,103	6	I	04/01-05/15	04/01-12/31	140	0	0	140	120	20	130
2118 Fruit Springs	456	1,260	N			30	0	0	30	30	0	0
2120 Pleasant Valley	188	1,282	N			28	0	0	28	18	10	0
2121 East Pleasant Valley	376	0	N	04/16-04/30		88	0	0	88	88	0	0
2127 Kelly Creek	1,753	10	I	11/01-11/30	04/16-12/31	220	0	0	220	264	-44	120
2128 Risley Butte	2,464	561	I	04/16-06/15	04/16-12/31	400	0	0	400	330	70	50
2129 Chalk Bluff	645	22	I	05/01-05/31	04/16-12/31	80	0	0	80	63	17	40
2130 Lyle Creek	267	6,120	N			29	0	0	29	21	8	0
2132 Kuykendahl Creek	40	1,000	N			4	0	0	4	4	0	0
2139 West Crews Creek	80	594	N	-		6	0	0	6	6	0	0
2142 North Ridley Creek	40	302	N			4	0	0	4	4	0	0
3001 Pine Valley	25,485	10,192	I	04/16-08/31	04/16-06/30	2,701	259	1,292	1,150	2,555	-1,405	396
3002 Immigrant Gulch	7,079	0	I	05/01-07/31	05/1 -07/31	598	68	0	530	598	-68	99
3003 Ruth Gulch	8,447	990	I	04/16-12/15	04/16-12/15	1,200	156	277	767	1,266	-499	43
3004 Doyle Gulch	1,817	312	I	04/16-06/15	04/1 -06/31	182	14	79	89	183	-94	0
3005 Hunsaker Creek	6,495	646	I	04/16-06/15	04/16-06/15	340	112	211	17	343	-326	0
3006 Homestead	5,122	1,715	I	04/16-06/15	04/16-06/15	567	134	60	373	505	-132	19
3007 Copperfield	2,875	955	I	04/16-07/31	04/16-06/15	106	16	47	43	106	-63	0
3008 Bear Wallow	720	128	I	04/16-06/30	04/16-06/30	68	0	13	55	68	-13	0
3009 Hooker Flat	533	15	I	04/16-06/15	04/16-06/15	44	0	9	35	46	-11	0

Table 1-2 Continued

Allotment Number and Name	Public Lands (acres)	Other Lands (acres)	Proposed Management 1/	Existing Period of use 3/	Proposed Period of Use	Present Forage Production (AUMs)	Proposed Allocation Wildlife (AUMs)	Proposed Allocation Nonconsumptive (AUMs)	Proposed Allocation Livestock (AUMs)	Present 4/ Livestock Active Use (AUMs)	Proposed Livestock Adjustmen (AUMs)	Pro- 5/ jected Forage Increase
3010 Dry Creek	40	212	N	04/16-06/15		6	0	0	6	6	0	0
3011 Park	330	650	I	04/16-05/15	05/01-07/31	21	0	0	21	21	0	5
3012 Squaw Creek	4,809	742	I	04/16-11/30	04/16-11/30	528	0	0	528	528	0	113
3014 Timber Canyon	5,303	256	I	04/16-05/31	04/16-05/31	528	0	0	528	528	0	80
3015 Daly Creek	1,610	1,871	I	04/16-01/31	04/16-12/15	174	28	23	123	340	-217	10
3016 Burnside	419	4,655	N			42	0	0	42	42	0	0
3017 Sheep Mountain	131	7,581	I		04/16-05/31	28	0	0	28	28	0	6
3018 Road Gulch	1,959	7	I	04/16-06/15	04/16-06/15	181	19	0	162	181	-19	17
3019 Deer Gulch	30	0	N			2	0	0	2	2	0	0
3021 Crow Reservoir	1,128	4,170	N			82	0	0	82	82	0	0
3022 Foster Gulch	1,679	2,724	I	04/01-05/31	05/01-07/31	194	22	0	172	194	-22	32
3024 Horseshoe	118	252	N			10	0	0	10	10	0	0
3025 Maiden Gulch	328	996	N			22	1	0	21	22	-1	0
3026 Soda Creek	8,839	8,737	I	04/01-11/15	04/16-11/15	975	132	500	343	1,208	-865	55
3027 Canyon Creek	40	687	N			3	0	0	3	3	0	0
3028 Keystone Mine	291	0	N	04/16-06/15		24	0	0	24	24	0	0
3029 Dry Gulch	2,516	3,389	I	04/01-06/30	04/01-05/31	218	15	41	162	218	-56	0
3030 Lower Timber Canyon	270	848	N			14	0	0	14	14	0	0
3032 Fourmile	40	0	N	06/16-07/15		3	0	0	3	3	0	0
3037 Daly Creek Indiv.	684	6,121	N			96	0	0	96	96	0	0
3041 West Fork	40	50	N	04/01-08/31	-	5	0	0	5	5	0	0
3043 Longbranch	45	693	N			5	0	0	5	5	0	0
3045 McLain Gulch	146	1,707	N	-		14	0	0	14	14	0	0
3047 New Bridge	136	0	I		05/01-06/30	7	1	0	6	7	-1	0
3048 Sag Creek	40	0	N			5	0	0	5	5	0	0
3049 Barnard Creek	1,998	1,007	I	04/16-05/31	04/16-05/31	99	11	18	70	99	-29	0
5001 Coyote Point	400	2,210	N			16	0	0	16	16	0	0
5014 Hunt Mountain	2,609	0	E	04/16-05/15		185	0	185	0	185	-185	0
5080 Thief Valley	180	0	N		-	11	0	0	11	11	0	0
5133 Riverdale Hill	125	0	N	04/16-05/15		29	0	0	29	29	0	0
5137 Reservoir	144	1,100	N			10	0	0	10	10	0	0
5138 Bulger Flat	40	0	N			5	0	0	5	5	0	0
5201 Brannon Gulch	3,247	3,443	I	04/16-10/31	05/01-10/31	170	12	0	158	170	-12	25
5202 Brown Rocks	1,292	3,826	I	05/16-09/15	05/01-10/31	72	0	9	63	72	-9	20
5203 Big Creek	80	388	N			10	0	0	10	10	0	0
52.04 Hawry Flat	1,059	1,708	I	04/16-05/31	04/16-05/31	66	2	13	51	66	-15	0
5205 North Hereford	350	0	I	04/16-05/15	04/16-05/31	23	0	5	18	23	-5	0
5206 Whipple Gulch	1,159	0	I		05/01-10/31	116	0	2	114	116	-2	0
5207 Hereford Valley	80	810	N			3	0	0	3	3	0	0
5208 Camp Ditch	75	142	I		04/16-05/31	5	0	0	5	5	0	0
5209 Camp Creek	2,798	102	I	04/16-05/31	04/16-05/31	141	0	2	139	141	-2	59
5210 Beaverdam Creek	29	350	N			2	0	1	1	2	-1	0
5211 King Mountain	650	2,360	N	-		48	20	0	28	48	-20	0
5212 Rock Creek	128	0	I		04/01-05/31	12	0	2	10	10	0	2
5215 Denny Flat	6,620	1,160	I	04/16-06/15	04/16-06/15	376	0	0	376	376	0	351
5216 West Camp Creek	669	502	I	05/01-05/31	04/01-06/15	54	0	1	53	45	8	0
5217 Elms Reservoir	120	0	N			8	0	0	8	8	0	0
5218 Junction	160	718	N			112	0	0	112	112	0	0
5219 Dry Gulch	327	1,595	N			32	0	0	32	32	0	0
5220 Whitted Ditch	76	725	I		04/16-06/15	5	0	0	5	4	1	0
5221 China Creek	161	0	I		05/01-10/31	9	0	2	7	9	-2	0

Table 1-2 Continued

Allotment Number and Name	Public Lands (acres)	Other Lands (acres)	Proposed Management 1/	Existing Period of Use 3/	Proposed Period of Use	Present Forage Production (AUMs)	Proposed Allocation Wildlife (AUMs)	Proposed Allocation Nonconsumptive (AUMs)	Proposed Allocation Livestock (AUMs)	Present 4/ Livestock Active Use (AUMs)	Proposed Livestock Adjustmen (AUMs)	Projected 5/ Forage Increase
5222 Meadow Creek	40	0	I		05/01-10/31	4	0	0	4	4	0	0
5223 Meadow Creek	200	0	I		05/01-10/31	26	0	13	13	13	0	0
5225 Job Creek	65	0	N			3	0	0	3	3	0	0
5226 Cow Creek	118	593	I		05/01-10/31	7	0	2	5	7	-2	0
5227 Copper Creek	235	0	N			20	0	0	20	20	0	0
5228 Sunflower Flat	160	0	N			17	0	0	17	20	-3	0
5230 Middleford	200	0	I		05/01-10/31	19	0	0	19	19	0	0
5233 Bullrun	32	0	N			4	0	0	4	4	0	0
5234 Reed Creek	341	0	N			22	0	0	22	22	0	0
5235 North Fork	355	396	I		05/01-10/31	29	0	10	19	29	-10	0
5236 Cottonwood Creek	288	0	I		05/01-10/31	32	0	1	31	32	-1	0
5238 Short Creek	37	0	N			6	0	0	6	6	0	0
5303 Lindsay Mountain	936	448	I	04/16-07/31	04/16-07/31	137	3	29	105	137	-32	10
5304 Hill Creek	292	0	N			27	0	0	27	27	0	0
5305 Hooker Gulch	70	615	I		05/16-10/15	7	0	0	7	6	1	0
5306 Dry Gulch	93	477	N			4	0	0	4	4	0	0
5307 Ebell Creek	120	1,701	N		-	4	0	0	4	4	0	0
5309 Schaffner Creek	40	345	N			2	0	0	2	2	0	0
5310 South Baker	279	629	N			25	0	0	25	25	0	0
5311 Elk Creek	2,228	3,863	I	04/16-06/30	05/01-10/31	171	1	0	170	221	-51	20
5312 Juniper Gulch	355	1,630	N			13	0	0	13	13	0	0
5313 Poker Gulch	1,424	0	I		05/01-08/31	119	35	0	84	0	a4	0
5316 Salisbury	122	0	N			15	0	0	15	15	0	0
5319 Trail Creek	710	2,665	N			92	0	2	90	93	-3	0
5321 Auburn	2,631	0	I		05/01-10/31	83	18	0	65	83	-18	0
5322 Stack Creek	54	0	N			5	0	0	5	5	0	0
5323 Wendt Butte	729	228	N			66	0	0	66	66	0	0
5325 Towne Gulch	166	1,625	I		05/01-09/30	24	0	0	24	32	-8	0
5334 Old Auburn	72	406	N	05/16-10/31		6	0	0	6	6	0	0
5335 Blue Canyon	80	0	I		05/01-10/31	8	0	0	8	8	0	0
5337 Koontz Creek	31	0	N			4	0	0	4	4	0	0
5339 Sutton Creek	120	0	I		05/16-10/15	5	0	0	5	5	0	0
5340 Littlefield	40	0	N			2	0	0	2	2	0	0
5342 Log Creek	73	363	I		05/01-09/30	11	0	0	11	12	-1	0
Unallotted	14,219		U				0	0	0		0	0
EIS Total	1,001,964					127,216	7,619	11,977	107,020	142,118	-35,098	36,281

* Allotments which some have sheep use. All other allotments are used exclusively by cattle.

1/ I - Intensive Management; N - Nonintensive Management; E - Eliminate; U - Unallotted. Period of use for N. allotments is generally 4/1 to 10/31; however, this can vary each year.
2/ 600 AUMs allocated to wild horses in Allotment #203.
3/ No dates shown indicates limited management, fenced federal range, or restriction on period of use.
4/ Actual use for 1978 approximates the present active use for intensive management allotments.
5/ This increase is expected to result from the implementation of both the grazing systems and range improvements.

Table l-3 1978 Livestock Reductions

Allotment Number and Name	Reductions (AUMs)	Allotment Number and Name	Reductions (AUMs)
101 Alkali Spring	1,854	201 Allotment No. 2	1,311
102 Cottonwood	2,109	202 Allotment No. 3	1,097
103 Poall Creek	99	204 Allotment No. 6	339
104 West Bench	98	206 Dearmand/Murphy	2,192
105 Willow Creek LVST	500	214 Richie Flat	527
127 Thorn Flat	185	216 Whitley Canyon	341
130 Malheur City	55	217 Beulah Reservoir	293
131 Baldy Mtn.	60	218 Buck Brush	620
132 Bully Creek	273	222 Willow Basin	1,738
148 Brogan Canyon	60		
157 Stripe Mtn.	152	Total	13,903

Livestock Exclusion Areas

As shown in Table l-4, livestock grazing would be excluded from several areas. Allotments 5313 and 5014 are not grazed at present. Grazing would be initiated in 5313 but 5014 would remain ungrazed. Figure l-2 shows the location of the exclusion areas.

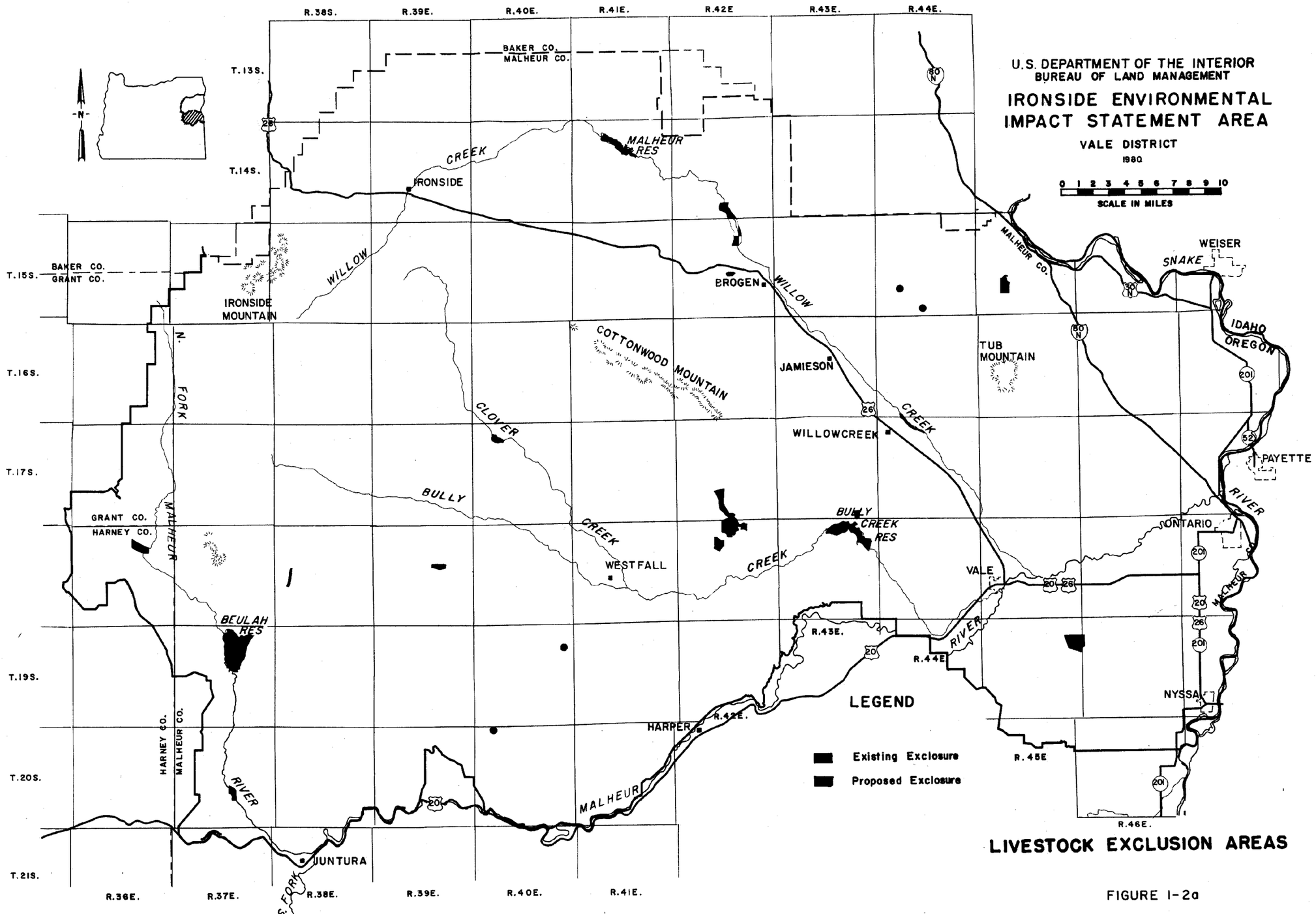
Table l-4 Livestock Exclusion Areas

	Existing		Proposed		Total	
	Number	Acres	Number	Acres	Number	Acres
Stream (miles)	11.2	1,047	23	3,281	34.2	4,328
Springs (each)	9	43	138	276	147	319
Reservoirs (each)	4	118	6	167	10	285
Other (each) 1/	23	1,104	3	51	26	1,155
Total		2,312		3,775		6,087

1/ Big game and study exclosures

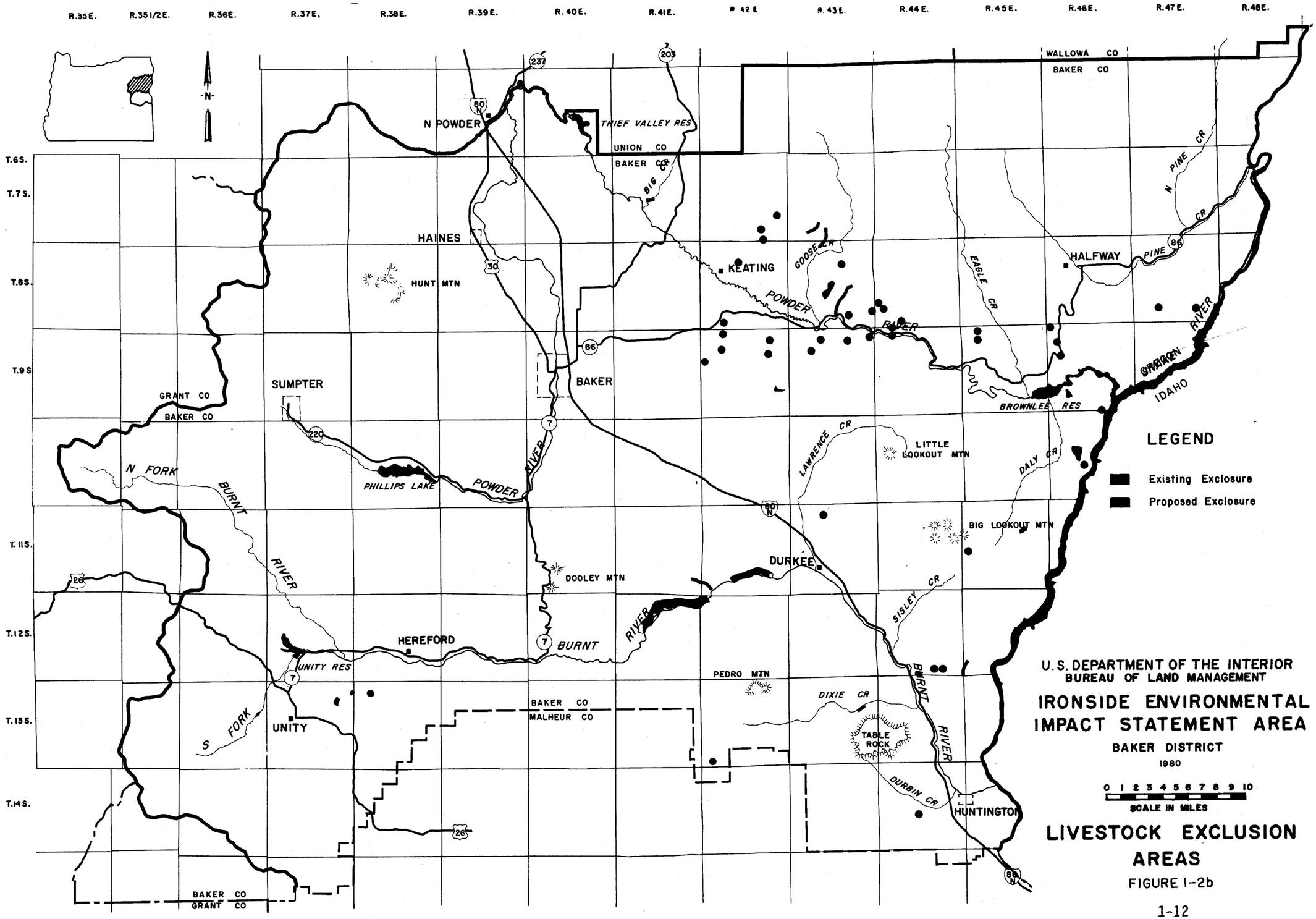
Intensive Management

Intensive management is proposed for 172 allotments (914,005 acres> and consists of implementing grazing systems and range improvement projects.



LIVESTOCK EXCLUSION AREAS

FIGURE 1-2a


R.35E.
R.35 1/2E.
R.36E.
R.37E.
R.38E.
R.39E.
R.40E.
R.41E.
R.42E.
R.43E.
R.44E.
R.45E.
R.46E.
R.47E.
R.48E.
T.6S.
T.7S.
T.8S.
T.9S.
T.11S.
T.12S.
T.13S.
T.14S.
N
WALLOWA CO
BAKER CO
N POWDER
THIEF VALLEY RES
UNION CO
BAKER CO
BIG CR
HAINES
HUNT MTN
KEATING
GOOSE CR
POWDER
RIVER
EAGLE CR
HALFWAY
PINE
N PINE CR
SNAKE RIVER
IDAHO
BROWNLEE RES
BAKER
SUMPTER
GRANT CO
BAKER CO
N FORK
BURNT
RIVER
PHILLIPS LAKE
POWDER
RIVER
LAWRENCE CR
LITTLE LOOKOUT MTN
DALY CR
BIG LOOKOUT MTN
DOOLEY MTN
DURKEE
SISLEY CR
HEREFORD
BURNT
RIVER
UNITY RES
PEDRO MTN
DIXIE CR
BURNT
RIVER
BAKER CO
MALHEUR CO
S FORK
UNITY
TABLE ROCK
DURBIN CR
HUNTINGTON
BAKER CO
GRANT CO
LEGEND
Existing Exclosure
Proposed Exclosure
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
IRONSIDE ENVIRONMENTAL IMPACT STATEMENT AREA
BAKER DISTRICT
1980
0 1 2 3 4 5 6 7 8 9 10
SCALE IN MILES
LIVESTOCK EXCLUSION AREAS
FIGURE 1-2b

Grazing Systems

A grazing system consists of one or more planned grazing treatments which use livestock grazing to bring about changes in the kind or amount of vegetation, These changes are determined by measuring vigor, reproduction and composition of key species. Key species are those plants which serve as indicators of changes occurring in the vegetation communities. An improvement in ecosite condition is normally due to an increase of the key species and conversely, a deterioration of ecosite condition is the result of a decrease in the key species. See Table 1-5 for list of key species. Five different types of grazing systems are proposed. Although each description outlines a general period of grazing use, there is some variation within this period among the different allotments (see Table l-6). Figure 1-3 shows examples of the proposed systems with sequence of treatments.

Spring Grazing

Spring grazing would occur each year for 1 to 2 months between March 1 and June 30, depending upon the elevation.

Spring grazing now occurs on 31,015 acres in 21 allotments. After implementation of intensive grazing, spring grazing would occur on 36,762 acres in 10 allotments. In six allotments, 2 years of rest would occur before the implementation of the spring grazing system. In the remaining allotments, spring grazing would start immediately after implementation of the proposed act ion. Stocking rates on the areas proposed for spring grazing would be based on 40 percent utilization of the annual production of key species except in Allotments 102 and 201 where wildlife browse seedings are proposed. In these areas, up to 60 percent utilization of grasses would be allowed after seeding to reduce competition between grasses and shrubs until browse seedlings are fully established.

Spring grazing is proposed for one or more of the following reasons:

- Spring use would be used to reduce the competition between the grasses and woody species in those pastures scheduled for shrub and tree planting,

- On riparian areas, spring use would be used to reduce utilization of the woody species and to allow time for regrowth of herbaceous species following the spring grazing period.

Spring/Summer Grazing

Spring/summer use consists of grazing during the spring and early summer every year. Although in most cases grazing occurs primarily between April 15 and June 30, in some allotments grazing would extend into mid-July.

Table l-5

Approximate Growth Stage Dates for Key Species

Species	Start of Growth	Peak of Flowering	Seed Ripe	Dormancy
Bluebunch wheatgrass (Agropyron spicatum)	3/22	6/1	7/15	8/15
Blue wildrye 1/ (Elymus glaucus)	5/1	7/15	8/15	9/15
Idaho fescue (Festuca idahonensis)	3/22	6/1	7/15	8/15
Mountain brome 1/ (Bromus marginatus)	5/1	7/15	8/15	9/15
Crested wheatgrass 2/ (Agropyron cristatum & desertorum)	3/10	5/22	7/1	8/1
Squirreltail 3/ (Sitanion hystrix)	3/10	5/22	6/30	7/10
Thurber's needlegrass (Stipa thurberiana)	3/15	5/30	6/25	7/31
Sandberg bluegrass 3/ (Poa sandbergii)	3/10	5/22	6/20	7/1
Stiff sagebrush 4/ (Artemisia rigida)	4/1	9/1	9/22	10/15
Bitterbrush 4/ (Purshia tridentata)	3/22	5/15	7/15	10/15
Spiney hopsage 4/ (spinosa)	3/22	5/1	7/22	N/A
Currant (Ribes spp) 5/	4/1	5/15	7/15	10/15
Willow (Salix spp) 5/	3/1	4/15	6/22	10/15
Chokecherry (Prunus spp) 5/	4/1	5/22	7/15	10/15
Quaking aspen (Populus tremuloides) 1/	5/1	N/A	N/A	10/15
Mockorange (Philadelphus lewisii) 5/	4/1	5/20	N/A	11/1

1/ Key species for high elevation ecosites
2/ Key species for seeded areas
3/ Key species for some early ecosite condition areas.
4/ Key species for deer winter ranges
5/ Key species for riparian areas

Note: The above dates, except for dormancy, are for elevations less than 3,500 feet. Dates will vary 7-15 days depending on exposure and elevation. For elevations 3,500-5,000 add 7 days; for elevations of 5,000 add 15 days. Annual variations also occur due to climatic conditions.

Table 1-6 Existing and Proposed Grazing Systems (Acres)

Allot. No.	Spring- 1/ Ext.	Spring- 1/ Prop.	Spring/Summer Ext.	Spring/Summer Prop.	Spring/Fall Ext.	Spring/Fall Prop.	Deferred 1/ Existing	Deferred Rotation Ext.	Deferred Rotation Prop.	Rotation 1/ Existing	Rest Rotation Ext.	Rest Rotation Prop.	Exclusion Ext.	Exclusion Prop.	FFR 2/ Ext.	FFR 2/ Prop.
								A								
101	-o-	-o-	10,186	-0-	-o-	-o-	-o-	2,527	31,413	13,569	-0-	24,763	7	113	388	388
102	-0-	1,144	-0-	-0-	-o-	-o-	-o-	25,244	19,068	-o-	8,157	12,729	58	518	-o-	-o-
103	-0-	-0-	-0-	-0-	-o-	-o-	-o-	2,967	-0-	-o-	-0-	2,965	-0-	2	-o-	-o-
104	-0-	-0-	-0-	-0-	-o-	-o-	-o-	-0-	-0-	1,111	-0-	1,111	-0-	-0-	-o-	-o-
105	-0-	-0-	3,837	-0-	-o-	-o-	-o-	-0-	3,837	-0-	-0-	-0-	-0-	-0-	-o-	-0-
122	-0-	-0-	-o-	-0-	-o-	-o-	-o-	-o-	1,318	-0-	-0-	-0-	-0-	-0-	1,318	-0-
125	-0-	-0-	-o-	-0-	-o-	-o-	-o-	-0-	-0-	-0-	-0-	1,751	-0-	-0-	1,751	-o-
127	-0-	-0-	-o-	-0-	-o-	-o-	-o-	3,412	1,159	-0-	-0-	2,253	-0-	-0-	-o-	-0-
130	-0-	-0-	-o-	-0-	-o-	-o-	-o-	1,124	1,124	-0-	-0-	-0-	-0-	-0-	227	227
131	-0-	-0-	-o-	-0-	-o-	-o-	-o-	3,292	-0-	-0-	-0-	3,290	-0-	2	-0-	-0-
132	-0-	-0-	357	-0-	-o-	-o-	-o-	4,794	-0-	-0-	-0-	5,151	-0-	-0-	-0-	-0-
139	-0-	-0-	-0-	-0-	-o-	-o-	-o-	2,634	-0-	-0-	1,133	3,767	-0-	-0-	-0-	-0-
140	-0-	701	-0-	-0-	-o-	-o-	-o-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	701	-0-
143	-0-	-0-	312	-0-	-o-	-o-	-o-	610	-0-	290	-0-	1,212	-0-	-0-	-0-	-0-
*148	-0-	1,666	-0-	-0-	-o-	-o-	-o-	1,666	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
157	-0-	-0-	-0-	-0-	-o-	-o-	-o-	2,348	2,348	1,749	-0-	1,749	-0-	-0-	231	231
201	5,285	6,062	10,201	-0-	-o-	10,486	9,670	-0-	15,465	-0-	-o-	12,705	660	1,098	536	536
*202	2,238	7,040	7,174	-0-	4,191	18,531	8,145	-0-	38,965	-0-	31,414	8,357	-0-	269	3,704	3,704
203	-0-	6,446	9,796	-0-	2,729	-0-	3,150	-0-	19,677	-0-	33,873	31,341	-0-	a4	-0-	-0-
204	6,938	6,914	-o-	-0-	-0-	-0-	-0-	-o-	-0-	-0-	-0-	-0-	-0-	24	-0-	-0-
*205	2,581	-0-	1,411	-0-	-0-	8,179	-0-	18,892	6,130	-0-	-0-	8,569	-0-	6	-0-	-0-
*206	-0-	-0-	-o-	-0-	-0-	1,013	9,361	-0-	19,516	-0-	22,851	11,615	4	72	2,880	2,880
211	-0-	-0-	677	-0-	-0-	-0-	2,700	-o-	12,268	-0-	17,275	8,036	16	364	2,544	2,544
214	-0-	-0-	-o-	-0-	-0-	-0-	-0-	-0-	7,605	-0-	17,526	9,757	3	167	70	70
216	-0-	-0-	-o-	-0-	-0-	-0-	-0-	6,471	858	-0-	7,679	12,930	-0-	362	51	51
*217	-0-	3,274	3,552	-0-	-0-	-0-	7,232	-0-	10,581	3,722	17,663	18,304	-0-	10	3,828	3,828
218	-0-	-0-	-0-	-0-	-0-	-0-	-0-	12,427	10,594	-0-	-0-	11,833	-0-	-o-	210	210
*219	-0-	640	-0-	-0-	-0-	-0-	-0-	-o-	-0-	-0-	-o-	-0-	-0-	-o-	640	-0-
222	-0-	-0-	-0-	-0-	-0-	11,331	-0-	18,735	18,261	-0-	19,381	8,512	-0-	12	3,523	3,523
223	-0-	-0-	-0-	-0-	-o-	4,714	-0-	10,733	5,855	-0-	-o-	-o-	-0-	164	435	435
224	-0-	-0-	-0-	-0-	-o-	-o-	-0-	-0-	1,600	-0-	-o-	-o-	-0-	-o-	1,600	-0-
227	-0-	-0-	-0-	-0-	-o-	-o-	-0-	1,442	-0-	-0-	-0-	1,442	-0-	-o-	-0-	-0-
402	-0-	-0-	-0-	-0-	-o-	-o-	-0-	20,237	13,265	-0-	7,797	14,769	647	647	349	349
409	-0-	-0-	-0-	-0-	-o-	-o-	-0-	-0-	80	-0-	-o-	-o-	-0-	-0-	80	-0-
413	-0-	-0-	-0-	-0-	-o-	-o-	-0-	-0-	445	-0-	-o-	-o-	-0-	-0-	445	-0-
1001	-0-	-0-	-0-	-0-	-o-	-0-	4,908	14,788	-0-	3,755	-o-	23,439	26	38	-0-	-0-
1002	-0-	-0-	-0-	-0-	1,143	-o-	-o-	3,646	4,789	-0-	-o-	-o-	20	20	-0-	-0-
1003	-0-	-0-	-0-	-0-	-o-	-0-	-o-	-0-	4,743	4,743	-o-	-o-	130	130	-0-	-0-
1004	-0-	-0-	-0-	-0-	2,348	-o-	-o-	6,806	9,154	-o-	-o-	-0-	-0-	-0-	-0-	-0-
1006	-0-	-0-	-0-	-0-	-o-	-o-	-o-	8,585	9,790	-o-	1,205	-o-	-0-	-0-	-0-	-0-
1007	-0-	-0-	606	-0-	-o-	-o-	-o-	-0-	606	-o-	-o-	-o-	-0-	-0-	-0-	-0-
1009	-0-	-0-	797	-0-	-o-	-0-	-o-	-0-	-0-	-o-	-o-	797	-0-	-0-	-0-	-0-
1011	-0-	-0-	-0-	-0-	775	-o-	-o-	-0-	-0-	-o-	-o-	775	-0-	-0-	-0-	-0-
1013	-0-	-0-	3,359	-0-	-o-	-0-	-o-	-0-	-0-	-o-	-0-	3,359	-0-	-0-	-0-	-0-
1014	-0-	-0-	-0-	-0-	533	-0-	-0-	-0-	533	-o-	-0-	-0-	-0-	-0-	-0-	-0-
1015	-0-	-0-	1,240	-0-	-0-	-0-	-o-	-0-	1,240	-o-	-0-	-0-	-0-	-0-	-0-	-0-
1016	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	7,678	7,678	-0-	-0-	-0-	-0-

Allot. No.	Spring 1/ Ext.	Spring 1/ Prop.	Spring/Summer Ext.	Spring/Summer Prop.	Spring/Fall Ext.	Spring/Fall Prop.	Deferred 1/ Existing	Deferred Rotation Ext.	Deferred Rotation Prop.	Rotation 1/ Existing	Rest Rotation Ext.	Rest Rotation Prop.	Exclusion Ext.	Exclusion Prop.	FFR 2/ Ext.	FFR 2/ Prop.
1017	-0-	-0-	-0-	-0-	-0-	-0-	-0-	1,254	1,254	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1018	-0-	-0-	-0-	-0-	-0-	-0-	-0-	1,004	1,004	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1020	-0-	-0-	-0-	-0-	-0-	-0-	-0-	2,933	2,933	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1021	-0-	-0-	2,700	-0-	-0-	-0-	-0-	-0-	2,700	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1022	-0-	-0-	245	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	245	-0-	-0-	-0-	-0-
1023	-0-	-0-	-0-	-0-	-0-	-0-	402	-0-	402	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1024	-0-	-0-	501	-0-	-0-	-0-	-0-	-0-	501	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1025	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	80	-0-	-0-	80	-0-
1026	-0-	-0-	-0-	-0-	-0-	-0-	-0-	980	980	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1032	-0-	-0-	-0-	-0-	954	-0-	-0-	-0-	954	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1037	-0-	-0-	-0-	-0-	-0-	-0-	-0-	2,740	-0-	-0-	-0-	2,740	-0-	-0-	-0-	-0-
1039	-0-	-0-	-0-	-0-	-0-	-0-	-0-	3,746	3,734	-0-	-0-	-0-	-0-	12	-0-	-0-
1040	-0-	-0-	-0-	-0-	-0-	-0-	-0-	3,195	3,195	-0-	-0-	-0-	4	4	-0-	-0-
1041	-0-	-0-	-0-	-0-	-0-	-0-	-0-	1,540	1,540	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1044	-0-	-0-	-0-	-0-	-0-	-0-	-0-	2,072	2,072	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1046	-0-	-0-	859	-0-	-0-	-0-	-0-	-0-	859	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1048	-0-	-0-	3,054	-0-	-0-	-0-	-0-	-0-	3,054	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1055	509	-0-	-0-	-0-	-0-	-0-	-0-	-0-	509	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1064	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	370	-0-	-0-	370	-0-
1065	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	63	-0-	-0-	63	-0-
1066	-0-	-0-	738	-0-	-0-	-0-	-0-	-0-	738	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1301	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	18,705	18,405	-0-	300	-0-	-0-
1302	-0-	-0-	-0-	-0-	-0-	-0-	-0-	11,114	11,106	-0-	-0-	-0-	-0-	8	-0-	-0-
1318	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	9,724	9,724	10	10	-0-	-0-
1320	-0-	-0-	1,243	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	1,243	-0-	-0-	-0-	-0-
1326	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	20	-0-	-0-	20	-0-
1327	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	167	-0-	-0-	167	-0-
1329	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	520	-0-	-0-	520	-0-
1333	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	84	-0-	-0-	84	-0-
2003	210	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	210	-0-	-0-	-0-	-0-
2004	-0-	-0-	1,423	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	1,423	-0-	-0-	-0-	-0-
2005	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	3,132	3,132	-0-	-0-	-0-	-0-
2012	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	1,222	1,222	1,664	1,655	-0-	9	-0-	-0-
2015	2,120	-0-	-0-	-0-	-0-	-0-	-0-	-0-	2,120	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2017	-0-	-0-	760	760	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2019	2,076	-0-	-0-	-0-	-0-	-0-	-0-	-0-	2,076	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2020	-0-	-0-	2,996	2,996	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2021	-0-	-0-	400	400	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2022	78	-0-	-0-	78	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2023	-0-	-0-	350	350	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2024	-0-	-0-	-0-	-0-	-0-	-0-	-0-	2,100	2,100	-0-	-0-	-0-	17	17	-0-	-0-
2025	-0-	-0-	-0-	-0-	555	-0-	-0-	-0-	555	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2027	175	-0-	-0-	175	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2028	-0-	-0-	180	180	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2030	-0-	-0-	-0-	556	-0-	-0-	556	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2031	-0-	-0-	-0-	4,006	-0-	-0-	-0-	-0-	-0-	4,006	-0-	-0-	-0-	-0-	-0-	-0-
2032	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	3,839	3,839	20	20	-0-	-0-
2034	-0-	-0-	2,009	-0-	-0-	-0-	-0-	-0-	2,009	-0-	-0-	-0-	10	10	-0-	-0-
2035	-0-	-0-	-0-	-0-	-0-	-0-	-0-	1,896	1,896	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2036	720	-0-	-0-	720	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2037	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	3,943	3,943	2	2	-0-	-0-

Table l-6 Continued

Allot. NO.	Spring- 1/ Ext.	Spring- 1/ Prop.	Spring/Summer Ext.	Spring/Summer Prop.	Spring/Fall Ext.	Spring/Fall Prop.	Deferred 1/ Existing	Deferred Rotation Ext.	Deferred Rotation Prop.	Rotation 1/ Existing	Rest Rotation Ext.	Rest Rotation Prop.	Exclusion Ext.	Exclusion Prop.	FFR 2/ Ext.	FFR 2/ Prop.
2040	-o-	-o-	-o-	-0-	-o-	-o-	-o-	1,372	-o-	-o-	-0-	1,372	60	60	-o-	-o-
2041	-o-	-o-	280	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	280	-o-	-o-	-o-	-o-
2042	-()-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	319	319	-o-	-o-	-o-	-o-	-o-	-o-
2048	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	842	842	5	5	-o-	-o-
2050	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	2,688	2,688	-o-	-0-	-o-	-o-
2055	-o-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	1,056	5	5	1,056	-o-
2070	1,569	-o-	-o-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	1,569	-o-	-0-	-o-	-o-
2071	-o-	-o-	1,786	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	1,786	1	1	-o-	-o-
2074	-o-	-o-	-o-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	13,562	13,562	-o-	-o-	-o-	-o-
2077	-o-	-o-	770	-0-	-o-	-o-	-o-	-o-	770	-o-	-o-	-o-	-o-	-o-	-o-	-o-
2078	-o-	-o-	1,802	-o-	-o-	-o-	-o-	-o-	1,802	-o-	-o-	-o-	-o-	-o-	-o-	-o-
2081	-o-	-o-	-o-	-0-	-o-	-o-	-o-	-o-	340	340	-o-	-o-	-o-	-o-	-o-	-o-
2084	-o-	-0-	1,207	1,207	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
2085	545	-0-	-o-	-o-	-o-	-o-	-o-	-o-	545	-o-	-o-	-o-	-o-	-o-	-o-	-o-
2086	475	-o-	-o-	475	-o-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
2094	-o-	-o-	-o-	-0-	135	135	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
2096	-o-	-o-	4,260	-0-	-o-	-o-	-o-	-o-	4,260	-o-	-o-	-o-	-o-	-o-	-o-	-o-
2099	-o-	-o-	240	-0-	-o-	-o-	-o-	-o-	240	-o-	-o-	-o-	-o-	-o-	-o-	-o-
2105	-o-	-o-	1,275	-0-	-o-	-o-	-o-	-o-	1,275	-o-	-o-	-o-	-o-	-o-	-o-	-o-
2108	-o-	-0-	4,386	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	4,386	-o-	-o-	-o-	-o-
2109	-o-	-0-	-o-	-o-	5,887	-o-	-o-	-o-	5,887	-o-	-o-	-0-	16	16	-o-	-o-
2111	778	-o-	-o-	778	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-0-	4	4	-o-	-o-
2115	-()-	-0-	1,475	1,475	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
2116	1,103	-o-	-o-	-o-	-o-	-o-	-o-	-o-	1,103	-o-	-o-	-o-	-o-	-o-	-o-	-o-
2127	-o-	-0-	-o-	-0-	-o-	-o-	1,705	-o-	1,705	-o-	-o-	-0-	11	11	-o-	-o-
2128	-0-	-0-	2,501	-0-	-o-	-o-	-o-	-o-	2,501	-o-	-o-	-o-	-o-	-0-	-o-	-o-
2129	-o-	-o-	631	-0-	-o-	-o-	-o-	-o-	631	-o-	-o-	-0-	14	14	-o-	-o-
3001	-o-	-o-	25,474	25,474	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-0-	11	11	-o-	-o-
3002	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-0-	-o-	7,073	7,073	6	6	-o-	-o-
3003	-o-	-o-	-o-	-0-	-o-	-o-	-o-	8,124	8,124	-o-	-o-	-0-	323	323	-o-	-o-
3004	-o-	-o-	1,817	1,817	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
3005	-o-	-o-	6,495	6,495	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
3006	-o-	-o-	-o-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	5,122	5,122	-o-	-o-	-o-	-o-
3007	-o-	2,875	2,875	-0-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
3008	-o-	-o-	720	720	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
3009	-o-	-o-	533	533	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
3011	-o-	-o-	330	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	330	-o-	-o-	-o-	-o-
3012	-o-	-o-	-o-	-o-	4,809	-o-	-o-	-o-	-o-	-o-	-o-	4,809	-o-	-o-	-o-	-o-
3014	-o-	-o-	-o-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	5,303	5,303	-o-	-0-	-o-	-o-
3015	-o-	-o-	1,560	-o-	-o-	-o-	-o-	-o-	1,560	-o-	-o-	-0-	50	50	-o-	-o-
3017	-o-	-0-	-o-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	131	-o-	-o-	131	-o-
3018	-o-	-o-	1,959	-0-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	1,959	-o-	-o-	-o-	-o-
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3047	-o-	-o-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	136	-o-	-o-	136	-o-
3049	-o-	-o-	1,998	1,998	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
5201	-o-	-o-	-o-	-o-	-o-	-o-	-o-	3,247	-o-	-o-	-o-	3,247	-o-	-o-	-o-	-o-
5202	-o-	-o-	-o-	-o-	-o-	-o-	-o-	1,292	-o-	-o-	-o-	1,292	-o-	-o-	-o-	-o-
5204	-o-	-o-	1,059	1,059	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
5205	350	-o-	-o-	350	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
5206	-o-	-o-	-o-	-o-	-o-	-o-	-0-	1,159	1,,159	-o-	-o-	-o-	-o-	-o-	-o-	-0-

Table 1-6 Continued

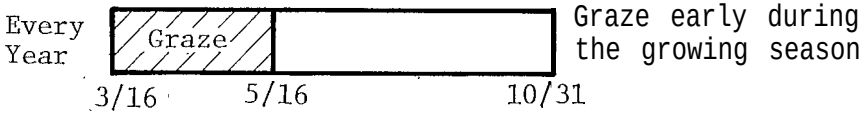
Allot. No.	Spring- 1/ Ext.	Spring- 1/ Prop.	Spring/Summer Ext.	Spring/Summer Prop.	Spring/Fall Ext.	Spring/Fall Prop.	Deferred 1/ Existing	Deferred Rotation Ext.	Deferred Rotation Prop.	Rotation 1/ Existing	Rest Rotation Ext.	Rest Rotation Prop.	Exclusion Ext.	Exclusion Prop.	PFR 2/ Ext.	PFR 2/ Prop.
5208	-0-	-0-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	75	-o-	-0-	75	-o-
5209	-o-	-o-	-0-	-o-	-o-	-0-	-o-	-o-	-o-	-o-	2,798	2,796	-o-	2	-o-	-o-
5212	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	128	-o-	-0-	128	-o-
5215	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	1,520	6,520	100	100	-o-	-o-
5216	-o-	-o-	669	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	669	-o-	-o-	-o-	-o-
5220	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	76	-o-	-o-	-o-	-o-	-o-	76	-o-
5221	-o-	-o-	-o-	-o-	-o-	-o-	-o-	161	161	-o-	-o-	-o-	-o-	-o-	-o-	-o-
5222	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	40	-o-	-o-	-o-	-o-	-o-	40	-o-
5223	-o-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	200	-o-	-o-	-o-	-o-	-o-	200	-o-
5226	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	118	-o-	-o-	118	-o-
5230	-o-	-0-	-o-	-o-	-o-	-o-	-o-	-o-	200	-o-	-o-	-o-	-o-	-o-	200	-o-
5235	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	355	-o-	-o-	-o-	-o-	-o-	355	-o-
5236	-o-	-0-	-o-	-0-	-o-	-o-	-o-	-o-	88	-o-	-o-	-o-	-o-	-o-	288	200
5303	-o-	-o-	936	936	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-
5305	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	70	-o-	-o-	-o-	-o-	-o-	70	-o-
5311	-o-	-o-	2,228	-o-	-o-	-o-	-o-	-o-	2,228	-o-	-o-	-o-	-o-	-o-	-o-	-o-
5313	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	1,424	-o-	-o-	-o-	1,424	-o-	-o-	-o-
5321	-o-	-o-	-o-	-o-	-o-	-o-	-o-	2,631	2,631	-o-	-o-	-o-	-o-	-o-	-o-	-o-
5325	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	166	-o-	-o-	166	-o-
5335	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-o-	80	-o-	-0-	-o-	-o-	-o-	80	-o-
5339	-o-	-o-	-o-	-o-	-0-	-o-	-o-	-o-	120	-o-	-o-	-o-	-o-	-o-	120	-o-
5342	-o-	-0-	-o-	-0-	-0-	-o-	-o-	-o-	-0-	-o-	-o-	73	-o-	-o-	73	-0-
Total:	27,750	36,762	194,421	56,051	24,059	54,389	77,829	244,779	361,694	34,826	276,547	380,828	3,667	5,105	30,127	19,176

* Allotments which have 2 years rest before the start of spring use.

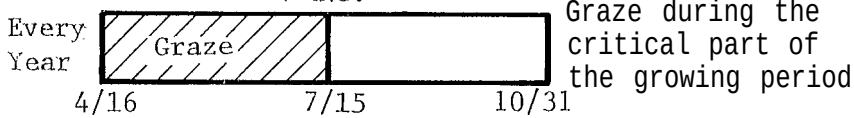
1/ No acres proposed for this system.

2/ FFR: Fenced Federal Range – Small tracts ot public land, fenced into pastures with large amounts of private land, proposed for nonintensive management.

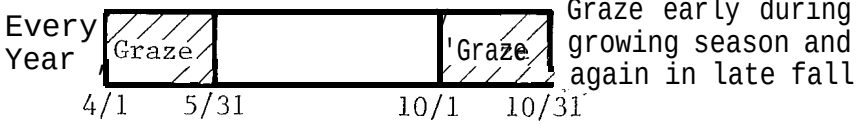
SPRING GRAZING:



SPRING/SUMMER GRAZING:

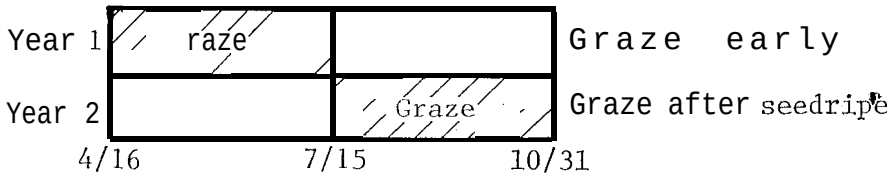


SPRING/FALL GRAZING:

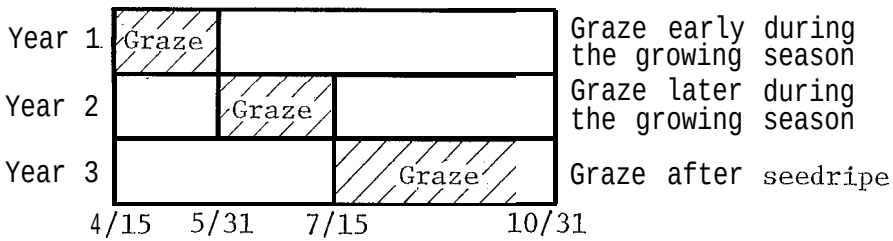


DEFERRED ROTATION:

1. Two-Pasture System

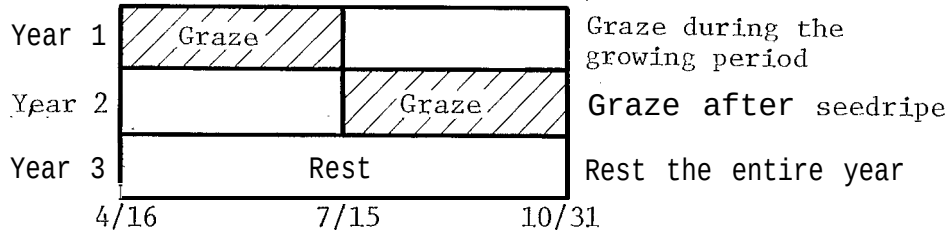


2. Three-Pasture System

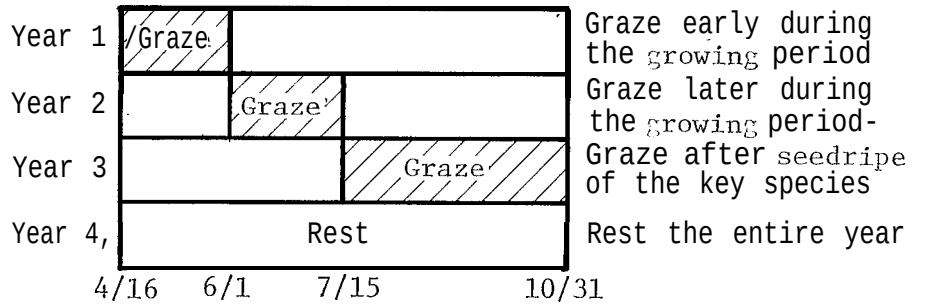


REST ROTATION:'

1. Three-Pasture System



2. Four-Pasture System



3. 'Modified Rest Rotation (Shrub Improvement)

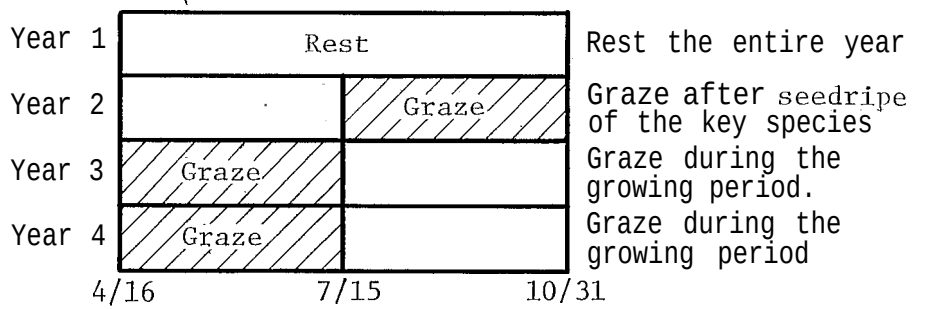


FIGURE 1-3 – EXAMPLES OF TYPICAL GRAZING SYSTEMS – SEQUENCE OF TREATMENTS BY PASTURE

Spring/ summer grazing now occurs on 198,330 acres in 68 allotments. After implementation of intensive grazing, spring/summer grazing would occur on 56,051 acres in 24 allotments. Stocking rates on the areas proposed for this system would be based on 40 percent utilization of the annual production of key species. Spring/summer grazing is proposed for one or more of the following reasons :

- The limited amount of public land in most of these allotments does not justify the cost of the additional fences and water developments needed to initiate a rotation system.

- This system would meet the permittee's management needs.

Spring/Fall Grazing

Spring/fall grazing involves use for 1 to 2 months between March 1 and June 30, followed by a rest period during the summer every year. In some years another grazing period of 2 months would occur in the fall. Grazing would also occur in winter in a few areas. Spring/ fall grazing is now occurring on 24,327 acres in 12 allotments. Stocking rates on the 54,389 acres in seven allotments where spring/ fall grazing is proposed would be based upon 40 percent utilization of the key species.

Spring/fall grazing is proposed for one or more of the following reasons:

- An increase in the production and reproduction of woody riparian species is desired.

- An improvement in water quality for fisheries is desired.

Deferred Rotation Grazing

Deferred rotation is the discontinuance of grazing on various parts of an allotment in succeeding years. This allows each part or pasture to rest successively during the growing season to permit seed production, establishment of seedlings, and restoration of plant vigor (Society for Range Management 1974). One or more pastures would be grazed during the spring, while the remaining one or more pastures would be rested until after seed ripening of key species and then grazed. Deferred rotation grazing differs from rest rotation grazing in that there is no year-long rest provided for any part of the allotment.

Utilization of the key species (Table 1-5) on an allotment basis would not exceed 50 percent of the available forage annually for those pastures in early or middle ecosite condition, On those pastures in late or climax condition, and on crested wheat grass seedings, utilization of up to 60 percent of the available forage would be allowed,

Deferred rotation is presently in use on 244,779 acres in 42 allotments. It is proposed for use on 361,694 acres in 83 allotments.

Deferred rotation grazing is proposed for one or more of the following reasons :

- The deferred rotation system would meet the objective of maintaining the vegetation in either late or climax ecosite condition.

- The system would make fall regrowth of the existing and proposed crested wheatgrass seedings readily available to antelope, deer and cattle,

Rest Rotation Grazing

Rest rotation grazing is a form of deferred rotation in which at least one pasture within an allotment is rested from grazing for a minimum of a full year. A pasture or unit of range is rested from use after a season of grazing to allow plants an opportunity to make and store food to recover vigor, allow seed to be produced, allow seedlings to become established and allow litter to accumulate between plants. The amount of rest needed for these purposes depends on management objectives that are determined for each individual allotment, the plants involved and character of the range.

Rest rotation is presently in use on 276,547 acres in 27 allotments. Following implementation of intensive management, rest rotation would be in use on a total of 380,828 acres in 88 allotments.

Rest rotation is proposed for one or more of the following reasons:

- A rapid improvement in ecosite condition is desired.

- The areas have potential for improvement in ecosite condition through grazing management.

- An increase in browse forage production and reproduction is desired.

Two types of rest rotation grazing (standard and modified) are proposed in the EIS area. The sequence of grazing treatment for each type is displayed on Figure l-3.

Standard Rotation

Stocking rates on 131,419 acres in 28 allotments which are predominately in middle ecosite condition would be based upon 60 percent utilization of the key species in the grazed pastures. On 217,110 acres and 55 allotments where early ecosite condition is predominant, stocking rates would be based on 50 percent utilization of the key species in the grazed pastures.

Modified Rest Rotation

There are 32,299 acres in five allotments where an increase in woody forage plants is desired. The rest rotation system was modified to include two

consecutive seasons of rest every 4 years and to provide for the reproduction requirements of woody species. On those areas, stocking rates would be based on 60 percent utilization of the key species in the grazed pastures.

Range Improvement Projects

Additional range improvements are usually needed to implement intensive grazing management. Exact numbers of improvements have not been determined, However, Table l-7 presents an approximate number and type of water development, miles of fence and acres of vegetative manipulation needed to implement the proposed grazing systems. In the long term, due to implementation of range improvement projects included in the proposed action, an additional 8,659 AUMs of livestock forage would be produced in the intensively managed allotments.

The following standard procedures and design elements would be adhered to in constructing range improvements in the EIS area. The procedures generally respond to legal mandates as indicated. Design elements have standardized over time to mitigate adverse effects encountered during previous range improvement installations.

- In accordance with BLM policy, archeological clearance would be required for all project sites prior to new construction. Intensive surveys would be conducted to locate any cultural or paleontological remains. If remains are discovered, the project could be relocated or redesigned. If the project cannot be moved, a data recovery or salvage program would be completed before construction. All mitigative measures would be developed in consultation with the State Historic Preservation Officer and National Advisory Council for Historic Preservation. (Executive Order 11593, 36 CFR 800.) Permits required for construction would contain stipulations to protect buried resources and provide for additional surveys should project location be changed.

- Prior to vegetative manipulation and development of range improvements, BLM requires a survey of the project site for plants and animals listed or proposed for listing on Federal and official State lists of threatened and endangered species. If a project might affect any listed or proposed threatened or endangered species or its critical habitat, every effort would be made to modify, relocate or abandon the project in order to obtain a no effect determination. If BLM determines that such a project cannot be altered or abandoned, consultation with the U.S. Fish and Wildlife Service would be initiated . (50 CFR 402; Endangered Species Act of 1973, as amended.)

- The wilderness inventory required by Section 603(a) of the Federal Land Policy and Management Act (FLPMA) has not been completed on the public lands that would be impacted by the proposal. Before developing any of the proposed range improvements, the areas would be inventoried for wilderness resources that meet the criteria established for Wilderness Study Areas, and impacts caused by the proposed action would be assessed. Grazing uses beginning after October 21, 1976, or expanded grazing uses or range

Table l-7 Proposed Range Improvements

Allotment No./ Allotment Name	1/ Seeding (acres)	Brush Control (acres)	Juniper Control (acres)	Fence (miles)	Springs	Wells	Reservoirs	Guzzlers	Pipelines (miles)
101 Alkali Spring	4,258	1,482	-0-	25.00	3	1	8	-o-	48.00
102 Cottonwood	747	1,566	-0-	13.00	2	-o-	3	-o-	-o-
103 Poall Creek	-0-	-o-	-0-	1.00	1	-o-	-o-	-o-	-o-
105 Willow Creek (Lvstk)	1,800	-o-	-0-	-0-	-o-	-o-	-o-	-o-	-o-
112 Ironside Mountain (W)	-o-	-o-	-0-	5.00	-0-	-o-	-o-	-o-	-o-
114 Ironside Mountain (E)	-o-	-o-	-0-	5.00	-o-	-o-	-o-	-o-	-o-
120 Boswell Spring	-o-	-o-	-0-	0.50	-0-	-o-	-o-	-o-	-o-
131 Baldy Mountain	-o-	-o-	-0-	0.25	-o-	-o-	-o-	-o-	-o-
132 Bully Creek	-0-	-0-	-0-	4.00	-o-	-o-	-o-	-o-	-o-
201 Allotment #2	1,152	1,920	-0-	7.75	3	1	-o-	-o-	4.00
202 Allotment #3	-0-	3,960	-0-	24.00	5	-o-	1 0	-o-	-o-
203 Allotment #4	-o-	-o-	-0-	6.00	3	-o-	7	-o-	-o-
204 Allotment #6	-0-	-o-	-0-	4.50	-o-	-o-	- o -	-o-	1.00
205 Rail Canyon	-o-	1,944	-0-	0.25	-o-	-o-	-o-	-o-	-o-
206 Dearmand/Murphy	576	1,956	-0-	10.75	3	-o-	2	-o-	-o-
211 Castle Rock	-o-	-0-	-0-	4.00	9	-o-	-0-	-o-	-o-
214 Richie Flat	-0-	2,304	-0-	3.50	2	-o-	3	-o-	-o-
216 Whitley Canyon	-o-	-0-	-0-	1.75	2	-o-	5	-o-	-o-
217 Beulah Reservoir	-0-	2,100	-0-	4.00	7	-o-	10	-o-	-o-
218 Buck Brush	-0-	-0-	-0-	1.50	-0-	-o-	2	-o-	-0-
222 Willow Basin	960	5,064	-0-	5.00	3	-o-	11	-o-	1.00
223 Lava Ridge	-0-	-o-	-0-	1.25	3	-o-	4	-o-	3.00
402 North Harper	3,360	-o-	-0-	2.00	-0-	-o-	-0-	-0-	5.00
1001 Snake River-Sisley Crk.	-0-	1,880	-0-	10.50	2	-o-	-0-	2	-o-
1002 Iron Mountain	170	560	-0-	-o-	1	-o-	4	-o-	-o-
1003 Cave Creek	-0-	-o-	-0-	-o-	1	-o-	-o-	-o-	-o-
1004 Durkee	-0-	-o-	520	4.00	-0-	-o-	-o-	2	-o-
1006 Huntington	240	160	-o-	3.75	2	-o-	-o-	-0-	-o-
1013 Benson Crk.	440	600	-o-	-0-	-o-	-o-	-o-	1	-o-
1015 East Table Mtn.	-o-	-o-	-o-	2.00	-o-	-o-	-o-	-0-	-0-
1016 Table Mtn.	-o-	-o-	-o-	-0-	-o-	2	-o-	2	2.25
1017 Burned	-o-	-0-	-o-	1.25	-o-	-o-	-o-	-o-	- o -
1018 Upper Durbin Crk.	-o-	320	-o-	-o-	-0-	-o-	-o-	-o-	-o-
1020 Dixie Crk.	-0-	-o-	-o-	-o-	2	-o-	-o-	-o-	2.25
1021 Pedro Mtn.	-o-	-o-	-o-	2.25	-o-	-o-	-o-	-o-	-o-
1026 No. Dixie Crk.	-0-	-0-	-o-	0.75	-0-	-o-	-0-	-0-	-o-
1037 Rye Valley	-o-	1,410	-o-	1.25	-o-	-o-	-0-	1	-o-
1039 Turner Gulch	-0-	-0-	-o-	4.25	-0-	-o-	-o-	1	-o-
1040 Little Valley	280	440	-o-	2.75	-o-	-o-	-o-	-o-	-0-
1041 Cinder Butte	-o-	-o-	-o-	-0-	-o-	-o-	-o-	-o-	0.50
1044 Juniper Mtn.	-o-	-o-	-o-	1.75	-o-	-o-	-o-	1	-o-
1046 Durkee Timber	-o-	320	-o-	-o-	-o-	-o-	-o-	-o-	-o-
1048 Nodine Creek	-o-	-o-	-o-	-o-	-o-	-o-	- 1	-o-	-o-
1050 No. Swayze Crk.	-0-	-o-	-o-	-0-	-o-	-o-	-o-	-o-	-o-
1052 Trail Creek	-o-	-0-	-o-	1.75	-o-	-o-	-o-	-o-	-o-
1066 Farewell Bend	380	280	-o-	-0-	-o-	-o-	-0-	-o-	-o-
1301 South Bridgeport	-o-	-o-	-o-	16.50	-o-	-o-	-o-	-o-	-o-
1302 North Bridgeport	-o-	-o-	-o-	2.75	-0-	-o-	-o-	-o-	-o-
1318 Mormon Basin	-o-	1,710	-o-	1.25	2	-o-	-o-	-o-	-o-
2003 Powder River	-o-	200	-o-	-0-	-o-	-o-	-o-	-o-	-o-
2004 Five Mile	-o-	-0-	-o-	0.70	-o-	-o-	-o-	-o-	-o-
2005 Second Creek	-0-	600	-0-	-0-	-0-	-0-	-o-	-0-	-o-

Table l-7 (continued)

Allotment No./ Allotment Name	Seeding (acres)	Brush Control (acres)	Juniper Control (acres)	Fence (miles)	Springs	Wells	Reservoirs	Guzzlers	Pipelines (miles)
2012 Big Creek	-0-	-o-	-o-	1.60	1	-0-	-0-	-0-	-0-
2015 Magpie Peak	-o-	-o-	-o-	2.50	-o-	-o-	-0-	-0-	2.80
2019 Salt Creek	-0-	-o-	-o-	0.50	-0-	1	1	-0-	1.20
2020 Crews Creek	-o-	-o-	-o-	1.30	-0-	-o-	1	-0-	0.80
2021 Seeding Indiv.	-o-	-o-	-o-	0.50	1	-o-	-o-	-0-	-o-
2023 Pittsburg Gulch	-0-	-o-	-o-	-0-	1	-o-	-o-	-0-	-o-
2024 Table Rock	360	-o-	-o-	1.10	-o-	-o-	-o-	-0-	-0-
2031 Bulldozer	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-0-	0.80
2032 Goose Creek	-o-	-o-	-o-	-o-	1	-o-	-o-	-0-	0.40
2034 Love Creek	-o-	-o-	-0-	1.10	-0-	-o-	-o-	-0-	-o-
2036 Table Mountain	-o-	-o-	-o-	0.80	2	-o-	-o-	-0-	-o-
2037 Balm Creek	-o-	-0-	-o-	1.50	2	-0-	-o-	-0-	-o-
2040 Spring Creek	-o-	-o-	-o-	0.50	-0-	-o-	-o-	-0-	-o-
2041 Cottonwood Creek	-o-	-o-	-o-	-o-	1	-o-	-o-	-0-	-0-
2042 Lower Houghton Creek	-0-	-o-	-o-	-o-	-o-	-o-	-o-	-0-	1.20
2048 Upper Clover Creek	-0-	-o-	-o-	-o-	-o-	-o-	-o-	-0-	-0-
2050 Upper Ritter Creek	-0-	-o-	-o-	-o-	-0-	-o-	-o-	-0-	1.00
2055 Clover Creek	240	-o-	-o-	0.20	2	-o-	-o-	-0-	-0-
2070 Summit Pasture	-0-	-0-	-o-	1.30	-o-	-o-	-o-	-0-	1.20
2071 McCann Springs	1,000	-0-	-o-	1.80	-o-	-o-	-o-	-0-	0.40
2074 Pritchard Creek	-0-	760	-o-	7.00	5	-o-	-o-	-0-	-0-
2077 South Ritter Creek	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-0-	0.30
2078 North Flagstaff	-o-	-o-	-o-	-o-	-o-	-o-	-o-	-0-	1.80
2084 Powder River Canyon	-o-	-o-	-o-	2.20	-0-	-o-	-o-	-0-	-o-
2085 West Clover Creek	-o-	-o-	-o-	0.70	-o-	-o-	-o-	-0-	-o-~
2096 Virtue Mine	-o-	-o-	-o-	2.50	-o-	-o-	-o-	1	2.60
2099 Virtue Hills	-0-	-o-	-o-	1.30	-o-	-o-	-o-	-0-	-0-
2105 Love Pasture	360	-o-	-o-	0.50	-o-	-o-	-o-	-o-	0.30
2106 Cristy Springs	-0-	-o-	-o-	-0-	-o-	-o-	-o-	-o-	0.90
2108 Keating Highway	920	440	-o-	1.70	-o-	-o-	-o-	-o-	6.20
2109 Ruckles Creek	1,000	1,320	-o-	4.10	-o-	-o-	-o-	-o-	0.10
2115 Tucker Creek	-0-	-o-	-o-	1.30	-0-	-o-	-o-	-o-	-o-
2116 East Balm Creek	440	-o-	-o-	-o-	-o-	-o-	-o-	-0-	-o-
2118 Fruit Springs	-o-	-o-	-o-	-o-	-0-	-o-	-o-	-o-	-0-
2128 Risley Butte	-o-	-o-	-o-	1.50	1	-o-	-o-	-o-	0.50
2129 Chalk Bluff	-0-	-0-	-o-	-o-	1	-o-	-o-	-o-	-o-
3001 Pine Valley	2,880	1,710	-o-	-o-	-o-	-o-	-o-	-o-	-o-
3002 Immigrant Gulch	-o-	-o-	-o-	0.25	-o-	-o-	-o-	-o-	-o-
3003 Ruth Gulch	-o-	-o-	-o-	-0-	1	-o-	-o-	-o-	-o-
3011 Park	-0-	-0-	-o-	2.00	-0-	-o-	-o-	-o-	-0-
3012 Squaw Creek	1,130	270	-o-	-0-	4	-o-	-o-	-o-	1.00
3014 Rimber Canyon	580	-o-	-o-	1.25	-o-	-o-	-o-	-o-	-o-
3017 Sheep Mountain	-0-	-o-	-o-	1.50	-o-	-o-	-o-	-o-	-o-
3022 Foster Gulch	-0-	-o-	-o-	2.25	-0-	-o-	-o-	-o-	-o-
3026 Soda Creek	-0-	-o-	-o-	1.25	2	-o-	-o-	-o-	-o-
3047 New Bridge	-0-	-0-	-o-	2.50	-0-	-o-	-o-	-o-	-o-
5209 Camp Creek	300	1,440	-o-	-0-	-o-	-o-	-0-	-o-	-o-
5215 Denny Flat	1,020	3,000	-o-	2.25	-0-	-o-	2	-o-	-0-
5216 West Camp Creek	-o-	-o-	-o-	2.00	1	-o-	-o-	-o-	0.50
5226 Cow Creek	-0-	-o-	-o-	1.25	-o-	-o-	-o-	-o-	-o-
5235 North Fork	-0-	-0-	-0-	4.25	-o-	-o-	-0-	-0-	-o-
Total:	24,593	39,716	520	245.70	82	5	74	11	91.00

1/ Sagebrush control primarily by 2,4-D except in Allotments 102 and 105 which need no brush control.

improvements may be allowed if they do not impair the suitability of the area for wilderness preservation. Grazing uses existing on October 21, 1976, may continue in the same manner and degree established on that date so long as they do not cause unnecessary or undue degradation of the lands and their resources,

- Surface disturbance at all project sites would be held to a minimum.

- Disturbed soil would be rehabilitated to blend into the surrounding soil surface and reseeded as needed with a mixture of grasses, forbs and browse as applicable to replace ground cover and reduce soil loss from wind and water erosion.

- A safety device would be installed on new powerline transformers to prevent electrocution of raptors.

- All State of Oregon water-well drilling regulations would be adhered to, in both drilling and equipping.

- Significant spring sources and associated trough overflow areas would be fenced to prevent livestock grazing and trampling.

- Ramps or floatboards would be provided in all water troughs for small birds and mammals to gain access to the water and/or escape.

- Proposed fence lines would not be bladed or scraped.

- Proposed fence in antelope areas would be constructed in accordance with Bureau Manual 1737. All other fences would be constructed in accordance with Bureau standard wire livestock fences Drawings No. 08-33-9105.4 - 1, 2, and 3.

- Gates or cattle guards would be installed where fences cross existing roads with significant use.

- Juniper control would consist of thinning small young trees which have encroached into grassland ecosites. These cut trees would be left in place and made available for public use on a request basis, Design features would result in irregular patterns and untreated patches, providing maximum edge effect.

- Important wildlife habitat would be excluded from vegetative manipulation projects unless treatment would provide direct wildlife enhancement.

- Most brush control would be by chemical means with no more than 25 percent by burning. The chemical applied would be 2,4-D (low volatile formulation) using a water carrier at a rate of 2 pounds active ingredients per acre on sagebrush and 3 pounds active ingredients per acre on rabbitbrush. To minimize drift and volatilization, aerial spraying would be confined to periods when wind speed is less than 6 miles per hour, air temperature

is under 70 degrees, relative humidity is over 50 percent, precipitation is not occurring or imminent and air turbulence will not affect normal spray patterns. Either fixed-wing aircraft or helicopters would be used for all spraying. A protective buffer strip at least 100 feet wide on both sides of all live streams (those flowing water at the time of application) and around water sources would be required. In the design of each spray project, any crucial riparian or wildlife habitat would be identified by district personnel and such areas would be excluded from the project. If spraying is to be undertaken adjacent to private lands containing cropland, pasture or dwellings, a buffer strip at least 100 feet wide would be required. Flight patterns would be adjusted for wind, topography or any factor which could cause herbicide to drift within the 100-foot buffer strip. Any application of 2,4-D would be in accordance with State regulations and BLM Manual 9220. A more thorough description of design features applicable to the proposal may be found in BLM's final environmental impact statement, Vegetative Management with Herbicides--Western Oregon. Design features are also applicable in eastern Oregon.

- Seeding would be accomplished by use of the rangeland drill. Preparation for seeding would be most commonly by chemical means (2,4-D) with no more than 10 percent by using the rangeland plow and 15 percent by burning. No preparation is needed in Allotments 101 and 105. BLM would determine seeding mixtures on a site specific basis, using past experience and recommendations of the Oregon State Extension Service and Experiment Stations. Single species seedings would be avoided. Some shrubs and trees would be planted in Allotments 102 and 201 for wildlife cover. Anticipated increases in production through vegetative manipulation projects would not be allocated until seedings are established and ready for use. All seedings would be deferred from grazing at least two full growing seasons to allow seedling establishment.

It is anticipated that the existing road and trail system would provide access for range improvement construction. Cross-country use of motor vehicles to reach construction sites could create unimproved trails and tracks. These trails could continue to be utilized to allow maintenance of the projects.

Various procedures would be followed to maintain the range improvements. Not all improvements require the same amount of maintenance. Therefore, maintenance inspection schedules would be established. Most maintenance of range improvements would be the responsibility of BLM, except for fences, which would be maintained by the permittee.

Nonintensive Management

Nonintensive management is proposed for 167 allotments (71,131 acres>. (See Table l-2 and Figure 1-1 for location and size.) This consists of authorizing only livestock numbers, kind of animals and period of use. These allotments, consisting of small tracts intermingled with large acreages of private land, have limited capability for grazing management and have little public resource values. Little information on range condition is available on these areas.

No range improvements are proposed on the nonintensive allotments except for some fencing for livestock control in intensively managed timber areas in Allotments 112 and 144 and in a riparian area in Allotment 120. If significant changes in present use are proposed in these allotments subsequent to the EIS, further environmental assessment would be done at that time.

Continuation of Unallotted Status

Unallotted status (no authorized grazing) would be continued on 14,219 acres of public lands as shown on Figure l-l. No range improvements are planned on the unallotted lands. Unallotted status would be continued until an application for grazing of these lands is approved. Further environmental assessment would be required prior to authorizing grazing on these lands.

Monitoring and Management Adjustments

The proposed action provides for resource monitoring to meet the general objectives of the proposed action. Studies would be conducted in all intensively managed allotments and in some nonintensively managed allotments where warranted by resource values. Water quality monitoring would be initiated in accordance with Executive Orders 11991 and 12088, BLM Manual 7240, and Sections 208 and 313 of the Clean Water Act (P.L. 95-217, P.L. 92-500 as amended). Standard analytical methods as detailed in Federal directives would be followed.

Studies would be established in representative riparian zones to determine changes in the habitat conditions and populations of fish and wildlife resulting from implementation of the proposed action. Such monitoring would comply with Executive Orders 11514 and 11990 and BLM Manual 6740.

Existing browse studies would be continued. Wildlife habitat and populations would be monitored to determine the effectiveness of design features for vegetative manipulation and grazing systems. The effect of late season livestock use on deer winter ranges would be studied in pastures near Keating and on other winter ranges that receive extensive use.

Other resource studies as appropriate would also be conducted. Climate, actual use, utilization and trend studies would be conducted in accordance with BLM Manuals 4412 and 4413 to evaluate vegetation changes (see Appendix C). Results of these studies would be summarized and evaluated at the end of each grazing system cycle. The data would then be used to assess progress toward achieving MFP objectives and to recommend adjustments in the grazing system or stocking rate.

If an evaluation supports an increase in livestock grazing use and the increase is consistent with the MFP, the additional use would first be granted on a temporary basis. An evaluation of forage production must confirm the availability of additional forage before an increase in use would become permanent. Grazing systems would be revised if the evaluation procedures determine that the specific objectives established for the allotments are not being achieved. Other revisions may include changes in

amount of livestock use permitted, period of use, or any combination of these.

Each permittee would be issued term permits which specify allotment, period of use, and numbers and kind of livestock.

Livestock grazing use would be supervised throughout the year. Marking of livestock (preferably by ear tagging) to control trespass may be required. Grazing use outside the limits of the proposal and without prior authorization would be considered trespass. If trespass should occur, action would be taken by BLM to eliminate it in accordance with regulations in 43 CFR 4150.

IMPLEMENTATION OF THE PROPOSED ACTION

After the final EIS is filed with the Environmental Protection Agency (EPA), that agency publishes a notice of availability in the Federal Register. No sooner than 30 days after this notice is published, a Rangeland Management Program Document would be completed. This document would consider all information available at that time as well as this EIS analysis. A schedule for implementing proposed adjustments and grazing systems will be contained in this document. It is expected that decisions to implement the proposed adjustments would be issued prior to the first full grazing season after the EIS becomes final. Proposed reductions may be phased over a 3-year period as provided in 43 CFR 4110.3-2(c).

During the first year, proposed grazing systems would be implemented in 35 allotments on 258,079 acres (see Table l-8 for listing of these allotments). Most range improvements needed for implementation of grazing systems have been completed in these allotments. Implementation of the grazing systems in these 35 allotments is pending completion of the EIS.

Table l-8 First Year Implementation Schedule

103 Poall Creek	157 Stripe Mtn.	1001 Snake River-Sisley Ck.
104 West Bench	203 Allotment #4	1020 Dixie Ck.
122 Sheep Corral Ck.	204 Allotment #6	1021 Pedro Mtn.
125 Phipps Ck.	211 Castle Rock	1039 Turner Gulch
127 Thorn Flat	216 Whitley Canyon	1320 Mill Gulch
130 Malheur City	218 Buck Brush	3001 Pine Valley
131 Baldy Mtn.	219 Malheur River	3005 Hunsaker Ck.
132 Bully Creek	223 Lava Ridge	3006 Homestead
139 Phipps Ck (N)	224 Lockhart Mtn.	3012 Squaw Ck.
140 Cottonwood Ck.	227 Westfall	3026 Soda Ck.
143 Alder Ck.	409 Vale Butte (N)	5202 Brown Rocks
148 Brogan Canyon	413 Vale Butte (S)	

Total Acres: 258,079

Grazing systems on the remaining intensive management allotments would be implemented as range improvements are completed. The allotments in early ecosite condition or with downward trend and those receiving major reductions in livestock use would receive first priority.

Further Environmental Assessment Requirements

Standard procedures require preparation of a site specific environmental assessment prior to implementation of range improvements and allotment management plans. Similar actions may be grouped into one assessment. These analyses would reference applicable portions of this EIS. Proposal range improvements may be modified or abandoned if this assessment indicates a conflict.

DESCRIPTION OF THE ALTERNATIVES

This section describes the alternatives to the proposed action for which impacts will be analyzed in Chapter 3. These five alternatives are:

1. No Action (No Action)
2. Eliminate Livestock Grazing (Elim. Lvstk)
3. Limit Downward Adjustments (Limit Adj.)
4. Optimize Livestock Grazing (Opt. Lvstk)
5. Optimize Wildlife, Wild Horses and Nonconsumptive Uses (Opt. Other)

These alternatives were defined after, and as a result of, public meetings in Baker and Ontario, Oregon, on August 15 and 16, 1979, respectively, and separate consultations with staff of the Oregon Environmental Council in Portland.

An alternative suggested at the public meetings, but not analyzed in this EIS, would limit reductions in livestock grazing to 10 percent of active use annually. Alternative 3 adopts the suggested concept of phased reductions in a manner which is felt to more reasonably provide protection of resource values.

BLM also considered discussing an alternative which would provide for a maximum wild horse herd level approximately halfway between the proposed action level of 50 horses and the 196 horses provided for in Alternative 5. Preliminary analysis showed that such an alternative would have no significant impacts on wild horses other than those analyzed and discussed under the proposed action. The major impacts of such an alternative would be on the permittees using Allotment 203, who would sustain proportionately lower levels of use. Such an intermediate horse herd level is still a selectable option for the decisionmaker, as it falls within the range of alternatives analyzed in the EIS.

Another alternative not analyzed in this EIS would encourage sheep grazing on steep sloped areas, subject to all multiple use constraints of the proposed action. Preliminary analysis indicated that this alternative would provide few additional livestock AUMs over the proposed action. Alternative 4,

which also encourages sheep grazing, would not be subject to most multiple use constraints.

Summary comparisons of the components and impacts of the proposal and alternatives appear in Tables l-9 and 10. See Table 1-11 for vegetation allocation for each allotment by alternative.

Alternative No, 1 - No Action

This alternative constitutes a continuation of the present situation. There would be no change from present management conditions. Grazing permits would continue to be issued at present levels of use. As shown in Table l-2, the vegetation allocation for livestock would continue at the present level of 142,118 AUMs. No additional grazing systems or range improvement projects would be undertaken. Wild horse numbers would be maintained at 50 head by periodic control actions. There would be no specific vegetation allocation for wild horses or wildlife under this alternative.

Alternative No, 2 - Eliminate Livestock Grazing

This alternative would eliminate all authorized livestock grazing except trailing use from the 1,002,068 acres of public lands in the EIS area. Domestic livestock trailing permits would continue to be issued when necessary to allow livestock movement to or from private, State and National Forest lands. The 600 AUMs of livestock forage allocated to wild horses would be maintained at the same level as the proposed action.

Timber, wildlife, minerals, soil, water and recreation resources would continue to be managed in accordance with the proposed MFPs. Increased range supervision by BLM would be necessary to assure that permittees adhere to conditions of trailing permits and that trespass does not occur.

To achieve complete elimination of livestock grazing on public lands, an undetermined amount of fencing may be required to fence private and State lands. This would result in additional cost to adjacent landowners. While existing range improvements on public lands would be left in place, only those benefiting other resource values would be maintained. No range improvements would be constructed.

Alternative No. 3 - Limit Downward Adjustments

This alternative is different from the proposed action only for those allotments where the proposed action calls for initial downward adjustments exceeding 20 percent of the present livestock active use as shown in Table l-2 for any allotment. Reductions would be phased over a 5-year period as follows:

- Year 1: Implement a reduction of 20 percent of the present livestock active use or one-third of the proposed livestock adjustment as shown in Table l-2, whichever is greater. Initiate range studies to monitor actual use, utilization and trend (See Table l-11 for proposed

Table l-9 Summary of Components

Grazing Systems (Acres)	Proposed Action	Alt. 1 No Action	Alt. 2 Eliminate Livestock	Alt. 3 Limit Adjustment	Alt. 4 Optimize Livestock	Alt. 5 Optimize Other
Spring	36,762	31,015	-0-	36,762	39,395	30,976
Spring/Summer	56,051	198,330	-0-	56,051	56,069	198,216
Spring/Fall	54,389	24,327	-0-	54,389	54,395	24,236
Deferred	-0-	77,829	-0-	-0-	-0-	77,750
Deferred Rotation	361,694	244,779	-0-	361,694	363,265	244,479
Rotation	-0-	34,826	-0-	-0-	-0-	34,794
Rest Rotation	380,828	276,547	-0-	380,828	384,264	275,889
Exclusion	8,295	3,739	1,001,964	8,295	50	5,236
Nonintensive Mgt	89,726	96,353	-0-	89,726	90.307	96,213
Unalloted	14,219	14,219	-0-	14,219	14,219	14,175
Vegetation Allocation (AUMs)						
Wildlife	7,619	-0-	7,619	7,619	-0-	13,648
Wild horses	600	-0-	600	600	121.419	2,360
Livestock	107,020 1/	142,118	-0-	125,979 2/	[illegible] 3/	74,937
Nonconsumptive	11,977	-0-	119,142	-0-	5,084	36,430
Range Improvements	4/	None	None	4/	51	6/

1/ In the long term, range improvement and intensive management would result in an additional 36,281 AUMs.

2/ At end of the third year, allocation to livestock would be 107,020 AUMs (same as proposed action) if resource objectives are not being met.

31 In the long term, range improvements and management would result in an additional 46,472 AUMs.

4/ Range Improvements as displayed on Table l-7

51 All range improvements as listed in Table 1-7 and Table l-12 less those 73 miles of fence required to exclude livestock from riparian in the proposed action.

6/ Only 700 miles of fence needed to exclude livestock from riparian zones.

Table 1-10 Summary Comparison of Impacts of the Proposed Action and the Alternatives

Significant Resource	Existing Situation	Proposed Action	Alt. 1 No Action	Alt. 2 Eliminate Livestock	Alt. 3 Limited Adjustment	Alt. 4 Optimize Livestock	Alt. 5 Optimize Other
Soils							
Erosion	---	+L	-L	+H	CL	+L	+M
Streambank erosion (miles improving)	---	53	22	336	53	26	336
Water							
Runoff (ac-ft/yr)	192,700	186,810	192,700	173,430	186,810	186,810	183,065
Coliforms	---	+L	NC	+H	-L	-L	+M
Sediment yield (ac-ft/yr)	1,041	949	1,094	553	949	949	791
Vegetation							
Ecosite condition							
Climax	17,493	76,323	32,026	167,266	76,323	75,994	64,147
Late	179,246	278,371	137,467	266,556	278,371	360,749	206,443
Middle	282,845	299,987	254,036	326,486	299,987	299,891	296,440
Early	301,474	126,377	357,529	20,750	126,377	44,424	214,028
Residual ground cover	---	+L	-L	+H	+L	+L	+M
Forage production (AUMs)	127,362	163,548	123,850	203,780	163,548	173,739	145,600
Riparian	---	CL	-L	+H	+L	-L	+H
T&E Plants	---	NC	NC	+H	NC	-L	+L
Wildlife Habitat Condition							
Deer (crucial acres)							
Improving	---	55,000	---	5,000	55,000	55,000	171,000
Deteriorating	---	5,000	26,000	168,000	5,000	30,000	3,000
Antelope (acres)							
Improving	---	36,000	---	---	36,000	42,000	---
Deteriorating	---	---	---	31,000	---	---	---
Elk (acres)							
Improving	---	18,000	---	---	18,000	6,000	11,000
Deteriorating	---	1,000	19,000	1,424	---	12,000	2,000
Riparian Zones (acres)							
Excellent	48	109	72	381	109	50	381
Good	290	564	344	1,151	564	361	1,151
Fair	313	232	308	1	232	329	1
Poor	721	544	711	195	544	674	195
Birds, small mammals, reptiles	---	+L	-L	+M	+L	-L	+M
Amphibians	---	+L	-M	+M	+L	-M	+M
Fish (stream miles)							
Excellent	.5	2.9	.5	a.3	2.9	1.4	8.3
Good	a.3	8.1	1.3	11.2	a.1	7.4	11.2
Fair	33.2	34.8	41.1	41.2	34.8	33.2	41.2
Poor	29.0	25.2	32.1	10.4	25.2	29.0	10.4
Recreation							
Total visitor use--1990 (visits/yr)	530,640	738,700	663,300	784,130	738,700	601,780	755,340
Cultural Resources	---	-L	NC	NC	-L	-M	-L
Visual Resources (contrast)		-L	-L	+L	-L	-M	+L
Wild Horses (numbers)	63	50	50	50	50	0	196
Ecologically significant areas	---	-L	NC	NC	-L	-M	NC
Energy Use							
Billion Btu's consumed	---	173,292	13,000	3,819	172,751	291,712	88,235
Socioeconomics 1/							
Permittees losing more than 20% of forage needs	---	11/Unk.	Unk./Unk.	76/76	1/Unk.	3/1	28/Unk.
Local personal income: ($1,000)							
Total	33,300	-90/+32	0/Unk.	-1440/-1395	+100/+32	+240/+286	-508/-655
Grazing	23,000	-360/+17	0/Unk.	-1440/-1440	-170/+17	-220/+200	-680/-680
Construction 2/	7,600	+270/0	0/0	0/0	+270/0	+460/0	+172/0
Hunting & Fishing	2,700	0/+15	0/0	0/+45	0/+15	0/+86	0/+25

Note: Increase is shown by +, decrease by -. NC = no change from existing situation. Where insufficient data prevent quantification, anticipated changes are expressed using Low (L), Medium (M) and High (H).

1/ Socioeconomic impacts are shown separated by a slash for the short term and long term respectively. Personal income (at annual rates) is in thousands of 1977-79 dollars, and all are shown as changes from the existing situation which represents the total personal income attributable to that activitity in Baker and Malheur Counties.

2/ Total economic impact for construction assumed to occur over a 5-year period.

Table 1-11 Vegetation Allocation by Alternatives 1/

Allot. No!.	Proposed Action			Alternative No. 1 No Action	Alternative No. 3 Limit Downward Adjustment			Alternative No. 4 . Optimize Livestock Use				Alternative No. 5 Optimize Wildlife, Wild Horses and Nonconsumptive Uses		
	Wildlife (AUMs)	Nonconsumptive (AUMs)	Livestock (AUMs)	Livestock (AUMs)	Wildlife (AUMs)	Nonconsumptive (AUMs)	Lvstk (AUMs)	Wildlife (AUMs)	Nonconsumptive (AUMs)	Livestock (AUMs) Short Term	Livestock (AUMs) Long Term	Wildlife (AUMs)	Nonconsumptive (AUMs)	Lvstk (AUMs)
101	192	90	7,481	10,492	192	90	8,394	0	75	7,688	12,565	346	1,615	5,802
102	422	89	2,226	5,274	422	89	4,219	0	26	2,711	3,977	760	643	1,334
103	27	1	263	556	27	1	445	0	0	291	466	49	71	171
104	2	0	44	113	2	0	90	0	0	46	520	4	12	30
105	3	0	223	486	3	0	389	0	0	226	1,704	5	45	176
106	1	0	5	24	1	0	18	0	0	6	6	2	1	3
107	4	0	22	64	4	0	50	0	0	26	26	7	5	14
108	7	0	46	34	7	0	46	0	0	53	53	13	14	26
109	1	0	6	4	1	0	6	0	0	7	7	2	1	4
110	10	0	61	182	10	0	142	0	0	71	71	18	14	39
111	2	0	11	7	2	0	11	0	0	13	13	4	3	6
112	20	0	124	124	20	0	124	0	0	144	144	36	29	79
113	13	0	83	245	13	0	191	0	0	96	96	23	19	54
114	36	88	140	140	36	88	140	0	a8	176	176	65	141	58
115	7	0	43	80	7	0	64	0	0	50	50	13	10	27
116	8	0	54	110	8	0	88	0	0	62	62	14	12	36
117	14	0	92	567	14	0	409	0	0	106	106	25	21	60
118	9	0	56	80	9	0	64	0	0	65	65	16	14	35
119	9	0	58	210	9	0	159	0	0	67	67	16	13	38
120	20	75	30	120	20	75	90	0	0	125	125	36	89	0
121	7	0	41	43	7	0	41	0	0	48	48	13	10	25
122	a	7	337	212	8	7	337	0	7	345	345	14	68	270
123	18	0	118	140	18	0	118	0	0	136	136	32	27	77
124	26	0	169	488	26	0	382	0	0	195	195	47	44	104
125	62	20	163	155	62	20	163	0	20	225	372	112	73	60
127	26	10	410	802	26	10	642	0	10	436	565	47	99	300
129	10	0	62	140	10	0	112	0	0	72	72	18	14	40
130	7	0	129	273	7	0	218	0	0	136	204	13	40	83
131	22	1	346	444	22	1	355	0	0	369	590	40	78	251
132	16	0	307	707	16	0	566	0	0	323	323	29	83	211
133	4	0	26	46	4	0	37	0	0	30	30	7	6	17
134	20	0	126	126	20	0	126	0	0	146	146	36	29	81
135	15	0	99	280	15	0	220	0	0	114	114	27	23	64
136	10	0	61	76	10	0	61	0	0	71	71	18	14	39
137	6	0	35	84	6	0	67	0	0	41	41	11	8	22
138	5	0	31	84	5	0	66	0	0	36	36	9	7	20
139	39	9	461	784	39	9	627	0	9	500	805	70	117	322
140	8	0	38	87	8	0	70	0	0	46	74	14	17	15
141	4	0	28	54	4	0	43	0	0	32	32	7	6	19
142	1	0	3	4	1	0	3	0	0	4	4	2	1	1
143	a	0	189	198	8	0	189	0	0	197	315	14	47	136
144	18	0	112	330	18	0	257	0	0	130	130	32	26	72
145	12	0	78	165	12	0	132	0	0	90	90	22	20	48
146	5	0	31	60	5	0	48	0	0	36	36	9	7	20
147	1	3	2	15	1	3	11	0	3	3	3	2	4	0
148	55	38	131	300	55	38	240	0	38	186	321	99	88	37
149	8	0	50	82	8	0	66	0	0	58	58	14	12	32

Table 1-11 Continued

Allot. No.	Proposed Action			Alternative No. 1 No Action	Alternative No. 3 Limit Downward Adjustment			Alternative No. 4 Optimize Livestock Use				Alternative No. 5 Optimize Wildlife, Wild Horses and Nonconsumptive Uses		
	Wildlife (AUMs)	Nonconsumptive (AUMs)	Livestock (AUMs)	Livestock (AUMs)	Wildlife (AUMs)	Nonconsumptive (AUMs)	Lvstk (AUMs)	Wildlife (AUMs)	Nonconsumptive (AUMs)	Livestock (AUMs) Short Term	Livestock (AUMs) Long Term	Wildlife (AUMs)	Nonconsumptive (AUMs)	Lvstk (AUMs)
150	6	0	39	74	6	0	59	0	0	45	45	11	9	25
151	5	0	35	60	5	0	48	0	0	40	40	9	a	23
152	3	0	16	57	3	0	43	0	0	19	19	5	4	10
153	32	117	a5	85	32	117	a5	0	117	117	117	58	164	12
154	3	0	21	61	3	0	48	0	0	24	24	5	5	14
155	3	0	17	13	3	0	17	0	0	20	20	5	4	11
157	86	80	834	863	86	80	834	0	80	920	1,077	155	220	625
201	196	346	4,214	7,431	196	346	5,945	0	237	4,519	7,079	353	1,394	3,009
202	586	893	9,421	11,141	586	893	9,421	0	405	10,495	15,430	1,055	2,840	7,005
203	164	807	5,596	5,502	164	807	5,596	0	685	6,482	7,898	295	1,992	2,520
204	71	203	580	1,210	71	203	968	0	99	755	1,448	128	355	371
205	203	132	2,765	3,023	203	132	2,765	0	131	2,969	4,674	365	803	1,932
206	324	384	3,104	4,293	324	384	3,434	0	372	3,440	5,132	583	1,188	2,041
208	5	0	32	105	5	0	81	0	0	37	37	9	7	21
209	15	0	94	21	15	0	94	0	0	109	109	27	22	60
210	77	0	483	888	77	0	710	0	0	560	560	139	112	309
211	245	169	4,284	4,188	245	169	4,284	0	135	4,563	5,713	441	999	3,258
212	11	0	69	123	11	0	98	0	0	80	105	20	16	44
214	225	147	2,137	3,022	225	147	2,418	0	126	2,383	3,990	405	678	1,426
216	261	215	849	1,979	261	215	1,583	0	184	1,141	1,765	470	406	449
217	463	885	2,691	5,460	463	885	4,368	0	851	3,188	4,992	833	1,513	1,693
218	102	56	3,154	3,704	102	56	3,154	0	56	3,256	4,127	184	669	2,459
219	11	0	53	170	11	0	131	0	0	64	102	20	25	19
222	341	62	4,388	6,385	341	62	5,108	0	59	4,732	9,396	614	1,103	3,074
223	183	102	1,814	1,722	183	102	1,814	0	0	2,099	2,341	329	436	1,334
224	27	0	214	159	27	0	159	0	0	241	241	49	35	157
225	5	0	35	105	5	0	81	0	0	40	40	9	a	23
226	11	0	68	192	11	0	151	0	0	79	79	20	16	43
227	25	17	107	126	25	17	107	0	17	132	221	45	46	58
228	21	0	132	84	21	0	132	0	0	153	153	38	31	84
233	5	0	35	64	5	0	51	0	0	40	40	9	a	23
244	16	0	98	320	16	0	246	0	0	114	114	29	23	62
402	207	228	4,749	3,750	207	228	4,749	0	186	4,998	7,312	373	1,184	3,627
409	2	0	5	10	2	0	8	0	0	7	7	4	1	2
413	2	0	36	72	2	0	36	0	0	38	38	4	6	28
1001	229	887	1,499	4,763	229	887	3,675	0	0	2,630	3,945	412	1,351	852
1002	12	19	936	767	12	19	936	12	19	937	1,122	22	215	730
1003	79	364	538	795	79	364	642	79	107	804	917	142	527	312
1004	75	202	837	1,027	75	202	a37	75	12	1,027	1,163	135	417	562
1005	0	0	28	28	0	0	28	0	0	28	36	0	6	22
1006	170	498	1,308	1,980	170	498	1,584	0	0	1,976	2,146	306	873	797
1007	0	0	63	63	0	0	63	0	0	63	73	0	13	50
1008	0	0	48	48	0	0	48	0	0	48	48	0	10	38
10'09	11	44	57	112	11	44	90	0	·0	112	140	20	64	28
1010	0	0	30	30	0	0	30	0	0	30	30	0	6	24
1011	0	0	168	168	0	0	168	0	0	168	218	0	34	134
1012	0	0	16	16	0	0	16	0	0	16	16	0	3	13

Table 1-11 Continued

Allot. No.	Proposed Action			Alternative No. 1 No Action	Alternative No. 3 Limit Downward Adjustment			Alternative No. 4 Optimize Livestock Use				Alternative No. 5 Optimize Wildlife, Wild Horses and Nonconsumptive Uses		
	Wildlife (AUMs)	Nonconsumptive (AUMs)	Livestock (AUMs)	Livestock (AUMs)	Wildlife (AUMs)	Nonconsumptive (AUMs)	Lvstk (AUMs)	Wildlife (AUMs)	Nonconsumptive (AUMs)	Livestock (AUMs) Short Term	Long Term	Wildlife (AUMs)	Nonconsumptive (AUMs)	Lvstk (AUMs)
1013	0	0	858	858	0	0	858	0	0	858	1,153	0	172	686
1014	0	0	122	122	0	0	122	0	0	122	167	0	24	98
1015	a	48	223	279	a	48	223	8	48	223	308	14	98	167
1016	0	8	1,025	2,212	0	a	1,770	0	a	1,025	1,325	0	215	818
1017	0	0	343	343	0	0	343	0	0	343	383	0	69	274
1018	0	0	197	197	0	0	197	0	0	197	247	0	40	157
1019	0	0	23	23	0	0	23	0	0	23	26	0	5	18
1020	69	0	335	404	69	0	335	69	0	335	423	124	113	167
1021	69	0	483	552	69	0	483	69	0	483	555	124	141	287
1022	0	0	65	65	0	0	65	0	0	65	80	0	13	52
1023	0	46	46	92	0	46	74	0	46	46	66	0	55	37
1024	0	a	90	98	0	a	90	0	a	90	99	0	26	72
1025	0	0	10	10	0	0	10	0	0	10	12	0	2	a
1026	0	33	162	195	0	33	162	0	33	162	203	0	66	129
1027	0	0	283	283	0	0	283	0	0	283	313	0	57	226
1028	0	0	27	27	0	0	27	0	0	27	27	0	5	22
1029	0	0	14	14	0	0	14	0	0	14	14	0	3	11
1030	0	6	36	42	0	6	36	0	6	36	40	0	13	29
1031	0	8	144	152	0	8	144	0	a	144	159	0	37	115
1032	0	14	129	143	0	14	129	0	14	129	154	0	41	102
1033	0	0	48	48	0	0	48	0	0	48	58	0	10	38
1034	0	0	2	2	0	0	2	0	0	2	2	0	0	2
1035	0	0	35	35	0	0	35	0	0	35	35	0	7	28
1036	0	0	28	28	0	0	28	0	0	28	28	0	6	22
1037	0	38	630	668	0	38	630	0	38	630	685	0	165	503
1038	0	0	47	47	0	0	47	0	0	47	57	0	9	38
1039	19	128	337	484	19	128	387	0	0	484	505	34	206	244
1040	0	26	669	695	0	26	669	0	26	669	816	0	162	533
1041	0	0	246	245	0	0	246	0	0	246	266	0	49	197
1043	0	0	27	27	0	0	27	0	0	27	27	0	5	22
1044	8	205	105	318	a	205	247	0	0	318	345	14	231	73
1045	0	0	91	91	0	0	91	0	0	91	91	0	19	72
1046	0	0	122	122	0	0	122	0	0	122	198	0	25	97
1048	10	111	563	684	10	111	563	10	111	563	645	18	232	434
1049	0	0	40	40	0	0	40	0	0	40	50	0	8	32
1050	0	0	24	24	0	0	24	0	0	24	24	0	5	19
1051	0	0	13	13	0	0	13	0	0	13	15	0	3	10
1052	0	0	107	107	0	0	107	0	0	107	107	0	21	86
1053	0	0	7	7	0	0	7	0	0	7	9	0	1	6
1054	0	0	12	12	0	0	12	0	0	12	12	0	2	10
1055	0	5	45	50	0	5	45	0	5	45	60	0	14	36
1056	0	0	a	8	0	0	a	0	0	8	16	0	2	6
1057	0	0	24	24	0	0	24	0	0	24	24	0	5	19
1058	0	0	6	6	0	0	6	0	0	6	6	0	1	5
1062	0	0	39	39	0	0	39	0	0	39	39	0	8	31

Table l-11 Continued

Allot. No.	Proposed Action			Alternative No. 1 No Action	Alternative No. 3 Limit Downward Adjustment			Alternative No. 4 Optimize Livestock Use				Alternative No. 5 Optimize Wildlife, Wild Horses and Nonconsumptive Uses		
	Wild-life (AUMs)	Noncon-sumptive (AUMs)	Live-stock (AUMs)	Livestock (AUMs)	Wildlife (AUMs)	Noncon-sumptive (AUMs)	Lvstk (AUMs)	Wildlife (AUMs)	Noncon-sumptive (AUMs)	Livestock (AUMs) Short Term	Long Term	Wildlife (AUMs)	Noncom-sumptive (AUMs)	Lvstk (AUMs)
1063	0	0	36	36	0	0	36	0	0	36	36	0	7	29
1064	0	0	41	41	0	0	41	0	0	41	51	0	8	33
1065	0	0	6	6	0	0	6	0	0	6	7	0	1	5
1066	0	0	162	162	0	0	162	0	0	162	232	0	32	130
1067	0	0	4	4	0	0	4	0	0	4	4	0	1	3
1301	226	156	2,860	2,726	226	156	2,860	0	0	3,242	3,242	407	875	1,960
1302	0	577	691	944	0	577	755	0	0	1,268	1,458	0	811	457
1318	0	147	1,298	1,298	0	147	1,298	0	147	1,299	1,533	0	412	1,033
1320	0	23	91	98	0	23	91	0	23	91	106	0	41	73
1326	0	0	2	2	0	0	2	0	0	2	3	0	0	2
1327	0	0	18	15	0	0	18	0	0	18	21	0	6	12
1329	0	0	72	60	0	0	72	0	0	72	80	0	24	48
1330	0	0	16	17	0	0	16	0	0	16	16	0	3	13
1333	0	0	14	14	0	0	14	0	0	14	14	0	3	11
2002	0	0	21	21	0	0	21	0	0	21	21	0	4	17
2003	0	0	la	35	0	0	28	0	0	18	33	0	4	14
2004	5	0	153	158	5	0	153	5	0	153	188	9	37	112
2005	0	0	450	408	0	0	450	0	0	450	550	0	90	360
2006	0	0	6	6	0	0	6	0	0	6	6	0	1	5
2007	0	1	104	104	0	1	104	0	1	104	104	0	22	83
2008	10	0	32	58	10	0	46	10	0	32	32	15	12	15
2010	0	0	7	7	0	0	7	0	0	7	7	0	0	7
2011	0	0	7	7	0	0	7	0	0	7	7	0	1	6
2012	25	5	280	267	25	5	280	12	0	298	348	45	102	163
2013	0	0	4	4	0	0	4	0	0	4	4	0	1	3
2015	0	0	428	357	0	0	428	0	0	428	473	0	142	286
2017	0	25	98	123	0	25	98	0	25	98	108	0	25	98
2019	0	3	340	265	0	3	340	0	3	340	395	0	117	226
2020	0	0	420	573	0	0	458	0	0	420	600	0	84	336
2021	5	0	120	79	5	0	120	0	0	125	133	5	24	96
2022	0	0	10	10	0	0	10	0	0	10	14	0	2	8
2023	13	0	22	35	13	0	28	0	6	29	39	13	7	15
2024	73	0	263	336	73	0	269	15	0	322	402	131	55	150
2025	0	0	60	135	0	0	108	0	0	60	80	0	12	48
2026	0	0	15	30	0	0	24	0	0	15	15	0	3	12
2027	0	5	20	25	0	5	20	0	5	20	30	0	5	20
2028	0	5	22	27	0	5	22	0	5	22	26	0	5	22
2030	7	0	71	78	7	0	71	4	0	74	89	13	16	49
2031	0	0	1,116	1,001	0	0	1,116	0	0	1,116	1,216	0	223	893
2032	0	0	477	477	0	0	477	0	0	478	553	0	96	381
2033	0	0	26	26	0	0	26	0	0	26	26	0	5	21
2034	0	0	193	193	0	0	193	0	0	196	256	0	41	152
2035	0	0	605	605	0	0	605	0	0	605	115	0	121	484
2036	0	10	48	58	0	10	48	0	10	48	58	0	11	47
2037	76	0	174	250	76	0	200	0	0	250	355	137	28	a5
2038	0	0	4	4	0	0	4	0	0	4	4	0	1	3
2039	0	0	6	4	0	0	6	0	0	6	6	0	1	5
2040	29	0	41	17	29	0	41	0	0	73	98	52	6	12

Table -11 Continued

Allot. No.	Proposed Action			Alternative No. 1 No Action	Alternative No. 3 Limit Downward Adjustment			Alternative No. 4 Optimize Livestock Use				Alternative No. 5 Optimize Wildlife. Wild Horses and Nonconsumptive Uses		
	Wild-life (AUMs)	Noncon-sumptive (AUMs)	Live-stock (AUMs)	Livestock (AUMs)	Wildlife (AUMs)	Noncon-sumptive (AUMs)	Lvstk (AUMs)	Wildlife (AUMs)	Noncon-sumptive (AUMs)	Livestock (AUMs) Short Term	Long Term	Wildlife (AUMs)	Noncom-sumptive (AUMs)	Lvstk (AUMs)
2041	0	0	30	14	0	0	30	0	0	30	35	0	10	20
2042	0	0	110	60	0	0	110	0	0	110	615	0	22	88
2043	0	0	3	3	0	0	3	0	0	3	3	0	1	2
2048	46	0	73	107	46	0	86	0	0	119	144	a3	18	18
2050	0	0	499	499	0	0	499	0	0	499	529	0	100	399
2051	0	0	11	11	0	0	11	0	0	11	11	0	2	9
2055	6	0	64	a4	6	0	67	0	0	70	160	11	13	46
2060	0	0	42	40	0	0	42	0	0	42	42	0	a	34
2062	0	0	9	17	0	0	14	0	0	9	9	0	2	7
2063	0	0	16	16	0	0	16	0	0	16	16	0	3	13
2066	0	0	5	a	0	0	6	0	0	5	5	0	1	4
2067	0	0	36	36	0	0	36	0	0	36	36	0	7	29
2068	0	0	10	a	0	0	10	0	0	10	10	0	2	a
2069	0	0	30	30	0	0	30	0	0	30	30	0	6	24
2070	0	0	140	122	0	0	140	0	0	140	170	0	46	94
2071	0	0	385	361	0	0	385	0	0	385	535	0	77	308
2073	0	0	25	25	0	0	25	0	0	25	25	0	5	20
2074	35	91	1,874	2,383	35	91	1,906	0	0	2,000	2,330	63	495	1,442
2075	0	0	87	87	0	0	87	0	0	a7	87	0	17	70
2076	0	0	47	40	0	0	47	0	0	49	49	0	11	36
2077	0	0	154	133	0	0	154	0	0	154	176	0	31	123
2078	0	0	232	142	0	0	232	0	0	232	277	0	46	186
2079	0	0	8	a	0	0	a	0	0	a	a	0	2	6
2081	0	0	45	36	0	0	45	0	0	45	93	0	9	36
2083	1	0	12	18	1	0	14	0	0	13	13	2	2	9
2084	0	64	67	100	0	64	80	0	64	67	77	0	70	61
2085	0	0	156	95	0	0	156	0	0	156	181	0	52	104
2086	0	13	52	65	0	13	52	0	13	52	57	0	13	52
2087	0	0	66	51	0	0	66	0	0	66	66	0	13	53
2092	0	0	8	a	0	0	a	0	0	a	a	0	2	6
2094	0	0	33	33	0	0	33	0	0	33	38	0	7	26
2095	0	0	11	11	0	0	11	0	0	11	11	0	2	9
2096	0	8	532	500	0	8	532	0	a	532	602	0	114	426
2097	0	0	6	6	0	0	6	0	0	6	6	0	6	6
2099	0	0	24	24	0	0	24	0	0	24	28	0	5	19
2100	0	0	2	2	0	0	2	0	0	2	2	0	2	2
2101	0	0	4	4	0	0	4	0	0	4	4	0	1	3
2102	0	0	19	19	0	0	19	0	0	19	19	0	4	15
2103	0	0	9	9	0	0	9	0	0	9	9	0		
2104	0	0	16	16	0	0	16	0	0	16	16	0	3	13
2105	0	0	317	252	0	0	317	0	0	317	402	0	106	211
2106	0	0	31	31	0	0	31	0	0	31	31	0	6	25
2108	0	0	500	396	0	0	500	0	0	500	780	0	100	400
2109	0	0	700	410	0	0	700	0	0	700	1,130	0	142	558
2111	0	23	a7	87	0	23	a7	0	23	a7	99	0	23	a7
2112	21	0	78	99	21	0	79		0	92	92	25	20	54
2114	0	0	68	68	0	0	68	0	0	68	68	0	13	55

Table l-11 Continued

Allot. No.	Proposed Action			Alternative No. 1 No Action	Alternative No. 3 Limit Downward Adjustment			Alternative No. 4 Optimize Livestock Use				Alternative No. 5 Optimize Wildlife, Wild Horses and Nonconsumptive Uses		
	Wild-life (AUMs)	Noncon-sumptive (AUMs)	Live-stock (AUMs)	Livestock (AUMs)	Wildlife (AUMs)	Noncon-sumptive (AUMs)	Lvstk (AUMs)	Wildlife (AUMs)	Noncon-sumptive (AUMs)	Livestock (AUMs) Short Term	Livestock (AUMs) Long Term	Wildlife (AUMs)	Noncom-sumptive (AUMs)	Lvstk (AUMs)
2115	33	0	260	293	33	0	260	0	0	293	368	59	48	186
2116	0	0	140	120	0	0	140	0	0	140	270	0	28	112
2118	0	0	30	30	0	0	30	0	0	30	30	0	6	24
2120	0	0	28	18	0	0	28	0	0	28	28	0	6	22
2121	0	0	88	88	0	0	88	0	0	88	88	0	18	70
2127	0	0	220	264	0	0	220	0	0	221	341	0	44	176
2128	0	0	400	330	0	0	400	0	0	400	450	0	80	320
2129	0	0	80	63	0	0	80	0	0	80	120	0	18	62
2130	0	0	29	21	0	0	29	0	0	29	29	0	6	23
2132	0	0	4	4	0	0	4	0	0	4	4	0	1	3
2139	0	0	6	6	0	0	6	0	0	6	6	0	1	5
2142	0	0	4	4	0	0	4	0	0	4	4	0	1	3
3001	259	1,292	1,150	2,555	259	1,292	2,087	259	27	2,415	3,206	466	1,567	668
3002	68	0	530	598	68	0	530	65	0	533	904	122	154	322
3003	156	277	767	1,266	156	277	1,013	0	0	1,211	1,365	281	535	384
3004	14	79	89	183	14	79	146	14	8	160	239	25	93	64
3005	112	211	17	343	112	211	234	4	0	336	336	122	218	0
3006	134	60	373	505	134	60	404	0	0	567	586	241	326	0
3007	16	47	43	106	16	47	85	11	0	95	95	29	66	11
3008	0	13	55	68	0	13	55	0	13	55	111	0	14	54
3009	0	9	35	46	0	9	37	0	9	35	68	0	9	35
3010	0	0	6	6	0	0	6	0	0	6	6	0	1	5
3011	0	0	21	21	0	0	21	0	0	21	65	0	4	17
3012	0	0	528	528	0	0	528	0	0	528	765	0	80	448
3014	0	0	528	528	0	0	528	0	0	528	808	0	110	418
3015	28	23	123	340	28	23	268	0	0	176	280	50	66	58
3016	0	0	42	42	0	0	42	0	0	42	42	0	8	34
3017	0	0	28	28	0	0	28	0	0	28	34	0	6	22
3018	19	0	162	181	19	0	162	0	0	181	198	29	37	115
3019	0	0	2	2	0	0	2	0	0	2	2	0	0	2
3021	0	0	82	82	0	0	82	0	0	82	82	0	16	66
3022	22	0	172	194	22	0	172	12	0	182	214	40	40	114
3024	0	0	10	10	0	0	LO	0	0	10	10	0	2	8
3025	1	0	21	22	1	0	21	0	0	22	22	2	4	16
3026	132	500	343	1,208	132	500	923	0	0	975	1,030	238	659	78
3027	0	0	3	3	0	0	3	0	0	3	3	0	1	2
3028	0	0	24	24	0	0	24	0	0	24	24	0	5	19
3029	15	41	162	218	15	41	174	0	41	177	317	27	41	150
3030	0	0	14	14	0	0	14	0	0	14	14	0	3	11
3032	0	0	3	3	0	0	3	0	0	3	3	0	1	2
3037	0	0	96	96	0	0	96	0	0	96	96	0	19	77
3041	0	0	5	5	0	0	5	0	0	5	5	0	1	4
3043	0	0	5	5	0	0	5	0	0	5	5	0	1	4
3045	0	0	14	14	0	0	14	0	0	14	14	0	3	11
3047	1	0	6	7	1	0	6	0	0	7	7	2	1	4
3048	0	0	5	5	0	0	5	0	0	5	5	0	1	4
3049	11	18	70	99	11	18	79	6	18	75	75	9	26	64

Table 1-11 Continued

Allot. No.	Proposed Action			Alternative No. 1 No Action	Alternative No. 3 Limit Downward Adjustment I			Alternative No. 4 Optimize Livestock Use				Alternative No. 5 Optimize Wildlife, Wild Horses and Nonconsumptive Uses		
	Wild-life (AUMs)	Noncon-sumptive (AUMs)	Live-stock (AUMs)	Livestock (AUMs)	Wildlife (AUMs)	Noncon-sumptive (AUMs)	Lvstk (AUMs)	Wildlife (AUMs)	Noncon-sumptive (AUMs)	Livestock (AUMs) Short Term	Long Term	Wildlife (AUMs)	Noncom-sumptive (AUMs)	Lvstk (AUMs)
5001	0	0	16	16	0	0	16	0	0	16	16	0		13
5014	0	185	0	185	0	185	123	0	0	185	227	0	185	0
5080	0	0	11	11	0	0	11	0	0	11	11	0	2	9
5133	0	0	29	29	0	0	29	0	0	29	29	0	6	23
5137	0	0	10	10	0	0	10	0	0	10	10	0	2	8
5138	0	0	5	5	0	0		0	0	5		0		
5201	12	0	158	170	12	0	158	12	0	158	234	22	40	108
5202	0	9	63	72	0	9	63	0	9	63	133	0	22	50
5203	0	0	LO	LO	0	0	LO	0		10	10	0		8
5204	2	13	51	66	2	13	53		13	51	71	4	16	46
5205	0	5	18	23	0		18	0		18	18	0		18
5206	0	2	114	116	0	2	114	0		114	114	0	25	91
5207	0	0	3	3	0	0	3	0	0			0		
5208	0	0	5	5	0	0		0	0			0		4
5209	0	2	139	141	0		139	0	2	139	198	0	30	111
5210	0	1	1	2	0			0		1		0		
5211	20	0	28	48	20	0	38	20	0	28	28	28	20	0
5212	0	2	10	10	0	2	LO	0	2	LO	12	0		6
5215	0	0	376	376	0	0	376	0	0	380	810	0	78	298
5216	0	1	53	45	0	1	53	0	1	53	53	0	19	35
5217	0	0	8	8	0	0	8	0	0	8	8	0		6
5218	0	0	112	112	0	0	112	0	0	112	112	0	22	90
5219	0	0	32	32	0	0	32	0	0	32	32	0	6	26
5220	0	0	5	4	0	0		0	0	5		0	2	3
5221	0	2	7	9	0			0		7		0	3	6
5222	0	0	4	4	0	0	4	0	0	4	4	0		3
5223	0	13	13	13	0	13	13	0	13	13	13	0	16	LO
5225	0	0	3	3	0	0	3	0	0	3	3	0		2
5226	0	2	5	7	0	2	6	0	2	5	5	0	3	
5227	0	0	20	20	0	0	20	0	0	20	20	0	4	16
5228	0	0	17	20	0	0	17	0	0	17	17	0		14
5230	0	0	19	19	0	0	19	0	0	19	19	0	4	15
5233	0	0	4	4	0	0	4	0	0			0	1	3
5234	0	0	22	22	0	0	22	0	0	22	22	0	4	18
5235	0	10	19	29	0	10	23	0	10	19	19	0	14	15
5236	0	1	31	32	0		31	0		31	31	0		25
5238	0	0	6	6	0	0	6	0	0	6	6	0		
5303	3	29	105	137	3	29	110	3	29	105	115		52	80
5304	0	0	27	27	0	0	27	0	0	27	27	0		22
5305	0	0	7	6	0	0		0	0			0		
5306	0	0	4	4	0	0	4	0	0	4	4	0		
5307	0	0	4	4	0	0	4	0	0	4	4	0	1	
5309	0	0	2	2	0	0	2	0	0	2	2	0	0	
5310	0	0	25	25	0	0	25	0	0	25	25	0		20

Table L-11 Continued

Allot. No.	Proposed Action: Wild-Life (AUMs)	Proposed Action: Noncon-sumptive (AUMs)	Proposed Action: Live-stock (AUMs)	Alternative No. 1 No Action: Livestock (AUMs)	Alternative No. 3 Limit Downward Adjustment: Wildlife (AUMs)	Alternative No. 3: Noncon-sumptive (AUMs)	Alternative No. 3: Lvstk (AUMs)	Alternative No. 4 Optimize Livestock Use: Wildlife (AUMs)	Alternative No. 4: Noncon-sumptive (AUMs)	Alternative No. 4: Livestock (AUMs) Short Term	Alternative No. 4: Livestock (AUMs) Long Term	Alternative No. 5 Optimize Wildlife, Wild Horses and Nonconsumptive Uses: Wildlife (AUMs)	Alternative No. 5: Noncom-sumptive (AUMs)	Alternative No. 5: Lvstk (AUMs)
5311	1	0	170	221	1	0	177	1	0	170	190	2	35	134
5312	0	0	13	13	0	0	13	0	0	13	13	0	3	LO
5313	35	0	84	0	35	0	84	35	0	84	84	119	0	0
5316	0	0	15	15	0	0	15	0	0	15	15	0	3	12
5319	0	2	90	93	0	2	90	0	2	90	90	0	20	72
5321	18	0	65	83	18	0	65	18	0	65	65	32	25	26
5322	0	0	5	5	0	0	5	0	0	5	5	0	1	4
5323	0	0	66	66	0	0	66	0	0	66	66	0	13	53
5325	0	0	24	32	0	0	26	0	0	24	24	0	8	16
5334	0	0	6	6	0	0	6	0	0	6	6	0	1	5
5335	0	0	8	8	0	0	8	0	0	8	8	0	2	6
5337	0	0	4	4	0	0	4	0	0	4	4	0	1	3
5339	0	0	5	5	0	0	5	0	0	5	5	0	1	4
5340	0	0	2	2	0	0	2	0	0	2	2	0	0	2
5342	0	0	11	12	0	0	11	0	0	11	11	0	4	7
EIS Total	7,619	11,977	107,020	142,118	7,619	11,977	125,554	837	5,048	121,385	167,762	13,640	36,259	74,942

1/ The vegetation allocation for Alternative No. 1, No Action, would be the same as the existing situation.
The vegetation allocation for Alternative No. 2, Eliminate Livestock Grazing, would be zero for livestock and the same as the proposed action for wildlife and wild horses. All remaining forage would be available for watershed protection or other nonconsumptive uses.

2/ Vegetation allocation in Allotment 203 for wild horses would be 600 AUMs under Alternative No. 3 and 2,360 AUMs under Alternative No. 5.

initial vegetation al location by al lotment .)
- Year 2: Continue monitoring resource conditions.
- Year 3: Implement an additional reduction not to exceed that in Year 1 if resource objectives are not being met.
- Year 4: Continue monitoring,
- Year 5: Implement balance of the reduction if resource objectives are not being met.

Range improvements would be implemented throughout the 5-year period and completed by the end of that time. Grazing systems would be implemented in intensive management al lotment s dur ing the 5-year period as promptly as reductions and/or resource conditions permit.

The incremental reductions for the third and fifth years would not be made if resource objectives are being met. Reductions would not exceed the total amount as prescribed in the proposed action. However, for impact analysis, it is assumed that the full downward adjustment as described for the proposal would be made within 5 years. All other elements of this alternative would be the same as those in the proposed action.

Alternative No. 4 - Optimize Livestock Grazing

This alternative would initially provide 121,385 AUMs for livestock use (see Table 1-11, Short Term). This would provide 14,365 AUMs above the proposed action to be derived as follows:
- allocating no competitive forage for big game (+5,533 AUMs)
- protecting riparian areas only to the extent needed to meet Federal and State water quality standards (+1,239 AUMs)
- grazing wildlife enclosures one out of three years (+144 AUMs)
- encouraging a shift to sheep grazing on steep-sloped pastures (+6,849 AUMs)
- removing all wild horses from Hog Creek Area in Allotment 203 (+600 AUMs).

Over the long term, Alternative 4 would provide an additional 46,472 AUMs described as follows : 36,281 AUMs from the projected forage increase as shown for the proposed action (Table 1-2) and 10,191 AUMs which would result from implementation of all feasible range improvement projects in addition to those in the proposed action. (See Table 1-12.)

In this alternative, livestock grazing would have preference over the other resource values. Most MFP objectives or constraints would not apply. For example, a shift to sheep use on the steep slopes would not be constrained by crucial big game habitat needs. All riparian areas would be grazed by livestock as long as Federal and State water quality standards are being met. This would allow for additional livestock grazing as compared to the proposed action.

All other aspects of the proposed action including grazing systems would apply in implementation of this alternative.

Table 1-12 Additional Alternative 4 Range Improvements

Allot.	Seeding (Acres)	Brush Control (Acres)	Juniper Control (Acres)	Fence (Miles)	Springs	Guz-zlers	Pipe-line (Miles)
101	4,172	988	-0-	-0-	-0-	-0-	-0-
102	498	1,044	-0-	-0-	-0-	-0-	-0-
104	1,000	-0-	-0-	-0-	-0-	-0-	-0-
105	1,200	-0-	-0-	-0-	-0-	-0-	-0-
201	768	1,280	-0-	-0-	-0-	-0-	-0-
202	-0-	2,640	-0-	-0-	-0-	-0-	-0-
203	520	-0-	-0-	-0-	-0-	-0-	-0-
204	-0-	2,380	-0-	-0-	-0-	-0-	-0-
205	-0-	1,296	-0-	-0-	-0-	-0-	-0-
206	384	1,304	-0-	-0-	-0-	-0-	-0-
212	-0-	100	-0-	-0-	-0-	-0-	-0-
214	-0-	1,536	-0-	-0-	-0-	-0-	-0-
216	-0-	1,600	-0-	-0-	-0-	-0-	-0-
217	-0-	1,400	-0-	-0-	-0-	-0-	-0-
222	640	3,376	-0-	-0-	-0-	-0-	-0-
402	2,240	-0-	-0-	-0-	-0-	-0-	-0-
1001	320	1,600	360	-0-	-0-	-0-	-0-
1002	220	800	-0-	-0-	-0-	2	-0-
1003	320	1,560	-0-	3.7	-0-	-0-	-0-
1004	320	1,760	80	-0-	-0-	-0-	-0-
1005	-0-	240	-0-	-0-	-0-	-0-	-0-
1006	-0-	280	-0-	-0-	-0-	-0-	-0-
1011	200	160	-0-	-0-	-0-	-0-	-0-
1013	250	120	-0-	-0-	-0-	-0-	-0-
1014	-0-	80	-0-	-0-	-0-	-0-	-0-
1015	280	960	-0-	-0-	-0-	-0-	-0-
1016	440	300	-0-	-0-	-0-	-0-	-0-
1017	-0-	320	-0-	-0-	-0-	1	-0-
1018	-0-	200	-0-	-0-	-0-	-0-	-0-
1019	-0-	120	-0-	-0-	-0-	-0-	-0-
1020	-0-	1,000	200	-0-	-0-	-0-	-0-
1021	-0-	200	400	-0-	-0-	-0-	-0-
1022	-0-	320	-0-	-0-	-0-	-0-	-0-
1023	-0-	160	-0-	-0-	-0-	-0-	-0-
1024	-0-	360	-0-	-0-	-0-	-0-	-0-
1026	-0-	600	-0-	-0-	-0-	-0-	-0-
1027	-0-	480	-0-	-0-	-0-	-0-	-0-
1030	-0-	200	60	-0-	-0-	-0-	-0-
1031	-0-	240	-0-	-0-	-0-	-0-	-0-
1032	-0-	400	-0-	-0-	-0-	-0-	-0-
1033	-0-	40	-0-	-0-	-0-	-0-	-0-
1037	320	-0-	-0-	-0-	-0-	-0-	-0-
1038	-0-	440	-0-	5.0	-0-	-0-	-0-
1039	160	-0-	-0-	-0-	-0-	-0-	-0-
1040	-0-	360	-0-	-0-	-0-	-0-	-0-
1044	-0-	220	-0-	-0-	-0-	-0-	-0-
1045	-0-	210	-0-	-0-	-0-	-0-	-0-
1046	-0-	380	160	-0-	-0-	-0-	-0-

Table -12 Continued

Allot.	Seeding (Acres)	Brush Control (Acres)	Juniper Control (Acres)	Fence (Miles)	Springs	Guz-zlers	Pipe-line (Miles)
1048	-0-	500	40	-0-	-0-	-0-	-0-
1049	-0-	420	-0-	-0-	-0-	-0-	-0-
1050	-0-	-0-	-0-	-0-	-0-	1	-0-
1051	-0-	50	-0-	-0-	-0-	-0-	-0-
1052	-0-	-0-	-0-	-0-	-0-	1	-0-
1055	-0-	420	-0-	-0-	-0-	-0-	-0-
1056	-0-	120	-0-	-0-	-0-	-0-	-0-
1063	-0-	80	-0-	1.0	-0-	-0-	-0-
1065	-0-	40	-0-	-0-	-0-	-0-	-0-
1067	-0-	35	-0-	-0-	-0-	-0-	-0-
1301	-0-	120	-0-	14.3	-0-	-0-	-0-
1302	-0-	960	1,280	-0-	-0-	-0-	-0-
1318	-0-	1,760	80	-0-	-0-	-0-	-0-
1326	-0-	40	-0-	.5	-0-	-0-	-0-
1329	-0-	240	-0-	-0-	-0-	-0-	-0-
1330	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2004	240	-0-	-0-	-0-	-0-	-0-	-0-
2015	-0-	680	-0-	-0-	-0-	-0-	-0-
2032	-0-	360	-0-	.5	-0-	-0-	-0-
2037	280	340	-0-	-0-	-0-	-0-	-0-
2062	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2074	-0-	640	-0-	-0-	-0-	-0-	-0-
2115	-0-	560	-0-	-0-	-0-	-0-	-0-
3001	720	1,600	-0-	-0-	-0-	-0-	-0-
3002	2,120	3,200	-0-	-0-	1	-0-	.5
3003	2,520	800	-0-	-0-	-0-	1	-0-
3004	-0-	920	30	-0-	-0-	-0-	-0-
3007	-0-	80	-0-	-0-	-0-	-0-	-0-
3008	360	-0-	-0-	-0-	-0-	-0-	-0-
3009	480	-0-	-0-	-0-	-0-	-0-	-0-
3011	280	-0-	-0-	-0-	-0-	-0-	-0-
3012	2,040	1,000	-0-	-0-	-0-	-0-	-0-
3014	1,480	960	-0-	-0-	-0-	-0-	-0-
3018	360	1,000	-0-	3.0	-0-	-0-	-0-
3029	960	-0-	-0-	-0-	-0-	-0-	-0-
3037	-0-	-0-	-0-	-0-	-0-	-0-	-0-
5201	-0-	1,480	-0-	-0-	-0-	-0-	-0-
5202	200	250	160	.8	-0-	-0-	-0-
5204	-0-	320	-0-	2.8	-0-	-0-	-0-
5208	-0-	-0-	-0-	-0-	-0-	-0-	-0-
5211	-0-	-0-	-0-	-0-	-0-	-0-	-0-
5215	-0-	720	-0-	.8	-0-	-0-	-0-
5216	-0-	680	-0-	.5	-0-	-0-	-0-
5217	-0-	-0-	-0-	.5	-0-	-0-	-0-
5226	-0-	-0-	-0-	1.0	-0-	-0-	-0-
5230	-0-	-0-	-0-	-0-	-0-	-0-	-0-
5235	-0-	-0-	-0-	-0-	-0-	-0-	-0-
	26,292	53,429	2,850	34.4	1	6	.5

Alternative No, 5 - Optimize Wildlife, Wild Horses and Nonconsumptive Uses

This alternative would optimize wildlife, wild horses and nonconsumpt ive uses. This alternative would result in 32,078 AUMs less for livestock compared to the proposed action and would be achieved by:

- excluding livestock from all riparian areas (-905 AUMs)
- al locating sufficient forage to support the highest historic big game populations (-7,968 AUMs)
- removing all livestock from three pastures of Allotment 203 to allow optimum wild horse numbers consistent with maintenance of other nongrazing values (-1,760 AUMs)
- limiting grazing use to 40 percent utilization of key species (-21,445 AUMs).

Livestock would be excluded from the riparian areas by fencing along the riparian zone, with some small water gaps (less than one acre> to allow livestock access to water. (See Figure 2-3 for location of riparian areas.> Approximately 700 miles of fence would be required. These fences, designed to restrict cattle, would be four strands, with the bottom wire smooth and 16 inches from the ground and the remaining wires barbed and 10 inches apart. No other range improvement projects would be constructed,

Highest historic big game numbers were determined by using data supplied by Oregon Department of Fish and Wildlife (ODFW).

Wild horses would be allowed to increase to 196 head and would be allocated 2,360 AUMs of forage.

INTERRELATIONSHIPS

BLM Planning

The BLM planning system is essentially a decisionmaking process utilizing input from the public and data about the various resources. Land use objectives, decisions and rationale concerning the type and amount of use of each resource category are developed and incorporated into the Management Framework Plan (MFP). Specific MFP recommendations relating to the grazing program in the Ironside EIS area were used as a basis for developing the proposed action. These portions of the Baker and Northern Malheur MFPs are summarized in Appendix A.

Federal Agencies

Grazing on lands administered by other Federal agencies is not contingent on grazing on BLM-administered lands. However, each portion is an integral part of the ranchers total operation. In the Ironside EIS area, 39 BLM permittees also have grazing permits on the Malheur National Forest, Umatilla and/or Wallowa Whitman National Forest. The proposed reduction in livestock use on BLM would result in either a decrease in livestock numbers or an increase in

demand for grazing on private or other agency lands. Coordinated planning among the concerned Federal agencies and ranchers is needed to assure that resource conflicts are resolved and management goals of each agency are met.

In addition to agencies which manage grazing on Federal lands, the Soil Conservation Service (SCS) develops plans for private ranches.

The U.S. Forest Service may assume management jurisdiction of approximately 2,000 acres of public land (Allotments 3005 and 3007) within the boundaries of Hells Canyon National Recreation area.

State Government

The Intergovernmental Relations Division for the State of Oregon acts as a clearinghouse for the various State agencies. Al 1 BLM planning and major actions are coordinated through this State Clearinghouse.

Under Oregon Senate Bill 100, all counties and cities in Oregon are required to develop and adopt comprehensive plans and land use controls consistent with statewide planning goals and guidelines. The regulating authority is the Land Conservation and Development Commission (LCDC). The relationship of the proposed action and alternatives to LCDC goals is displayed in Table l-13.

Table 1-13 Relationship of Ironside Proposed Action and Alternative Plans to LCDC Goals 1/

LCDC Planning Goals 2/	Proposed Action	Alt. 1 No Action	Alt. 2 Elim. Lvstk.	Alt. 3 Limit Adj.	Alt. 4 opt. Lvstk	Alt. 5 opt. Other	Discussion 3/
1. Insure citizen involvement in all phases of the planing process	G	G	G	G	G	G	
2. Establish a land use planing process and policy framework as basis for all decisions.	G	G	G	G	G	G	
5. Conserve open space and protect natural and scenic resources	G		G	G	F	G	Alt. 1 lacks provision for minimizing adverse affects of livestock grazing on conflicting wildlife and aquatic resources. Alt. 4 provides modest provision for wildlife resources but stresses increase in livestock use
6. Maintain and improve the quality of the air, water and land resources of the State	G		G	G	F	G	Alt. 1 will continue to deplete range productive capacity by overgrazing and no range improvement projects are proposed. Alt. 4 provides only modest water quality protection and enhancement.
8. Satisfy the recreational needs of the citizens of the State and visitors	G		G	G	F	G	Alt. 1 will cause gradual decline in scenic and environmental attraction for visitors. Alt. 4 will cause modest decrease in hunting opportunity in certain localities.
9. Diversify and improve the economy of the State	G		P	G	G	F	Alt. 1 economic benefits from livestock production will gradually decline. Alt. 2 would 'adversely affect the local economic condition by loss of livestock production. Alt. 5 would not increase livestock production returns commensurate with other range uses.

1/ Relationship symbols: "G" Good relationship to goal objectives; "F" Fair relationship to goal objectives; "P" Poor relationship to goal objectives

2/ Goals 3, 4, 7, 10, 11, 12, 13, 14 are not generally applicable to the proposed action or alternatives

3/ Discussion focuses on deficiencies in addressing applicable goals.

CHAPTER 2

AFFECTED ENVIRONMENT

CHAPTER 2 AFFECTED ENVIRONMENT

INTRODUCTION

This section describes the resources within the Ironside EIS area as they existed in 1978 (base year). The base year of 1978 was chosen because the primary data sources (Bureau planning system documents) were compiled during that year. The planning system documents consisting of Unit Resource Analysis, Planning Area Analysis and Management Framework Plans are available for review in the respective BLM district offices in Baker and Vale, Oregon.

Emphasis has been placed on those resource components most likely to be impacted if the proposed action or one of the alternatives were implemented. Analysis, including the scoping process, indicated that resource components such as minerals, timber and air quality would not be affected and, therefore, they are not discussed. Other information is included only to the extent necessary to provide a basis for analysis.

In preparation of this EIS , the primary data sources are documents of the Bureau planning system. Other references supplementary to or updating planning system data are cited within the body of the text by author and date of publication. A listing of these references appears in References Cited.

VEGETATION

The Ironside EIS area has an exceptional diversity of topography, soils and climate. This diversity is expressed in 34 equally diverse vegetation ecosites. (See Glossary.)

There are 17 major (5,000 acres or larger) ecosites comprising approximately 790,000 acres of the EIS area. In addition, there are 14 smaller range sites comprising approximately 31,000 acres. The remaining public land acres consist of 131,471 acres of nonproductive sites of either rockland or lakebed soils and 50,448 acres of small scattered tracts of public land which were not inventoried and for which no vegetation or soil information is available.

Based upon similarities in species composition and total livestock forage production, the 17 major ecosites were combined into six ecosite groups. Information concerning ecosite group characteristics and location is displayed on Table 2-l and Figure 2-l. Most of the data concerning these ecosites were gathered during 1976 and 1977 using the methodology explained in Appendix B.

Vegetation Composition

Approximately 70 percent of the EIS area is classified as potential grassland (Table 2-1, grassland ecosites: G-l, G-2, G-3). Under climax ecosite condition these areas would be dominated by bunchgrasses such as bluebunch wheatgrass and Idaho fescue.

	G-l	G-2	G-3	S-l	W-l	W-2	M-l	N-l
Public Land Acres	204,389	168,623	316,412	78,454	4,198	16,025	30,944	132,471
Percent of area 2/	20%	17%	32%	8%	1%	2%	3%	13%
Dominant Species 3/ & % Comnosition 4/								
Climax	Agsp 58%	Agsp/Feid 55%	Agsp/Feid 72%	Arri/Arar 24%	Feid 51%	Agsp/Feid 59%	5/	t
	Posa 9	Artr 11	Artr 8	Posa 23	Cage 11	Artr 11		
	Pocu 8	Posa 8	Posa 3	Agsp 15	Agsp 9	Posa 8		
Late	Agsp 40	Agsp/Feid 32	Agsp/Feid 59	Posa 28	Feid 40	Agsp/Feid 33	5/	t
	Posa 13	Artr 21	Artr 14	Arri/Arar 25	Caru 13	Artr 25		
	Artr 13	Posa 15	Posa 6	Sihy 11	Agsp 7	Posa 6		
Middle	Artr 21	Artr 34	Agsp/Feid 33	Posa 33	Feid 19	Artr 33	5/	t
	Agsp 17	Posa 21	Artr 23	Arri/Arar 22	Caru 19	Agsp 13		
	Posa 17	Sihy/Brte 13	Posa 9	Artr 10	Pipo 11	BROMU 9		
Early	Artr 19	Artr 39	Artr 33	N/A	Caru 24	Artr 38	5/	t
	Brte 13	Brte 19	Brte 17	N/A	BROMU 17	Sihy 23		
	Posa 13	Posa 12	Posa 6	N/A	Sihy 11	Brte 12		
Ecosite Condition								
Climax (Ac)	3,032	556	9,045	2,039	176	362	2,283	t
Late (Ac)	24,413	8,666	110,997	15,331	3,667	10,475	5,697	
Middle (Ac)	60,958	44,635	125,133	41,176	355	4.231	6,357	
Early (Ac)	108,906	107,419	48,440	19,793	-o-	957	15,959	
No Status (Ac) 6/	7,080	7,347	22,797	115	-o-	-0-	648	
Annual Vegetation Production (lbs/ac)								
Climax	450	635	815	265	890	530	5/	t
Late	465	610	765	295	965	645		
Middle	480	570	695	125	950	850		
Early	500*	570	595	60*	930*	1,015*		
Annual Livestock Forage Production								
Climax (lbs/ac)	165	225	290	70	125	170	5/	
Late	125	150	230	50	105	170		
Middle	95	85	150	30	70	180		
Early	70*	55	95	10*	45*	190*		
Total Vegetation Production (lbs)	99,827,000	96,665,000	218,943,000	9,878,000	4,033,000	11,518,000		
Vegetation Ground Cover (%)								
Climax	43%	N/A	60%	58%	N/A	N/A	5/	†
Late	46%	47%	53%	53%	N/A	57%		
Middle	45%	54%	56%	46%	N/A	53%		
Early	46%	49%	58%	N/A	N/A	N/A		

N/A Not available * Estimated value due to insufficient data. † Not applicable--nonproductive areas with insignificant vegetative production

1/ See Appendix E for listing of ecosites within each group (G-l, G-2, G-3, S-l, W-l, W-2, M-l, & N-l), and Figure 2-l for location.
2/ Does not include 78,452 acres (5 percent of total public land acres) which were not surveyed.
3/ See Appendix F for explanation of plant symbols.
4/ Composition includes only vegetation production within 4.5 feet of the ground.
5/ Because of the diversity and number of sites, no meaningful average could be computed.
6/ Ecosite condition not determined.

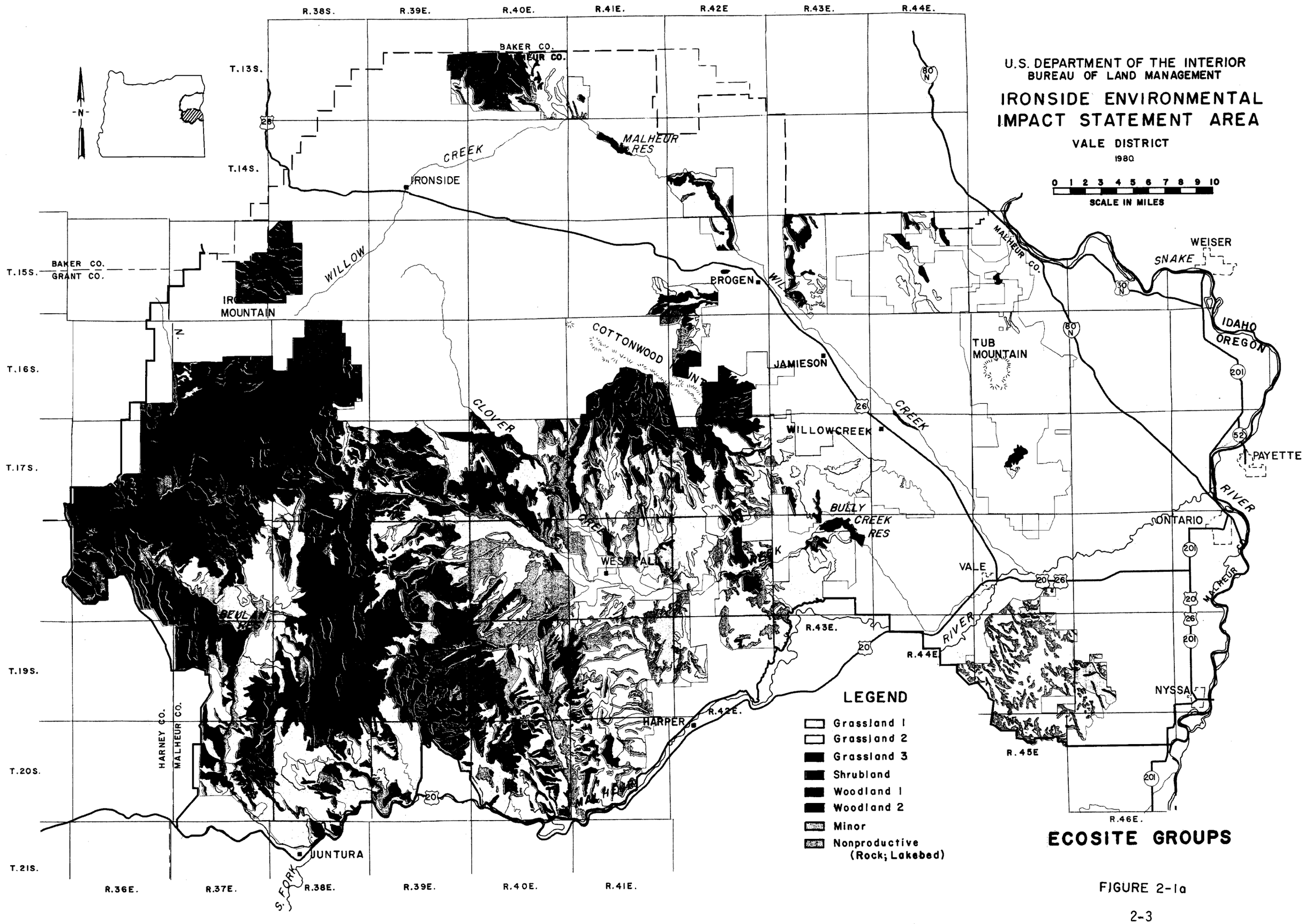
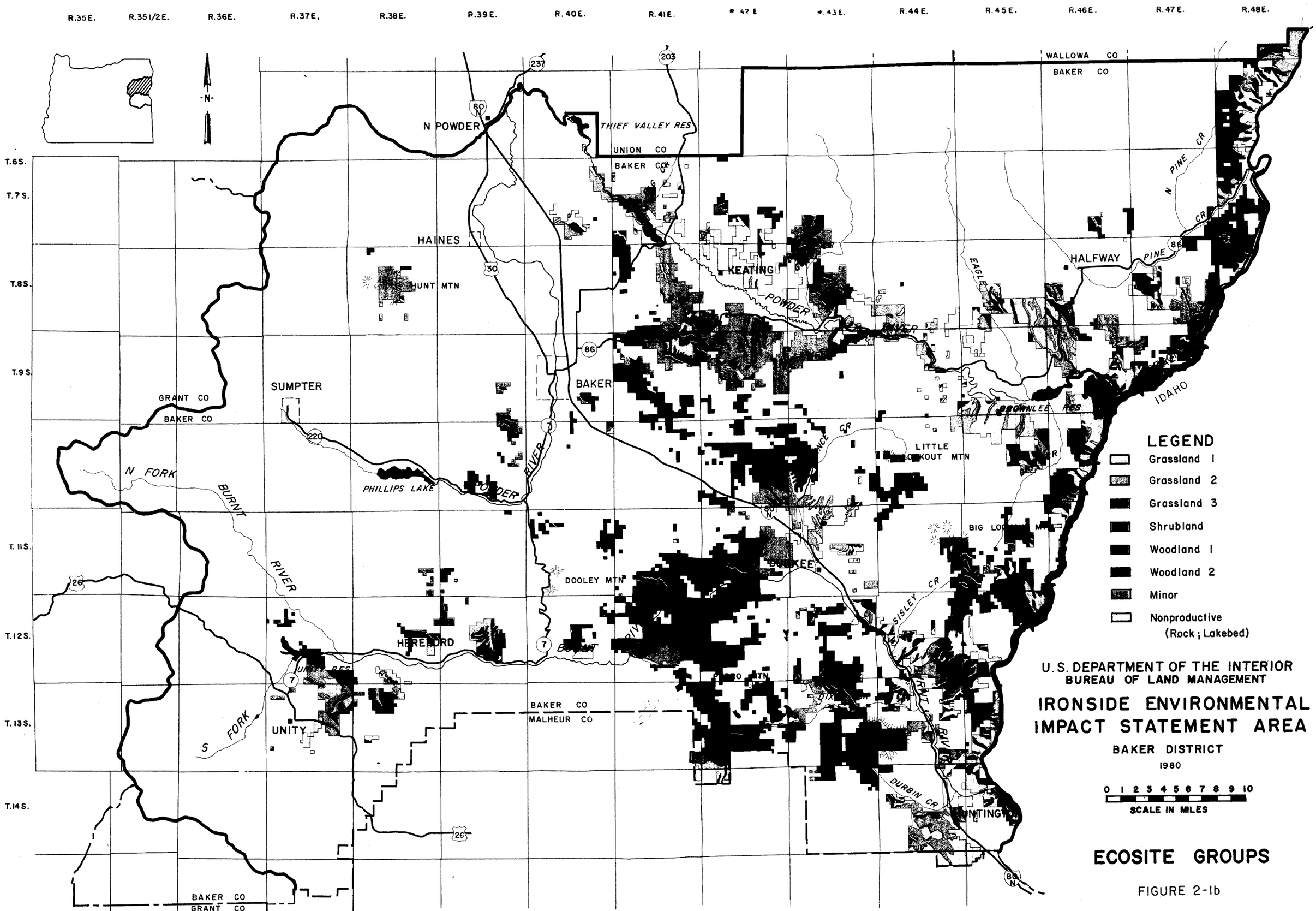

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
IRONSIDE ENVIRONMENTAL IMPACT STATEMENT AREA
VALE DISTRICT
1980
0 1 2 3 4 5 6 7 8 9 10
SCALE IN MILES
R.38S.
R.39E.
R.40E.
R.41E.
R.42E
R.43E.
R.44E.
R.45E
R.46E.
R.36E.
R.37E.
R.38E.
T.13S.
T.14S.
T.15S.
T.16S.
T.17S.
T.19S.
T.20S.
T.21S.
BAKER CO.
GRANT CO.
HARNEY CO.
MALHEUR CO.
IRONSIDE
MALHEUR RES
CREEK
WILLOW
IRON MOUNTAIN
BROGEN
COTTONWOOD
JAMIESON
TUB MOUNTAIN
CLOVER
WILLOWCREEK
CREEK
BULLY CREEK RES
WEST FALL
HARPER
JUNTURA
S. FORK
SNAKE
WEISER
IDAHO
OREGON
PAYETTE
RIVER
ONTARIO
VALE
MALHEUR
NYSSA
LEGEND
Grassland 1
Grassland 2
Grassland 3
Shrubland
Woodland 1
Woodland 2
Minor
Nonproductive (Rock; Lakebed)
ECOSITE GROUPS

FIGURE 2-1a



ECOSITE GROUPS

FIGURE 2-1b

These ecosites are the most productive of the upland sites for domestic livestock grazing. Due to past human activities on public lands, such as livestock grazing and vegetative manipulation, the present vegetation composition in many areas differs greatly from climax composition.

As the ecosite conditions depart from climax, an increasingly larger proportion of the vegetation in grassland ecosites becomes shrubby species such as big sagebrush; early maturing annual and perennial grass species such as cheatgrass, Sandberg bluegrass and squirreltail; and forbs unpalatable to livestock, such a tumble mustard, peppergrass and prickly lettuce. Table 2-l displays the changes in composition of the dominant species in the four ecosite condition classes.

The shrubland ecosite group (S-l) is found on approximately 8 percent of the EIS area. Dominant species are either stiff sagebrush or low sagebrush found primarily on shallow rocky ridgetop soils. Because of their limited productivity and other physical factors, these areas have not been modified by past uses as much as the grassland ecosites. As vegetation composition departs from climax conditions, the bunchgrasses are replaced by early maturing perennial grasses ; however, very little change in the composition of the dominant sagebrushes is found.

The woodland ecosites (W-l and W-2) are dominated primarily by tree species. These sites make up only 3 percent of the EIS area and have not been modified by past uses as much as most other ecosites.

The miscellaneous ecosite group (M-2) spans a wide range of sites dominated by plants as diverse as mountain mahogany, greasewood, western juniper, saltgrass and subalpine species. Because of the diversity of vegetation and topography, past use of these ecosites has varied greatly and consequently canposition also varies greatly.

Nonproductive areas (N-l) comprise 13 percent of the EIS area. These areas are characterized by a scarcity of vegetation cover and lack of soil development. Most of the nonproductive area (95,000 acres) is classified as rockland with vegetation found only in cracks where soil and moisture conditions allow plant growth. The remaining area consists of lakebed sediments with extremely low productivity. No soil development has occurred on these areas because of their rapid rate of erosion. Virtually no vegetation grows on these areas except in extremely wet years.

Vegetation Production

Vegetation production displayed in Table 2-l includes the total weight of plant material produced annually from ground level to a height of 4.5 feet. The total vegetation production in the EIS area during a normal climatic year is approximately 440,000,000 pounds. This does not include vegetation production from minor ecosites (M-l), riparian areas or nonproductive areas.

The total vegetation production on an acre increases when ecosite condition changes from early to climax, (See Glossary.) However, ecosite groups G-l,

W-l and W-2 are exceptions. In ecosite group G-l, vegetation production increases when the site is in early condition because sagebrush and annual grasses, which dominate the site in early condition, produce more plant matter in an average year than the perennial grasses found on the site in climax condition. On ecosites W-l and W-2, there are fewer trees in early condition than in climax condition. As a result of less shade and competition from tall woody species, shorter herbaceous and shrubby plants dominate the ecosite and result in more vegetation production than that produced in climax condition.

Forage Production

The portion of the total vegetation production suitable for use by grazing animals is called forage production. Average annual forage production for each ecosite group is displayed on Table 2-1. Forage production for each allotment is shown on Table l-2. The average annual forage product ion within the EIS area varies from approximately 290 pounds per acre down to 10 pounds per acre on the least productive of those major ecosite groups.

Forage production varies from 37 percent of the vegetation production in ecosite G-l (climax condition) down to 5 percent of vegetation production on ecosite S-l (early condition). The proportion that forage production comprises is dependent upon the composition of the key species among the different ecosite groups and condition classes. For example, in ecosite group G-l, bluebunch wheatgrass (Agsp on Table 2-1), a key species, produces 58 percent of the total vegetation production under climax ecosite condit ions, Assuming 50 percent of the annual vegetation production can be consumed by grazing animals without damaging the plants, almost 30 percent of the total vegetation production would be available as forage. Comb in ing forage from bluebunch wheatgrass (30 percent) with that produced by less common plants brings the total portion of livestock forage on ecosite G-l up to 37 percent of the total vegetation production.

As ecosite condition regresses from climax to early, the composition of the key species also diminishes from 58 percent to less than 10 percent of the total vegetation production. Concurrently, the forage production also is reduced from 37 percent to 14 percent of the vegetation production.

Overall, forage production in the EIS area is approximately 28 percent of the total vegetation production.

Ecosite Condition and Trend

Ecosite condition is an expression of the current productivity of an ecosite in relation to its potential productivity.

Ecosite condition and trend were determined for the EIS area using the techniques described in Appendix B. There are four condition classes : climax, late, middle and early: The determination of the existing ecosite condition is made by comparing the present plant composition (by species and by weight)

to the potential plant composition on each ecosite. When the present plant composition is less than 25 percent of the potential composition, the ecosite is in early condition. As the plant composition approaches the potential plant composition, ecosite condition changes from early and middle to late and final ly to climax. In climax condition, the present composition is 76 percent or more of the potential plant composition.

Trend is a measure of recent change in ecosite condition either toward or away from climax condition, Trend can be either upward, static or downward. Upward trend is change in condition toward climax and downward is a change away from climax condition. Refer to Table 2-2 for a summarization of ecosite condition and trend for the EIS area. Ecosite condition and trend for each allotment is displayed in Appendix D.

Table 2-2 Ecosite Condition and Trend

Ecosite Condition

Climax		Late		Middle		Early		No Data	
Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
17,493	2%	179,246	18%	282,845	28%	301,474	30%	219,365	22%

Ecosite Trend

Upward		Static		Downward		No Data	
Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
172,506	17%	526,000	52%	127,508	13%	175,950	18%

Vegetative Ground Cover

Vegetative ground cover is expressed as a percentage and indicates what portion of the soil surface has living plant material above it up to a height of 4.5 feet. It does not include dead vegetation (litter) or other forms of surface cover such as rock. Vegetative ground cover was estimated during 1977 as part of the vegetation inventory.

Vegetative ground cover varies from 15 percent up to 85 percent within the EIS area. Average vegetative ground cover for each of the six ecosite groups is displayed on Table 2-1. An analysis of the 1977 survey shows no significant change in vegetative ground cover related to changes in ecosite condition. Nonetheless, ecosites in climax or late condition often have more litter and as a result have more total organic ground cover (litter and live vegetation). However, the data also indicate that the height structure of vegetative ground cover varies significantly among the four ecosite condition categories. In the grassland ecosites (G-l, G-2, G-31, as ecosite condition departs from climax the vegetative ground cover is increasingly composed of sagebrush and other shrub species and less grass. Conversely, in the woodland sites, a departure from climax results in a significant increase in low level vegetative ground cover and a similar decrease in tree species.

Riparian Vegetation

Riparian vegetation occupies approximately 1,541 acres of public land. Most of the riparian vegetation is found in the riparian zone adjacent to perennial streams. The remaining riparian vegetation is found around reservoirs, springs and other areas where soils are saturated throughout most of the growing period. The location of the significant riparian zones is shown on Figure 2-2. Most of the riparian acres near reservoirs are found within the flood zone of the Snake River impoundments. Due to severe fluctuation in water level (30 feet) these areas have no potential for riparian vegetation.

The riparian zone is potentially the most productive ecosite in the EIS area. When relatively undisturbed, riparian vegetation is mostly composed of thick clusters of shrubs and trees interspersed with dense herbaceous vegetation. With increasing disturbance, the dominant tree and shrub species are replaced by herbaceous species. Where disturbance is severe, particularly if occurring during the growing season, virtually no vegetation remains.

Threatened and Endangered Plants

At present, there are no Federally-listed threatened or endangered plants in the EIS area. However, there are 11 plant species which appear to be likely candidates for listing by the U.S. Fish and Wildlife Service as either threatened or endangered and which have either been found on public lands or are expected to occur within the EIS area. Information concerning these plants is found on Table 2-3. Most of these plants are confined to very specific sites and usually very limited environmental conditions in the EIS area.

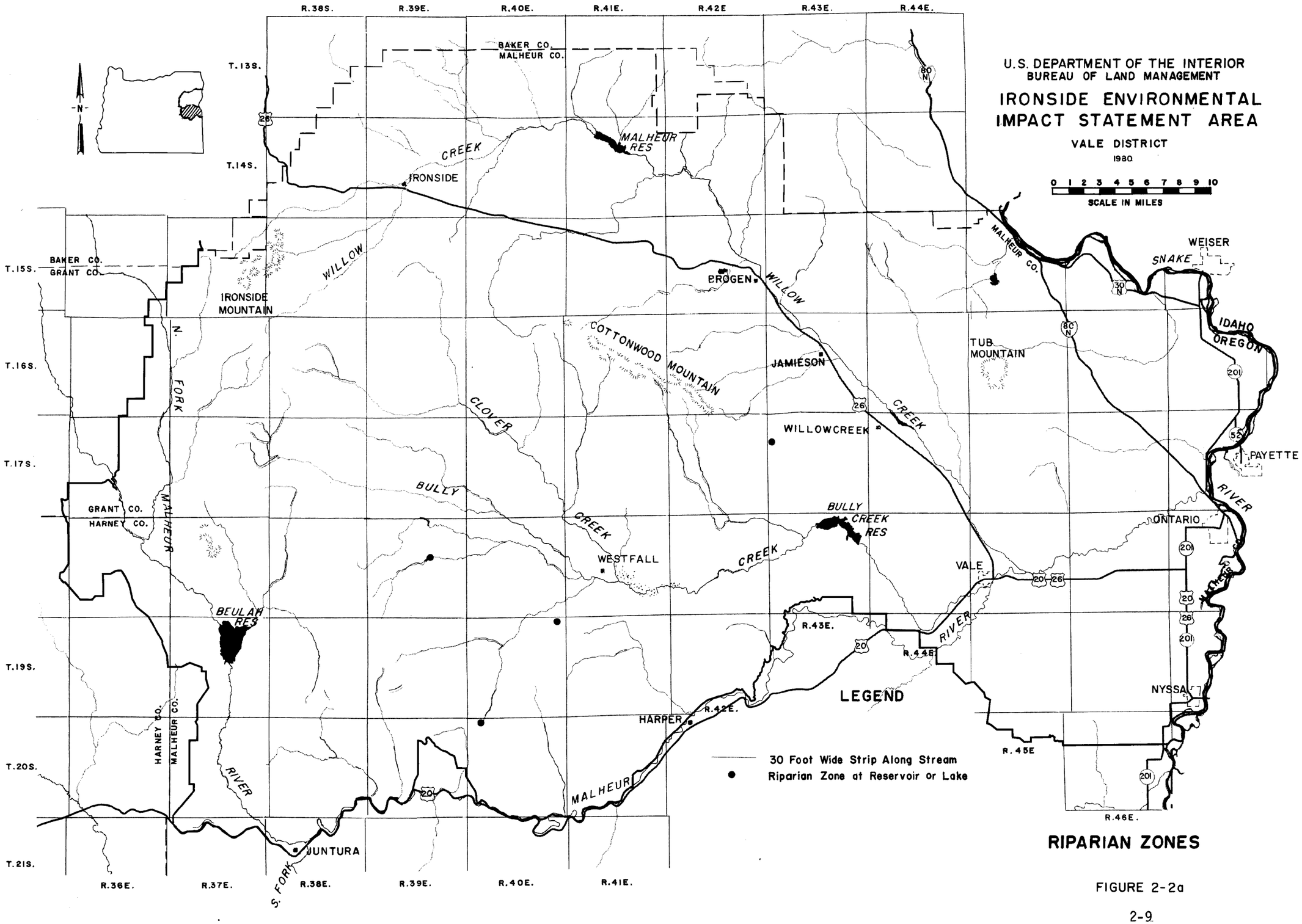
CLIMATE

The Ironside EIS area has a semiarid climate, with long, cool, moist winters and short, warm, dry summers.

The area has a winter precipitation pattern, with about 50 percent of the annual total occurring during the months of November through February. Much of this comes as snow, especially in December and January. Spring rains occur in May and June while the months of July, August and September are generally quite dry.

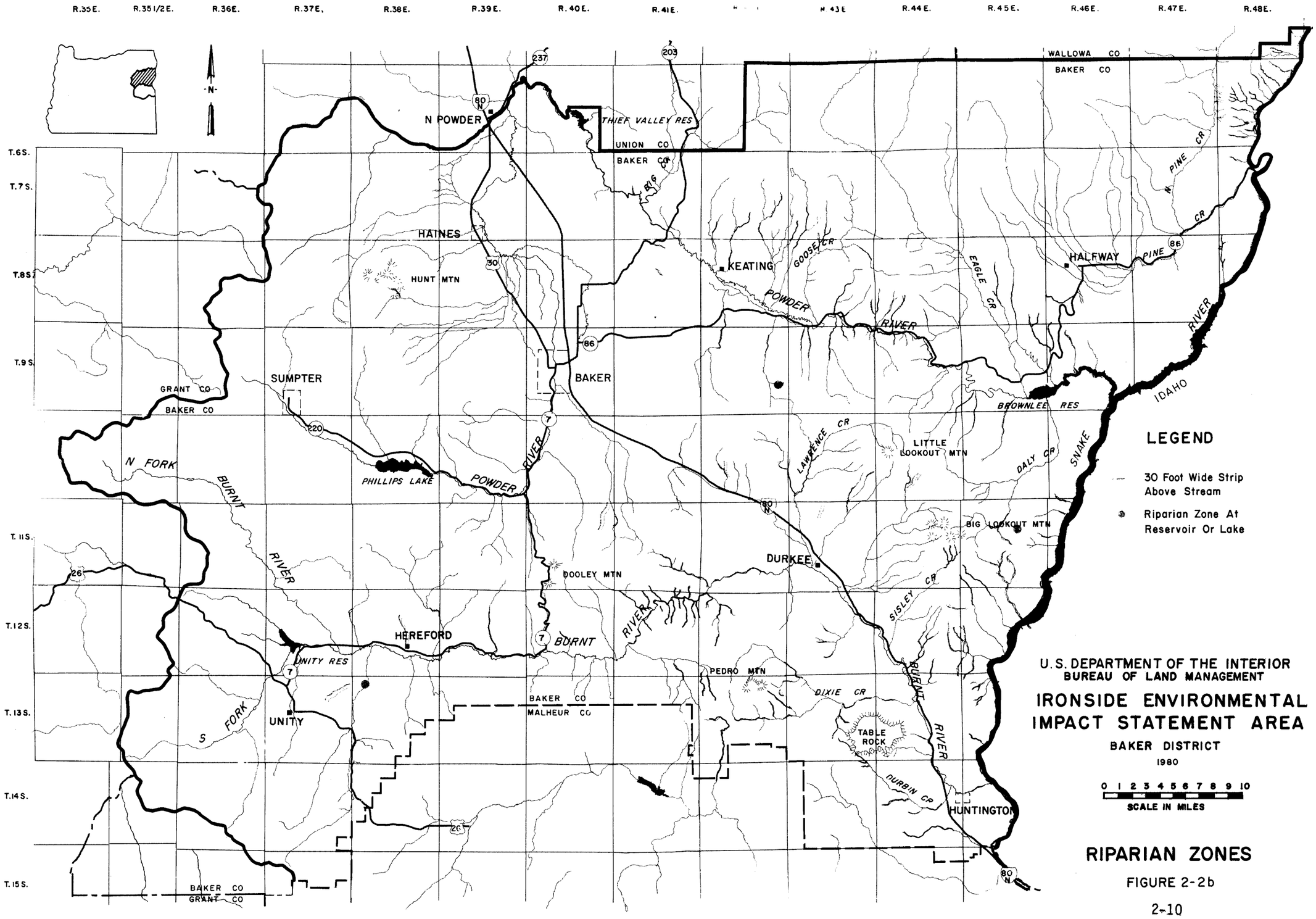
Precipitation tends to be elevation-dependent, ranging from around 8 inches on the Snake River (1,600 feet) to 20-30 inches at elevations above 5,000 feet. Most of the area receives about 15 inches annually.

Temperatures below zero occur nearly every winter, and summer temperatures over 100" F are not uncommon. Frost-free days range from 37 days at Unity to 161 days at Huntington. Appendix G shows precipitation and temperature data for selected weather stations.



RIPARIAN ZONES

FIGURE 2-2a



RIPARIAN ZONES

FIGURE 2-2b

Table 2-3 Plants Which Are Likely Candidates for Federal Listing by the U.S. Fish and Wildlife Service

Scientific Name	Common Name	Probable Status 1/	Occurrence in EIS Area 2/	Allot. No.	Habitat
Astragalus purshii var. ophiogenes	Pursh's milk vetch	E	S		Sagebrush valleys
Castilleja glandulifera	Glandular paintbrush	T	C		Dry mountain slopes
Castilleja oresbia	Pale paintbrush	T	C		Undisturbed sagebrush sites
Hackelia cronquistii	Cronquist's stickseed	E	S		With sage brush
Haplopappus radiatus	Snake River goldenweed	E	C		Dry hillsides
Lomatium oreganum	Oregon desert parsley	T	C		Alpine snow fields & wind swept ridges
Lomatium rollinsii	Rollins' desert parsley	T	S		Open slopes in canyon of Snake River
Lupinus biddlei	Biddle's Lupine	T	S		Low hillsides & flats associated with sagebrush
Mentzelia mollis		T	S		Decayed volcanic ash soil with high clay content
Primula cusickiana	Cusick's primrose	E	S		Often 'on talus slopes or near seepages
Thelypodium howellii var. spectabilis	Howell's thelypodium	T	S		Alkaline, poorly drained soil

1/ T = Threatened; E = Endangered: As defined in Public Law 93-205.
2/ C = Confirmed; S = Suspected

GEOLOGY AND TOPOGRAPHY

The EIS area lies within two physiographic provinces. The Owyhee Uplands Province consists of a plateau developed on volcanic rocks associated with older sedimentary rocks. The Blue Mountains Province, which is geologically complex, is made up of several ranges of mountains separated by faulted valleys (Franklin et al. 1973).

Elevation ranges from a low of 1,600 feet at the Snake River to 8,200 feet at Hunt Mountain in the northwest corner of the area. The topography varies from deeply-dissected canyons with steep slopes along the Snake and Burnt Rivers to low rolling hills and gently sloping valleys along the other major rivers. Figure 2-3 illustrates topography and physiographic provinces.

SOILS

The soils in the area were inventoried in 1976 by BLM. A summary of the soil units, their properties and their acreages appears as Appendix H.

The EIS area has been divided into six soil groupings, based on parent material, as shown in Figure 2-4, General Soils. Location of soil groups relevant to allotments may be seen by comparing Figure 2-4 with Figure l-l. Appendix I contains a list of soil units within the mapping divisions.

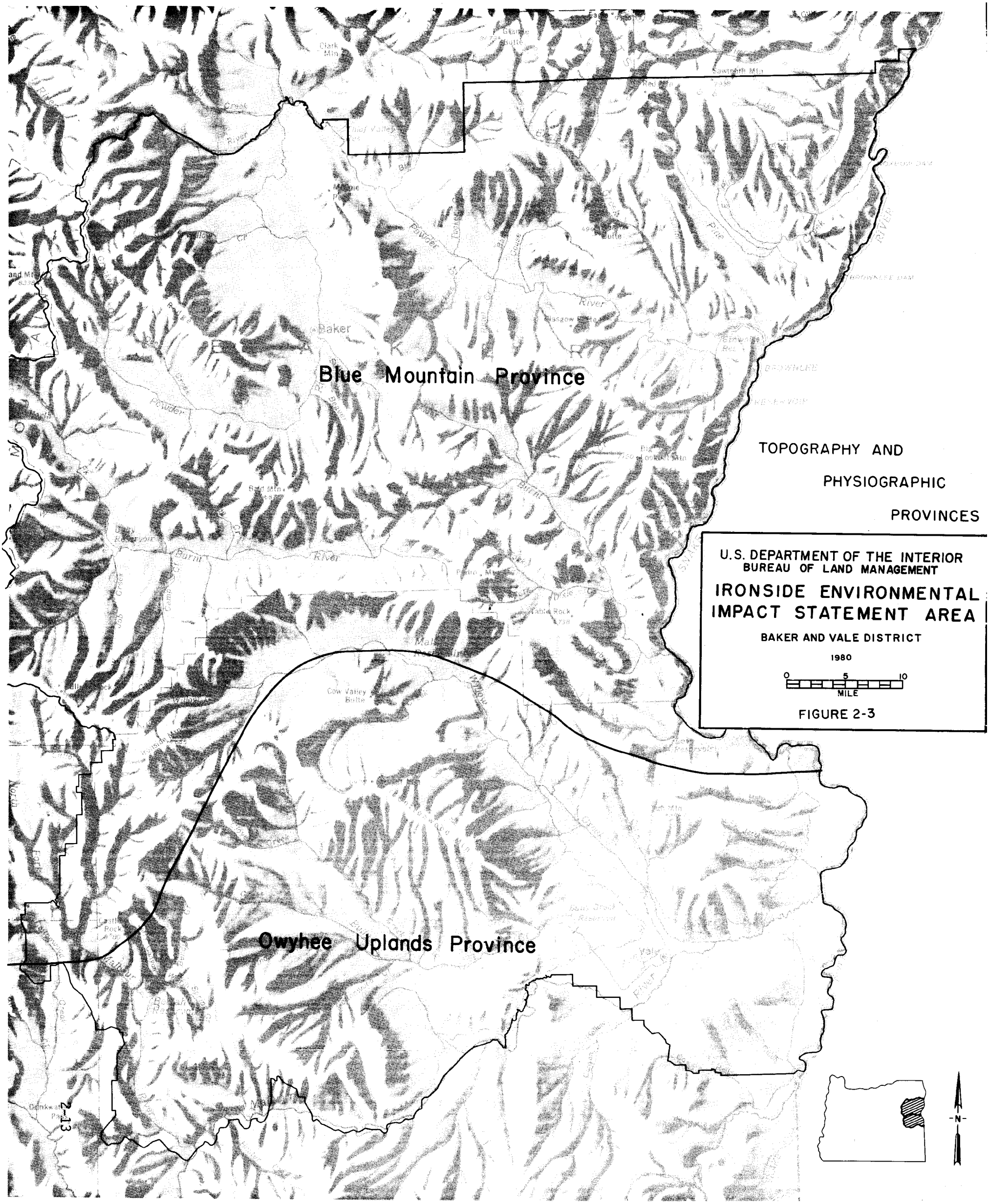
The Alluvial soils (2 percent of the public lands surveyed) are found along stream channels, and are deep and well-drained. The Lacustrine soils (24 percent) are derived from old lakebed sediments and are fine textured, non-stony and moderately deep. The Granite soils (2 percent) are coarse textured and are found on steep mountainous areas. The Volcanic soils (44 percent) are the most extensive, and are stony and shallow. The Very Shallow Volcanic soils (17 percent) are less than 12 inches deep and are naturally low in productivity. The Upland Volcanic and Metamorphic soils (11 percent) occur on steep upland areas and are stony.

Erosion problems are the most critical on sedimentary soils (soil divisions Lacustrine and Alluvial as shown on Figure 2-4). Where the soil surface is exposed, rills and gullies cut quickly into these fine-textured soils and gullies can get very deep. The Granite soils are also easily eroded due to their coarse texture.

Approximately 34 percent of the public lands surveyed have a severe erosion hazard. These areas are mainly on steeper slopes (over 35 percent slope). Streambank erosion is also a problem in the area. A survey of selected public stream miles revealed 44 percent of the streambanks were eroding. Livestock trampling accounted for 58 percent of the streambank erosion, 37 percent was from natural causes and 5 percent from other causes.

WATER RESOURCES

The water resources of the area lie within the Powder River and Malheur River watersheds. Both of these watersheds drain into the Snake River, which forms



TOPOGRAPHY AND PHYSIOGRAPHIC PROVINCES

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

IRONSIDE ENVIRONMENTAL IMPACT STATEMENT AREA

BAKER AND VALE DISTRICT

1980

0 5 10
MILE

FIGURE 2-3

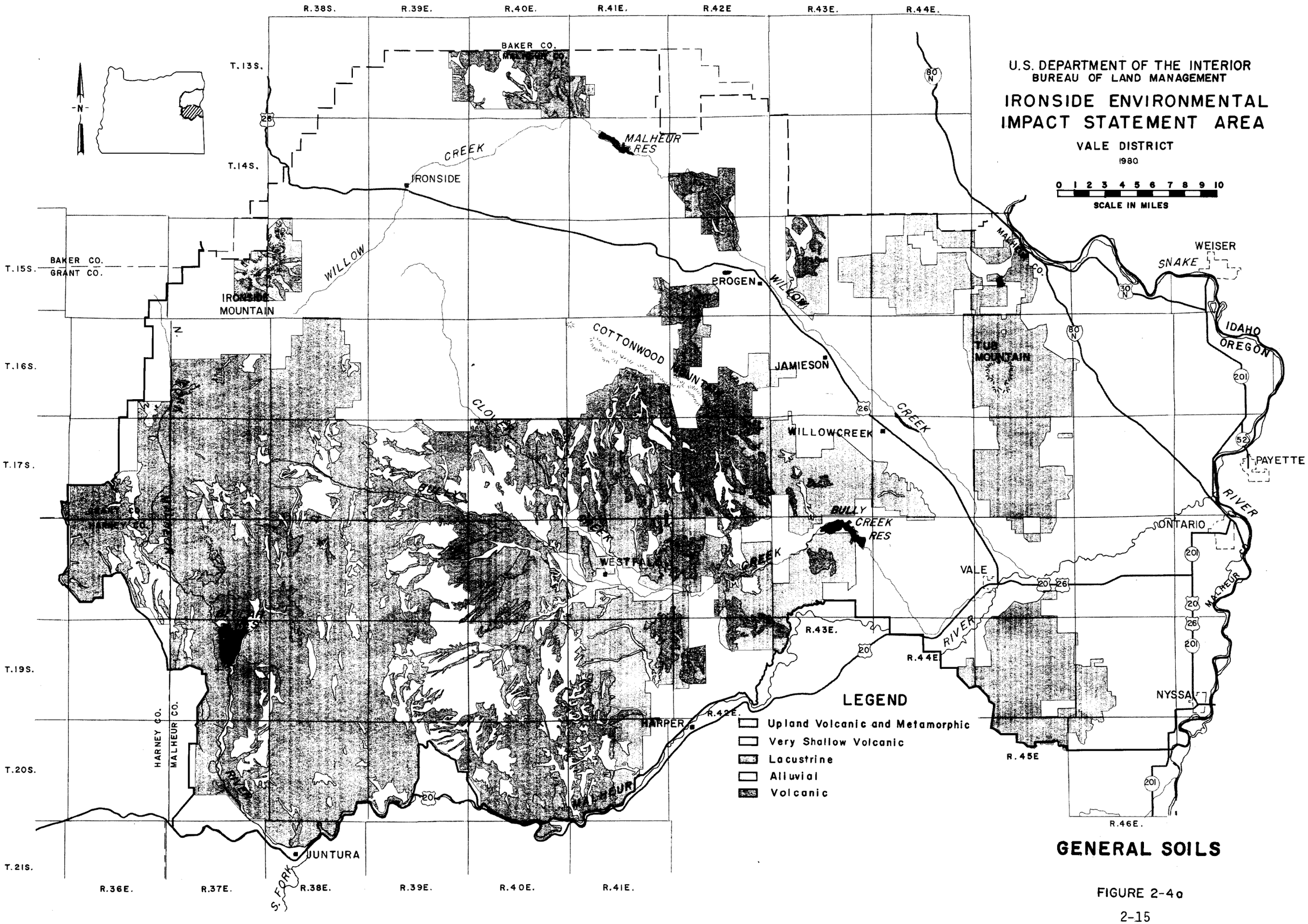
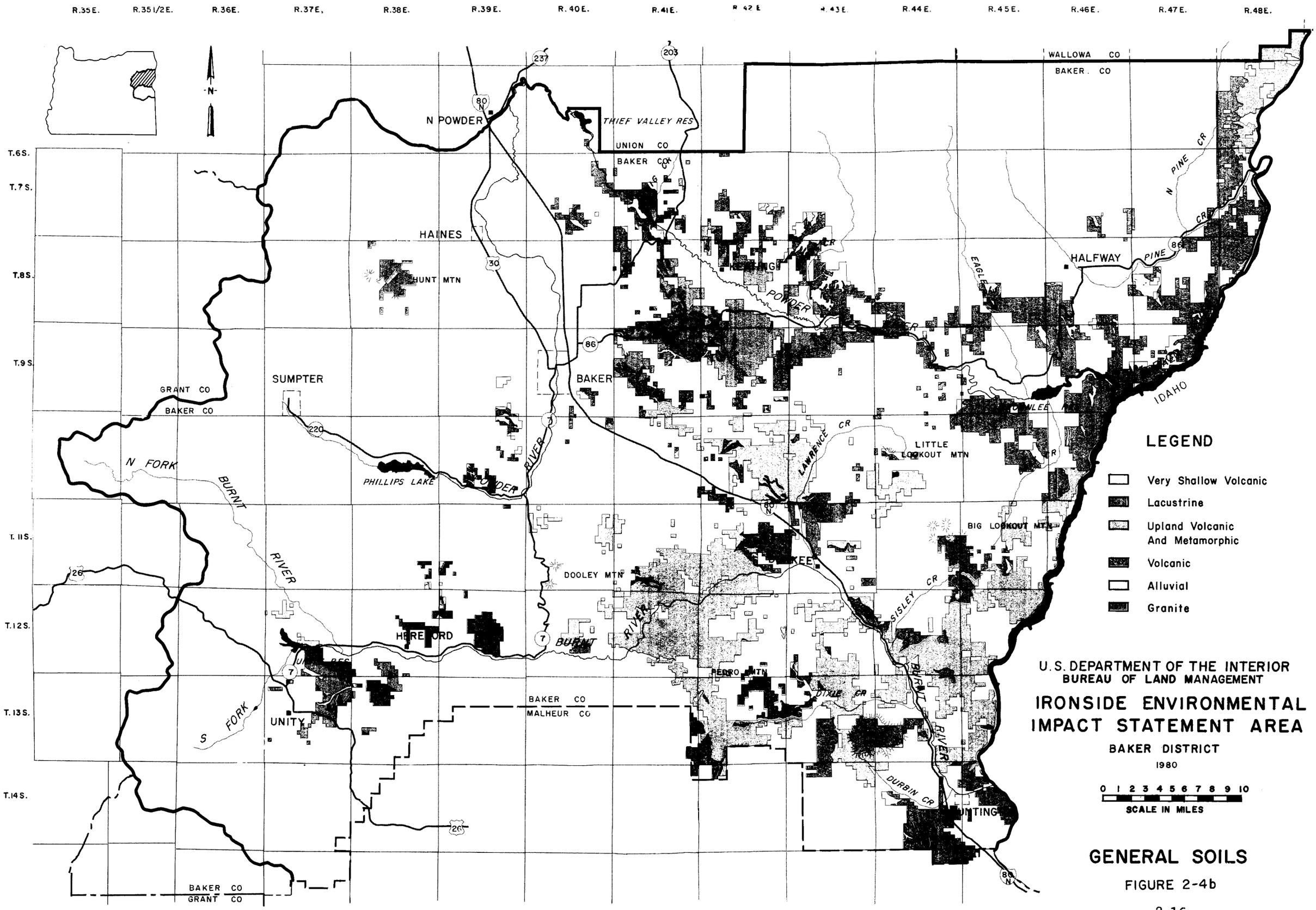

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
IRONSIDE ENVIRONMENTAL IMPACT STATEMENT AREA
VALE DISTRICT
1980
0 1 2 3 4 5 6 7 8 9 10
SCALE IN MILES
N
R.38S.
R.39E.
R.40E.
R.41E.
R.42E
R.43E.
R.44E.
R.45E
R.46E.
R.36E.
R.37E.
T.13S.
T.14S.
T.15S.
T.16S.
T.17S.
T.19S.
T.20S.
T.21S.
BAKER CO.
GRANT CO.
HARNEY CO.
MALHEUR CO.
MALHEUR RES
CREEK
IRONSIDE
WILLOW
IRONSIDE MOUNTAIN
PROGEN
COTTONWOOD
JAMIESON
TUB MOUNTAIN
WILLOWCREEK
BULLY CREEK RES
WESTFALL
VALE
HARPER
JUNTURA
S. FORK
MALHEUR
RIVER
SNAKE
WEISER
IDAHO
OREGON
PAYETTE
ONTARIO
NYSSA
LEGEND
Upland Volcanic and Metamorphic
Very Shallow Volcanic
Lacustrine
Alluvial
Volcanic
GENERAL SOILS

FIGURE 2-4a



GENERAL SOILS

FIGURE 2-4b

the eastern boundary of the EIS area. Most of the perennial streams originate in the mountains along the west side of the area.

Water Quantity

Snowmelt in spring and early summer provides the major part of runoff for perennial streams. During the remainder of the year, groundwater and subsurface flow are the major contributors to runoff. Many streams in the Malheur River drainage are intermittent. These flow only for brief periods as a result of snowmelt in the spring or rainfall in which the intensity exceeds the capacity of the soil to absorb water (Branson et al. 1972).

Annual water yields from the area vary greatly, but usually range from 1 to 5 inches per acre. The total annual yield from public lands averages 192,700 acre-feet per year (Pacific Northwest River Basins Commission 1970).

Water on public lands is used mainly by livestock, wildlife and fish. The sources of water are streams, reservoirs, springs and wells.

Approximately 80 to 90 percent of water on private land is used for irrigation. Domestic, municipal and industrial uses consume much smaller amounts of water. Legal water rights in both the Powder River and Malheur River drainages exceed the annual water yield (Oregon State Water Resources Board 1967, 1969).

Within the EIS area, groundwater resources are limited mainly to alluvial deposits in the valley areas with lesser quantities available in volcanic rock materials (Pacific Northwest River Basins Commission 1970, Appendix V). Groundwater withdrawal does not exceed the natural recharge in the basins, except in the Cow Valley area between Brogan and Ironside where State-imposed controls are in effect (Oregon State Water Resources Board 1969).

Water Quality

Groundwater quality is generally good; dissolved solids are, in most places, less than 500 milligrams per liter (mg/1), the maximum concentration recommended in drinking water by the U.S. Public Health Service (Pacific Northwest River Basins Commission 1970; Leonard 1970).

According to the Oregon Department of Environmental Quality (ODEQ 1976a, 1976b), the instream water quality in the Malheur River and Powder River drainages generally meets the established general standards for the State with the following exceptions:

1. Water temperature - temperatures above 64" F are common from June to October as a result of solar heating, often on diminishing flows.

2. Dissolved oxygen saturations - the standard of 6 mg/1 is generally met except during low, stagnant flows.

3. Turbidity - turbidity levels in the Malheur River drainage are related to the numerous cloud-free days, causing an excessive growth of algae. Turbidity during periods of rain or snowmelt is mainly caused by eroded silt. Irrigation return flows also contribute silt and algae.

4. Coliform bacteria - the standard of 1,000 counts per 100 milliliters is generally exceeded, with higher concentrations occurring during periods of surface runoff.

5. pH - the standard of 6.5 to 8.5 is generally met except during summer stream stagnation periods when algal activity drives the pH above 8.5.

Appendix J shows the ranges for temperature, dissolved oxygen, fecal coliforms, pH and turbidity for eight stations in or near the EIS area.

Sediment yield data for the area were calculated from the soil-vegetation inventory done in 1976 using a BLM adaptation of the Pacific Southwest Inter-Agency Committee (PSIAC) method (see Appendix B for methodology). The average sediment yield for the EIS area is .79 acre-feet per square mile per year, resulting in a total sediment yield of 1,041 acre-feet per year. Sediment yield by allotment is shown in Appendix K.

WILDLIFE

Animals discussed are those whose habitat and resulting populations would be significantly changed by the proposed action or alternatives. These include mule deer, pronghorn antelope, elk, other mammals, upland game birds, other birds, amphibians, reptiles and fish. Data for wildlife are summarized in Tables 2-4, 2-5 and 2-7.

Some species of wildlife inhabiting the EIS area are not discussed because populations are not expected to change significantly as a result of the proposed action or alternatives. These include black bear, mountain lion, red fox, coyote, pheasant and invertebrates (insects, worms, snails etc.).

Crucial habitat is a small part of an animal's range or habitat that contains special qualities or features which are essential for the animal's existence. Due to its scarcity, water and associated vegetation is crucial habitat for most species. Meadows, riparian vegetation along perennial and intermittent streams, edges of reservoirs, seeps, springs and overflows at livestock troughs cover only 0.2 percent of the EIS area, but are very important to the many species using them (Table 2-6). Some other examples of crucial habitat are winter food and cover for deer, nesting trees for birds and sage grouse strutting grounds.

Threatened and Endangered Animals

Those wildlife species determined by the Secretary of the Interior to be threatened with extinction are on the "endangered species" list published in the Federal Register (44 FR 12: 3644, 1979).

Table 2-4 Data on Wildlife in the EIS Area

Animal or Animal Groups	Habitat (Public Acres) 1/		Population 2/	Diet	Cover
Mule Deer	Crucial range Noncrucial range	174,000 468,000	Winter 21,500 Summer 4,000	Winter Browse 47% Forbs 7% Grass 40% Unknown 6% (Vavra and Edgerton 1979)	Big sagebrush Conifers Mt. mahogany Riparian shrubs & trees Rough topography
Pronghorn Antelope	Crucial range Noncrucial range	2,500 117,000	Winter 550-1050 Summer 300-500	Spring Browse 12% Forbs 65% Grass 23% Summer Broswe 41% Forbs 56% Grass 3% Fall Browse 49% Forbs 44% Grass 7% Winter Browse 73% Forbs 44% Grass 4% (Yoakum 1967, Mason 1952)	Sagebrush Variable topography
Elk	Crucial range Noncrucial range	10,000 162,000	1,450	Spring Browse 0 Forbs 6% Grass 94% Summer Browse 80% Forbs 16% Grass 4% Fall Browse 27% Forbs 17% Grass 56% Winter Browse 63% Forbs 7% Grass 56% (Bohne 1974)	Conifers
Other Mammals	Crucial riparian Noncrucial habitat	1,700 1,000,000	Abundant	Mostly herbaceous	Residual ground cover Riparian vegetation Sagebrush
Upland Game Birds	Crucial riparian Noncrucial habitat	1,700 96,000	Common	Seeds Insects	Residual ground cover Riparian vegetation
Other Birds	Crucial riparian Noncrucial habitat	1,700 1,000,000	Abundant	Seeds Invertebrates Small mammals	Residual ground cover Riparian vegetation Sagebrush Trees
Amphibians/Reptiles	Crucial riparian Noncrucial habitat	1,700 1,000,000	Common	Sagebrush Riparian vegetation Rocks	Riparian vegetation Sagebrush Rocks
Fish 3/	93 Stream miles 51 Reservoir miles		Trout are scarce to common on public lands	Invertebrates Small Fish	Riparian vegetation Aquatic vegetation Boulders, Logs

I/ Animal distribution by allotment is located in Table 2-5.
2/ Data are for animals on BLM lands and private lands within the EIS area, but not for USFS lands.
3/ See Table 2-5.

Source: USDI, BLM, Baker and Vale Districts, Bureau Planning Documents

Table 2-5 Wildlife Distribution by Allotment

Allotment No	Mule Deer	Pronghorn Antelope	Elk	Other Mammals	Upland Game Birds	Other Birds	Amphibians/Reptiles	Fish
101	X	X	O	X	X	X	X	O
102	X	X	O	X	X	X	X	O
103	X	O	O	X	X	X	X	O
104	X	O	O	X	X	X	X	O
to5	X	O	O	X	X	X	X	O
106	X	O	O	X	X	X	X	O
to7	O	O	O	X	X	O	X	O
108	X	O	O	X	X	O	X	O
to9	X	O	X	X	X	X	X	O
110	X	O	O	X	X	X	X	X
111	X	O	O	X	X	X	X	O
112	X	O	X	X	X	X	X	O
113	X	O	O	X	X	X	X	O
114	X	O	X	X	X	X	X	O
115	X	X	O	X	X	X	X	O
116	O	O	O	X	X	X	X	O
117	X	X	X	X	X	X	X	O
118	X	X	O	X	X	X	X	X
119	X	X	O	X	X	X	X	O
120	X	O	O	X	X	X	X	O
121	X	X	X	X	O	X	X	O
122	X	O	O	X	X	X	X	O
123	O	O	O	X	O	X	X	O
124	X	O	O	X	O	X	X	X
125	X	O	O	X	X	X	X	O
127	X	O	O	X	X	X	X	O
129	X	O	O	X	X	X	X	O
130	X	O	X	X	X	X	X	O
131	X	O	X	X	X	X	X	O
132	X	O	O	X	X	X	X	X
133	X	O	X	X	X	X	X	O
134	X	O	O	X	X	X	X	O
135	O	O	O	X	O	X	X	O
136	X	O	O	X	O	X	X	O
137	X	O	O	X	X	X	X	O
138	X	O	X	X	O	X	X	O
139	X	X	O	X	X	X	X	O
140	X	O	O	X	X	X	X	O
141	X	O	O	X	X	X	X	O
142	X	X	O	X	X	X	X	O
143	X	O	X	X	X	X	X	O
144	X	O	O	X	X	X	X	O
145	X	O	O	X	O	X	X	O
146	X	O	X	X	X	X	X	O
147	X	O	O	X	X	X	X	O
148	X	X	O	X	X	X	X	O
149	X	O	O	X	O	X	X	O
150	O	O	O	X	O	X	X	O
151	X	X	O	X	X	X	X	O
152	X	X	O	X	X	X	X	O
153	X	O	X	X	X	X	X	O
154	X	O	X	X	X	X	X	O
155	X	X	X	X	X	X	X	O
157	X	X	O	X	X	X	X	O
201	X	X	O	X	X	X	X	X
202	X	X	O	X	X	X	X	O
203	X	X	O	X	X	X	X	X

Allotment No	Mule Deer	Pronghorn Antelope	Elk	Other Mammals	Upland Game Birds	Other Birds	Amphibians/Reptiles	Fish
204	X	X	O	X	X	X	X	X
205	X	O	O	X	X	X	X	X
206	X	O	X	X	X	X	X	X
208	X	O	X	X	X	X	X	O
209	X	O	O	X	X	X	X	O
210	O	O	O	X	X	X	X	O
211	X	O	X	X	X	X	X	X
212	X	O	X	X	X	X	X	O
214	X	O	O	X	X	X	X	O
216	X	O	X	X	X	X	X	X
217	X	O	X	X	X	X	X	X
218	X	X	O	X	X	X	X	O
219	X	O	X	X	X	X	X	X
222	X	X	O	X	X	X	X	O
223	X	O	O	X	X	X	X	O
224	X	O	X	X	X	X	X	O
225	X	O	O	X	X	X	X	O
226	X	O	X	X	X	X	X	O
227	X	O	O	X	X	X	X	O
228	X	O	O	X	X	X	X	O
233	X	O	X	X	X	X	X	O
244	X	O	O	X	X	X	X	O
402	X	X	O	X	X	X	X	O
409	X	O	O	X	X	X	X	O
413	X	O	O	X	X	X	X	O
1001	X	O	X	X	X	X	X	X
1002	X	O	X	X	X	X	X	X
1003	X	O	X	X	X	X	X	X
1004	X	O	X	X	X	X	X	O
1005	X	O	O	X	X	X	X	O
1006	X	O	O	X	X	X	X	O
1007	X	O	X	X	X	X	X	O
1008	X	O	O	X	X	X	X	O
1009	X	O	O	X	X	X	X	O
1010	X	O	O	X	X	X	X	O
1011	X	O	O	X	X	X	X	O
1012	X	O	O	X	X	X	X	O
1013	X	O	O	X	X	X	X	O
1014	X	O	O	X	X	X	X	O
1015	X	O	O	X	X	X	X	O
1016	X	O	X	X	X	X	X	O
1017	X	O	X	X	X	X	X	O
1018	X	O	X	X	X	X	X	O
1019	X	O	O	X	X	X	X	O
1020	X	O	X	X	X	X	X	O
1021	X	O	X	X	X	X	X	O
1022	X	O	X	X	O	X	X	O
1023	X	O	X	X	X	X	X	O
1024	X	O	X	X	X	X	X	O
1025	X	O	X	X	X	X	X	O
L026	X	O	X	X	X	X	X	O
1027	X	O	X	X	X	X	X	O
1028	X	O	X	X	X	X	X	O
1029	X	O	X	X	X	X	X	O
1030	X	O	X	X	X	X	X	O
1031	X	O	X	X	X	X	X	O
1032	X	O	X	X	X	X	X	O

Allotment No	Mule Deer	Pronghorn Antelope	Elk	Other Mammals	Upland Game Birds	Other Birds	Amphibians/Reptiles	Fish
1033	X	O	X	X	X	X	X	O
1034	X	O	X	X	X	X	X	O
1035	X	O	X	X	X	X	X	O
1036	X	O	X	X	X	X	X	O
1036	X	O	X	X	X	X	X	O
1037	X	O	X	X	X	X	X	O
1038	X	O	X	X	X	X	X	O
1040	X	O	O	X	X	X	X	O
1041	X	O	O	X	X	X	X	O
1043	X	O	O	X	X	X	X	O
1044	X	O	O	X	X	X	X	O
1045	X	O	O	X	X	X	X	O
1046	X	O	O	X	X	X	X	O
1048	X	O	O	X	X	X	X	O
1049	X	O	O	X	X	X	X	O
L050	X	O	O	X	X	X	X	O
1051	X	O	O	X	X	X	X	O
1052	X	O	O	X	X	X	X	O
1053	X	O	X	X	X	X	X	O
1054	X	O	O	X	X	X	X	O
1055	X	O	O	X	X	X	X	O
1056	X	O	O	X	X	X	X	O
1057	X	O	O	X	X	X	X	O
1058	X	O	O	X	X	X	X	O
1062	X	O	O	X	X	X	X	O
1063	X	O	O	X	X	X	X	O
1064	X	O	X	X	X	X	X	O
1065	X	O	O	X	X	X	X	O
1066	X	O	O	X	X	X	X	O
1067	X	O	O	X	X	X	X	O
1301	X	O	X	X	X	X	X	X
1302	X	O	X	X	X	X	X	X
1318	X	O	X	X	X	X	X	X
1320	X	O	X	X	X	X	X	O
1326	X	O	X	X	X	X	X	O
1327	X	O	X	X	O	X	X	X
1329	X	O	X	X	X	X	X	O
1330	X	O	X	X	X	X	X	O
1333	X	O	X	X	X	X	X	O
2002	O	O	O	X	X	X	X	O
2003	X	X	O	X	X	X	X	O
2004	X	X	O	X	X	X	X	X
2005	X	X	O	X	X	X	X	O
2006	X	O	X	X	O	X	X	O
2007	O	X	O	X	X	X	X	O
2008	X	O	O	X	X	X	X	X
2011	X	O	O	X	X	X	X	O
2012	X	O	O	X	X	X	X	X
2013	X	O	O	X	X	X	X	O
2015	X	X	O	X	X	X	X	O
2017	X	O	O	X	X	X	X	O
2019	X	X	O	X	X	X	X	O
2020	X	X	O	X	X	X	X	O
2021	X	O	O	X	X	X	X	O
2022	X	O	O	X	X	X	X	O
2023	X	O	O	X	X	X	X	O
2024	X	O	O	X	X	X	X	O

Table 2-5 (Continued)

Allotment No.	Mule Deer	Pronghorn Antelope	Elk	Other Mammals	Upland Game Birds	Other Birds	Amphibians/Reptiles	Fish
2025	X	0	0	X	X	X	X	0
2026	X	0	0	X	X	X	X	0
2027	X	0	X	X	X	X	X	0
2028	X	0	X	X	X	X	X	0
2030	X	0	0	X	X	X	X	X
2031	0	X	0	X	X	X	X	0
2032	X	0	X	X	X	X	X	0
2033	X	X	0	X	X	X	X	0
2034	X	X	0	X	X	X	X	0
2035	X	0	0	X	X	X	X	0
2036	X	0	X	X	X	X	X	0
2037	X	0	X	X	X	X	X	X
2038	X	0	0	X	X	X	X	0
2039	X	0	0	X	X	X	X	0
2040	X	0	0	X	X	X	X	0
2041	X	0	X	X	X	X	X	0
2042	X	0	0	X	X	X	X	0
2043	X	0	0	X	X	X	X	0
2048	X	0	X	X	X	X	X	X
2050	0	X	0	X	X	X	X	0
2051	0	X	0	X	X	X	X	0
2055	X	0	X	X	X	X	X	X
2060	X	0	0	X	X	X	X	0
2062	X	X	0	X	X	X	X	0
2063	X	X	0	X	X	X	X	0
2066	X	0	0	X	X	X	X	0
2067	X	0	0	X	X	X	X	0
2068	X	0	X	X	X	X	X	0
2069	X	X	0	X	X	X	X	0
2070	0	0	0	X	X	X	X	0
2071	X	0	0	X	X	X	X	0
2073	X	X	0	X	X	X	X	0
2074	X	0	0	X	X	X	X	X
2075	X	0	0	X	X	X	X	0
2076	0	X	0	X	X	X	X	0
2077	X	0	0	X	X	X	X	0
2078	0	X	0	X	X	X	X	0
2079	0	X	0	X	X	X	X	0
2081	X	0	X	X	X	X	X	0
2083	X	0	0	X	0	X	X	0
2084	X	0	X	X	X	X	X	X
2085	X	0	0	X	X	X	X	0
2086	0	X	0	X	X	X	X	0
2087	0	X	0	X	X	X	X	0
2092	X	0	0	X	X	X	X	0
2094	X	0	0	X	X	X	X	0
2095	X	0	0	X	0	X	X	0
2096	X	X	0	X	X	X	X	0
2099	X	0	0	X	X	X	X	0
2101	X	X	0	X	X	X	X	0
2102	0	X	0	X	X	X	X	0
2103	0	0	0	X	X	X	X	0
2104	X	0	0	X	X	X	X	0
2105	X	0	X	X	X	X	X	0
2106	X	0	0	X	X	X	X	0
2108	0	X	0	X	X	X	X	0

Allotment No	Mule Deer	Pronghorn Antelope	Elk	Other Mammals	Upland Game Birds	Other Birds	Amphibians/Reptiles	Fish
2109	0	X	0	X	X	X	X	0
2111	X	0	0	X	X	X	X	X
2112	X	0	X	X	X	X	X	0
2114	X	X	0	X	X	X	X	0
2115	X	0	X	X	X	X	X	0
2116	X	0	0	X	X	X	X	X
2118	X	0	X	X	X	X	X	0
2120	X	X	0	X	X	X	X	0
2121	X	0	0	X	X	X	X	0
2127	X	X	0	X	X	X	X	0
2128	X	X	0	X	X	X	X	0
2129	X	X	0	X	X	X	X	0
2130	X	0	0	X	X	X	X	0
2132	X	0	0	X	X	X	X	0
2139	X	0	0	X	X	X	X	0
2142	X	0	0	X	0	X	X	0
3001	X	0	X	X	X	X	X	0
3002	X	0	X	X	X	X	X	0
3003	X	0	0	X	X	X	X	0
3004	X	0	0	X	X	X	X	0
3005	X	0	X	X	X	X	X	0
3006	X	0	X	X	X	X	X	X
3007	X	0	X	X	X	X	X	0
3008	X	0	0	X	X	X	X	0
3009	X	0	0	X	X	X	X	0
3010	X	0	0	X	0	X	X	0
3011	X	0	0	X	X	X	X	0
3012	X	0	X	X	X	X	X	0
3014	X	0	0	X	X	X	X	0
3015	X	0	X	X	X	X	X	0
3016	X	0	0	X	X	X	X	0
3017	X	0	0	X	X	X	X	0
3018	X	0	X	X	X	X	X	0
3019	X	0	0	X	X	X	X	0
3021	X	0	0	X	X	X	X	0
3022	X	0	X	X	X	X	X	0
3024	X	0	0	X	0	X	X	0
3025	X	0	0	X	0	X	X	0
3026	X	0	X	X	X	X	X	X
3027	X	0	0	X	X	X	X	0
3028	X	0	0	X	X	X	X	0
3029	X	0	X	X	X	X	X	0
3030	X	0	0	X	X	X	X	0
3032	X	0	0	X	X	X	X	0
3037	X	0	0	X	X	X	X	0
3041	X	0	0	X	X	X	X	0
3043	X	0	0	X	0	X	X	0
3045	X	0	0	X	X	X	X	0
3047	X	0	0	X	X	X	X	0
3048	X	0	X	X	X	X	X	0
3049	X	0	X	X	X	X	X	0
5001	0	0	0	X	X	X	X	0
5014	X	0	X	X	X	X	X	0
5080	X	0	0	X	X	X	X	0
5133	X	0	0	X	X	X	X	0
5137	X	0	0	X	X	X	X	0

Allotment No	Mule Deer	Pronghorn Antelope	Elk	Other Mammals	Upland Game Birds	Other Birds	Amphibians/Reptiles	Fish
5138	X	0	X	X	X	X	X	0
5201	X	0	X	X	X	X	X	0
5202	X	0	X	X	0	X	X	0
5203	X	0	X	X	0	X	X	0
5204	X	0	0	X	X	X	X	0
5205	X	0	0	X	X	X	X	0
5206	X	0	X	X	X	X	X	0
5207	X	X	0	X	X	X	X	0
5208	X	0	0	X	X	X	X	0
5209	X	X	0	X	X	X	X	0
5210	X	0	0	X	X	X	X	X
5211	X	0	0	X	X	X	X	X
5212	X	X	X	X	X	X	X	0
5215	X	X	0	X	X	X	X	X
5216	X	X	0	X	X	X	X	0
5217	X	X	0	X	X	X	X	0
5218	X	0	0	X	X	X	X	0
5219	X	0	0	X	0	X	X	0
5220	X	X	0	X	X	X	X	0
5221	X	0	X	X	X	X	X	0
5222	X	0	0'	X	X	X	X	0
5223	X	0	X	X	X	X	X	0
5225	X	0	0	X	X	X	X	0
5226	X	0	0	X	X	X	X	X
5227	X	X	0	X	X	X	X	0
5228	X	0	X	X	0	X	X	0
5230	X	0	X	X	X	X	X	0
5233	X	0	0	X	X	X	X	0
5234	X	0	X	X	X	X	X	0
5235	X	0	X	X	X	X	X	0
5236	X	0	X	X	X	X	X	0
5238	X	0	0	X	0	X	X	0
5303	X	0	0	X	X	X	X	0
5304	X	0	0	X	X	X	X	0
5305	X	0	X	X	X	X	X	0
5306	X	X	0	X	X	X	X	0
5307	X	X	0	X	X	X	X	0
5309	X	X	0	X	0	X	X	0
5310	X	0	0	X	0	X	X	0
5311	X	0	X	X	X	X	X	0
5312	X	0	X	X	X	X	X	0
5313	X	0	X	X	X	X	X	0
5316	X	0	X	X	X	X	X	0
5319	X	0	0	X	X	X	X	0
5321	X	0	X	X	X	X	X	X
5322	X	0	0	X	0	X	X	X
5323	X	X	X	X	0	X	X	X
5325	X	0	X	X	0	X	X	0
5334	X	0	X	X	0	X	X	0
5335	X	0	0	X	X	X	X	0
5337	X	0	0	X	0	X	X	0
5339	X	0	0	X	X	X	X	0
5340	X	0	X	X	X	X	X	0
5342	X	0	X	X	X	X	X	0

Key

X - Occurs
0 - Does Not Occur

Source: USDI, BLM, Baker and Vale Districts, Bureau Planning and Inventory Documents

Table 2-6 Estimated Condition and Trend of Riparian Zones for Wildlife on Public Lands

Condition 1/

	Stream Miles	Total Acres 2/
Excellent	12	48
Good	69	290
Fair	76	313
Poor	101	721
Unknown	78	364
Total	336	1,736

Trend 1/

	Stream Miles	Total Acres 2/
UP	20	71
Static	70	516
Down	25	98
Unknown	221	1,051
Total	336	1,736

1/ Field inventory data were used to estimate condition and trend along 115 stream miles. Visual observations were used to estimate condition at springs, reservoirs and along 143 stream miles. See Appendix B for inventory methodology and definitions of condition and trend.

2/ Includes riparian acres at springs, lakes and reservoirs.

The bald eagle is classified as threatened in Oregon. About 50 bald eagles winter in the EIS area with major concentrations found at Oxbow and Hells Canyon Reservoirs (USDI, BLM 1979a). No nest sites have been found. suspected prey include fish, upland game birds, waterfowl, small mammals and carrion. Ponderosa pine and cottonwoods within 100 yards of the reservoirs' shoreline are important for perching,

The American peregrine falcon is classified as endangered throughout its range. An occasional bird migrates through the area. Although observations are rare, one recent sighting has been documented (ODFW 1980b).

The bobcat is being examined by the U.S. Fish and Wildlife Service (FWS) to determine if it meets the requirements for either threatened or endangered classification (42 FR 134:35 996). Bobcats are relatively common on public lands.

Mule Deer

Mule deer are found in almost every allotment (Table 2-5). Populations are at Oregon Department of Fish and Wildlife (ODFW) goal levels for most of the EIS area. The greatest concentrations are found on 174,000 acres of crucial winter range. Deer concentrate in crucial winter range when snow forces them out of higher elevations. Food and cover provided by crucial habitat is especially important because the deer's fat reserves are at a very low level during winter. Winter ranges in the EIS area are poor for deer primarily because dense growths of brush and trees needed for thermal cover are lacking. Riparian vegetation (Figure 2-2), which is important for thermal cover and forage, is mostly in poor or fair condition for deer (Table 2-6).

Deer and cattle diets were studied on winter ranges near Keating. Vavra and Edgerton (1979) reported that:

> It appears that cattle and deer compete very little for forage on these areas, However, since cattle grazed the range spring and fall, analysis of vegetation available to deer and cattle has to be incorporated into any analysis of competition to accurately assess forage available to deer after cattle grazing. It may be that deer do not consume the same forage as cattle because cattle use has removed available forage and deer are forced to consume what is left. However , the rather significant amounts of perennial grasses in deer diets suggest that deer forage in areas where perennials still exist and which are not easily accessible to cattle, i.e., steep rocky ridges, With the amount of data available at this point a good assessment cannot be made. (Page 3.)

Significant forage competition between deer and cattle occurs in Allotments 1001, 2025, 2024, 2112, 2032 and 2055 (ODFW 1980a).

Pronghorn Antelope

Antelope prefer flat or rolling terrain in grassland 1 and 2 ecosites (Figure 2-1). Populations have generally been increasing during the past 10 years. Existing livestock fences do not appear to be limiting population levels. Seedings, wildfire and livestock water developments have improved antelope habitat. Dense stands of big sagebrush have been converted to low growing herbaceous vegetation which is preferred by antelope because it permits quick movements and escape from danger.

Elk

Elk are found primarily in both woodland (W-l,W-2) and grassland G-3 ecosites (Figure 2-l). Populations appear to be stable or increasing in the EIS area. The herd at Lookout Mountain has increased from approximately 40 animals in 1974 to about 145 in 1978. Grass "greenup" provides important forage during the winter and early spring. Competition for forage with cattle is suspected in Allotments 1001, 3012, 3005, 3026 and 3006. Riparian zones which are used as travel lanes are often in poor or fair condition (Table 2-6).

Upland Game Birds

Upland game birds, primarily chukar partridge, are found in most allotments (Table 2-5). Chukars concentrate in steep canyons adjacent to riparian zones. Habitat is good to excellent and populations have been stable.

California quail are closely associated with riparian zones (Figure 2-3). Habitat is mostly in poor or fair condition because cattle eat or trample vegetation required by quail for thermal, nesting, roosting and escape cover (Table 2-6). Populations and habitat appear to be decreasing.

Sage grouse are widely scattered over the EIS area primarily in grassland 1 and 2 ecosites (Figure 2-l). Seven strutting grounds and associated nesting areas have been identified. Additional strutting grounds are known to exist but their exact location is undetermined. Strutting grounds and nesting areas are crucial habitat because grouse mate each year in these natural clearings in the sagebrush. Most nesting occurs within 2 miles of a strutting ground. Residual herbaceous cover from the previous growing season and an overhead canopy of sagebrush is needed for successful nesting. Present condition and trend of nesting habitat is unknown.

Upland meadows are crucial habitat because they supply insects and succulent forbs to young birds (Savage 1969). Upland meadows, which are often associated with riparian zones, are generally in poor condition for sage grouse (Table 2-6). Lowered water tables due to gully erosion is resulting in sagebrush encroachment in crucial meadow vegetation.

Blue grouse, ruffed grouse, spruce grouse and mountain quail are found primarily in woodland ecosites (Figure 2-l). Widely scattered, small flocks of Hungarian partridge can be found in the grassland ecosites.

Other Mammals, Other Birds, Reptiles and Amphibians

Approximately 300 of these species inhabit the EIS area. Representative species include the black-tailed jackrabbit, beaver, long-billed curlew, mallard, yellow warbler, screech owl, western rattlesnake and spotted frog. Some species such as the yellow-bellied marmot are found in specific habitat types; others, such as the deer mouse, are widespread over the EIS area, Highest concentrations and diversity occur in riparian zones (Figure 2-2). Condition and trend data for these are in Table 2-6. A complete list of species, habitat preference and distribution is available at the Baker and Vale District offices.

Fish

Data for fish on the public lands are displayed in Table 2-7. The present poor and fair stream condition is largely the result of livestock grazing or irrigation. Water storage, release and withdrawal for irrigation causes fluctuating stream flows which disrupts fish production. Agricultural

Table 2-7 Fish Habitat Condition and Estimated Trend

Stream	Public Stream Miles	Allotments	Present Condition 1/	Estimated Trend	Species	Trout Population	Comments
Alder Cr.	.8	1004	?	?	RB	?	Not surveyed.
Balm Cr.	3.5	2037, 2048	Fair	Static	BS,RB,D	Common	Lack of pools and log jams limits trout production. Excellent riparian vegetation.
Big Cr.	2.0	2012	Fair	Static	RB,BS,CO,D	Scarce	Spring flooding from private lands removes riparian vegetation and reduces reproduction.
Big Cr.	1.0	5226	?	?	RB,BS,D,CO	?	Not surveyed.
Bully Cr.	3.5	201, 205	?	?	?	?	Not surveyed.
Burnt R.	10.0	1003, 1301, 5215	Poor	Static	RB,BS,D,RS	Common 2/	Irrigation depletes minimum flows, return flow degrades water quality.
Burnt R., N.F.	.5	5211	?	?	RB,BS,CO,D,RS	Common 2/	Not surveyed.
Calf Creek	2.2	217	Poor/Fair	Down	RB,BS,SD,LD	Scarce	Cattle remove vegetative cover.
Clarks Cr.	1.0	1307	?	?	RB	?	Not surveyed.
Camp Cr.	.25	5209	?	?	RB,CT,BS,D	?	Not surveyed.
Cave Cr.	2.0	1003	Fair	Static	RB	Common during spring	Mining activities and a lack of aquatic insects, pools and streamside cover limit trout production.
Clover Cr.	1.0	2055	?	?	RB,BS,D	?	Not surveyed.
Clover Cr.	1.0	205	Poor	Down	?	?	Cattle grazing and erosion removes vegetative cover.
Conner Cr.	2.0	1001, 3026	Poor	Down	RB	Scarce	Mining activities have reduced water flow and spawning success.
Cottonwood Cr., S.F.	2.0	202, 203	?	?	RB,D	?	Not surveyed.
Cottonwood Cr.. W.F.	2.5	202	Good	Down	RB,SD	Common	Cattle grazing removes vegetative cover.
Dark Canyon	2.0	1302	?	?	RB	?	Not surveyed; spring trout migrations spawn in the stream.
Deer Cr.	.5	1302	?	?	RB	?	Not surveyed.
Dixie Cr.	1.5	1039	Poor	None	None	None	Cattle grazing removes vegetative cover.
Dixie Cr., S.F.	4.0	1318	?	?	RB	?	Not surveyed.
Dixie Cr., N.F.	1.2	1026	?	?	RB	?	Not surveyed.
Five Mile Cr.	.25	2008	?	?	RB,BS,CO,D	?	Not surveyed.
Goose Cr.	.50	2037, 2116	?	?	RB,BS,CO,D,RS	?	Not surveyed.
Hog Cr.	2.2	203	Fair/ Excellent	Up/Down	RB	common	Little or no cattle grazing along 1 mile has resulted in good to excellent trout habitat.
Indian Cr., South Fork	2.0	202	Poor/Good	Up/Static	RB,SD	common	Turbidity caused by severe grazing on adjacent private lands.
Lawrence Cr.	3.25	2074	Poor	?	RB,BS,CO,D	?	Cattle grazing and erosion removes vegetative cover.
Little Malheur R	1.5	219	Poor/Fair	Down	RB,BS,RS,SD, CD,LD	Common	Severe livestock damage to banks and vegetation.
Malheur R., Main Fork	6.25	203, 204	Poor/Fair	Static	RB,BS,CD,RS,CL, SQ,GS,CO,YP,LD, LS	Common 2/	Cattle grazing removes vegetative cover needed by trout. Water withdrawal for irrigation reduces trout production.

Table 2-7 (Continued)

stream	Public stream Miles	Allotments	Present Condition 1/	Estimated Trend	Species	Trout Population	comments
McGraw Cr.	1.0	3006		?	RB	?	Not surveyed.
Malheur R. North F.	4.6	211,216,217	Good	Static/ Decreasing	RB,LD,SD,RS,MS, SQ,LS,BS,SC,WF, DV,TS,CH	Common 2/	Irrigation and cattle grazing reduce trout production.
Pole Cr.	1.7	202	Poor	static	None	None	1977 drought may have eliminated fish.
Powder River	15.0	2084,2012, 2030, Unalloted	Fair	Static	RB,SB,LB,CC,BB, YB,BS,WF,CL,CP, SQ,RS,D,CO,BS, cs	Common 2/	Irrigation withdrawal depletes minimum flow. Irrigation return flow degrades water quality.
Pritchard Cr.	4.0	2074	Poor	?	RB,BS,CO,D	?	Irrigation and cattle grazing reduce trout production.
Snake R.	1.0	124, Unalloted	?	Static	Primarily Warm Water	?	Inaccessible to livestock.
Willow Cr.	4.9	118,120,148	Poor	Static	None	None	Poisoned in 1977 by ODFW. Heavy cattle use of riparian vegetation. Actively eroding banks.
Total Miles	92.6 3/						
Reservoir	**Public Shoreline Miles**						
Brownlee	35.0	1001, 1006, 1009, 1063, 3001, 3003, 3026	?	Static	Primarily Warm Water		Severe water level fluctuations eliminate vegetative cover and reduce fish production.
Cottonwood	.1	203	?	Down	RB 2/	?	Livestock trample banks and remove shoreline vegetation.
Hells Canyon	5.5	3006, 3007	?	Static	Primarily Warm Water		Flood control results in severe water level fluctuations.
Higgins	.5	5215	?	Static	RB,CT,BS 2/		Irrigation results in severe water level fluctuations.
Malheur	.5	110, 118	?	Static	RB,RS,LD,SD,BS 2/	?	Irrigation results in severe water level fluctuations.
Morrison	.3	206	?	UP	RB 2/	?	No livestock grazing.
Oxbow	8.0	3001	?	Static	Primarily Warm water	?	Flood control results in severe water level fluctuations.
Thief Valley	.5	5137, 5080	?	Static	RB,BB,BC,BS, CS,SQ,FL,RS 2/	?	Irrigation results in severe water level fluctuations.
Unity	.5	5211	?	Static	RB,CO,BS 2/	?	Irrigation results in severe water level fluctuation.
Total Miles	50.9						

Key to Symbols

? Undetermined or Unknown

BB Brown Bullhead	CO Cottid	LB Largemouth Bass	SD Speckled Dace
BC Black Crappie	CP Carp	LD Longnose Dace	SQ Squawfish
BG Bluegill	CS Coarsescale Sucker	LS Largescale Sucker	TS Torrent Sculpin
BS Bridgelip Sucker	CT Cutthroat Trout	RB Rainbow or Redband Trout	WF Whitefish
CC Channel Catfish	D Dace	RS Redside Shiner	YF Yellowperch
CL Chiselmouth	DV Dolly Varden	SB Smallmouth Bass	

1/ Condition class definitions and stream survey methodology in Appendix B.
2/ Hatchery trout have been released periodically in these waters.
3/ Approximately 20 additional miles which may contain fish have not been surveyed.

Source: USDI, BLM, Vale and Baker Districts, 1977 Stream Surveys.

chemicals and sediments in irrigation return flows degrade water quality. Livestock remove riparian vegetation and trample streambanks resulting in siltation, loss of cover and increased water temperatures.

WILD HORSES

All unbranded horses in the EIS area as of December 15, 1971 are considered wild, free roaming horses as defined in The Wild Horse and Burro Act (Public Law 92-195). The Hog Creek Herd Management Area, which is located in a portion of Allotment 203, contains all the wild horses in the EIS area. There were 63 horses counted in 1978, and the herd is healthy and reproductive. The herd is presently expanding to the west through unfenced gaps in rimrocks and pasture gates that have been left open. Two interior fences (5 miles) restrict the movement of horses within the herd management area. These fences generally do not cause injuries because the horses have become accustomed to fence locations+

RECREATION

Developed recreation sites on public land include Bassar Diggins, Spring, Flagstaff Hill Memorial Interpretive Site, Keeney Pass and Chukar Park.

Recreational hunting opportunities exist for big game, small or nongame, upland game and waterfowl hunting. All reservoirs offer year-round fishing. Reservoir productivity and angler success are related to problems with rough fish, water quality, temperature and irrigation use. Stream fishing is best following spring runoff and water level stabilization. Table 2-8 shows the estimated current visitor use for hunting and fishing.

Table 2-8 Estimated Current Hunting and Fishing Visitation to the Ironside EIS Area

Recreational Activity	Visits Per Year (1974-75) Total	BLM
1. Fishing	324,560	41,470
2. Hunting		
Big Game	145,410	56,490
Upland Game	44,630	20,230
Waterfowl	16,040	1,600
Total	530,640	119,790

General sightseeing is often referred to as driving for pleasure and is associated with travel along established roadways. Many people visit public lands with specific sightseeing goals or may sightsee while participating in other activities. A number of areas attract geological, botanical, zoological and cultural sightseeing use.

High quality opportunities . exist for waterskiing/powerboating, sailing, riding ORVs, rockhounding, hiking/backpacking, horseback trail riding, trapping, gold panning, camping and picnicking. At present, visitor use in these activities is low or unquantifiable.

The Oregon Trail was recently designated as a National Historic Trail by Congress (Omnibus Bill, P.L. 95-625, November 10, 1978). The National Park Service will complete a comprehensive management plan for the trail by October, 1981.

CULTURAL RESOURCES

The term "cultural resources" refers to remains of human activity. However, since fossils of historic and scientific interest are protected by the Antiquities Act of 1906, this category is also included in this section.

A partial listing of cultural resources for the EIS area can be found in Gehr et al. (1978).

Prehistoric Sites

There is evidence that Native American cultures existed within the vicinity of the Ironside EIS area at least 14,000 years ago. About 250 years ago, major changes began, leading to the dissolution of those cultures. Throughout the years, prehistoric cultures adapted to social and natural changes. Prehistoric sites yield information helpful to understanding how cultural adaptations were related to the environment, At present, sufficient data are not available to clearly understand these relationships.

While little of the area has been adequately surveyed, 222 known prehistoric sites have been located within the EIS area (Gehr et al. 1978). Of these, 181 sites (82 percent) are on lands administered by the BLM. Cultural Resources Evaluation System (CRES) significance ratings and/or recreation quality ratings have been assigned to all sites within the EIS area (see Table 2-9). In this area where little data are available, all known sites are significant to some extent.

The potential archeological site density for the EIS area is suspected to be high. A density of more than 10 sites per square mile can be expected in some portions of the area (Oregon Department of Transportation 1978).

Historic Sites

Of the 69 identified historic sites, 34 are on lands administered by the BLM. Table 2-9 lists these sites and attributes of each. Portions of the Oregon Trail are currently on the National Register of Historic Places.

Table 2-9 Inventoried Historic Sites on Public Land

Site Number	Site Name or Function	Allotment	CRES Signif. 1/ Rating	Quality 2/ Evaluation
0-BK-BK-17 35 BA'45	Spring Site	5211;5215	s-3	No data
O-BK-BK-58 35 BA 121	Pictograph	2129	s-3	No data
O-BK-BK-64	Cave Creek Mining	1003(West)	s-3	No data
O-BK-BK-65	Cave Creek Mining	1003(West)	s-3	No data
O-BK-BK-66	Burnt River Wagon Road 3/	1003;1004 1301;1302	s-1	13/B
O-BK-BK-109 NH-013	Mormon Basin Mining District including James Lynn Ditch, Eldorado Ditch (Big Ditch) 3/	5323 154;110; 146;5324	S-l	Eldorado Ditch 18/A James Lynn Ditch 16/A
0-BK-BK-116 35 BA 80	Rock Alignment 3/	5315	s-3	No data
0-BK-BK-117	Shuck's Ditch 3/ (Flume Base)	1004(East) 1004(Seed-ing) 1005;1051	S-l	16/A
O-BK-BK-125	Rock Alignment	2116	s-3	No data
O-BK-BK-128	Petroglyph	1048	s-3	No data
O-BK-BK-132	Roadway	2084	s-3	No data
O-BK-BK-147	Spring Site	2074 (Holman)	s-3	No data
O-BK-BK-148	Mining Site	5215(East)	s-3	No data
O-BK-BK-149	Timber Canyon Wagon Road	3001	s-2	No data
O-BK-BK-169	Petroglyph	2128;2129 2031	s-3	No data
0-BK-BK-170	camp	2108;2109	s-3	9/C (for Baker-Sparta Stage Route)
0-BK-BK-171	Camp	2109	s-3	9/C (for Baker-Sparta stage Route
O-BK-BK-172	Rock Alignment	3002 (Bear Gulch)	s-3	9/C (for Baker-Sparta Stage Route)
O-BK-BK-176	Homestead	2015	s-3	No data
O-BK-BK-183	Irrigation Ditch	Elk Exclosure	s-3	No data
O-BK-BK-184	Wagon Road 3/	2004	s-2	No data
NH-002	Malheur City Townsite 3/	130	No data	14/B
NH-009	stage stop 7/	217	No data	9/C
NH-015	Golden Eagle Mine	108	No data	14/B
NH-016	Orchard Water Ditch (Agricultural) 3/	120	No data	12/B
NH-017	Oregon Trail 3/ 4/	5/	S-l	18/A
NH-018	Meeks Cutoff 3/	201;202; 206;211; 217;222	No data	13/B
NH-023	Reinhart Butte 3/ (Battle Site and burials)	402	No data	14/B
NH-026	The Dalles Military Wagon Road 3/	110;118; 120;130; 148;155	No data	13/B
NH-027	Burns-Vale Road 3/	102;132; 201;202; 205;206; 218;222	No data	13/B
NH-028	WVCH Military Wagon Road 3/	6/	No data	14/B
NH-029	Malheur Indian Reservation	206	No data	12/B
w-033	CCC Spike Camp 7/	206	No data	8/C
NH-035	Dam 7/	217	No data	10/C
NH-067	Wagon Ruts	202;223	No data	11/B
---	Auburn Townsite	5334	S-l	IO/C

1/ CRES significance ratings from S-l (National Register nomination quality) to S-4 (no physical remains) are defined as follows:

s-1. National Register Significance. In general, S-l properties show a clear potential for yielding, or have yielded, highly significant scientific/educational information and are clearly important in terms of national, State, or local history. Normally the S-l rating will be assigned to those properties which are in relatively good condition, and are unique or representative, and/or have important associations.

s-2. Mid-Significance. Assign S-2 rating if resource does not satisfy S-l requirements. S-2 properties are usually in only fair condition. They are not particularly unique, representative, nor do they have important associations. Many recently abandoned western homesteads, small mining camps, cemeteries, railbeds, roads and trails will fall here.

s-3. Low Significance. Assign the S-3 rating if the main-worth of the property is its potential for contributing data in regards to solving larger problems of areal human usage and environment. Properties such as dumps, isolated domestic and non-domestic buildings and materials, small mining operations, will often fall here.

s-4. Data Property. The S-4 rating is assigned only to properties that have no physical remains in the field and/or have lost field integrity.

2/ Quality ratings are based upon historical significance, condition of the site as compared to similar features, documentation available, uniqueness, and ability to arouse curiosity. BLM Manual 6111, Quality Evaluation of Recreation Use Opportunities, describes methodology for completing quality evaluations. Key for determining quality evaluation follows: High--16 to 18A; Medium--l2 to 15B; Low--Less than 12 C.

3/ Site contains joint land status (BLM, private, State and other Federal or combination).

4/ About 6 miles of the Oregon Trail are currently listed on the National Register of Historic Places. The Oregon Trail in its entirety was designated as a National Historic Trail by Congress (Omnibus Bill, P.L. 95-625, 11/10/78).

5/ Oregon Trail passes through Allotments 101, 402, 1001, 1062, 2067, 2075, 2078, 2079, 2086, 2087, 2096.

6/ WVCM Military Wagon Road passes through Allotments 201, 202, 203, 204, 206, 209, 216, 217, 225, 229.

7/ Site is on Bureau of Reclamation-withdrawn land. This does not affect BLM's jurisdiction to manage the site.

Paleontologic Sites

Vertebrate and certain invertebrate fossils are protected within the scope of the Antiquities Act. While the EIS area has not been thoroughly surveyed, 14 paleontologic sites have been identified. One, in the Unity area, is highly significant. Recent discoveries indicate that this site is National Register quality.

VISUAL RESOURCES

The BLM has a system for identifying scenery quality and setting minimum standards for management of visual resources (Manual 6310). The visual resource management (VRM) inventory and evaluation comprise an integral part of multidisciplinary planning. Three key factors are considered in evaluating the amount of modification the natural landscape can sustain: the inherent quality of the scenery being viewed, the visual sensitivity of the type of visual use, and the visual distance (whether an area can be seen as foreground-middleground, background or seldom seen from a travel route or sensitivity area),

After scenic quality, sensitivity levels and distance zones are determined, they are compared to determine the VRM classes (see Glossary). Figure 2-5 shows VRM classes for the Ironside EIS area.

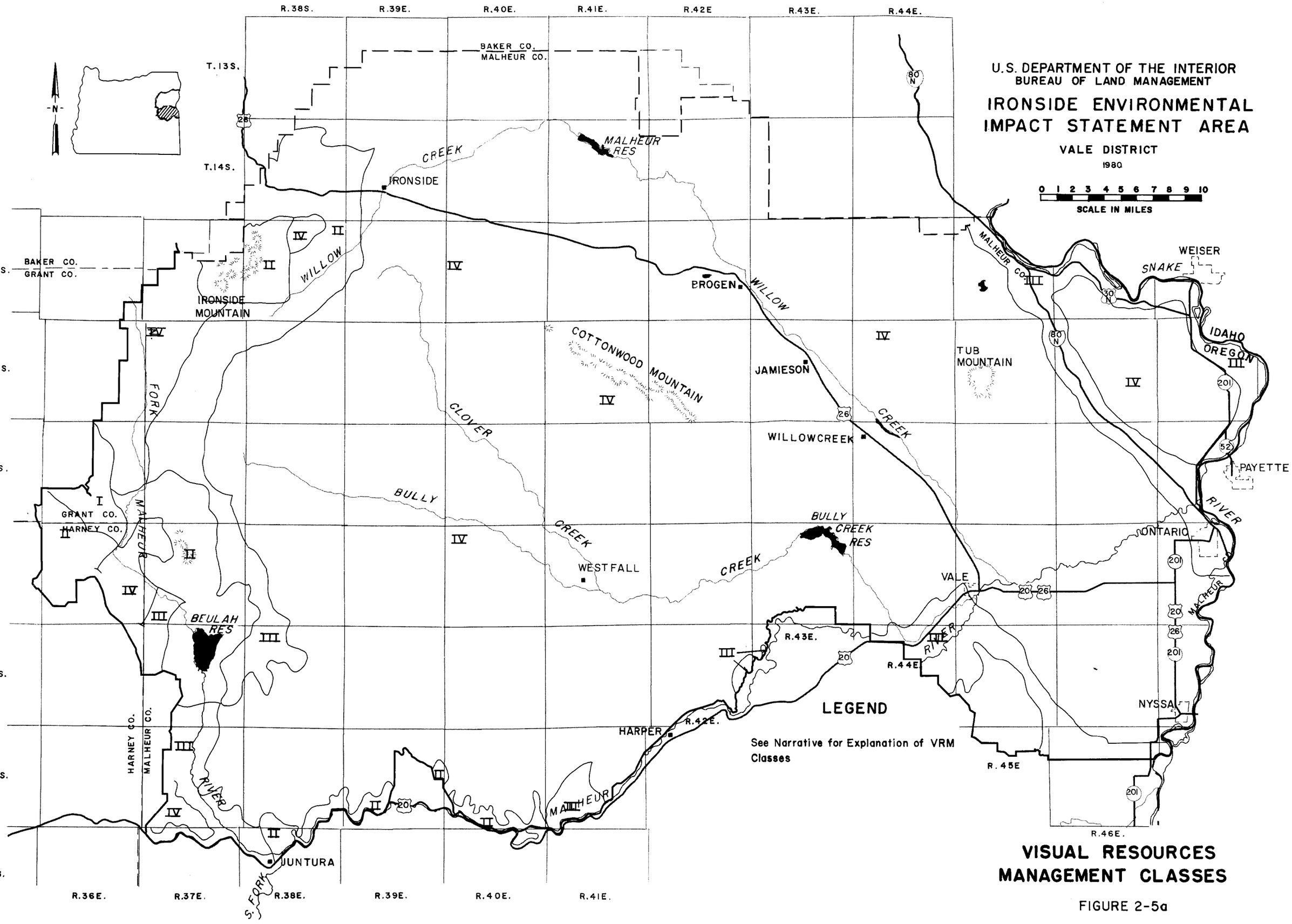
Each VRM class has specific management objectives and allows for differing degrees of modification in the basic elements (form, line, color, texture) of the landscape. The following photographs show examples of VRM Classes in the Ironside EIS area. The four classes are defined as follows:

Class I: This class provides primarily for natural ecological changes only. It is applied to primitive areas, some natural areas and other similar situations where management activities are to be restricted.

Class II: Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape.

Class III: Changes in the basic elements (form, line, color, texture) caused by a management activity may be evident in the characteristic landscape. However, the changes should remain subordinate to the visual strength of the existing character.

Class IV: Changes may subordinate the original composition and character but must reflect what could be a natural occurrence within the characteristic landscape.



VISUAL RESOURCES MANAGEMENT CLASSES

FIGURE 2-5a

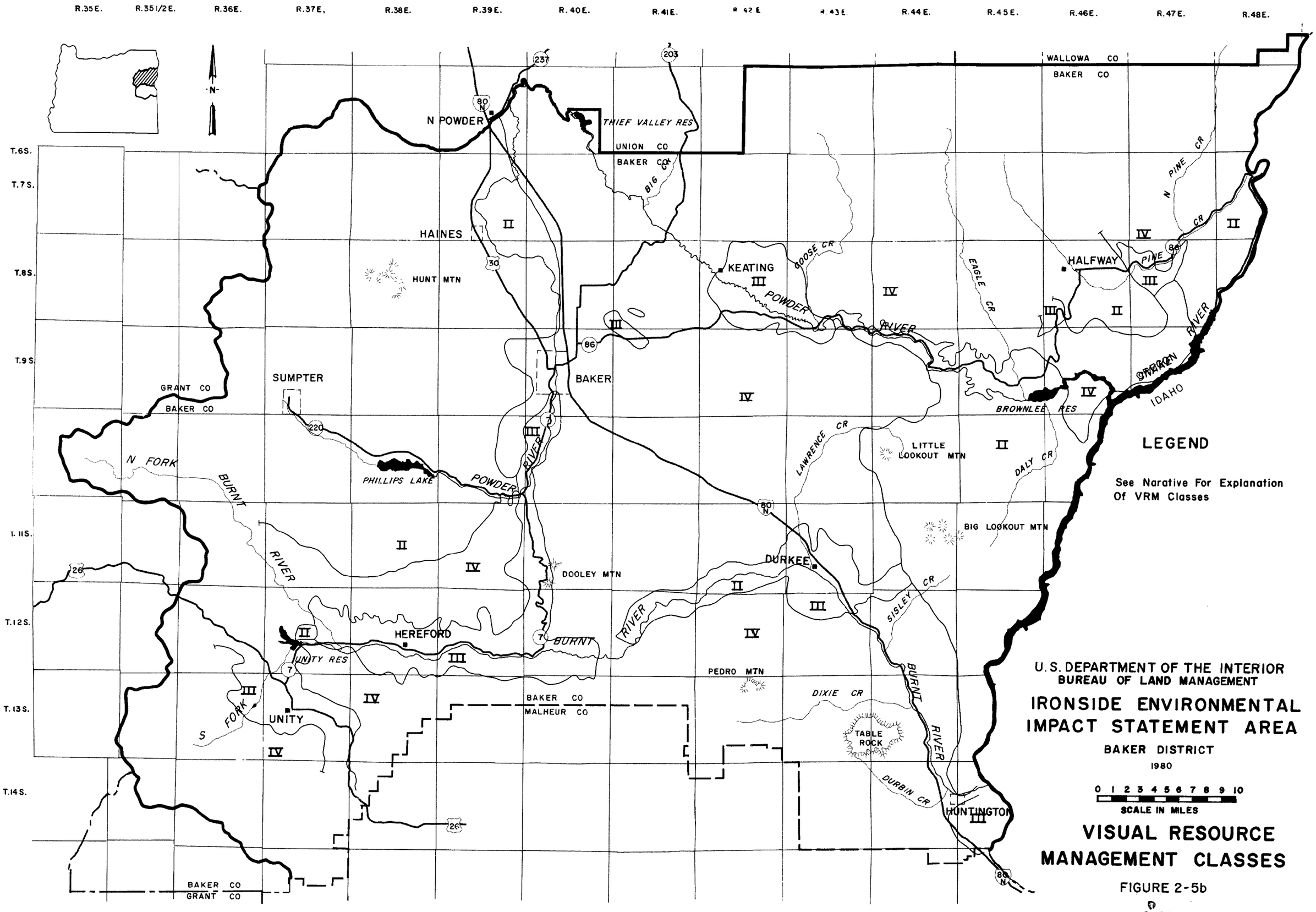
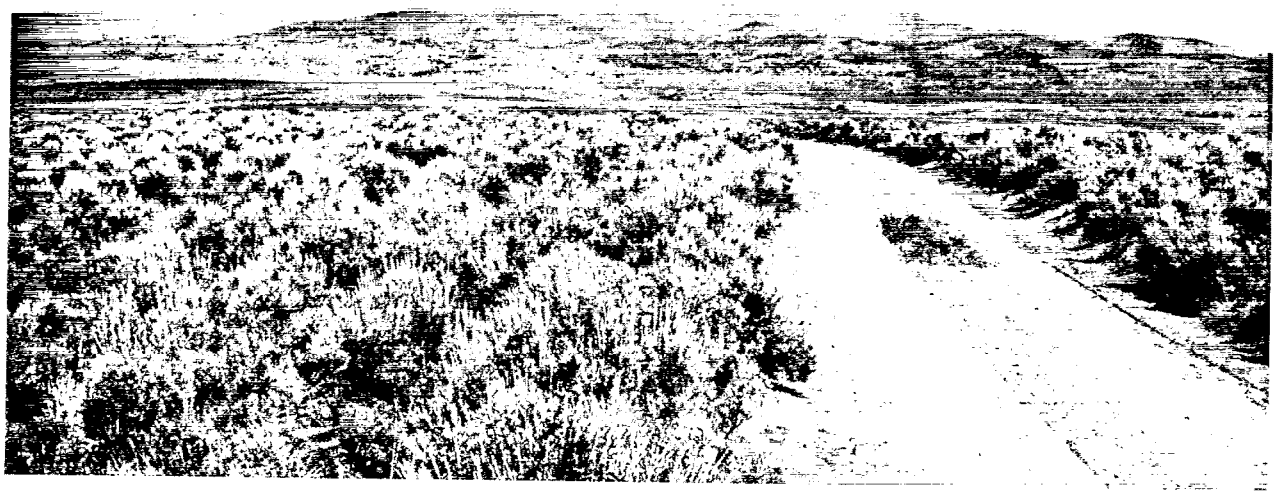

R.35E.
R.35 1/2E.
R.36E.
R.37E.
R.38E.
R.39E.
R.40E.
R.41E.
R.42E.
R.43E.
R.44E.
R.45E.
R.46E.
R.47E.
R.48E.
T.6S.
T.7S.
T.8S.
T.9S.
T.11S.
T.12S.
T.13S.
T.14S.
N
WALLOWA CO
BAKER CO
N POWDER
THIEF VALLEY RES
UNION CO
BAKER CO
BIG CR
HAINES
HUNT MTN
KEATING
GOOSE CR
POWDER
RIVER
EAGLE CR
HALFWAY
N PINE CR
PINE CR
BAKER
SUMPTER
GRANT CO
BAKER CO
N FORK
BURNT
RIVER
PHILLIPS LAKE
POWDER
RIVER
LAWRENCE CR
LITTLE LOOKOUT MTN
BROWNLEE RES
SNAKE
RIVER
IDAHO
DALY CR
BIG LOOKOUT MTN
DOOLEY MTN
DURKEE
SISLEY CR
HEREFORD
BURNT
RIVER
UNITY RES
UNITY
S FORK
PEDRO MTN
DIXIE CR
BURNT
RIVER
TABLE ROCK
DURBIN CR
HUNTINGTON
BAKER CO
MALHEUR CO
BAKER CO
GRANT CO
LEGEND
See Narative For Explanation
Of VRM Classes
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
IRONSIDE ENVIRONMENTAL
IMPACT STATEMENT AREA
BAKER DISTRICT
1980
0 1 2 3 4 5 6 7 8 9 10
SCALE IN MILES
VISUAL RESOURCE
MANAGEMENT CLASSES

FIGURE 2-5b

Burnt River Canyon is an example of VRM II lands.



Ironside Mountain (VRM II) overlooks VRM III lands near Willow Creek; VRM IV lands are in the foreground.

WILDERNESS VALUES

Under the terms of the Federal Land Policy and Management Act of 1976 (FLPMA), roadless areas of 5,000 acres or more that have wilderness characteristics are to be reviewed within 15 years for possible wilderness designation.

The wilderness review for BLM-administered lands in Oregon and Washington has begun. In August 1979, the Oregon State Director announced his final decision on the initial phase of the wilderness inventory. Within the Ironside EIS area, 17 units totaling about 150,000 acres were recommended for a more intensive inventory to determine whether they have wilderness characteristics. Additionally, five islands of unknown acreage will be intensively inventoried. For these 22 intensive inventory units in the Ironside EIS area, a proposed decision will be announced in the spring of 1980 on whether or not wilderness study areas should be designated. The initial inventory and accompanying maps of roadless areas and islands in Oregon and Washington are available in the Oregon State Office.

ECOLOGICALLY SIGNIFICANT AREAS

There are no designated research natural areas within the EIS area. Nine sites, identified by the Oregon Natural Heritage Program as being ecologically valuable, are partially on public land (Nature Conservancy 1978).

One additional area (Hells Canyon-Seven Devils) has been identified as a potential National Natural Landmark and includes some public land (Scott 1978). There is some overlap of the potential National Natural Landmark with the Hells Canyon National Recreation Area (established by P.L. 94-199, December 31, 1975).

Table 2-10 lists the ecologically significant areas discussed above and elements for which they are considered significant.

SOCIOECONOMIC CONDITIONS

The EIS area is located in a part of eastern Oregon comprising most of Baker County and the north portion of Malheur County. This rugged and semi-arid region supports a rather sparse population mainly dependent on cattle, forest products and field crops. The region is served by a major east-west highway (I-80) and a main line railroad, but is isolated by its location of more than 300 miles from the major markets of western Washington and Oregon.

The discussion of economic and social conditions is based mainly upon county-wide data for Baker and Malheur Counties. About 80 percent of the population of the two counties resides within the EIS area, so data for the two counties are considered reasonably representative of conditions in the vicinity of the proposed action. However, the EIS area (Figure 1-1) consists of 41 percent of the total land of these two counties.

Table 2-10 Ecologically Significant Areas
Identified by the Oregon Natural Heritage Program 1/

Reference Number	Area Name	Elements of Natural Diversity
BA-2	Unnamed (T95,R41E,SW1/4 6)	Idaho fescue-bluebunch wheatgrass Bluebunch wheatgrass-Sandberg bluegrass
BA-3	Salt Creek Grassland	Big sagebrush/bluebunch wheatgrass Big sagebrush/Idaho fescue
BA-8	Love Reservoir Area	Idaho fescue-bluebunch wheatgrass Bluebunch wheatgrass-Sandberg bluegrass Special species occurrence Swainson's hawk Ferruginous hawk Golden eagle Waterfowl wetland
BA-16	Little Lookout Mtn.	Douglas-fir forest Quaking aspen Big sagebrush/bunchgrass in forest zone Stiff sagebrush scabland Idaho fescue-bluebunch wheatgrass Bluebunch wheatgrass-Sandberg bluegrass Columbian sharp-tailed grouse Balsamorhiza hirsuta (hairy balsamroot)
BA-24	Hunt Mountain	Elk crucial winter range
BA-30	Burnt River Canyon	Douglas-fir forest Big sagebrush/bunchgrass in forest zone Green rabbitbrush/bluebunch wheatgrass Mountain mahogany Bluebunch wheatgrass-Sandberg bluegrass Geologic feature
BA-31	Unnamed (T10S, R42-43E, North Half)	Sage grouse strutting grounds
BA-32	Unnamed (T7S, R48E,Sec.5)	Northern bald eagle
MA-8	Harry Elliot Ranch	Big sagebrush/bluebunch wheatgrass
	Identified by the Heritage Conservation and Recreation Service	
--	Hells Canyon-Seven Devils 2/	Scott, 1978 identifies the following geologic themes: a. Sculpture of the land, Hells Canyon b. River systems and lakes, Snake River and tributaries c. Glaciation, alpine glaciation of Seven Devils Mountains.

1/ For specific locations of these areas, as identified by the Oregon Natural Heritage Program, consult Nature Conservancy 1978.
2/ For more specific information and location of this area, consult Scott 1978.

Population and Social Attitudes

The 1979 population of the two counties was 42,700 (Portland State University 1979). As shown in Table 2-11, the population of Baker County declined between 1960 and 1970 causing a net loss in the combined population of the two counties, but during the last decade, the populations of both counties have shown moderate upward trends.

Table 2-11 Population Trends, Baker and Malheur Counties, 1960-1979

	Baker County		Malheur County	
Year	Population	Annual Rate of Change	Population	Annual Rate of Change
1960	17,295	-	22,764	-
1970	14,919	-1.5%	23,169	+0.2
1975	15,700	+1.0%	24,200	+0.9
1979	16,600	+1.4%	26,100	+1.9

Source: U.S. Bureau of Census 1972; Portland State University 1979

The social and attitudinal characteristics of the population appear to be similar to those discussed by Grigsby (1976) for adjacent Harney County. That study showed that the ranching sub-culture perceives itself as characterized by the traditional strengths and values associated with the "pioneer spirit": independence, rugged individualism, adaptability, practicality, and enjoyment of the variety of types of labor and direct contact with nature which ranching provides. Ranchers believe their experiences, values and attitudes are often at odds with "big government," which, as they generally perceive it, neither understands nor shares their values and interests. Bureau planning documents for the EIS area indicate similar ideas and attitudes among the local population. There is also a general feeling that resources should be utilized, but not abused. However, there is a difference Of opinion as to what is appropriate use.

Personal Income

Personal income in 1977 amounted to $86,870,000 in Baker County and $132,517,000 in Malheur County. Income per capita was $5,494 and $5,325 respectively, as compared with a statewide average of $7,014 (U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economics Information System (REIS) April 1979).

Low or negative net income for farm/ranch proprietors has contributed to low per capita income levels in recent years. Table 2-12 shows farm income trends since 1972.

As shown in the table, manufacturing employment in both counties is a smaller proportion of total employment than that for the State. Lumber and wood products makes up most of the manufacturing employment in Baker County, while

Table 2-12 Farm Labor and Proprietors Income, 1972-77
(Thousands of Dollars)

Year	Baker County Labor	Baker County Proprietors	Baker County Total	Malheur County Labor	Malheur County Proprietors	Malheur County Total
1972	1,352	6,637	7,989	6,355	12,589	18,944
1973	1,756	9,076	10,832	8,552	26,465	35,017
1974	1,749	4,785	6,534	8,837	27,737	36,574
1975	2,212	1,090	3,302	11,275	11,332	22,607
1976	2,278	-1,617	661	11,538	7,283	18,821
1977	2,915	-2,159	756	14,894	-8,546	6,348

Source: U.S. Department of Commerce, Bureau of Economic Analysis, REIS, April 1979.

food processing is the principal manufacturing activity in Malheur County. Construction employment over the 3-year period averaged about 160 in Baker County and 350 in Malheur County, or about 3 percent of the combined labor force in the two counties.

Economic Activity

In recent years (1976-1978), the civilian labor force of Baker and Malheur Counties has averaged 17,440 workers or 42 percent of the population. Unemployment rates averaged about 7.2 percent in Baker County and 6.3 percent in Malheur County.

Self-employed proprietors make up an above-average proportion of the work force in these two counties as indicated in Table 2-13. This is mainly due

Table 2-13 Average Civilian Labor Force and Employment, 1976-78
(Average number of workers during the 3-year period)

Item	Baker County Number	Baker County Percent of Total	Malheur County Number	Malheur County Percent of Total	State Total Number	State Total Percent of Total
Civilian labor force	6,500	100.0	10,940	100.0	1,129,000	100.0
Unemployment	470	7.2	690	6.3	85,670	7.6
Employment	6,030	92.8	10,250	93.7	1,043,330	92.4
Proprietors 1/	1,580	24.5	1,580	14.4	107,700	9.5
Wage and Salary	4,440	68.3	8,670	79.3	935,630	82.9
Manufacturing	680	10.5	1,720	15.7	205,230	18.2
Nonmanufacturing	3,760	57.8	6,950	63.5	730,400	67.5

1/ Derived as difference between total employment and wage and salary employment.

Source: Oregon Department of Human Resources, Employment Division, 1977-1979

to the importance of agriculture and the number of farm/ranch proprietors in the area.

According to the 1974 Census of Agriculture (U.S. Bureau of the Census 1974), there were 551 farms and ranches in Baker County and 1,317 in Malheur County in that year. A high proportion of these farms and ranches were engaged in livestock production--Baker, 486; Malheur, 137. Farms and ranches were large on the average--Baker, 1,452 acres; and Malheur, 1,122 acres.

Table 2-14 shows the value of agricultural sales from 1973 through 1977. Most of the value of production in Baker County is in livestock; crop value exceeds livestock value in Malheur County due to substantial production of field crops and fresh vegetables in the northeastern part of the county.

Table 2-14 Value of Agricultural Products Sold, 1973-1977
(Thousands of Dollars)

	Baker County		Malheur County	
Year	Livestock	Crops	Livestock	Crops
1973	15,627	2,464	29,247	61,894
1974	10,455	4,065	27,043	58,122
1975	12,400	4,029	29,519	56,361
1976	11,104	3,496	30,906	54,484
1977	9,740	3,674	32,874	45,265

Source: Oregon State University, Extension Service, Commodity Data Sheets, 1979

The two counties are important cattle-producing areas, accounting for about 20 percent of cattle herds in the State in 1978. There was a total of 94,000 cattle in Baker County and 200,000 cattle in Malheur County in 1978.

Economic Significance of Public Rangeland Resources

The following sections describe the economic importance of public rangeland resources in terms of: permittee dependence; debt service capacity; real estate valuations; and local personal income dependent upon public land grazing, wildlife and recreational uses.

The measures of ranch return above cash cost (an indicator of debt service capacity) and local personal income per AUM of grazing do not represent the value of an AUM either in terms of its value in production or its market value. These values depend on other factors not necessarily related to current personal income.

Permittee Dependence

About 270 permittees with 86,000 cattle (or equivalent) held grazing permits for public lands in the EIS area in 1979. The total authorized forage amounted to about 14 percent of the total annual forage herd requirements for these herds (9 percent in the Baker District portion and 19 percent in the Vale District portion).

Table 2-15 shows the average dependence on forage from public lands for permittees within each size group classified by herd size. The degree of dependence on licensed forage is slightly higher for the smaller herd size classes than for the EIS area as a whole. Forage dependence is considerably higher in the Vale District portion than in the Baker District portion.

BLM Grazing Permits and Real Estate Valuation

The Bureau of Land Management does not recognize grazing permits as vested property rights; however, *de facto* effects on private asset valuation may occur. Based on BLM staff reports of interviews with parties to real estate transactions involving 3,000 AUMs in BLM grazing permits during 1977-79, $65 per AUM was the composite valuation. These four sales were judged to provide the most reliable evidence of the eight reports available as either the purchaser or seller personally reported their detailed appraisal.

A recent report of 52 ranch sales in Grant and Umatilla counties, including nine with BLM and eight with USFS grazing privileges, indicated that for private range land an additional AUM adds $55.45 to the sale price (Winter 1979, p.16). With regard to Federal grazing, the analysis indicates that "public grazing privileges do not exert a statistically significant effect on the sale price of mountainous grazing land in the study area during the time period 1970 to 1978." (Ibid, p.19).

In 1978, livestock use was reduced by 13,903 AUMs in the Vale District portion (see Chapter 1, Table l-3). Minor increases of 421 AUMs occurred the same year. Table 2-16 shows licensed forage and degree of dependence prior to these changes.

Debt Service Capacity of Permittee Operations

Ability of the ranch enterprise to survive short-term reductions in forage from public land depends upon debt service capacity relative to financial obligations. In the absence of information on loans, this discussion focuses upon existing capacity to repay loans. Return above cash cost, as derived from ranch budgets is an indicator of the maximum cash flow of the beef cow enterprise, and as such, provides a measure of the debt service capacity of the enterprise. Debt service capacity, the money available for required payments on loans, is less than maximum cash flow. "Return above cash cost" would therefore exceed an approximation of the maximum debt service capacity (or maximum loss in such capacity, as used in Chapter 3) of the beef cow enterprise.

Table 2-15 Permittee Dependence on Licensed Forage, by Herd Size 1/

Size of Herd 2/	Permittees		Herds 2/		Licensed Forage on Public Lands 3/		
	Number	Percent of Total	Number	Percent of Total	Amount (AUMs)	Percent of Total	Percent of Requirements
BAKER DISTRICT							
Under 100	45	26.6	1,900	4.0	2,679	5.3	11.8
100---399	77	45.6	15,488	33.1	22,464	44.2	12.1
400---999	43	25.4	24,053	51.4	23,638	46.5	8.2
1,000 & Over	4	2.4	5,361	11.5	2,035	4.0	3.2
Total	169	100.0	46,802	100.0	50,816	100.0	9.0
VALE DISTRICT							
Under 100	19	18.8	734	1.9	2,170	2.4	24.6
100---399	49	48.5	8,526	21.6	25,824	28.3	25.2
400---999	22	21.8	12,407	31.5	34,438	37.7	23.1
1,000 & Over	11	10.9	17,710	45.0	28,907	31.6	13.6
Total	101	100.0	39,377	100.0	91,339	100.0	19.3
EIS AREA							
Under 100	64	23.7	2,634	3.0	4,849	3.4	15.3
100---399	126	46.7	24,014	27.9	48,288	34.0	16.8
400---999	65	24.1	36,460	42.3	58,076	40.9	13.3
1,000 & Over	15	5.5	23,071	26.8	30,942	21.8	11.2
Total	270	100.0	86,179	100.0	142,155	100.0	13.7

1/ Data pertains to livestock operators holding forage permits from BLM within the EIS area. Forage on National Forest and State lands is not covered.

2/ Livestock herds other than cattle were converted to cattle equivalents in terms of forage requirements.

3/ Represents active AUMs currently licensed. Licenses for 214 AUMs on lands in Vale District are administered by and included in data for Baker District.

Table 2-16 Licensed Forage Prior to 1978 Adjustments 1/

Herd Size	Amount (AUMs)	Percent of Total	Percent of Requirements
BARER DISTRICT			
Under 100	2,679	5.3	11.8
100---399	22,464	44.2	12.1
400---999	23,638	46.5	8.2
1,000 & Over	2,035	4.0	3.2
Total	50,816	100.0	9.0
VALE DISTRICT			
Under 100	2,314	2.2	26.3
100---399	29,130	27.8	28.5
400---999	40,180	38.3	27.0
1,000 & Over	33,197	31.7	15.6
Total	104,821	100.0	22.2
EIS AREA			
Under 100	4,993	3.2	15.8
100---399	51,594	33.2	17.9
400---999	63,818	41.0	14.6
1,000 & Over	35,232	22.6	12.7
Total	155,637	100.0	15.0

1/ Represents active AUMs in 1977 prior to reductions of 13,903 AUMs cited in Table 1-3 and minor increases of 421 AUMs. Distribution by herd size and calculations of percent of annual requirements based on data in Table 2-15.

Return above cash cost is the amount of money available after payment of cash costs to replace capital equipment, maintain improvements, support the permittee's household, and repay principal and interest on intermediate and long-term loans. (For detail on what is included in cash cost refer to the Ranch Budgets in Appendix L.)

The return above cash cost per ranch is presented in Table 2-17. On a per AUM basis, the return above cash cost was between $9 and $10 during the 1977-79 period which includes the exceptionally high beef price years 1978 and 1979.

Local Personal Income Effects

Estimates of local personal income derived from the beef cow enterprise of ranchers are presented in Table 2-18. These estimates represent price conditions during 1977-79, which was a favorable period for beef cow enterprises. Appendix M presents similar data based on the 1973-76 period.

Because county-wide personal income estimates are unavailable for the 1978-79 period, data from Appendix M were used to compare the total direct and indirect income from grazing public lands to totals for each county. For the 1973-76 period, public lands were responsible for about 0.5 percent of the total personal income in Baker County and 0.4 percent in Malheur County. During the more favorable 1977-79 period, the percentages would be larger, but probably would not exceed 1 percent for either county.

Table 2-17 Average Return Above Cash Costs Attributable to Forage from Public Land and to All Forage Sources 1/
(1977-79 average prices)

Herd Size	Amount per AUM	Amount per ranch: Public land	Amount per ranch: All sources
	BARER DISTRICT PORTION		
Under 100	$10	$ 600	$ 5,000
100---399	8	2,400	19,000
400---999	8	4,900	60,000
1,000 or more	9	4,500	140,000
All sizes	9	2,600	29,000
	VALE DISTRICT PORTION		
Under 100	$13	$ 1,500	$ 6,200
100---399	10	5,000	20,000
400---999	12	19,000	83,000
1,000 or more	8	20,000	147,000
All sizes	10	9,000	44,800
	EIS AREA		
All sizes	$10	$ 5,000	$ 35,000

1/ Based upon estimates of average "Return Above Cash Cost" developed by E.S.C.S. (Gee 1980). (Appendix L)

CHAPTER 3 ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

Throughout this chapter, environmental consequences (impacts) are determined as compared to the existing situation. The baseline for existing situation is as described in Chapter 2.

The significant impacts resulting from implementation of the proposed action and each of the alternatives are analyzed in this section. If a resource is not affected or if the impacts are considered insignificant, no discussion is included. Analysis, including the scoping process, indicates that there would be no significant impacts upon air quality, minerals, climate, topography, geology or timber. The Federal Land Management and Policy Act prohibits expanded grazing uses or proposed range improvements which would impair areas for wilderness preservation (see Range Improvement Section, Chapter 1).

The major actions which cause impacts are allocation of existing forage production, implementation of grazing systems, change in period of use and installation of range improvement projects. Since grazing systems and range improvements are not proposed for nonintensive management areas (167 allotments, 71,131 acres> or unallotted areas (14,219 acres), no change is expected from the existing situation. Preliminary analysis indicates that no significant impacts are expected; therefore, these areas are not discussed further. Management of those public lands under BLM jurisdiction on which grazing is administered by the U.S. Forest Service (11,348 acres> is not analyzed.

The following criteria were used to determine the nature and extent of impacts identified:

Beneficial impact:	Resource conditions would improve and any existing downward trends would be reversed.
Adverse impact:	Resource conditions would deteriorate and any existing downward trend would not be reversed,
No impact:	Resource conditions (beneficial and/or adverse) would remain static.
Short term:	Those impacts expected to occur during the 5-year period needed to complete the range improvement projects and implement grazing systems.
Long term:	Fifteen years after initiation of the proposed action or alternative (5 years for implementation plus 10 additional years).

The following assumptions have been made as a basis for the impact analysis:

- The proposed action or any alternative selected would be fully implemented as described in Chapter 1.

- Monitoring studies would be completed as indicated and adjustments made as needed.

- Grazing systems would be followed.

- The principal resource directly impacted is vegetation. Any changes in product ion, condition and trend of veget at ion would af fect other resources.

- Except for Alternative 2, all increased forage product ion would be allocated to livestock.

- Vegetation allocation for wildlife, wild horses and nonconsumptive uses would remain at the initial level of the proposed act ion or alternative selected.

- Personnel and funds would be provided to implement the proposed action or any alternative within the stated timeframe.

- Standard procedures and design elements would be effectively carried out for construct ion of range improvement projects in the proposal or any alternative.

IMPACTS ON VEGETATION

Introduct ion

Each component of the proposed action and the alternatives is expected to have an impact on the vigor and reproduction of the key species (Table 1-5). Actions which enhance a species' vigor and reproduct ion cause an increase in the number and s ize of that species in an ecosite. Conversely, if the action adversely affects-a plant's vigor and reproduction, the species affected will decrease in number and size in the ecosite. (Throughout this sect ion, this occurrence will be referred to as increase or decrease in composition.) For purpose of analysis, it is assumed that available nutrients, primarily water, are now essentially fully utilized by the present vegetation. Consequently , any increase in the amount of the key species would result in a similar but opposite change in the amount of some other herbaceous species. However, no significant reduction of woody species is expected. Where a decrease in key species occurs on grassland ecosites, an increase in woody species such as sagebrush would be expected.

Changes in other vegetative characterist ics such as forage production, ecos ite condition, residual ground cover, as well as riparian vegetation and

threatened or endangered plants, are dependent upon composition changes. Consequently, discussion of general changes in composition expected from each component of the proposed act ion and each alternative will precede the analysis of impacts to the above characteristics. A summary of the impacts to characteristics is shown in Table 3-l.

Impacts to the six major ecosites groups will not be discussed separately by group because the plants most affected by the proposed action and the alternatives are found in a greater or lesser extent in almost every ecosite. Consequently, the expected changes in key species would occur in nearly every ecosite although in somewh at different proportions depending upon their present composition, each ecosite's potential and the actions being proposed.

In general, composition changes in the woodland ecosites are not expected to be significant except where juniper control is proposed, The shrub land ecosite would not change greatly because of its limited potential for improvement , Likewise, little change would be expected on the nonproductive rockland and lakebed soil areas.

Impacts to Vegetation Composition

This section will analyze the expected changes in plant composition within the allotment s proposed for intens ive management. Because these changes are caused by the three components of the proposed action and alternatives (vegetation allocation, grazing system and range improvements) a brief description of each component precedes the impact assessment.

The following analysis identifies the general changes in composition of the key species that are expected to result from the components of the proposed act ion and each alternat ive. (See Table 1-9 for components by alternative.) Since significant composition changes usually take several years, the following analysis is confined to a discussion of long-term impacts.

Estimates of changes in composition of desirable species were based upon observations by district personnel, professional judgment, analysis of similar systems elsewhere and cited studies. Much of this information is believed to be applicable since it concerns similar actions and ecosites.

Vegetation Allocation and Grazing Systems

The vegetation allocation (Tables l-2 and l-11) inherent in the proposed action and the alternatives determines the degree of utilization of the key species.

The vegetation allocation for all but Alternative 1 would result in forage use being equal to or less than the present forage production. Alternat ive 1 would result in forage use exceeding the product ion in 151 allotments by 30 percent, Therefore, utilization of the key species except in Alternative 1 would be equal to or less than the proposed action, Under Alternative 1, utilization of the key species would continue heavy to extreme on 63 allotments. (See Table l-2 for these allotments where a significant livestock reduction (20 percent) is scheduled.)

Table 3-1 Ironside Vegetation Impact Assessment

Vegetative Characteristic	Existing Situation	Proposed Action	Alt. 1 No Action	Alt. 2 Elim. Lvstk	Alt. 3 Limit Adj.	Alt. 4 Opt. Lvstk.	Alt. 5 Opt. Other
Ecosite Condition (Acres) 1/							
Climax	17,493	76,323	32,026	167,266	76,323	75,994	64,147
Late	179,246	278,371	137,467	266,556	278,371	360,749	206,443
Middle	282,845	299,987	254,036	326,486	299,987	299,891	296,440
Early	301,474	126,377	357,529	20,750	126,377	44,424	214,028
No Data	217,824	217,824	217,824	217,824	217,824	217,824	217,824
Ecosite Trend (Acres) 1/							
Upward	175,950	439,467	218,033	982,930	439,467	532,867	389,290
Static	525,979	454,009	20,402	17,493	454,009	356,637	502,257
Downward	127,508	4,154	651,787	0	4,154	3,837	7,934
No Data	170,986	102,793	110,201	0	102,793	107,082	100,942
Residual Ground Cover 1/							
Acres Increasing	0	667,663	0	1,000,423	667,663	667,663	851,145
Acres Static	0	49,474	1,000,423	0	49,474	49,474	2,556
Acres Decreasing	0	197,044	0	0	197,044	197,044	43,953
No Data	1,000,423	86,242	0	0	86,242	86,242	102,769
Forage Production							
AUMs	127,362	163,548	123,850 2/	203,780 2/	163,548	173,739	145,600 2/
Riparian Vegetation Trend							
Acres Improving	0	402	116	1,541	402	109	1,497
Acres Static	0	970	1,015	0	970	1,248	0
Acres Declining	0	114	317	0	114	108	0
No Data	1,541	55	93	0	55	76	44
T & E Plants							
Potential Impact	0	-L	0	+H	-L	-M	+L

1/ Upland Ecosites Only; does not include 1,541 acres Riparian areas.
2/ Estimated.

Both the initial and projected vegetation allocations were determined under the assumption that grazing use of the key species would occur very near the level of utilization outlined for each grazing system (See Chapter 1). Since the level of utilization varies by grazing system, the system strongly influences the proposed allocations,

At present there are seven grazing systems in use throughout the EIS area. Table l-11 shows the acres to be included under grazing systems for each of the alternatives. Alternative 2 would result in the entire area being excluded from grazing; impacts to vegetative composition are therefore discussed under Exclusion.

Spring Grazing System

Spring grazing consists of use from start of growth and lasts 1 to 2 months. Because grazing occurs before full growth, it is estimated that even heavy utilization during this period would remove an amount the equivalent of 20-30 percent of the total annual vegetation production.

Grazing during this period requires plants to draw heavily upon food reserves to replace the grazed portions. However, grazing would cease while adequate soil moisture is still available for the grazed plants to reach full growth, produce seed and fully replenish food reserves, Consequently, this form of grazing is expected to promote the vigor of both herbaceous and woody key species (Stoddart, Smith and Box 1975, p. 133; Cook 1971). This system would enhance the production of perennial grasses since production of a large number of viable seed is dependent upon vigorous mature plants (Hanson and Stoddart 1940). Seedling establishment would depend upon the intensity of grazing in the spring following germination. If seedling plants are not physically damaged through trampling or being pulled up, they would normally be firmly established by the start of the third growing season (Stoddart, Smith and Box 1975, p. 483). Composition of herbaceous key species would increase on most areas in the long term as evidenced by 90 percent of the area where spring use is now used having upward or static trend.

The composition of woody key species is also expected to be enhanced, because very little livestock utilization of these plants would occur this early in the season (Sneva and Vavra 1979). As a result, riparian species would be grazed only lightly every year. Vale District observations of two riparian areas where spring grazing was recently implemented indicate that woody key species have increased significantly in production and composition.

Conclusion

The composition of both woody and herbaceous key species would increase significantly on the 36,762 acres under the proposed action and Alternative 3, on 39,395 acres under Alternative 4, on 31,015 acres under Alternative 1, and on 30,976 acres under Alternative 5.

Spring/Summer Grazing System

This system consists of grazing the key species during the late spring and summer growing period every year. Grazing use at this time is most critical to plant health (Cook 1971). Under the proposed action and Alternatives 3, 4, and 5, utilization would be limited to 40 percent of the key species annual production, Under Alternative 1, utilization would also be limited to 40 percent on 8,925 acres and would be somewhat higher on 22,090 acres where stocking rates exceed the useable forage production and on 450 acres of livestock concentration areas.

Although the proposed stocking rates would achieve 40 percent utilization on most areas, factors such as terrain, location of fences and water, type of livestock and the type of vegetation would often result in heavy grazing (60-80 percent of the annual vegetation production) in one portion of an allotment and light use (20-40 percent) in another area.

Based on field observation, it is estimated that livestock would concentrate on 3 to 5 percent of the upland areas and all of the unprotected riparian areas. Heavy utilization on concentration areas would prevent the key species from fully replenishing the food reserves necessary for maintaining vigor and reproduction. Ultimately, this degree of livestock use would result in the death of the key species. They would be replaced by plants such as cheatgrass, sagebrush and Russian thistle on upland ecosites; and wild iris, thistle, yarrow and dandelion on riparian areas.

On the remaining areas, moderate utilization of the key species would occur. Studies at the Squaw Butte Experiment Station (which is approximately 100 miles west of the EIS area) indicate that this degree of use would allow the key species an opportunity to maintain vigor, reproduce and increase their composition (Hyder and Sawyer 1951).

Conclusion

In general, spring/summer grazing and moderate utilization (40 percent) is expected to slowly increase the composition of the key species except on approximately 7,930 acres of concentration areas under Alternative 1 and 5 or 2,250 acres under the proposed action and Alternatives 3 and 4. On these areas, the composition of key species would remain unchanged if in early condition or decline if in the other condition classes.

Spring/Fall Grazing System

Spring/fall grazing would result in utilization of the herbaceous key species during the early portion of their growing period, Very little use of the woody key species is expected during this time. Grazing would occur again in the fall when herbaceous key species are dormant; however, moderate utilization of woody key species would be expected. It is expected that this system would enhance the vigor and reproduction of the herbaceous key species and thereby result in a slow increase in their composition. Woody key

species would only increase slowly in composition because stocking rates would be based upon 40 percent utilization of herbaceous species and utilization of the more palatable woody species during this season is expected to be heavier. However, this degree of utilization would allow a sufficient number of leaders and seedlings to remain ungrazed to assure some seedling establishment and maintain good vigor.

Conclusion

The spring/fall grazing system would allow a slow increase in composition of herbaceous key species or a more rapid increase in composition of woody key species on 54,389 acres under the proposed action and Alternative 3, on 54,395 acres under Alternative 4, and on 24,236 acres under Alternative 5. A similar increase is expected with Alternative 1 on the 16,279 acres where stocking rates do not exceed the useable forage production. On the remaining 8,048 acres under Alternative 1 where stocking rates exceed the forage production the composition of all key species would decrease.

Deferred Grazing System

Under Alternative 1, utilization of key species would be moderate on 15,850 acres and heavy on 61,979 acres where stocking rates exceed the useable forage production. Under Alternative 5, all acres would receive moderate utilization. No deferred grazing would occur under the proposed action or Alternatives 2, 3 and 4.

The deferred system would result in grazing after most of the key species have completed growth. However, favorable climatic conditions during some years could cause fall regrowth of the key species. Under those circumstances, deferred grazing would reduce root reserves and result in reduced vigor the following year.

On the areas where grazing use would be moderate, root food reserves needed to maintain plant health would be replenished every year. As a result, herbaceous key species would remain vigorous (Stoddart, Smith and Box 1975, p. 135).

Moderate grazing (50 percent of annual production) of shrubs encourages growth of additional twigs and therefore increases forage production. Reproductive capacity, on the other hand, is decreased over the years, since increased twig growth reduces the development of flowers and fruits (Garrison 1953 Cited by Stoddart, Smith and Box 1975, p. 135).

On the areas heavily grazed under Alternative 1, vigor and reproduction of herbaceous key species would be decreased (Cook 1971). In addition, after grasses mature, utilization of shrubs by livestock increases (Vavra and Sneva 1978). Some woody key species such as bitterbrush, willow and chokecherry are damaged when grazed heavily in the fall because stored food reserves are lost.

Where woody key species are found in limited numbers, some individual shrubs would be selected by cattle and heavily browsed, resulting in reduced vigor and eventual death of these plants. The critical growth period for woody key species occurs in late summer. Since Livestock normally concentrate in r iparian areas, both the vigor and reproduction of woody key species on riparian areas would be adversely impacted by removal of vegetation under the deferred grazing sys tern.

In areas heavily grazed by livestock, reproduction of all key species would be hindered by annual grazing since most seedlings are easily damaged by trampling and close grazing for 2 years following germination. In other areas, most plants would not be greatly impacted and would be expected to be established successfully.

Conc Lus ion

Deferred grazing is expected to increase the composition of the key species on 15,850 acres under Alternative 1 and 77,750 acres under Alternative 5 where utilization would be moderate. On 61,979 acres under Alternative 1, where utilization would be heavy, the herbaceous key species would increase slowly and woody key species would continue to decrease in composition.

Deferred Rotation System

Key species would be utilized 50 percent or 60 percent depending upon the present ecosite condition under the proposed action and Alternatives 3 and 4. Utilization under Alternative 1 would be at 50 percent except on 203,097 acres where the stocking rate exceeds the present forage production. Under Alternative 5, utilization would be limited to 40 percent on the key species.

In general, the deferred rotation sys tern and moderate utilization would result in the key species being grazed during the critical part of the growing season 1 out of 2 or 3 years.

Grazing use during the critical growing period would be alternated with grazing during early spring or Late summer/fall in successive years. The early spring grazing would end early enough to give most key species an opportunity to replenish food reserves and maintain good vigor. The late summer grazing would occur after food reserves of the key species had been stored. As a result, the vigor of the key species would be maintained at an acceptable level .

The deferred rotation grazing system would moderately enhance reproduction of the herbaceous key species by promoting seed trampling during the fall grazing period and by providing one or two growing seasons during which seedlings would be relatively protected from grazing.

Reproduction of woody key species would not be improved because the sequence of grazing treatments does not provide sufficient protection from grazing to allow seed production and seedling establishment.

Conclusion

Based upon trend studies in eight Ironside EIS area allotments, the deferred rotation system would result in a slow increase in composition of the herbaceous key species on all areas where it is proposed (Table 1-9) except on 203,097 acres under Alternative 1. Trend on all areas in these eight allotments is either upward or static. Very little change in composition of woody key species is expected from either the proposed action or any of the alternatives although a decline in woody key species would be expected on 219 riparian acres under Alternative 1.

Rotation Grazing System

The rotation system would continue to be used on 34,826 acres under Alternative 1 and 34,794 acres under Alternative 5. No rotation grazing would occur under the proposed action or the other alternatives. Implementation of Alternative 1 would result in approximately 50 percent utilization of the herbaceous key species on 5,887 acres. Heavier utilization of the key species would occur on the remaining 28,939 acres where grazing use would exceed the useable forage production. Utilization of woody key species on this area would be somewhat lighter. Under Alternative 5, utilization on all 34,794 acres would be approximately 40 percent of annual production.

Rotation grazing results in the key species being grazed during part of the growing season every year. This system would result in grazing during the critical growing period being alternated with early spring grazing the following year. The early spring grazing would end in time for the key species to replenish food reserves (see Spring Grazing System). As a result, the decline in vigor caused by use during the critical part of the growing season is somewhat offset by early grazing in alternate years.

Where utilization is moderate (40 percent to 50 percent) the rotation grazing system is expected to only slighty enhance the reproduction of the herbaceous key species on native range because every pasture is grazed each year. Many new seedlings would be grazed or pulled up before becoming established. On areas grazed more heavily, no increase in reproduction of the key species is expected.

Woody key species would improve in vigor and reproduction because they are normally not grazed by livestock during the spring and early summer (Vavra and Sneva 1978).

Conclusion

Under Alternative 1, a slow increase in composition of the herbaceous key species would occur on 5,887 acres and a decline in composition of these species would occur on 28,939 acres. Woody key species would increase on the entire 34,794 acres. Under Alternative 5 the composition of both herbaceous and woody key species would be expected to increase on all acres.

Rest Rotation Grazing System

Depending upon ecosite condition, utilization of key species would be limited to 50 percent or 60 percent of annual production under the proposed action and Alternatives 3 and 4. Utilization would be Limited to 40 percent under Alternative 5. Under Alternative 1, utilization of the key species would be approximately 50 percent on 108,520 acres and heavier on 168,027 acres.

Standard rest rotation would enhance both the vigor and reproduction of the herbaceous key species. Woody key species would not be benefitted as much because this system does not provide optimum conditions for seed production and seedling establishment of woody species. As a result, the composition of the herbaceous key species would increase significantly while the woody key species would increase only slowly.

Modified rest rotation would provide good conditions for vigor and reproduction of woody key species; however, the two consecutive spring grazing treatments would not be advantageous to the vigor of the herbaceous key species.

Conclusion

Over 90 percent of the acreage within 11 Ironside EIS area allotments which are properly stocked and presently have rest rotation systems also have static or upward trend. Rest rotation is expected to produce similar results on the areas where it is proposed. Consequently, the composition of the herbaceous key species would increase on all acres scheduled for rest rotation system under the proposed action and Alternatives 3, 4 and 5, and on 108,520 acres under Alternative 1 with moderate utilization. On the remaining 168,027 acres under Alternative 1, where stocking rates exceed the useable forage production, no increase in the herbaceous key species is expected. Woody key species would increase significantly on 32,299 acres under the proposed action and Alternatives 3 and 4 where the modified rest rotation system would be used. No significant change in composition of woody key species is expected on 276,547 acres under Alternatives 1 and 5 or on 348,529 acres under the proposed action and Alternatives 3 and 4 where the standard rest rotation system is proposed.

Exclusion

Exclusion consists of no authorized livestock grazing. Under Alternative 2, all public lands would be excluded from livestock grazing. For further information about areas to be excluded under the proposed action and Alternatives 1, 3 and 4, see Table 1-6 and Figure 1-2. For impact assessment purposes, it is assumed that other consumptive uses (wildlife and wild horses) would continue within exclusion areas.

Based on district observation in the grassland ecosite groups, this system would provide a significant improvement in vigor and reproduction during the first 5-10 years and would lead to an increase in the composition of the key

species. After this period, the herbaceous key species would increase more slowly. See Table 2-l for a listing of the dominant species for each ecosite group under climax conditions. In some areas where shrubby species now dominate , little increase in herbaceous key species would be expected within 30 to 70 years unless wild fires or other actions occurred to reduce the composition of shrubs. In the shrubland and woodland ecosite groups, exclusion of livestock would result in a slight increase in composition of shrubs and trees, respectively.

Exclusion would cause the most dramatic change in composition of riparian species. Based upon results observed after 15 years of livestock exclusion at Kane Springs in the Vale District, it is expected that riparian areas with good potential would improve to at least late ecosite condition in the Long term. Other areas in the Vale District with fewer years of exclusion have shown equally rapid rates of change.

Range Improvements

The removal of vegetation inherent in completion of the range improvements (Table 1-7) would cause both a temporary (1-5 years) and permanent (over 5 years) change in composition of the key species as shown in Table 3-2.

Table 3-2 Acres of Vegetation Disturbance Due to Range Improvements

	Water Developments 1/		Fences		Veg. Manipulation 2/	
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent-A/
Prop. Action	281	50	123	0	64,529	64,529
Alt. 3	281	50	123	0	64,529	64,529
Alt. 4	282	51	311	0	152,180	152,180
Alt. 5	281	50	475	0	64,529	64,529

1/ Includes springs, reservoirs, wells, pipelines and livestock guzzlers.
2/ Includes juniper control, brush control and seeding.
3/ Consists of significant changes in species composition.

In addition, some of the 82 new spring developments would cause a major change in species composition in riparian areas. As springs are developed, water previously supporting small areas of riparian vegetation would be diverted to livestock water troughs. In some cases, this loss of water would cause the riparian vegetation to die. Fencing would protect any remaining riparian vegetation at spring sources and would allow growth of new riparian vegetation on the overflow areas. Over the long term, more riparian vegetation would be protected by fencing than would be lost through spring development.

The construction of water developments would have a localized impact on the vegetation around each development. Cattle tend to congregate around water,

eating all the available forage in the immediate vicinity. The development of new water sources would also allow livestock to use an unquantified amount of previously unavailable forage and thus would reduce grazing pressure on areas near existing water sources. The new water areas would lead to more uniform livestock grazing use and result in fewer heavily grazed acres. Thus, water developments combined with grazing systems would promote an increase in the composition of the key species.

Vegetative manipulation is proposed within the grassland ecosite areas which are in early or middle ecosite condition and where a significant increase in composition of key species would require more than 10-15 years using grazing management alone. The areas proposed for seeding and brush control are now dominated by big sagebrush or annual grasses. Juniper control is planned for areas where a reduction in these plants is desired.

The proposed brush control using 2,4-D would significantly reduce the composition of sagebrush on 39,716 acres under the proposed action and Alternative 3. Similar impacts are expected on 93,145 acres under Alternative 4. Concurrent with the reduced sagebrush, other broad-Leaved plants would also be reduced (See Table 3-3 for list). The key species would be expected to increase significantly due to the increased moisture available to them following treatment.

Table 3-3 Plants Impacted by 2,4-D

Big sagebrush	Artemisia tridentata	Storksbill	Erodium cicutarium
Aster	Aster spp.	Biscuitroot	Lomatium spp.
Onion	Allium spp.	Penstemon	Penstemon spp.
Peppergrass	Lepidium perfoliatum	Larkspur	Delphinium spp.
Lupine	Lupinus spp.	Tumblemustard	Sisymbrium altissimum
Death camas	Zigadenus spp.	Paintbrush	Castilleja spp.
Fiddleneck	Amsinkia spp.	Arrowleaf balsamroot	Balsamorhiza sagittata
China lettuce	Lactuca spp.		

BLM and State of Oregon standards for application of herbicides would be followed to minimize impacts outside of the target areas. However, in a worst case situation, vegetation in adjacent non-target areas could be killed or damaged.

A total of 24,593 acres under the proposed action and Alternative 3 and 50,885 acres under Alternative 4 are proposed for seeding with crested wheatgrass and, depending upon site characteristics, other herbaceous species. Most of this area (except 6,058 acres) would be sprayed with 2,4-D in the spring to kill sagebrush. This would reduce the composition of sagebrush, other woody species and broadleaved plants (see Table 3-3). Up to 25 percent of these acres would be plowed or burned. Plowing would reduce herbaceous species to a lesser degree than would spraying with 2,4-D.

Burning would remove woody and associated herbaceous species, and thus reduce residual ground cover and forage product ion for at least a year following treatment . The remaining 6,058 acres would not be treated prior to seeding because the area is devoid of shrubby vegetation and direct drilling has been successful on these areas without plowing.

Based on existing seedings, crested wheatgrass (the major species to be seeded) would comprise 50 to 90 percent of the total composition. Some reinvasion of sagebrush and other shrubby and herbaceous species normally found in early and middle ecosite condition areas would also be expected within 10-15 years.

The proposed juniper control would significantly reduce the composition of western juniper on 520 acres within the W-2 woodland ecosite under the proposed act ion and Alternative 3. Under Alternative 4, 4,370 acres would be treated. Cutting of the trees would reduce the competition for water and light between the juniper and key species. As a result, the key species are expected to increase on the treated areas. Based on past observations, no significant reinvasion of juniper is expected within 15 years.

Impacts to Vegetative Characterist ics

The previous analysis indicates how the grazing systems and range improvement s, scheduled for the proposed act ion and the alternatives, would impact the composition of the key species, As indicated earlier, any change in composition of key species (Table 1-5) would ultimately lead to an opposite change in composition of the remaining plants.

One allotment , Clover Creek 2055, has been selected to serve as an example of the techniques used to predict changes in vegetative characteristics. This allotment, although not necessarily typical of the average allotment in the EIS area, will also be used to show the relationship between the proposed act ion and the expected change in plant composition, ecosite condition and forage product ion.

The proposed action for this allotment includes the following components:

1. Reduce livestock grazing use by 24 percent from the present 84 AUMs to 64 AUMs.

2. Initiate a rest rotation system, This allotment is now under non-intensive management.

3. Seed 240 acres which are now in early ecosite condit ion.

4. Develop two springs and inst al 1 approximately .2 mile of fence.

5. Continue to exclude 5 acres (including 1 acre of r iparian veget at ion) from grazing.

The Clover Creek Allotment contains 1,061 acres of public land and 1,940 acres of private land. Although impacts to private land are not quantified, it is expected that the effects of the grazing use reduction and grazing system would be equivalent to the changes on public land.

The following table outlines the present ecosite condition and forage production for public land within the allotment.

Table 3-4 Clover Creek Allotment 2055

Ecosite Group 1/	Climax Condition (acres)	Late Condition (acres)	Middle Condition (acres)	Early Condition (acres)	No Status (acres)	Total Acres	Static Trend (acres)
G-l	--	--	--	240	--	240	240
G-3	--	--	360	204	--	564	564
S-l	--	--	60	--	--	60	60
w-2	--	--	--	53	--	53	53
N-l	--	--	--	--	139	139	139
Total	0	0	420	497	139	1,056	1,056

1/ See Table 2-l for further information.

The apparent trend on five nearby properly utilized allotments which have been under rest rotation for a number of years indicates that 75 percent of the total area has upward trend and the remainder is static. Consequently, similar results would be expected on the Clover Creek Allotment following implementation of intensive management. It is assumed that this upward trend would produce a long-term change in the composition of the key species on all but ecosites S-l, W-2, N-l and the wildlife exclosure (257 acres>. The shrubland ecosite (S-l) is presently dominated by Sandberg bluegrass, stiff sagebrush and big sagebrush. Because of the high proportion of long-lived shrubs, potential for significant improvement is lacking on this ecosite. The woodland ecosite (W-2) and the exclosure likewise are expected to change little. The 139 acres in ecosite N-l are primarily rockland and thus have little potential for change in vegetation composition.

All 240 acres within ecosite G-l would be seeded. Based upon past seedings, crested wheatgrass would comprise 50 to 90 percent of the vegetation composition.

The remaining 564 acres in the allotment are found in ecosite G-3. The expected upward trend would increase the composition of the key species on the 204 acres in early condition from less than 6 percent to approximately 33 percent. On the 360 acres in middle condition, the average composition of the key species would increase from 33 percent to 59 percent.

Each allotment would be impacted differently because each allotment would receive a different combination of the two components of the proposed action.

The expected changes in composition of the key species are based upon observations of past changes on allotments having similar environmental conditions (grazing use, ecosites, grazing sys terns and range improvements) . Equivalent responses in composition are expected on allotments having similar proposals. The changes in composition are the basis for the expected changes in ecosite condition, forage production and ground cover, threatened and endangered plants and riparian vegetation discussed in the following sections. See Appendix B for the methodology used to determine changes in vegetative characteristics.

Ecosite Condition and Trend

Several assumptions were made to predict the long-term changes expected from the proposed action and the alternatives. The following assumptions are based upon changes observed within the EIS area by district personnel, study data, review of pertinent literature and professional judgement:

1. The rest rotation grazing system with utilization levels at 50 percent or deferred rotation at 50 percent of key species production or less would improve ecosite conditions by one category (for example, early to middle or middle to late) within 15 years.

2. The deferred rotation system at 60 percent utilization would maintain the present ecosite condition where it is now in climax or Late condition.

3. New exclosures would improve ecosites by one condition class except on woodland ecosites where no significant change is expected.

4. Brush control and seedings- would result in late ecosite condition.

The act ions included in the proposed action and the alternatives would produce changes in the composition of the key species. When key species composition increases, ecosite condition also improves and when key species composition is reduced, ecosite condition declines. The expected changes in ecosite conditions are outlined on Table 3-l.

Again, the Clover Creek Allotment displays the technique used to predict future ecosite condition and its relationship to changes of vegetation composition. As explained previously, the vegetative composition of only the grassland ecosites (G-l and G-3) is expected to change. The proposed 240 acre seeding on ecosite G-l would increase composition of crested wheatgrass to the 50 to 90 percent range. Assuming that introduced perennial grasses are equivalent to native perennial grass species in determining ecosite condition, then all of ecosite G-l would change from early to late ecosite condition. Based upon the strong upward trend exhibited in allotments now under rest rotation, the composition of key species in ecosite G-3 would increase from less than 6 percent to approximately 33 percent. This would result in 204 acres changing from early condition to middle condition. Likewise on the 360 acres where the average composition is approximately 30 percent, an increase up to approximately 60 percent is predicted. This

increase, based upon Table 2-1, would result in ecosite condition changing from the middle to late ecosite condition.

In the long term, ecosite condition in the Clover Creek Allotment is expected to be as shown in Table 3-5. Similar impacts to ecosite condition are expected on allotments that have equivalent conditions and proposals,

Table 3-5 Clover Creek Allotment
Future Ecosite Condition

Ecosite Group	Climax Condition (acres)	Late Condition (acres)	Middle Condition (acres)	Early Condition (acres)	No Status (acres	Total Acres
G-l	- -	240	- -	- -	- -	240
G-3	- -	360	204	- -	- -	564
S-l	- -	- -	60	- -	- -	60
w-2	- -	- -	- -	53	- -	53
N-l	- -	- -	- -	- -	139	139
Total	0	600	264	53	139	1,056

Forage Production

Forage production is highly dependent upon the composition of the key species and is thus also related to ecosite condition. This relationship is due to the key species being the preferred forage species. When key species increase under proper grazing management, forage production also increases; vice versa, as the key species composition decreases, forage production also declines.

In the Clover Creek Allotment the changes in composition and ecosite condition would result in significant long-term increases in forage production. The 360 acres in ecosite G-3 which are expected to change from middle to late condition would produce approximately 230 pounds of forage per acre or 80 AUMs. The 204 acres changing to middle condition should produce approximately 10 AUMs in the long term.

Based upon expected changes in composition, the proposed 240-acre seeding in ecosite G-l should produce approximately 50 AUMs in the long term. The remaining ecosites presently have minimal forage value and since no change in composition is expected, their production likewise would not change. The forage production in the Clover Creek Allotment would thus increase by 70 AUMs from the present 70 AUMs to a long-term total of 140 AUMs as shown on Table l-2.

The future forage production as outlined on Tables l-2 and 3-l was predicted using the methodology outlined in Appendix B. The future forage production of both the seeded and native range areas was based upon the present production of areas which had similar treatments.

Residual Ground Cover

The estimates of changes in residual ground cover (see Glossary) shown on Table 3-1, Summary of Impacts to Vegetation, are based upon the relationships among the existing vegetative ground cover (see Glossary) and ecosite condition, the proposed utilization of the key species and the projected ecosite condition.

An analysis of the 1977 Soil-Vegetation Inventory data indicates that there is very little difference in percent of vegetative ground cover between areas in climax, late middle or early ecosite condition. Consequently, very little change in vegetative ground cover is expected with changes in composition of the key species. Although the vegetative ground cover would not increase, the proposed lower level of utilization in allotments where downward adjustments and exclusion are proposed would, in the long term, increase the amount of vegetation remaining as ground cover after livestock grazing is completed (residual ground cover). In the short term, there would be a reduction in residual ground cover in the allotments receiving increased livestock grazing (see Table l-2) and on areas where land treatments are proposed (see Table l-7). In addition, year-to-year variations in residual ground cover would be expected on areas where rotation grazing systems are proposed.

Based upon the expected increase in composition of key plants, herbaceous perennials would make up a larger portion of the vegetative ground cover than at present. The yearly production of perennials varies less than the production of annuals in response to changing climatic conditions. Also, much of the above ground parts of both woody and herbaceous perennial species remain standing until spring growth recurs. Annuals, on the other hand, produce less vegetative ground cover in adverse growth years and, because they are not as structurally strong, often break off and blow away during fall and winter. As a result, perennials provide more year around vegetative ground cover than annuals.

This standing vegetation tends to catch blowing snow and retard melting in spring. Also, standing vegetation reduces wind velocity near the ground surface and keeps soil moisture and temperature lower. All of these factors tend to retain soil moisture which in turn results in a longer growing period and higher vegetation production.

In the Clover Creek Allotment, no increase in total ground is expected since there is virtually no difference in ground cover between the different condition classes in ecosite groups G-l and G-3. However, the 24 percent reduction in grazing use would produce a significant increase in residual ground cover. Also, the implementation of a rest rotation grazing system which leaves one pasture ungrazed every year would result in an unquantified increase of residual ground cover. In addition, a greater proportion of the vegetative ground cover would be in fibrous-rooted perennial grasses,

No significant change in wildfire occurrence is expected by the projected changes in residual ground cover. Although more vegetation would remain

after grazing, a larger portion of the total vegetation would be composed of perennial key species and less would be sagebrush and annual plants. Perennials remain green longer than annuals and are not as susceptible to fire as sagebrush overstory/annual understory areas. An analysis of fire occurrence records covering a period before and after livestock reductions indicated that climate conditions and other factors such as access, type of fire-fighting equipment and human activities were the primary factors in the number and size of wildfire.

Impacts

The riparian key species are mostly woody species. Consequently, impacts t 0 vegetation in the riparian zones are largely based upon the projected effect of the proposed act ion on the woody vegetation. If the woody species are al lowed to increase, the remaining herbaceous species also are benefited.

The spr ing , modified rest rotation and exclusion grazing system would also be beneficial to the woody key species. These three systems provide an opportunity to maintain vigor and sufficient time for establishment of seedlings and new sprouts. Therefore, an increase in composition of key species is expected on the areas Where these systems are proposed.

Very little change in composition of the woody key species would be expected on the areas where the spring/fall, rotation, deferred rotation and rest rotation systems are used. A decrease in composition of these key species is expected on the areas where the spring/summer and deferred system would be used. Table 3-1 shows the acres where an increase, no change or decrease in riparian vegetation is expected.

Of the proposed range improvements, only spring development would have a direct impact on the riparian vegetation, These projects would cause disturbance of up to 17 acres of riparian vegetation. However, in the long term, fencing of spring developments and the subsequent exclusion of grazing within the fenced areas would increase the composition and product ion of the key species in the riparian zone. (See analysis of spring developments in Impacts to Veget at ion Compos it ion, Range Improvement s .)

Impacts to Threatened or Endangered Plants

Site specific information concerning the present impact of livestock grazing is generally lacking for the 11 species which appear to be likely candidates for listing as threatened or endangered (T&E) under the Endangered Species Act, P.L. 93-205, as amended. Adverse impacts would be avoided by conducting intensive threatened and endangered plant inventories and modifying projects in accordance with Bureau policy (see Chapter 1). However , construct ion of range improvements, vegetative manipulation and changed livestock utilization patterns could have adverse impacts on T&E species searched for but not found during project clearance surveys. Beneficial impacts could occur to T&E species which are palatable to livestock on areas where grazing use would be reduced and where the proposed grazing systems are conducive to reproduct ion of herbaceous plants,

IMPACTS ON SOIL

Vegetation Allocation and Grazing Systems

Under the proposed action and Alternatives 3 and 4, the proposed vegetation allocation and grazing systems would improve soil protection in the EIS area by increasing residual ground cover (vegetation and litter accumulation). With the decrease in the amount of forage consumed by livestock, more vegetation and litter would be left at the end of each grazing season. In the long term, perennial grasses would increase and annuals would decrease (see Chapter 3, Vegetation, for discussion), Perennial grasses have a more extensive root system to hold soil in place and provide, on the average, more persistent ground cover than annuals. Bailey and Copeland (1961 Cited by Mattison et al. 1977) found that as vegetation and litter cover increased, overland flow of water and erosion decreased. This protective cover would reduce soil movement, reduce raindrop impact and -decrease compact ion, thus increasing the infiltration rate of water into the soil.

Under Alternative 1 on allotments that are overstocked, soil erosion would continue at present rates or increase. Erosion would decrease on allotments with proper stocking rates. Under Alternative 2, ground cover (particularly litter accumulation) would increase significantly, protecting the soil surface from erosion. The allocation of 36,326 AUMs to nonconsumptive use under Alternative 5 would also lead to litter accumulation and protection of the soil surface.

Erosion would continue to be greater on the 268,070 acres of sedimentary and granitic soils than on the 697,616 acres of volcanic soils for the proposed action and all alternatives, although the total amount of erosion would be reduced, Of the 26 allotments which have sedimentary soils occupying more than 50 percent of the public land acres (Figure 2-4), 8 allotments (all in the southern part of the EIS area) have an initial allocation made for nonconsumptive uses under the proposed action and Alternatives 3 and 4. This allocation ranges from 17 to 807 AUMs. All 26 allotments have an allocation for nonconsumptive use ranging from 1 to 1,615 AUMs under Alternative 5. (see Table l-11). The vegetation left on the ground from these allocations would help protect the soil from erosion. No allocation for nonconsumptive uses is proposed under Alternative 1. All forage, except for wild horses and wildlife, would go to nonconsumptive uses under Alternative 2.

Approximately 271 miles of streambanks under the proposed action and Alternative 3 and 294 miles under Alternative 4 would continue to erode at present rates on allotments with spring/summer, spring/fall, deferred rotation and rest rotation grazing systems. On allotments with the spring grazing system, streambank erosion would decrease on 25 miles under the proposed action and Alternatives 3 and 4. Under Alternative 1, 292 miles of streambanks under deferred rotation, rest rotation, rotation, spring/summer, spring/fall and deferred grazing systems would continue to erode at present rates; 9 miles under the spring grazing system would stabilize, The spring grazing sys tern would allow riparian vegetation, especially woody vegetation, to increase and help stabilize streambanks.

The elimination of livestock grazing in Alternative 2 and the exclusion of livestock along 27 miles of streams under the proposed action and Alternative 3, 13 miles under Alternative 1 and 336 miles of streams under Alternative 5 would greatly reduce streambank erosion. The expected increase in riparian vegetation along the protected streams would help stabilize the streambanks.

Range Improvements

The construction of range improvements under the proposed action and Alternative 3 would temporarily disturb 65,232 acres while under Alternative 4, 147,993 acres would be temporarily disturbed (see Table 3-6). The disturbance would subject those acres to wind and water erosion. This impact would lessen as all but about 50 of these acres became revegetated in 1 to 3 years.

Livestock would concentrate around the proposed reservoirs, springs, guzzlers and pipeline troughs. Approximately 6 acres around each of the proposed watering sites would be heavily grazed. Ground cover would thus decrease on a total of 1,614 acres under the proposed action and Alternative 3 and 1,692 acres under Alternative 4, thereby increasing erosion.

On the acres proposed for seeding, the herbicide 2,4-D would be the main method of seedbed preparation. The dead vegetation would help protect the soil and erosion would not significantly increase. Up to 25 percent of the acres would be plowed or burned. These methods would remove nearly all the existing vegetation and expose the soil to both wind and water erosion. The disturbed areas would be revegetated within a year. In the long term, erosion from the seeded areas would decrease. On the 6,058 acres proposed for direct drilling, perennial grasses would replace the present stand of annual plants and would provide more protection from erosion.

No range improvements are proposed under Alternatives 1, 2 and 5.

IMPACTS ON WATER RESOURCES

Water Quantity

A number of studies (Rauzi and Hanson 1966; Alderfer and Robinson 1974; Hanson et al. 1972) have shown that heavily grazed areas and areas with poor range condition (ecosite condition) produce more runoff than lightly and moderately grazed areas and those in good range condition (ecosite condition). The decrease in grazing intensity and expected improvement in ecosite condition under the proposed action and Alternatives 3, 4 and 5 would thus decrease runoff by approximately 3 percent. As plant and litter density increases, more water infiltrates into the soil and is available to be used by plants. In this manner, less subsurface flow would reach streams. Litter accumulation would increase significantly under Alternative 2, leading to a decrease in runoff of about 10 percent. The allocation of 36,326 AUMs to nonconsumptive uses under Alternative 5 would lead to a 5 percent decrease in runoff. Runoff would not change under Alternative 1.

Table 3-6 Soil Disturbance by Proposed Range Improvements 1/

Range Improvement	Proposed Action			Alternative 3 Limit Adjustment			Alternative 4 Opt. Livestock			Alternative 5 Opt. Other		
	Units	(Acres) Temp.	Perm.	Units	(Acres) Temp.	Perm.	Units	(Acres) Temp.	Perm.	Units	(Acres) Temp.	Perm.
Reservoirs	74 each	74	37	74 each	74	37	74	74	37	0	0	0
Springs	82 each	20.5	8.0	82 each	20.15	8.0	83	21	8	0	0	0
Wells	5 each	1	0	5 each	1	0			0	0	0	0
Pipelines	91.0 miles	182	4	91.0	182	4	91.5	182	4	0	0	0
Fences	245.7 miles	123	0	245.7 miles	123	0	521.7 miles	311	0	700 miles	350	0
Guzzlers	11 each	3	1	11 each	3	1	17 each	4	2	0	0	0
Juniper Control	520 Acres	0	0	520 Acres	0	0	3,370 Acres	0	0	0	0	0
Brush Control	39,716 Acres	0	0	39,716 Acres	0	0	93,145 Acres	0	0	0	0	0
Seeding 2/	24,593 Acres	24,593	0	24,593 Acres	24,593	0	50,885 Acres	50,885	0	0	0	0
Totals		24,996.5	50		24,996.5	50		51,478	51		350	0

1/ There would be no range improvements for Alternatives 1 and 2.
2/ All but 6,058 acres (Allotments 101 and 105) would be sprayed with 2,4-D.

Less water would also reach downstream users due to the construction of 74 reservoirs under the proposed action and Alternatives 3 and 4. (No reservoirs are proposed under Alternatives 1, 2 and 5 .) Since each reservoir would hold approximately 1.5 acre-feet (ac-ft) the total impoundment would be 111 acre feet per year (ac-ft/yr). The total decrease in runoff would thus be 5,890 ac-ft/yr under the proposed action and Alternatives 3 and 4, 9,635 ac-ft/yr under Alternative 5, 19,270 ac-ft/yr under Alternative 2, and no change under Alternative 1. (See Appendix B for methodology.)

The amount of groundwater withdrawn from the five wells under the proposed action and Alternatives 3 and 4 would not significantly deplete the resource since groundwater recharge is greater than the amounts presently withdrawn (Oregon State Water Resources Board 1967, 1969). No wells are proposed in the Cow Valley critical groundwater area. No wells are proposed under Alternatives 1, 2 and 5.

Water Quality

Chemical constituents are not likely to change since the chemical composition depends on the source of the water and the geological substrate. Most coliform contamination from livestock comes from use in or directly adjacent to streams (Johnson et al. 1978; Robbins 1978). The water developments to be constructed under the proposed action and Alternatives 3 and 4 are expected to distribute livestock more evenly over the area. With fewer animals around perennial streams, coliform contamination of water from livestock would decrease.

Fencing 34 miles of streams in riparian areas under the proposed action and Alternative 3 and 350 miles under Alternative 5 would also decrease livestock concentrations along perennial streams, and thus decrease coliform contamination. Under Alternative 1, coliform contamination of water would continue. Under Alternative 2, contamination from livestock would be eliminated.

The herbicide 2,4-D would be sprayed on 64,309 acres under the proposed action and Alternative 3 and 144,030 acres under Alternative 4. Herbicides can enter streams by one or more of the following methods: leaching or subsurface flow of water, overland flow of water, direct application and drift on surface water (USDI, BLM 1978e).

The herbicide 2,4-D is quickly adsorbed on the soil, so it is not readily available for leaching, Afterward, it is degraded quickly by microbial activity (Norris 1967 In USDI, BLM 1978e). Also, less leaching would take place on the loamy and clayey soils than on sandy soils. (Over 97 percent of the soils in the EIS area are loamy and clayey.)

The herbicide could enter streams by overland flow of water if a heavy rain occurred soon after spraying. Abrahamson and Norris (1976) found that with buffer strips along streams in western Oregon, maximum herbicide concentrations were less than 0.01 ppm with residues detected for less than one day after herbicide application. With a buffer strip 100 feet wide on either

side of perennial streams there would be a reduction in herbicide concentration in runoff water which is filtered as it moves over uncontaminated soil since soil adsorbs the chemicals.

In western Oregon, nearly all herbicides found in streams resulted from direct application of herbicides to the surface of water (USDI, BLM 1978e). The leave strips around the perennial streams should prevent direct application or drift on to the streams.

No herbicides would be applied under Alternatives 1, 2 and 5.

The construction of the range improvements would temporarily increase the present sediment yield of 0.79 acre-feet per square mile per year (ac-ft/sq. mi/yr) to .86 ac-ft/sq. mi/yr from seeding and 1.25 ac-ft/sq. mi/yr from the other range improvements. This would amount to an increase in sediment yield of less than 1 percent under the proposed action and Alternatives 3 and 4. (See Appendix B for methodology.) The disturbed acres are expected to become revegetated within 1 year. After revegetation, sediment yields would return to the previous undisturbed levels or lower, since residual ground cover would increase. Impacts to water quality would be negligible from the 50 acres permanently disturbed. The proposed reservoirs would improve water quality by catching sediment that might otherwise enter perennial streams.

In the long term, the expected increase in residual ground cover from vegetation allocation, grazing systems and range improvements under the proposed action and Alternatives 3 and 4 would decrease the sediment yield in the area by 92.3 ac-ft/yr. With the soil protected from erosion, less soil is detached and carried to streams resulting in an improvement in water quality. Under Alternative 1, sediment yield would increase by 52.6 ac-ft/yr due to overgrazing. Under Alternatives 2 and 5, residual ground cover would significantly increase, leading to decreases in sediment yield of 487.6 and 250.4 ac-ft/yr. respectively. (See Appendix B for methodology.).

IMPACTS ON WILDLIFE

Impact analysis was based primarily on three considerations:

1. Quality of habitat (food, water, cover> as based on visual observation of district personnel and limited habitat inventory.

2. Site potential to respond to a specific grazing system.

3. Research applicable to the area.

Wildlife populations have not been monitored to determine the impact of past grazing systems and range improvements; therefore, predictions of population changes are based on field observations.

In general, the proposed action improves habitat conditions, resulting in slight benefits to most species. Residual cover and new growth of vegetation

although remaining relatively sparse, would increase to improve habitat for wildlife.

An environmental change which reduces population size or carrying capacity creates an adverse impact to that species. Similarly, an environmental change which increases existing populations or carrying capacity results in a beneficial impact.

This analysis places emphasis on animals and their habitats which would be significantly impacted. Criteria for determining significance were as follows:

1. Species threatened, endangered or of special status.

2. Species conflicting with livestock because of wildlife requirements for food and cover.

3. Species having strong conflicts with range improvements in terms of lost food and cover.

4. Important species in the structure or function of the ecosystem.

5. Game species with substantial numbers using public lands.

Wildlife would experience both primary and secondary impacts. Primary impacts affect wildlife populations directly. Some examples of primary impacts are: avoidance of livestock by big game; deer and antelope fence mortalities ; nest disturbance or destruction from livestock trampling; animal displacement from plowing and seeding. Most primary impacts are not discussed because they are believed to be insignificant in the long term.

Secondary impacts affect wildlife populations indirectly by changing the vegetation or wildlife habitat. Some examples are: loss of sagebrush cover from herbicide spraying; increased nesting trees in riparian zones; siltation of stream bottoms from exposed banks. These secondary impacts to wildlife habitat have been found to be significant. Without the required habitat for reproduction or for protection during severe winter weather, wildlife populations will quickly decline and disappear.

Impacts to wildlife habitat are discussed first, followed by a conclusion which estimates expected changes to wildlife populations.

Threatened or Endangered Animals

Bald eagles and peregrine falcons are not known to nest on public lands in the EIS area. The proposed action or alternatives would not affect eagle roost sites in ponderosa pine or food sources along the Snake River. No impacts to bald eagles or peregrine falcons are expected.

Changes in small mammal populations and vegetation would not be great enough to affect bobcat populations.

Wildlife Habitat in Riparian Zones

Analysis of impacts to wildlife habitat in riparian zones was made by comparing present grazing with proposed grazing at each of 347 different sites (Table 1-6 and Figure 2-2). Grazing systems or livestock exclusion would affect approximately 1,690 public acres of riparian habitat (Table 3-7). Predicted condition and trend after 15 years is shown in Table 3-8. Factors considered in making impact predictions were present condition, trend, potential for improvement, stocking rate and grazing system.

Condition of wildlife habitat in riparian zones is closely related to the ecosite condition of vegetation in these areas; however, there are differences. Structure or the physical aspects of vegetation is important to wildlife. For example, grass along a stream may be in late ecosite condition but still be poor nesting habitat because the grass has been grazed to ground level. Ecosite condition in riparian zones has not been determined (Table 3-l). Wildlife habitat condition and trend was determined on 700 acres using methodologies in Appendix B.

Vegetation Allocation

Reductions in livestock numbers do not normally improve riparian zones because riparian vegetation is often severely grazed before light use is made of upland vegetation. Exclusion of grazing would result in rapid improvement of wildlife habitat (Winegar 1977). Observation of exclosures in the EIS area indicate the greatest improvement occurs during the first 5 years. Riparian zones with a high potential for improvement would be expected to improve two condition classes. Severe 1 ives tock utilization adjacent to exclosures would result in degraded wildlife habitat.

Grazing Sys tens

Grazing sys terns and the period of use are the most important factors with riparian zones. Generally, shorter periods of use result in less damage to wildlife habitat.

Under spring or spring/fall grazing with an initial 2 year rest, an improvement in wildlife habitat of one condition class (methodology, Appendix B) can be expected in 10 years. This is based on observations by district personnel of a riparian zone in Allotment 202. Cattle are less likely to concentrate along streams early in spring because of abundant green growth in the uplands and low air temperatures. Utilization of woody species (e.g., willow, chokecherry, mock orange etc.) by livestock would be less than 40 percent, which would allow sufficient growth each year to establish an upward trend. Without the 2 year initial rest, an improvement of one condition class would be expected in 15 years.

Under rest rotation, improved habitat during the rest year is often lost with severe livestock use the following years. Some riparian zones would improve, others would remain in their present condition. Area wide, a slow upward

Table 3-7 Public Acres of Wildlife Habitat in Riparian Zones--
Expected Impacts from Grazing Systems and Livestock Exclusion 1/

Type of Grazing	Expected Impact to Wildlife	Proposed Action	Alt. 1 No Action	Alt. 2 Eliminate Livestock	Alt. 3 Limit Adjustment	Alt. 4 Optimize Livestock	Alt. 5 Optimize Other
Exclude livestock	+ + +	307	77	1,690	307	0	1,690
Spring	+ +	59	42	0	59	112	0
Spring, with initial 2 year rest	+ +	45	0	0	45	0	0
Spring/Fall	+ +	94	25	0	94	126	0
Spring/Fall with initial 2 year rest	+ +	27	0	0	27	0	0
Rest Rotation	+	671	676	0	671	830	0
Deferred Rotation	0 or −	302	388	0	3 0 2	398	0
Deferred		0	79	0	0	0	0
Rotation	+	0	32	0	0	0	0
Spring/Summer		182	314	0	182	221	0

+ + + Greatly beneficial, habitat would improve 2 condition classes
+ + Moderately beneficial, habitat would improve 1 condition class
+ Slightly beneficial, slow upward trend or maintain present condition
0 Maintain present condition
− Downward trend

1/ There are approximately 1,740 acres of riparian habitat, including 50 unalloted acres, within the EIS area. Nonintensive management would occur on O-50 riparian acres, depending on the alternative.

Table 3-8 Public Acres of Wildlife Habitat in Riparian Zones--
Condition and Trend

Condition	Existing Situation	Proposed Action	Alt. 1 No Action	Alt. 2 Eliminate Livestock	Alt. 3 Limit Adjustment	Alt. 4 Optimize Livestock	Alt. 5 Optimize Other
Excellent	48	109	72	381	109	50	381
Good	290	564	344	1,151	564	361	1,151
Fair	313	232	308	1	232	329	1
Poor	721	544	711	195 1/	544	674	195 1/
Unknown	364	287	301	8	287	322	8
Total	1,736	1,736	1,736	1,736	1,736	1,736	1,736
Trend							
UP	71	1,018	628	1,386	1,018	832	1,386
Static	516	360	473	342	360	375	342
Down	98	127	318	0	127	191	0
Unknown	1,051	231	317	8	231	338	8
Total	1,736	1,736	1,736	1,736	1,736	1,736	1,736

1/ Riparian zones along Hells Canyon, Brownlee and Oxbow Reservoirs would remain in poor condition because of fluctuating water levels and rock banks.

trend can be expected. The rotation system would allow livestock to use riparian zones for short periods during the growing season. Wildlife habitat would improve or maintain its present condition. Deferred rotation would result in severe livestock utilization of riparian vegetation every other year or every third year. Wildlife habitat would maintain its present condition or deteriorate.

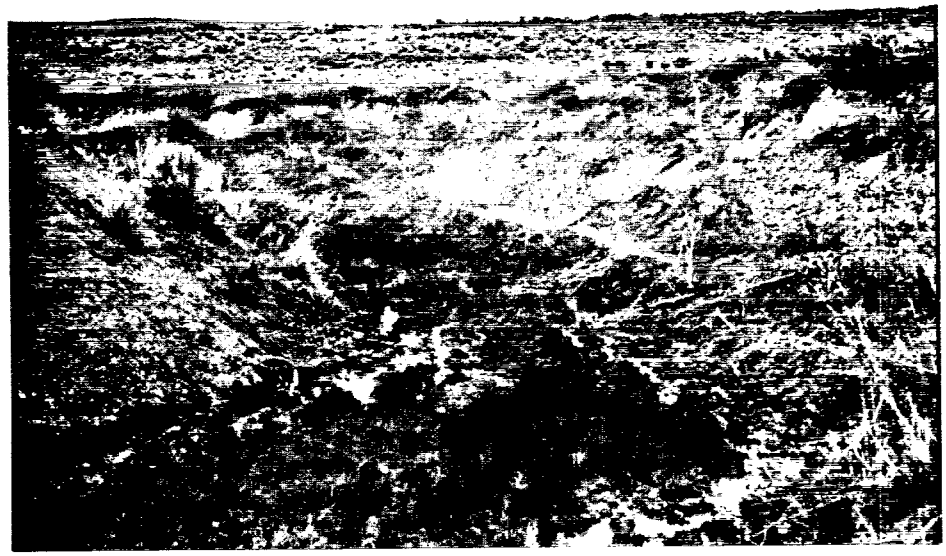
Deferred grazing would concentrate livestock in riparian zones each year in late summer. The spring/summer system would result in severe livestock utilization during the growing season each year (see photos). Wildlife habitat would deteriorate with both of these systems.

Range Improvements

Developments of springs would initially destroy some wildlife habitat in the riparian zones at each spring site. About 20 acres at 82 sites would be affected (Table l-7). Where fencing of overflows is proposed, lost habitat would be replaced in the long term.

Herbicide spraying would decrease wildlife habitat in riparian zones by killing vegetation used for cover. Design features are expected to prevent any herbicide spraying of riparian zones.

Grazing exclusion would result in excellent wildlife habitat as demonstrated by this exclosure at Little Mac Springs in Allotment 101. May 1979.



Spring/summer grazing would result in poor wildlife habitat as demonstrated by this riparian zone adjacent to Little Mac Springs exclosure. May 1979.

Mule Deer, Antelope and Elk

Vegetation Allocation

In general, decreasing livestock use results in increased forage for big game, a beneficial impact. Livestock exclusion in riparian zones improves cover for big game (Table 3-7).

Under the proposed action initial allocation would result in substantial short term cattle reductions (Table l-2). More vegetation would be left to sustain big game through the winter. Decreased stocking rates would increase food in the long term by increasing grass and shrub vigor. The projected allocation would maintain increased food for big game, but would not reduce competition where season of use is the major cause of competition (e.g. Keating winter range).

Decreased browse productivity in Alternative 1 would decrease forage for big game in the long term (Table 3-1, Forage Production).

Alternative 2 would initially increase the availability of desirable browse, forbs and grass. In the long term, reduced forage production due to stagnation would have adverse impacts. Decreased "green up" of vegetation during fall, winter and early spring would be unfavorable to big game.

Impacts from Alternative 3 would be nearly the same as the proposed action. Increased forage for big game would not be significant until full livestock reductions are made (Table l-2).

In Alternative 4, the projected increase of 45,000 livestock AUMs and the possible increased use of sheep would result in significant competition for desirable shrubs and forbs. Forage for big game would be moderately reduced. Dietary overlap of sheep with big game is high, i.e., they prefer the same kinds of foods.

Alternative 5 would moderately increase forage available to big game. Livestock exclusion would improve cover on 1,690 acres in riparian zones.

Grazing Systems

Under the proposed action, increased grass and browse production in Allotment 5313 would improve forage for elk. Increased browse availability would benefit deer on 32,000 acres. Increased "green up" stimulated by deferred rotation grazing would increase forage for antelope on 23,000 acres. Elimination of cattle grazing after September 31 in the Powder Canyon Pasture (Allotment 2024) would assure that the fall "green up" of grasses on 582 acres would be totally available to wintering deer.

Rest rotation and deferred rotation grazing would result in significant competition between deer and livestock for the fall "green up" in allotments near Keating. About one-third of the allotment acreage amounting to 5,000 acres would be grazed during November and December in Allotments 2024, 2112, 2055, 2032, 2025, 2037, 2116, 2040 and 2004.

Relatively small pastures and varied grazing systems would prevent large blocks of habitat from being adversely affected in any one year.

Impacts of Alternatives 3 and 4 would be the same as the proposed action. Alternative 1 would decrease forage available to big game and Alternative 5 would increase available forage (Table 3-l).

Range Improvements

Cumulative impacts of past vegetative manipulation together with proposed spraying, burning and plowing may reduce food and cover for deer. Crested wheatgrass seedings which replace existing cheatgrass, Sandberg bluegrass and sagebrush would reduce food and cover on deer winter ranges near Keating.

Removal of sagebrush on approximately 50,000 acres would allow for improved antelope movement.

The proposed 246 miles of fence to be built primarily on upland sites is not expected to have a significant impact. A minor number of mortalities may occur, especially immediately after construction. The existing 1,200 miles of fence on public lands in the EIS area have not had a significant adverse impact to big game.

New water sources in native range would increase forage competition by allowing cattle to graze in areas previously used primarily by big game. These new water sources would slightly reduce forage competition with cattle near existing waters and increase big game distribution. In seedings, improved distribution of livestock with water developments would increase desirable "green up" of vegetation for deer and antelope.

Alternative 3 would have the same impacts as the proposed action. With Alternative 4, vegetative manipulation would decrease cover on 30,000 acres (17 percent) of crucial deer winter range. Removal of sagebrush on 19,000 acres would allow for improved antelope movement. Remaining range improvements would have the same impacts as the proposed action.

In Alternative 5, approximately 700 miles of fence to be built in riparian zones would increase deer fence mortalities. Riparian zones are "travel lanes" where deer often concentrate. Seasonal and daily movements may be changed, with unquantifiable adverse impacts.

Conclusions

Mule deer populations are not expected to change significantly in the proposed action, Alternative 1 and Alternative 3. Slight to moderate changes of forage availability would not affect populations because cover rather than food has been identified as the major limiting factor, There would be slight population reductions under Alternative 2 due to reduced production of preferred foods, Alternative 4 due to loss of food and cover and Alternative 5 because of 700 miles of new fence in riparian zones.

Livestock grazing does not appear to limit the forage available to antelope. Under the proposed act ion, Alternative 3 and Alternat ive 5, increased availability of food and improved habitat from sagebrush control would not significantly change existing trends, Slightly decreased forage availability (Alternatives 1 and 2) or slightly increased forage availability with Alternative 4 is not expected to change existing population trends.

Existing livestock use does not appear to be a limiting factor for elk. Slightly increased availability of food resulting from the proposed action would not significantly change existing trends. Slight increases or decreases in food from Alternatives 1, 3, 4 and 5 are not expected to af fect elk populat ions. Alternative 2, which would reduce product ion of preferred foods in the long term would be expected to slightly decrease carrying capacity and elk numbers.

Other Mammals, Upland Game Birds, Other Birds, Amphibians and Reptiles

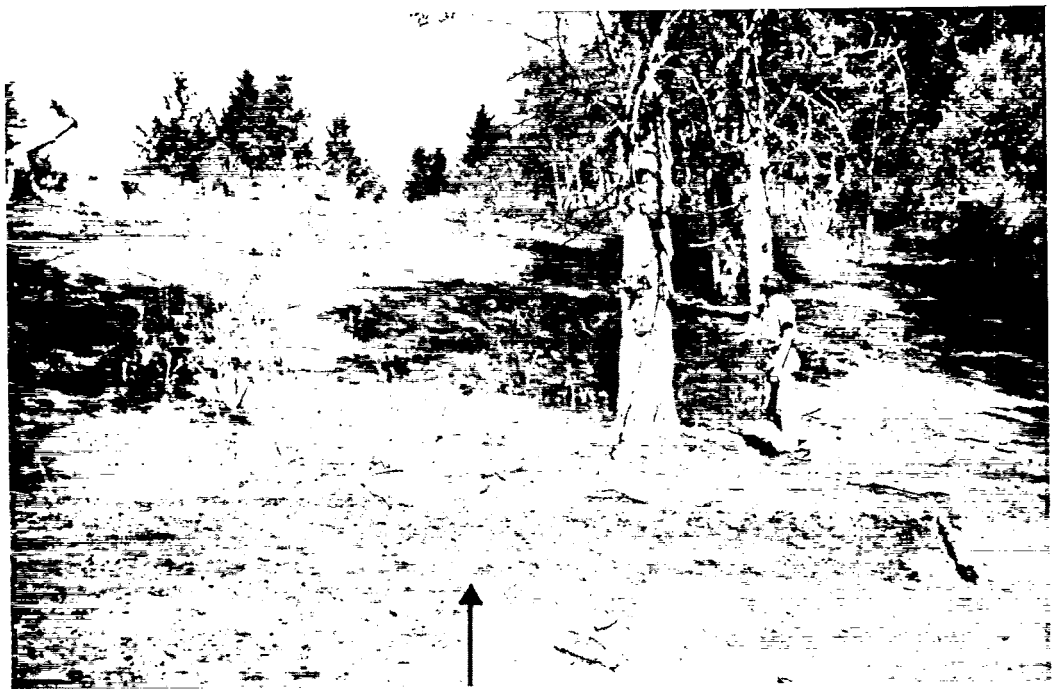
These animals are grouped to avoid repetition. Impacts are described in general terms and covering very broad areas; detailed analysis is not possible because site specific or species specific impacts from existing or or proposed livestock management are largely unknown. Wildlife is primarily impacted through changes in condition of riparian zones, amount of residual ground cover in upland areas and vegetative composition. Impacts in riparian zones are significant because these areas contain the greatest densities and variety of species. Residual ground cover includes dried herbaceous vegetation which persists through winter and spring. In all areas, this cover is very important for reproduction, escape from predators and maintenance of body temperatures. Long term, subtle changes in vegetative composition would improve habitat for some species and have adverse impacts on others (Egeline 1978). For example, increased perennial grasses may increase Rocky Mountain cot tontails, least chipmunks and deer mice. Black-tailed jackrabbits and kangaroo rats, which are adapted to disturbed areas, may decrease as annual grasses and forbs are replaced with perennials.

Veget at ion Allocat ion

Livestock exclusion in the proposed action would improve 214 acres of riparianhabitat to at least good condition (Tables 3-7 and 3-8). Winter cover, nesting cover and food would be increased. Species such as valley quail, spotted frog and mallard, which are strongly associated with riparian zones, would be greatly benefited. Species such as chukars and sage grouse, which do not require dense riparian vegetation, would be benefited only slightly. Decreased ut il izat ion of upland herbaceous vegetation would increase residual cover (see photo).

Under Alt ernat ive 1, conditions described in Chapter 2 would continue.

Light livestock grazing would result in good residual ground cover as demonstrated on this steep slope in Allotment 2074.
May 1979



Heavy livestock grazing results in poor residual ground cover as shown at Lookout Mountain, Allotment 1001.
October 1979

Alternative 2 would greatly increase vegetation and be beneficial to most species. Increased shrub and tree growth in riparian areas (Figure 2-4) would allow birds to nest in previously unoccupied areas. Each year ungrazed grasses and forbs would mature and produce seeds used by many species. Long-term changes in vegetative composition would favor species such as the least chipmunk and spotted frog which are benefited by ungrazed conditions. Some species such as black-tailed jackrabbits may decrease as disturbed areas now dominated by annuals were replaced with ungrazed perennial grasses.

Long-term impacts from Alternative 3 would be the same as the proposed action. Significant improvements of cover would not be realized until full livestock reductions are made.

Alternative 4's initial allocation to livestock, which is below existing levels, would initially improve residual cover in upland areas for most species. The projected livestock allocation (AUMs) would increase but residual cover would not decrease since the degree of utilization would remain the same in the short and long term, However, disturbance to nests would increase in the long term due to increased numbers of livestock. Livestock grazing in existing livestock exclosures would result in downward trend on 74 acres in riparian zones.

In upland areas, Alternative 5 would moderately increase nesting, thermal and escape cover for most species. Livestock exclusion in riparian zones would greatly improve wildlife habitat with impacts similar to Alternative 2. About 850 riparian acres would improve to at least good condition. Severe livestock use adjacent to fenced riparian zones would decrease cover for wildlife on approximately 3,000 upland acres.

Grazing Systems

Impacts to upland areas are analyzed here; impacts to riparian zones have been previously described (Tables 3-7 and 3-8). Grazing systems primarily impact wildlife through amounts of residual ground cover. Cover is important for reproduction, escape from predators and maintenance of body temperatures. Residual cover for wildlife in upland areas was put in four categories based on livestock utilization.

Excellent - Slight or no livestock utilization; more than 80 percent of the herbaceous vegetation is left for wildlife cover.

Good - Light livestock utilization; 60-80 percent of the herbaceous vegetation is left for wildlife.

Fair - Moderate livestock utilization; 40-60 percent of the herbaceous vegetation is left for wildlife.

Poor - Heavy or severe livestock utilization; less than 40 percent of the herbaceous vegetation is left for wildlife.

Acreages affected by grazing systems with the proposed action and Alternative 3 are listed in Table l-6 as "Proposed".

Under spring grazing, regrowth of grasses after livestock have finished grazing would provide wildlife with good cover for nesting and escape. Moderate amounts of residual vegetation would result in good thermal cover. Increased densities of perennial grasses would improve nesting cover for ground nesters such as horned larks.

Spring/fall grazing would have similar impacts as the spring system except that fall grazing would remove some residual vegetation resulting in only fair thermal cover.

Under rest rotation, increased densities of perennial grasses in the long term would improve cover for most species, especially ground nesters. Various grazing treatments would change the condition of wildlife habitat each year. Rested pastures would result in the greatest amount of residual vegetation for thermal cover and nesting. Grazing treatments during the following 2 or 3 years would result in poor or fair residual cover.

Various grazing treatments under deferred rotation would change the condition of wildlife habitat each year. Grazing during the growing season would result in poor residual cover. The deferred treatment would result in fair residual cover.

The spring/summer system, which allows grazing during the entire growing season each year, would result in poor residual cover.

Acreages affected by various systems in Alternative 1 are listed in Table 1-6 as "Existing". Spring, spring/fall, rest rotation, deferred rotation and spring/summer grazing would have the same impacts as the proposed action, except that higher utilization levels in overstocked allotments would result in poor residual cover. The deferred system, which provides for grazing after seedripe, would result in fair residual cover. Under the rotation system, grazing for only a portion of the growing season would result in fair residual cover.

Alternative 4 would have the same impacts as the proposed action. Alternative 5 would have the same impact as Alternative 1 except that greatly reduced utilization would result in at least fair residual cover in all upland areas.

Range Improvements

Under the proposed action and Alternative 3, partial removal of sagebrush with the herbicide 2,4-D would have a moderate adverse impact on animals which are dependent on sagebrush for food and cover (e.g., sage grouse, sage sparrow, black-tailed jackrabbit, sagebrush lizard). Some species such as the ground squirrel would increase in numbers along with predators such as ferruginous hawks. More animals would be adversely affected than benefited.

Table 3-9 Public Stream Miles of Fish Habitat – Condition and Trend

Condition	Existing Situation	Proposed Action	Alt. 1 No Action	Alt. 2 Eliminate Livestock	Alt. 3 Limit Adjustment	Alt. 4 Optimize Livestock	Alt. 5 Optimize Other
Excellent	.5	2.9	.5	8.3	2.6	1.4	8.3
Good	8.3	8.1	1.3	11.2	7.4	7.4	11.2
Fair	33.2	34.8	37.3	41.1	35.8	33.2	41.1
Poor	29 .0	25.2	31.9	10.4	25.2	29 .0	10.4
Unknown	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Total	92.6	92.6	92.6	92.6	92.6	92.6	92.6
Trend							
UP	1.8	24.2	1.8	44.9	24.2	20.3	44.9
Static	44.7	37.1	44.7	33.1	37.1	39.5	33.1
Down	13.2	2.6	13.2	0	2.6	2.6	0
Unknown	32.9	28.7	32.9	14.6	28.7	30.2	14.6
Total	92.6	92.6	92.6	92.6	92.6	92.6	92.6

the stream banks and provides cover for trout. Livestock exclusion on the Burnt River and portions of the Malheur River is not expected to improve fish production significantly because irrigation water withdrawal is the major factor limiting fish production.

Increased vegetative cover on watersheds would decrease sediments and flooding, subsequently benefiting all fish.

Under Alternative 1, existing poor or fair conditions and downward trend would continue on 33.6 stream miles due to livestock. grazing. With Alternative 2, overall fish habitat would improve on 39.2 stream miles where livestock grazing is the limiting factor.

In Alternative 4, grazing in areas presently excluded from livestock would result in downward trend on 2.6 stream miles. Existing downward trend and poor conditions would continue on 28.6 stream miles.

Under Alternative 5, livestock would be excluded with fencing from all streams. Fish habitat would improve at least one condition class on 39.2 stream miles where livestock grazing is the limiting factor.

Table 3-10 Livestock Exclusion Area Affecting Fish Habitat--
Proposed Action and Alternative 3

Allotment	Stream Name	Existing Exclusion Miles	Proposed Exclusion Miles	Total Exclusion Miles	Exclusion Impact
120	Willow Creek	0	1.8	1.8	Beneficial
203	Malheur River	0	1.2	1.2	None 1/
211	Malheur R., N.F.	0	1.2	1.2	Beneficial
216	Malheur R., N.F.	.4	.6	1.0	Beneficial
1003	Burnt River	2.0	0	2.0	None 1/
1039	Dixie Creek	0	1.0	1.0	Beneficial
1301	Burnt River	0	5.0	5.0	None 1/
1301	Deer Creek	0	.5	.5	Beneficial
2012	Big Creek	0	1.0	1.0	Beneficial
2055	Clover Creek	.2	0	.2	Beneficial
	TOTALS	2.6	12.3	14.9	

1/ Exclusion would not improve fish habitat because irrigation rather than livestock grazing is the limiting factor.

Grazing Systems

Under the proposed action, spring or spring/fall grazing with initial 2 year rest would result in an upward trend of at least 9.1 stream miles after 10 years. Spring or spring/fall without rest would result in an upward trend of 11.5 stream miles after 15 years. Deferred rotation and rest rotation would result in continued poor or fair condition along 11.5 stream miles due to heavy or severe livestock utilization in riparian zones.

Under Alternative 1, spring grazing would improve riparian vegetation significantly and result in an upward trend along 3.6 stream miles. All other systems would result in heavy to severe livestock utilization in riparian zones. Poor or fair condition would continue along 33.6 stream miles, primarily because of livestock grazing.

Under Alternative 4, spring and spring/fall grazing would result in an upward trend on 20.6 stream miles. Rest rotation and deferred rotation would result in downward trend on 2.6 stream miles previously excluded from grazing.

Impacts from the elimination of grazing in Alternatives 2 and 5 were described under Vegetation Allocation.

Range Improvements

Fencing and water developments would facilitate livestock exclusion in the proposed action and Alternatives 2, 3 and 5 resulting in the beneficial impacts described under vegetation allocation.

Conclusions

Under the proposed action and Alternative 3, exclusion of livestock would moderately increase fish production on 5.5 stream miles. Fish production would remain much below potential on 33.7 stream miles due to livestock grazing. Alternatives 2 and 5 would stabilize stream banks and moderately increase fish production along 39.2 stream miles. Alternative 4 would result in slightly reduced fish populations along 2.6 stream miles. Fish production would remain much below potential on 36.6 stream miles due to livestock grazing.

IMPACTS ON WILD HORSES

Vegetation Allocation

The proposed action and alternatives provide for initial and projected vegetation allocations for the Hog Creek wild horse herd are shown in Table 3-11.

Table 3-11 Vegetation Allocation to Wild Horses

Herd Management Plan Numbers	Proposed Action	Alternatives No. 1	No. 2	No. 3	No. 4	No. 5
Min. No.	30	30	30	30	0	118
(AUMs)	360	0	360	360	0	1,416
Max. No.	50	50	50	50	0	196
(AUMs)	600	0	600	600	0	2,360

The allocation of forage to planned levels of horses (except in Alternatives 1 and 4) would decrease the forage competition between horses, livestock and wildlife that presently exists in Allotment 203. The health and reproductive capacity of the horses would be maintained or improved since adequate forage would be allocated to the horses. Under Alternative 1, forage competition would continue, With Alternative 4, all wild horses would be eliminated. In Alternative 5, eliminating livestock grazing and the associated management activities would remove a major source of forage competition and disturbance. Periodic removal of horses to maintain optimum numbers would cause disturbances under the proposed action and all alternatives except Alternative 4. Based on observations of past reductions of the herd and subsequent rates of reproduction, the herd would be expected to remain viable.

Grazing Systems

The proposed rest rotation and spring grazing systems in the proposed action and Alternative 3 would cause about the same amount of disturbance from

livestock operators moving livestock as presently occurs under the existing rest rotation grazing system (which would continue under Alternative 1). Grazing systems would not be in effect in Alternative 2.

Range Improvements

The design, construction and maintenance of two reservoirs under the proposed action and Alternative 3 would result in more people being in the herd area, thus disturbing the wild horses with increased activity and noise. These reservoirs would open up areas of forage previously unavailable to horses because of long distances from water, thus benefiting the herd. The 6 miles of fence to be constructed in Allotment 203 under the proposed action and Alternative 3 are not located within the herd management area. No range improvements would be constructed in the herd area under Alternatives 1, 2 and 5.

IMPACTS ON RECREATION

Grazing management can alter the recreational experience for certain activities. Impacts can be beneficial or adverse, depending on the activity and the desired experience. In general, as the recreational experience is affected, visitor use changes occur. One recent study in the Malheur National Forest indicates that there is greater potential for impacts to anglers than to other recreationists. Generally, campers feel that if cattle can be fenced out of forest camps, they do not mind viewing them in areas perceived as pasture. Hunters are less concerned with range management practices if deer habitat and vehicle access are not impaired (Meganck and Gibbs 1979).

Vegetation Allocation and Grazing Systems

Livestock exclusions and riparian habitat protection inherent in the proposed action and Alternatives 2, 3 and 5 would result in enhanced fishing, waterfowl and upland game hunting, and water-based recreation opportunities. Impacts on visitor use in these activities would be beneficial. Impacts on Wildlife (q.v.) concludes that fish, upland game and waterfowl species would increase under the proposed action, while big game populations would remain static. Hunting visitor use would not significantly change as a result of proposed vegetation allocation or grazing systems,

Impacts to sightseeing would be related to the effects on visual quality (see Impacts on Visual Resources). Over the short term with the proposed action, a slight reduction in sightseeing visitor use would occur.

Over the long term, overall scenic quality would be enhanced. As a result of vegetation allocations and grazing systems, sightseeing opportunities would be significantly enhanced under the proposed action and Alternatives 2, 3 and 5. Visitor use projections would not change with a continuation of the existing situation (Alternative 1). Over the long term, increasing

vegetation allocation to livestock under Alternative 4 would cause visitor use reductions in most recreational activities due to degredation of scenic quality.

Range Improvement Projects

Range improvement projects would result in site-specific adverse impacts on numerous recreational activities. General sightseeing quality would be degraded by any project causing surface disturbance and/or loss of vegetation.

Fences would impede access for some recreationists, such as ORV users, hikers, hunters, horseback riders and rockhounds. As a result, long-term impact would be more one of annoyance to recreationists, causing slight reductions or relocation of recreational use in these activities. While fences would increase hazards to snowmobilers, a sizeable increase in accidents is not expected because demand is low, and the period of snowmobile use is short in the EIS area. Elsewhere, fencing along streams would help stabilize streambanks and improve fishing.

Water developments would increase the area's recreational value. Hunting and sightseeing opportunities would be enhanced by the attraction of wildlife to water developments.

Under the proposed action and Alternatives 3 and 4, visitor use would slightly decrease in some specific areas. Some relocation of visitor use would occur. Impacts identified would be minimally significant in those areas with low recreation quality. Under the proposed action, visitor use reductions would be most significant to upland game hunting in Rye Valley and Little Valley, picnicking and gold panning in Mormon Basin, backpacking in Burnt River Canyon and horseback trail riding near Lookout Mountain.

Alternatives 1 and 2 would not cause visitor use reductions as a result of range improvements. Only the impacts of fencing can be associated with Alternative 5.

Conclusion

A continuation of the existing situation (Alternative 1) would not affect long-term visitor use. Alternative 2 would result in visitor use increases in most activities. Under the proposed action and Alternatives 3, 4 and 5, vegetation allocation and range improvements would result in significant recreational use reductions or increases in specific localities. Therefore, changes in total recreational use in the EIS area would be inconsequential except for Alternative 2. Under Alternative 4, recreation use would increase but hunting and fishing visitor use would not increase significantly in relation to population growth.

The estimated changes in fishing and hunting visitor use for 1990 with the proposed action and alternatives are shown in Table 3-12. The effects of

Table 3-12 Estimated Visitation for Hunting and Fishing--1990 1/
Visits/Year

Recreational Activity	Proposed Action Total	Proposed Action RLM	Alternative 1 2/ Total	Alternative 1 2/ BLM	Alternative 2 Total	Alternative 2 BLM	Alternative 3 Total	Alternative 3 BLM	Alternative 4 Total	Alternative 4 BLM	Alternative 5 Total	Alternative 5 BLM
Fishing.	476,700	60,910	405,700	51,840	507,130	64,800	476,700	60,910	365,130	46,660	486,840	62,200
Hunting												
Big Game	172,700	67,100	181,760	70,610	172,700	67,100	172,700	67,100	163,600	63,500	172,700	67,100
Upland Game	64,200	29,100	55,790	25,280	76,700	34,800	64,200	29,100	53,000	24,000	69,700	31,600
Waterfowl	25,100	2,500	20,050	2,000	27,600	2,800	25,100	2,500	20,050	2,000	26,100	2,600
TOTAL	738,700	159,610	663,300	149,730	784,130	169,500	738,700	159,610	601,780	136,160	755,340	163,500

1/ Visitor use data are not available to quantify visitor use changes for other activities.

2/ Visitor use projections to 1990 under a continuation of the existing situation are based upon an estimated 25 percent increase in the population of the State from 1974 to 1990 (Portland State University 1976). Projected use to 1990 may, in fact, be lower than indicated. Oregon Department of Transportation (1976) forecasts a 12 percent increase for recreational visitation in Malheur County from 1975 to 1990.

Source: Derived from Bureau planning documents, visitor use projections and professional estimates.

these changes upon energy consumption and the local economy are examined in Impacts on Energy and Impacts on Economic Conditions, respectively.

IMPACTS ON CULTURAL RESOURCES

Certain general assumptions have been made concerning the impacts of the proposed action and alternatives to unknown cultural resources:

- Trampling and livestock rubbing could adversely affect cultural resources by disturbing horizontal or vertical relationships in deposits, breaking or chipping artifacts, and contaminating data sources (Roney 1977).

- Disturbance of archeologic sites from livestock trampling would be most significant within one-quarter mile of stock trails, fencelines, watering areas and salt sources. Impacts of trampling would also be significant on hard, rocky surfaces and on sedimentary soils susceptible to erosion.

- Range improvement projects may uncover sites that were not identified during project planning cultural resource surveys. Information may be gathered to add to the cultural resource data base. However, in the process of construction, all or part of the unidentified site may be inadvertently disturbed or destroyed. Once a site is identified, management of cultural values becomes a priority.

The proposed action and alternatives have the potential to cause adverse impacts to known cultural resources. However, design restraints and review and protection procedures (See Chapter 1) would be fully complied with to minimize inadvertent adverse impacts to cultural resources.

Vegetation Allocation and Grazing Systems

Overall, initial vegetation allocation would result in less livestock use and less trampling of cultural resources. In the short term, those allotments most susceptible to trampling would be the 51 allotments with proposed upward vegetation allocation adjustments. Projected forage increase allocated to livestock would increase the possibility of cultural resources trampling. Trampling and erosion would impact site or setting integrity.

According to Roney (1977), soil moisture affects the amount of artifact displacement. All grazing systems include pasture use during spring (April 16 - May 31) when soil is wetter and subject to more compaction. Fall use may result in reduced vegetal cover and perhaps greater susceptibility to trampling and erosion if grazed the following spring. In the long term, increased vegetation would help to control erosion.

Under the proposed action and all alternatives except 1 and 4, vegetation allocations to livestock are less than the existing situation and would reduce erosion and trampling of cultural resource sites.

Range Improvements

Under the proposed action, some range improvement projects close to known historic sites would disturb the integrity of the setting. The interpretive,

educational, recreational and esthetic potential of these sites may slightly decrease. This impact would not occur under Alternatives 1 and 2. In Alternative 5, only fencing to exclude livestock from riparian zones has the potential to impact setting integrity. Impacts associated with Alternatives 3 and 4 would be the same as the proposed action, although magnitude would be greater in Alternative 4. Vandalism would be expected to increase if site locations became common knowledge as a result of range access and construction and maintenance of range improvements. Loss of scientific information may reduce the potential to understand past use of the area.

Conclusion

That portion of the Oregon Trail on the National Register would not be significantly impacted by the proposed action or alternatives. No direct impacts would occur to other known sites eligible for the National Register. However, the setting integrity of some highly significant sites may be degraded as a result of livestock grazing and range improvements in proximity to the sites.

Appropriate measures would be taken to identify and protect cultural sites prior to ground-disturbing activities. Unidentified archeological sites would be susceptible to artifact breakage, chipping, displacement and contamination. Once a site is found, however, protection procedures would be fully complied with to minimize damage to cultural resources.

IMPACTS ON VISUAL RESOURCES

Vegetation Allocation and Grazing Systems

The reduction of grazing in 151 allotments would generally reduce impacts to visual resources associated with erosion due to trampling and grazing of vegetation. Some of the 51 allotments with proposed upward adjustments initially may appear more closely grazed and may experience some adverse impacts to visual resources. This short-term impact may be most apparent in Allotments 1002, 1301, 2031, 2108 and 2109. In the long term, an increased amount of perennial ground cover would be beneficial to visual resources, even though forage allocated to livestock is projected to increase to 143,165 AUMs.

Grazing systems would create contrast between grazed and rested pastures. Proposed rest rotation and deferred rotation grazing systems would create contrast. VRM Class I objectives may not be met in Allotment 216 as a result of a proposed rest rotation grazing system there. These grazing systems are proposed in numerous other allotments with VRM Class II lands. Impacts would be minimal however, as the implementation of VRM program procedures and constraints would allow for compatability with VRM Class II objectives. Further, as forage abundance and quality improve in the long term, contrasts between pastures would not be as significant.

A spring grazing system proposed for Allotment 217 may impact VRM Class I objectives there. Soil is wetter in spring and subject to compaction from trampling.

Alternative 1 would result in forage depletion in areas of heavy grazing. Contrasts resulting from changes in color, texture, and pattern would, make it difficult to meet VRM class objectives, The elimination of grazing (Alternative 2) would improve visual resources. Increased plant diversity, reestablished vegetation in trampled areas, and the creation of irregular textures, patterns and colors would improve visual quality. Alternative 3 would improve visual resources in the same manner as the proposed action but to a lesser degree. Alternative 4 represents a short-term decrease of 6,574 AUMs allocated to livestock from the existing situation. Visual resources would only minimally improve as a result of those impacts identified in the discussion of the proposed action. Alternative 5 would serve to improve visual resources in the same manner as the proposed action but to a greater extent.

Range Improvements

Major range improvements were analyzed in accordance with the BLM Visual Resource Management (VRM) system. Each type of improvement was examined to determine the degree of contrast it would create to the typical landscape of the Ironside EIS area. BLM manual 6310, Visual Resources, delineates methodology for the determination of VRM classes, contrast ratings for range developments, and impacts to visual resources. No impacts are anticipated to VRM Class IV areas as a result of range improvement projects included in the proposed action. Reservoirs, wells (including tanks and troughs), seedings, brush control and guzzlers would have the potential to exceed the maximum visual impact allowable in the foreground of VRM Class III areas, and in the foreground and middleground of VRM Class II lands. Fence lines along ridgetops would be outlined and highly visible, increasing visual contrast. In this case, fences could create adverse impacts from the foreground of some VRM Class III areas. Fences and springs would have the potential to exceed the maximum visual impact allowable in the foreground of VRM Class II areas. All range improvements could create negative impacts in VRM Class I areas.

A site-by-site analysis determined the areas where the potential for negative visual impacts exists. Alternative 1 would create no impacts as a result of range improvements. Under Alternative 3, impacts would be the same as the proposed action. Additional range improvements occurring under Alternative 4 would increase those impacts identified as a result of the proposed action. Temporary land disturbance as a result of range improvement projects in Alternative 4 (152,773 acres) is an increase of 76 percent over that under the proposed action (66,095 acres). Only riparian zone fencing in Alternative 5 would have the potential to impact visual resources.

Conclusions

Certain areas of the Ironside EIS area may experience degradation of visual quality. Design features, as well as VRM program procedures and constraints, would minimize landform and vegetative contrast changes. Unesthetic results of vegetative manipulation would be temporary until vegetation is reestablished. In the long term, esthetics would improve as range condition improves. Potential impactors identified in Table 3-13 would be most significant in VRM Class I or foreground areas of VRM Class II.

Table 3-13 Potential Impactors of Visual Resources, Proposed Action

VRM I Allotment	Distance Zone, if known	Potential Impactor
216	Background	1 spring
217	Background	2 wells
VRM II Allotment	**Distance Zone, if known 1/**	**Potential Impactor**
211	Foreground	5 springs, 1 mi. fence
217	Foreground	1 spring
1001	Foreground/Seldom Seen	940 ac. brush control
1003	Foreground	1 spring
1006	Foreground	2 springs
2024	Foreground/Seldom Seen	100 acres seeding
	Foreground/Seldom Seen	.5 mi. fence
3001	Foreground	1,918 acres seeding
	Foreground/Seldom Seen	569 acres brush control
3011	Foreground/Seldom Seen	2 mi. fence
VRM III Allotment	**Distance Zone, if known**	**Potential Impactor**
206	Foreground	1,956 ac. brush control
	Foreground	2 reservoirs
216	Foreground	2 reservoirs
2071	Foreground	1,000 acres seeding
2116	Foreground	440 acres seeding
5209	Foreground	300 acres seeding
	Foreground	1,440 ac. brush control
5215	Foreground	1,500 ac. brush control
	Foreground	1 reservoir

1/ A number of other range improvements are proposed in seldom-seen VRM Class II lands, such as the Snake River Breaks. These landscapes are generally not visible from travel routes or use areas. If visible, they are at least 15 miles from the observer. Therefore, impacts if any would be minimal in those areas.

IMPACTS TO ECOLOGICALLY SIGNIFICANT AREAS

Of the 10 sites identified as ecologically significant, one (BA-31: Unnamed) would be adversely impacted. Under the proposed action and Alternative 3, 760 acres of brush control in Allotment 2074 would have slightly adverse impacts on sage grouse. Nesting and escape cover would be reduced. This impact would not occur under Alternatives 1, 2 and 5. Under Alternative 4, 1,400 acres of brush control in Allotment 2074 would have moderately adverse impacts on sage grouse.

In the Little Lookout Mountain area (BA-16), two allotments (2074 and 1048) are proposed for intensive management. Under the proposed action, Alternative 3, 4 and 5, grazing use in the two allotments would be reduced by approximately 20 percent, and the grazing systems would improve the present ecosite condition. No vegetative manipulation is planned. Therefore, Alternatives 2, 3, 4 and 5 and the proposed action would be beneficial to the ecologically significant vegetation communities in this area, No change is expected under Alternative 1.

Ecologically significant elements in the remaining eight identified areas would not be impacted by the proposed action or alternatives.

IMPACTS ON ENERGY USE

The proposed action would be energy intensive, Table 3-14 indicates the energy investment required for range improvement projects and maintenance, as expressed in British thermal units (Btu's) for the proposed action and alternatives. It is assumed that all energy consumed would be in the form of fossil fuels or derivatives.

Energy consumption attributable to range improvement construction would be about 146 billion Btu's. An additional 4.9 billion Btu's would be consumed for annual project maintenance. Based upon demand projections to 1990, increased annual visitor use in hunting and fishing resulting from the proposed action and above that projected under the existing situation would consume as much as 2.3 billion Btu's.

For comparison, if the initial energy investment of 146.376 billion Btu's identified in Table 3-14 were all expended in the form of gasoline, it would equate to about 1.2 million gallons, which amounts to .08 percent of the 1,442 billion gallons of gasoline consumed in Oregon during 1978. The initial energy investment is .03 percent of the projected 1979 Oregon total of 574.6 trillion Btu's.

Table 3-14 Estimated Energy Consumption for Range Improvement Projects and Maintenance

Proposed Action

Range Improvement Project	Units	Estimated Cost Per Unit ($) 1976	Assumed Energy Requirement Per $ of Cost (1,000 Btu's)	Energy Consumption (1,000,000 Btu's) For Construction	Estimated Annual Project Maintenance Cost per Unit ($) 1976	Assumed Energy Requirement per $ of Maintenance Cost (1,000 Btu's)	Energy Consumption (1,000,000 Btu's) For Annual Project Maintenance
Reservoirs (each)	74	3,000	75	16,650	90	54	360
Springs (each)	82	2,000	54	8,856	170	54	753
Wells (each)	5	10,000	75	3,750	200	54	54
Pipelines (miles)	91	4,000	75	27,300	150	54	737
Fences (miles)	245.7	1,850	63	28,636	20	54	265
Seeding (acres)	24,593	15	52	19,183	.75	54	996
Brush Control (acres)	39,716	7	120	33,361	.75	54	1,608
Guzzlers (each)	11	10,000	75	8,250	250	54	149
Juniper control (acres)	520	25	30	390	0	54	0
TOTAL				146,376			4,922

Energy Requirements for the Proposed Action and Alternatives

	Proposed Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Energy Consumption (1,000,000 Btu's) for range improvement project construction	146,376	0	0	146,376	250,828	81,585
Energy Consumption (1,000,000 Btu's) for annual project maintenance	4,922	0 1/	0	4,922	8,543	756
Energy Consumption (1,000,000 Btu's) associated with changes in hunting and fishing use.	2,306	2/	3,819	1,765	- 1,831	2,870

1/ An estimated 13 billion Btu's would be consumed to maintain existing range improvements.

2/ Projected visitor use for a continuation of the existing situation was used as the base for computation of energy consumption attributable to recreation visitor use changes. Therefore, this amount is unquantifiable.

Source: BLM data except for assumed energy requirements per dollar of cost, which was derived by Department of Energy, Region X Staff.

IMPACTS ON ECONOMIC CONDITIONS

Introduct ion

Economic effects of the proposed action and alternatives are expressed in terms of effects on: permittee dependence; ranch valuation; return above cash cost and debt service capacity of permittees; and local (Baker and Malheur Counties) personal income from grazing, construction of range improvements and recreational hunting and fishing. With minor exceptions, the base period is 1977-79, of which 1978 and 1979 were extremely favorable years for the beef cow enterprise.

Use of this base period tends to overstate return above cash cost, local personal income and ability to repay loans (debt service capacity). However, this overstatement will be offset by potential reductions in herd size if permittees lack sufficient flexibility to shift forage sources among seasons of the year. The net result of these compensatory factors is uncertain; however, it is expected to cause a closer approximation of the effects that would occur during the 1980's.

Effect on Permittee Dependence

The reduction of 35,098 AUMs under the proposed action would initially reduce livestock forage on public lands by 3.4 percent of permittees' annual forage requirements. The reduction would not be uniform among permittees. Assuming that adjustments in each allotment were apportioned among affected permittees on a pro-rata basis, changes in licensed forage as a percentage of annual forage requirements would range from an increase of 15 percent to a loss of 28 percent. At initial implementation of the proposed action, a reduction in forage dependence of 10 percent or more would occur for 39 permittees who hold 32 percent of the currently authorized AUMs. These permittees, as a group, would receive 58 percent of the short-term net reduction of AUMs. The 12 largest operators (herd size 240 or more), presently holding 23 percent of BLM AUMs, would account for 42 percent of this net reduction. The 27 smaller operators, now holding 9 percent of the AUMs, would account for the remaining 16 percent. These 39 permittees are now dependent on BLM forage for 40 percent of their present requirements: at initial implementation, they would be supplied only 22 percent from BLM forage.

In the long term, licensed forage would be increased over the existing amount by one-tenth of 1 percent of current forage requirements. Some permittees would experience permanent reductions of their grazing privileges. Table 3-15 shows average and maximum change in dependence on public forage by herd size for alternative act ions. Table 3-16 shows the number of permittees who would experience losses in excess of 10 (and 20) percent of their herd forage requirements for each alternative. Summary information on the effects measured from 1977 public forage levels in Vale District are also shown in these two tables.

Table 3-15 Average and Maximum Change in Dependence on Public Forage at Initial Implementation of Alter
(Change in licensed forage expressed as percent of annual forage requirements.)

Herd Size	Proposed Action 2/			Alt. 2 Elim. Lvstk.			Alt. 3 Limit Adj.			Alt. 4 Optimize Livest				
										Short Term			Long Te	
	Average Change	Maximum Gain	Maximum Loss	Average Change	Maximum Gains	s	Average Change	Maximum Gain	Maximum Loss	Average Change	Maximum Gain	Maximum Loss	Average Change	Ga
BAKER DISTRICT PORTION														
Under 100	-1.4	+13	-19	-11.8	0	-42	-0.5	+13	- 8	+0.1	+ 5	- 5	+3.1	+1
100---399	-3.1	+ 4	-28	-12.1	0	-42	-1.5	- 4	- 9	-1.9	+ 7	-18	+1.5	+1
400---999	-1.7	+ 3	-14	- 8.2	0	-32	-0.6	+ 3	- 4	0.0	+ 3	-10	+1.0	+1
1,000 and over	+0.4	+ 1	0	- 3.2	0	-11	-0.4	+ 1	0	+0.5	+ 1	0	+1.8	+
All Sizes	-1.9	+13	-28	- 9.0	0	-42	-0.8	+13	- 9	-0.6	+ 7	-18	+1.3	+1
VALE DISTRICT PORTION														
Under 100	-2.9	+15	-25	-24.6	0	-58	-1.0	+15	-25	-0.9	+18	-23	+7.5	+2
100---399	-6.2	+ 9	-22	-25.2	0	-58	-2.6	+ 9	- 9	-3.5	+10	-19	+4.8	+6
400---999	-7.6	+ 3	-26	-23.1	0	-54	-3.6	+ 3	-11	-5.9	+ 8	-24	+1.9	+2
1,000 and over	-3.6	0	-16	-13.6	0	-50	-2.0	0	- 7	-2.5	+ 2	-13	+2.0	+1
All Sizes	-5.2	+15	-26	-19.3	0	-58	-2.2	+15	-25	-3.7	+18	-23	+2.7	+6
1977 base 3/	-8.1			-22.2			-5.5			-6.6			-0.2	
EIS AREA														
Under 100	-1.8	+13	-2s	-15.3	0	-58	-0.7	+15	-2s	-0.2	+18	-23	+4.3	i-2
100---399	-3.8	+ 9	-28	-16.8	0	-58	-1.9	+ 9	- 9	-1.9	+10	-19	+2.7	+6
400---999	-3.7	+ 3	-26	-13.3	0	-54	-1.6	+ 3	-11	-2.3	+ 8	-24	+1.3	+2
1,000 and over	-2.7	+ 1	-16	-11.2	0	-50	-1.5	+ 1	- 7	-1.9	+ 2	-13	+1.9	+1
All Sizes	-3.4	+15	-28	-13.7	0	-58	-1.6	+15	-25	-2.0	+18	-23	+1.9	+6
1977 base 3/	-4.7			-15.1			-2.9			-3.3			-0.6	

1/ Information is not available for Alternative 1, No Action.
2/ Data for the proposed action represent short-term impacts. Over the long term, the average change in dependency fro a loss of 0.6 percent in the Baker District, a gain of 0.9 percent in the Vale District portion of the EIS area and Average changes by herd size class cannot be estimated.
3/ Average change for all ranches as measured from licensed forage levels in 1977. Maximum gain and loss have not been

Table 3-16 Permittees with Losses in Excess of 10 and 20 Percent 1/ of Forage Requirements at Initial Implementation of Alternative Actions 2/

Herd Size	Proposed Action	Alt. 2 Eliminate Livestock	Alt. 3 Limit Adjustment	Alt. 4 Optimize Livestock Short Term	Alt. 4 Optimize Livestock Long Term	Alt. 5 Optimize Other Uses
BAKER DISTRICT PORTION						
Under 100	3(0)	25(8)	0(0)	0(0)	0(0)	7(2)
100---399	8(2)	26(15)	0(0)	3(0)	1(0)	14(6)
400---999	3(0)	15(6)	0(0)	1(0)	0(0)	5(0)
1,000 or more	0(0)	1(0)	0(0)	0(0)	0(0)	0(0)
Total	14(2)	67(29)	0(0)	4(0)	1(0)	26(8)
VALE DISTRICT PORTION 3/						
Under 100	7(1)	15(11)	3(1)	6(1)	2(1)	11(5)
100---399	10(4)	29(22)	0(0)	9(0)	4(0)	20(7)
400---999	7(4)	14(9)	3(0)	6(2)	1(0)	8(7)
1,000 or more	1(0)	5(5)	0(0)	1(0)	0(0)	3(1)
Total	25(9)	63(47)	6(1)	22(3)	7(1)	43(20)
EIS AREA						
Under 100	11(1)	40(19)	3(1)	6(1)	2(1)	18(7)
100---399	18(6)	55(37)	0(0)	12(0)	5(0)	34(13)
400---999	10(4)	29(15)	3(0)	7(2)	1(0)	13(7)
1,000 or more	1(0)	6(5)	0(0)	1(0)	0(0)	4(1)
Total	39(11)	130(76)	6(1)	26(3)	8(1)	69(28)

1/ Number with losses of 20 percent or more in parenthesis.
2/ Data on Alt. 1 are not available.
3/ Considered from the 1977 base, the number of permittees with losses in excess of 10 percent of forage requirements would be: proposed action, 34; eliminate livestock, 63; limit adjustment, 28; optimize livestock in short term, 31; optimize livestock in long term, 18; and optimize other uses, 48. The number with losses exceeding 20 percent of requirements has not been determined.

Effect on Return Above Cash Cost and Debt Service Capacity

For the proposed action, average reductions in return above cash cost would be 10 percent and 20 percent of normal depreciation expenses for the Baker and Vale District portions of the EIS area, respectively. Because the proposed adjustment would be temporary and, for most permittees, fully restored in the long term, delays in replacement of a minor portion of depreciable capital would most likely provide an adequate financial buffer to assure no extraordinary difficulty in servicing existing debt. Refer to Table 3-17 for display of the estimated total existing return above cash cost and the changes that would result from grazing reductions.

For the 39 operators (15 percent of the total) expected to experience reductions in excess of 10 percent of their total forage requirement, projected losses in return above cash cost would be about equal to normal depreciation. These operations range in herd size from 5 to 1,400; 12 permittees have herd size of 240 or greater.

Those permittees, among the group of 39, whose primary source of income is the beef cow enterprise would probably experience major reorganization of their businesses (e.g., refinance, shift to or add new enterprises) as a result of the proposed forage reductions and consequent herd adjustments.

Both return above cash cost and collateral for loans would be adversely affected by reductions in permitted grazing. This combined effect would accentuate adverse impacts on debt service capacity.

Effect on Ranch Operations

The ranch budget approach allows investigation of various strategies for adapting to adjustments in public land grazing. A possible approach to adaptation by permittees to reduced forage would be hay/grain purchase to maintain existing herd size. A cursory analysis of this option reveals that the loss in rancher return above cash cost would be approximately twice that resulting from herd size reductions proportional to reductions in total feed.

A second method of adjusting to a loss of public grazing privileges would be the purchase or lease of additional pasture. The average March 1978 commercial value of an AUM was $5.80 (USDA, Economics Statistics and Cooperatives Service, July 1979). Since the demand for forage exceeds supply during critical growing periods, the option of purchasing or leasing pasture is currently neither widely available nor generally feasible.

The analysis presented here is based on a strategy of reduction in herd size to accommodate the adjustment in annual forage/ feed availablity. Herd reductions to accommodate reductions in grazing on public land create forage surpluses in the off-season which can be used to offset the public season loss. (Obermiller 1980). The result is considered to be a reduction in ranch return above cash cost proportional to the reduction in total forage/ feed supply. The effect of the proposed action and alternatives on

Table 3-17 Effect on Return Above Cash Costs of Alternative Actions
(Average return per ranch, 1977-79 average prices)

Herd Size	Existing Level	Proposed Action	No BLM Grazing	Limited Adjustment	Optimize Livestock Short	Optimize Livestock Long	Optimize Other Uses
			BAKER DISTRICT PORTION				
Under 100	$ 5,000	$ -70	$ -590	$ -30	$ 0	$ 160	$ -220
100---399	19,000	-610	-2,400	-290	-370	280	-1,100
400---999	60,000	-980	-4,900	-330	0	570	-2,100
1,000 or more	140,000	+530	-4,500	+550	+710	2,500	-570
All Sizes	29,000	-530	-2,400	-210	-150	380	-1,100
			VALE DISTRICT PORTION				
Under 100	$ 6,200	$ -170	$ -1,500	$ -70	$ -50	$ 460	$ -630
100---399	20,000	-840	-5,000	-410	-410	500	-1,700
400---999	83,000	-3,000	-19,000	-1,300	-1,890	1,040	-5,400
1,000 or more	147,000	-3,800	-20,000	-2,000	-2,600	2,700	-7,100
All Sizes	44,800	-1,510	-9,050	-720	-900	890	-2,900
All Sizes (1977) 1/		- 3,800	-10,400	-2,600	-3,100	-150	-5,900

1/ Changes from 1977 levels of BLM forage. See text.

the return above cash costs for the average ranch in each herd size class is shown on Table 3-17

Effect on Ranch Valuation

At a market price of $65 per AUM (the highest plausible value presented in Chapter 2), any reduction of public grazing privileges included in a valuation or sale of a base property would reduce the total asset (or collateral) value by a commensurate (or lesser) amount. Reductions which were considered only temporary might affect real estate values to a lesser degree.

The reduction in ranch valuation in Baker and Malheur Counties attributable to the proposed action would initially not exceed $2.3 million. The loss would be recovered over time as licensed forage increased, but individual ranches might have permanently lower value, and individuals who sold during a period of temporary grazing reduction might suffer some loss. Ranches with increased grazing privileges would have increased value.

The effect of changes in grazing privileges on real estate values under alternative actions would also be approximately equal to the change in grazing valued at $65 per AUM.

Effect of Forage Reductions on Local Personal Income

Ranchers' adjustments to forage losses would reduce the income of others in the community as well as their own. Livestock production and sales would be reduced, and reduced payments would be made to others for related goods and services. The recipients of reduced payments in turn would reduce their outlays. An input-output table developed for Grant County estimates that 51 cents of local personal income is generated for every dollar of beef sales by ranchers dependent on public grazing (Obermiller and Miller 1980). Using the ranch budget data contained in Appendix L, changes in the value of beef sales were estimated for each county and converted to county income estimates by using the Grant County factor. The estimated changes in county income resulting from ranch production adjustments are shown in Table 3-18, for Baker, Malheur, and the two counties combined. The table includes the income changes in Malheur county which it is estimated would occur as measured from a 1977 base in Vale District.

Effect on Ranching Sector Income

Table 3-19 presents the effect of existing grazing (total and public) upon personal income of all BLM permittees and their employees.

Other Effects

Table 3-20 shows the impacts on the construction industry resulting from the alternative actions. The value of construction was estimated on the basis of 1976 unit values of improvements shown in Tables 3-14 (energy use). The

Table 3-18 Change in Local Personal Income from Grazing
at Initial Implementation of Alternative Actions 1/
(Thousands of 1977-79 dollars)

Condition or Action	Baker County	Malheur County 2/	Both Counties
Existing Condition:			
Total for BLM permittees 3/	$5,100	$4,900 (4,900)	$10,000
Total for BLM share of forage 4/	470	970 (1,100)	1,440
Change due to alternative action:			
Proposed action:			
Short term	-98	-260 (-400	-358
Long term	-30	+47 (-96)	+17
Limited adjustment	-39	-130 (-270)	-169
Optimize livestock:			
Short term	-29	-190 (-330)	-219
Long term	+67	+130 (-10)	+197
Optimize other uses :	-200	-480 (-620)	-680

1/ Estimates of county personal income (and changes) in this table are based on the total sales estimates contained in the ranch budgets. Sales totals were multiplied by the direct and indirect coefficient of payments per dollar of export sales to household by the "Dependent Ranching" sector in the input-output study for Grant County (Obermiller and Lester 1980).

2/ Amounts shown in parentheses in this column reflect conditions prior to the adjustments in active grazing permits made in Vale District in early 1978.

3/ Represents total personal income (including that of the ranchers) generated in the county by the economic activity (sales and purchases of ranchers holding BLM grazing permits.

4/ Represents the portion of county income attributable to BLM forage based on its portion of total forage requirements for BLM permittees.

Table 3-19 Change in Direct Personal Income of the Ranch Sector from Grazing at Initial Implementation of Alternative Actions 1/
(Thousands of 1977-79 dollars)

Condition or Action	Baker County	Malheur County	Both Counties
Existing Condition:			
Total for BLM permittees 3/	3,100	3,000 2/ (3,000)	6,100
Total for BLM share of forage 4/	282	585 (664)	867
Change due to alternative action:			
Preferred action:			
Short term	-59	-157 (-241)	-216
Long term	-18	+28 (-58)	+10
Limited adjustment	-24	-78 (-163)	-102
Optimize livestock:			
Short term	-18	-113 (-199)	-131
Long term	+41	+80 (-6)	+121
Optimize other uses:	-123	-290 (-374)	-413

1/ Estimates of direct personal income in the ranching sector (and changes) in this table are based on the total sales estimates contained in the ranch budgets. Sales totals were multiplied by the direct requirements coefficient of payments per dollar of export sales to households by the "Dependent Ranching" sector in the input-output study for Grant County (Obermiller and Lester 1980).

2/ Numbers in parentheses reflect conditions prior to the adjustments in active grazing permits made in Vale District in early 1978. All other columns reflect present conditions.

3/ Represents direct personal income of ranchers and employees generated in the county by the economic activity (sales and purchases) of ranchers holding BLM grazing permits.

4/ Represents the portion of'income of the ranching sector attributable to BLM forage based on its portion of total forage requirements for BLM permittees.

impacts shown represent amounts accumulated over a several year period assumed to be 5 years.

Table 3-20 Impacts of Construction on Local Personal Income and Employment

Alternative	Value of Construction (1976 prices)	Personal Income (1978 prices)	Employment (work years)
Proposed action	$2,024,000	$1,400,000	140
Alternative 1. No action	none	none	none
Alternative 2. Eliminate livestock	none	none	none
Alternative 3. Limit adjustment	2,024,000	1,400,000	140
Alternative 4. Optimize livestock	3,439,000	2,300,000	237
Alternative 5. Optimize other	1,295,000	860,000	89

Community economic impacts stemming from changes in hunting and fishing recreation are expressed as changes in local personal income and jobs created by the local expenditures of recreationists. As discussed in the recreation section, recreation on public lands is expected to increase in the absence of any BLM action. The impacts as shown in Table 3-21 are measured as the difference in 1990 between the income and employment generated by recreation under the conditions created by the action and the amounts generated without any BLM action. These differences are considered representative of the annual long-term impacts of the action.

Table 3-21 Impacts of Hunting and Fishing on Local Personal Income and Employment 1/
(1990 conditions, 1978 price levels)

Alternative	Difference in Annual Personal Income 2/	Difference in Employment 2/
Proposed action	$ 15,000	1.5
Alternative 1. No action	0	
Alternative 2. Eliminate livestock	45,000	5.00
Alternative 3. Limit adjustment	15,000	1.5
Alternative 4. Optimize livestock	-86,000	-9.0
Alternative 5. Optimize other	25,000	2.5

1/ Impacts are measured as the difference between "with" and "without" conditions in 1990; that is, the difference between conditions expected to result from the alternative action and those expected if no action were taken.

2/ In the absence of any action ("without" condition), wildlife-related recreation on public lands in the EIS area is expected to generate $880,000 in local personal income in 1990 (1978 prices), and 91 jobs,

Summary of Economic Impacts

Permittees having losses in excess of 20 percent of their annual forage requirements would be significantly impacted. Those having long-term reductions of such magnitude would be more seriously affected. The number having losses of more than 20 percent of grazing requirements are:

Alternative	Short term	Long term
Proposed action	11	Unknown
Alternative 1. No action	Unknown	Unknown
Alternative 2. Eliminate livestock	76	76
Alternative 3. Limit adjustment	1	Unknown
Alternative 4. Optimize livestock	3	1
Alternative 5. Optimize other	28	Unknown

The impacts of alternative actions on local personal income and employment are summarized in Table 3-22 and 23.

IMPACT ON SOCIAL CONDITIONS

Impacts on social conditions from implementation of the proposed action are expected to be similar to those in the Drewsey EIS area which is located to the southwest. The determination of those impacts was based on interview responses to open-ended questions asked in a non-random survey (Centaur Associates 1978).

The social impacts on individual permittees are related to the permittee's dependency on BLM livestock forage and the permittee's adaptability to economic impacts. The less the permittee's dependency on BLM livestock forage changes, the less significant would be the impacts of the proposal. Although the impacts on certain individuals may be significant, measurable impacts among permittees would probably not be widespread,

Locally, the proposed change in BLM livestock grazing would be seen as yet another instance of decisionmaking by distant authorities who fail to understand the effects on local residents. Impacts would likely include intensification of negative attitudes toward "big government," along with some efforts to gain agricultural aid to ranchers. This may take the form of lobbying activities through the livestock associations, or direct contact with elected representation.

Initial impacts on community relationships could involve shifts in family relations as children move away from ranches. If newcomers arrive, relationships between ranchers and other local users (e.g., hunters, hikers) would be affected although it is difficult to identify the status quo or to predict the precise nature of a possible shift,

Overall, the social impacts would be unquantifiable. To some extent, the proposal would initially contribute to an already existing alienation and

Table 3-22 Local Personal Income Related to Livestock Grazing, Range Improvements and Hunting and Fishing
(Short term/long term changes in thousands of 1977-79 dollars)

		Change in Local Personal Income from Public Land Resources					
	Existing Situation 1/	Proposed Action	Alt. 1 No Action	Alt. 2 Eliminate Livestock	Alt. 3 Limited Adjustment	Alt. 4 Optimize Livestock	Alt. 5 Optimize Others
Total	33,000	-90/+32	0/Unk.	-1,440/-1,395	+100/+32	+240/+286	-508/-655
Livestock grazing EIS Area	23,000	-360/+17	0/Unk.	-1,440/-1,440	-170/+17	-220/+200	-680/-680
Baker	7,500	-98/-30	0/Unk.	-470/-470	-39/-30	-29/+67	-200/-200
Vale	16,000	-260/+47	0/Unk.	-970/-970	-130/+47	-190/+130	-480/-480
Range Improvement Construction 2/	7,600	+270/0	0/0	0/0	+270/0	+460/0	+172/0
Hunting & Fishing	2,700	0/+15	0/0	0/+45	0/+15	0/+86	0/+25

1/ Total direct and indirect local personal income for Baker and Malheur Counties attributable to livestock grazing, contract construction, and hunting and fishing.
2/ Total personal income from construction is assumed to occur over a 5-year period.

Table 3-23 Local Employment Related to Livestock Grazing, Range Improvements, and Hunting and Fishing
(Short term/long term changes in terms of full time equivalent jobs)

	Existing Situation	Proposed Action	Alt. 1 No Action	Alt. 2 Eliminate Livestock	Alt. 3 Limited Adjustment	Alt. 4 Optimize Livestock	Alt. 5 Optimize Other
Total	N/A	-9/+3.5	0/Unk.	-145/-140	+11/+3.5	+24/+11	-53/-46
Livestock Grazing EIS Area	2,400	-37/+2	0/Unk.	-145/-145	-17/+2	-23/+20	-71/-71
Baker	775	-10/-3	0/Unk	-45/-45	-4/-3	-3/+7	-21/-21
Vale	1,653	-27/+5	0/Unk.	-100/-100	-13/+5	-20/+13	-50/-50
Range Improvement Construction 1/	N/A	+28/0	0/0	0/0	+28/0	+47/0	+18/0
Hunting & Fishing	279	0/+1.5	0/0	0/+5	0/+1.5	0/-9	0/+25

1/ Total employment is assumed to occur over a 5-year period.

frustration with government. The perception of constrained local control over the community's future would persist and resentment may intensify among longtime residents. Changes in the character of the community would probably occur more rapidly and could affect community cohesion. The proposal may be credited with or blamed for causing change, even if these changes are inevitable.

Existing social attitudes identified in Chapter 2 would be expected to remain the same if Alternative 1 were implemented.

Implementation of Alternative 2 would cause extensive local reaction and would be commonly considered an extreme example of decisionmaking by distant authorities who fail to understand or even care about the well-being of local residents. ' Individuals, businesses and organizations would publicly oppose this action.

Implementation of Alternative 3 would be perceived by ranchers as having less impact than the proposed action because the economic impacts would be less abrupt.

Implementation of Alternative 4 generally would be perceived as improving the social welfare of local residents, especially ranchers. Adverse reaction would be expected from environmentalists and wildlife and wild horse enthusiasts .

Implementat ion of Alternative 5 would result in opposite reactions as compared to Alternative 4. Ranchers and those who identify with ranching associated income would be opposed and environmentalists, wildlife and wild horse enthusiasts would approve of this alternative.

ADVERSE IMPACTS WHICH CANNOT BE AVOIDED

This section presents an analysis of the unavoidable adverse impacts that would result from the proposed action. Project design features discussed in Chapter 1 constitute best management practices, thus no additional mitigating measures are proposed.

Ecosite trend on 4,154 acres would decline. An additional 114 acres of riparian vegetation would also deteriorate. Residual ground cover would decrease on 197,044 acres. A short-term reduction of vegetative ground cover would occur on 64,933 acres and a long-term loss of vegetative ground cover would occur on 50 acres from construction of range improvements. Threatened and endangered plant species not identified in surveys could be impacted.

The construction of range improvements would temporarily expose 24,996.5 acres to erosion. Livestock concentration around the proposed water developments would expose 1,614 acres to erosion.

The construction of range improvements would result in a short-term increase in sediment yield of 3 acre-feet per year. Runoff would decrease by 5,890 acre-feet per year.

Wildlife habitat trend in riparian zones would decline on 127 acres. Habitat trend for fish would decline on 2.6 public stream miles. Species such as sage grouse, sage sparrow and sagebrush lizard would decrease on 63,809 acres proposed for vegetation manipulation. Forage competition between deer and livestock for the fall green up would occur on approximately 5,000 acres each year.

In the short term, slight decreases in sightseeing are expected due to increased visual contrasts. In certain areas, range improvements would cause slight visitor use reductions. Activities impacted include big game hunting, upland game hunting, collecting, gold panning, picnicking, backpacking, horseback trail riding, historic and zoologic sightseeing and ORV riding.

Unidentified cultural sites would be susceptible to artifact breakage, chipping, displacement and contamination during construction of range improvements. The integrity of known cultural sites would be degraded as their settings are impacted.

Visual quality would be slightly degraded on a temporary basis by range improvements. Revegetation would reduce visual contrasts.

The construction of range improvements would temporarily disturb wild horses.

The initial vegetation allocation would result in a loss of 35,098 AUMs. Initially about 14 percent of the operators would have a loss greater than 10 percent in livestock forage dependency. The proposed action in the short term would result in the loss of about $360,000 in local personal income

based on livestock production and the full-time equivalent of 37 jobs. The impacts on individuals would depend on the operator's adaptability and, to some extent, the response of other operators.

Initial project construction would consume 146.376 billion Btu's. Annual project maintenance would consume 4.9 billion Btu's. Increased visitor use in hunting and fishing to 1990 would consume 2.3 billion Btu's.

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

This section analyzes the trade-offs between short-term use and long-term productivity for the proposed action. The initial decrease of 35,098 AUMs of livestock grazing would result in short-term loss of about $360,000 in local personal income from livestock production to the community. This decrease in use of the vegetation would, in the long term, act to increase plant vigor and percent composition of key plant species. This would result in an increase in residual ground cover, which would lead to a decrease in erosion, sediment yield in streams and runoff. The increased residual cover would provide improved habitat for wildlife and improve ecosite condition and productivity. More AUMs would be available for livestock, which would increase the income to operators and the local economy.

The construction of range improvements would result in increased erosion and sediment yield, contrast visually with landscape elements, and displace some animals over the short term, In the long term, the increased water supply would benefit wildlife and help diminish concentrations of animals at existing water sources and riparian areas, As vegetation became reestablished on disturbed areas, erosion and sediment yield would decrease. Only 50 acres would be lost to vegetative production.

Construction of reservoirs would reduce the amount of water reaching downstream users in the short and long term, but not significantly.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

This section identifies the extent to which the proposed action would irreversibly limit the potential uses of the land and resources.

The 50 acres which would be occupied by the range improvements would lose their capacity to produce vegetation for the life of the improvement, which would be an irretrievable commitment of the vegetation resource. Disturbance of the soil surface during the construction of range improvements would cause an irretrievable loss of soil resulting in a 3 ac-ft/yr increase in sediment yield in streams. Withdrawal of groundwater by the proposed wells would be irretrievable.

Proposed livestock grazing and range developments could disturb certain cultural resources. Once disturbed, historical and archeological sites, as

well as artifacts, lose value for future study. This can result in a data gap in the history of an area and would be considered an irretrievable commitment.

Energy would be irretrievably committed to install, operate and maintain range developments. The initial investment of about 146.4 billion Btu's for range improvement construction and an additional 4.9 billion Btu's each year for project maintenance is an irretrievable reduction of supplies of petroleum-derived energy.

LIST OF AGENCIES, ORGANIZATIONS AND PERSONS TO WHOM COPIES OF THE STATEMENT ARE SENT

Comments on the DEIS will be requested from the following agencies and interest groups:

Federal Agencies

Advisory Council on Historic Preservation
Department of Agriculture
  Forest Service
  Soil Conservation Service
Department of Defence
  U.S. Army Corps of Engineers
Department of Energy
  Region X
Department of the Interior
  Fish and Wildlife Service
  Geological Survey
  Heritage Conservation and Recreation Service
  Bureau of Mines
  Water and Power Resources Service
Environmental Protection Agency

State and Local Government

Baker County Planning Commission
Malheur County Planning Commission
Oregon State Clearinghouse
Oregon State Historic Preservation Officer

Interest Groups

All Grazing Permittees in the Ironside EIS Area
American Fisheries Society
American Horse Protection Association
Desert Trails Association
National Resource Defense Council
National Wildlife Federation
Oregon Cattlemen's Association
Oregon Environmental Council
Oregon High Desert Study Group
Oregon Natural Heritage Program
Oregon Student Public Interest Research Group
Oregon Sheepgrowers
Public Lands Council
Sagecounty Alliance for a Good Environment (SAGE)
Sierra Club
Society for Range Management Management
Southern Oregon Resource Alliance (SORA)
The Wilderness Society
Wildlife Management Institute
Wildlife Society, Oregon Chapter
IDA-ORE Regional Planning and Development Association

Copies of this draft environmental impact statement will be available for public inspection at the following BLM offices:

Washington Office of Public Affairs
18th and C Streets
Washington, DC 20240
Phone (202) 343-5717

Baker District Office
Federal Building
P.O. Box 987
Baker, Oregon 97814
Phone (503) 523-6391

Oregon State Public Affairs Office
729 N.E. Oregon Street
P.O. Box 2965
Portland, Oregon 97208
Phone (503) 231-6277

Vale District Office
365 A Street West,
P.O. Box 700
Vale, Oregon 97918
Phone (503) 473-3144

Reading copies will be placed in the following libraries: Eastern Oregon State College, LaGrande; Treasure Valley Community College, Ontario; Portland State University, Portland; Oregon State University, Corvallis; University of Oregon, Eugene; and the Baker and Malheur County Libraries.

Public hearings will be held in Baker and Ontario, Oregon, on the adequacy, completeness, and accuracy of this environmental impact statement. The hearings will not address the advantages or disadvantages of the proposed action, but opinions are and will be solicited on the quality of the analysis.

Details of the hearing will be published in the Federal Register and local news sources.

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APPENDICES

APPENDICES

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Appendix A-l

Baker Management Framework Plan

Summary of Significant MFP Recommendations, Conflicts and Decisions Affecting the Livestock Grazing Programs

Livestock MFP-1	Resource WFP-1 Recommendations that Conflict With Livestock Recommendations	Conflicts	Proposed Decision and Rationale	Trade-offs
Allocate total forage production available to grazing animals to livestock and make adjustments to conform with this capacity	Stream Riparian Areas Eliminate livestock use on riparian areas by fencing along 65 miles of streams, and restrict grazing until after June 15 on 22 miles of streams. This would maintain and enhance water quality, fisheries and wildlife habitat for a diversity of species.	Elimination and restriction of livestock grazing as proposed would cause a reduction of 4,278 AUMs and interrupt six grazing systems. Annual local personal income loss would be $30,203.	Eliminate livestock from riparian zones along 19.5 miles of stream by fencing width of zones only, with livestock water gaps at key locations. In less important riparian areas, and those in good condition, adequate results can be achieved by managing for the quality of vegetation that also benefits livestock grazing, except for the Crystal Palace area where the management goal will be to increase streamside browse. Livestock exclusions, intensive management and seasons of use are necessary to improve the vegetation in important riparian areas and meet objectives for water quality, fisheries and wildlife habitat in this critical zone. Elimination of livestock grazing from riparian zones in the Snake River Breaks is not necessary at this time. The effects of the implementation of livestock grazing suitability criteria remain to be determined, thus making the recommendation for further livestock removal premature.	33 AUMs lost to livestock use, representing annual local personal income loss of $233.
	Wildlife Provide adequate and sustained forage for present management target goal numbers of big game populations	Most of the big game annual forage requirement can be supplied by areas or plants which are not useable by livestock. However, 760 AUMs suitable for livestock grazing in Crystal Palace and Keating areas would be allocated to wildlife use.	In the Keating area, make 340 AUMs of competitive forage available. In the Crystal Palace area, manage grazing so all fall regrowth is available for wildlife, based on percentage of BLM ownership in allotments embracing crucial acres. This action will meet wildlife objectives with minimal cost to live stock industry.	340 AUMs lost to livestock use, representing $2,400 in local annual personal income.

Livestock MFP-1	Resource MFP-1 Recommendations that Conflict With Livestock Recommendations	Conflicts	Proposed Decision and Rationale	Trade-offs
	Fence perennial reservoirs, spring tank over-flows and key wetland meadows to allow protection of riparian vegetation from livestock grazing and to improve fisheries in the reservoirs.	Fencing of spring tank overflows, perennial reservoirs, and key wetland meadows would cause a reduction of 20 AUMs of livestock grazing.	Wildlife recommendation adopted. The benefits far outweigh the slight costs to the livestock industry.	20 AUMs lost to livestock use represents annual personal income loss of $141.
	Maintain existing wildlife habitat study areas and ex-closures; continue to exclude livestock from these areas.	Some 153 AUMs of live-stock forage would not be available for grazing.	Adopt wildlife recommendation. The modest reduction of potential benefits to the livestock industry is out weighed by the benefit of maintaining these projects developed for diverse wildlife benefits.	Loss of potential annual personal income of $1,080.
	Manage the area south of the Crystal Palace Road primarily for wintering deer. Permit livestock grazing in this area only when it benefits deer management.	Some 93 AUMs of forage would be lost to live-stock grazing.	Continue present deferred rotation grazing system but reschedule the fall grazing in the Powder River pasture of the Table Rock Allotment to be completed by Sept. 30. This will allow all fall regrowth to be available for wildlife. Trend studies in this allotment show the grazing systems to be working.	None
	Sensitive, Threatened and Endangered Plant Species. Exclude livestock grazing from all watersheds con-taining endangered or threatened plant species populations on sites for which they are endemic.	Exclusion of livestock from certain watersheds and disruption of graz-ing systems. Degree of impact unknown.	Exclude livestock grazing from 38.5 acres containing a popula-tion of Haplopappus radiatus. Further intensive studv and monitoring is needed to determine if any additional areas should be excluded from livestock grazing.	Negligible loss of live-stock AUMs as the area is unsuitable for livestock grazing based on suitability criteria.

Baker MFP continued

Livestock MFP-1	Resource YFP-1 Recommendations that Conflict With Livestock Recommendations	Conflicts	Proposed Decision and Rationale	Trade-offs
Design grazing management systems so key species receive rest until seed ripe every third year (deferred grazing system), with total for age production available to grazing livestock based on 50% utilization rate season-long.	Wildlife On crucial winter ranges, specifically the Keating Rangelands and Glasgow Butte Area, allow no cattle grazing beyond October 1.	Reduces the amount of flexibility available to livestock operators in the areas mentioned.	Accept the wildlife recommendation Where ranges are crucial for winter wildlife use, browse and fall regrowth must be reserved for wildlife use.	Reduces livestock operators' flexibility.
	Watershed Do not exceed 40% utilization of the annual growth of the key forage species, regardless of the season of year. No utilization at all should take place during the growing season of major perennial vegetation.	Some 3,500 AUMs of live stock forage would be lost, representing an annual local personal income of $24,710. Presents implementation of intensive grazing management systems.	Utilize the following grazing treatment principles to attain or maintain late ecological condition in less important areas not covered by special constraints: In early ecosite condition implement a rest rotation grazing system at 50% utilization rate in the grazed pastures, or a deferred rotation system at 50% utilization rate. In late or climax ecosite condition, condition, implement a deferred rotation grazing system at 60% utilization rate in grazed pastures to maintain existing condition. Grazing system and initial stocking rates would assure successional wildlife habitat, watershed protection and livestock forage.	None

Livestock MFP-1	Resource MFP-1 Recommendations that Conflict With Livestock Recommendations	Conflicts	Proposed Decision and Rationale	Trade-offs
Initiate seeding and brush control practices on 88,494 acres and construct management improvements (fences, reservoirs, etc.) in conjunction with allotment management plans to produce an increase of some 5,782 livestock AUMs above the potential with management alone.	Sensitive, Threatened and Endangered Plant Species Allow no ground disturbance within identified or suspected habitat of such species.	Treatment of an undetermined amount of acreage would be prohibited, losing potential AUMs.	Vegetative manipulation projects will not occur until such time as intensive studies are conducted to identify if the proposed areas contain sensitive, threatened and endangered species; appropriate clearance is obtained; and/or projects are modified by site specific data to protect such species in accordance with the Endangered Species Act of 1973, as amended.	An undetermined acreage may not be treated as a result of site specific studies and inventories.
	Wildlife Prohibit surface disturbance in and near sage grouse strutting grounds, rearing areas and wet meadows and drainages in sage grouse habitats.	Some land treatment proposed in Denny Flat would be prohibited, losing a potential increase of 79 AUMs.	Adopt wildlife recommendation for all known grouse habitats.	The potential AUMs foregone represent $558 in annual personal income.
	Recreation Do not alter vegetation in prime chukar and Hungarian partridge habitat.	Some land treatments would be prohibited, losing a potential increase of 98 AUMs.	Cause no dramatic vegetation change unless mitigating measures would preserve sufficient partridge habitat.	The potential AUMs foregone represent $692 in annual personal income.
	Visual Values In visual resource management Class II areas (which are readily visible locations and at least moderately scenic) blend treatments and improvements into the the landscape so they are not normally apparent.	Some treatments and improvements would be prevented, with 584 potential AUMs foregone representing annual local personal income of $4,123.	Adopt visual resource recommendation. Protection of these visual values warrants the modest 1,035 of potential AUMs.	The potential 584 AUMs foregone would result in a loss of $4,123 of annual personal income.

Appendix A-2

Northern Malheur Management Framework Plan

Summary of Significant MFP Recommendations, Conflicts and Decisions Affecting the Livestock Grazing Program

Livestock MFP-1	Resource MFP-1 Recommendations That Conflict with Livestock Recommendations	Conflicts	Proposed Decision and Rationale	Trade-offs
Allocate total forage production available to grazing animals to livestock (cattle) and make adjustments to conform with this capacity.	Stream Riparian Areas Eliminate or restrict livestock use on riparian areas along 78.5 miles of stream to maintain and enhance water quality, fisheries and wildlife habitat for a diversity of species.	Elimination or restriction of livestock grazing from these areas would cause a maximum reduction of 12,030 AUMs representing an annual local personal income of $95,278. The riparian areas would not be grazed in deferred systems.	Exclude livestock grazing on 3,790 acres of pasture including 14.5 stream miles of riparian habitat. Graze 19.5 stream miles at 40% utilization level following 2 years rest. Graze 40 miles at 40% utilization level with no initial rest. In remaining less important riparian areas, graze in accordance with the grazing system based on ecosite condition. Lower initial livestock stocking rates and restrictive seasons of use are necessary to improve the vegetation in important riparian areas to meet resource objectives.	Initial loss of 9,568 AUMs for first 2 years, representing an annual personal income loss of $37,889. After the temporary reductions of the first 2 years are reinstated, 2,142 AUMs would be lost annually, representing an annual personal income of $16,965.
	Wild horses Remove livestock from the 25,505 acres in Hog Creek Herd Management Area and allow the current maximum management level of 50 horses to increase to 196 horses, the viable maximum.	Livestock removal would cause reduction of 2,360 AUMs representing annual local personal income of $18,691.	Maintain wild horse herd at a level fluctuating between 30 and 50 head, with wild horse forage allocation of 600 livestock AUMs. Livestock will not be removed from the herd management area. The continued management level of 50 horses maximum will reduce conflicts with deer winter ranges, riparian vegetation and livestock industry, and comply with BLM responsibility for wild horse protection in accordance with PL-195.	Loss of 600 AUMs to livestock use, representing an annual personal income loss of $4,752. Increase in wild horse herd size will not occur.

Livestock MFP-1	Resource MFP-1 Recommendations That Conflict with Livestock Recommendations	Conflicts	Proposed Decision and Rationale	Trade-offs
	Wildlife			
	Provide adequate, sustained forage for present management goal for big game populations	Some 10,156 AUMs of forage are needed to support proposed big game populations. Of this amount, 4,986 AUMs are considered noncompetitive with livestock and 5,170 AUMs are competitive.	Allocate 5,170 AUMs of competitive livestock forage to support reasonable numbers of hig game. This action is consistent with policy.	The 5,170 AUMs unavailable for livestock represents an annual personal income loss of $40,946.
	Fence perennial reservoirs and spring tank overflows to protect riparian vegetation from livestock grazing and to improve fisheries in the reservoirs.	Fencing of 151 spring tank overflows and 5 perennial reservoirs would cause a reduction of 93 AUMs of livestock grazing.	Adopt wildlife recommendation. Benefits due to wildlife cover outweigh slight loss of livestock grazing.	Annual personal income loss of $737.
	Maintain existing wildlife habitat study areas and enclosures: continue to exclude livestock from these areas.	Some 346 AUMs of livestock forage would not be available for grazing.	Adopt wildlife recommendations. Reduction of potential benefits to the livestock industry is outweighed by the benefit of maintaining these projects for diverse wildlife benefits.	Loss of potential annual income of $2,740.
	Exclude livestock grazing from timbered areas on Ironside Mountain to eliminate competition with elk and deer that use the area for cover, forage and fawning areas.	Livestock removal would cause reduction of 522 AUMs, representing an annual local personal income loss of $4,134.	Do not close entirely to grazing. Restrict grazing for a 5-year period following timber operations to allow for reproduction and establishment of tree and browse seedlings. Grazing of livestock, as proposed, is not detrimental except during the seeding establishment period.	Local annual personal income loss of $1,000 to $2,000 during years of restricted grazing.

Livestock MFP-1	Resource MFP-1 Recommendations That Conflict with Livestock Recommendations	Conflicts	Proposed Decision and Rationale	Trade-offs
Design grazing management systems so key species receive rest till seed ripe every third year (deferred rotation grazing system), with total forage production available to livestock based on 50% utilization rate season long.	Wildlife Seed shrub or tree species suitable for wildlife cover on 4,300 acres in the Westfall highlands area. Exclude livestock grazing for two seaasons after seeding, and thereafter graze in spring to favor seedling development.	Some 1,264 AUMs of livestock forage would be lost for two seasons of exclusion, representing an annual local personal income of $5,005. Allotments involved would not be under a deferred rotation grazing system.	Adopt the wildlife recommendation on two pastures totaling 1,921 acres where range site/soil data indicate establishment success can be expected. After 2 years of grazing exclusion following seeding, graze in spring only and at 60% utilization. In remaining proposed planting areas, limit planting to l-acre test plots to gather additional information. Planting success in these other areas is uncertain, but in the two pastures the success and benefit to wildlife outweigh the temporary costs to the livestock industry. Initial stocking rate will hold the pastures in late ecosite condition.	664 AUMs lost to livestock use for 2 years with a loss of annual personal income of $2,629. After 2 years, increase of 54 AUMs over the 50% utilization season-long rate, and an increase in annual personal income of $428.
	Watershed Protection Eliminate livestock grazing from areas having a soil mantle of less than 6 inches to reduce erosion and improve water quality.	Some 112,600 acres would be subject to livestock removal, causing a reduction of 12,476 AUMs, representing annual local personal income of $98,810.	Exclude livestock grazing from 35,700 acres unsuitable for grazing due to steepness of slope and/or distance from water. Adequate watershed protection will be provided by such constraints.	None, as these constraints, along with proper grazing use, are also essential for maintenance of a sustainable livestock forage supply.

Northern Malheur MFP continued

Livestock MFP-1	Resource MFP-1 Recommendations That Conflict with Livestock Recommendations	Conflicts	Proposed Decision and Rationale	Trade-offs
Initiate seeding and brush control practices on 65,415 acres and construct improvements (fence, reservoir, etc.) in conjunction with grazing systems. This would produce an increase of some 12,891 livestock AUMs over the potential from grazing systems alone.	Sensitive, Threatened and Endangered Plant Species Allow no ground disturbance within identified or suspected habitat of such species.	Treatment of 12,700 acres would be prohibited, with a potential loss of 1,948 future AUMs representing annual local personal income of $15,428.	Do not initiate land treatment projects until such time as intensive studies have been conducted to identify if the proposed areas contain sensitive, threatened and endangered species; appropriate clearance is obtained; and/or projects are modified by site specific data to protect such species in accordance with the Endangered Species Act of 1973.	An undetermined acreage may not be treated as a result of site specific studies and inventories.
	Wildlife Manage crucial mule deer winter range and concentration areas for browse. Land treatment would be prohibited.	Prohibition of land treatment would result in 1,311 potential AUMs foregone representing annual local personal income of $10,383.	Adopt wildlife recommendation and prohibit land treatments on crucial deer concentration areas. This approach meets the objective for big game while minimizing the loss of potential benefits to livestock industry.	The 1,311 potential AUMs foregone represent $10,383 in personal annual income.

Livestock MFP-1	Resource MFP-1 Recommendations That Conflict with Livestock Recommendations	Conflicts	Proposed Decision and Rationale	Trade-offs
	Prohibit disturbances in nesting areas of long-billed curlew.	A potential loss of 135 future AUMs, representing annual local personal income of $1,069 would result.	Adopt wildlife recommendation. This will preserve curlew habitat along Oregon Trail. Curlew exist on both public and private lands in the area and inhabit some existing seedings.	Potential loss of 135 future AUMs.
	Recreation Prohibit disturbance within 1/4 mile of Oregon Trail and in several areas valuable for wild animal sightseeing	A potential loss of 54 future AUMs, representing annual local personal income of $428, would result.	Adopt the recreation recommendations. The historical and sight-seeing values warrant the slight reductions involved.	Potential loss of 54 future AUMs.
	Primitive Values Remove and rehabilitate all artificial intrusions in the North Fork Malheur area and prohibit future disturbance.	Would require removal of two spring developments and 4.5 miles of fence, and prohibit construction of two reservoirs.	Maintain existing range improvements within the N. Fork Malheur area without the use of motorized vehicles. Fences and spring development will be allowed if designed not to detract from primitive values. No land treatments or reservoirs will be allowed. Livestock grazing is a valid use of primitive areas; however, without proper facilities, grazing could degrade the pristine environment.	Nom?.
	Visual Values In visual resource management Class 11 areas (which are readily visible from well traveled locations, and at least moderately scenic), blend treatments and improvements into the landscape so they are not visually apparent.	A few treatments and improvements would be prevented, with a potential loss of 397 future AUMs representing annual local personal income of $3,144.	Adopt visual resource recommendations. Protection of the visual values warrants the modest reduction of potential AUMs. In addition, some of these areas are crucial deer concentration areas (see first Wildlife Conflict).	Potential loss of 397 future AUMs.

Appendix B

Methodologies

1. Vegetation Characteristics
2. Sediment Yield
3. Runoff
4. Criteria for Wildlife Habitat in Riparian Zones
5. Criteria for Evaluating Stream Conditions

Appendix B1 Vegetation Characteristics

The following is a description of the methods used to gather, compute and analyze vegetation data in the Ironside EIS area. The BLM manuals cited are available for examination at BLM offices.

Determination of Ecosite Condition and Trend

Ecosite condition was determined by modified Soil/Vegetal Inventory Method (SVIM). The inventory is a determination of the current resources of an ecological site in regards to existing and potential vegetative productivity. The ecological sites were identified through (1) a soil survey and (2) determination of plant species percent composition by weight through clipping and weighing of vegetation on a statistical sampling basis.

The ecological condition (ecosite condition) was determined in accordance with the SCS National Range Handbook criteria comparing the composition, by weight, of the present plant communities with that of the potential plant composition in ecosite condition.

The following example displays the technique used to calculate present ecosite condition.

For the existing plant community, the percent composition of the plants measured in the inventory may not exceed the percent composition of that species found under climax conditions.

The following example shows plant composition under climax condition (Column 2) and present plant composition as determined by the soil/vegetal inventory (Column 3).

	Ecosite Guide	Inventory Results	Rating
(1)	(2)	(3)	(4)
Common Plant Name	Max. % Comp. Based on Wt.	Present % Comp. Based on Wt.	Maximum Allowable % Comp.
Grasses			
Bluebunch Wheatgrass	65	21	21
Idaho Fescue	22	17	7
Sandberg Bluegrass	6	21	6
Thurber Needlegrass	3	4	3
Forbs			
Lupine	2	1	1
Phlox	1	2	1
Shrubs			
Big Sagebrush	8	40	8
Rabbitbrush	1	4	1
Total	100	100	48

The amount of all climax species not in excess of that shown on the guide is totaled to indicate the relative ecological rating or numerical evaluation of the present stand. The rating will be between 0 and 100, depending on how closely the plant community resembles the climax plant community for the range site. The rating in the above example is 48 (Column 4).

Four classes are used to express the degree to which the composition of the present plant community reflects that of the climax. They are:

Ecosite Condition Class	Percentage of present plant community that is climax for the ecosite
Climax	76-100
Late	51-75
Middle	26-50
Early	0-25

The rating in column 4 falls within the point range for the middle ecosite condition class. Consequently, the area represented by the present plant composition would be recorded as being in middle ecosite condition. This process is repeated for each plant community until an entire allotment is completed. The totals shown in Appendix D were derived by summing the acreage found in each ecosite condition class in an allotment.

The soils were mapped to soil series and phases equivalent to a third order soil inventory. Soil pits were dug in all ecosite delineations.

Trend was determined by the use of existing photo-trend plots in accordance with BLM manual procedures, and observed apparent trend writeups. The following is a sample of the observed apparent trend form, The observed apparent trend procedure used in the Ironside EIS area consisted of District personnel inspecting each pasture in the EIS area and completing the Observed Apparent Trend form shown on the following page. The actual rating for each pasture was obtained by inspecting an area which was representative of the pasture and assigning the appropriate number for each of the five rating factors on the form. Field data collection and summarization were completed in 1976 and 1977.

Range Site Symbol _____ Date _____

Condition Class Symbol _____ Examiner _____

Legal Description _____

OBSERVED APPARENT TREND

(Check appropriate box in each category which best fits area being observed)

VIGOR (10 points)	☐	Desirable grasses, forbs and shrubs are vigorous showing good health. These plants should have good size, color and produce abundant herbage.
(6 points)	☐	Desirable grasses, forbs and shrubs have moderate vigor. They are medium size with fair color and producing moderate amounts of herbage, some seed stalks and seedheads are present.
(2 points)	☐	Desirable grasses, forbs and shrubs have low vigor. They appear unhealthy with small size and poor color. Portions of clumps or entire plants are dead or dying. Seed stalks and seedheads almost non-existent except in protected areas.
SEEDLINGS (10 points)	☐	There is seedling establishment of desirable grasses, forbs and shrubs. Seedlings are present in open spaces between plants and along edges of soil pedestals. Few seedlings of invader or undesirable plants are present.
(6 points)	☐	Some seedlings of desirable grasses, forbs and shrubs may be present in open spaces between plants. Some seedlings of invader or undesirable plant species may be present.
(2 Points)	☐	Few if any seedlings of desirable grasses, forbs and shrubs are being established Seedlings of invader or undesirable plants should be present in open spaces between plants.
SURFACE LITTER (5 points)	☐	Surface litter is accumulating in place.
(3 points)	☐	Moderate movement of surface litter is apparent and deposited against obstacles.
(1 point)	☐	Very little surface litter is remaining.
PEDESTALS (5 points)	☐	There is little visual evidence of pedestalling. Those pedestals present are sloping or rounding and accumulating litter. Desirable forage grasses may be found along edges of pedestals.
(3 points)	☐	Moderate plant pedestalling. No visual evidence of healing or deteriorating. Small rock and plant pedestals may be occurring in flow patterns.
(1 point)	☐	Most rocks and plants are pedestalled. Pedestals are sharpsided and eroding, often exposing grass roots.
GULLIES (5 points)	☐	Gullies may be present in stable conditions with moderate sloping or rounded sides. Perennials should be establishing themselves on bottom and sides of channel.
(3 points)	☐	Gullies are well developed with small amounts of active erosion. Some vegetation may be present.
(1 point)	☐	Sharply incised V-shaped gullies cover most of the area with most of the gullies actively eroding. Gullies are mostly devoid of perennial plants with fresh cutting of the bottom.

Total Points _____ Rating: 26-35 = Upward; 17-25 = Static; 7-16 = Downward

General Comments:

Forage Production

Present forage production within the Vale portion of the Ironside EIS was determined by three methods:

1. Ocular Reconnaissance Range Survey.
2. Actual-Use/Utilization corrected to 50 percent utilization.
3. Forage Capacity based on annual rainfall.

All three methods were used to determine the useable livestock forage production under a spring/summer grazing system at 50 percent utilization of the key species.

The Ocular Reconnaissance Range Survey was conducted in accordance with BLM Manual 4412.11A.

The Actual - Use/Utilization Method was computed by the use of Actual Use records by pasture, and utilization in accordance with the Key Plant Forage Method (BLM Manual 4412.22B7c). The formula used was:

$$\frac{\text{Max. Util. Desired}}{\text{Actual Util.}} = \frac{\text{Aums Desired}}{\text{Actual Use on Federal Acres}}$$

An example would be: If a pasture were utilized at a rate of 60 percent utilization of key species and this use level resulted in the removal of 120 AUMs, then forage production at 50 percent utilization would be 100 AUMs.

$$\frac{50\% \text{ (max. util. desired)}}{60\% \text{ (actual util.)}} = \frac{x \text{ (AUMs desired)}}{120 \text{ AUMs (actual use>}}$$

x = 100 AUMs at 50% utilization

This method was used for each pasture within the allotment and then all pastures were totaled. This method was employed on three allotments. Forage production based on annual rainfall was determined by establishing an acre/AUM rate whereby utilization would be expected to be at the 50 percent utilization level. This was based on professional judgement of production expected within the various rainfall zones and associated vegetation. Criteria establishment were:

Annual Rainfall	Acre/AUM
10"	= 14 Ac/AUM
11"-15"	= 12 Ac/AUM
16"-20"	= 10 Ac/AUM
20"-25"	= 8 Ac/AUM
25"	= 6 Ac/AUM

Utilizing this method, forage production would be determined as follows: An allotment containing 80 acres which lies within the lo-inch rainfall zone would have a useable forage production capacity of 6 AUMs (80 acres ÷ 14 ac/AUMs).

This method of establishing baseline forage data was employed on 52 allotments (approximately 7 percent of the Vale EIS area), where the public lands are small, scattered tracts within large blocks of private lands.

On the remaining 24 allotments where all necessary range improvements have been completed to implement intensive management, the grazing system was selected and the useable forage production was adjusted depending upon the dominant ecosite condition class found in each pasture and the following criteria:

Climax to late ecosite condition: Total forage production would be based on a basic deferred rotation system and on 60 percent utilization on key species in the pastures utilized.

Middle ecosite condition: Total forage production would be based on a rest rotation grazing system with minimum of one complete year of rest out of four and another year of rest until after seedripe of key species and on 60 percent utilization of key species in the pastures utilized (approximately 75 percent of the allotment).

Early ecosite condition: Total forage production would be based on a rest rotation grazing system with a minimum of one complete year of rest out of four and another year of rest until after seedripe of key species and on 50 percent utilization of key species in the pastures utilized (approximately 75 percent of the allotment).

However, exceptions as listed below were made in some pastures:

1. In pastures which are identified for shrub and tree species plantings to improve wildlife cover base, the forage production was based on rest from grazing for two full growing seasons following plantings, and thereafter spring grazing use at 60 percent utilization of key species.

2. In pastures which are identified for the various riparian management systems total forage production and utilization rates will be determined as follows:

a. Two years of rest and riparian management: Rest for 2 years, then base forage production on 40 to 50 percent utilization using the spring grazing system with the level of utilization dependent upon the available vegetation data.

b. Riparian management: Base forage production on 40 percent utilization for the seasons of use indicated, where forage production information is available by season, or at 50 percent season long where the information is not available.

3. In pastures where survival and improvement of browse forage species was identified as a primary concern, forage production will be based on a grazing system which includes one full year of rest followed by rest until August 1 (seedripe) the following season and by not more than 2 years of spring use thereafter (modified rest rotation). Utilization rates would be based on 60 percent utilization of the key species in the pastures used; approximately 75 percent of the allotment. In cases of areas covered by riparian management, the management under that system should give browse the needed protection.

4. In pastures containing crested wheatgrass seedings which will be managed to benefit pronghorn antelope and mule deer, the forage production will be based on a grazing system which includes 2 years of use during the period of April-July 15, followed by 1 year of use between July 15-September 30. Total forage production will be based on the average of the spring, spring and summer seasons production at 60 percent utilization of key species.

5. In pastures where Federal land is fenced in with sizable amounts of private land and no other constraints are identified, management will be nonintensive. Forage production will be based on 50 percent utilization of key species season long.

6. An inventory to determine areas physically unuseable by livestock was conducted in 1977. Unuseable areas were mapped in the field on 7.5 minute USGS topographic maps, based on observations by BLM Range Specialists as to areas livestock would not graze except under extreme conditions. Limiting criteria were steep slopes, rockiness and distance from water.

Comparison of the inventory results to the Washington Office Instruction Memorandum 78-509, of September 14, 1978, which outlined the criteria and standards for determination of rangeland suitability, showed a close correlation, The exception was the soil surface factor (SSF) which was not used in the 1977 inventory. Limitations for watershed protection were identified through the Management Framework Plan rather than on field observations.

Forage found on areas unsuitable for livestock grazing was not included in the useable forage production.

Examples of the methods used to adjust the forage production to accomplish management objectives and to implement the proposed grazing system on two allotments using the previously stated criteria are shown below,

Allotment 139

Pasture Name	Existing Dominant Ecosite Condition	Objective or Constraint for Pasture	Useable Production at 50% Utilization Rate Seasonlong	Useable Production Based on Grazing Syustem and Constraint
East	Middle	Improve ecosite condition (Rest Rotation System)	364 AUMs	364 ÷ .83 (conversion factor from 50% to 60% utilization rate) 1/ x .75 (adjustment factor = 329 AUM for rest system when pasture not used) 21
West	Middle	Improve ecosite condition (Rest Rotation System)	199 AUMs	199 ÷ .83 x .75 = 180 AUM
Total 563 AUMs			TOTAL: 509 AUM	

The useable production as a result of the grazing system and utilization rates would result in a difference of -54 AUMs from the useable production identified at 50% utilization seasonlong. Therefore, the adjustment required to implement the grazing system would be -54 AUMs.

1/ The conversion factor is used to recalculate the available forage production in pastures where the proposed grazing system is designed to allow 60% utilization of the key species instead of 50%. Conversion factor is computed as follows: 50% utilization ÷ 60% utilization = conversion factor.

2/ Assumption that in a standard 4 pasture rest rotation system the pasture will be grazed 3 years and rested 1 year, therefore the pasture will be utilized 57% of the time in the course of a grazing system cycle.

Allotment 157

Pasture Name	Existing Dominant Ecosite Condition	Objective or Constraint for Pasture	Useable Production at 50% Utilization Rate Seasonlong	Useable Production based on Grazing System and Constraint
Chicken Creek	Middle	Improve ecosite condition (Rest Rotation system)	290 AUMs	290 ÷ .83 1/ x .75 2/ = 262 AUMs
Love Seeding	Middle	Wildlife habitat Mgmt. (Exception 4)	248 AUMs	293 + 299 + 227 ÷ 3 ÷ .83 1/ = 327 AUMs
Farewell Bend ID	Late	Wildlife Habitat Mgmt. (Exception 4)	284 AUMs	323 + 323 + 274 ÷ 3 ÷ .83 1/ = 369 AUMs
Fenced Federal Range	Early	Limited Management (Exception 5)	42 AUMs	No Change = 42 AUMs
			864 AUMs	1,000 AUMs

The useable production as a result of the grazing system and utilization rates would result in a difference of a + 136 AUMs from the useable production identified at 50% utilization seasonlong. Therefore the adjustment required to implement the grazing system would be + 136 AUMs.

1/ The conversion factor is used to recalculate the available forage production in pastures where the proposed grazing system is designed to allow 60% utilization of the key species instead of 50%. Conversion factor is computed as follows: 50% utilization ÷ 60% utilization = .83 conversion factor.

2/ Assumption that in a standard 4 pasture rest rotation system the pasture will be grazed 3 years and rested 1 year, therefore, the pasture will be utilized 75% of the time in the course of a grazing system cycle.

Present forage production within the majority of the allotments adminsitered by the Baker District Office is based upon range surveys conducted in the late 1950's and early 1960's. These surveys were conducted in accordance with RLM Manual 4412.11B. Within the allotments where seedings were established since the 1960 surveys, the present forage production is based upon actual use and utilization records. On six allotments where public lands are small scattered tracts and management is by the private land owner, forage production is based upon past licensed use. The forage production of the remaining five allotments was determined in 1976 using the Ocular Reconnaissance Inventory Method (BLM 4412.11A).

The forage production determined by the above techniques was further adjusted depending upon the dominant ecosite condition and application of the following criteria:

1. Climax and late ecosite condition: Forage production would be based upon a deferred rotation grazing system and 60 percent utilization of the key species annually or continuous grazing system and 40 percent utilization of the key species.

2. Middle ecosite condition: Forage production would be based upon a rest rotation system and 60 percent utilization of the key species in the pastures grazed or a deferred rotation system and 50 percent utilization of the key species annually.

3. Early ecosite condition: Forage production would be based upon a rest rotation system and 50 percent utilization of the key species in the pastures grazed.

Unsuitable areas:

The total forage production in each allotment was reduced by the amount of forage found on areas of 160 acres or larger, on which slopes are greater than 50 percent. No reductions were made for areas of low productivity, high erosion conditions or for excessive distance from useable livestock water because areas where this condition occurs are minor.

Future Forage Production

The forage production that would be available in the long term is based upon analysis of the impacts of the proposed action and the alternatives and the existing ecosite conditions and forage production.

The pounds/acre (lbs/ac) of useable forage within each condition class, by site, was determined by converting the percent composition by weight of useable species to an average useable lbs/ac of forage (refer to example). The lbs/ac of useable forage was then totaled by condition class for all range ecosites and divided by the number of range sites involved. This resulted in a figure representing the average lbs/ac of useable forage within each condition class. The lbs/ac of useable forage by condition class were

then compared to indicate by what factor production would increase if the ecosite condition was improved upward to the next higher condition class. The resultant comparison showed that useable forage production would improve by a factor of 1.6 if the condition class was improved from early condition to middle condition, or middle condition to late condition.

With the assumption that the proposed management systems would result in an improvement in ecosite condition of one condition class in 10-15 years through management, and late ecosite condition was the management goal, the factor (1.6) was applied to the existing dominant ecosite condition of each pasture.

The following guidelines, in relationship to the objectives and constraints identified by pasture in the MFP, were used to calculate future forage production:

(1) Wildlife habitat management (W/L-11.4) in early or middle condition existing production x 1.6.

(2) Improve ecosite condition if in early and middle condition - existing production x 1.6.

(3) Riparian management (W/L-2.1) in early and middle condition - existing production x 1.6.

(4) Browse management (W/L-1.1) - no gains.

(5) Winter browse improvement (W/L-10.1) - no gains.

(6) Wildlife habitat management (W/L-10.3) - no gains.

(7) Wildlife exclosures (W/L-10.6) - no gains.

(8) Maintain existing ecosite condition - no gains.

Example:

Site: Arid Rolling Hills (ARH)
Condition Class = Early: lbs/acre = 402-596

Species Symbol	Percent Comp
Agsp	T-6%
Brte	21-24%
Posa	T-20%
Stipa	T-l%
Sihy	3-10%

Step 1

Find approximate mid-range of lbs/ac of total vegetative production for site, and percent composition of each plant species which livestock commonly utilize for that condition class.

Mid-point lbs/ac = 499 lbs of total production.

Species Symbol	Mid Point Percent Comp
Agsp	3%
Brte	22%
Posa	10%
Stipa	0%
Sihy	6%
Total	41%

Step 2

The total production of this site in early condition, at 50 percent utilization rate, would be 50 percent of the lbs/ac. Therefore, the total pounds of vegetation computed at 50 percent utilization would be 499 x 50% = 249.5 lbs/ac. Since the dominant forage species comprises 41 percent by weight of the total production the useable production would be:

499 x .50 x .41 = 102 lbs/acre of useable forage.

Step 3

Assuming this was the dominant ecosite and condition class in the allotment and the resource objective was to improve the ecosite condition (guideline #2) then the future forage production would be approximately 170 lbs/ac.

102 lbs/ac x 1.6 - 169.6 lbs/ac.

Ecosite Name: Arid Rolling Hills (ARH)

lbs/acre	375-721	269-365	269-392	402-596
Condition Class	Climax	Late	Middle	Early
Species Acronym	% Comp	% Comp	% Comp	% Comp
Agsp	51-73	32-50	7-31	T-6%
Brte	3-9	10-14	15-21	21-24%
Posa	7-9	10-21	21-26	T-20%
Stipa	3-4	2-3	l-2	T-l%
Sihy	T-l	1	T-2	3-10%
Lepe	T	T-1	1	1-2%
Lupine	3	l-2	T-1	T-l%
Phlox	3-4	T-3	T	T
Annual Forbs	1	T-l	T-l	1-7%
Artr	6-16	17-25	26-37	37-44%
Chvi	0	T-l	l-3	3-4%
Chna	T-4	2-4	l-3	T-3%
Grsp	T	T	T-l	2-7%

Acronym	Scientific Name	Common Name
Agsp	Agropvron spicatum	Bluebunch wheatgrass
Brte	Bromus tectorum	Cheatgrass
Posa	Poa sandbergii	Sandberg bluegrass
Stipa	Stipa spp.	Needlegrass
Sihy	Sitanion hystrix	Squirreltail
Lepe	Lepid.ium perforliatum	Peppergrass
Lupine	Lupinus spp.	Lupine
Phlox	Phlox spp.	Phlox
Artr	Artemisia tridentata	Big sagebrush
Chvi	Chrysothamnus nauseosus	Gray rabbitbrush
Chna	Chrysothamnus viscidiflorus	Green rabbitbrush
Grsp	Grayia spinosa	Spiny hopsage

Appendix B2

Sediment Yield

Sediment yields were determined by correlating-the soil-vegetation inventory made in 1976-1977 to the Pacific Southwest Interagency Committee's (PSIAC) Sediment Yield Ratings (see Form 7310-16). Each transect area was evaluated according to the standards outlined on Form 7310-16. Each factor on Form 7310-16 was allotted points using the assumptions listed below and the points totaled. Conversion of the numerical rating to sediment yield was made using the graph on the back of Form 7310-16.

a. SURFACE GEOLOGY

1. PSIAC's marine shales, mudstones and siltstones were equated to the soil-vegetation inventory's (S-V) recent and old alluvium, tuffaceous lacustrine sediments, soft metasediments and granite for a PSIAC rating factor of (10).

2. PSIAC's rocks of medium hardness, moderately weathered rocks and moderately fractured rocks were equated to S-V's hard metavolcanics for a PSIAC rating factor of (5).

3. PSIAC's massive, hard formations were equated to S-V's hard volcanics for a PSIAC rating factor of (0).

b. SOILS

1. PSIAC's fine textured, easily dispersed, saline-alkaline, high shrink-swell characteristics, single grain silts and fine sands were equated to S-V's very fine, fine, clayey, fine-silty and coarse-loamy family textural groups of the following soils: 360, 376, 505, 507, 913, 921, 922, 923, 924, 931, 932, 933; 935, 940, 945, 955, 958, 960, 961, 962, 964, 975, 989, 991, 993; for a PSIAC rating factor of (10).

2. PSIAC's medium textured soils, occasional rock fragments and caliche layers were equated to S-V's fine-loamy, loamy and loamy-skeletal family textural groups of the following soils: 362, 384, 521, 903, 904, 906, 907, 908, 915, 916, 918, 925, 936, 937, 938, 939, 947, 948, 949, 950, 951, 953, 956, 957, 963, 965, 966, 967, 971, 976, 977, 978, 979, 980, 982, 984, 986, 987, 990, 995, 998; for a PSIAC rating factor of (5).

3. PSIAC's high percentage of rock fragments, aggregated clays and high in organic matter were equated to S-V's clayey-skeletal family textural group of the following soils: 905, 912, 919, 927, 929, 930, 934, 974, 981, 985, 996; for a PSIAC rating factor of (0).

c. CLIMATE

PSIAC's climatic type consisting of: 1) storms of several days of duration with short periods of intense rainfall and/or 2) frequent intense convective storms and/or 3) freeze-thaw occurrence was accepted as most typifying of the Ironside EIS area for a PSIAC rating factor of (7).

d. RUNOFF

1. PSIAC's high peak flows per unit area and large volume of flow per unit area were equated with S-V's alluvial and lacustrine soils, for a PSIAC rating factor of (10).

2. PSIAC's moderate peak flows per unit area and moderate volume of flow per unit area were equated with S-V's upland soils, for a PSIAC rating factor of (5).

e. TOPOGRAPHY

1. PSIAC's steep upland slopes (in excess of 30 percent); and high relief; little or no floodplain development were equated with S-V's "G" slope units (in excess of 35 percent); for a PSIAC rating factor of (20).

2. PSIAC's moderate upland slopes (less than 20 percent, more than 5 percent); moderate alluvial fan or flood plain development were equated with S-V's "F" slope units (15 to 35 percent slopes); for a PSIAC rating factor of (15).

3. PSIAC's gentle upland slopes (less than 5 percent) were equated with S-V's "E" slope units (1 to 15 percent); for a PSIAC rating factor of (5).

f. GROUND COVER

The following table was used to determine PSIAC ground cover values from the soil-vegetation inventory data.

Ecological Condition	Stony Soil	Non-stony Soil
Early	+5	+10
Middle	0	+5
Late	-10	-5
Climax	-10	-10

Condition classes and surface stoniness (+ or - 15 percent of the ground surface covered by stone-size fragments) was available for all delineations mapped during the Ironside soil-vegetative inventory.

g. LAND USE

The assumption was made for the land use category that all of the Ironside EIS Area falls into the PSIAC category: "almost all of the area intensively grazed." This carries a PSIAC rating factor of (10).

h. UPLAND EROSION AND

i. CHANNEL EROSION AND SEDIMENT TRANSPORT

These factors were developed by:

1. Giving range conservationists etc., familiar with each allotment, a chance to rate any of the allotments they felt they knew well enough. (This only worked on a minor portion of the allotments).

2. Utilizing some basic assumption about "susceptibility" to erosion and weighing this against range site (ecological site) and condition classes. A site over lacustrine breaks or old/recent alluvium in poor condition has a very high likelihood of having considerable upland and channel erosion. A scabland site in any condition would probably not have significant problems in these categories.

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

SEDIMENT YIELD FACTOR RATING

SURFACE GEOLOGY (a)	SOILS (b)	CLIMATE (c)	RUNOFF (d)	TOPOGRAPHY (e)
(10) a. Marine shales and related mudstones and siltstones	(10) a. Fine textured; easily dispersed; saline-alkaline; high shrink-swell characteristics b. Single grain silts and fine sands	(10) a. Storms of several days' duration witt short periods of intense rainfall b. Frequent intense convective storms c. Freeze-thaw occurrence	(10) a. High peak flows per unit area b. Large volume of flow per unit area	(20) a. Steep upland slopes (in excess of 30%) b. High relief; little or no floodplain development
(5) a. Rocks of medium hardness b. Moderately weathered c. Moderately fractured	(5) a. Medium textured soil b. Occasional rock fragments c. Caliche layers	(5) a. Storms of moderate duration and intensity b. Infrequent convective storms	(5) a. Moderate peak flows per unit area b. Moderate volume of flow per unit area	(10) a. Moderate upland slopes (less than 20%) b. Moderate fan or floodplain development
(0) a. Massive, hard formations	(0) a. High percentage of rock fragments b. Aggregated clays c. High in organic matter	(0) a. Humid climate with rainfall of low intensity b. Precipitation in form of snow c. Arid climate, low intensity storms d. Arid climate; rare convective storms	(0) a. Low peak flows per unit area b. Low volume of runoff per unit area c. Rare runoff events	(0) a. Gentle upland slopes (less than 5%) b. Extensive alluvial plains
Factor value				

GROUND COVER (f)	LAND USE (g)	UPLAND EROSION (h)	CHANNEL EROSION AND SEDIMENT TRANSPORT (i)
Ground cover does not exceed 20% a. Vegetation sparse; little or no litter b. No rock in surface soil	(10) a. More than 50% cultivated b. Almost all of area intensively grazed c. All of area recently burned	(25) a. More than 50% of the area characterized by rill and gully or landslide erosion	(25) a. Eroding banks continuously or at frequent intervals with large depths and long flow duration b. Active headcuts and degradation in tributary channels
(0) Cover not exceeding 40% a. Noticeable litter b. If trees present understory not well developed	a. Less than 25% cultivated b. 50% or less recently logged c. Less than 50% intensively grazed d. Ordinary road and other Construction	(10) a. About 25% of the area characterized by rill and gully or landslide erosion b. Wind erosion with deposition in stream channels	a. Moderate flow depths, medium flow duration withoccasionally eroding banks or bed
(−10) a. Area completely protected by vegetation, rock fragments, litter b. Little opportunity for rainfall to reach erodible material	(−10) a. No cultivation b. No recent logging c. Low intensity grazing	(0) a. No apparent signs of erosion	(0) a. Wide shallow channels with flat gradients and short flow duration b. Channels in massive rock, large boulders, or well vegetated c. Artificially controlled channels
Factor value			

Subtotal (a) – (g) | Subtotal (h) – (i) | TOTAL RATING – – – = – – . – ac.ft./sq. mi./yr.

(Instructions on reverse)

Form 7310-16 (July 1971)

GENERAL INSTRUCTIONS

District Office prepares one copy for District file.

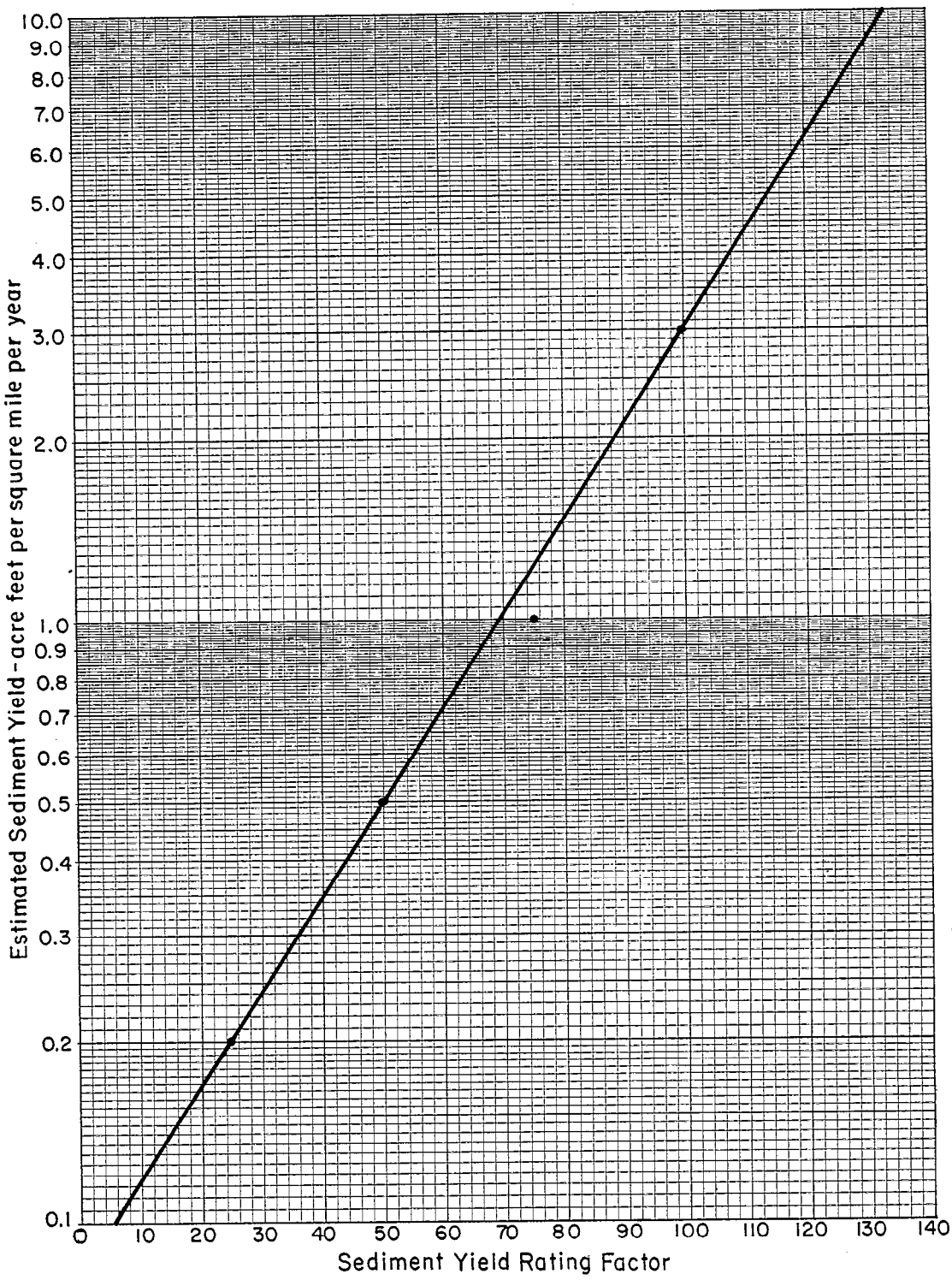
SPECIFIC INSTRUCTIONS

(Items not listed are self-explanatory)

Numbers indicate values assigned appropriate characteristics. Letters a, b, c, and d refer to independent characteristics to which full value may be assigned.

Interpolation between the sediment yield levels may be made. High values for columns (a) through (g) should correspond to high values for (h) and (i). If they do not, factors (a) through (g) should be reevaluated. If they do not correspond, then a special erosion condition exists.

Convert *Total Rating* to sediment yield by use of graph.



GPO 836-319

Future Sediment Yield

In estimating future sediment yield, average values as found in the EIS area were assumed for the columns on Form 7310-16. The only factors to be changed by the proposed action and alternatives would be ground cover and land use. The following values were assumed for these two columns:

	Ground Cover	Land Use
Proposed Action	0	10
Alternative 1	4	10
Alternative 2	-5	-10
Alternative 3	0	10
Alternative 4	0	10
Alternative 5	-2	7

The long-term sediment yield thus becomes:

	Average acre-feet per square mile per year	Total acre-feet per year	Total Change from Present acre-feet per year
Proposed Action	.72	948.67	- 92.31
Alternative 1	.83	1,093.61	+ 52.63
Alternative 2	.42	553.39	-487.59
Alternative 3	.72	948.67	- 92.31
Alternative 4	.72	948.67	- 92.31
Alternative 5	.6	790.56	-250.42

Future Sediment Yield from Construction of Range Improvements

In estimating sediment yield from construction activities, average values as found in the EIS area were assumed for all columns on Form 7310-16 except ground cover and land use. Values of 10 were assumed for these two columns due to the removal of ground cover during construction. A value of 5 was assumed for ground cover from seeding due to litter left on the ground. It was also assumed that sediment yield would not increase from brush control and juniper control since the soil surface would not be disturbed and the dead vegetation would be left on the ground. Using these assumptions, the sediment yield raises to 1.25 $ac\text{-}ft/mi^2/yr$ for all range improvements except seeding, which raises to .86 $ac\text{-}ft/mi^2/yr$. This amounts to a short term increase in sediment yield of .29 percent under the proposed action and Alternative 3 and .58 percent under Alternative 4.

Proposed Action and Alternative 3

Seeding

$24{,}593 \text{ ac} \times \frac{1 \text{ mi}^2}{640 \text{ ac}} \times .79 \text{ ac-ft} = 30.36 \text{ ac-ft}$

$24{,}593 \text{ ac} \times \frac{1 \text{ mi}^2}{640 \text{ ac}} \times .86 \text{ ac-ft} = 33.05 \text{ ac-ft}$

Fences, springs, pipelines, wells, guzzlers, reservoirs

$403.5 \text{ ac} \times \frac{1 \text{ mi}^2}{640 \text{ ac}} \times .79 \text{ ac-ft} = \text{SO ac-ft}$

$403.5 \text{ ac} \times \frac{1 \text{ mi}^2}{640 \text{ ac}} \times 1.25 \text{ ac-ft} = .79 \text{ ac-ft}$

33.05 ac-ft - 30.36 ac-ft = 2.69 ac-ft; .79 ac-ft - .50 ac-ft = .29 ac-ft. 2.69 + .29 = 2.98 ac-ft or .29 percent increase in sediment yield.

Alternative 4

Seeding

$50{,}885 \text{ ac} \times \frac{1 \text{ mi}^2}{640 \text{ ac}} \times .79 \text{ ac-ft} = 62.81 \text{ ac-ft}$

$50{,}885 \text{ ac} \times \frac{1 \text{ mi}^2}{640 \text{ ac}} \times .86 \text{ ac-ft} = 68.38 \text{ ac-ft}$

Fences, springs, pipelines, wells, guzzlers, reservoirs

$593 \text{ ac} \times \frac{1 \text{ mi}^2}{640 \text{ ac}} \times .79 \text{ ac-ft} = .73 \text{ ac-ft}$

$593 \text{ ac} \times \frac{1 \text{ mi}^2}{640 \text{ ac}} \times 1.25 \text{ ac-ft} = 1.16 \text{ ac-ft}$

68.38 ac-ft - 62.81 ac-ft = 5.57 ac-ft; 1.16 ac-ft - .73 ac-ft = .43 ac-ft. 5.57 + .43 = 6.00 ac-ft or .58 percent increase in sediment yield.

Appendix B3

Runoff

After reviewing the literature and talking with personnel at the Northwest Watershed Research Center, Agricultural Research Service in Boise, Idaho, the following assumptions on runoff were reached. The 30 percent decrease in runoff under ungrazed conditions Lusby (1970) found in Colorado is probably too high to apply to the EIS area since Colorado has a summer precipitation pattern. Most of the runoff in the EIS area is from spring snowmelt, often over frozen ground. Therefore, neither peak flows nor total runoff would decrease significantly. It was then assumed that runoff would decrease by 10 percent under Alternative 2, 5 percent under Alternative 5 and 3 percent under the proposed action and Alternatives 3 and 4, with no change occurring under Alternative 1.

Appendix B4

Criteria for Evaluating Wildlife Habitat in Riparian Zones

Introduction

A habitat inventory along 115 stream miles documented wildlife conditions with photos, vegetative measurements, wildlife sightings and pellet group counts. Some factors recorded were vegetative height; apparent trend of woody riparian vegetation; cover composition of grasses, forbs, shrubs and trees; canopy closure; potential canopy; and ungulate utilization.

Condition

Total riparian condition was given a general' rating at each vegetative community. The criteria for the ratings were based upon the variance from potential climax of the current successional stage. They ranged from excellent, where vigor and present biological potential were fully realized, or nearly so, to poor, where an extreme amount of disturbance had occured, naturally or otherwise. It was possible for a site with little or no vegetation to receive an excellent rating, due to bedrock, with no capacity to improve. On the other hand, an area could be classified as poor, if the potential for biomass production were in a declining state, despite a general abundance of green plant material.

Rating System (See Photo Examples)

Excellent - Little or no disturbance of plant community. Succession progressing or stable. Abundance of both new and old plant or stable.

Good - Succession progressing or stable. New and old growth common. Potential for increased plant density. Some patches of clipped vegetation. Seedstalks readily observable. Some woody plants hedged.

Fair - Noticable disturbance. Medium to high successional availability. Most woody plants hedged. Grass clipped to ground in places. Fair possibility of riparian habitat regression. (Does not indicate favorable condition).

Poor - Extreme disturbance. Large patches of bare soil, grass with mown appearance. Little or no production of key plant species. Woody species hedged or broken. Riparian vegetation regressing or nearly so.

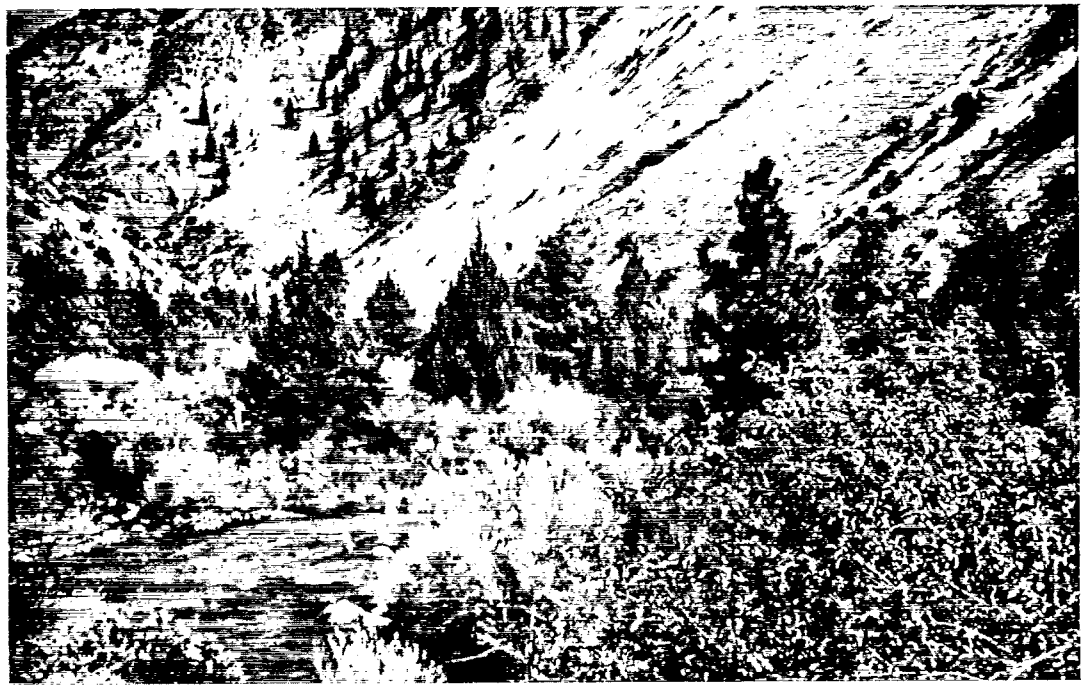
Trend

Estimation of trend was based on one time visual observations of woody riparian species such as willow.

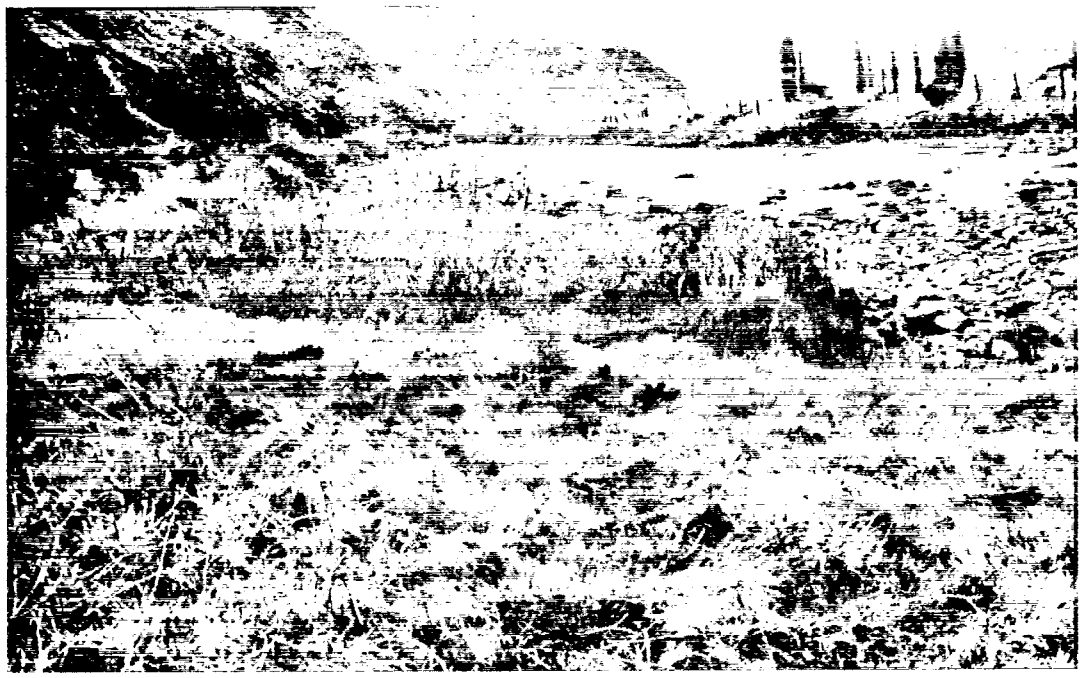
Up - Abundant young plants.

Static - Mature plants with little or no reproduction.

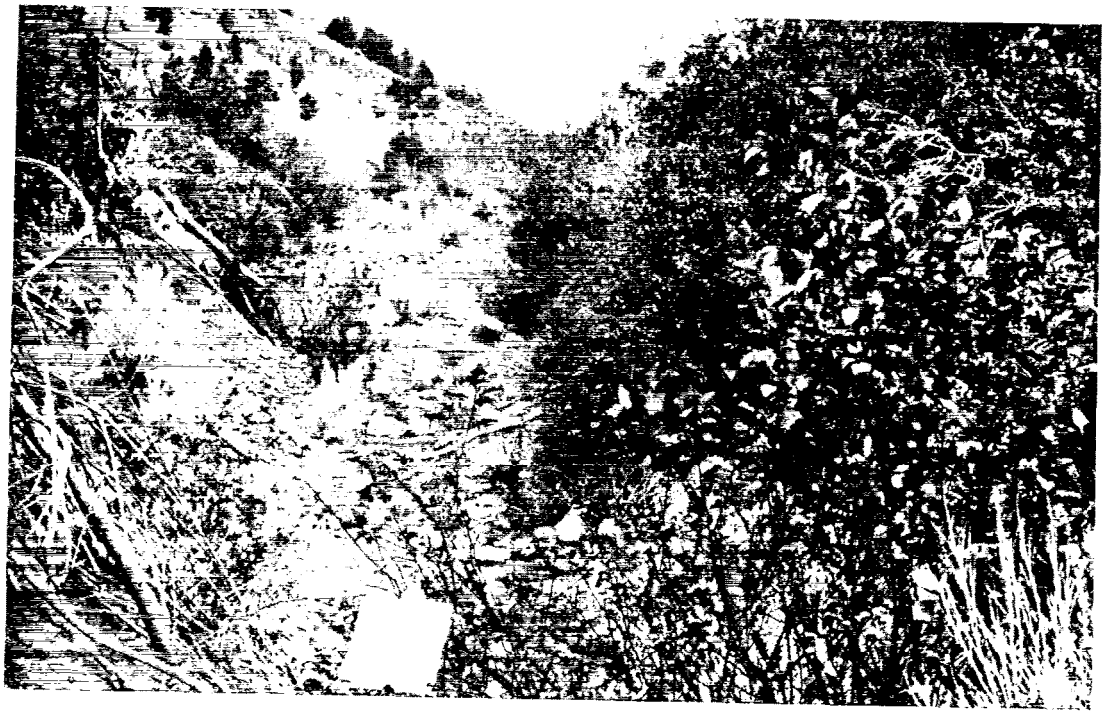
Down - Dead or dying mature plants with Little or no reproduction.



Riparian Zone - Excellent Wildlife Habitat



Riparian Zone - Good Wildlife Habitat



Riparian Zone - Fair Wildlife Habitat

Riparian Zone - Poor Wildlife Habitat

Appendix B5

Criteria for Evaluating Stream Conditions

Condition

Stream fisheries habitat ratings were obtained by walking along streams and documenting their physical and biological characteristics every one-quarter mile. Some factors measured and rated were channel stability, stream bank damage, physical habitat condition, water quality and aquatic insects. Written observations were supported with color photos. Each one-quarter mile section was given an overall rating. based on measurements and observations.

Habitat Quality		Definition
Poor	-	Natural stream habitat drastically altered; very little or no present trout production.
Fair	-	Stream substantially altered from natural conditions due to past or present activities, habitat either partially recovered or still decreasing in trend; some trout production but population is far below potential for stream.
Good	-	Stream only slightly altered from natural conditions, very limited habitat changes or almost complete recovery; satisfactory trout population for stream.
Excellent	-	Stream habitat virtually unchanged from natural conditions or is highly productive for aquatic life; trout production at potential for stream.

Trout Population Trend

Population trend was determined by considering habitat loss or gain of seasonal components essential to survival of trout. Factors considered are spawning habitat, rearing habitat and migration.

Trout Population

The trout populations in most streams were estimated visually. The following guidelines were used:

None	= 0
Scarce	= 0-5 per 100 feet
Common	= 5-50 per 100 feet
Abundant	= More than 50 per 10 feet

Appendix D

Existing Condition and Trend

Allotment Number	Ecosite Condition: Climax (Acres)	Late (Acres)	Middle (Acres)	Early (Acres)	No Status (Acres)	Apparent Trend: Upward (Acres)	Static (Acres)	Downward (Acres)
101	-0-	-0-	11,443	36,569	8,665	3,401	48,175	5,101
102	47	3,667	7,841	18,151	3,753	-o-	14,950	18,509
103	-o-	-o-	1,621	994	352	-o-	2,063	904
104	-o-	-o-	48	1,033	30	-o-	1,111	-0-
105	-o-	-o-	-o-	3,726	111	-o-	587	3,250
106	-O-	-o-	-o-	-o-	80	-o-	-o-	-o-
107	-o-	-o-	-o-	-o-	360	-o-	-o-	-o-
108	-o-	-o-	-o-	-o-	400	-o-	-o-	-o-
109	-o-	-o-	-o-	-o-	40	-o-	-o-	-o-
110	-o-	-o-	-o-	-o-	1,000	-o-	-o-	-o-
111	-o-	-0-	-o-	-o-	80	-o-	-o-	-o-
112	-o-	685	-o-	-o-	318	-o-	-o-	-o-
113	-o-	-0-	-o-	-o-	764	-o-	-o-	-o-
114	-o-	1,961	-o-	-o-	236	-o-	-o-	-o-
115	-o-	-o-	-o-	-o-	594	-o-	-o-	-o-
116	-o-	-o-	-o-	-o-	872	-o-	-o-	-o-
117	-o-	-o-	-o-	-o-	1,272	-o-	-o-	-o-
118	-o-	-o-	-o-	-o-	775	-o-	-o-	-o-
119	-o-	-0-	-o-	-o-	800	-o-	-o-	-o-
120	-o-	360	-o-	834	308	-o-	-o-	-o-
121	-o-	-0-	-0-	-0-	480	-o-	-o-	-o-
122	-o-	1,299	17	2	-0-	-o-	-o-	-o-
123	-o-	-o-	-o-	-o-	1,905	-o-	-o-	-o-
124	-o-	-o-	-o-	-o-	2,730	-o-	-o-	-o-
125	-o-	-0-	31	1,212	508	-o-	-o-	-o-
127	-o-	402	1,265	1,444	301	380	1,946	1,086
129	-o-	-o-	-0-	-0-	863	-o-	-o-	-o-
130	-o-	-o-	113	973	265	-o-	-o-	-o-
131	-o-	683	2,260	179	170	-o-	-o-	-o-
132	-o-	-o-	979	3,781	391	-o-	-o-	-o-
133	-o-	-o-	-o-	-o-	240	-o-	-o-	-o-
134	-o-	-o-	-o-	-o-	874	-o-	-o-	-o-
135	-o-	-o-	-o-	-o-	1,601	-o-	-o-	-o-
136	-o-	-o-	-o-	-o-	850	-o-	-o-	-o-
137	-o-	-o-	-0-	-o-	580	-o-	-o-	-o-
138	-o-	-0-	-0-	-o-	358	-o-	-o-	-o-
139	-o-	176	2,902	184	505	-o-	-o-	-o-
140	-o-	-o-	-o-	-o-	701	-o-	-o-	-o-
141	-o-	-o-	-02	-o-	320	-o-	-o-	-o-
142	-o-	-0-	-0-	-0-	40	-o-	-o-	-o-
143	-o-	35	501	543	133	-o-	-o-	-o-
144	-o-	-o-	-o-	-o-	1,299	-o-	-o-	-o-
145	-o-	-o-	-o-	-o-	900	-o-	-o-	-o-
146	-o-	-o-	-o-	-o-	360	-o-	-o-	-o-
147	-o-	-o-	-o-	-o-	80	-o-	-o-	-o-
148	-o-	141	153	936	436	-o-	-o-	-o-
149	-o-	-o-	-o-	-o-	817	-o-	-o-	-o-
150	-o-	-o-	-o-	-o-	628	-o-	-o-	-o-
151	-o-	-o-	-o-	-o-	480	-o-	-o-	-o-
152	-o-	-o-	-o-	-o-	272	-o-	-o-	-o-
153	-o-	1,233	-o-	-0-	399	-o-	-o-	-o-
154	-o-	74	-o-	39	397	-o-	-o-	-o-
155	-o-	-o-	-0-	-0-	240	-o-	-o-	-o-
157	-o-	-o-	2,343	1,217	7 6 8	-o-	-o-	-o-
501	-0-	6,458	10,776	20,233	8,885	-0-	41,712	4,640
202	594	15,352	31,467	13,158	16,295	3,845	62,265	10,756
203	3,436	11,195	10,462	14,448	18,007	-0-	48,914	8,634
204	667	1,497	571	2,217	1,986	3,755	3,183	-o-
205	-o-	9,999	8,673	2,209	2,003	12,022	10,862	-o-
206	-o-	11,636	14,582	5,233	3,645	-o-	-o-	-o-
208	-o-	-o-	-o-	-o-	440	-o-	-o-	-o-
209	-o-	-o-	-o-	-o-	1,280	-o-	-o-	-o-
210	-0-	-0-	123	87	5,390	-o-	-o-	-o-
211	644	6,602	7,616	2,566	5,784	-o-	20) 945	2,267
212	-o-	-0-	-0-	-0-	640	-o-	-0-	-0-
214	-o-	301	4,391	9,767	3,140	-o-	9,680	7,919
216	1,120	1,245	4,788	1,272	5,776	-o-	-0-	14,201
217	1,240	9,009	12,679	6,880	6,189	-o-	29,989	6,008
218	-o-	4,539	9,762	3,764	4,572	-o-	-o-	-o-
219	-o-	-0-	-0-	-0-	640	-o-	-o-	-o-
222	63	3,063	23,964	10,443	4,106	-o-	40,351	1,288

Existing Condition and Trend

Allotment Number	Climax (Acres)	Ecosite Condition: Late (Acres)	Middle (Acres)	Early (Acres)	No Status (Acres)	Apparent Trend: Upward (Acres)	Static (Acres).	Downward (Acres)
223	-0-	1,322	1,464	6,558	1,824	6,383	4,785	-0-
224	-0-	-o-	-o-	-o-	1,600	-o-	-o-	-0-
225	-0-	-o-	-o-	-o-	540	-o-	-o-	-0-
226	-0-	-o-	-o-	-0-	950	-o-	-o-	-0-
227	-0-	-o-	-o-	794	648	-o-	-o-	-0-
228	-0-	-o-	-o-	-o-	920	-o-	-o-	-0-
233	-0-	-o-	-o-	-o-	320	-o-	-o-	-0-
244	-0-	-0-	-0-	-0-	1,140	-o-	-o-	-0-
402	-0-	231	1,899	13,671	13,229	-o-	-o-	-0-
409	-0-	-o-	-o-	-o-	80	-o-	-o-	-0-
413	-0-	-o-	-o-	-o-	445	-o-	-o-	-0-
999	-0-	-0-	-0-	-0-	6,000	-o-	-0-	-0-
1001	166	2,394	11,209	8,350	1,358	-o-	22,264	1,213
1002	-0-	456	2,003	1,448	902	4,809	-0-	-0-
1003	1,221	1,631	1,422	-0-	599	-0-	3,973	900
1004	196	2,578	4,693	758	929	970	7,524	660
1005	-o-	-8	139	96	25	-O-	268	-o-
1006	-a-	341	3,934	4,818	697	-o-	9,790	-o-
1007	-o-	194	329	-0-	83	-0-	-o-	606
1008	-o-	-o-	297	67	-0-	364	-o-	-o-
1009	-o-	-o-	-0-	714	83	-o-	797	-o-
1010	-o-	-0-	202	-0-	51	-o-	253	-0-
1011	-o-	352	301	111	11	-o-	-0-	775
1012	-o-	14	104	-0-	-0-	-o-	118	-0-
1013	-o-	382	805	1,992	180	-o-	-0-	3,359
1014	-o-	-0-	198	45	290	-o-	533	-0-
1015	-0-	276	534	373	57	-o-	-o-	1,240
1016	4,278	2,088	883	426	3	-o-	-o-	7,678
1017	-o-	396	319	358	181	1,254	-o-	-o-
1018	-o-	-o-	540	300	164	1,004	-o-	-o-
1019	-o-	-o-	112	61	21	-o-	194	-o-
1020	-o-	1,140	1,092	337	364	-o-	2,933	-o-
1021	-o-	2,039	370	291	-o-	-o-	2,700	-0-
1022	-o-	35	210	-o-	-o-	-o-	-o-	245
1023	-o-	47	355	-o-	-o-	-0-	-o-	402
1024	-o-	109	392	-o-	-o-	501	-0-	-o-
1025	-o-	-0-	a	-o-	-0-	-o-	80	-o-
1026	-o-	402	470	85	23	-o-	-0-	980
1027	83	894	119	-o-	241	-o-	1,337	-o-
1028	-o-	34	49	-o-	22	-o-	105	-o-
1029	-o-	-0-	34	18	10	-o-	-0-	62
1030	17	84	122	-0-	78	-o-	301	-0-
1031	-o-	399	97	310	-0-	-o-	-o-	806
1032	-o-	371	441	-o-	142	-o-	-o-	954
1033	-o-	19	49	-o-	331	-0-	399	-o-
1034	-o-	-o-	18	-o-	-o-	18	-0-	-o-
1035	-o-	-o-	95	-o-	-o-	-o-	95	-o-
1036	-o-	130	26	-0-	54	-o-	210	-o-
1037	287	324	1,049	1,066	14	-o-	-0-	2,740
1038	-0-	-0-	29	230	82	-o-	341	-o-
1039	121	2,156	542	76	851	3,746	-0-	-o-
1040	-o-	1,611	1,149	390	49	-o-	3,199	-o-
1041	-o-	975	183	237	145	-o-	1,540	-o-
1043	-0-	6	58	-o-	16	-0-	-o-	80
1044	101	1,421	139	-o-	411	2,072	-o-	-0-
1045	-o-	21	127	459	-0-	-o-	-0-	607
1046	-o-	117	196	13	533	-o-	859	-o-
1048	32	1,240	903	140	739	-o-	3,054	-o-
1049	-o-	60	65	198	156	-o-	479	-0-
1050	-o-	-o-	152	16.8	-0-	-o-	-0-	320
1051	-o-	-o-	-0-	-0-	141	-o-	141	-o-
1052	-o-	31	196	572	. 86	-o-	885	-o-
1053	-o-	38	-o-	-o-	-0-	-o-	-0-	38
1054	-o-	-0-	-o-	-o-	110	-o-	110	-o-
1055	-o-	131	351	27	-0-	-o-	509	-o-
1056	-o-	-0-	-0-	155	49	-0-	-0-	204

Existing Condition and Trend

Allotment Number	Ecosite Condition: Climax (Acres)	Late (Acres)	Middle (Acres)	Early (Acres)	No Status (Acres)	Apparent Trend: Upward (Acres)	Static (Acres)	Downward (Acres)
1057	39	91	30	-0-	-0-	-0-	160	-0-
1058	-0-	-0-	40	-0-	-0-	-0-	40	-0-
1062	-0-	-0-	-o-	450	180	-0-	-o-	630
1063	-0-	-0-	-o-	242	-0-	-0-	-o-	242
1064	57	274	-o-	-0-	39	-0-	370	.-o-
1065	-o-	-o-	-o-	63	-0-	-0-	63	-o-
1066	-o-	-o-	-o-	45	693	738	-o-	-0-
1067	-0-	14	-o-	-0-	7	-0-	-o-	21
1301	834	8,743	3,725	1,608	3,795	18,705	-o-	-o-
1302	160	8,205	1,215	234	1,300	11,114	-o-	-o-
1318	427	2,518	1,921	2,887	1,981	9,734	-0-	-o-
1320	-o-	-0-	348	760	135	-o-	1,243	-o-
1326	-o-	18	2	-0-	-o-	-o-	20	-o-
1327	-o-	156	-0-	11	-o-	-o-	167	-o-
1329	-o-	151	222	57	90	-o-	520	-o-
1330	-0-	-0-	165	9	43	-o-	217	-o-
1333	64	4	-0-	-0-	16	-o-	84	-o-
2002	48	33	63	8	8	-o-	160	-o-
2003	-o-	10	-0-	200	-0-	-o-	210	-o-
2004	-o-	303	762	308	50	1,373	50	-o-
2005	131	752	1,494	127	628	3,132	-0-	-o-
2006	-o-	-0-	21	84	-0-	-o-	105	-o-
2007	-o-	154	416	37	6	-o-	613	-o-
2008	-o-	-o-	-o-	-o-	252	-o-	252	-o-
2010	-o-	-o-	-o-	-o-	201	-o-	-0-	-o-
2011	-0-	-0-	60	44	6	-0-	110	-o-
2012	327	150	267	1,879	263	2,886	-0-	-o-
2013	-0-	-0-	40	50	30	-o-	120	-o-
2015	231	1,134	646	88	21	-o-	2,120	-o-
2017	-0-	442	54	264	-o-	-o-	760	-o-
2019	607	1,145	74	250	-o-	-o-	2,076	-o-
2020	-o-	316	894	1,716	70	2,996	-0-	-o-
2021	-o-	-o-	-0-	-0-	400	-o-	400	-o-
2022	-o-	-o-	48	30	-0-	-o-	78	-o-
2023	-o-	-o-	122	225	3	350	-o-	-o-
2024	-o-	-o-	328	973	816	2,117	-o-	-o-
2025	-o-	-o-	-0-	356	199	-o-	555	-o-
2026	-o-	-o-	13	90	103	-o-	107	-o-
2027	-o-	-0-	-0-	107	68	-o-	175	-o-
2028	-o-	66	23	89	2	-o-	180	-o-
2030	-o-	76	278	202	-o-	556	-0-	-o-
2031	-o-	-0-	2,822	1,184	-o-	958	3,048	-o-
2032	-o-	80	648	2,674	457	-o-	3,859	-o-
2033	-o-	-0-	-0-	262	-0-	-o-	262	-o-
2034	-o-	307	572	753	387	-0-	1,779	240
2035	-o-	-o-	932	964	-0-	628	1,268	-o-
2036	-o-	-o-	109	488	123	-0-	720	-o-
2037	-o-	755	1,417	1,113	660	3,945	-0-	-o-
2038	-o-	-o-	-o-	155	-o-	-o-	155	-o-
2039	-o-	-o-	-o-	221	-o-	-o-	-o-	221
2040	-o-	-o-	250	940	242	1,432	-o-	-o-
2041	-o-	-o-	115	49	116	-0-	280	-o-
2042	-o-	-o-	-o-	-0-	319	319	-0-	-o-
2043	-o-	-o-	-o-	71	48	-0-	119	-o-
2048	-o-	27	211	378	231	847	-0-	-o-
2050	470	1,462	743	8	5	1,774	914	-o-
2051	-o-	-o-	-0-	-0-	62	-o-	62	-o-
2055	-o-	-o-	425	497	139	-o-	1,061	-o-
2060	-0-	112	145	28	155	-o-	440	-o-
2062	70	14	-0-	-o-	-0-	-o-	84	-o-
2063	-o-	80	40	-o-	80	-o-	200	-o-
2066	-o-	39	-o-	-0-	-0-	-o-	39	-o-
2067	163	15	-o-	49	35	-o-	262	-o-
2068	-0-	96	-0-	-0-	37	-o-	133	-o-
2069	8	1 1 2	128	48	-0-	-o-	296	-o-
2070	97	699	584	18	171	-o-	1,569	-o-
2071	-o-	-0-	-0-	-0-	1,787	-o-	1,787	-o-
2073	-o-	42	172	81	85	-o-	380	-o-
2074	409	2,156	6,799	3,269	929	10,808	2,754	-o-
2075	-0-	-0-	-o-	-0-	582	-0-	582	-o-

Existing Condition and Trend

Allotment Number	Ecosite Condition: Climax (Acres)	Late (Acres)	Middle (Acres)	Early (Acres)	No status (Acres)	Apparent Trend: Upward (Acres)	Static (Acres)	Downward (Acres)
2076	46	226	115	-o-	59	-0-	446	-o-
2077	-0-	719	51	-o-	-o-	770	-o-	-o-
2078	22	1,107	673	-o-	-o-	1,802	-o-	-o-
2079	60	110	-o-	-0-	-0-	-o-	170	-o-
2081	-0-	-o-	-o-	31	309	-o-	340	-o-
2083	21	-o-	103	-0-	54	-o-	178	-o-
2084	85	505	227	239	151	-o-	1,207	-o-
2085	-o-	-0-	-o-	-0-	545	545	-o-	-o-
2086	-o-	179	-o-	248	48	475	-o-	-o-
2087	-o-	-o-	-0-	-0-	586	-o-	586	-o-
2092	-o-	-o-	45	155	-0-	-o-	200	-o-
2094	-o-	-o-	-o-	19	116	-o-	135	-o-
2095	-o-	-o-	-o-	-0-	80	-o-	SO	-o-
2096	-o-	2,458	941	574	287	1,974	2,286	-o-
2097	-o-	-0-	-o-	-o-	40	-o-	-0-	-o-
2099	-o-	240	-o-	-o-	-0-	-o-	240	-o-
2100	-o-	-o-	-0-	-o-	40	-o-	-0-	-o-
2101	-o-	-o-	40	-o-	-0-	-o-	40	-o-
2102	-o-	103	59	19	4	-o-	185	-o-
2103	-o-	-0-	50	-0-	-0-	-o-	50	-o-
2104	-o-	31	95	107	17	-o-	250	-o-
2105	-o-	-o-	-o-	138	1,137	-o-	1,275	-o-
2106	-o-	-o-	-o-	64	136	-0-	200	-o-
2108	-o-	944	364	2,359	719	2,105	2,281	-o-
2109	-o-	28	2,113	2,533	1,229	5,103	800	-o-
2111	-o-	104	77	280	321	-o-	782	-o-
2112	-o-	70	385	557	43	-o-	1,055	-o-
2114	-o-	193	-0-	80	392	-0-	665	-o-
2115	-o-	-o-	44	253	1,178	727	748	-o-
2116	-o-	-o-	54	355	694	-o-	1,103	-o-
2118	-o-	-0-	329	16	111	-o-	456	-o-
2120	-o-	78	-o-	110	-0-	-o-	188	-o-
2121	-o-	-0-	-o-	-0-	376	-o-	376	-o-
2127	-o-	668	993	55	-o-	1,716	-0-	-o-
2128	-o-	908	937	656	-o-	1,363	1,138	-o-
2129	-o-	-o-	-0-	645	-0-	645	-0-	-o-
2130	-o-	-o-	31	130	193	-o-	354	-o-
2132	-o-	-o-	28	-o-	12	-o-	40	-o-
2139	-o-	-o-	80	-o-	-o-	-o-	80	-o-
2142	-0-	-0-	-0-	40	-o-	-o-	40	-o-
3001	74	4,708	5,123	11,232	4,348	-0-	22,410	3,075
3002	-0-	-0-	1,447	5,166	466	7,079	-o-	-o-
3003	69	1,724	3,872	1,083	1,699	8,447	-o-	-o-
3004	-o-	-0-	420	1,397	-0-	-o-	-o-	1,817
3005	-o-	2,142	1,923	1,737	693	-o-	-o-	6,495
3006	-o-	1,248	1,993	1,266	615	1,030	4,092	-o-
3007	-o-	-o-	-0-	-0-	2,875	-0-	2,875	-o-
3008	-o-	-o-	122	369	229	720	-0-	-o-
3009	-o-	-o-	-o-	-0-	533	-o-	533	-o-
3010	-o-	-o-	-o-	40	-0-	-o-	40	-o-
3011	-o-	12	-0-	313	5	-o-	330	-o-
3012	79	1,630	679	1,655	766	-o-	4,809	-o-
3014	-o-	312	294	4,697	-0-	5,303	-0-	-o-
3015	-o-	224	722	657	7	-o-	1,610	-o-
3016	-o-	-o-	-o-	-o-	419	-o-	419	-o-
3017	-o-	-o-	-o-	-o-	131	-0-	131	-o-
3018	-o-	-o-	361	1,193	405	1,739	-0-	-o-
3019	-o-	-o-	-0-	30	-0-	-o-	30	-o-
3021	-0-	190	474	363	101	-o-	1,128	-o-
3022	32	40	285	1,218	104	-o-	1,292	387
3024	-o-	-o-	-o-	104	14	-o-	118	-o-
3025	-o-	-o-	-o-	289	39	-o-	328	-o-
3026	39	1,294	2,416	4,181	909	-o-	8,839	-o-
3027	-o-	-0-	-0-	-0-	40	-o-	40	-o-
3028	-o-	56	74	77	84	-o-	291	-o-
3029	-o-	-o-	600	1,104	812	-o-	2,516	-o-
3030	-o-	-o-	-o-	-o-	270	-o-	270	-o-
3032	-0-	-0-	-o-	-o-	40	-o-	40	-o-
3037	170	345	65	87	17	-o-	684	-o-
3041	-o-	-o-	6	22	12	-o-	40	-o-
3043	-o-	-o-	-o-	-o-	45	-o-	45	-0-

Existing Condition and Trend

Allotment Number	Climax (Acres)	Ecosite Condition: Late (Acres)	Middle (Acres)	Early (Acres)	No Status (Acres)	Apparent Trend: Upward (Acres)	Static (Acres)	Downward (Acres)
3045	-o-	102	-0-	-0-	44	-o-	146	-o-
3047	-o-	-o-	7	129	-o-	-o-	136	-o-
3048	-o-	-o-	-0-	40	-o-	-o-	40	-0-
3049	-o-	-o-	484	1,215	··299	-o-	1,648	350
5001	-0-	-o-	-0-	-o-	400	-0-	400	-o-
5014	1,830	443	25	-o-	311	2,609	-0-	- o -
5080	-o-	-o-	-o-	-o-	180	-o-	80	-o-
5133	-o-	-o-	-o-	-o-	125	-o-	125	-o-
5137	-o-	38	-o-	42	-0-	-o-	80	-o-
5138	-o-	-0-	-o-	-0-	40	-o-	40	-0-
5201	-o-	345	167	2,735	-0-	-o-	-o-	3,247
5202	-o-	125	484	481	202	-o-	-o-	1,292
5203	-o-	-o-	-o-	-0-	80	-o-	80	-0-
5204	-o-	-o-	-o-	811	248	-o-	-0-	1,059
5205	-o-	-0-	-0-	328	22	-o-	350	-o-
5206	-o-	222	277	292	368	-o-	1,159	-o-
5207	-o-	-o-	-o-	80	-o-	-o-	80	-o-
5208	-o-	-o-	-o-	75	-o-	-o-	75	-o-
5209	-o-	145	934	1,248	471	2,798	-0-	-o-
5210	-o-	-0-	-0-	-0-	29	-o-	29	-o-
5211	-o-	70	74	375	131	-o-	650	-o-
5212	-o-	-0-	-0-	-0-	128	-0-	-o-	-o-
5215	-o-	253	2,007	3,181	1,179	6,620	-o-	-o-
5216	-o-	33	599	28	9	-o-	669	-o-
5217	-o-	-o-	-o-	-0-	120	-o-	120	-o-
5218	-o-	-o-	-o-	128	32	-o-	160	-o-
5219	-o-	-o-	-0-	327	-0-	-o-	327	-o-
5220	-o-	-o-	61	-o-	15	-o-	76	-o-
5221	-o-	-o-	-o-	-o-	161	-o-	161	-o-
5222	-o-	-o-	-o-	-o-	40	-o-	40	-o-
5223	-o-	-0-	-o-	-o-	200	-o-	200	-o-
5225	-o-	-0-	-o-	39	26	-o-	65	-o-
5226	-o-	32	20	-0-	66	-o-	118	-o-
5227	-o-	-o-	18	207	10	-o-	235	-o-
5228	-o-	-o-	-o-	-o-	160	-o-	160	-o-
5230	-o-	-o-	-o-	-o-	200	-o-	200	-o-
5233	-o-	-o-	14	14	4	-o-	32	-o-
5234	-o-	-0-	-0-	-o-	341	-O-	341	-o-
5235	54	228	58	-o-	15	- o -	355	-o-
5236	-o-	-o-	-o-	-o-	288	-o-	288	-o-
5238	-o-	-o-	-o-	-o-	37	-o-	37	-o-
5303	474	174	109	-o-	179	-o-	936	-o-
5304	-0-	228	48	-o-	16	-o-	292	-o-
5305	24	-o-	40	-o-	6	-o-	70	-o-
5306	-o-	-o-	-o-	-o-	93	-o-	93	-o-
5307	-o-	-o-	-o-	-0-	120	-o-	120	-o-
5309	-o-	-o-	-0-	32	8	-o-	40	-o-
5310	-o-	-o-	37	195	47	-o-	279	-o-
5311	-o-	-o-	2,059	135	34	-o-	-0-	-o-
5312	-o-	-0-	355	-0-	-0-	-o-	355	-o-
5313	-o-	409	950	8	57	-o-	1,424	-o-
5316	-o-	37	85	-o-	-o-	-o-	122	-o-
5319	-o-	710	-o-	-o-	-o-	-o-	710	-o-
5321	-o-	-0-	-o-	-o-	2,631	-o-	1,071	-o-
5322	-o-	-o-	-o-	-o-	54	-o-	54	-o-
5323	-o-	-o-	-o-	-o-	729	-o-	729	-o-
5325	-o-	-o-	-o-	-o-	166	-o-	166	-o-
5334	-o-	-o-	-o-	-o-	72	-o-	72	-o-
5335	-o-	-o-	-o-	-o-	80	-o-	80	-o-
5337	-o-	-o-	-o-	-o-	31	-o-	31	-o-
5339	-o-	-o-	-o-	-o-	120	-o-	40	-o-
5340	-o-	-o-	-o-	-o-	40	-o-	40	-o-
5342	-o-	71	2	-o-	-0-	-o-	73	-o-
9999	-o-	-0-	-0-	-0-	8,219	-o-	-0-	-o-
	17,493	179,246	282,848	301,424	219,365	172,506	526,000	127,508

Appendix E

Composition of Ecosite Groups

Ecosite Group	Acronym	Ecosite
G-l (Grassland - 1)	DRH	Droughty rolling hills
	SDS	Steep droughty south
G-2 (Grassland - 2)	ARH	Arid rolling hills
	DSE	Droughty south exposure
	DNE	Droughty north exposure
	DT	Droughty terrace
G-3 (Grassland - 3)	ss	Steep south
	SE	South exposure
	SN	Steep north
	NE	North exposure
	RH	Rolling hills
	SDN	Steep droughty north
S-l (Shrubland - 1)	MSc	Moist scabland
	sc	Scabland
W-l (Woodland - 1)	PPDF	Ponderosa pine/Douglas-fir
W-2 (Woodland-2)	PPID	Ponderosa pine/Idaho fescue
	JPB	Juniper/ponderosa pine/ Douglas-fir
M-l (Minor sites)	MB	Moist bottom
	MR	Mahogany rockland
	SMB	Semi-moist bottom
	SB	Sodic bottom
	JSE	Juniper south exposure
	SSE	Shrubby south exposure
	sss	Steep shrubby south
	SSN	Steep shrubby north
	MRH	Moist rolling hills
	BSc	Biscuit scabland
	CT	Clay terrace
	PDG	Pine/Douglas-fir/pinegrass
	SPDG	Steep pine/Douglas-fir/pinegrass
	PDG	Douglas-fir/grand fir/pine
	DP	Steep grand fir/Douglas-fir
	SA	Subalpine
N-l (Nonproductive)	R	Rockland
	LB	Lacustrine breaks

Appendix F

Commonly Used Plant Symbols

Symbol	Scientific Name	Common Name
Agsp	*Agropyron spicatum*	Bluebunch wheatgrass
Arar	*Artemisia arbuscula*	Short sagebrush
Arri	*Artemisia rigida*	Stiff sagebrush
Artr	*Artemisia tridentata*	Big sagebrush
BROMO	*Bromus spp.*	Brome grass
Brte	*Bromus tectorum*	Cheatgrass
Cage	*Carex geyeri*	Elk sedge
Caru	*Calamagrostis rubescens*	Pinegrass
Pipo	*Pinus ponderosa*	Ponderosa pine
Pocu	*Poa cusickii*	Cusick bluegrass
Posa	*Poa sandbergii*	Sandberg bluegrass
Sihy	*Sitanion hystrix*	Squirreltail

Appendix G

Temperatures and Precipitation for Selected Weather Stations

	Vale (2,240 ft.> 1/		Beulah (3,270 ft.>		Nyssa (2,175 ft.>	
	Precipitation (inches)	Temperature (° F)	Precipitation (inches)	Temperature (° F)	Precipitation (inches)	Temperature (° F)
January	1.19	28.0	1.54	26.2	1.26	28.3
February	.91	34.9	1.06	32.7	1.04	34.9
March	.67	42.1	.83	39.1	.76	42.1
April	.67	50.4	.64	47.7	.75	50.9
May	1.15	58.9	1.16	56.0	1.08	59.6
June	.90	66.0	1.18	62.9	.96	66.8
July	.12	74.5	.31	72.0	.11	75.5
August	.40	71.6	.37	70.1	.37	72.6
September	.50	61.8	.44	61.5	.47	62.7
October	.77	50.6	.90	49.8	.85	51.0
November	1.03	38.9	1.35	37.7	1.20	39.1
December	1.10	31.7	1.57	30.0	1.28	31.9
	9.41	50.8	11.35	48.8	10.13	51.2
	Baker (3,444 ft.)		Halfway (2,670 ft.)		Huntington (2,130 ft.>	
January	1.04	26.3	3.16	23.3	1.83	29.3
February	.74	32.2	2.29	29.5	1.34	35.8
March	.91	37.6	1.54	37.1	.75	43.0
April	.79	45.4	1.49	46.4	.76	52.1
May	1.63	53.1	1.77	54.0	.99	61.4
June	1.52	59.6	1.72	60.2	.91	69.2
July	.55	67.8	.35	68.0	.19	80.0
August	.52	66.1	.51	66.1	.38	77.7
September	.49	58.7	.81	58.3	.47	67.0
October	.72	48.3	1.35	47.8	.73	56.4
November	1.11	36.9	2.55	36.2	1.42	40.2
December	1.23	29.4	3.24	27.5	1.90	32.3
	11.25	46.8	20.78	46.2	11.67	53.5

1/ St at ion elevation

Source: U.S. Department of Commerce, National Oceanic and Atmospheric Administration 1978

Appendix H

Properties, Qualities, and Acreages of the Soils in the Ironside EIS Area

Soil Unit	Classification Subgroup--Family	Slope Gradient (percent)	Bedrock or Underlying Material	Permeability	Effective Root Depth (in)	Available Water Holding Capacity	Total Acres
1	(Mixed Alluvial Land)	o-15	Alluvium	Rapid-Slow	48+	Mod.-High	8,013
R	(Rockland)	o-75	Volcanic	v. Slow	o-4		79,091
RW	(Riverwash)	o-2	Sand & Gravel	Rapid-Slow	48+	Mod.	720
56	Xerollic Durargid--Fine, montmorillonitic, mesic	o-15	Lacustrine	Slow	20-40	LOW	5,486
360	Xerollic Raplargid--Fine, montmorillonitic, mesic	O-65	Lacustrine	Slow	20-40	Low	10,067
362	Xerollic Camborthid--Loamy, mixed, mesic	15-65	Lacustrine	M. Slow	10-20	LOW	3,721
376	Xerollic Haplargid--Fine, montmorillonitic, mesic	o-35	Volcanic	Slow	20-40	LOW	14,989
384	Lithic Haploxeroll--Loamy-skeletal, mixed, mesic	o-15	Volcanic	Mod.	4-12	v. Low	55,768
504	Xeric Torrifluvent--Fine-silty, mixed, nonacid, mesic	o-15	Lacustrine	Mod.-Rapid	48	LOW	6,297
505	Xerert--Very fine, mont-morillonitic, mesic	o-35	Lacustrine	v. Slow	20-40	Low	4,939
506	Xerollic Camborthid--Coarse-silty, mixed, mesic	o-35	Lacustrine	M. Rapid	48	Low	4,337
507	Xerollic Camborthid--Coarse-loamy, mixed, mesic	O-65	Lacustrine	M. Rapid	40-60	LOW	13,610
508	Xerollic Haplargid--Fine-loamy, mixed, mesic	o-35	Lacustrine	M. Slow	20-40	LOW	5,046
521	Pachic Haploxeroll--Loamy-skeletal, mixed, frigid	15-65	Volcanic	Mod.	20-40	Low	46,812
903	Typic Haploxeroll--Loamy-skeletal, mixed, mesic	O-65	Metavol-canic	Mod.	20-40	v. Low	9,431
904	Aridic Haploxeroll--Loamy-skeletal, mixed, mesic	15-65	Volcanic	Mod.	20-40	v. Low	3,943
905	Lithic Argixeroll--Clayey-skeletal, montmorillonitic, mesic	O-65	Volcanic	SLOW	12-20	v. Low	5,853
906	Lithic Haploxeroll--Loamy-skeletal, mixed, mesic	15-65	Volcanic	M. Rapid	LO-20	v. Low	66,802
907	Lithic Haploxeroll--Loamy-skeletal, mixed, mesic	O-65	Volcanic	Mod.	10-20	v. Low	15,390
908	Typic Haploxeroll--Loamy-skeletal, mixed, mesic	15-65	Volcanic	M o d .	20-40	v. Low	1,454
909	Xerollic Durorthid--Loamy, mixed, mesic	o-15	Lacustrine	Mod.	20-40	Low	1,981

Soil Unit	Classification Subgroup--Family	Gradient (percent)	Underlying Material	Permeability	Root Depth (in)	Water Holding Capacity	Total Acres
911	(Lacustrine Breaks)	O-65	Lacustrine	M. Rapid-v. Slow	O-30	v. Low	26,419
912	Typic Argixeroll--Clayey-skeletal, montmorillonitic, mesic	O-65	Volcanic	Slow	20-40	v. LOW	3,528
913	Pachic Haploxeroll--Coarse-loamy, mixed, frigid	O-65	Granite	M. Rapid	20-40	v. Low	4,029
914	Cumulic Haplòxeroll--Loamy-skeletal, mixed, mesic	o-15	Volcanic & Lacustrine	M. Rapid	48	Low	1,080
915	Lithic Haploxeroll--Loamy, mixed, frigid	O-65	Granite	Mod.	10-20	v. LOW	3,930
916	Lithic Haploxeroll--Loamy-skeletal, mixed, frigid	O-65	Volcanic	Mod.	10-20	v. LOW	53,745
918	Lithic Haploxeroll--Loamy, mixed, frigid	o-35	Volcanic	Slow	10-20	v. LOW	5,519
919	Lithic Argixeroll--Clayey-skeletal, montmorillonitic, frigid	o-15	Volcanic	M. Slow	4-12	v. Low	7,171
921	Xerollic Durargid--Fine, montmorillonitic, mesic	o-15	Volcanic & Lacustrine	M. Slow	20-40	Mod.	4,176
922	Aridic Argixeroll--Fine, montmorillonitic, mesic	o-35	Volcanic	Slow	20-40	Mod.	953
923	Xerollic Durargid--Clayey, montmorillonitic, mesic	o-15	Volcanic & Lacustrine	Slow	10-20	v. Low	180
924	Xerollic Camborthid--Fine-silty, mixed, mesic	O-65	Lacustrine	M. Slow	20-40	Mod.	38,585
925	Xerollic Camborthid--Fine-loamy, mixed, mesic	o-35	Granite	M. Slow	10-20	Low	4,885
927	Aridic Argixeroll--Clayey-skeletal, montmorillonitic, mesic	O-65	Volcanic	Slow	20-40	v. Low	9,880
929	Lithic Argixeroll--Clayey-skeletal, montmorillonitic, mesic	O-65	Volcanic	Slow	6-20	v. Low	46,582
930	Pachic Argixeroll--Clayey-skeletal, montmorillonitic, frigid	o-35	Volcanic	Slow	20-40	Low	1,700
931	Aridic Argixeroll--Fine, montmorillonitic, mesic	o-35	Lacustrine	M. Slow	20-40	Mod.	34,136
932	Aridic Haploxeroll--Fine-silty, mixed, mesic	15-35	Lacustrine	M. Slow	20-40	Mod.	500
933	Aridic Argixeroll--Clayey, montmorillonitic, mesic	o-35	Volcanic	Slow	IO-20	LOW	56,996
934	Lithic Argixeroll--Clayey-skeletal, montmorillonitic, frigid	O-65	Volcanic	Slow	10-20	v. LOW	11,393
935	Pachic Argixeroll--Fine, montmorillonitic, frigid	O-65	Volcanic	SLOW	20-40	Low	38,050
936	Ultic Argixeroll--Loamy-skeletal, mixed, frigid	O-65	Volcanic	M. Rapid	20-40	Low	1,996
937	Xerollic Camborthid--Loamy-skeletal, mixed, mesic	O-65	Metasedimentary	Mod.	IO-20	v. LOW	11,154

Soil Unit	Classification Subgroup--Family	Gradient (percent)	Underlying Material	Permeability	Root Depth (in)	Water Holding Capacity	Total Acres
938	Lithic Haploxeroll--Loamy-skeletal, mixed, frigid	0-65	Metavolcanic	Mod.	10-20	v. Low	23,911
939	Typic Haploxeroll--Loamy-skeletal, mixed, frigid	0-65	Metavolcanic	Mod.	20-40	v. Low	17,390
940	Aridic Durixeroll--Fine, montmorillonitic, mesic	o-35	Volcanic & Lacustrine	Slow	20-40	LOW	2,847
944	Pachic Haploxeroll--Fine, montmorillonitic, frigid	o-15	Lacustrine	Slow	48	Mod.	4,795
945	Vertic Argixeroll--Very fine, montmorillonitic, mesic	o-35	Volcanic & Lacustrine	v. Slow	20-40	LOW	2,870
947	Pachic Haploxeroll--Loamy-skeletal, mixed, frigid	0-65	Metavolcanic	M. Slow	20-40	LOW	4,966
948	Ultic Haploxeroll--Loamy-skeletal, mixed, frigid	15-35	Metasedimentary	Mod.	10-20	v. LOW	157
949	Ultic Haploxeroll--Loamy-skeletal, mixed, frigid	15-35	Metasedimentary	Mod.	20-40	v. Low	238
950	Lithic Haploxeroll--Loamy-skeletal, mixed, mesic	0-65	Metavolcanic	Mod.	10-20	v. LOW	12,929
951	Xerollic Camborthid--Loamy-skeletal, mixed, mesic	15-65	Metasedimentary	Mod.	20-40	LOW	2,958
953	Pachic Ultic Haploxeroll--Loamy-skeletal, mixed, frigid	15-65	Volcanic	M. Rapid	20-40	LOW	6,752
955	Pachic Ultic Haploxeroll--Coarse-loamy, mixed, frigid	15-65	Granite	Mod.	20-40	v. Low	1,470
956	Lithic Ultic Haploxeroll--Loamy, mixed, frigid	15-35	Granite	M. Rapid	10-20	v. Low	1,658
957	Lithic Ultic Haploxeroll--Loamy-skeletal, mixed, frigid	15-65	Volcanic	M. Rapid	10-20	v. Low	4,344
958	Pachic Ultic Haploxeroll--Coarse-loamy, mixed, frigid	35-65	Granite	Mod.	40+	v. Low	746
960	Xerollic Haplargid--Fine, montmorillonitic, frigid	o-35	Lacustrine	Slow	20-40	LOW	1,515
961	Aridic Argixeroll--Fine-silty, mixed, mesic	0-65	Lacustrine	M. Slow	20-40	v. Low	64,062
962	Entic Cryumbrept--Coarse-loamy, mixed	15-65	Granite	Mod.	20-40	v. Low	986
963	Lithic Cryumbrept--Loamy-skeletal, mixed	15-65	Granite	Mod.	12-20	v. Low	1,102
964	Xerollic Haplargid--Fine, montmorillonitic, mesic	o-35	Volcanic	v. Slow	20-40	LOW	1,509
965	Liehic Ultic Haploxeroll--Loamy-skeletal, mixed, frigid	15-65	Metavolcanic	Mod.	10-20	v. Low	1,856
966	Ultic Haploxeroll--Loamy-skeletal, mixed, frigid	15-65	Metavolcanic	Mod.	20-40	v. Low	678
967	Pachic Ultic Haploxeroll--Loamy-skeletal, mixed, frigid	15-65	Metavolcanic	Mod.	20-40	LOW	1,718

Soil Unit	Classification Subgroup--Family	Gradient (percent)	Underlying Material	Permeability	Root Depth (in)	Water Holding Capacity	Total Acres
970	Pachic Haploxeroll--Fine, montmorillonitic, mesic	o-15	Alluvium	Slow	48	Mod.	512
971	Lithic Xerollic Camborthid--Loamy, mixed, mesic	O-65	Volcanic	Mod.	10-20	v. Low	3,613
973	Aridic Durixeroll--Fine, montmorillonitic, mesic	o-15	Alluvium	M. Slow	18	Low	5,067
974	Typic Argixeroll--Clayey-skeletal, montmorillonitic, mesic	15-35	Metasedimentary	Slow	20-40	Low	798
975	Pachic Ultic Haploxeroll--Fine-silty, mixed, frigid	15-65	Volcanic	Mod.	20-40	Mod.	515
976	Typic Haploxeroll--Loamy-skeletal, mixed, mesic	15-65	Metasedimentary	Mod.	10-20	v. Low	4,767
977	Typic Haploxeroll--Loamy-skeletal, mixed, mesic	15-65	Metasedimentary	Mod.	20-40	v. Low	3,600
978	Typic Haploxeroll--Loamy-skeletal, mixed, frigid	15-65	Metasedimentary	Mod.	10-20	v. Low	2,187
979	Typic Haploxeroll--Loamy-skeletal, mixed, frigid	O-65	Metasedimentary	Mod.	20-40	v. Low	1,738
980	Lithic Haploxeroll--Loamy-skeletal, mixed, mesic	o-15	Volcanic	Mod.	4-12	V. Low	2,754
981	Typic Argixeroll--Clayey-skeletal, montmorillonitic, frigid	O-65	Volcanic & Granite	M. Slow	20-40	Low	3,176
982	Typic Argixeroll--Fine-loamy, mixed, frigid	15-35	Volcanic	Mod.	40+	Mod.	969
984	Lithic Haploxeroll--Loamy-skeletal, mixed, frigid	o-35	Volcanic	Mod.	10-15	v. Low	22,491
985	Typic Argixeroll--Clayey-skeletal, montmorillonitic, frigid	15-65	Volcanic & Granite	Slow	10-20	v. Low	214
986	Lithic Haploxeroll--Loamy-skeletal, mixed, mesic	15-65	Metavolcanic	Mod.	10-20	v. Low	2,335
987	Typic Haploxeroll--Loamy-skeletal, mixed, mesic	15-65	Metavolcanic	Mod.	20-40	Low	1,500
989	Pachic Haploxeroll--Fine-silty, mixed, mesic	15-35	Volcanic	M. Slow	20-40	Mod.	554
990	Pachic Argixeroll--Fine-loamy, mixed, frigid	15-35	Volcanic	M. Slow	20-40	Low	602
991	Xerollic Camborthid--Fine-silty, mixed, mesic	15-35	Volcanic & Lacustrine	M. Slow	20-40	Mod.	219
993	Pachic Haploxeroll--Coarse-loamy, mixed, mesic	15-65	Granite	M. Rapid	20-40	Low	1,404
995	Lithic Haploxeroll--Loamy, mixed, mesic	15-65	Granite	Mod.	10-20	v. Low	1,752
996	Xerollic Haplargid--Clayey-skeletal, montmorillonitic, mesic	O-65	Metasedimentary	Slow	10-20	v. Low	4,359
998	Typic Haploxeroll--Fine-loamy, mixed, mesic	o-15	Volcanic	Mod.	20-40	Low	2,160
							965,686

Source: USDI, BLM 1978

M - Moderately
V - Very

Appendix I

Soil Units Shown on Figure 2-4, General Soils

Soil Divisions on Figure 2-4	Soil Units Described in Appendix H
Alluvial	1, RW, 504, 970, 973.
Lacustrine	56, 360, 362, 505, 506, 507, 508, 909, 911, 921, 924, 931, 932, 944, 945, 960, 961.
Volcanic	376, 521, 904, 905, 906, 907, 908, 912, 914, 916, 918, 922, 923, 927, 929, 930, 933, 934, 935, 940, 964, 971, 975, 981, 982, 985, 989, 990, 991, 998.
Very shallow volcanic	384, 919, 980, 984, R.
Upland volcanic and metamorphic	903, 937, 938, 939, 947, 948, 949, 950, 951, 965, 966, 967, 974, 976, 977, 978, 979, 986, 987, 996.
Granite	913, 915, 925, 955, 956, 962, 963, 993, 995.

Appendix J

Range of Selected Water Quality Parameters

	Temperature (° F)	Dissolved Oxygen (mg/l)	Fecal Coliform (counts/100 ml)	pH	Turbidity (JTU) 1/	Number of Samples
N. Fk. Malheur River at Beulah Rd. Br.	55-72	7.9 - 11.7	45-620	8.0 - 8.3	5-15	4 (1971-1977)
Malheur River at Harper	54-76	8.3 - 16.4	45-230	8.1 - 8.8	5-10	4 (1971-1977)
Malheur River at Owyhee Rd. Bridge	37-79	7.0 - 13.6	60-2,400	7.8 - a.5	15-20	18 (1970-1977)
Bully Creek at Hwy. 20	41-72	7.1 - 15.7	45-7,000	7.7 - 8.3	6-30	12 (1971-1977)
Willow Creek at Vale	46-75	7.0 - 15.9	230-2,300	8.0 - a.4	4-120	8 (1967-1977)
Powder River 4.5 miles No. of Baker	32-84	2.2 - 15.6	45-2,400	6.6 - 9.2	--	68 (1960-1975)
Power River at Hwy. 86 Bridge	32-83	6.6 - 15.4	45-2,400	7.5 - a.4	2-44	37 (1967-1979)
Burnt River at Huntington	32-80	7.9 - 13.8	45-620	7.9 - 8.5	2-52	33 (1967-1979)

1/ Jackson Turbidity Units

Source: ODEQ 1979. Unpublished computer printout.

Appendix K

Existing Sediment Yield

Allotment Number	Public Land (Square Miles)	Total Acre-feet Per Year	Weighted Average Acre-feet per Square Mile Per Year
101	87.90	114.58	1.30
102	49.60	42.70	.86
103	4.09	2.46	.60
104	1.69	1.77	1.05
105	5.99	6.78	1.13
122	2.06	.72	.35
125	2.38	2.02	.85
127	4.86	2.67	.55
130	2.00	1.35	.68
131	4.88	2.16	.44
132	7.51	6.28	.84
139	5.10	3.13	.61
140 1/	-		
143	1.35	.68	.50
148	2.43	2.12	.87
157	6.40	6.80	1.06
201	65.58	45.38	.69
202	108.63	55.90	.51
203	64.43	40.34	.63
204	7.77	3.24	.42
205	32.68	13.05	.40
206	52.79	22.69	.43
211	29.97	11.39	.38
214	25.64	16.34	.64
216	13.67	5.06	.37
217	54.90	25.35	.46
218	30.96	17.79	.57
219 1/			
222	64.61	29.84	.46
223	15.00	5.33	.40
224 1/			
227	1.91	1.79	.94
402	42.84	43.58	1.02
409 1/			-
413 1/			-
1001	36.68	51.35	1.40
1002	7.51	8.64	1.15
1003	7.61	5.71	.75
1004	14.30	7.01	.49
1006	15.30	17.29	1.13
1007	.95	.43	.45
1009	1.25	.79	.63
1011	1.21	.40	.33
1013	5.25	11.55	2.20
1014	.83	.82	.99
1015	1.94	.74	.38
1016	12.00	2.88	.24
1017	1.96	1.23	.63
1018	1.57	.89	.57
1020	4.58	4.53	.99
1021	4.22	3.59	
1022	.38	.35	.92
1023	.63	.98	1.55
1024	.78	.64	.82
1025	.13	.09	.71
1026	1.53	1.26	.85
1032	1.49	.85	.57
1037	4.28	8.56	2.00
1039	5.85	3.57	.61
1040	5.00	2.25	
1041	2.41	.65	.27
1044	3.24	1.85	.57
1046	1.34	.76	.57
1048	4.77	4.39	.92
1055	.80	.76	.95
1064	.58	.53	.92
1065	.10	.09	.92
1066	1.15	1.27	1.10
1301	29.23	13.45	.46
1302	17.37	14.76	.85
1318	15.21	10.04	.66
1320	1.94	1.44	.74
1326	.03	.01	.38
1327	.26	.11	.42
1329	.81	.81	1.00
1333	.13	.04	.32
2002	.77	.75	.98
2003	.33	.03	.10
2004	2.15	1.59	.74
2005	4.89	5.13	1.05
2012	4.48	3.23	.72
2015	3.31	.60	.18
2017	1.19	1.96	1.65
2019	3.24	.87	.27
2020	4.68	8.89	1.90
2021	.63	.46	.73

Allotment Number	Public Land (Square Miles)	Total Acre-feet Per Year	Weighted Average Acre-feet per Square Mile Per Year
2022	.12	.06	.53
2023	.55	.42	.77
2024	3.31	2.22	.67
2025	.87	2.00	2.30
2027	.27	.14	.50
2028	.28	.46	1.65
2030	.87	.50	.57
2031	6.26	17.53	2.80
2032	6.06	7.27	1.20
2034	2.80	4.34	1.55
2035	2.96	2.37	.80
2036	.94	.67	.71
2037	6.34	5.39	.85
2040	2.24	1.01	.45
2041	.39	.22	.57
2042	.50	.46	.92
2048	1.31	.55	.42
2050	4.20	2.65	.63
2055	1.67	1.62	.97
2070	1.93	4.44	2.30
2071	2.79	3.07	1.10
2074	21.19	27.55	1.30
2077	1.20	.38	.32
2078	2.82	1.92	.68
2081	.52	.91	1.75
2084	2.05	.94	.46
2085	.85	.81	.95
2086	.74	1.22	1.65
2094	.21	.19	.92
2096	6.64	8.30	1.25
2099	.38	.11	.29
2105	2.00	5.60	2.80
2108	6.85	20.55	3.00
2109	9.22	26.74	2.90
2111	1.22	.94	.77
2115	2.30	2.19	.95
2116	1.72	2.32	1.35
2127	2.74	.55	.20
2128	4.20	2.88	.68
2129	1.01	.69	.68
3001	39.82	25.09	.63
3002	11.06	10.51	.95
3003	13.20	a.98	.68
3004	2.84	3.12	1.10
3005	10.15	10.15	1.00
3006	8.00	10.00	1.25
3007 1/			
3008	1.06	.80	.75
3009 1/			
3011	.52	.27	.51
3012	7.51	7.51	1.00
3014	8.29	4.23	.51
3015	2.52	2.44	.97
3018	2.72	1.52	.56
3026	13.81	17.26	1.25
3029	3.93	2.00	.51
3047	.21	.16	.75
3049	3.12	2.31	.74
5201	5.07	5.58	1.10
5202	2.02	1.23	.61
5204	1.65	1.45	.88
5205	.55	.80	1.45
5206	1.81	2.08	1.15
5208	.12	.32	2.70
5209	4.37	3.71	.85
5212 1/	—		
5215	9.78	8.57	.87
5216	1.05	1.42	1.35
5220	.12	.05	.45
5221 1/			
5222 1/			
5223 1/			
5226	.18	10	.53
5230 1/			
5235	.55	.19	.35
5236 1/			
5303	1.46	.50	.34
5305	.11	.06	.53
5311	3.48	1.60	-.46
5313 1/	—		
5321 1/			
5325 1/			
5335 1/			
5339 1/			
5342	.11	.03	.31
Totals	1,317.60	1,040.98	.79

1/ No data available

Note: Only public land acres were used in calculating sediment yield, and only on allotments proposed for intensive management.

Appendix L

Beef Cow Enterprise Budgets

Table L-l Beef Cow Enterprise Budgets, Baker District Portion of EIS Area

Item	Less than 100 cows*			100-399 cows*			400-999 cows*			1,000 or more cows*		
	No.	Avg. Weight	Total Value	No.	Avg. Weight	Total Value	No.	Avg. Weight	Total Value	No.	Avg. Weight	Total Value
Sales 1/												
steer calves (@ $69.15/cwt.)	18	400	$ 4,979	81	400	$ 22,405	225	400	$ 62,235	528	400	$146,045
Heifer calves (@ $56.25/cwt.)	11	375	2,320	47	375	9,914	131	375	27,633	301	375	63,492
Cull cows (@ $36.28/cwt.)	6	1,000	2,177	30	1,000	10,884	84	1,000	30,475	188	1,000	61,386
Total Sales			$ 9,476			$ 43,203			$120,343			$270,923
Sales per cow			$ 225.62			$ 214.94			$ 215.28			$ 202.18
Cash Costs 2/	Total Value	Value/ cow 3/		Total Value	Value/ cow 3/		Total Value	Value/ cow 3/		Total Value	Value/ Cow 3/	
BLN grazing fee 4/	$ 127	$ 3.01		$ 610	$ 3.04		$ 1,138	$ 2.04		$ 1,013	$ .76	
Forest grazing fee	--	--		763	3.80		668	1.20		3,280	2.45	
Other range lease/rent	105	2.49		102	.51		622	1.11		3,113	2.32	
Hay 5/	1,289	30.70		6,159	30.64		17,133	30.65		46,673	34.83	
Irrigated pasture 5/	543	12.92		1,393	6.93		5,104	9.13		2,916	2.18	
Salt and minerals	32	.77		165	.82		794	1.42		1,903	1.42	
Concentrate feeds				--	--		1,157	2.07		--		
Veterinary & medicine	143	3.40		488	2.43		1,638	2.93		3,926	2.93	
Hired trucking	41	.98		199	.99		498	.89		1,193	.89	
Marketing	43	1.02		209	1.04		525	.94		1,121	.84	
Fuel & lubricants	371	8.83		1,554	7.73		2,605	4.66		5,558	4.15	
Repairs	362	8.62		1,296	6.45		2,052	3.67		4,377	3.27	
Taxes	779	18.54		2,085	10.37		6,183	11.05		15,400	11.49	
Insurance	250	5.96		981	4.88		1,347	2.41		2,874	2.15	
Interest on operating capital 6/	229	5.45		1,205	5.99		3,105	5.55		6,560	4.89	
General farm overhead 7/	187	4.45		892	4.44		2,482	4.44		5,295	3.95	
Other cash costs	--	--		--	--		--	--		--	--	
Hired labor	--	--		5,634	28.03		13,550	24.24		23,971	17.89	
Total cash costs	$4,501	$107.16		$23,735	$118.08		$60,601	$108.41		$129,173	$96.39	
Other Costs:												
Family labor	$ 1,041	$ 24.79		$ 4,872	$ 24.24		$ 13,550	$ 24.24		$ 23,450	$ 17.50	
Depreciation 8/	1,498	35.66		4,961	24.68		9,095	16.27		21,802	16.27	
Interest on investment other than land 9/	2,943	70.06		12,478	62.08		31,287	55.97		75,000	55.97	
Interest on land	8,695	207.02		31,551	156.97		101,861	182.22		252,505	186.44	
Total other costs	$14,177	$337.55		$53,862	$267.97		$155,793	$278.70		$372,757	$276.18	
Total all costs	$18,678	$444.71		$77,597	$386.05		$216,394	$387.11		$501,930	$374.58	
Return above cash costs	$ 4,975	$118.45		$19,468	$ 96.85		$ 59,742	$106.87		$141,750	$105.78	
Return above cash costs and family labor 10/	3,934	93.67		14,596	72.61		46,192	82.63		118,300	88.28	
Return to total investment 11/	2,436	58.00		9,635	47.93		37,097	66.36		96,498	72.01	
Return to land 12/	-507	-12.07		-2,843	-14.14		5,810	10.39		21,493	16.04	

*Production Assumptions:
Under 100 cows: 90% calf crop born; 5% calf death loss to weaning; 20 cows per bull; 17% replacement rate; 2% cow death loss; herd size 42 cows: BLM provides 22% of the annual feed for the cow herd: season of "se is April through August.
100---399 cows: 85% calf crop born; 5% calf death loss to weaning; 20 cows per bull; 17% replacement rate; 2% cow loss; 14% of annual feed from BLM; season of use April through September; average herd size 201 cows.
400---999 cows: 85% calf crop born; 5% calf death loss to weaning; 20 cows per bull; 17% replacement rate; 2% cow loss; 8% of annual feed requirement from BLM; season of use April through September; average cow herd 559 head.
1,000 or more cows: 83% calf crop born; 5% calf death loss to weaning; 20 cows per bull; 19% replacement rate; 3% cow loss; 3% of annual feed from BLN; season of "se April through September; average herd size 1,340 cows.

1/ Prices per hundred weight are 3-year averages for the month livestock are normally sold and cover the period 1977 through 1979.
2/ Cash costs for this analysis include the items listed. For individual producers some items listed under "other costs" may also be cash expenditures, for example, cash payments to family members for labor and cash interest payments on investment capital borrowed.
3/ Value per cow is based on number of cows and heifers that have calved in the breeding herd.
4/ BLN grazing fee is at the 1979 rate.
5/ Cost of hay and pasture is calculated at cost of production assuming no hay purchases or pasture rental.
6/ Interest an operating capital is calculated at 10.9%, assuming the money is in "se for 6 months.
7/ General farm overhead includes the livestock enterprise share of costs such as: organization dues, utilities, and legal and accounting fees.
8/ Depreciation is based on the current replacement value of depreciable assets other than breeding cows.
9/ Interest on investment is calculated at 9.3% for 12 months.
10/ This item is calculated by subtracting the value of family labor from return above cash costs.
11/ This item is calculated by subtracting depreciation from the return above cash cost and family labor.
12/ This item is calculated by subtracting interest on investment other than item above.

source: Gee 1980.

Table L-Z Beef Cow Enterprise Budgets, Sell Weaner Calves, Vale District Portion of EIS Area

Item	Less than 100 cows* NO.	Avg. Weight	Total Value	100-399 cows* NO	Avg. Weight	Total Value	400-999 cows* NO	Avg. Weight	TOW.1 Value	1,000 or more cows* No.	Avg. Weight	Total Value
Sales 1/												
steer calves (@ $69.15/cwt.)	18	425	$ 5,290	74	410	$ 20,980	225	425	$ 66,125	563	400	$155,726
Heifer calves (@ $56.25/cwt.)	13	400	2,925	48	380	10,260	141	400	31,725	274	375	57,197
Cull cows (@ $36.28/cwt.)	5	975	1,769	22	1,100	8,780	68	980	24,177	242	900	79,018
Total sales			$ 9,984			$ 40,020			$122,027			$292,541
Sales per cow			$256.00			$ 230.00			$ 216.36			$ 181.70
Cash costs 2/	Total Value		Value/ cow 3/	Total Value		Value/ cow 3/	Total Value		Value/ cow 3/	Total Value		Value/ cow 3/
BLM grazing fee 4/	$ 246		$ 6.31	$ 1,098		$ 6.31	$ 3,323		$ 5.89	$ 5,761		$ 3.58
Forest grazing fee	--		--	--		--	--		--	--		--
Other range lease/rent	31		.80	2.51		1.44	230		.41	1,453		.90
Hay 5/	1,265		32.43	5,897		33.89	17,749		31.47	43,712		27.15
Irrigated pasture 5/	302		7.74	1,021		5.87	2,741'		4.86	6,480		4.03
Salt and minerals	59		1.50	270		1.55	807		1.43	2,335		1.45
Concentrate feeds			--	--		--	1,151		2.04	3,735		2.32
Veterinary & medicine	239		6.12	978		5.62	3,198		5.67	7,197		4.47
Hired trucking	63		1.62	362		2.08	790		1.40	1,240		.77
Marketing	181		4.64	379		2.18	2,628		4.66	1,240		.77
Fuel & lubricants	352		9.02	1,785		10.26	2,809		4.98	5,410		3.36
Repairs	368		9.43	1,298		7.46	2,414		4.28	4,750		2.95
Taxes	485		12.43	2,072		11.91	6,114		10.84	16,842		10.46
Insurance	268		6.88	947		5.44	2,470		4.38	7,261		4.51
Interest on operating capital 6/	220		5.64	1,295		7.44	3,051		5.40	7,401		4.59
General farm overhead 7/	253		6.48	1,740		10.00	3,288		5.83	9,402		5.84
Other cash costs	--		--	--		--	- -		--	--		--
Hired labor	--		--	6,327		36.36	7,315		12.97	21,526		13.37
Total cash costs	$4,332		$111.07	$25,720		8147.82	$60,078		$106.52	$145,745		$90.52
Other Costs:												
Family labor												
Depreciation 8/	$ 1,536 945		$ 24.24 39.40	$ 4,888 9,492		$ 54.55 28.09	$ 10,970 14,771		$ 26.19 19.45	$ 15,665 23,248		$ 14.44 9.73
Interest on investment other than land 9/	2,904		74.4s	11,014		63.30	31,860		56.49	92,398		57.39
Interest on land 97	8,240		211.28	25,598		147.11	145,533		258.03	395,464		245.63
Total other costs	$13,625		$349.35	$50,992		$293.06	$203,134		$360.16	$526,765		$327.19
Total all costs	$17,957		$460.43	$76,712		$440.87	$263,212		$466.69	$672,510		$417.71
Return above cash costs	$ 5,652		S144.92	$14,300		$ 82.18	$ 61,949		$109.83	$146,796		$ 91.17
Return above cash costs and family labor 10/	4,707		120.69	4,808		27.63	50,979		90.38	131,131		al.44
Return to total investment 11/	3,171		81.30	-80		-46	36,208		64.19	107,883		67.00
Return to land 12/	267		6.84	-10,953		-62.95	4,348		7.70	15,485		9.61

*Production assumptions:

Under 100 cows: 94% calf crop born; no calf death loss to weaning; 25 cows per bull; 15% replacement rate; 2% cow loss; 20% of annual feed requirements from BLM; season of use April through August; average herd size. 39 cows.

100--399 cows: 90% calf crop born; 5% calf-death loss to weaning; 20 cows per buil; 15% replacement rate; 2% cow loss to annual feed required by the cow herd is from BLM; season of use March through July; average herd size, 174 cows.

400-999 cows: 87% calf crop born; 7% calf death loss to weaning; 20 cows per bull; 15% replacement rate; 3% cow loss; 24% of annual feed requirement from BLM; season of use April through September; average herd size, 564 cows.

1,000 or more cows: 75X calf crop born; 5% calf death loss to weaning; 20 cows per bull; 18% replacement rate; 3% cow loss; 20% of annual feed requirements from BLM; season of use April through July; average herd size, 1,610 cows.

1/ Prices per hundred weight are 3-year averages for the month livestock are normally sold and cover the period 1977 through 1979.
2/ Cash costs for this analysis include the items listed. For individual producers some items listed under "other costs" may also be cash expenditures, for example, cash payments to family members for labor and cash interest payments on investment capital borrowed.
3/ Value per cow is based on number of cows and heifers that have calved in the breeding herd.
4/ BLM grazing fee is at the 1979 rate.
5/ Cost of hay and pasture is calculated at cost of production assuming no hay purchases or pasture rental.
6/ Interest on operating capital is calculated at 10.9%, assuming the money is in use for 6 months.
7/ General farm overhead includes the livestock enterprise share of costs such as: organization dues, utilities, and legal and accounting fees.
8/ Depreciation is based on the current replacement value of depreciable assets other than breeding cows.
9/ Interest on investment is calculated at 9.3% for 12 months.
10/ This item is calculated by subtracting the value of family labor from return above cash costs.
11/ This item is calculated by subtracting depreciation from the return above cash cost and family labor.
12/ This item is calculated by subtracting interest on investment other than item above.

source: Gee 1980.

Table L-3 Beef Cow Enterprise Budgets, Sell Yearlings, Vale District Portion of EIS Area

Item	Less than 100 cows* NO.	Avg. Weight	Total Value	100-399 cows* NO.	Avg. Weight	Total Value	400-999 cows* NO.	Avg. Weight	Total Value
Sales 1/									
Yearling steers (@ $57.19/cwt.)	18	731	$ 7,525	74	731	$30,936	225	731	$ 94,063
Yearling heifers (@ $51.87/cwt.)	13	672	4,531	48	672	16,731	141	672	49,148
Cull cows (@ $36.28/cwt.)**	5	1,100	1,995	22	1,100	9,803	68	1,100	27,137
Total sales			$14,051			$57,470			$170,348
Sales per cow			$360.28			$330.29			$ 302.04

Cash costs 2/	Total Value	Value/ Cow 3/	Total Value	Value/ Cow 3/	Total Value	Value/ cow 3/
BLH grazing fee 4/	$ 246	$ 6.31	$ 1,098	$ 6.31	$ 3,323	$ 5.89
Forest grazing fee	--	--	--	--	--	--
Other range lease/rent	31	.80	251	1.44	230	.41
Hay 5/	1,854	47.53	8,132	46.74	22,007	39.02
Irrigated pasture 5/	302	7.74	1,021	5.87	2,741	4.86
Salt and minerals	73	1.88	310	1.78	1,015	1.80
Concentrate feeds	419	10.74	1,291	7.42	5,999	10.64
Veterinary & medicine	279	7.14	1,288	7.40	4,038	7.16
Hired trucking	93	2.38	416	2.39	1,348	2.39
Marketing	307	7.86	440	2.53	2,628	4.66
Fuel & lubricants	443	11.36	2,253	12.95	3,525	6.25
Repairs	416	10.67	1,564	a.99	2,628	4.66
Taxes	537	13.76	2,664	15.31	6,506	11.53
Insurance	280	7.17	915	5.26	2,538	4.50
Interest on operating capital 6/	315	8.08	1,622	9.32	4,013	7.11
General farm overhead 7/	287	7.36	2,354	13.53	4,151	7.36
Other cash costs	--	--	--	--	--	--
Hired labor	--	--	6,327	36.36	12,340	21.88
Total cash costs	$5,882	$150.82	$31,946	$183.60	$79,030	$140.12
Other Costs:						
Family labor	$ 1,451	$ 37.21	$12,947	$ 74.41	$ 12,340	$ 21.88
Depreciation 8/	1,717	44.02	5,573	32.03	10,829	19.20
Interest on investment other than land 9/	2,912	74.69	11,430	65.69	32,650	57.89
Interest on land 9/	8,937	229.15	33,410	192.01	138,419	245.42
Total other costs	$15,017	$385.05	$63,360	$364.13	$194,238	$344.39
Total all costs	$20,899	$535.87	$95,074	$546.40	$273,268	$484.51
Return above cash costs	$8,169	$209.46	$25,524	$146.69	$91,318	$161.90
Return above cash costs and family labor 10/	7,618	195.33	12,577	72.28	78,978	140.03
Return to total investment 11/	5,001	128.23	7,007	40.27	68,149	120.83
Return to land 12/	2,089	53.56	-4,426	-25.44	35,499	62.94

*Production Assumptions:
Under 100 cows: 94% calf crop born; no calf death loss to weaning; 25 cows per bull; 15% replacement rate; 2% cow loss; 29% of annual feed requirement from BLW; season of "se April through August; average herd size 39 cows.
100-399 cows: 90% calf crop born; 5% calf death loss to weaning; 20 cows per bull; 15% replacement rate; 2% cow loss; 26% of annual feed required by the cow herd is from BLM; season of use March through July; average herd size 174 cows.
400-999 cows: 87% calf crop born; 5% calf death loss to weaning; 20 cows per bull; 15% replacement rate; 3% cow loss; 24% of annual feed requirement from BLU; season of use April through September; average herd size 564 cows.

** For 100-399 cows, price for cull cows is $40.51 per hundredweight.

1/ Prices per hundred weight are 3-year averages for the month livestock are normally sold and cover the period 1977 through 1979.
2/ Cash costs for this analysis include the items listed. For individual producers some items listed under "other costs" may also be cash expenditures, for example, cash payments to family members for labor and cash interest payments or investment capital borrowed.
3/ Value per cow is based on number of cows and heifers that have calved in the breeding herd.
4/ BLH grazing fee is at the 1979 rate.
5/ Cost of hay and pasture is calculated at cost of production assuming no hay purchases or pasture rental.
6/ Interest on operating capital is calculated at 10.9%, assuming the money is in use for 6 months.
7/ General farm overhead includes the livestock enterprise share of costs such as: organization dues, utilities, and legal and accounting fees.
8/ Depreciation is based on the current replacement value of depreciable assets other than breeding cows.
9/ Interest on investment is calculated at 9.3% for 12 months.
10/ This item is calculated by subtracting the value of family labor from return above cash costs.
11/ This item is calculated by subtracting depreciation from the return above cash cost and family labor.
12/ This item is calculated by subtracting interest on investment other than item above.

source: Gee 1980.

Appendix M
Local Personal Income Attributable to the Beef Cow Enterprises on Ranches in Baker and Malheur County, Oregon - 1973-76

The following estimates are based upon 1973-76 data on aggregate herd size and personal income of farmers and farm workers, using the DYRAM system (USDI, BLM 1979) for estimating indirect personal income accruing to workers and proprietors of support sectors in the county. .

Estimates of personal income derived from beef production and of income generated per AUM are computed for each county in Tables M-l and M-2. These estimates represent all beef production (and associated forage requirements) in the two counties. The estimates are based on a 4-year average for 1973-1976, omitting 1977 to avoid the downward bias of the severe drought condition in that year. Personal income from beef production averaged 4.8 percent of total income in Baker County and 5.7 percent of income in Malheur County in those years.

Income to people in the livestock industry represents only part of the local income generated by the industry. Personal income accruing directly to ranch proprietors and employees in the livestock industry is termed direct income.

The expenditures of the livestock industry, however, result in additional personal income within the county called indirect income. A multiplier representing this additional income generation effect, as estimated by a BLM regional economic model, was applied to the estimates of direct income per AUM to obtain estimates of the total personal income generated within the county per AUM.

These measures do not represent the value of an AUM either in terms of its value in production or its market value. These values depend on other factors not necessarily related to personal income.

The calculations yield estimates of the total direct and indirect local income generated per AUM of about $7.08 in Baker County, and $5.78 in Malheur County (Tables M-l and M-2).

Table M-l Computation of Amount of Personal Income Generated per AUM for Beef Production, Baker County, 1973-1976
(Data in thousands except as otherwise indicated)

Item	1973	1974	1975	1976	Average
1. Personal income in agriculture 1/	$10,832	$ 6,534	$ 3,302	$ 661	
2. Value of agricultural commodities sold 2/	18,091	14,520	16,429	14,600	
3. Value of cattle and calves sold 3/	13,294	7,995	9,761	8,810	
4. Personal income in agriculture attributable to beef production 4/	$ 7,960	$ 3,598	$ 1,962	$ 399	$ 3,480
5. Number of cattle and calves 3/	100.0	105.0	110.0	100.0	
6. Number of beef cows 3/	50.0	51.5	52.0	47.0	
7. Number of dairy cows 3/	2.6	2.3	2.5	1.7	
8. Total AUMs for beef cattle 5/	868.8	911.4	942.0	861.6	896.0
9. Direct income in dollars per AUM (item 4 ÷ item 8)	$ 9.16	$ 3.95	$ 2.08	$ .46	$ 3.88
10. Income multiplier for county livestock industry 6/					1.824
11. Total (direct and indirect) personal income in dollars per AUM (item 9 x item 10)					$ 7.08

1/ Consists of all wages and other labor income and proprietors income in the agricultural industry. U.S. Dept. of Commerce, Bureau of Economic Analysis, Regional Economic Information System, Table 5, April 1979.
2/ Consists of all sales of crops, livestock and livestock products. Oregon State University, Extension Service, Commodity Data Sheets, 1979.
3/ Oregon State University, Extension Service, Commodity Data Sheets, 1979.
4/ Derived by multiplying the ratio of cattle and calf sales to total sales (item 3 ÷ item 2) by total income (item 1).
5/ Estimated as 12 times the number of beef cows plus six times the number of beef calves: (12. x item 6 + 6. x (item 5 − item 6 − (2. x item 7))).
6/ U.S. Dept. of Interior, Bureau of Land Management, Dynamic Regional Income Analysis Model (DYRAM), (1974 data), September 1979.

Table M-2 Computation of Amount of Personal Income Generated per AUM for Beef Production, Malheur County, 1973-1976
(Data in Thousands Except as Otherwise Indicated)

Item	1973	1974	1975	1976	Average
1. Personal income in agriculture 1/	$35,017	$36,574	$22,607	$18,821	
2. Value of agricultural commodities sold 2/	91,141	85,165	85,880	85,390	
3. Value of cattle and calves sold 3/	22,970	19,962	22,080	23,110	
4. Personal income in agriculture attributable to beef production 4/	$ 8,825	$ 8,573	$ 5,812	$ 5,094	$ 7,076
5. Number of cattle and calves 3/	190.0	205.0	220.0	195.0	
6. Number of beef cows 3/	77.0	88.0	90.0	81.0	
7. Number of dairy cows 3/	8.4	8.2	8.2	7.5	
8. Total AUMs for beef cattle 5/	1,501.2	1,659.6	1,761.6	1,566.0	1,622.1
9. Direct income in dollars per AUM (item 4 ÷ item 8)	$ 5.88	$ 5.17	$ 3.30	$ 3.25	$ 4.36
10. Income multiplier for county livestock industry 6/					1.326
11. Total (direct and indirect) personal income in dollars per AUM (item 9 x item 10)					$ 5.78

1/ Consists of all wages and other labor income and proprietors income in the agricultural industry. U.S.Dept. of Commerce Bureau of Economic Analysis, Regional Economic Information System, Table 5, April 1979.
2/ Consists of all sales of crops, Livestock and Livestock products. Oregon State University, Extension Service, Commodity Data Sheets, 1979.
3/ Oregon State University, Extension Service, Commodity Data Sheets, 1979.
4/ Derived by multiplying the ratio of cattle and calf sales to total sales (item 3 ÷ item 2) by total income (item 1).
5/ Estimated as 12 times the number of beef cows plus six times the number of beef calves: (12. x item 6 + 6. x (item 5 - item 6 - (2. x item 7))).
6/ U.S. Dept. of Interior, Bureau of Land Management, Dynamic Regional Income Analysis Model (DYRAM), (1974 data), September 1979.

GLOSSARY

GLOSSARY

Acre-foot - The volume of water that will cover 1 acre to a depth of 1 foot.

Actual Use - That port ion of the authorized grazing permit which is used annually. In this document actual use is the same as 1978 authorized use.

Algal Blooms - Proliferation of living algae on the surface of lakes, streams or ponds.

Vegetation Allocation - In reference to forage, the distribution of the available forage production to the various resource needs such as wildlife, livestock, wild horses and nonconsumptive use.

Allotment - An area of land where one or more operators graze their livestock. Generally consists of public land but may include parcels of private or state lands. The number of livestock and season of use are stipulated for each allotment . An allotment may consist of one or several pastures.

Allotment Management Plan (AMP) - An intensive livestock grazing management plan dealing with a specific unit of rangeland, based on multiple use resource management object ives. The AMP considers livestock grazing in relation to the renewable resources -- watershed, vegetation and wildlife. An AMP establishes the season of use, the number of livestock to be permitted on the range and the range improvements needed.

Al luvial - Pertaining to material that is transported and deposited by running water.

Animal Unit Month (AUM) - The amount of forage required to sustain the equivalent of one cow with one calf, or their equivalent for one month.

Annual Vegetative Growth - The amount of forage or herbage produced during one growing season.

Archeological Resources - All physical evidence of past human activity, other than historical documents, which can be used to reconstruct lifeways and cultural history of past peoples. These include sites, art ifact s, environmental data and all other relevant information,

Background - That area from 3-5 miles to 15 miles from the viewer.

Browse - That part of leaf and twig growth of shrubs, woody vines and trees available for animal consumption.

Carrying Capacity - The maximum number of animals an area can sustain without inducing damage to vegetation or related resourses, such as watershed.

Climax Plant Community - A group of plants in an ecosite which are capable of perpetuation under the prevailing climatic, edaphic and other naturally occurring environmental factors, such as insect infestations, wildlife grazing and fire.

Coliform - A group of bacteria used as an indicator of sanitary quality in water.

Concentration Area - An area where factors such as terrain, water, vegetation, fences or management practices result in livestock congregation. Generally, these areas are grazed more heavily than surrounding areas.

Contrast Rating - A method of determining the extent of visual impact for an existing or proposed activity that will modify any landscape feature.

Critical Growing Period - The portion of a plant's growing season generally between flowering and seed dissemination, when food reserves are being stored and seeds produced. Grazing after the start of this date is detrimental due to inadequate moisture for supporting further later in the season.

Crucial Habitat - A relatively small part of an animal's range or habitat which is essential for the animal's existence because it contains special qualities or features (e.g., water holes, winter food and cover, nesting trees, strutting ground, upland meadow).

Cultural Resources - A term that includes resources of paleontologic, archeologic or historic significance which are fragile, limited and nonrenewable portions of the human environment,

Cultural Resources Evaluation System (CRES) - A system used to stratify the relative value of an archeologic or historic site. Significance ratings from S-l (National Register nomination quality) to S-4 (no physical remains) are assigned to each identified cultural resource. CRES ratings are not static; periodic review, in light of new information, assures continuation of adequate evaluation.

Direct Income - Earnings from production of workers in a specified industry. See Indirect Income.

Dissolved Oxygen Saturation - The amount of gaseous oxygen (O) dissolved in a liquid - usually water.

Distance Zones - The area that can be seen as foreground, middleground, background or seldom seen.

Ecosite - A distinctive type of range land that differs from other ecosites in its ability to produce a characteristic.climax plant community.

Ecosite Condition - A measure of a plant community compared to the climax plant community. Climax condition is when 75 percent or more of the vegetation is of the same kind as that in the original stand; late condition is when the percentage is between 50 and 75; middle condition is when the percentage is between 25 and 50; and early condition is when less than 25 percent of the plants are of the same kind as that in the original community,

Ecosite Trend - Change in ecosite condition resulting directly from environmental factors, primarily due to human activities such as grazing, range improvements, fire management, etc.

Erosion - Detachment and movement of soil or rock fragments by water, wind, ice or gravity.

Exclosure - An area fenced to exclude livestock and wild horses.

Forage Production - The amount of forage that is produced within a designated period of time on a given area (expressed in AUMs or pounds per acre.)

Forb - Any non grasslike herbaceous plant.

Foreground - That area from 0 miles to 0.5-l miles.

Groundwater - Subsurface water that is in the zone of saturation.

Gully - A channel, usually with steep sides, through which water commonly flows during and immediately after rains or snow melt.

Herb - A seed-producing plant that does not develop persistent woody tissue.

Herbage - Herbaceous plant growth, especially fleshy, edible plants.

Herbaceous Plants - Plants having little or no woody tissue.

Indirect Income - Earnings or personal income to workers outside a specified industry generated by production in that industry. For example, personal income to those outside the livestock industry generated by the business and personal expenditures of the livestock industry as well as successive rounds of expenditures which may result in the community.

Infiltration - The gradual downward flow of water from the surface through soil to groundwater.

Intermittent Stream - A stream or port ion of a stream that flows only in direct response to precipitation. It receives little or no water from springs and no long-continued supply from melting snow or other sources. It is dry for a large part of the year, ordinarily more than 3 months.

Key Species - A plant that is a relatively or potentially abundant species. It should be able to endure moderately close grazing and serve as an indicator of changes occurring in the vegetational complex. The key species is an important vegetative component that, if overused, will have a significant effect on watershed conditions, grazing capacity or other resource values. More than one key species may be selected on an allotment. For example, a species may be important for watershed protection and a different species may be important for livestock forage or wildlife forage, etc.

Lacustrine Sediments - Material deposited in lake water and later exposed by lowering of the water level or by the elevation of the land.

Limiting Factor - A component of the environment which regulates animal populations (e.g., food, water, cover>.

Litter - A surface layer of loose, organic debris, consisting of freshly fallen or slightly decomposed organic materials.

Management Framework Plan (MFP) - Land use plan for public lands which provides a set of goals, objectives and constraints for a specific planning area to guide the development of detailed plans for the management of each resource.

Middleground - That area between the foreground and 3 to 5 miles from the viewer.

National Register of Historic Places - Established by the Historic Preservation Act of 1966, the Register is a listing maintained by the National Park Service of architectural, historical, archeological and cultural sites of local, state or national significance. Sites are nominated to the Register by the States and by Federal agencies.

Planning Area Analysis (PAA) - A planning document which analyzes the relationship of social and economic data to the physical and biological data presented in a Unit Resource Analysis (URA).

Paleontology - A science dealing with the life of past geological periods as known from fossil remains.

Pasture - A fenced subdivision of a grazing allotment capable of being grazed by livestock independently from the rest of the allotment.

Perennial Stream - A stream or portion of a stream that flows year long. It receives water from precipitation, springs, melting snow and/or groundwater.

pH - The negative logarithm of the hydrogen ion concentration. A low pH indicates an acid, and a high pH indicates an alkaline substance. A pH of 7.0 is considered neutral.

Plant Community - See Climax Plant Community.

Plant Composition - The proportions of various plant species annual production in relation to the total annual production of all plants on a given area.

Plant Maturity - That point in the growing season when an individual plant species has set seed, stored food reserves and gone into the dormant stage. This time is different for various species.

Plant Vigor - See Vigor

Preference - Grazing privileges established on the basis of use of the Federal range during the priority period following the passage of the Taylor Grazing Act. AUMs preference are attached to a livestock operator's private base lands.

Proprietor - One who owns and operates their own business; one engaged in economic activity on their own account and not as an employee. Farm or ranch proprietor need not own the land used.

Public Land - Formal name for lands administered by the Bureau of Land Management .

Range Condition - See Ecosite Condition.

Range Improvement - A structure, action or practice that increases forage production, improves watershed and range condition or facilitates management of the range or the livestock grazing on it.

Research Natural Areas - Areas established and maintained for research and education. The general public may be excluded or restricted where necessary to protect studies or preserve research natural areas, Lands may have : (1) Typical or unusual faunistic or floristic types, associations, or other biotic phenomena, or (2) Characteristic or outstanding geologic, pedologic or aquatic features or processes.

Residual Ground Cover - That portion of the total vegetative ground cover that remains after the livestock grazing season.

Rest - As used in this statement, refers to deferment of grazing on a range area (pasture) to allow plants to replenish their food reserves.

Rill - A small, intermittent water course with steep sides, usually only a few inches deep.

Riparian - Related to wet areas associated with streams, -springs, seeps, meadows and reservoirs.

Runoff - That portion of the precipitation on a drainage area that is discharged from the area in stream channels, including both surface and subsurface flow.

State Historic Preservation Office (SHPO) - Position established to review environmental impact statements within every State; also maintains a register of historic sites (including archeological) for the State and advises State land management on archeological matters.

Thermal Cover - Vegetation or topography that prevents radiational heat loss, reduces wind chill during cold weather, and intercepts solar radiation during warm weather.

Turbidity - The cloudy condition caused by suspended solids in a liquid.

Unallotted Lands - Public lands which currently have no authorized livestock grazing.

Unit Resource Analysis - A BLM planning document which contains a comprehensive inventory and analysis of the physical resources and an analysis of their potential for development, within a specified geographic area.

Upland - All rangelands other than riparian areas.

Useable Forage Production - The maximum stocking rate that with a particular kind of livestock and grazing system will maintain a static or upward trend in ecosite condition. This incorporates such things as the suitability of the range to grazing as well as the proper use which can be made on the plants within the area. Normally expressed in terms of acres per animal unit month (ac/AUM) or sometimes referred to as the total AUMS that are available in any given area, such as an allotment. Areas that are unsuitable for livestock use are not considered to be part of the useable forage production.

Utilization - The proportion of the current year's forage production that is consumed or destroyed by grazing animals. This may refer either to a single species or to the whole vegetative complex. Utilization is expressed as a percent by weight, height or numbers within reach of the grazing animals.

Vegetative Ground Cover - The percent of the land surface covered by all living and undecomposed remnants of vegetation within 20 feet of the ground.

Vigor - The relative well-being and health of a plant as reflected by its ability to manufacture sufficient food for growth, maintenance and reproduction.

Visual Contrast - The effect of a striking difference in the form, line, color or texture of an area being viewed.

Visual Resource - The land, water, vegetation, animals and other features that are visible on all public lands.

Visual Resource Management (VRM) Classes - The degree of alteration that is acceptable within the characteristic landscape. It is based upon the physical and sociological characteristics of any given homogenous area.

Water Yield - The amount of water discharged in streams.

Wilderness Inventory - An evaluation of the public lands in the form of a written description and map showing those lands that meet the wilderness criteria as established under Section 603(a) of FLPMA and Section 2(c) of the Wilderness Act.

Wilderness Review - The term used to cover the entire wilderness inventory, study, and reporting phases of the wilderness program of the Bureau.

Wilderness Study - The process of analyzing and planning wilderness preservation opportunities within the Bureau's Planning System.

Work Year - One person working the full-time equivalent of one year,

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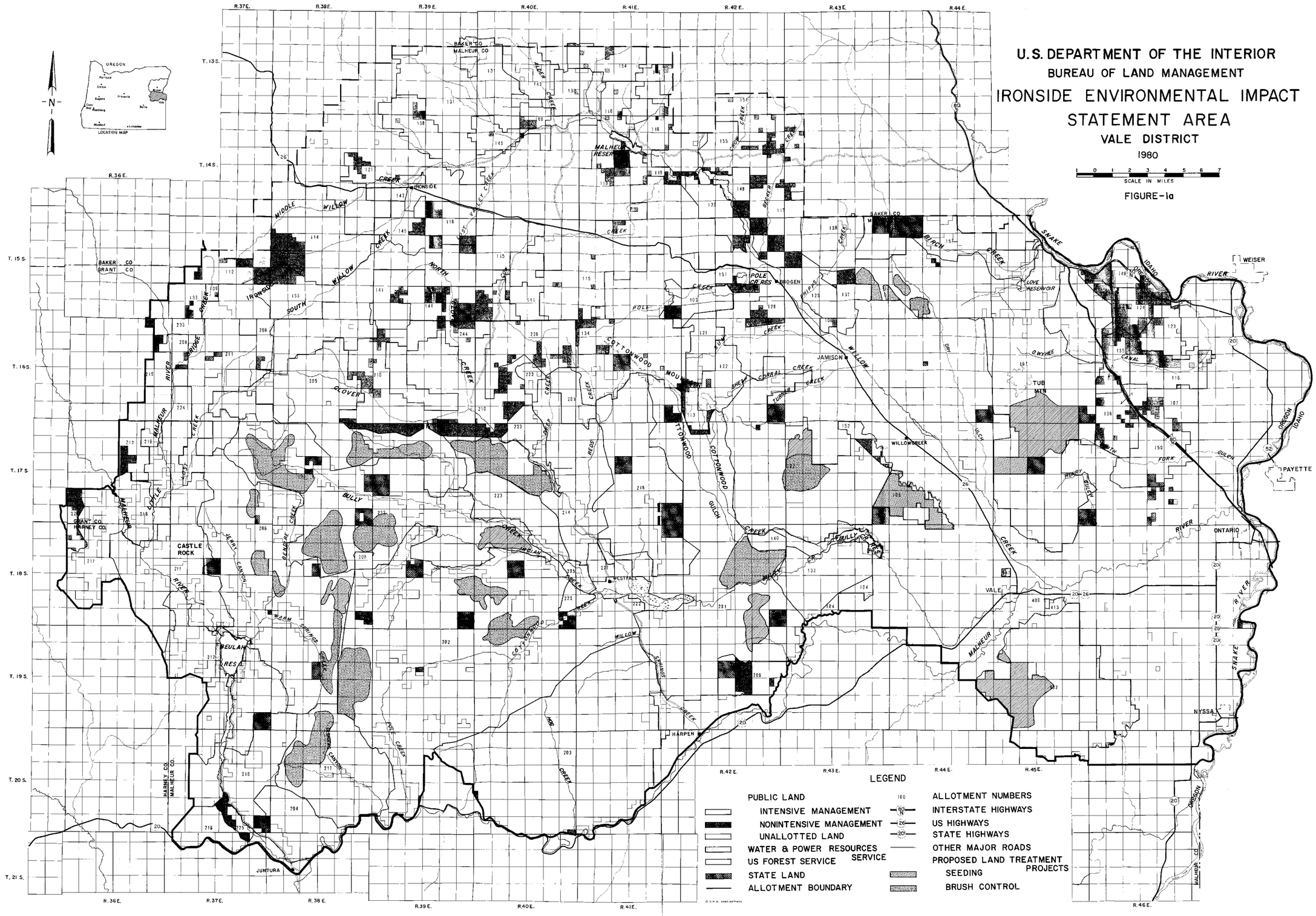
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
IRONSIDE ENVIRONMENTAL IMPACT STATEMENT AREA
VALE DISTRICT
1980
SCALE IN MILES
FIGURE-1a
LOCATION MAP
OREGON
N
R.36E.
R.37E.
R.38E.
R.39E.
R.40E.
R.41E.
R.42E.
R.43E.
R.44E.
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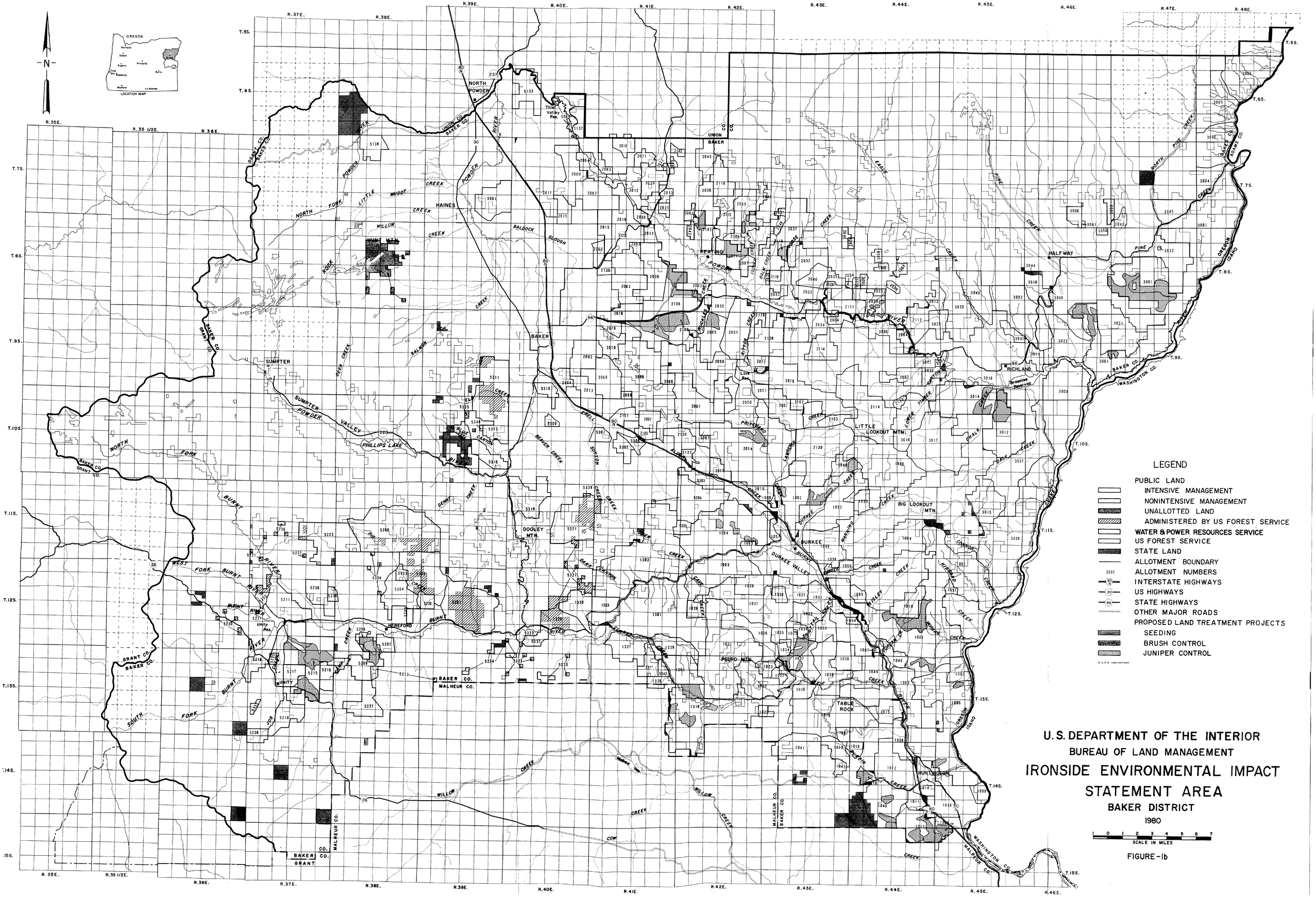
R.46E.
T.13S.
T.14S.
T.15S.
T.16S.
T.17S.
T.18S.
T.19S.
T.20S.
T.21S.
BAKER CO
MALHEUR CO
GRANT CO
HARNEY CO
IRONSIDE
MALHEUR RESER
POLE RES
PROGEN
JAMISON
WILLOWCREEK
WESTFALL
VALE
BULLY CREEK RES
BEULAH RES
CASTLE ROCK
HARPER
JUNTURA
WEISER
PAYETTE
ONTARIO
NYSSA
LOVE RESERVOIR
TUB MTN
SNAKE RIVER
IDAHO
OREGON
LEGEND
PUBLIC LAND
INTENSIVE MANAGEMENT
NONINTENSIVE MANAGEMENT
UNALLOTTED LAND
WATER & POWER RESOURCES SERVICE
US FOREST SERVICE
STATE LAND
ALLOTMENT BOUNDARY
ALLOTMENT NUMBERS
INTERSTATE HIGHWAYS
US HIGHWAYS
STATE HIGHWAYS
OTHER MAJOR ROADS
PROPOSED LAND TREATMENT PROJECTS
SEEDING
BRUSH CONTROL



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BUREAU OF LAND MANAGEMENT
IRONSIDE ENVIRONMENTAL IMPACT STATEMENT AREA
BAKER DISTRICT
1980

FIGURE-1b