MONITORING WORKSHEET

MONITORING ELEMENT: Aquatic Resource/Sedimentation

GOAL: No management related increases in stream sedimentation which will have a 20% shift in macroinvertebrate diversity.

AREA OF CONSIDERATION: Management Areas 3,4,5,7,8,9,10,11,12,13,15.

RISK INDEX: High

MONITORING QUESTIONS:

Are management related increases in stream sedimentation having a detrimental effect on aquatic biota.

SUGGESTED METHODS/INFORMATION SOURCES/REPORTING YEARS

Macroinvertebrate sampling in cobbles and gravels of specific stream sites

AVERAGE ANNUAL COST OF MONITORING ACTIVITIES: $15,000 - 2 days collection of samples, 2 days of analysis, 1 day of evaluation for each station and 20 stations per year at $120/day + $500 for equipment and $2500 for lab analysis.

REMARKS:

APPENDIX 7
ELECTRONIC SITE DESIGNATION

Electronic Site Designation

Locations considered for designation as public use electronic sites in the forest plan are placed in four categories. These are. 1. Sites where decisions have been previously made, and are still valid and in effect (Previous Decisions); 2 Sites thought to have electronic value where electronic use is compatible with the basic Management Area allocation and pertinent physical/management considerations of the site (Available for Development); 3. Sites where electronic use is incompatible with the basic Management Area allocation and/or other physical or management considerations (Not Available for Development); and 4. Other sites which may be proposed for electronic use which will be evaluated in separate environmental assessments on a case-by-case basis (Other Sites).

1 Sites with Previously Designated Decisions

Decisions on these sites are not being made as a part of this Forest Management Plan Decisions were made previously and are still valid (They are listed here for information)

A. *Designated Existing Electronic Sites*

Name	*Decision Date*
Bearwallow Butte	1982
Wampus Butte	1987
Spring River Butte	1983
Mt. Bachelor (Summit)	1986
Odell Butte	1967
Walker Mountain	1971
Sugar Pine Butte	1983
Pine Mountain (two sites-Observatory and Antelope)	1983
South Paulina Peak	1985
Lava Butte	1979
Triangle Hill	1978

B. *Designated Not Available for Development (Denied)*

2 Sites Designated Available for Development

A. *Lookout Mountain*

Site selected because of topographic setting and elevation This site is situated within the Pringle Falls Experimental Forest Use has been integrated with the Experimental Forest Management Plan Site has a Forest Service radio relay station A development plan has been prepared, but the site has not been formally designated by the Regional Forester No commercial power is available Access road is adequate Base Management Area allocation is "Experimental Forest " Location T 20S , R 9E , Section 31

B *Cultus Mountain*

Selected because of commanding topographic position and superior elevation Road access is not suitable for large trucks No commercial power Base Management Area allocation is "Scenic Views " Location T 20S , R.7E , Sections 22 and 23

C. *Sheridan Mountain*

This site was chosen to provide a relay point for two-way communications, if needed, to reach otherwise "blind" sectors No commercial power is available Depending on the exact location of the site, short lengths of access road will need to be constructed Base Management Area allocations are "Scenic Views" and "Winter Recreation." Location T 19S , R 9 E , Sections 29 and 30

D. *Wanoga Butte*

This site was selected because of its elevation and suitability as a relay point The road is not suitable for large truck traffic No commercial power is available Use is restricted in order to protect the

APPENDIX 7
ELECTRONIC SITE DESIGNATION

fire lookout viewing area. Base Management Area allocation is "Scenic Views." Location: T.19S., R 10E., Section 20.

E *Wickiup Butte*

Site selected due to its location adjacent to Wickiup Dam. Suitable for a relay point for communications around and near Wickiup Reservoir. Commercial power available at the foot of butte. Road construction to site would be required. Base Management Area allocation is "Intensive Recreation." Location: T.22S., R 9E., Section 8

F *Moolack Butte*

This location was selected to provide a relay point for communications with the Elk/Hosmer lakes area. The site is restricted to the northern portion of the butte to avoid conflict with T&E species habitat. Construction of an access road will be required Commercial power is available at the base of the butte. Base Management Area allocations are "Bald Eagle" and "Winter Recreation." Location. T 18S., R.8E., Sections 28 and 29.

G. *Benham*

This location was chosen because it is topographically suited for relay of signals between the Bend area and the LaPine area Low standard roads give access to the site. Electric power would be available upon installation of a stepdown transformer from the existing 24/69 KV line. Base Management Area allocation is "Intensive Recreation." Location: T.19S , R 11E., Section 17

H. *Highway*

This site was chosen to provide an opportunity for public service (one way) broadcasts for benefit of the winter traffic to and from the Mt. Bachelor ski area. Use will be restricted to this type of communication. A short access road segment will need to be constructed. Commercial power could be available through construction of a spur from the existing Mt Bachelor powerline Base Management Area allocation is "Scenic Views " Location T 18S , R 11E

I. *Davis Mountain*

This site has good topographic position and elevation. There is a road to the top No commercial power is available. It would be suitable for battery-powered radio repeaters. Basic Management Area allocation is "Scenic Views " Location T 22S , R 8E , Section 33

J. *Cryder Butte*

Could be used for local radio relay to supplement other existing electronic sites Would require construction of an access road No commercial power is available Base Management Area allocation is "General Forest " Location. T 23S., R 8E , Section 24.

K *Fox Butte*

Good topographic position and elevation Suitable for radio relay Access road to top of butte No commercial power is available. Development is restricted by need to keep fire lookout lines of sight unobstructed Base Management Area allocation is "General Forest." Location T.23S., R.16E , Section 6

L. *East Butte*

This butte has good line of sight except to the northwest It is higher than most of the surrounding area There is road access to the top. No commercial power is available Development is restricted by need to maintain unobstructed view from the fire lookout. Base Management Area allocation is "Scenic Views." Location T 22S., R.14E., Section 13

M. *Spring Butte*

This site has suitable topographic position and elevation for use as a relay point. There is a road and a horse/foot trail to the top. Commercial power is two miles away, but a transformer station would be required. Development is restricted by need to provide an unobstructed view from the fire lookout. Base Management Area allocation is "Scenic Views " Location: T 224S., R 11E., Section 1.

N *Fuzztail Butte*

This butte is suitable as a relay point to supplement other electronic sites Resource conflicts are low. There is an access road to the summit No commercial power is available Base Management Area allocation is "General Forest " Location: T 20S., R 13E , Section 6

O *McKay Butte*

This site occupies a favorable position for local relay in the Bend/LaPine corridor There is a road to the top of the butte No commercial powerline is close. Base Management Area allocation is "Scenic Views." Location T.21S., R 11E , Section 23 and 26

P *Cache Mountain*

Topographic position and elevation make this site suitable for development as a relay point There is an existing road to the summit. No commercial power is available. Visual management requirements would place some restrictions on use. Base Management Area allocation is "Scenic Views." Location: T 14S., R.8E., Section 4

3. Locations Designated Not Available for Development

A *Eaton Butte*

Conflicts with T&E species, no commercial power, and availability of other sites in the area are the reasons this site was not selected for planned electronic development Base Management Area allocation is "Bald Eagle " Location T 22S , R 9E , Section 20.

B *Red Crater*

This site was not selected because of the impracticability of road construction due to steep topography and the visual sensitivity of the butte No commercial power is available and other sites in the general area are available Base Management Area allocation is "Intensive Recreation " Location T 19S , R 8E , Section 4

C. *Tumalo Mountain*

Resource management conflicts, lack of power, and road access problems eliminate this site from planned development during the planning period Most types of electronic use would conflict with the land allocation objectives The Mt Bachelor and Bearwallow Butte sites also serve this area Base Management Area allocations are "Undeveloped Recreation" and "Bend Municipal Watershed " Location T 18S , R 9E , Sections 15 and 22

D *Round Mountain*

This is the primary fire detection lookout point on the Bend Ranger District Normal electronic site development would be incompatible with this use Visual constraints also would restrict electronic use Other sites are available in the general area. Base Management Area allocation is "Scenic Views " Location T.21S , R.8E , Section 13

E. *The Twins Mountain and Gerdine Butte*

These sites are adjacent and are affected by the same management considerations

APPENDIX 7
ELECTRONIC SITE DESIGNATION

and restrictions. Resource management conflicts, lack of road access, no commercial power, economic factors, and management plan objectives prevent development during the planning period. Other planned sites in the general area provide for anticipated needs. Base Management Area allocation is "Undeveloped Recreation." Locations: T.21S., R.6E., Sections 35 (The Twins); and 25 and 26 (Gerdine Butte).

F. *Charlton Butte*

This area is proposed for a Research Natural Area. Electronic sites are usually incompatible with the purposes for which RNA's are established. Since the site has no road access and none can be constructed as long as it is held for natural area purposes, it is precluded from development Base Management Area allocation is "Research Natural Areas " Location· T 21S , R 6E , Sections 11 and 12.

G *Pringle Butte*

This butte is within the Pringle Falls Experimental Forest where commercial use is normally prohibited. It is also occupied by a heliport established for fire suppression work. The available area is insufficient to accommodate both the heliport and an electronic site and meet safety standards. Base Management Area allocation is "Experimental Forest." Location· T 21S., R.9E., Sections 25 and 26

H. *Cruiser Butte*

This butte is also within the Pringle Falls Experimental Forest. Much of the area is occupied by a cinder quarry. Future expansion of the quarry and experimental forest use is expected to require all of the topographically-suitable area. Electronic use during the planning period is premature. Base Management Area allocation is "Experimental Forest." Location: T.21S., R.9E., Sections 35 and 36

I. *Kwolh Butte*

This site is within a sensitive visual management area There is no road access. Commercial power is not available Anticipated management conflicts indicate dedication to electronic use during the planning period would be premature Other existing and planned sites in the vicinity should be able to meet radio relay needs Base Management Area allocation is "Scenic Views " Location. T 19LS , R 9E , *Sections 5 and 8*

J. *Wuksi and Shukash Buttes*

These buttes are also within sensitive visual management areas They have strong potential for geologic interpretative development. An access road and a commercial powerline would have to be constructed Radio relay use on these points could create some severe management conflicts Other planned sites should provide electronic service to any area that these sites would serve It appears that radio relay use at these sites will not be required during the planning period Base Management Area allocations are "Scenic Views" and "General Forest " Locations T.21S , R 8E , Sections 9, 10, I5 and 16.

K. *Maklaks Mountain*

This mountain has sensitive visual management areas. There is no road access to the top Also, there is no close commercial power Other sites provide, or can provide, area coverage with less resource conflict. Base Management Area allocation is "Scenic Views " Location T 23S , R 7E , Sections 7 and 18.

L *Hamner Butte*

This site should not be needed during the planning period as other existing and potential sites will provide coverage for the same area There is no access road to the summit and no commercial power is available. Base Management Area

allocations are "Scenic Views" and "General Forest " Locations T 23S , R.8E., Sections 19 and 30

M. *Bunny Butte*

This site has visual concerns and is an old growth area. There is no access road to the summit and no commercial power is available to the top. This site should not be needed during the planning period as other sites should adequately cover the area Base Management Area allocation is "Old Growth." Location. T 25S , R 7E., Sections 15 and 23.

N. *Camp Abbot Butte*

Electronic use is denied for this butte because of the conflict with mineral development This is a major source of *cinder aggregate for the Sunriver area* Orderly mining of material will require removal of the entire top of the butte Other sites are available to provide coverage of the area Base Management Area allocation is "Scenic Views." Location T.20S., R.11E , Sections 2 and 3.

O *Horse Butte*

This butte serves as an important source of cinder aggregate for the area immediately east of Bend Development as an electronic site would conflict with the mining of cinders. There is no access road to the top Such a road would be visually unacceptable and would remove a significant volume of aggregate from production. There is potential use as an eagle nesting site Base Management Area allocation is "Deer Habitat." Location· T.18S., R.12E., Section 36

P *Finley Butte*

About one-half of this butte is on National Forest land This portion is being mined for cinder aggregate Planned development of the aggregate source will conflict with electronic development There is an existing electronic site on the private land portion which should be able to meet needs during the planning period. Base Management Area allocation is "General Forest " Location T 22S , R 11E , Sections 20 and 21

Q *North Paulina Peak*

The basic Management Area allocation for this peak is "Undeveloped Recreation " Full development as an electronic site is in conflict with the basic management prescriptions for this allocation Other sites are available to meet expected needs during the planning period. No access road exists and no commercial power is available. Location T 21S., R 12E , Section 13

R *The Dome*

The basic Management Area allocations for this peak are "Undeveloped Recreation" and "Scenic Views " A Threatened and/or Endangered species is present Electronic site development would conflict with resource values Objective is to maintain this land form in an unmodified state during the planning period Location T 22S , R 13E , Section 4

S. *Black Butte*

Resource conflicts require no electronic site development during the planning period Basic Management Area allocation is "Special Interest Areas " No access road to the top exists and construction of one is contrary to management objectives Also, no commercial power is available Electronic development would be further restricted by the necessity of maintaining unobstructed visibility for the fire lookout and meeting visual quality requirements Location· T.13S , R 9E., Sections 34 and 35.

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4. *Other Sites (Not Designated in This Plan)*

This plan makes no decisions about any potential site(s) not included in the above groups. Decisions about public electronic use at these locations will be made on a case-by-case basis through the NEPA process The burden of proof will be on the applicant to show why the site is required.

APPENDIX 8
MINERAL SOURCES

Existing materials sources on Deschutes National Forest. See accompanying map package. This following list and above mentioned map refer to the Minerals Section of Chapter 4.

APPENDIX 8
MINERAL SOURCES

BEND DISTRICT MATERIALS SOURCES
LAND MANAGEMENT PLAN

PIT NO.	OWNER-SHIP	PIT NAME	LOCATION T.	R.	SEC.	1/4	EXISTING RESOURCE USE AREA (1987) (ACRES)	ESTIMATED POTENTIAL RESOURCE USE AREA (ACRES)
1001	USFS	TODD CREEK CINDER PITS	18	9	18	SW	8	50
1002	USFS	SANDSHED CINDER PIT	18	10	30	SW	8	20
1005	USFS	STRAIGHT CINDER PIT	20	10	4	NE	2	10
1006	USFS	NORTH SIAH CINDER PIT	20	9	5	NE	4	20*
1007	USFS	NORTH STRAIGHT CINDER PIT	20	10	4	NE	3	10
1008	USFS	SIAH CINDER PIT	20	9	5	SE	2	5
1009	USFS	LOLO CINDER PIT	20	9	11	SE	3	20
1010	USFS	LITTLE ANNS CINDER PIT	20	10	11	NE	5	10
1012	USFS	LUMRUM BUTTE CINDER PIT	20	9	20	NE	5	20*
1014	USFS	PISTOL CINDER PIT	20	10	20	SW	11	50
1015	USFS	SOUTH DRY BUTTE CINDER PIT	20	9	33	NE	10	20*
1016	USFS	INDIAN CINDER PIT	21	9	3	NW	5	10
1017	USFS	ADDITION CINDER PIT	20	9	34	SW	2	10
1018	USFS	ROUND MTN PASS CINDER PIT	21	9	6	SW	6	20
1019	USFS	PALANUSH BUTTE CINDER PIT	21	8	10	SE	1	20*
1020	USFS	DAM CINDER PIT	21	8	16	NW	1	5
1021	USFS	CRUISER BUTTE CINDER PIT	21	9	36	NW	4	25*
1022	USFS	LOOKOUT MTN CINDER PIT	20	9	30	SE	2	5
1023	USFS	DUTCHMAN CINDER PITS	19	9	24	NE	12	35
1024	USFS	RIDGE CINDER PIT	20	9	15	SE	1	5
1025	USFS	BOUNDARY CINDER PIT	19	11	18	SE	4	20
1026	USFS	NORTH END CINDER PIT	19	9	35	SE	1	15
1027	USFS	ROUND MTN CINDER PIT	21	8	13	NE	4	25
1028	USFS	RED CRATER CINDER PIT	19	8	4	SW	5	20*
1029	USFS	FIREBREAK CINDER PIT	19	10	34	NE	2	20*
1030	USFS	SHUKASH CINDER PIT	21	8	9	SE	4	25
1031	USFS	CRATER CINDER PIT	21	8	15	NW	3	15
1032	USFS	CULTUS JCT GRAVEL PIT	20	8	30	NE	10	30
1033	USFS	QUINN GRAVEL PIT	20	7	36	SE	8	70
1034	USFS	PRINGLE FALLS SAND PIT	21	9	14	SE	1	20*
1035	USFS	NORTH DAVIS CR CINDER PIT	22	7	1	SE	2	20*

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PIT NO.	OWNER-SHIP	PIT NAME	LOCATION T.	R.	SEC.	1/4	EXISTING RESOURCE USE AREA (1987) (ACRES)	ESTIMATED POTENTIAL RESOURCE USE AREA (ACRES)
1036	USFS	KATALO BUTTE CINDER PIT	19	10	6	SE	4	20*
1037	USFS	SWEDE RIDGE CINDER PIT	18	11	18	NW	5	25
1038	USFS	LEMISH BUTTE CINDER PIT	21	7	4	NW	5	20*
1039	USFS	SNOW CREEK GRAVEL PIT	20	8	22	NW	1	20*
1040	USFS	SPRAGUE GRAVEL PIT	20	8	21	SW	10	90
1041	USFS	EAST TUMALO CINDER PIT	18	10	10	SE	5	20*
1042	USFS	SPRUCE GRAVEL PIT	20	7	36	SE	9	80
1043	USFS	TRIANGLE HILL CINDER PITS	17	10	16	SW	4	20*
1045	USFS	MICROWAVE CINDER PIT	20	10	2	NW	2	25
1047	USFS	ANNEX RIPRAP QUARRY	21	7	34	NE	4	15
1049	PRIV	HANER BUTTE CINDER PIT	22	9	22	SW	--	--
1052	USFS	FLAT GRAVEL PIT	20	8	23	NE	1	50
1053	USFS	LODGEPOLE GRAVEL PIT	20	8	14	NW	1	10
1054	USFS	DESCHUTES BRIDGE GRAVEL PIT	20	8	4	NE	14	30
1055	USFS	SHEEP BRIDGE GRAVEL PIT	21	8	28	NW	1	20*
1057	USFS	WEST BROWNS CR GRAVEL PIT	21	7	36	SE	7	45
1058	USFS	EAST BROWNS CR GRAVEL PIT	21	7	36	SE	7	50*
1059	USFS	SEVENTH MTN GRAVEL PIT	18	11	28	NW	8	50
1085	PRIV	SE BEARWALLOW CINDER PIT	17	10	35	NW	--	--
1086	USFS	CRATER RIM CINDER PIT	21	8	16	SE	2	5
1087	USFS	NORTH INDIAN CINDER PIT	20	9	34	SW	5	10
1088	USFS	WICKIUP BUTTE RIPRAP QUARRY	22	9	7	SE	1	10
1091	USFS	CULTUS RIVER GRAVEL PIT	20	8	20	SW	1	20*
1092	USFS	DRY CINDER PIT	20	9	34	NW	1	5
1095	STATE	OXBOW GRAVEL PIT	21	10	9	SW	--	--
1096	PRIV	STANDARD GRAVEL PIT	20	10	36	NW	--	--
1104	PRIV	FREMONT CINDER PIT	17	11	33	NE	--	--
1105	PRIV	WEST SHEVLIN CINDER PIT	17	11	22	SW	--	--
1106	USFS	COLUMBIA CANAL STONE QRY	17	11	17	SE	1	5
1107	PRIV	E SNOW CR DITCH CINDER PIT	16	10	36	NE	--	--
		BEND DISTRICT TOTALS					238	1295*

* Probable resource area is larger but the anticipated area of expansion during the planning period is expected to be small

APPENDIX 8
MINERAL SOURCES

CRESCENT DISTRICT MATERIALS SOURCES
LAND MANAGEMENT PLAN

PIT NO.	OWNER-SHIP	PIT NAME	LOCATION T.	R.	SEC.	1/4	EXISTING RESOURCE USE AREA (1987) (ACRES)	ESTIMATED POTENTIAL RESOURCE USE AREA (ACRES)
2001	USFS	PINE BUTTE CINDER PIT	22	7	14	SE	5	20*
2002	USFS	NORTH DAVIS MTN CINDER PIT	22	8	22	NE	2	5
2003	USFS	MAKLAKS CINDER PIT	23	6	13	NW	2	20*
2004	USFS	BLACK ROCK CINDER PIT	24	8	6	NE	14	30
2005	USFS	MABEL BUTTE CINDER PIT	24	7	13	NW	9	15
2006	PRIV	GILCHRIST ROCK QUARRY	24	9	16	NE	--	--
2007	PRIV	GILCHRIST CINDER PIT	24	9	16	SW	--	--
2008	USFS	MUTTONCHOP CINDER PIT	25	7	35	SE	8	20*
2009	USFS	RINGO ROCK QUARRY	23	8	15	NW	2	15
2011	USFS	JUNCTION ROCK QUARRY	26	8	16	SW	14	20
2013	USFS	WILLAMETTE PASS ROCK QUARRY	23	6	8	NW	14	30
2014	USFS	TELEPHONE ROCK QUARRY	26	8	16	NE	2	5
2015	PRIV	LITTLE RIVER GRAVEL PIT	24	9	4	SW	--	--
2017	USFS	DAVIS LAKE CINDER PIT	22	8	30	SW	3	20*
2032	USFS	DAVIS FLOW RIPRAP QUARRY	22	8	20	NW	1	5
2041	PRIV	GILCHRIST GRAVEL PIT	24	9	18	SE	--	--
2045	PRIV	PRIVATE GRAVEL PIT	24	9	5	SE	--	--
2047	PRIV	SOUTH BLACK ROCK QUARRY	24	8	19	SE	--	--
		CRESCENT DISTRICT TOTALS					76	205*

* Probable resource area is larger but the anticipated area of expansion during the planning period is expected to be small.

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MINERAL SOURCES

FORT ROCK DISTRICT MATERIALS SOURCES
LAND MANAGEMENT PLAN

PIT NO.	OWNER-SHIP	PIT NAME	LOCATION T.	R.	SEC.	1/4	EXISTING RESOURCE USE AREA (1987) (ACRES)	ESTIMATED POTENTIAL RESOURCE USE AREA (ACRES)
3001	USFS	HORSE BUTTE CINDER PIT	18	12	36	NE	20	25
3002	USFS	CABIN BUTTE CINDER PIT	19	12	1	SW	3	40
3003	USFS	BESSIE BUTTE CINDER PIT	19	12	10	NE	1	20*
3004	USFS	COYOTE BUTTE CINDER PIT	19	13	6	SW	4	60
3005	USFS	EAST LAVA CINDER PIT	19	12	18	SW	4	25
3006	USFS	LUNA CINDER PIT	19	12	16	SW	1	15
3007	USFS	KLAWHOP BUTTE CINDER PIT	19	12	34	SW	3	30*
3008	USFS	NORTH CAMP ABBOT CINDER PIT	19	11	34	SE	2	5
3009	USFS	CAMP ABBOT CINDER PIT	20	11	3	SE	26	35
3010	USFS	LOST BUTTE CINDER PIT	20	12	24	NW	7	35
3011	USFS	LAVA CAST CINDER PIT	20	12	21	SE	1	1
3012	USFS	SUGARPINE CINDER PIT	20	12	30	NE	2	10
3015	USFS	FISHHOOK CINDER PIT	21	12	8	SE	2	5
3016	USFS	PRAIRIE GRAVEL PIT	21	11	28	NW	7	15
3017	USFS	PAULINA LK (MIXTURE) CIN PIT	22	12	5	NE	8	15
3018	USFS	PIPELINE CINDER PIT	22	11	14	NE	4	25
3019	USFS	FINLEY BUTTE CINDER PIT	22	11	20	NE	23	45
3020	USFS	WEST YOUTLKUT CINDER PIT	23	12	3	NW	2	5
3021	USFS	JONES WELL CINDER PIT	23	12	15	SE	5	40
3022	USFS	SAND FLAT CINDER PIT	23	11	14	NW	8	15
3023	USFS	STAGE STATION CINDER PIT	24	11	25	SW	3	30*
3024	USFS	MCQUEEN WELL CINDER PIT	24	13	26	SW	1	10
3025	USFS	FLAT TOP CINDER PIT	24	13	13	NW	2	15
3026	USFS	AMOTA BUTTE CINDER PIT	23	13	33	NW	1	5
3027	USFS	RED BUTTE CINDER PITS	23	13	22	NE	4	20*
3028	USFS	SOUTH ICE CAVE CINDER PIT	23	13	13	SE	6	20*
3029	USFS	TOM BUTTE CINDER PIT	23	13	10	NW	2	20*
3030	USFS	S CINDER CONE CINDER PIT	22	13	25	NW	3	10
3031	USFS	THE DOME CINDER PIT	22	13	4	SW	2	3
3032	USFS	LAVA PASS CINDER PIT	22	14	34	SE	1	10

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MINERAL SOURCES

PIT NO.	OWNER-SHIP	PIT NAME	LOCATION T.	R.	SEC.	1/4	EXISTING RESOURCE USE AREA (1987) (ACRES)	ESTIMATED POTENTIAL RESOURCE USE AREA (ACRES)
3033	USFS	LAVA CROSSING CINDER PIT	23	14	11	SW	4	20*
3034	USFS	DEAD LOG CINDER PIT	23	15	18	SW	1	15
3035	USFS	FIRESTONE BUTTE CINDER PIT	22	15	30	SW	3	20*
3036	USFS	ROGERS BUTTE CINDER PIT	22	15	32	SE	2	10
3037	USFS	QUARTER BUTTE CINDER PIT	23	16	9	NE	5	20*
3038	USFS	WATKINS CINDER PIT	22	16	35	SW	1	10
3039	USFS	PLOT BUTTE CINDER PITS	22	16	8	SE	5	20*
3040	USFS	GROUND HOG BUTTE CNDR PIT	21	14	36	NE	3	20*
3041	USFS	SABOL BUTTE CINDER PIT	21	14	34	NW	7	20
3042	USFS	CINDER HILL CINDER PIT	21	13	15	SE	2	25
3043	USFS	ORPHAN BUTTE BORROW PIT	21	13	2	NE	2	20*
3044	USFS	ANTELOPE SPRINGS CINDER PIT	21	15	14	NW	1	20
3054	USFS	BIG HOLE GRAVEL PIT	25	12	10	SE	5	20*
3058	USFS	COYOTE FLAT BORROW PIT	23	15	11	NE	1	5
3066	USFS	MCKAY CROSSING BORROW PIT	22	11	1	NW	1	10
3074	STATE	REDMEN GRAVEL PIT	22	11	18	SE	--	--
3075	USFS	STOOKEY BORROW PIT	19	13	36	SE	1	5
3078	USFS	ORPHAN DRAW BORROW PIT	20	14	29	NW	1	5
3079	USFS	MOFFITT BORROW PIT	24	11	21	SW	1	15
3080	PRIV	SOUTH IPSOOT CINDER PIT	23	11	26	SW	--	--
3082	USFS	KELLY BORROW PIT	22	14	26	NW	1	5
3098	USFS	GROUND HOG ROCK QUARRY	21	14	25	SE	12	70
		FORT ROCK DISTRICT TOTALS					217	964*

* Probable resource area is larger but the anticipated area of expansion during the planning period is expected to be small

APPENDIX 8
MINERAL SOURCES

SISTERS DISTRICT MATERIALS SOURCES
LAND MANAGEMENT PLAN

PIT NO.	OWNER-SHIP	PIT NAME	LOCATION T.	R.	SEC.	1/4	EXISTING RESOURCE USE AREA (1987) (ACRES)	ESTIMATED POTENTIAL RESOURCE USE AREA (ACRES)
5001	USFS	SCHILLING CINDER PIT	12	9	22	NW	10	20*
5002	USFS	SUTTLE CONE CINDER PIT	13	8	22	SW	1	20*
5003	USFS	HALF & HALF CINDER PIT	13	10	32	NE	3	15
5006	USFS	CACHE CINDER PIT	14	8	9	SE	2	20*
5007	PRIV	FIVEMILE BUTTE CINDER PIT	14	9	17	SW	--	--
5008	USFS	ZIMMERMAN BUTTE CINDER PIT	14	10	19	SE	10	30*
5009	USFS	FOURMILE BUTTE CINDER PIT	14	9	32	NE	9	30
5010	USFS	SQUAW CREEK ROCK QUARRY	16	9	11	NW	3	10
5011	USFS	MELVIN CINDER PIT	16	9	13	NW	6	20*
5012	USFS	BLACKPINE CINDER PIT	16	9	15	SE	3	20*
5013	USFS	THREE CREEKS CINDER PIT	17	9	2	NW	2	15
5014	USFS	SULLIVAN ROCK QUARRY	12	10	4	NW	5	20*
5015	USFS	SQUAW CREEK GRAVEL PIT	15	10	16	SW	5	20*
5016	USFS	POLE CREEK CINDER PIT	16	9	4	SW	4	20*
5017	USFS	BLACK BUTTE GRAVEL PIT	14	9	8	NE	25	120
5018	USFS	FLY LAKE ROCK QUARRY	12	11	17	NE	2	20*
5019	USFS	GARRISON CINDER PIT	14	10	4	NE	3	20*
5021	USFS	EDGAR LAKE CLAY PIT	14	10	15	SW	3	20
5022	USFS	MCKENZIE GRAVEL PIT	15	9	2	NE	6	30*
5028	PRIV	GRAHAM CORRAL GRAVEL PIT	14	9	23	SW	--	--
5030	USFS	N INDIAN FORD GRAVEL PIT	14	10	17	SE	1	20*
5031	USFS	S INDIAN FORD GRAVEL PIT	14	10	20	NE	2	20*
5032	PRIV	N AIRPORT GRAVEL PIT	14	10	33	NW	--	--
5033	USFS	N SISTERS GRAVEL PIT	14	10	32	SE	4	20*
5037	PRIV	LONER CINDER PIT	16	10	22	SE	--	--

APPENDIX 8
MINERAL SOURCES

PIT NO.	OWNER-SHIP	PIT NAME	LOCATION T.	R.	SEC.	1/4	EXISTING RESOURCE USE AREA (1987) (ACRES)	ESTIMATED POTENTIAL RESOURCE USE AREA (ACRES)
5038	PRIV	N TRIANGLE CINDER PIT	17	10	9	NW	--	--
5040	PRIV	W SNOW CR DITCH CINDER PIT	16	10	35	NE	--	--
5044	PRIV	DRY CREEK GRAVEL PIT	14	9	4	SE	--	--
		SISTERS DISTRICT TOTALS					109	530*
		FOREST TOTALS					640	2994*

* Probable resource area is larger but the anticipated area of expansion during the planning period is expected to be small.

APPENDIX 9
VIEWSHED MANAGEMENT

Activity Schedule for Viewshed Management

Activity and Project	District	Cost Unit	M Dollars (1990 Dollars)	Number of Units by Year 90	91	92	93	94	95	96	97	98	99	2000
1 Viewshed Analyses														
Front Country	Sisters	Analysis	20	1										
Cascade Lakes Drive	Bend	Analysis	22		1									
McKenzie Highway	Sisters	Analysis	19			1								
Highway 58	Crescent	Analysis	19				1							
Squaw Creek, Pole Creek	Sisters	Analysis	13					1						
S Cascade Lakes Drive	Crescent	Analysis	22						1					
Sunriver Road (45)	Bend	Analysis	13							1				
Three Creeks Road	Sisters	Analysis	22								1			
Newberry Crater Road	Fort Rock	Analysis	19									1		
Tumalo Falls Road (4601)	Bend	Analysis	13										1	
County Cutoff Road	Crescent	Analysis	13											1
2 Vegetative Management Guides														
Elk Lake	Bend	Guide	8	1										
Lava Lake	Bend	Guide	5				1							
South Twin	Bend	Guide	6							1				
Crane Prairie	Bend	Guide	7										1	
Cultus Lake	Bend	Guide	6											1
Odell Lake Lodge	Crescent	Guide	7		1									
Princess Creek C G	Crescent	Guide	6					1						
Sunset Cove C G	Crescent	Guide	6								1			
Lava Lands Visitor Center	Fort Rock	Guide	6			1								
Paulina/Ogden Area	Fort Rock	Guide	5						1					
Paulina Entrance Station	Fort Rock	Guide	6									1		
Link Creek C G	Sisters	Guide	5		1									
South Shore C G	Sisters	Guide	6					1						
Smiling River C G	Sisters	Guide	6							1				

APPENDIX 9
VIEWSHED MANAGEMENT

Activity and Project	District	Cost Unit	M Dollars (1990 Dollars)	Number of Units by Year 90	91	92	93	94	95	96	97	98	99	2000
3. Visual Resource Monitoring														
	All Dist	View-sheds	8 (per yr.)	8	8	8	10	12	12	12	12	12	12	12
4. Visual Rehabilitation Projects	All Dist.	Project	35 (per yr.)		1	2	3	4	4	4	4	4	4	4

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Area Office
2625 Parkmont Lane
Olympia, Washington 98502

April 7, 1982

Mr. Leon W. Murphy
U.S. Forest Service
P.O. Box 3632
Portland, Oregon 97208

Re: Consultation Reference #1-4-82-F-403

Dear Mr. Murphy:

This is the U.S. Fish and Wildlife Service's (FWS) reply to your January 8, 1982, request for formal consultation under Section 7 of the Endangered Species Act of 1973, as amended, on the proposed Draft Environmental Impact Statement (DEIS) and Forest Plan for the Deschutes National Forest (DNF). The consultation addresses the possible effects of selecting Alternative F of the DEIS and from implementation of this action via the Forest Plan on the bald eagle (Haliaeetus leucocephalus), a species Federally classified as threatened in Oregon and the peregrine falcon (Falco peregrinus anatum), a species Federally classified as endangered in Oregon.

On March 22, 1982, we completed our review of the proposed Forest Plan and the documents transmitted with your consultation request. During this review, individuals were contacted who had special knowledge or expertise concerning the proposed project, the bald eagle, or the peregrine falcon. These people included Mr. Larry Mullen, U.S. Forest Service, Bend, Oregon; Mr. Jim Bottorff, FWS, Olympia, Washington; Mr. Richard Howard, FWS, Boise, Idaho; Dr. Robert Anthony, Oregon Cooperative Wildlife Research Unit, Corvallis, Oregon; and Mr. Norm Behrens, Oregon Department of Fish and Wildlife, Bend, Oregon. Meetings about the project were held with Mr. Mullen on August 27, 1980 and February 3, 1981.

Biological Opinion

It is our biological opinion that implementation of Alternative F (DEIS) and the proposed Forest Plan action will promote the conservation of the bald eagle and peregrine falcon. To aid in developing a perspective for our opinion, we have included an account of the proposal.

Project Description

The purpose of the DEIS is to present for public review the environmental consequences of selecting a proposed action which emphasizes intensive use and development of natural resources but also identifies options for maintaining undeveloped lands and old-growth ecosystems. Within the DEIS, the current management direction of the Forest and seven alternatives are described under subcategories of timber, range, recreation, Wild and Scenic River designations, old growth timber, deer populations, visual aspects, the Newberry Crater, and bald eagle populations. Alternative F in the DEIS was selected as the preferred alternative by the Forest Service. This alternative encourages development of intensive recreation, permits geothermal exploration and leasing within designated zones of the Newberry Crater, accelerates the harvest of mature and over mature lodgepole pine, and provides for habitat of threatened and endangered wildlife species.

The Forest Plan illustrates the implementation of Alternative F. The Plan will establish the management direction and associated outputs of the Forest for the next 10 years as required by the Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974, as amended by the National Forest Management Act (NFMA) of 1976. The Plan will specify the standards and guidelines to achieve the management direction and outputs. It will also provide for monitoring and evaluating tasks needed to ensure that the direction is carried out and to determine how well outputs and effects were predicted.

The Forest has a goal of increasing the number of nesting bald eagles from the current level of 15-20 pairs to 35-40 pairs. To do this, bald eagle management areas have been identified within the Forest. These areas provide nesting habitat for the present population and will be managed to accommodate new nesting pairs. To maintain this nesting habitat, timber prescriptions will be written to achieve uneven age stand composition. Emphasis will be placed on management for old growth ponderosa and/or Douglas fir that will be potentially useable as nest sites and perch trees. The criteria developed for old growth trees include: 1) height to exceed 110 feet; 2) diameter at breast height to be 20 inches or greater; and 3) tree distribution through a management area to be eight trees/acre. Bald eagle nesting habitat and roosting will be increased from the current direction alternative of 5,600 acres to 20,100 acres.

Activities within one quarter mile of an active nest will be restricted between January 1 and July 31. Monitoring of the nesting population and their reproductive success will be conducted on an annual basis in cooperation with the Oregon Department of Fish and Wildlife and the Oregon Cooperative Wildlife Research Unit (OCWRU). Annual monitoring of the effects of drawdown rate at Crane Prairie, Wickiup, and Crescent Reservoirs will be conducted during the nesting season. Recreation use levels will be monitored annually to determine how best to disperse

recreation during the nesting season. Road construction will be properly coordinated so as not to disturb nesting eagles, and road closures will be implemented around nests and monitored for their effectiveness.

Management areas will be increased in size for the bald eagle and established for peregrine falcons if peregrines are found nesting on the DNF. When bald eagles or peregrine falcons are encountered outside the present management areas, biologists will determine if the species' use of the habitat is incidental or essential to its needs. If it is determined to be essential, the following steps will be taken: 1) the DNF will protect the habitat from adverse modification through curtailment of conflicting activities, seasonal restrictions of activities, or avoiding the area; 2) the Forest will request Section 7 consultation with the U.S. Fish and Wildlife Service on any proposed action which may affect the species; and 3) for newly discovered habitat, an Environmental Assessment will be prepared to determine if it is necessary to designate the area as essential habitat. If habitat is essential, the Forest Plan will be amended and the essential habitat designations will supersede previous land allocations.

Species Account

Bald Eagles

The Deschutes National Forest annually supports 15 to 20 active pairs of bald eagles. Nests are primarily found in old-growth ponderosa and Douglas fir trees. These active pairs form the core of a greater inland population found around the periphery of DNF and are identified by the OCWRU as the Cascade Lakes Area population. In statewide nest productivity surveys conducted by OCWRU, Anthony (1981) determined the Cascade Lakes Area had the highest production (1.29 young/occupied site) of the three Oregon geographic areas where bald eagles are found breeding. In the same report, Anthony provided a summary of productivity data of the Cascade Lakes Area for the past four years (Table 1).

While some bald eagles are found wintering on the DNF, many move south to the Klamath Basin Area where prey is more available. However, Anthony (1982) found through radio-telemetry of an adult bird in 1981 that it spent the entire winter within its nesting home range. Future studies will determine to what extent this pattern of behavior is found throughout the population.

The DNF provides excellent preybase components for bald eagles. For example, 350 lakes are located within the boundaries of the DNF; 213 have been inventoried and found to support diverse populations of sport and rough fish. The remaining lakes are void of fish life because of oxygen depletion due to ice cover for 6 to 7 months of the year. Thirty-seven species of waterfowl use the larger lakes. David Lake, and Wickiup and Crane Prairie Reservoirs support the majority of these waterfowl populations.

5

Table 1. Productivity of bald eagles in the Cascade Lakes Area 1978-1981.

Year	Breeding Sites Surveyed	% of Breeding Sites Occupied	% Occupied Breeding Sites Successful	% Breeding Sites That Failed	Young Produced	Young/ Occupied Site	Young/ Successful Site
1978	26	52	100	0	20	1.67	1.67
1979	26	69	67	33	15	1.00	1.50
1980	29	69	63	37	16	.84	1.33
1981	31	70	76	24	27	1.29	1.69

Peregrine Falcons

The peregrine falcon has sustained unprecedented declines as a nesting species in Oregon (Henny, 1981). Its present status in Oregon is limited to one known active eyrie and possibly a few others compared to 42 active eyries early in the century. The Cascade Mountains and eastern Oregon originally supported at least 19 nesting pairs of falcons including one pair on the DNF. The reasons for this dramatic decline of nesting peregrines are complex, but the contributing variables are a climatic drought which began in the 1930's and the accelerated use of DDT to control forest insects (ibid).

No active nests have been observed on the DNF during the last decade. Three documented sightings have been made of peregrine falcons during this time. These sightings may be associated with birds passing through the state as the peregrines did not show an attachment to specific forest geographical areas.

Analysis of Impacts

Implementation of the proposed DEIS and Forest Plan as they relate to bald eagles and peregrine falcons will insure that adequate consideration is given to these wildlife resources. The objectives of the Plan for nesting pairs of bald eagles will meet recommendations that are provided in the draft Pacific Bald Eagle Recovery Plan for the High Cascade zone (Steenhof, 1982). Potential nesting and perching habitat will be provided under the concept of maintaining old-growth trees in bald eagle management areas. Accommodations for new nest sites outside present management areas will be considered under essential habitat designation.

Successful implementation of the Forest Plan will require a more intensive forest manipulation program using timber salvage sales while integrating silvicultural treatments to retain overmature trees. Compliance with the Plan will require funding commitments by the DNF to monitor bald eagle population objectives and timber volume components of each sale within bald eagle management areas. Each management area will need to be evaluated for the allowable sale program and the program sale statement to accommodate the transition period between current direction of the DNF and those identified in Alternative F of the DEIS.

Limitations on other activities will occur with the implementation of the bald eagle and peregrine falcon objectives. Seasonal limitations will be imposed on timber sale and other disruptive activities where active nests are located. Timber outputs will be limited within each bald eagle management area depending on the prescription as it is developed or described in the DEIS and Forest Plan. Recreationists will be restricted in their activities in bald eagle management areas. These restrictions will particularly impact those recreationists using the larger water bodies such as Wickiup and Crane Prairie Reservoirs.

The DNF is one of several core areas in the northwest that provides crucial nesting habitat to bald eagles. The Forest Plan and DEIS represent progressive models which will provide direction to the Forest Service in its regional efforts to meet the needs of this species. The actions outlined in these documents, when fully implemented, will provide an exemplary approach by the Forest Service to manage an enhanced habitat for bald eagles.

Conservation Measures

Sections 2(c) and 7(a)(1) of the Endangered Species Act mandate that all Federal agencies utilize their authorities to carry out programs for the conservation of listed species. We believe the DNF can further develop their Forest Plan by the addition of two other objectives: 1) Within the timeframe of the Plan, studies should be conducted on the DNF to identify the major prey species of bald eagles during the nesting and wintering seasons. These studies should clearly identify the prey species and to what extent each species contributes to the biomass of the preybase. 2) Monitoring should be done in cooperation with the Oregon Department of Fish and Wildlife as to how nesting bald eagles respond when reservoirs, lakes, and streams near their nests are chemically treated in an attempt to change the fishery resource. Chemical treatments of lakes near nesting bald eagles may deplete their food source and cause nesting failure.

Conclusion

After examination of the proposed action, consultation with various federal and state biologists, and review of available data on bald eagles and peregrine falcons, it is our biological opinion that implementation of Alternative F of the DEIS and the Forest Plan will promote the conservation of the bald eagle and peregrine falcon. Implementation of both conservation measures would increase the data and knowledge base necessary for effective management of bald eagles resulting in furthering the promotion of the conservation of this species.

Sincerely,

Margaret J. Kolar
for Joseph R. Blum
Area Manager

cc: OES, Washington, D.C.
RD, Portland, OR (AFA-SE)
SE, Boise, ID
Deschutes National Forest

References

Anthony, R. 1981. A summary of nest activity and productivity for bald eagles in three geographic areas of Oregon. On file at Oregon Cooperative Wildlife Research Unit. Oregon State University, Corvallis, Oregon, 2 p.

1982. March 11, personal communication with Endangered Species Staff, Boise, Idaho.

Henny, C.J. and M. Nelson 1981. Decline and present status of breeding falcons in Oregon. The Murrelet, 62:43-53.

Steenhof, K. 1982. March 15, personal communication. Chairperson, Pacific States Bald Eagle Recovery Team. Boise, Idaho.

APPENDIX 11
FOREST FISHERY PROGRAM/ACTIVITY SCHEDULE

Forest Fishery Program and Activity Schedule

Goal: To manage stream, river and lake resources to achieve a broad variety of fishing experiences which are responsive to public needs, resource capabilities, and supportive of cooperative targets established with the Oregon Department of Fish and Wildlife

Streams, rivers, and lakes will be classified based upon public use and their potential contribution to achieving cooperative fishing targets (angler success and type of fishery) with the Oregon Department of Fish and Wildlife. Stream classification is based upon the fishery objective which will be managed for:

1. Streams (type of habitat)

    a Spawning and rearing
    b Sport fishery
    c Water quality

2 Rivers and Lakes (type of public use)

    a Quantity, augmented fishery
    b Quantity, self-sustaining fishery
    c Quality, augmented fishery
    d Quality, self-sustaining fishery

Table A-12-1 identifies the streams, rivers, and lakes providing habitat supporting fishery resources on the Forest. Habitat capacity targets will be identified for each of these waters. The classification, targets, and bodies of waters listed in Table A-12-1 may be modified in response to public input, better technical information, or environmental changes outside the scope of the Forest's land management responsibilities

Objective 1: To determine the existing condition of the Forest's water resources and identify management needed to achieve objectives and targets

Activities:

a. Completion of stream, lake, and river surveys by October 1993.

b. Development of cooperative management plans for streams, lakes and rivers listed in Table A-12-1, by October 1998

c. Inventory fish passage needs by October 1993

Objective 2: To provide input into the Forest's land management projects which will protect or enhance fish habitat quality and display consequences

Activities:

a Completion of stream, lake, and river surveys during the planning of activities which could positively or negatively affect fish resource targets or objectives

b Development of riparian silvicultural prescriptions which enhance fish habitat by October 1990

c Development of assessment techniques to quantify changes in fish habitat outputs by October 1990

d Participation in the Forest's NEPA process for timber, range, engineering, recreation, and special-use projects that could affect identified fisheries streams (as needed)

Objective 3: To complete a Fishery-Recreation Management Plan to establish cooperative public use objectives for the Forest's lake, river, and stream fisheries by March 1, 1991

Activities:

a. Identification of public use, demand, and access to fisheries resources

b. Estimation of fish habitat capabilities and sensitivities

c Solicitation of public input and the involvement of the Oregon Department of Fish and Wildlife

APPENDIX 11
FOREST FISHERY PROGRAM/ACTIVITY SCHEDULE

d Develop plans to implement identified management activities (public access and facilities, habitat improvement).

Objective 4: To enhance the understanding and appreciation of Forest personnel of fish habitat management needs and to cooperatively develop new management approaches.

Activities:

a Schedule cooperative training sessions/ workshops with other resource specialists (timber--presale and administration, recreation, range, and engineering) annually.

b Encourage the participation of Forest personnel in fish habitat management activities.

Objective 5: To complete habitat improvement work needed to accomplish identified targets by FY 1997 (estimated to be about 100 acres/ structures annually).

Objective 6: To develop and maintain a strong, cooperative relationship with state and Federal agencies and public groups.

Activities:

a. Identify cooperative fishery targets with the Oregon Department of Fish and Wildlife by October 1992.

b. Develop cooperative projects with interested public groups (annually).

c. Solicit input and involvement of public groups and state and Federal agencies into Forest projects affecting important fishery resources (regularly).

d Maintain involvement in outside group activities which could affect Forest fish habitat management (regularly)

e. Present talks on aspects of Forest fish habitat management (annually)

f. Solicit media (newspaper, radio, television) coverage of suitable fish habitat management projects (annually)

Objective 7: To monitor and evaluate the effects of Forest activities on fish habitat quality

Activities:

a Develop and implement a plan to monitor changes in fish habitat quality by October 1989 The plan should include direction on monitoring:
- Sedimentation of spawning and rearing habitat
- Stream, river, and lake structural components (pools, cover, width to depth ratio)
- Temperature.
- Habitat improvement projects' effectiveness.
- Indicator population trends.

b. Develop an annual program of interdisciplinary field reviews to evaluate the adequacy and effectiveness of management practices by October 1988

c. Participate in annual spawning site counts with the Oregon Department of Fish and Wildlife

d. Evaluate our success in meeting cooperative fishery objectives through public input and the Oregon Department of Fish and Wildlife angler use and success data (annually)

Objective 8: To maintain fish habitat improvements

APPENDIX 11
FOREST FISHERY PROGRAM/ACTIVITY SCHEDULE

TABLE A-11-1

Fishery resource objectives and targets for streams, rivers, and lakes on the Deschutes National Forest

A River and Stream Fisheries:

Fishery	District	Length (Miles)	Important Spawning Streams
1. Big Marsh	2	11	Big Marsh
2. Crescent	2	22	Crescent Big Marsh
3 Deschutes (upstream Crane Prairie)	1	8	Deschutes Snow Cultus
4. Deschutes (Crane Prairie to Wickiup)	1	1	Browns
5 Deschutes (downstream Wickiup)	1	30	Spring Fall
6 Fall	1	11	Fall
7. Little Deschutes	2	11	Little Deschutes
8. Metolius	5	26	Metolius Candle Canyon Jack Abbot Brush First NF. Lake MF. Lake SF. Lake Jefferson
9 Odell	2	7	Odell
10. Paulina	3	10	Paulina
11. Snow	1	5	Snow
12. Squaw	5	10	Squaw
13. Spring	1	1	Spring
14. Tumalo	1	10	Tumalo

APPENDIX 11
FOREST FISHERY PROGRAM/ACTIVITY SCHEDULE

B. Major Lake Fisheries:

Fishery	District	Area (Acres)	Important Spawning Streams
1. Crane Prairie	1	3,850	Deschutes Charlton Cultus R Cultus C Snow
2. Crescent	2	4,000	
3. Cultus	1	1,100	Cultus C
4. Davis	2	3,000	Ranger Odell
5. East	3	1,000	
6. Billy Chinook	5	3,600	Metolius Candle Canyon Jack Abbot Brush First NF Lake MF. Lake SF. Lake Jefferson
7. Odell	2	3,500	Odell Wharf
8. Paulina	3	1,500	Paulina
9. Wickiup	1	10,000	Deschutes Browns Davis
10 Lava	1	340	

APPENDIX 11
FOREST FISHERY PROGRAM/ACTIVITY SCHEDULE

C Lakes Accessible By Road·

Fishery	District	Area (Acres)	Important Spawning Streams
1 Blue	5	60	
2. Cache	5	8	
3. Charlton	1	130	
4. Deer	1	55	
5. Devils	1	20	
6. Elk	1	380	
7. Hand	5	3	
8. Hosmer		250	
9 Irish	1	35	
10. Little Cultus	1	170	
11. Little Lava	1	110	
12. Meadow	5	16	
13. North Twin	1	110	
14. Round	5	22	
15. South Twin	1	110	
16 Sparks	1	600	Fall Goose
17 Summit	2	720	
18 Suttle	5	270	
19. Taylor	1	40	
20. Todd	1	30	
21. Three Creeks	5	50	
22. Link		13	
23 Island		8	
24. Dollarnine		3	
25 Torono		8	

APPENDIX 11
FOREST FISHERY PROGRAM/ACTIVITY SCHEDULE

D. Back-Country Lakes Accessible by Trail:

Fishery	District	Area (Acres)	Important Spawning Streams
1. Bingham M.	2	20	
2. Bingham	2	20	
3. Blow	1	55	
4. Bobby	2	85	
5. Booth	5	8	
6. Brahma	1	10	
7. Cabot	5	6	
8. Carl	5	20	
9. Darlene	2	11	
10. Demaris (Hunter)	5		
11. Doris	1	80	
12. Effie	2	5	
13. Farrell	2	4	
14. Fawn	2	43	
15. Found	1	6	
16. Green M	1	90	
17. Green N.	1	10	
18. Green S.	1	8	
19. Hanks E.	1	6	
20. Hanks M.	1	6	
21. Hanks W.	1	8	
22 Johnny	1	18	
23 Junco	1	2	
24 Kershaw	1	4	
25 Kinnikinnik	1	2	
26. Lemish	1	16	
27. Lily	1	15	
28. Long	5	18	
29. Long	1	10	
30. Lucky	1	30	
31. Meek	2	14	
32. Merle	1	8	
33. Moraine	1	12	
34. Muskrat	1	8	

APPENDIX 11
FOREST FISHERY PROGRAM/ACTIVITY SCHEDULE

Fishery	District	Area (Acres)	Important Spawning Streams
35 N.Matthieu	5	5	
36 Oldenberg	2	28	
37. Patsy	5	2	
38 Phantom	1	4	
39. Puppy	1	10	
40. Rosary L	2	42	
41. Rosary M	2	9	
42 Rosary N.	2	8	
43. Shirley	5	4	
44. Snell	2	9	
45. Snowshoe	1	18	
46. Snowshoe M	1	3	
47. Snowshoe U		30	
48. S.Corral	1	5	
49. Snowbug	2	3	
50. Square	5	55	
51. Stag	2	20	
52 Stormy	1	4	
53 Suzanne	2	10	
54 Table	5	5	
55 Teddy N	1	30	
56. Teddy S.	1	15	
57 Wasco	5	20	
58 Windy E	2	14	
59 Windy N	2	5	
60. Windy S.	2	9	
61. Windy W.	2	16	
62. Winapee	1	70	
63. Yapoah	2	30	

APPENDIX 11
FOREST FISHERY PROGRAM/ACTIVITY SCHEDULE

E. Back-Country Lake Accessible by Cross-Country Hiking:

Fishery	District	Area (Acres)	Important Spawning Streams
1. Barbie	1	3	
2. Bell	2	3	
3. Big Finger	1	4	
4. Black Crater	5	8	
5. Blowdown	1	4	
6. Bunnies	2	6	
7. Cathy	1	2	
8. Clark	1	1	
9. Comma	1	16	
10. Copper	1	1	
11 Cullin		2	
12 Dennis	1	10	
13. *Four O'Clock*	5	3	
14. Gleneden	1	1	
15. Golden	5	1	
16. Harlequin	1	3	
17. Heather	1	5	
18. Hidden	1	10	
19. Hidden	2	11	
20. Jay	1	12	
21. Josephine	1	3	
22. Karens	2	9	
23. Koko	5	3	
24. Lady	1	2	
25. Lil's	2	4	

APPENDIX 11
FOREST FISHERY PROGRAM/ACTIVITY SCHEDULE

Fishery	District	Area (Acres)	Important Spawning Streams
26. Lindick	1	8	
27. Little Three Creek	5	10	
28. Lodgepole	1	4	
29. Lois	1	2	
30. Martin	5	4	
31. Minto	5	6	
32. Needle	2	2	
33 Peewee	5	2	
34 Pocket	1	1	
35. Pretty (Red Top)	2	3	
36. Pygmy	1	1	
37. Raft	1	10	
38. Red Slide	1	2	
39. Rim	5	4	
40. Rock Rim	1	4	
41 Simon	1	2	
42. Strider	1	3	
43. Summit	2	4	
44. Sundew	1	10	
45. Swede	1	1	
46. Tam	5	2	
47 Timmy	1	2	
48 Torso	1	9	
49 Windigo West	2	5	
50. Yoran	5	10	
51. Zeus	2	5	

APPENDIX 12
RANGE ACTIVITY SCHEDULE

Range Activity Schedule

Goal.

1 To manage range vegetation to protect basic soil and water resources, provide for ecological diversity, improve or maintain environmental quality, and meet public needs for interrelated resource uses.

2. To provide forage and livestock and other forage-dependent resources which contribute to the economic and social well-being of the public, and which provide opportunities for promoting economic diversity and stability for rural communities

Objective 1: To update or complete management plans for all Forest allotments by October 1, 1998 The plans should include·

- Objectives, standards, and targets,
- administrative requirements (season of use, permitted use, grazing system, etc.)
- riparian standards if riparian areas exist within the allotment
- management needs and opportunities
- implementation schedule

Activities:

a. To prioritize planning allotment needs based upon public input, the potential for conflicts with other resources, and the status of existing plans by October 1, 1989. Update priorities annually.

b. Evaluate allotments for boundary adjustment or retention by September 1991. Close allotments which are unlikely to be used in the future because of: 1) lack of demand by the livestock industry; or 2) lack of economic viability

c. Complete inventories of allotments prior to the development of allotment plans and prepare plans. The inventories will include determination of

- suitable grazing lands
- plant communities and vegetation types
- vegetation ecological status and resource value (defined in FSM 2213.05) and trends
- riparian condition and trend and stream channel conditions
- existing and potential forage production and trend
- wildlife forage values
- soil stability
- range classification (primary, secondary, transitory, and unsuitable)
- existence of threatened or endangered plant species
- range improvement needs
- In addition, maps should be included which display.
- allotment territories
- plant communities
- suitability and classification of range
- existing and proposed improvements
- water sources (temporary and permanent)
- other features significant to management

APPENDIX 12
RANGE ACTIVITY SCHEDULE

d. Develop or adopt a stream channel/ riparian area survey technique which can be used in identifying and monitoring quantified grazing standards by May 1, 1990.

Objective 2: To provide input into the Forest's land management projects to evaluate effects on the range resource and to enhance the management of other resources.

Activities:

a Develop range prescriptions which will enhance riparian and wildlife values by October 1990. Update the prescriptions annually.

b. Develop range prescriptions which could be used to accomplish silvicultural objectives by October 1991 Update the prescriptions annually.

c. Participate in the Forest's NEPA process for timber, fire, engineering, recreation, and special-use projects which could affect range allotments.

Objective 3: To administer grazing permits consistent with direction found in the Forest Land Management Plan and allotment management plans (permit transactions, permittee meetings, allotment inspections, records and reports, accountability, unauthorized)

Activities:

a Prepare operating plans for range allotments annually. Coordinate the development and implementation of these plans with the permittee

b. Maintain range improvements

Objective 4: To improve range conditions by implementing and maintaining range enhancement projects which are cost effective, needed to achieve management targets, and compatible with the needs of other resources.

Activities:

a. Prepare a prioritized list (FSM 2246 1, R-6 SUPP 41) of range improvement projects by October 1, 1989, and update this list on an annual basis

b By October 1, 1998, develop long-term prescribed burning plans to schedule the regular rejuvenation of range vegetation and prepare the associated NEPA documents

c Implement range improvement work (estimated to total 20 structures and 400 acres annually)

Objective 5: To develop and maintain strong, cooperative relationships with permittees, county, and public groups.

Activities:

a Involve permittees in the development of allotment management and annual operation plans, and in the identification improvement work

b Solicit input and involvement of public groups into projects affecting range allotments Maintain a close working relationship with County Extension Agents

c. Maintain involvement in outside group activities which could affect Forest range management

Objective 6: To monitor the effectiveness of range management activities in achieving allotment plan targets and objectives, complying with standards, and maintaining the quality of other Forest resources.

Activities:

a Implement monitoring plans during the allotment planning process The plan should include direction to monitor utilization, condition, and trend in vegetative communities and in riparian

vegetation, and stream channel condition if riparian zones exist within the allotment

b. Establish a Forest Range Review Program to evaluate the effectiveness of range management activities on the Forest by October 1, 1989.

Objective 7: To cooperate with Federal, state, local agencies, and organizations to achieve effective management of noxious weeds, animal diseases, and undesirable range insects

Activities:

a. Cooperate with state and county agencies in controlling noxious weeds

b. Cooperate in controlling predators detrimentally affecting livestock production

APPENDIX 13
SENSITIVE NATIVE PLANTS PROGRAM

Sensitive Native Plants Program

Goal: Provide habitat for the perpetuation of viable populations of native plant species.

Objective 1: To complete field surveys, ecological studies and management plans for all sensitive native plant species by September 1999. (Table A-14-1)

Activities:

a. Survey for occurrence and distribution of listed sensitive plants by September 1999.

b. Complete ecological studies of listed sensitive plants by 1999.

c. Prepare management plans for individual species by September 1999

d. Develop and update maps on the location of sensitive native plants for use in planning projects by November 1989.

Objective 2: To educate Forest personnel on sensitive native plants and develop a standardized reporting procedure

Activities:

a. Develop a field identification guide for sensitive native plants by September 1990

b. Initiate training sessions to educate selected District personnel on sensitive native plants and establish a reporting procedure by September 1991

Objective 3: To pursue opportunities to enhance the propagation of sensitive native plants based upon management plans.

Activities:

a. Begin to develop seed collection and plant propagation procedures for selected sensitive plants by September 1994.

b Initiate field reintroduction of selected species by September 1995

c. Control the spread of introduced, non-native, exotic species that could threaten sensitive native plants

Objective 4: To incorporate measures to protect and enhance sensitive plants into Forest management activities.

Activities:

a. Evaluate the effects of proposed timber, range, recreation, wildlife, engineering and special use projects on sensitive native plants Provide recommendations to ensure their protection and realize enhancement opportunities by September 1990.

Objective 5: To monitor the condition of sensitive native plants.

Activities:

a Conduct annual field reviews to evaluate project success in protecting or enhancing sensitive native plants.

b. Establish long-term monitoring stations for selected sensitive native plants by September 1991

Objective 6: To develop and maintain a strong cooperative relationship with state and Federal agencies and public groups

Activities:

a Develop cooperative projects for the protection or enhancement of native plants annually

b. Identify cooperative native plant targets with the Native Plant Society of Oregon, the National Heritage Foundation, and

the Nature Conservancy by September 1990

c. Solicit input and involvement of public groups and state and Federal agencies concerned with sensitive plants into projects affecting threatened, endangered, or rare plants.

d. Maintain involvement in outside group activities which could affect Forest native plant management

e. Cooperate with the county and others in protecting sensitive native plant species from encroachment by noxious weeds

APPENDIX 13
SENSITIVE NATIVE PLANTS PROGRAM

TABLE A-14-1 Sensitive native plant species that will have surveys, ecological studies and/or management plans

Species	General Survey	Ecological Study	Management Plan
Agoseris elata (tall agoseris)	X	X	X
Allium campanulatum (Sierra onion)	X		X
Arnica viscosa (Shasta arnica)		X	
Artemisia ludoviciana ssp estesii (Estes' artemisia)	X		
Aster gormanii (Gorman's aster)			X
Astragalus peckii (Peck's milk-vetch)	X	X	X
Botrychium pumicola (pumice grape-fern)		X	X
Calamagrostis breweri (Brewer's reedgrass)			X
Calochortus longebarbatus v. longebarbatus (long bearded mariposa lily)			X
Campanula scabrella (rough harebell)	X		
Castilleja chlorotica (green-tinged paintbrush)		X	X
Cymopterus bipinnatus (Hayden's cymopterus)			X
Draba aureola (golden alpine draba)	X		
Gentiana newberryi (Newberry's gentian)	X		
Hieracium bolanderi (Bolander's hawkweed)			X
Lobelia dortmanna (water lobelia)		X	X
Lycopodium annotinum (stiff clubmoss)	X		X
Mimulus jepsonii (Jepson's monkey flower)			X
Ophioglossum vulgatum (adder's tongue)	X		
Penstemon peckii (Peck's penstemon)		X	X

APPENDIX 14
SOILS PROGRAM AND ACTIVITY SCHEDULE

Mission of the Soils Program

To ensure that the Forest Land Management Plan and resulting activities provide for the protection, conservation, and enhancement of soil resources. This is done by maintaining a strong scientific basis for defining the properties, distribution, capabilities, suitabilities and limitations of soils We will assist people in applying this information to optimize sustained yields of goods and services without impairment of the productivity and quality of National Forest lands

Goal To maintain or enhance the long-term soil productivity.

Soil is a basic nonrenewable resource The demands for sustained timber and forage production create a need for maintaining long-term soil productivity The ability of soils to remain productive depends largely on the management practices allowed We are making decisions that preserve environmental values while providing for the harvest of commercial products. These decisions are being made on a declining land base and some on fragile sensitive sites. We will likely be asked to manage the available Forest lands more intensively This intensive management may include mechanical tree harvesting, shorter rotations, the use of chemical fertilizers, repeated entries and more complete utilization of woody residues The issue is how the Deschutes NF can meet the current and future responsibilities to produce forest products while maintaining or enhancing the growth potential of the soil. It is the cumulative effect of repeated entries over a long period of time that has the greatest potential of lowering the forest soil productivity.

In general, the components of long-term soil productivity has been identified as the protection of:

1. The surface litter and topsoil layers
2. Soil organic matter and its replenishment
3 Soil organisms and biological system that cycle nutrients
4. Soil porosity, structure, drainage and aeration

In an effort to maintain or enhance soil productivity, the soils program on the Deschutes NF is directed to measure, quantify and evaluate the effects of management activities on the soil's natural ability to heal after disturbances The standards and guidelines for soils provide a basis from which to measure these changes.

Objective 1· To measure the occurrence and location of lands not suited for timber production which are included in the Forest's base of commercial timber lands. They occur on the Forest Plan not-suited map as a percentage of the total area or as suited but have reforestation difficulties

Activities:

a Identify the areas where the suitability for sustained yields of forest products is suspect These may include lands within broken lava flows, steep slopes on buttes and escarpments, or frost pockets. This will be an ongoing process that will be tied to the Districts' Timber Sale Plans

b. Provide technical support for the continuous updating of the not-suited lands inventory. Use the Environmental Analyses and silvicultural prescriptions as a basis for review of questionable sites The official designation will be in the Notice of Decision and changes will be tracked in G I S

Objective 2· To cooperate with the Soil Conservation Service in undertaking more detailed soil surveys than the existing Soil Resource Inventory provides. These are outlined in the Soil Survey Work Plan 1986-1991. The Forest is responsible to provide the SCS with maps, descriptions and text when needed to fulfill the requirements of the existing Memorandum of Understanding

Activities

a The following is a summary of the areas still needing to be completed and their timeline

APPENDIX 14
SOILS PROGRAM AND ACTIVITY SCHEDULE

SURVEY AREA	NF ACRES	FY TO MAP	TIME
Gilchrist	40650	1988	40 days
Geneva and Warm Springs	25082	1989	30 days
Lake County	190000	1991	120 days

The Gilchrist area includes all the lands that are scattered throughout the LaPine Basin The Geneva and Warm Springs area is the scarp of Green Ridge and the northern portion of the Metolius River Canyon. The Lake County portion includes the lands within Lake County on the Fort Rock Ranger District and is included in the Lake County North SCS Soil Survey Area. This mapping will be complete using standard soil survey methods in accordance with National Cooperative Soil Survey administered by the Soil Conservation Service. The mapping is subject to all the quality control and requirements that the SCS uses in its mapping.

Objective 3: To inventory the remaining portions of the Deschutes NF using the SCS National Cooperative Soil Survey by the year 2000 This is national direction and will be a process to re-inventory the Forest. Some activities have already occurred in this area. The mapping completed since 1982 in the Metolius and Green Ridge area, in addition to the planned mapping identified in the above objective, is a start at meeting this requirement. In 1980, a field review and correlation was done with Oregon State University, Soil Conservation Service, and the Forest on the Fort Rock, Crescent and Bend Ranger Districts. This was never finalized and changes never published.

Activities:

a To meet the national direction and complete the correlation prior to the 2000 date, a Soil Survey Work Plan completed by 1991.

b. A Memorandum of Understanding signed with the Soil Conservation Service by October 1992.

c Inventory, using NCSS procedures, at least 400,000 acres per year starting in FY 1993.

Objective 4: To inventory soil condition classes on Prime Forest Lands on the Sisters Ranger District. This inventory will include a definition, mapping scheme, map of existing condition classes and a method to monitor the additions and changes to soil condition.

Activities:

a. Measure the soil condition classes of the Prime Forest Lands in the Metolius Basin and Green Ridge areas of the Sisters District by October 1992. This is the area where detrimental compaction is causing the greatest impact to seedling growth and long-term soil productivity

Objective 5: To map the sensitive soil areas on the Districts by October 1990 The location of soils that are sensitive to management needs to be included in Environmental Analyses for timber sales. The criteria for identifying sensitive soils are· slopes over 30%, frost pockets, seasonal or year-long high water tables, fine sandy loam or finer surface textures that will compact, extremely rocky and high or extreme erosion hazard ratings

Activities:

a. Using the existing SRI or re-inventory completed with the SCS, locate sensitive soil areas on a 1"/mile map base that can be used during the EA process by October 1990.

b. Provide the information to Planning to be included in the new G.I.S mapping system by October 1990.

APPENDIX 14
SOILS PROGRAM AND ACTIVITY SCHEDULE

Objective 6: To provide input on the effects of disturbance of sensitive soils into proposed project activities.

Activities:

a. Develop an assessment procedure which will be used to evaluate soil-disturbing activities and effects on sensitive soils Evaluate cumulative effects and compliance with standards by October 1990

b. Inventory the condition of sensitive soils which will be affected by proposed projects prior to the pursuit of significant soil-disturbing activities.

c Develop cooperative soil protection policies and guidelines with Timber Sale Administrators, Planners and Fire Management Officers.

Objective 7: To monitor the effects of land management activities on long-term soil productivity

Activities

a. To conduct three (3) annual reviews of projects occurring on sensitive soils or in prime forest lands to evaluate the application of soil mitigation measures

b Document, for the files, the results of the annual reviews

Objective 8: To reclaim the productivity of sites which have been damaged by management activities.

Activities

a To restore 400 acres of damaged soil areas annually by tillage of compacted soils, smoothing of soil mounds or berms, fertilization, or spreading of biologically-rich organic materials to rebuild the soil biology levels

Objective 9: To educate Forest personnel and the public on soil resource sensitivities and management needs

Activities:

a. Provide biannual workshops for Timber Sale Administrators, Fire Management Officers or Presale Foresters on soil resource needs

b. Make at least one presentation annually on soil resource concerns to the public, private or educational groups

c Present an annual report on the "State of the Soil" to the Forest Supervisor

Objective 10 To assist and make recommendations to the Bend Pine Nursery regarding their operations and soil management needs

Activities:

a. Prepare the annual Soil Management Prescription that outlines fertilization schedules, soil and foliar testing requirements and farming methods that need to be changed.

b Provide the Nursery with a detailed soil inventory based on the limiting factors such as depth to hardpan, drainage restrictions, stone and rock content, total soil depth and textures Complete this inventory by FY 1990.

APPENDIX 15
WILDLIFE PROGRAM AND ACTIVITY SCHEDULE

Wildlife Program and Activity Schedule

Goal 1: Provide habitat for viable populations of all vertebrate species currently found on the Forest, and maintain or enhance the overall quality of habitat for selected featured species.

Provide and manage habitat for indicator species populations as follows

Species	Year 2000
Mule deer	24,900 winter
Elk	1,500
Pine marten	450-1,285 pairs
Townsend's big-eared bat	250 summer 110 winter
Bald eagle	35-45 pairs
Northern spotted owl	14 pairs
Osprey	125
Goshawk	40 pairs
Great blue heron	40-50 pairs
Three-toed woodpecker	70-1,020 pairs
Woodpeckers	40-60% maximum population [1]

[1] 40% of maximum population in even-aged stand treatments,
60% of maximum population in uneven-aged stand treatments

APPENDIX 15
WILDLIFE PROGRAM AND ACTIVITY SCHEDULE

Objective 1: Prepare habitat management plans for selected featured species.

Activities:

a. Prepare a habitat management plan for the following PETS species by indicated dates.

Bald eagle (FY 1995)
Spotted owl (FY 1992)
Townsend's big-eared bat (FY 1992)

b. Prepare a habitat management plan for the following species by indicated dates:

Three-toed woodpecker (FY 1991)
Pine marten (FY 1994)
Pileated woodpecker (FY 1991)
Accipter hawk (FY 1994)
Elk (FY 1998)
Golden eagle (FY 1998)
Cave Wildlife (FY 1993)
Osprey (FY 1998)
Great blue heron (FY 1998)
Waterfowl (FY 1998)
Deer herds-winter range (FY 1994)
Turkey (FY 1998)

Objective 2: Enhance or maintain habitat where needed to meet population targets.

Activities:

a Create snags for woodpeckers and secondary users in void areas on approximately 400 acres per year.

b. Enhance bitterbrush stand vigor of deer winter and transition range with prescribed burning on 600 to 1,300 acres per year and mechanical treatment on 200 to 300 acres per year

c. Precommercially thin adjacent to existing and potential bald eagle nest trees on approximately 35 acres per year.

d. Enhance waterfowl habitat by creating approximately 2 acres of marsh/potholes and 24 nesting structures per year.

e. Place approximately 25 nesting structures per year for watchable wildlife at developed recreation sites.

f. Enhance turkey habitat with an average of one watering device per year

Objective 3: Maintain improvements for continued serviceability.

Activities:

a. Maintain (and refill key sites when necessary) annually approximately 135 existing water developments

b Maintain fence around four study enclosures per year.

c Maintain annually up to 100 road gates, 120 road barrier structures, and 150 administrative closures signs used in restricting vehicle access to protect wildlife habitat

d Maintain approximately 160 existing waterfowl nest boxes, platforms, or islands per year.

e Maintain approximately 550 nongame nest boxes per year

f. Maintain annually approximately 34 wildlife interpretive signs.

Objective 4: Augment selected wildlife species populations having: (1) unique value for hunting, trapping, or viewing; or (2) low population distribution within the Forest or State by FY 1998. Elk, turkey, gray squirrel, ruffed grouse, mountain quail, and purple martin are examples

Activities:

a. Determine wildlife species potentially eligible for augmentation by FY 1992

b. Evaluate need for, and effects of, augmentation through NEPA process at the rate of one eligible species per year, beginning by FY 1993.

APPENDIX 15
WILDLIFE PROGRAM AND ACTIVITY SCHEDULE

Objective 5: Integrate wildlife considerations at the professional level into all comprehensive resource planning and management projects, including landownership adjustments, by FY 1989.

Activities:

a Provide professional wildlife biologist consultation on all projects requiring NEPA or Endangered Species Act evaluation

Specific tasks include:

1) Collection and interpretation of resource inventory information;

2) Participation in the development of a Position Statement;

3) Participation in the preparation of project plans and Environmental Analysis,

4) Consultation during project implementation;

5) Monitoring accomplishment of project objectives and effectiveness of coordination measures

b Develop computerized habitat simulation models to evaluate the effects of management activities upon the following species by the indicated dates:

1) Cavity-nesting birds (FY 1991)

2) Bald eagle (FY 1993)

3) Spotted owl (FY 1992)

4) Osprey (FY 1995)

5) Pine marten (FY 1994)

6) Deer (FY 1989)

7) Elk (FY 1990)

Objective 6: Monitor the accomplishment of Forest Plan goals and objectives for wildlife habitat and recreational use.

Activities:

a Perform wildlife monitoring activities specified in Forest Plan

b Develop a measuring technique to gauge specific kinds of wildlife recreational use by FY 1990

Goal 2: Provide habitat for the perpetuation of viable populations of native plant species

Objective 1: Complete field surveys, ecological studies and management plans for all sensitive native plant species by September 1999

Activities:

a Survey for occurrence and distribution of listed sensitive plants by September 1999

b Complete ecological studies of listed sensitive plants by 1999

c. Prepare management plans for individual species by September 1999

Objective 2: Educate Forest personnel on sensitive native plants and develop a standardized reporting procedure

Activities:

a. Develop a field identification guide for sensitive native plants by September 1990

b Initiate training sessions to educate selected District personnel on sensitive native plants and establish a reporting procedure by September 1991

Goal 3: Preserve and provide interpretation of unique geological, biological and cultural areas for education, scientific, and public enjoyment purposes.

Objective: Inventory the floral and faunal components of all nine established Research Natural Areas by FY 1996.

APPENDIX 15
WILDLIFE PROGRAM AND ACTIVITY SCHEDULE

Activity:

a. Survey flora and fauna, and prepare baseline inventory report for all RNA's by FY 1996

Goal 4: Provide old-growth tree stands for (1) preservation of natural genetic pools, (2) habitat for plants and wildlife species associated with overmature tree stands and, (3) *contributions to the diversity spectrum.*

Objective: Determine existing vegetative suitability and condition, and management needs--if any, of Old-Growth Management Areas by FY 1994

Activities:

a. Survey all Old-Growth Management Areas by FY 1993 to determine how much is old growth and identify management needs.

b *Prepare management plan for Old-Growth* Management Areas in need of special treatment measures by FY 1994.

Goal 5: Provide a range of quality recreation opportunities in an undeveloped forest environment.

Objective 1: Provide wildlife habitat conditions that annually support wildlife Recreation-Visitor-Days use in the following amounts:

Wildlife Recreation Visitor Days (in thousands)

	Decade 1	Decade 2
Big Game	59.3	72.5
Other Game	17.2	21.0
Non Game	7.6	9.3
Total	**84.1**	**102.8**

Activity:

a. Determine ongoing road management actions necessary to meet quantity and quality targets for wildlife recreation

Objective 2: Provide ongoing interpretive information on wildlife ecology and habitat management for wildlife recreationists by FY 1992.

Activities:

a. Prepare interpretive publications on wildlife ecology of management indicator species by FY 1990, and other species of special interest by FY 1992

b. Incorporate interpretive signing into initial *project planning for representative new* wildlife enhancement projects on each District.

c. Develop interpretive signing for representative completed wildlife enhancement projects on each District by FY 1992

Goal 6: Protect the unique and valuable characteristics of floodplain and riparian zones, and protect or improve water quality and fish habitat

Objective 1: Develop wildlife species habitat relationships for riparian ecosystems by FY 1993

Activities:

a Survey representative riparian plant associations for wildlife species occurrence and density for two consecutive years in FY 1991 through 1992.

b. Prepare wildlife relationship models in FY 1993.

Objective 2: Participate in the development of management prescriptions for riparian ecosystems

Goal 7: *Plan, budget for, and administer* wildlife and E/T/S plant program to accomplish the above goals.

APPENDIX 15
WILDLIFE PROGRAM AND ACTIVITY SCHEDULE

Objective 1: Refine annually short-term and long-term strategies and funding needs for accomplishing wildlife and E/T/S plant goals and objectives specified in the Forest Land and Resource Management Plan

Objective 2: Train for, and maintain, expert-level staffing to foster a leadership role for Forest Service personnel in local and regional wildlife habitat management by FY 1990.

Activities:

a. Develop a comprehensive training program to maintain state-of-the-art knowledge for all professional wildlife biologists and other personnel with wildlife responsibilities on the Forest.

b. Educate other personnel about wildlife issues and opportunities.

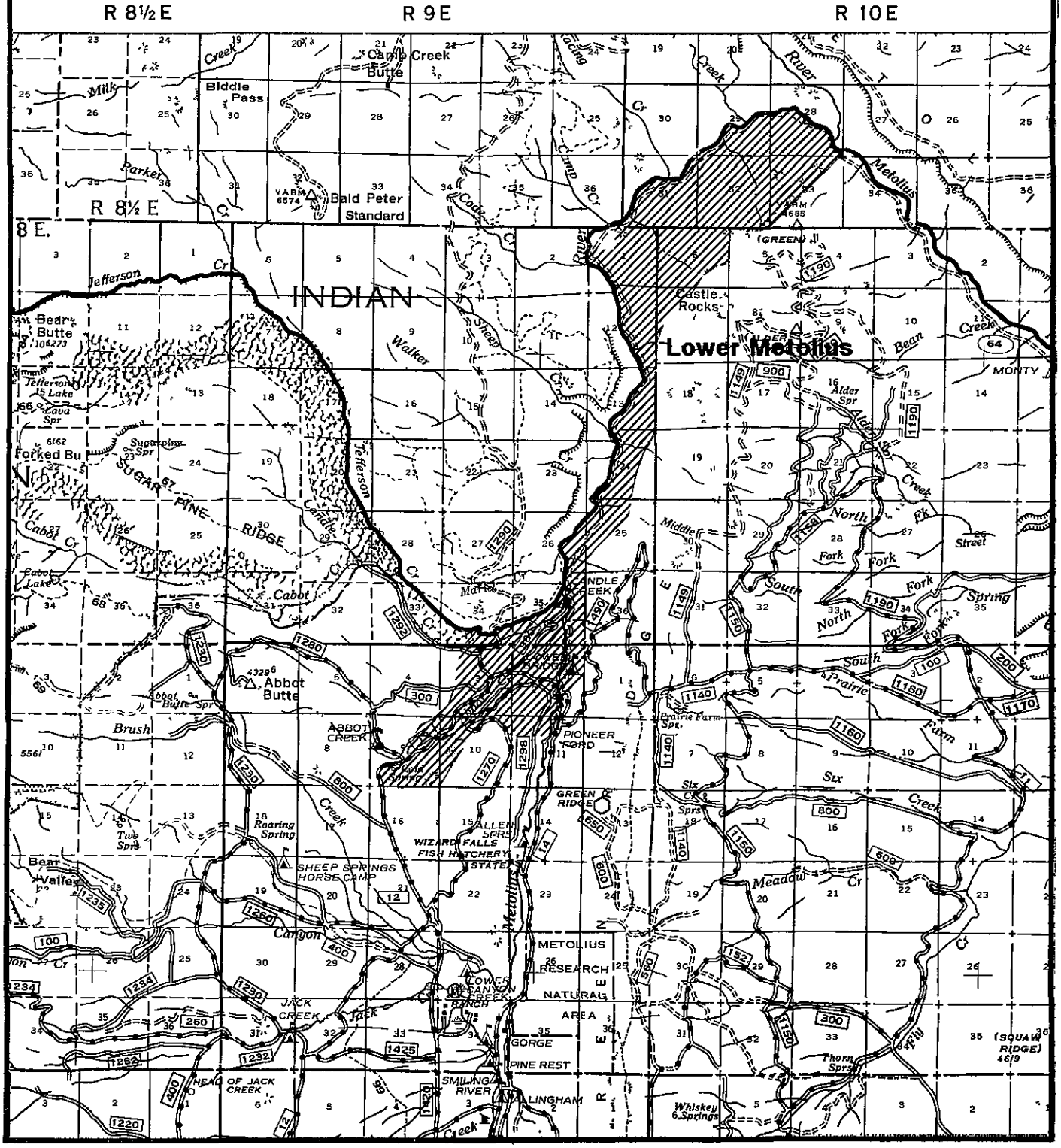
Objective 3: Inform, involve, and develop ongoing partnerships with appropriate agencies, organizations, landowners, and individuals.

Activities:

a. Cooperate with Oregon Department of Fish and Wildlife, U.S Fish and Wildlife Service, and other appropriate agencies in daily activities.

b Inform and involve organizations and individuals with an interest in wildlife management.

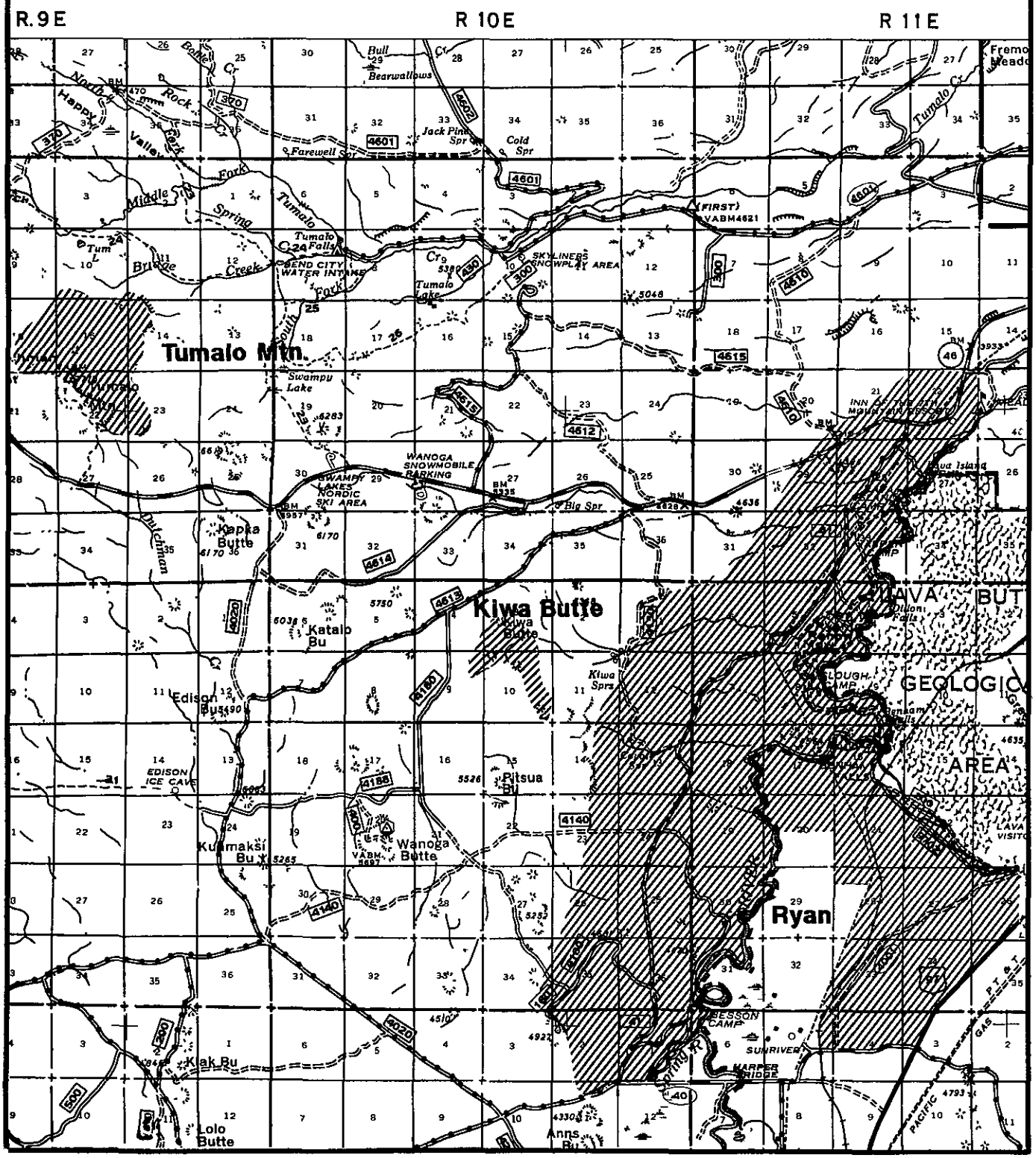
KEY ELK HABITAT AREAS



APPENDIX 16

ELK HABITAT PROGRAM

KEY ELK HABITAT AREAS



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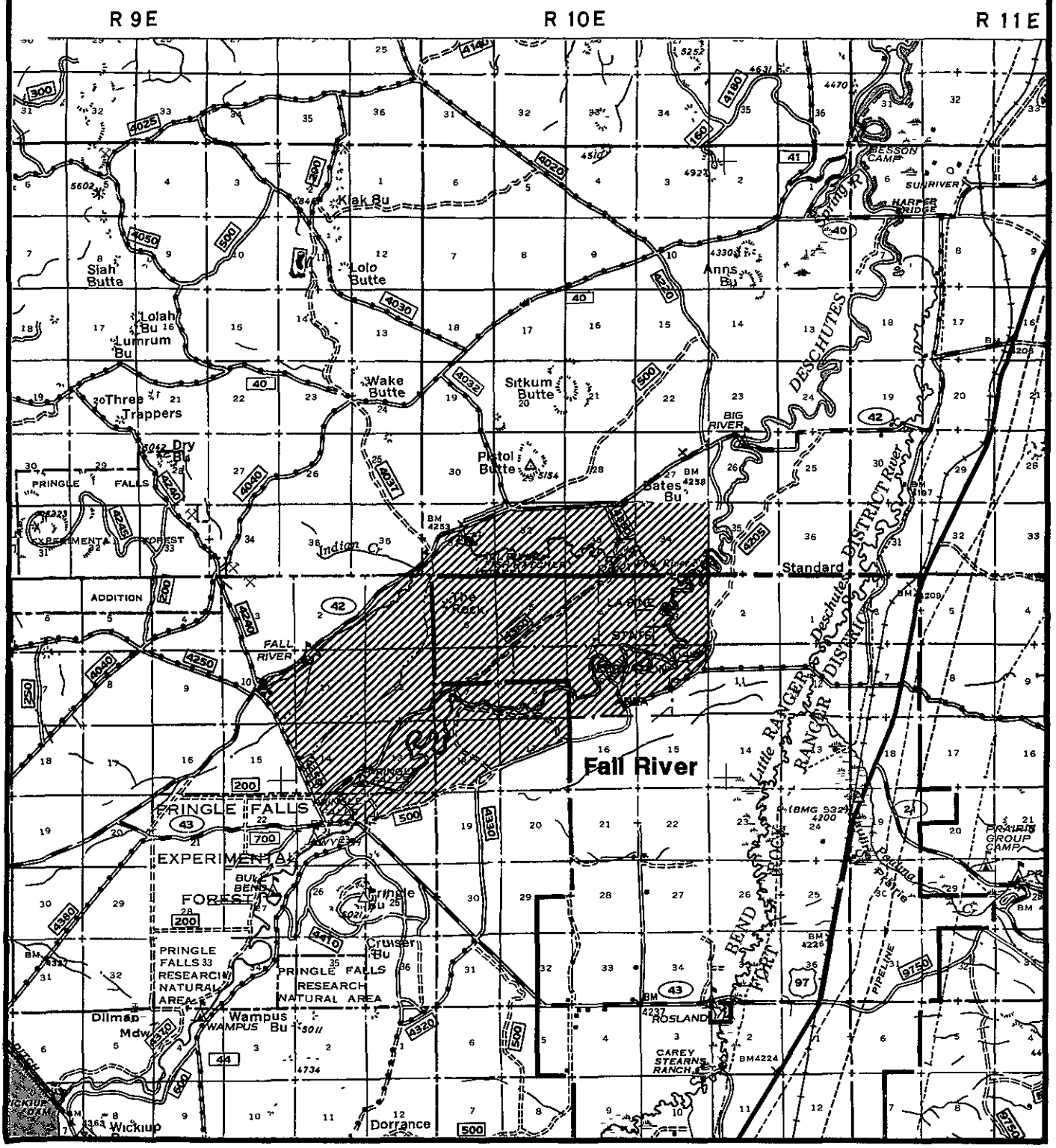
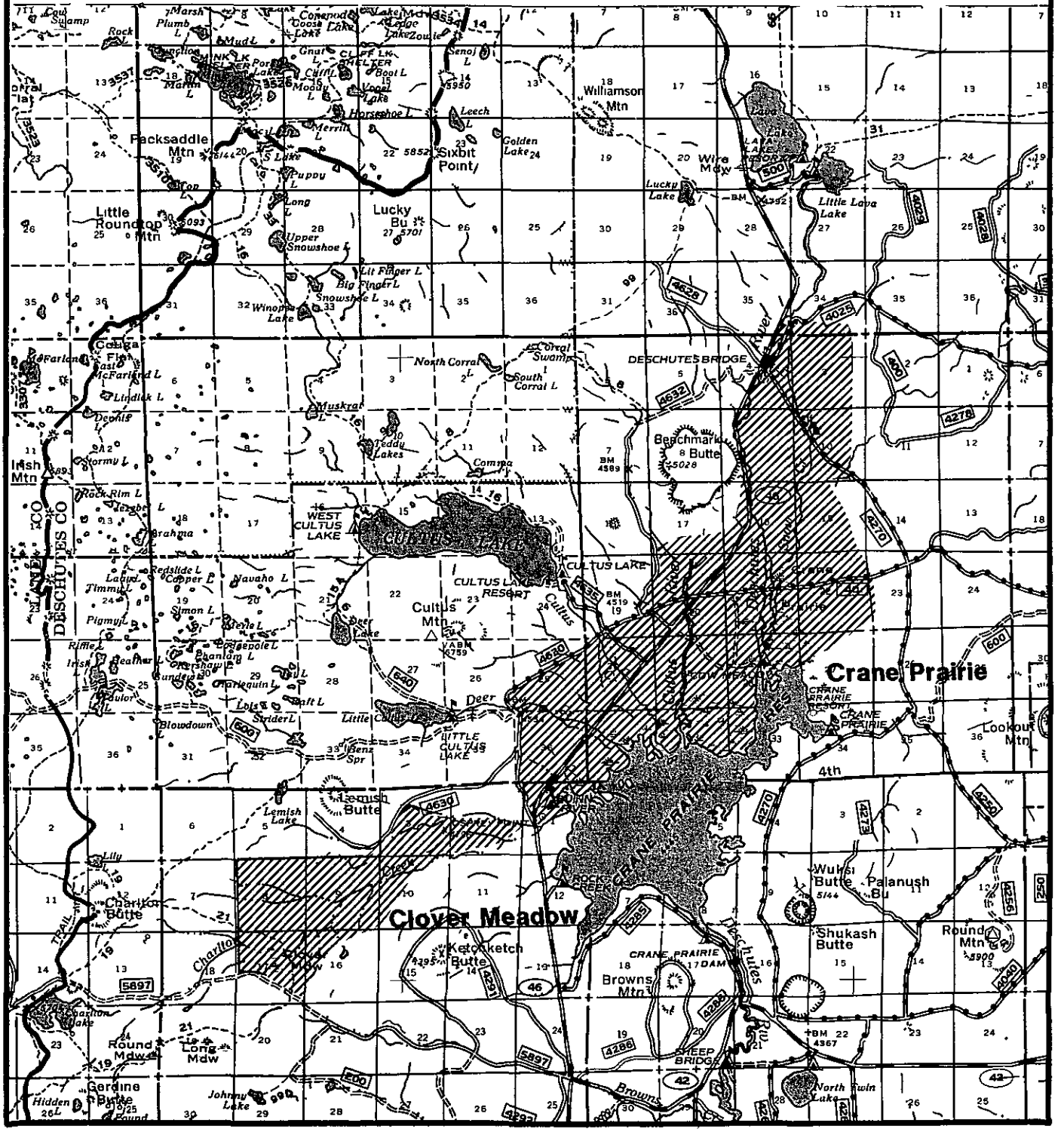


APPENDIX 16

ELK HABITAT PROGRAM

KEY ELK HABITAT AREAS



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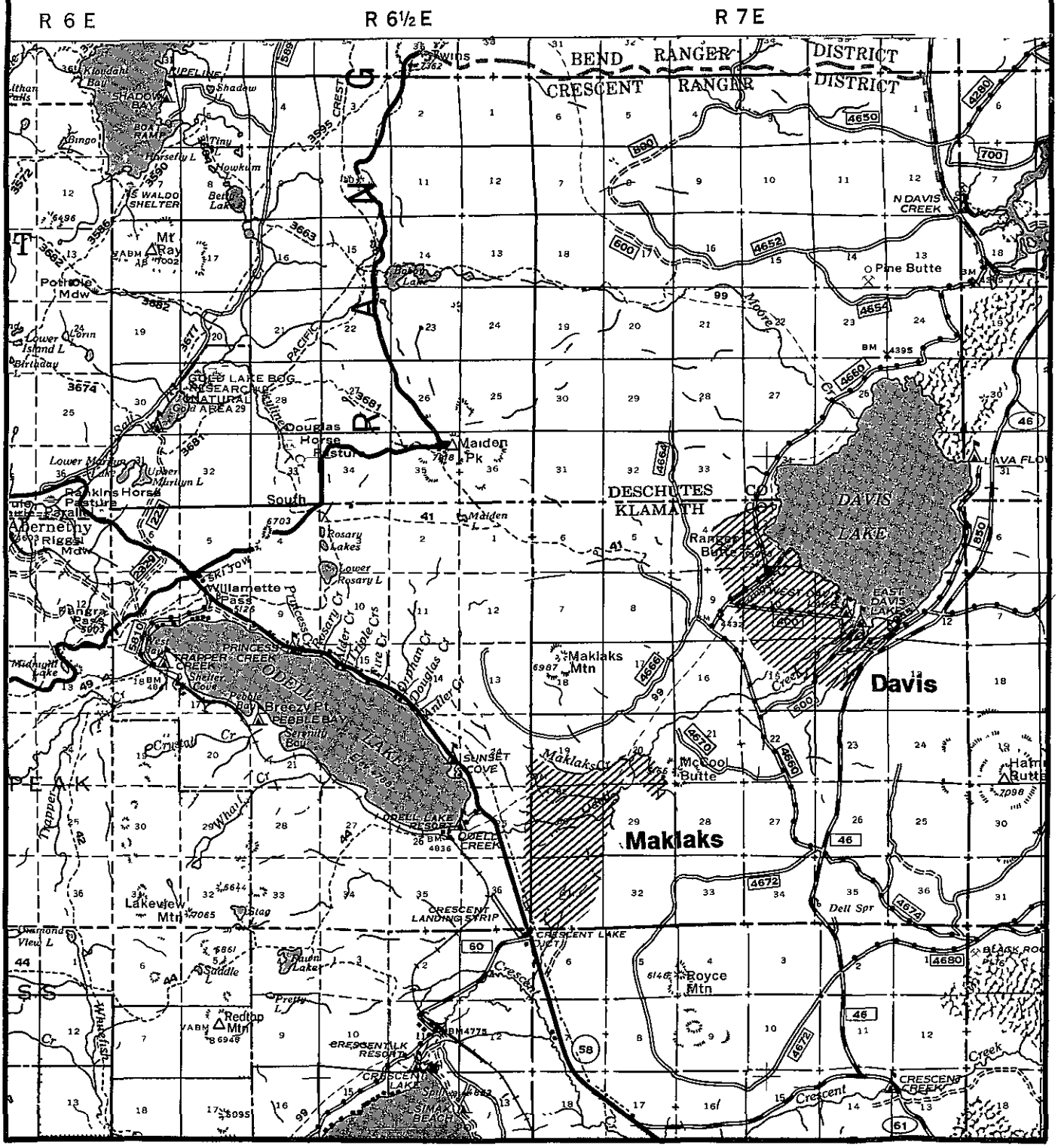
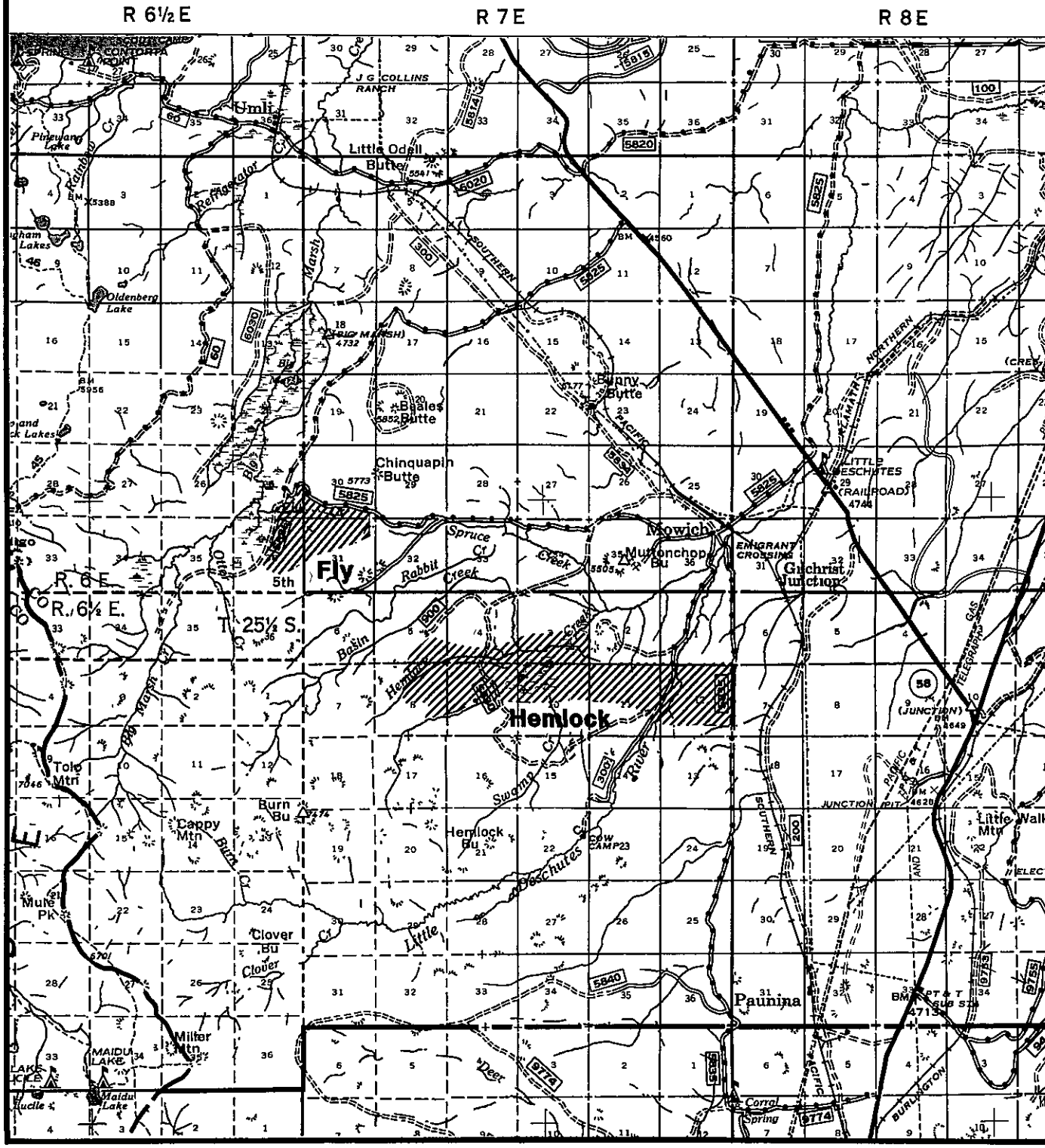


APPENDIX 16

ELK HABITAT PROGRAM

KEY ELK HABITAT AREAS



APPENDIX 17

FOREST PLAN BUDGET
(In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
RECREATION					
Cultural Resource Activities	AC	NFCR	144	0	
Rec. Res. Operations	AN1	NFRN	2132	3370	M PAOT Days
Rec. Res. Improvements	AN22	CNRF	650	400	PAOTS
Rec. Res. Improvements Maint.	AN23	NFRN	847	23031	PAOTS
Trail Operations	AT1	NFTR	93	900	Miles
Trail Construction	AT22	CNTR	724	55	Miles
Trail Maintenance	AT23	NFTR	260	900	Miles
Visual Resource Activities	AV	NFVR	116	0	
Wilderness Resource Activities	AW	NFRN	221	182	M Acres
RECREATION TOTAL			5187		
WILDLIFE AND FISH					
Inland Fish Operations	CI1	NFWF	191	0	
Inland Fish Structural Improv.	CI221	CWKV	16	25	Structures
Inland Fish Structural Improv.	CI221	NFWF	70	50	Structures
Inland Fish Non-Struct Improv	CI222	CWKV	10	25	Acres
Inland Fish Non-struct Improv.	CI222	NFWF	62	50	Acres
Inland Fish Habitat Improv Mtc	CI23	NFWF	10	0	
T & E Operations	CT1	NFWF	410	0	
T & E Non-Struct Habitat Impr	CT222	CWKV	20	100	Acres
T & E Non-Struct Habitat Impr	CT222	NFWF	37	105	Acres
Wildlife Operations	CW1	NFWF	401	0	
Wildlife Habitat Struct Improv	CW221	CWKV	100	230	Structures
Wildlife Habitat Struct Improv	CW221	NFWF	114	463	Structures
Wildlife Hab Non-Struct Improv	CW222	CWKV	79	400	Acres
Wildlife Hab Non-Struct Improv	CW222	NFWF	75	802	Acres
Wildlife Habitat Improv Maint.	CW23	NFWF	10	0	
Wildlife and Fish Total			**1609**		

FOREST PLAN BUDGET
(In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
RANGE					
Range Resource Operations	DN1	NFRG	281	29	MAUM's
Range Res Structural Improve.	DN221	CWKV	26	10	Structures
Range Res Structural Improve.	DN221	NFRG	53	20	Structures
Range Res Structural Improve.	DN221	RBRB	6	3	Structures
Range Res Non-Struct Improv.	DN222	CWKV	30	200	Acres
Range Res Non-Struct Improv.	DN222	NFRG	32	400	Acres
Range Res Non-Struct Improv.	DN222	RBRB	3	40	Acres
Range Resource Improv. Maint.	DN23	NFRG	4	0	
Range Resource Improv. Maint.	DN23	RBRB	3	0	
Noxious Farm Weeds	DN24	NFRG	21	6	Acres
Range Total			**458**		
TIMBER					
Silvicultural Exam & Prescrpt	ET111-2	NFTM	759	100,000	Acres
Timber Resource Planning	ET112	NFTM	230	0	
Resource Coordination	ET113	NFAF	120	0	
Resource Coordination	ET113	NFCR	192	0	
Resource Coordination	ET113	NFGE	6	0	
Resource Coordination	ET113	NFRG	38	0	
Resource Coordination	ET113	NFSW	160	0	
Resource Coordination	ET113	NFVR	142	0	
Resource Coordination	ET113	NFWF	272	0	
Resource Coordination	ET113	SSSS	159	0	
Timber Sale Prep	ET114	NFTM	1673	103300	MBF
Timber Sale Prep	ET114	NFTM		18513	MCF
Timber Sale Prep	ET114	SSSS	605	38500	MBF
Timber Sale Prep	ET114	SSSS		6900	MCF
Timber Harvest Administration	ET12	NFTM	884	103300	MBF
Timber Harvest Administration	ET12	NFTM		18513	MCF
Timber Harvest Administration	ET12	SSSS	244	38500	MBF
Timber Harvest Administration	ET12	SSSS		6900	MCF
Reforestation	ET24	CWKV	2685[1]	7662	Acres
Reforestation	ET24	NFRI	693[1]	1963	Acres
Timber Stand Improvement	ET25	CWKV	658	2525	Acres
Timber Stand Improvement	ET25	NFRI	1806	9406	Acres
Nursery Activities	ET26	NFRI	215		
Genetic Tree Activities	ET27	NFRI	375	0	
TIMBER TOTAL			**11670**		

[1]Includes Animal Damage Control Costs

FOREST PLAN BUDGET
(In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
SOIL, WATER & AIR					
Air Resource Inventory	FA111-1	NFSW	50	22000	ACRES
Air Resource Planning	FA112	NFSW	15	0	
Air Administration	FA121	NFSW	15	0	
Soil Inventory	FW111-1	NFSW	43	0	
Water Inventory	FW111-2	NFSW	117		
Watershed Planning	FA112	NFSW	81		
Watershed Res. Administration	FW12	NFSW	156	0	
Watershed Res. Improv Constr.	FW22	CWKV	80	400	Acres
Watershed Res. Improv Constr.	FW22	NFSW	87	432	Acres
Watershed Res. Improv Maint.	FW23	NFSW	13	0	
Water, Soil and Air Total			657		
MINERALS AND GEOLOGY					
Min & Geo Resource Activity	GM	NFGE	50	20	Cases
Min & Geo Resource Activity	GM	NFMC	79	575	Cases
Min & Geo Resource Activity	GM	NFME	433	400	Cases
Min & Geo Resource Activity	GM	NFML	22	25	Cases
MINERALS TOTAL			584		
LANDS					
Land Status Inventory	JL111	NFLA	24	0	
Special Use Admin. (non-rec)	JL122	NFLA	267	600	Cases
Land Ownership Administration	JL123	NFLA	41	60	Cases
Land Activity Maintenance	JL23	NFLA	23	0	
Landline Location	JL24	NFLL	252	25	Miles
Rights of Way	JL25	CNTM	22	5	Cases
Land Purchases	JL261	LALW	29	180	Acres
Land Transfer	JL264	NFLA	89	1600	Acres
Land Sales, Grants, Selections	JL265	NFLA	10	50	Acres
LANDS TOTAL			757		

FOREST PLAN BUDGET
(In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
FACILITIES					
Facilities Operations	LF1	NFFA	37	0	
Facilities Improvement Prep	LF21	CNFA	84	0	
Facilities Construction	LF22	CNFA	5	0	
Facilities Maintenance	LF23	NFFA	273	0	
Transportation Administration	LT12	NFRD	78	0	
Road & Bridge Administration	LT122	CNGP	12	0	
Road & Bridge Administration	LT122	CNRN	7	0	
Road & Bridge Administration	LT122	CNTM	112	0	
Road & Bridge Administration	LT122	SSSS	12	0	
Road & Bridge Admin. Support	LT123	CNGP	36	0	
Road & Bridge Admin. Support	LT123	CNRN	33	0	
Road & Bridge Admin. Support	LT123	CNTM	237	0	
Engineering Rd Preconstruction	LT2141	CNGP	33	0	
Engineering Rd Preconstruction	LT2141	CNRN	21	0	
Engineering Rd Preconstruction	LT2141	CNTM	99	0	
Engineering Rd Preconstruction	LT2141	SSSS	11	0	
Engineering Rd Preconstruction	LT2142	CNRN	21	0	
Engineering Rd Preconstruction	LT2142	CNTM	513	0	
Engineering Rd Preconstruction	LT2142	SSSS	55	0	
Road & Bridge Constr. Admin	LT2211	CNGP	16	0	
Road & Bridge Constr. Admin	LT2211	CNRN	10	0	
Road & Bridge Constr Admin	LT2211	CNTM	65	0	
Road & Bridge Constr. Admin	LT2211	SSSS	7	0	
Road & Bridge Reconstr. Admin	LT2212	CNRN	10	0	
Road & Bridge Reconstr. Admin	LT2212	CNTM	231	0	
Road & Bridge Reconstr. Admin	LT2212	SSSS	25	0	
Road Construction Contracts	LT222	CNRN	170	6	Miles
Road Construction Contracts	LT222	CNTM	100	10	Miles
Road Construction Contracts	LT222	PUCR	100	16	Miles
Road Reconstruction Contracts	LT223	CNRN	100	6	Miles
Road Reconstruction Contracts	LT223	CNTM	1000	12	Miles
Road Reconstruction Contracts	LT223	CWFS	1	0	Miles
Road Reconstruction Contracts	LT223	PUCR	900	100	Miles
Bridge Reconstruction Contract	LT225	CNTM	83	1	Each
Road Maint Level 1- Closed	LT231	CWFS	7	0	Miles
Road Maint. Level 1- Closed	LT231	NFRD	29	1200	Miles
Road Maint Level 2-High Clear	LT232	CWFS	5	0	Miles
Road Maint. Level 2-High Clear	LT232	NFRD	191	6150	Miles
Road Maint. Level 3,4&5 Pas'ngr	LT233	CWFS	502	0	Miles
Road Maint Level 3,4&5 Pas'ngr	LT233	NFRD	1319	950	Miles
FACILITIES TOTAL			6550		

FOREST PLAN BUDGET
(In 1989 Dollars)

Budget Activity Name	Activity Code	Funding Code	Cost M $	Number Units	Unit of Measure
LAND MANAGEMENT PLANNING					
Land Mgmt. Planning Activities	ML	CNGP, NF**	460	0	
PROTECTION					
Fire Management Preparation	PF11	NFAF	5441	0	
Fuels Improvements	PF2	BDBD	1933	20000	Acres
Fuels Improvements	PF2	NFAF	459	5000	Acres
Regular CLE Agreements	PF121	NFCL	110		
Cannabis CLE Agreements	PF122	NFCL	2		
Drug Control (Non-Cooperative)	PL131	NFCL	5	0	
Law Enforcement Other	PL132	CN**,NF**,SSSS	445	0	
PROTECTION TOTAL			8395		
PEST MANAGEMENT					
Surveys & Technical Assistance	QC122-1	SPPM	134	0	
Insect & Disease Suppression	QC124-1	SPPM	6	0	
ADMINISTRATION					
Line Management	TG3	****	453	0	
Program Support	TG4	****	3269	0	
TOTAL ADMINISTRATION			3722		
GRAND TOTAL			40550		

APPENDIX 18
TRAILS DEVELOPMENT

TRAILS DEVELOPMENT PLAN

TRAIL NAME	MILES	HIKING	HORSE	BIKE	SNOW MOBILE	X-COUNTRY SKI	ATV	BARRIER FREE
Edison ATV Bike	5.3						X	
Edison Ski Trail No.	4 0					X		
Metolius Mtn. Bike Tr.	30.0			X				
Obsidian Flow TH	0.1	X						
Bend Watershed	27 0	X	X	X				
Border to Border Tr.	1.0				X			
Cross Dist Snbl Tr.	0.5				X			
Tumalo Trail 5	4 0				X			
Deschutes River Phase 2	17 0	X	X	X				
Paulina Fall Tr &TH	1.5	X					X	
Lava Lands	3.0	X						
Metolius-Windigo Reloc	31.0		X					
Dutchman Sno-Park	0 1				X	X		
Deschutes River Phase 3	7 8	X	X	X				
Black Crater Tr.& TH	1.0	X						
Paulina Lake Loop	6 0	X						
Potholes ATV	50 0						X	
Junction Sno-Park & Tr	3.6				X			
Century Drive Bike	1 4			X				
Shevlin/Skyliner	10 0	X		X				
Black Crater	0.5	X	X					
Odell Lake	20 0	X		X				
Tumalo Trls	15 0	X		X				
McKenzie/Dugout Wint. Sys	20 0				X	X		
Katsuk Pond	4 6	X	X					

APPENDIX 18
TRAILS DEVELOPMENT

TRAILS DEVELOPMENT PLAN

TRAIL NAME	MILES	HIKING	HORSE	BIKE	SNOW MOBILE	X-COUNTRY SKI	ATV	BARRIER FREE
Big Marsh TH	0.1	X						
East Lake Shore Loop	6 0	X						
Two Springs	2 0	X	X					
Paulina Campground Nordic	2.0					X		
Outback	20.0	X	X	X				
Crescent Lake Shoreline	10 0	X		X		X	X	
Fall River Fisherman	2 5	X					X	
Northwest Paulina Snomobile	3.5				X			
Upper East Metolius	2 0	X				X		
Clover Meadow TH	0.1	X	X					
Inner Lake/Newberry Crater		X	X					

APPENDIX 18
TRAILS DEVELOPMENT

TRAILS DEVELOPMENT PLAN

TRAIL NAME	MILES	HIKING	HORSE	BIKE	SNOW MOBILE	X-COUNTRY SKI	ATV	BARRIER FREE
Dillon Falls	3.0	X	X	X				
North Paulina Peak	0 5	X			X			
Paulina Peak Interp	0.4	X		X		X		
Squaw Creek Mtn Bike	20 0			X				
South Cultus Lake	3 0	X	X	X				
Lava River Cave Ext. Interp	0.5	X						
Corbet Nordic Area	10.0				X	X		
D3 ATV Play Area + Trails	150 0						X	
Contorta ATV	2 0						X	
Deschutes/Sunriver/LL Bike	26 0			X				
Lava Lands Loop	3 0	X		X				
Crescent Jct ATV(Royce Mtn)	4 0					X	X	
LaPine/Newberry Snowmobile	15 0				X			
Crater Loop	15 0				X			
Trail of Cave	30 0	X		X				
Hole-In-The-Ground Interp	3 5	X						
Benham Falls Interp	0 4	X						
Little Crater Loop Tie	2 0	X						
Big Hole Interp	3 0	X						
Skyline/South Fork/Swede	4 0	X		X		X		
Edison Nordic Area	15 0				X	X		
Desert Trail Tie	35.0		X					
Cottonwood XC Ski	9 0					X		
Cinder Hill Loop	2 5				X			
Green Ridge Mtn Bike	25 0			X	X			

APPENDIX 18
TRAILS DEVELOPMENT

TRAILS DEVELOPMENT PLAN

TRAIL NAME	MILES	HIKING	HORSE	BIKE	SNOW MOBILE	X-COUNTRY SKI	ATV	BARRIER FREE
Metolius Interp. Loop	1.5	X						
East Skyliner	4.0				X			
N.O.R.T.	23.0	X						
10 Mile Loop	8 0					X		
Three Creeks Nordic Area	8.0				X	X		
Windy Lake Mtn Bike	4.3			X				
Kwolh Butte/Hosmer Lake	4 0				X		X	
Hornito Interp.	0.5	X						
Shevlin Park/Skyliner	10 0	X		X				
Cultus Pit-Barrier Free	1.0	X						
Crane Prairie	1.3	X						
Benz Spring	2 2	X	X					
Deschutes Bridge	6.0					X		
Twin Lakes Circle	6.0				X			
Twin Lakes Connection	2 4	X						

TRAILS DEVELOPMENT PLAN

TRAIL NAME	MILES	HIKING	HORSE	BIKE	SNOW MOBILE	X-COUNTRY SKI	ATV	BARRIER FREE
ATV 500	4.8						X	
High Deschutes River	10.0	X						
SW Ketchketch Speedway	0.0				X			
Todd Ck/Quinn Meadow/Elk Lk	7.4	X	X	X	X	X		
Spring River	15.0			X				
West Vista Butte	3.0					X		
Wanoga Bu. Pass	11.3					X		
Big Spring/Inn of 7th Mtn.	7.0				X			
Edison Improvement	3.4		X		X			
Wake Butte	2.6		X		X			
Lookout/Round Mtn/So Twin	16.0				X			
So. Twin/Crane Prairie Res	6.0				X			
Ketchketch Loop	5.2				X			
Rd 4632	3.3				X			
Rd 4292	3.3				X			
Deer Loop (B1)	7 4			X				
Skyliner Loop (B2)	6.6			X				
Pumice Loop (B3)	13.2			X				
Kiwa Spring Loop	7.8						X	
Pumice Dunes	5 4						X	
Bearwallows	5.6	X	X	X				
Bridge Creek Ext.	1.0	X	X					
Trapper Improvement	3 0	X	X					
Ford	0 3	X	X					
Cultus Mtn	4 7	X	X					

APPENDIX 18
TRAILS DEVELOPMENT

TRAILS DEVELOPMENT PLAN

TRAIL NAME	MILES	HIKING	HORSE	BIKE	SNOW MOBILE	X-COUNTRY SKI	ATV	BARRIER FREE
Browns Mtn Loop	5.0			X				
Wickiup Butte	1 2						X	
Lava Lakes	6.0	X		X				
Crane, East Shore	8 0	X		X				
Shukash Tour	1 0	X						
Osprey Pt.	.5	X						
Winopee Trailhead	10.0	X				X		
Elk/Hosmer Loop								
Quinn River Trailhead	4.0	X	X					
Tumalo Mtn Snowmobile	2 5				X			
Sparks Lake Photo	25	X						
Wuksi Crater	4.0	X	X					

New trails will be constructed as funds or construction opportunities become available. Use trends and user interests will be reviewed annually to determine if proposed trail projects are responsive to customer needs

Mode of travel and mileages may vary following final project planning

APPENDIX 19--Recreation Program Needs for Plan Implementation in M $[1]

	1989 Final (for reference)	1990 Final (for reference)	1991 Forest Plan	1992 Forest Plan	1993 Forest Plan	1994 Forest Plan	1995 Forest Plan	1996 Forest Plan	1997 Forest Plan	1998 Forest Plan	1999 Forest Plan	2000 Forest Plan
NFTR												
AT 1	7	5	23	93	95	95	95	97	97	97	97	97
AT 23	168	225	275	260	315	325	335	345	355	365	375	385
NFRN												
AC	59	60	136	144	205	210	216	216	216	216	216	216
AN 1 (AN11 + AN12)	1030	1279	2000	2132	2160	2160	2230	2230	2360	2360	2490	2490
AN 23	830	622	780	847	917	980	1150	1200	1220	1240	1260	1280
AW	135	95	115	221	280	290	300	310	310	310	310	310
AV	13	92	116	116	120	120	120	120	120	120	120	120
CNRF	22	75	1249	650	1850	1950	1550	1550	850	850	850	850
CNTR	40		702	724	750	750	750	750	750	750	750	750
NFCR												
ET 113	123	152	155	192	285	285	285	285	285	285	285	285
NFVR												
ET 113 (VR & AN)	34	99	107	142	131	135	135	135	135	135	135	135
ML			28	117	120	120	120	120	120	120	120	120
PL			70	85	90	95	100	105	110	115	115	115

[1]All Dollars shown are 1990 dollars

APPENDIX 20--RECREATION SITE DEVELOPMENT

Site	Type of Construction	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Simax Group	N		C	C									
Rock Creek CG & BS	N		D	C	C								
Lava Lands Phase I	N & Rehab	F	S	D	C	C							
Lava Lakes Complex	N & Rehab	F	S	D	C	C							
Paulina CG & BS	N & Rehab	F	S	D	C	C							
Cinder Hill CG & BS	N & Rehab		F	S	D	C	C						
Odell Lake Boating	Recon		F	S & D	C								
Three Creek Lakes Complex	N & Rehab			F	S	D	C	C					
Suttle Lake Showers	N			F	S & D	C	C						
Deschutes Toilets	N				F	S	D	C	C	C	C	C	
Riverside CG	N & Rehab				S	D	C	C					
Elk Lake CG	Rehab				F	S	D	C	C				
Crescent Lake CG & BS	N & Rehab					F	S	D	C	C			
Metolius Complex CG's	Recon						F	S	D	C	C		
Sheeps Bridge CG	N & Rehab						F	S	D	C	C		
Contorta Point/Flat Complex	N & Rehab							F	S	D	C	C	
Suttle Lake CG	Rehab								F	S	D	C	C
Cow Meadow CG	Rehab									F	S	D	C

F = Feasibility
S = Survey
D = Design

C = Construction
N = New
Rehab = Rehabilitation

Recon = Reconstruction

Glossary

Glossary

Acre Equivalent

A conversion factor applied to structures or actual acres of wildlife habitat improvement to show that a larger area of habitat was improved rather than just the treated acres.

Acre Foot (Ac. Ft.)

A unit for measuring a volume of water. Quantity of water required to cover 1 acre to a depth of 1 foot.

Activity

A measure, course of action, or treatment that is undertaken to directly or indirectly produce, enhance, or maintain forest and rangeland outputs or achieve administrative or environmental quality objectives. FSH 1309.11, The Management Information Handbook, sets forth Forest Service activity definitions, codes, and units of measure.

Allocatable Unit

Areas of land which for social, managerial, and/or political reasons should be allocated as a whole or not at all to a particular management area.

Allowable Sale Quantity (ASQ)

The quantity of timber that may be sold from the area of suitable land covered by the Forest Plan, for a time period specified by the plan. This quantity is usually expressed on an annual basis as the "average annual allowable sale quantity." (36 CFR 219.3)

Alternative

One of several policies, plans, or projects proposed for decision making.

Amenity

An object, feature, quality, or experience that gives pleasure or is pleasing to the mind or senses. Amenity value is typically used in land-use planning to describe those resource properties for which market values (or proxy values) are not or cannot be established.

Analysis Area

A delineated area or land subject to analysis of (1) responses to proposed management practices in the production, enhancement, or maintenance of forest and rangeland outputs and environmental quality objectives, and (2) economic and social impacts.

Analysis of the Management Situation

A step required under the National Forest Management Act in which the Forest determines its ability to supply goods and services to meet society's demand for them

Animal Unit (AU)

An animal unit is a 1,000 pound mature cow, or its equivalent based on an average daily forage consumption of 26 pounds dry matter per day.

Animal Unit Month (AUM)

The forage requirement for one month (26 pounds x 30 5 days = 800 pounds).

Livestock Class AUM Factors

Mature Cow 1.00

Mature Cow w/Nursing Calf 1.32

Yearling (9-18 months) 0.70

Bull 1.50

Mature Sheep 0.20

Ewe w/lamb 0.30

Horse 1.20

ATVs

All Terrain Vehicles - Rubber tire, three and four wheel, non-highway, recreational vehicles.

Basal Area

The cross-sectional area of a tree, usually measured at breast height (4-1/2 feet above the ground) Basal area can be determined for one tree or for all the trees on an acre. The basal area per acre is a measure of the density of tree growth on that acre. Basal area is measured in square feet.

Base Sale Schedule

A timber sale schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned

sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity. (36 CFR 219.3)

Benchmark

The process whereby a Forest determines it capability to supply outputs both with and without legal requirements. A determination of the maximum capability within which Alternatives are developed.

Biological Potential

The maximum amount of sustainable wood fiber obtainable by application of intensive management practices to acres classified as commercial forest land.

Board Foot

A volume of solid wood, 1-foot square and 1-inch thick.

Capability

The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils, and geology, as well as on the application of management practices, such as silviculture or protection from fire, insects, and disease.

Capability Area

An area of land which has homogeneous ability to produce various outputs.

Catastrophic Situations

These situations include the effects from fire, insects and disease. The effects are significant, generally widespread, and detrimental to the environment in which they occur.

CEQ

Council on Environmental Quality.

Chargeable Timber Volume

All volume included in the growth and yield projections for the selected management prescriptions used to arrive at the allowable sale quantity, based on regional *utilization standards.*

Consistent with the definition of timber production, planned production of fuelwood is not included in the allowable sale quantity and therefore is nonchargeable.

Chip Type or Chippable

Refers to a stand of lodgepole pine in which most live stems are under 8.0 inches diameter at breast height or are merchantable dead and sometimes chipped for use as pulpwood.

CCC

Civilian Conservation Corps

Clearcut

A cut which removes all trees from a designated area at one time.

Closed Road

A road where all motor vehicle use has been eliminated through the use of gates, barricades, or other lower-cost methods such as obscuring the road entrance with rocks, logs, and brush. Roads may also be closed through cooperative agreements with the Oregon Department of Fish and Wildlife where entire land areas are closed for vehicle access during specific time periods, such as hunting season, but leave a few roads open for vehicle access (referred to as "green dot closures" because a green dot on a post indicates an open road). Normally, a closed road is available for hikers and mountain bikes (non-motorized). When supported by analysis, some closed roads may allow use of motorcycles and ATV's, seasonally or year-round. Allowable uses will be posted at the road entrance.

CMAI

Culmination at mean annual increment.

Commercial Forest Land

Forest land that is producing or is capable of producing crops of industrial wood and (a) has not been withdrawn by Congress, the Secretary, or the Chief; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity, or watershed conditions; and (c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking can be attained within 5 years after final harvesting.

Commercial Thinning

A cut in a stand under rotation age designed to remove excess merchantable trees. The objective is to place the growth capability of the site on the remaining leave trees.

Commodities

Tangible and intangible products (i.e., outputs of wood, water, wildlife, visuals, etc.) that can be turned to commercial or other advantage.

Common Minerals

Materials such as sand, stone, gravel, pumice (except block pumice), pumicite, or cinders.

Compaction

Compaction of soil increases soil bulk density and decreases porosity as a result of the application of mechanical forces such as weight and vibration

Concern

A point, matter, or question raised by management that must be addressed in the planning process.

Confined Fire

To restrict the fire within determined boundaries established either prior to the fire, during the fire, or in an escaped fire situation analysis.

Contained Fire

To surround a fire, and any spot fires therefrom, with control line, as needed, which can reasonably be expected to check the fire's spread under prevailing and predicted conditions.

Controlled Fire

To complete the control line around a fire, any spot fires therefrom, and any interior islands to be saved; burn out any unburned area adjacent to the fire side of the control line; and cool down all hot spots that are immediate threats to the control line, until the line can reasonably be expected to hold under foreseeable conditions.

Conversion Period

A transition period during which an unregulated forest structure is converted to a regulated one. When regulated, the forest will have a distribution of stand age and size classes, providing approximately equal periodic harvests.

Corridor

A linear strip of land identified for the present or future location of transportation or utility rights-of-way within its boundaries.

Cost Effective

Achieving specified outputs or objectives under given conditions for the least cost.

Cost Efficiency

The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs including environmental, economic, or social impacts, are not assigned monetary values but are achieved at specified levels in the least cost manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates-of-return may be appropriate. (36 CFR 219.3)

Cover/Forage Ratio

The ratio, in percent, of the amount of area in forage condition to that area in cover condition; the criteria by which potential deer and elk use of an area is judged.

Cover

Vegetation used by wildlife for protection from predators, or to ameliorate conditions of weather, or in which to reproduce.

Created Opening

Created openings are openings in the forest created by the silvicultural practices of shelterwood regeneration cutting at the final harvest, clearcutting, seed tree cutting, or group selection cutting.

Culmination of Mean Annual Increment (CMAI)

The age at which the average annual growth is greatest for a stand of trees. Mean annual increment is expressed in cubic feet measure and is based on expected growth according to the management intensities and utilization standards assumed in accordance with 36 CFR 219.16(a)(2)(i) and (ii). Culmination of mean annual increment includes regeneration harvest yields and any additional yields from planned intermediate harvests.

Cultural Resources

The remains of sites, structures, or objects used by humans in the past; historical or archaeological.

Current Direction

As used in the DEIS it is continuing on with the 1978 Land Management Plan for the Deschutes National Forest and the 1974 Timber Management Plan as revised in 1980 and 1984.

d.b.h.

Diameter at breast height. The diameter of a tree measured 4 feet 6 inches from the ground.

d.i.b.

Diameter inside bark.

DEIS

Draft Environmental Impact Statement.

Demand

The amount of an output that users are willing to take at a specified price, time period, and condition of sale.

Departure

A schedule which deviates from the principle of nondeclining flow by exhibiting a planned decrease in the timber sale and harvest schedule at any time in the future.

Depauperate

Poorly developed in physical form.

Displacement (Soil)

Soil displacement is the removal and horizontal movement of soil from one place to another by mechanical forces such as a blade. Detrimental displacement is the removal of more than 50 percent of the topsoil or humus enriched A1 and/or AC horizons from an area of 100 square feet or more which is at least 5 feet in width.

Mixing of surface soil layers by discing or disc-plow operations, or removal of surface soil layers by hand scalping are not considered as detrimental displacement.

Developed Recreation

Recreation use that occurs within a site or facility specifically established and constructed for public recreation purposes. Activities commonly included are camping, picnicking, resort use, and downhill skiing, but can also include parking areas, trailheads, boat launching sites, etc.

Discounting

An adjustment, using a discount rate for the values of money over time so that costs and benefits occurring in the future are reduced to a common point in time, usually the present, for comparison.

Dispersed Recreation

Recreation use outside of a developed recreation site, ranging from scenic driving to backpacking.

Diversity

The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan. (36 CFR 219.3)

Ecoclass

A grouping of one or more naturally occurring plant community types.

Ecosystem

The interacting system of a biological community and its nonliving environment.

Effects

Environmental consequences as a result of a proposed action. Included are direct effects, which are caused by the action and occur at the same time and place, and indirect effects, which are caused by the action and are later in time or further removed in distance, but which are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in this EIS are synonymous. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic quality, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Impacts may result from actions that may have both beneficial and detrimental effects, even if the agency believes the effects will be beneficial (40 CFR 1508.8).

Effect, Physical, Biological

The change, positive or negative, in the physical or biological conditions which directly or indirectly results from an activity, project, or program.

Effect, Economic

The change, positive or negative, in economic conditions, including the distribution and stability of employment and income in affected local, regional, and national economies, which directly or indirectly result from an activity, project, or program.

Effect, Social

The change, positive or negative, in social and cultural conditions which directly or indirectly result from an activity, project, or program.

Empirical Yield Table

A table reflecting the existing standing timber volumes today and how they would grow in the future, under various timber management regimes.

Endangered Species

Any species listed in the Federal Register, which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of the Act would present an overwhelming and overriding risk to man.

Environment

The sum of all external conditions and influence affecting the life, development, and survival of an organism.

Escaped Fire

A fire which has exceeded, or is anticipated to exceed, initial action capabilities or the key fire management direction or prescription.

Escaped Fire Situation Analysis (EFSA)

A decision analysis of those factors influencing suppression of an escaped fire from which a plan of action will be developed The analysis includes the development of alternative suppression strategies and net effect of each.

Even-Aged Management

The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (and, therefore, tree sizes throughout the forest area). The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 percent of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands.

Even Flow

Maintaining a relatively constant supply of timber from year to year.

Experimental Forest

A small portion of the Deschutes National Forest known as the Pringle Falls Experimental Forest which is used as a field laboratory for research.

Extensive Timber Management

A relatively low level of capital is invested in timber practices intended to increase wood fiber production.

Final Overstory Removal

Removal of all of a mature overstory from a manageable immature understory timber stand.

Fire Intensity

The severity of a given fire. Low intensity fires average flame lengths under 4 feet and high intensity fires average flame lengths over 4 feet.

Fire Management Effectiveness Index (FMEI)

(FMEI) = (Fire Prog + FFF $-Fuels Capital Invest. $ + NVC $) x A

M Acres Protected x SI x B

When:

A = Consumer Prince Index (19769 $ = 1.0)

B = A potential inter-unit workload value now established at 1.0.

SI = Severity Index fixed at 1.0 for planning purposes.

NVC = Net Value Change, expressed as a cost, usually a positive number.

Fire Prog = Fir program, presuppression dollars.

FFF = Fighting forest fire dollars.

Floodplains

The lowland and relatively flat areas adjoining inland and coastal waters, including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year.

Forage

All browse and nonwoody plants available to livestock or wildlife for grazing or harvested for feed.

Forest Influence Area

The area surrounding a National Forest whose social, economic, and/or environmental condition is significantly affected by activities occurring on the Forest.

FORPLAN

The forest planning model. A linear programming software package used to analyze planning decisions regarding land use patterns, capital investment, and timber harvest scheduling.

Fuel Break

A strategically located strip or block of land on which the native vegetation has been modified by appropriate fuel treatment methods to a lighter or less dense fuel type. Fuel breaks break up the continuity of heavy, hazardous fuels so that fires burning to them can be readily controlled.

Fuel Hazard

A supply of vegetative fuel that forms a special threat of ignition or suppression difficulty.

Fuel Treatments

Levels and methods of fuels treatment will be guided by the resource objectives within the Management Area.

Geographical Information Systems (GIS)

Systems for entering, storing, analyzing, and retrieving spatial information. Technology used in mapping and showing interrelationships between Forest resources.

Geothermal Energy

Internal heat from the earth.

Habitat

The place where a plant or animal naturally or normally lives or grows.

Harvest Cutting Method

A combination of interrelated actions whereby forests are tended, harvested, and replaced. The combination of management practices used to manipulate the vegetation results in forests of distinctive form and character. Harvest cutting methods are classified as even-aged and uneven-aged.

Hydrologic

Pertaining to the quantity, quality, and timing of water yield from forested lands.

Hydrophobicity

The inability/resistance to absorb water.

Input/Output Analysis

A technique for analyzing the interdependence of producing and consuming sectors in an economy.

Integrated Pest Management (IPM)

A process for selecting strategies to regulate forest pests in which all aspects of a pest/host system are studied and weighed. The information considered in selecting appropriate strategies includes the impact of the unregulated pest population on various resources values, alternative regulatory tactics and strategies, and benefit/cost estimates for these alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest host system and consist of a combination of tactics such as timber stand improvement plus selective use of pesticides. A basic principle in the choice of strategy is that it be ecologically compatible or acceptable. (36 CFR 219.3)

Integrated Resource Area (IRA)

A geographical division of the forest which provides for a logical consideration of interactive effects of management activities.

Intensive Timber Management

A relatively high level of capital investment in timber management practices intended to increase wood fiber production.

Interdisciplinary

The integrated use of natural and social sciences and the environmental design arts in planning and decision making.

Intensive Forest Management

A high investment level of timber management that envisions initial harvest, regeneration, with genetically improved stock, control of competing vegetation, fill-in planting, precommercial thinning as needed for stocking control, one or more commercial thinnings, and final harvest.

Intermingled Ownerships

Lands within the National Forest boundaries or surrounded by National Forest lands that are owned by private interests or other government agencies. Because of early land grants, these lands frequently are in checkerboard ownership patterns.

Irretrievable

Applies to losses of production, harvest, or use of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sports site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

Irreversible

Applies primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, that are renewable only over long periods. Irreversible also includes loss of future options.

Known Geothermal Resource Area (KGRA)

An area in which the geology, nearby discoveries, competitive interests, or other indicators would, in the opinion of the Secretary of Interior, engender a belief in men who are experienced in the subject matter that the prospects for extraction of geothermal steam or associated geothermal resources are good enough to warrant expenditures of money for that purpose. Under these conditions the leasing would be on a competitive bid basis.

Land Allocation

The decision to use land for various resource management objectives in order to best satisfy the planning process issues, concerns, and opportunities, and meet assigned forest output targets.

Land Capability

A measure of the capability of the land to produce goods and services without imposed restraints, such as lack of manpower and finances or other priority uses and without damage to the land.

Land Suitability

A measure of the suitability of land, as it exists in natural condition, for a single resource use or combination of uses.

Land Type

Units of land with similar vegetative soil, and landform characteristics and capabilities, which respond similarly to management activities.

Leasable Minerals

Generally include minerals such as oil, gas, oil shale, coal, potassium, sodium, phosphates, sulphur, and geothermal. The Deschutes National Forest appears to have potential only for geothermal and possibly oil and gas.

Locatable Minerals

Those hard rock minerals which can be obtained by filing a claim on Public Domain or National Forest System lands reserved from the Public Domain. In general, the locatable minerals are those hard rock minerals which are mined and processed for the recovery of metals (e.g. gold, silver, copper), but may also include certain nonmetallic minerals and uncommon varieties of mineral materials.

Long-Term Sustained-Yield Timber Capacity (LTSY)

The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified management intensity consistent with multiple-use objectives.

M

The Roman numeral for 1000.

Marketing Area

The area in which most Forest resources are delivered for primary manufacturing. For the Deschutes NF this area would be Deschutes County.

Maximum Modification

A visual quality objective meaning human activities may dominate the characteristic landscape but should appear as a natural occurrence when viewed as background.

MBF

Thousand board feet (MMBF - million board feet).

Megawatt

One thousand kilowatts.

MMCF

One million cubic feet. New timber management plans express tree or log volume on a cubic foot basis because it is a truer representation of actual volume of wood fiber than is board foot volume. A cubic foot is a volume of wood equivalent to a cube 12 inches on all sides.

Managed Stand

A stand of trees in which stocking level control is applied to achieve maximum growth.

Managed Yield Table

A table showing, for a given species on a given site, the progressive development of a managed stand at periodic intervals covering the greater part of its useful life. It usually includes average diameter, basal area, number of trees, standing volume, and harvest volumes for a specific timber management regime.

Management Areas (MA)

A unit of land allocated to emphasize a particular resource, based on the capability of the area.

Management Concern

An issue, problem or a condition which constrains the range of management practices identified by the Forest Service in the planning process.

Management Direction

A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them.

Management Intensity

A management practice or combination of management practices and associated costs designed to obtain different levels of goods and services.

Management Practice

A specific activity, measure, course of action, or treatment.

Management Prescription

Management practices selected and scheduled for application on a specific area to attain multiple-use and other goals and objectives.

Market Resources

Products derived from renewable and nonrenewable resources that have a well-established market value, for example, forage, timber, water, and minerals.

Minimum Viable Population

The low end of the viable population range.

Mitigation

Includes: (a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and, (e) compensating for the impact by replacing or providing substitute resources or environments. (40 CFR Part 1508.20)

Mixed Conifer

A stand of coniferous trees in which no single species makes up more that 50 percent of the composition of the stand.

Modification

A visual quality objective meaning human activities may dominate the characteristic landscape but must also utilize naturally established form line, color, and texture. It should appear as a natural occurrence when viewed in foreground or middle ground.

Monitoring (Program)

Close evaluation of the implementation of Forest activities for conformance with the standards and guidelines and objectives as stated in the Forest Plan.

Mountain Pine Beetle

A small insect that bores into trees introducing a fungus which can kill the tree if the tree does not successfully repel the attack.

Mortality

The volume of sound wood dying from natural causes during a specified period.

Multiple Use

The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

Municipal Watershed

A watershed that serves a public water system as defined in the Safe Drinking Water Act and associated regulations.

NEPA

National Environmental Policy Act of 1969. A law directing Federal agencies to evaluate environmental effects of proposed action.

Net Public Benefits

An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index. The maximization of net public benefits to be derived from management of units of the National Forest System is consistent with the principles of multiple-use and sustained-yield

NFMA

The National Forest Management Act of 1976.

Nonchargeable Volume

All volume not included in the growth and yield projections for the selected management prescriptions used to arrive at the allowable sale quantity.

Noncommercial Forest Land

Unproductive forest land incapable of yielding 20 cubic feet of wood per acre per year because of adverse site conditions and productive forest land withdrawn from commercial timber use through statute or administrative regulation.

Noncommercial Species

Species that have no economic values at this time nor anticipated timber value within the near future.

Nondeclining Flow

See Base Sale Schedule.

Nonforest Land

Lands that never have had or that are incapable of having 10 percent or more of the area occupied by forest trees; or lands previously having such cover and currently developed for nonforest use.

Nonmarket

Products derived from National Forest resources that do not have a well-established market value, for example, wilderness, wildlife.

Nonpriced Outputs

Outputs for which there is no available market transaction evidence and no reasonable basis for estimating a dollar value commensurate with the market values associated with the priced outputs.

Off-Road Vehicle (ORV)

A motorcycle, dune buggy, four-wheel drive, snowmobiles, or other vehicle that is designed to operate off of a road.

Off-Highway Vehicle (OHV)

This term replaces ORV above.

Old Growth

Overmature trees well past their optimum growth period and past age of rotation.

Oligotrophic

Pertaining to a lake having insufficient nutrients to support abundant plant and animal life, and, therefore, having a high oxygen content. These lakes are characteristically deep and geologically young.

Opening

An area without trees.

Open Road Density

A term used when measuring the miles of open road per square mile of land area (see definition of a closed road). The purpose of the measurement is to provide an indication of the potential impact of vehicle traffic on wildlife habitat. The desired open road densities have been established for the deer summer range and some of the management areas. When a planning team determines that these values would be exceeded for a given project, further biological evaluation would be warranted.

The land area used in the calculation of square miles is normally the total area of the implementation unit, excluding the area of major lakes. The road mileage used in the calculation includes all open roads within the unit and one-half the mileage of open roads along the perimeter of the unit. Because seasonal road closures are implemented for wildlife reasons, the mileage associated with them is included with closed roads.

Output

The goods, end products, or services that are purchased, consumed, or used directly by people. Goods, services, products, and concerns produced by activities that are measurable and capable of being used to determine the effectiveness of programs and activities in meeting objectives. A broad term for describing any result, product, or service that a process or activity actually produces.

Overwood Removal

A type of harvest which is designed to remove part or all of the over-aged trees in the overstory. The objective is to release the acceptably stocked understory.

Persons-at-one-Time (PAOT)

In recreation, PAOT means persons at one time. It is a measure of recreation capacity in the number of people that can occupy a site or area and achieve a desired recreation experience. It can be used as a design standard and an indicator of productive capacity for a site or area.

Partial Overstory Removal (POR)

Removal of a portion of the overstory from a manageable understory, where an intolerable amount of damage would be done to the understory if all the overstory were removed at one time. The intention in a partial overstory removal cut is to remove the remainder of the overstory a short time later.

Partial Retention

A visual quality objective which means human activities may be evident, but must remain subordinate to the characteristic landscape.

PD (Other Resource Damage)

These allotments may or may not have approved AMP's but adverse impacts on resources other than the basic soil and water resources are occurring. These impacts are the result of resource management objectives not being met. An allotment will be classified as PD when 10 percent or more of its area meets this criteria. Damage to vegetation is based on use in excess of that planned.

Planned Ignitions

A fire started deliberately, and controlled to accomplish a resource management objective.

Planning Horizon

The overall time period considered in the planning process that spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decisions. (36 CFR 219.3)

Planning Period

One decade. The time interval within the planning horizon that is used to show incremental changes in yields, costs, effects, and benefits. (36 CFR 219.3)

Plant Communities

A homogeneous unit in respect to the number and relationship of plants in the tree, shrub, and ground cover strata.

Precommercial Thinning

The practice of removing some of the trees less than merchantable size from a stand so that the remaining trees will grow faster.

Prescribed Burning

Use of fire in forest management for hazard reduction and vegetative manipulation.

Prescribed Fire

A wildland fire burning under specified conditions which will accomplish certain planned objectives. The fire may result from either planned or unplanned ignitions. Plans for use of unplanned ignitions for this purpose must be approved by the Regional Forester.

Present Net Value (PNV)

The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total discounted costs of managing the planning area. (36 CFR 219.3)

Productivity Classes

Refer to productivity of the land itself. It is a measure of fertility and moisture availability. In technical literature, productivity is classified using a "Site Index" or "Site Class."

Programmed Harvest

The amount of timber on the Forest that is scheduled for harvesting. The programmed harvest is based on current demand, funding, and multiple-use considerations.

Public Issue

A subject or question of widespread public interest relating to management of National Forest System

Public Participation

Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service planning.

Puddling (Soils)

Soil puddling is a physical change in soil properties due to shearing forces that destroy soil structure and reduce porosity. Observe detrimental puddling as vehicle tracks when soil is molded and when depth of rutting has reached 6 inches or more.

Purchaser Credit

Credit earned by the purchaser of a National Forest timber sale by construction of contract-specified roads. Earned purchaser credit may be used by the purchaser as payment for National Forest timber removed.

Real Dollar Value

A monetary value which compensates for the effects of inflation.

Recreation Capacity

The number of people at one time that can occupy a site or area without causing environmental damage or impairing the desired recreation experience to be provided in that site or area.

Recreation Information Management (RIM)

A computer data storage system for the organization and management of information concerning recreation use, occupancy, and management of National Forest lands.

Recreation Opportunity Spectrum (ROS)

This refers to a system used to identify and analyze broad categories of recreation opportunities and settings on Forest lands. It involves a Forest-wide recreation analysis of the physical setting (remoteness, size, and evidence of humans), social setting (user density and character), and managerial setting (managerial regimentation and noticeability) on the Forest. It is designed to provide an indication of the kind of experience the recreationist is likely to find in an area. (See Appendix 2 for a discussion of ROS categories.)

Recreation Visitor Day (RVD)

A measure of recreational use of a site area. One recreation visitor day consists of 12 hours of recreation use of a site or area. Recreation visitor days are used as a recreation production or output capacity measure.

Reforestation

The restocking of an area with trees.

Regeneration

The reforestation of a tree crop by natural or artificial means.

Regeneration Cut

A cut in a particular stand of timber designed to remove the existing volume and start a new crop. To qualify for regeneration cutting, a stand must be (1) at or beyond rotation age, and (2) lack an understory of acceptable stocking worthy of management, or (3) have a disease-infected understory which will not develop into a future crop, or (4) have an understory which it is not currently physically possible to save during felling, skidding, and slash disposal operations.

Regeneration Methods

Silvicultural practices used to remove existing stands of timber and start a new stand.

Regulations

Generally refers to the Code of Federal Regulations, Title 36, Chapter II, which cover management of the Forest Service.

Rehabilitation

Actions taken to protect or enhance site productivity, water quality, or other values for a short period of time.

Research Natural Areas (RNA's)

Formally designated tracts of land where natural processes are allowed to continue and where natural features are preserved for education and research.

Resource Production

The production and use of natural resources, such as timber and forage.

Resource Values

The tangible and intangible worth of forest resources.

Restoration

The long-term placement of land back into its natural condition or state of productivity.

Retention

A visual quality objective which means human activities are not evident to the casual forest visitor.

RIM

See Recreation Information Management.

Riparian Areas

Geographically delineated areas, with distinctive resource values and characteristics, that are comprised of the aquatic and riparian ecosystems, flood plains, and wetlands. They include all areas within a horizontal distance of 100 feet from the edge of perennial streams or other water bodies (FSM 2526.11, Amend. 26, 4/80).

Riparian Dependant Resources

Fish, water quality, wildlife and plant populations whose existence is dependant on riparian areas.

Road Maintenance Levels

Five levels of service for Forest roads, based on management objectives, which define the standards for maintenance work activities. Level 1 is a closed road, Level 2 is maintained for high clearance vehicles, and Levels 3, 4 and 5 are maintained for passenger cars with additional emphasis on travel speed and comfort for levels 4 and 5.

ROS

See Recreation Opportunity Spectrum.

Rotation

The number of years required to establish (including the regeneration period) and grow timber crops to a specified condition or maturity for regeneration harvest. Selected management prescriptions in the Forest Plan provide the basis for the rotation age.

RPA

Forest and Rangeland Renewable Resources Planning Act of 1974.

RVD

See Recreation Visitor Day.

Sanitation Salvage

The removal of dead, damaged, or susceptible trees primarily, essentially to prevent the spread of pests or pathogens and promote forest hygiene.

Satisfactory Condition

The forage condition is at least fair, with a stable trend, and not PC (basic resource damage) or PD (other resource damage), i.e.,:

Allotments will be classified as PC when analysis or evaluation indicates that one or more of the following conditions exist and livestock use on the allotment is or has been a major factor contributing to this condition.

a.Maximum summer water temperatures are elevated above State Standards or other approved criteria on SMU class I or II streams and this is largely due to the loss of shade-producing vegetation in the allotment.

b.More than 20 percent of the total miles of SMU class I and II streams are in a damaged condition (60 percent for class III and 50 percent for class IV streams) where this is largely due to livestock related loss of stabilizing streambank vegetation or bank failure.

c.Gully development of sufficient size to lower the seasonally saturated zone and change the plant community type is occurring.

d Soil condition rating on 25 percent or more of Key Areas is rated poor or very poor

Sawtimber

Trees that will yield logs suitable in size and quality for the production of dimension lumber.

Sensitive Species

Those species which (1) have appeared in the Federal Register as proposals for classification and are under consideration for official listing as endangered or threatened species, (2) are on an official State list, or (3) are recognized by the Regional Forester to need special management in order to prevent the need for their placement on Federal or State lists.

Seral

The relatively transitory communities that develop in a given situation The final stage of such a transition being the climax.

Sere

The series of stages in the growth of a plant formation or community.

Severely Burned

Soils are considered to be severely burned when the top layer of mineral soil has been significantly changed in color, usually to red, and the next one-half inch blackened from organic matter charring by heat conducted through the top layer.

Shelterwood Cut (SW)

Designated trees are left to provide seed, shelter, and shade for the new crop. The rest of the mature stand is removed. Regeneration of the new stand may be by natural seed fall or by planting. After the new stand is established, a final harvest removed the shelterwood and releases the young trees to develop in the open as an even-aged forest.

Silviculture

The art and science of controlling the establishment, composition, and growth of forests.

Site Index

A measure of the relative productive capacity of an area for growing wood. Measurement of site index is based on height of the dominant trees in a stand at a given age

Skyline Logging

A system of cable logging in which all or part of the weight of the logs is supported during yarding by a suspended cable.

Snag

A nonliving standing tree. The interior of the snag may be sound or rotted.

Socioeconomic

Pertaining to, or signifying the combination or interaction of, social and economic factors.

Soil Resource Inventory (SRI)

An inventory of the soil resource based on landform, vegetative characteristics, soil characteristics, and management potentials.

Special Interest Area

Lands set aside to preserve and interpret unique geological, biological, and cultural areas for education, scientific, and public enjoyment.

STARS

Sale tracking and reporting system.

Stand

A community of trees or other vegetation sufficiently uniform in composition, constitution, age, spatial arrangement, or condition to be distinguishable from adjacent communities and so form a silvicultural or management entity.

SHPO

State Historic Preservation Office

Stocking

The degree to which trees occupy the land, measured by basal area and/or number of trees by size and spacing, compared with a stocking standard, such as the basal area and/or number of trees required for full utilization of the lands' growth potential.

Stocking Level Control

The process of maintaining the desirable number of trees to achieve optimum growth and management. It not only includes thinnings (both precommercial and commercial) but other cultural work such as brush and rodent control as well.

Streamflow

The discharge of water from a watershed that occurs in a natural stream channel.

Streamside Management Units (SMU)

An area of varying width adjacent to a stream where practices that might affect water quality, fish, and other aquatic resources are modified to meet water quality goals, for each class of stream The width of this area will vary with the management goals for each class of stream, characteristics of the stream and surrounding terrain, and the type and extent of the planned activity.

Suitability

The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.

Suitable Forest Land

Commercial forest land identified as appropriate for timber production in the forest planning process.

Sustained Yield

The achievement and maintenance in perpetuity of a periodic output of the renewable resources without impairment of the productivity of the land.

Thermal Cover

Cover used by animals to lessen the effects of weather; for elk, a stand of coniferous trees 40 feet or more tall with an average crown closure of 60 percent or more.

Thinning

The practice of removing some of the trees in a stand so that the remaining trees will grow faster due to reduced competition for nutrients, water, and sunlight. Thinning may be done at two different stages:

1.Commercial thinning - Removing trees that have reached sufficient size to be manufactured into a product.

2.Precommercial thinning - Removing trees that are too small to make a merchantable product.

Threatened Species

Any species listed in the Federal Register which is likely to become an endangered species within the foreseeable future throughout all of a significant portion of its range.

Thrifty

Thrifty refers to the condition of a stand of trees or to the condition of a single tree. Generally a thrifty tree is a healthy tree with dark green needles, a fairly full crown, a pointed crown indicating fairly rapid growth, and otherwise in generally healthy appearance. A thrifty stand would be composed of trees, most of which are individually thrifty.

Timber Classification

Forested land is classified under each of the land management alternatives according to how it related to the management of the timber resource. The following are definitions of timber classifications used for this purpose.

1.Nonforest - Land that has never supported forests and land formerly forested where use for timber production is precluded by development or other uses.

2.Forest - Land at least 10 percent stocked (based on crown cover) by forest trees of any size, or formerly having had such tree cover and not currently developed for nonforest use.

3.Suitable - Commercial forest land identified as appropriate for timber production in the forest planning process.

4.Unsuitable - Forest land withdrawn from timber utilization by statute or administrative regulation (for example, wilderness) or identified as not appropriate for timber production in the forest planning process.

Timber Harvest Schedule

The quantity of timber planned for sale and harvest, by time period, from the area of land covered by the Forest Plan. The first period, usually a decade, of the selected harvest schedule provides the allowable sale quantity. Future periods are shown to establish that sustained yield will be achieved and maintained.

Timber Stand Improvement

Measures such as thinning, pruning, release cutting, prescribed fire, girdling, weeding, or poisoning of unwanted trees aimed at improving growing conditions for the remaining trees.

Tolerance

The ability of a tree to grow satisfactorily in the shade of, and in competition with, other trees.

Total Resource Opportunity Assessment (TROA)

An assessment of the resources in an Integrated Resource Area (IRA).

Understory Vegetation

Grass, small trees, shrubs, and other plants found beneath the overstory (the trees comprising the forest).

Uneven-Aged Management

The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection.

Unplanned Ignition

A fire started at random by either natural or human causes, or a deliberate incendiary fire.

Utility Corridor

A strip of land dedicated primarily to some form of transportation, communications, or power.

Viable Population

A viable population consists of the number of individuals, adequately distributed throughout their range, necessary to perpetuate their existence in natural, genetically stable, self-sustaining populations

Viewshed

The total landscape seen or potentially seen from all or a logical part of a travel route, use area, or water body.

Visual Quality Objectives (VQO's)

Categories of acceptable landscape alteration measured in degrees of deviation from the natural-appearing landscape. The categories are:

1.Preservation - Ecological change only here.

2.Retention - Human activities are not evident to the casual Forest visitor.

3.Partial Retention - Human activity may be evident, but must remain subordinate to the characteristic landscape.

4.Modification - Human activity may dominate the characteristic landscape, but must, at the same time, follow naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in foreground or middle ground.

5.Maximum Modification - Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.

6.Enhancement - A short-term management alternative which is done with the express purpose of increasing positive visual variety where little variety now exists.

Visitor Day

See Recreation Visitor Day.

Visual Resource

The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors.

Visually Subordinate

Secondary in visual importance and inferior in terms of size, brightness and visibility.

Wetlands

Areas that are inundated by surface or ground water with a frequency sufficient to support a prevalence of vegetation or aquatic life that requires saturated or

seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

WFUD

Wildlife and Fish User Day - One WUFD consists of 12 hours of recreation that is the result of fish or wildlife.

Wild and Scenic Rivers

Those rivers or sections of rivers designated as such by congressional actions under the 1968 Wild and Scenic Rivers Act, as wild, scenic, or recreational by an act of the Legislature of the State or States through which they flow. Wild and scenic rivers may be classified and administered under one or more of the following categories:

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

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

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

Wilderness

An area established by Congress and managed under the direction of the 1964 Wilderness Act. Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. Wildernesses are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature with the imprint of human activity substantially unnoticeable; have outstanding opportunities for solitude or a primitive and unconfined type of recreation; are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest.

Wildfire

Any wild-land fire that is not a prescribed fire.

Withdrawal

A legislative or administrative order removing specific land areas from availability for certain uses.

Working Group

Comprises those parts of a forest that have generally the same silvicultural management and rotation.

Xeric

Characterized by or adopted to a dry environment. Some moisture is present but does not occur at optimum levels for plant growth.

Yarding

The moving of logs from the stump where cut to a central collection point or landing.

Yield Tables

Tables that estimate the level of outputs that would result from implementing a particular activity. Usually referred to in conjunction with FORPLAN input or output. Yield tables can be developed for timber volumes, range production, soil and water outputs, and other resources.

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