

The above listed timber harvest thresholds have been exceeded in all of the drainages, but the specific effects on the hydrology have not been evaluated. It is important to note that the BLM administration is limited in these drainages and most of the timber harvest was completed prior to the Coos Bay District RMP (USDI 1995). The future management on BLM administered lands will be conducted in accordance with the ROD-RMP (USDI 1995) and is strongly tied to the land use allocation.

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CHAPTER 3: VEGETATION

CHARACTERIZATION

The plant communities in the subwatershed are described by Franklin and Dyrness (1973), and include the *Tsuga heterophylla* zones on the mountain slopes (pages 70-88) and a mix of "interior" valley communities (pages 110-129) occupying the valley bottom and foothills near the Umpqua River. The interior valley communities include *Quercus* woodland, conifer forest, riparian communities, and grasslands. Vegetation on the valley bottom and valley side hills is highly modified by a long history of human use. The most important stand replacement process occurring today is timber harvest and subsequent reforestation.

For general discussions on processes affecting stand structure and landscape patterns see:

- Franklin and Dyrness (1973), and Hemstrom and Logan (1986) for plant succession.
- Averill et al (1995) for an overview on disturbance.
- Oliver and Larson (1990) for vegetation competition and stand dynamics.
- Agee (1993) for fire as a disturbance process.
- Agee (1993) pp. 9, Smith (1962) pp. 413-414, 422, & 499, and Oliver and Larson (1990) pp. 100-106 for wind as a disturbance process.

CURRENT CONDITIONS

Current vegetation patterns are a result of management decisions, harvest practices (along with associated road building), and land ownership.

Table VEG-1: Current Land Use Allocation Acres on BLM

<u>Land Use Allocation</u>	<u>Acres (From GIS Data)</u>	<u>Percent of Land Base</u>
Connectivity	206 acres	3%
General Forest Management Area	1,447 acres	20%
Late-Successional Reserve	4,992 acres	69%
<u>Marbled Murrelet Reserve</u>	<u>601 acres</u>	<u>8%</u>
Total	7,246 acres	100%

See Map VEG-1: Current Land Use Allocations.

GIS data describing forest age class, size, and density (Forest Operations Inventory, FOI), was last updated in 1992. While age class information for older stands (>80 years) are often inaccurate, and one age class may often encompass stands of varying ages and densities, FOI offers the best available picture of forest condition. FOI information for young stands, particularly those <40 years old, is far more accurate. Data on private lands are interpreted from aerial photographs, and are less accurate. Forest age classes are summarized in Table VEG-2 and their locations are mapped in Map VEG-2: Timber Age Class (Timber Sale Planning Emphasis). Age class data by 10-year increments is contained in the VEG appendix.

Table VEG-2: Current Subwatershed Seral Stage Distribution in Acres

<u>Seral Stage (RMP)</u>	<u>BLM (GIS Data)</u>	<u>Other Federal</u>	<u>Private (92 Photos)</u>	<u>Total Acres</u>
Late Seral (81+)	2,403 acres	none	98	2,501
Mid-Seral (31-80)	670 acres	none	9,943	10,613
Early Seral (0-30)	4,145 acres	none	5,107	9,252
Non-Forest	6 acres	none	1,446	1,452
<u>Agricultural</u>	<u>23 acres</u>	<u>none</u>	<u>5,680</u>	<u>5,703</u>
Total	7,247 acres	none	22,274	29,521

Array and Pattern of Riparian Vegetation: Riparian vegetation was stratified using a modified version of the DNR large woody debris (LWD) recruitment potential module (Washington Forest Practice Board 1992), and 1992 aerial photos. Riparian Reserves comprise a total of 2,545 acres, based on a reserve width of 400' per side on fish bearing streams, and 200' per side on non-fish bearing streams (USDI 1995). Results from the analysis are displayed on Map Veg-3: Current Condition of Large Organic Debris Recruitment Potential and in Table VEG-3 below. See the Vegetation Appendix for assumptions and supporting data.

Table VEG-3: Current Potential for Recruiting LWD on Fish Bearing Streams Across all Ownerships²

Drainage	Current Potential for Recruiting LWD in Lineal Feet of Stream					
	Low - All Ownership	Low - BLM	Moderate-All Ownership	Moderate - BLM	High - All Ownership	High - BLM
Sawyer's Ferry	9,343	707	4,103	_____	18,207	899
Sawyer Creek	4,345	1,058	10,345	5,202	24,518	4,980
Fitzpatrick Cr.	4,532	3,850	5,379	_____	5,483	_____
Umpqua Big Bend	1,759	437	_____	_____	3,966	564
Mehl Creek	6,792	1,731	9,736	1,020	20,690	3,130
Total	26,771	7,783	29,563	6,222	72,864	9,573

² Lengths are approximate and were measured from aerial photos using a Scalex Plan wheel, which is a digital measuring device.

Table VEG-4: Processes Influencing the Current Vegetation Patterns

Process	Influence on Upland Stands:		Influence on Riparian Stands:	
	Landscape Patterns Stand Replacing	Structure Modifying	Stand Replacing	Stand Structure Modifying
Fire (Lightning & Human Caused)	X	X	X	X
Wind	X	X	X	X
Management (Timber Harvest & Agriculture)	X	X	X	X
Disease (Primarily Root Rot)		X		X
Landsliding/ Mass Wasting		X	X	X
Stream Bank Erosion				X
Plant Competition		X		X

Table VEG-5: Percent of BLM Land in Each Seral Stage in the 5th Field Watershed

Seral Stage	Roseburg District	Coos Bay District	Combined
Late Seral (81+)	58%	38%	50%
Mid-Seral (31-80)	17%	26%	20%
Early Seral (0-30)	23%	35%	27%
<u>Non-Forest</u>	<u>2%</u>	<u>1%</u>	<u>1%</u>
Total	100%	100%	98%³

See Appendix Veg-1: Age Classes and Appendix Veg-2: 5th Field Watershed; 15% rule for breakdown of age classes on Federal Land.

Potential Harvest Areas: The Coos Bay RMP (USDI 1995) directs the Watershed Analysis process to identify areas of timber harvest needed to meet the District's commitment of its allowable sale quantity. This analysis will be used to identify general areas of harvest, leaving the specifics to be addressed through the NEPA process.

The first step in the selection process of potential harvest areas was the development a GIS map of all available stands within the subwatershed. See Map VEG-4: Potential Thinning and Regen Harvest Units. The map identified areas only within the Matrix (GFMA and Connectivity/Diversity blocks), which were not located in the Riparian Reserves, and not "Withdrawn" Timber Production Capability Classification allocated lands, or other administratively withdrawn areas.

Table VEG-6: Potential Harvest Acres in Matrix from GIS data

Age Class	Acres	Percent of Federal Ownership
Less than 30 years of Age	465	6%
30 to 60 Years of Age	55	1%
<u>More than 60 Years of Age</u>	<u>229</u>	<u>3%</u>
Total	749	10%

See Species and Habitat: Botany for a discussion of oak woodlands.

³ There was a discrepancy in the totals due to an information error in GIS.

REFERENCE CONDITIONS

The earliest logging was concentrated in bottomlands and on lower slopes close to the river and was associated with land-clearing for home sites, agricultural areas, and depended on road access. Early vegetation distributions are documented on Maps VEG-5: 1900 Vegetation Map and VEG-6: 1914 Vegetation Map.

Table VEG-7: 1900 Seral Distribution (From GIS Data)

<u>Seral Stage</u>	<u>Acres</u>
Timberless Area	11,464 acres
0 - 5,000 Board Measures (B.M. ⁴) / Acre	2,742 acres
<u>25,000 - 50,000 Board Measures (B.M.) / Acre</u>	<u>15,318 acres</u>
Total	29,524 acres

Table VEG-8: 1914 Seral Distribution (From GIS Data)

<u>Seral Stage</u>	<u>Acres</u>
Brush	202 acres
Burned Areas, not Restocked	188 acres
Burned Areas, Restocked	1,638 acres
Merchantable Timber	12,524 acres
<u>Non-Timber Areas</u>	<u>14,889 acres</u>
Total	29,441 acres⁵

Interpretation of the 1952 photos shows occurrences of remnant grass balds and areas with large, widely-spaced trees with an understory of natural seedlings. The shrub layer under the timber is low-lying and uniform. By 1970, the grass balds had virtually disappeared.

Array and Pattern of Riparian Vegetation in 1952: Based on the 1952 photos, most of the streams had already lost a greater part of the streamside vegetation through either logging or agricultural encroachment. Riparian areas dissecting agricultural lands then looked similar to 1992. There were a few streams that had partially intact riparian stands: Sawyer Creek, Hedden Creek, Fitzpatrick Creek, and Mehl Creek. Intact stands were dominated by conifer.

SYNTHESIS AND INTERPRETATION

Fire: There was no fire history work done in this subwatershed. Fire history work in the West Fork Smith River Subwatershed (approximately 10 miles to the northwest) and the Tioga Creek Subwatershed to the southwest, suggest fire return intervals as short as 50 years may be plausible when both stand-replacing fires and underburns are considered. Wild fire as a natural or prehistoric aboriginal disturbance process is now restricted by fire control efforts and the prescribed use of fire is limited to site preparation following timber harvest.

Landslides: Landslides set back plant succession and favors pioneer species. Red alder is particularly successful in occupying slide tracks and deposits due to long distance seed dispersal,

⁴ A Board Measure (B.M.) is approximately equivalent to a Board Foot.

⁵ Discrepancy in GIS data.

rapid juvenile growth, and their ability to fix nitrogen. Landslides that reach creeks can deliver structural material.

Regulation Changes: By the 1980's, state regulations required private companies to leave buffers and remove logging debris from streams. Simultaneously, BLM required an 80' buffer and logging debris removal on third order and larger streams. Regulations for all federal lands required 100' no-treatment buffers on all streams carrying water at the time units were sprayed with herbicides. This eliminated efforts to control vegetation that competes with conifers along streams. The net result was that riparian areas were unintentionally converted from conifer or mixed conifer/maple/oak to alder or brush.

REFERENCES:

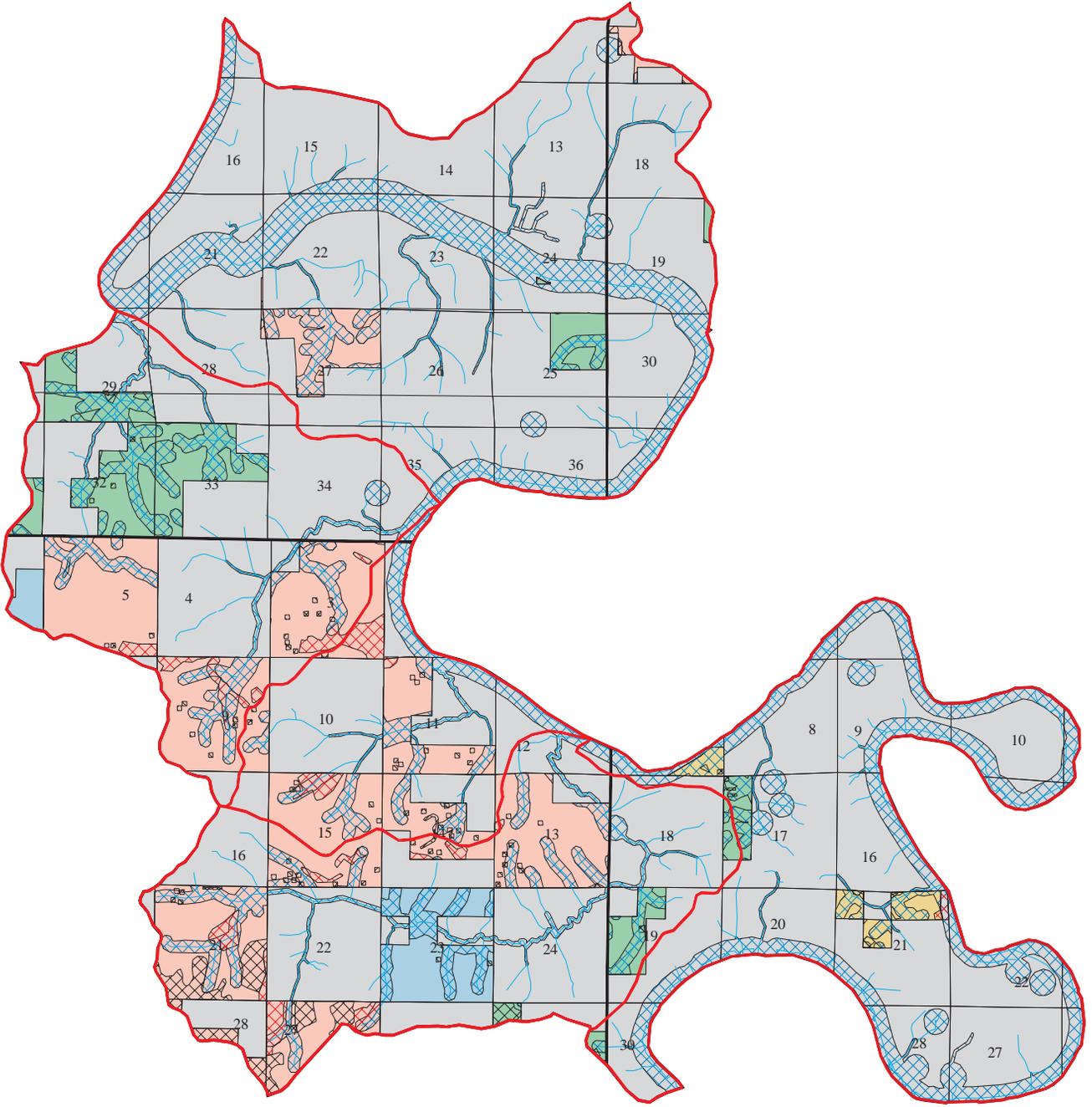
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CHAPTER 4: STREAM CHANNEL

CHARACTERIZATION

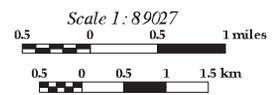
The subwatershed is composed of 4 frontal drainages that all flow directly into the Umpqua River. Two of the drainages flow from south to north while the other two flow from west to east. These drainages can be divided primarily into 3 channel types based on the Rosgen classification system (Rosgen 1994). Table CHAN-1 list the characteristics of these channel types. (Some reaches may be different channel types, but due to the scale of this analysis, those would have to be addressed on a project basis.)

MAP VEG-1 Land Use Allocation Map
 UPPER MIDDLE UMPQUA SUBWATERSHED



MAP FEATURES

- | | | | |
|--|--------------------------------------|---|----------------------------------|
|  | <i>GFMA Lands</i> |  | <i>Riparian Reserves</i> |
|  | <i>LSR Lands</i> |  | <i>Nonsuitable Woodland</i> |
|  | <i>Connectivity Lands</i> |  | <i>Nonforest or Utility</i> |
|  | <i>Marbled Murrelet Reserve</i> |  | <i>USDA Forest Service Lands</i> |
|  | <i>State, Private or Other Lands</i> | | |

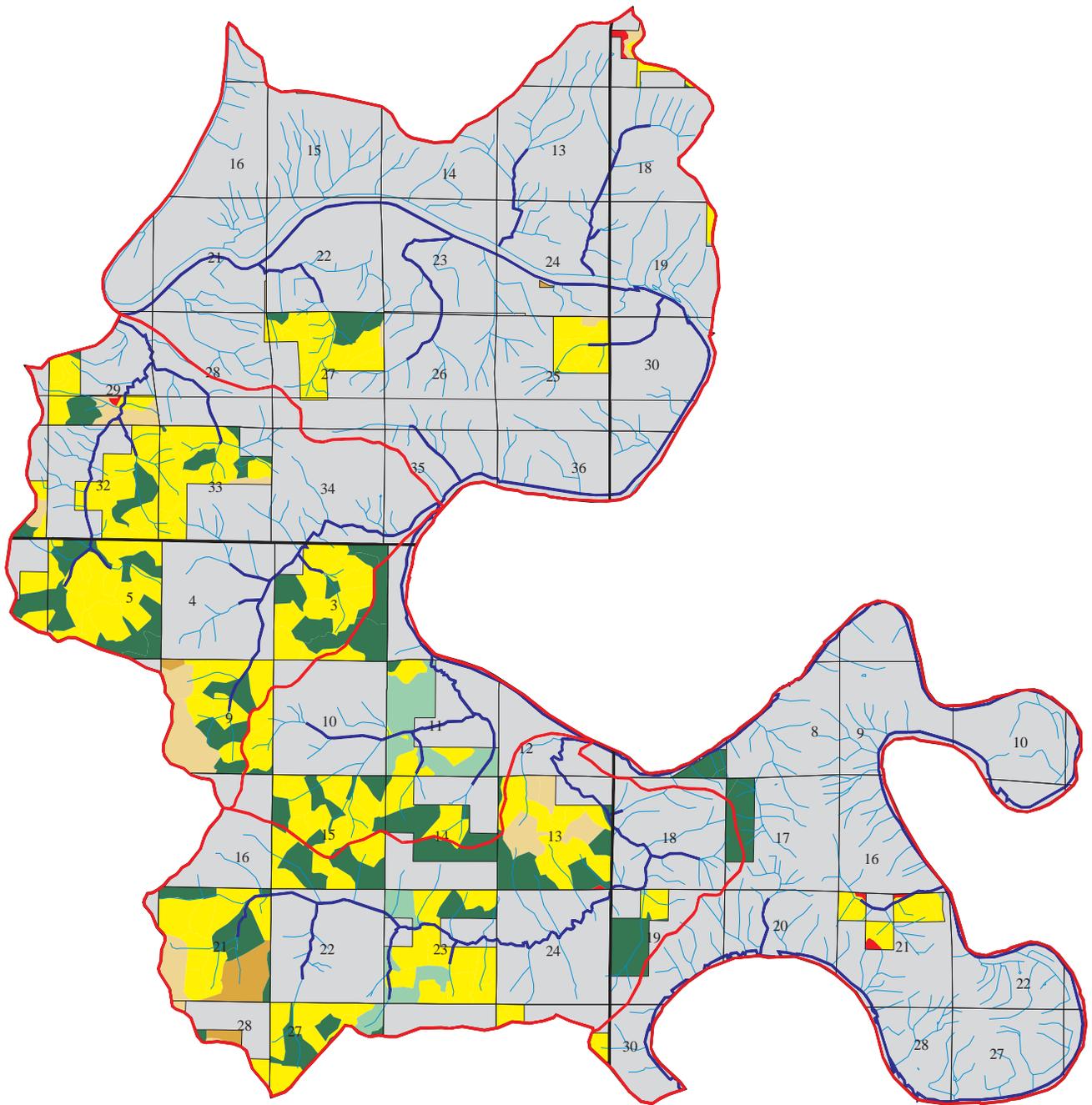


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data



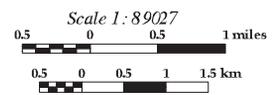
Note: Some map features shown in the legend may not appear in the mapped area.

UPPER MIDDLE UMPQUA SUBWATERSHED



MAP FEATURES

- | | | | |
|--|--|---|--------------------------------------|
|  | <i>Nonforest (BLM Land, Birthdate 0)</i> |  | <i>FOI Ages 161+</i> |
|  | <i>FOI Ages 0-30</i> |  | <i>USDA Forest Service Lands</i> |
|  | <i>FOI Ages 31-60</i> |  | <i>State, Private or Other Lands</i> |
|  | <i>FOI Ages 61-80</i> |  | <i>Fish-Bearing Streams</i> |
|  | <i>FOI Ages 81-160</i> | | |

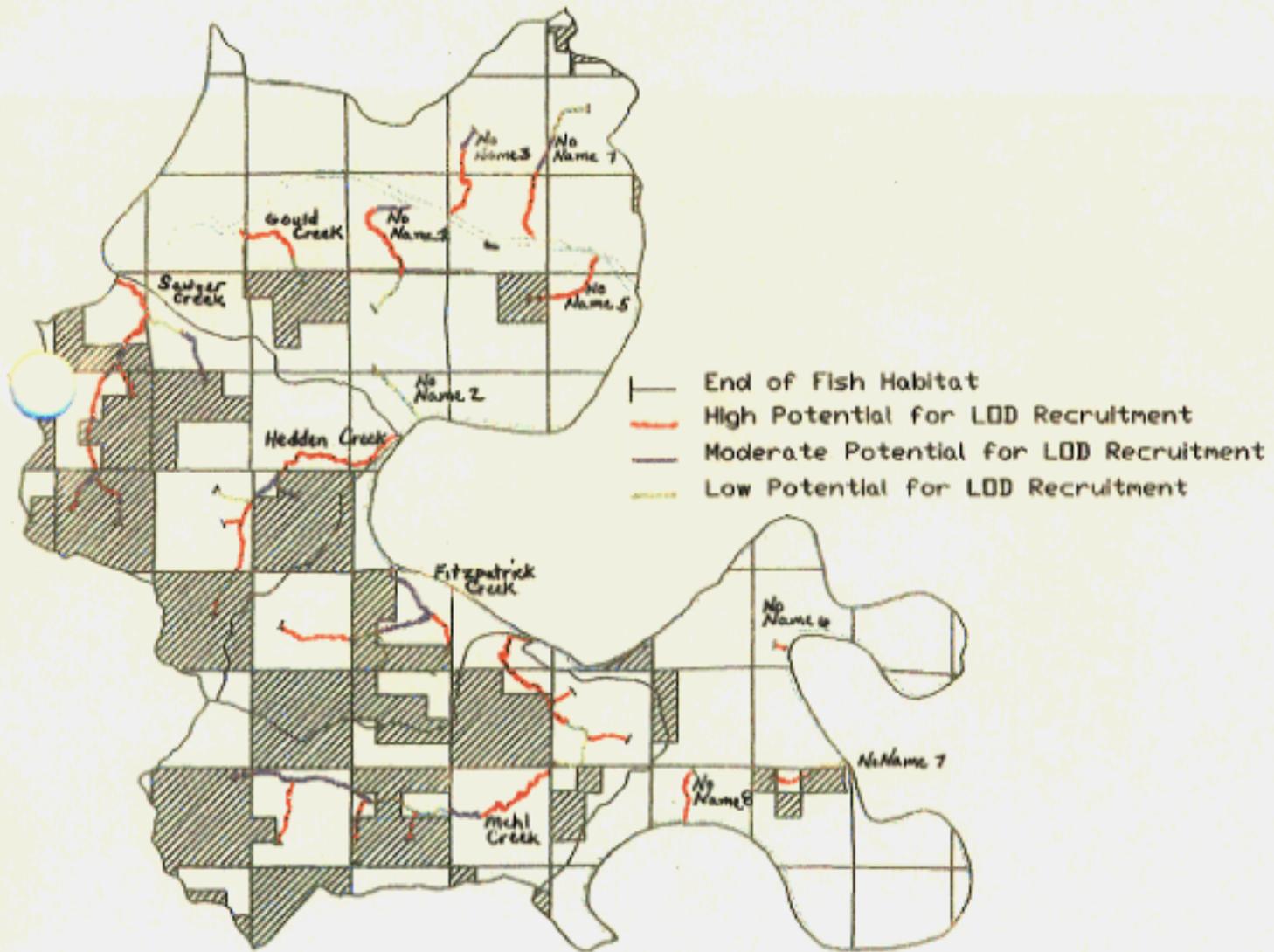


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data



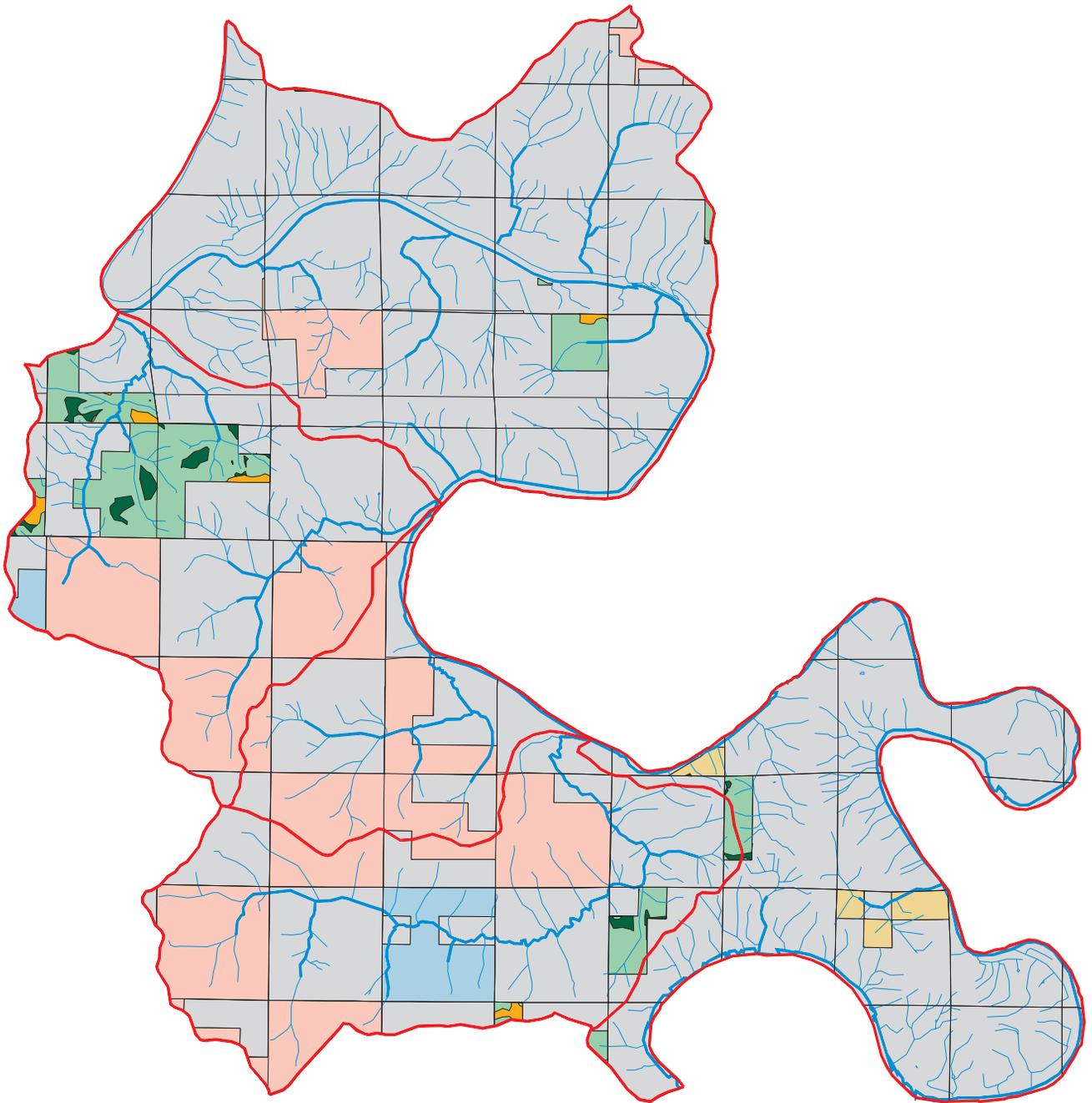
Note: Some map features shown in the legend may not appear in the mapped area.

MAP VEG-3 Upper Middle Umpqua Subwatershed
 Current Condition of Large Organic Debris
 Recruitment Potential



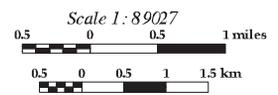
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

UPPER MIDDLE UMPQUA SUBWATERSHED



MAP FEATURES

- | | | | |
|--|--------------------------------------|---|--------------------------------------|
|  | <i>GFMA Lands</i> |  | <i>USDA Forest Service Lands</i> |
|  | <i>LSR Lands</i> |  | <i>Potential Thin (Age 30-60yrs)</i> |
|  | <i>Connectivity Lands</i> |  | <i>Potential Regen (Age 60yrs+)</i> |
|  | <i>Marbled Murrelet Reserve</i> |  | <i>Fish-bearing Stream</i> |
|  | <i>State, Private or Other Lands</i> | | |



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data

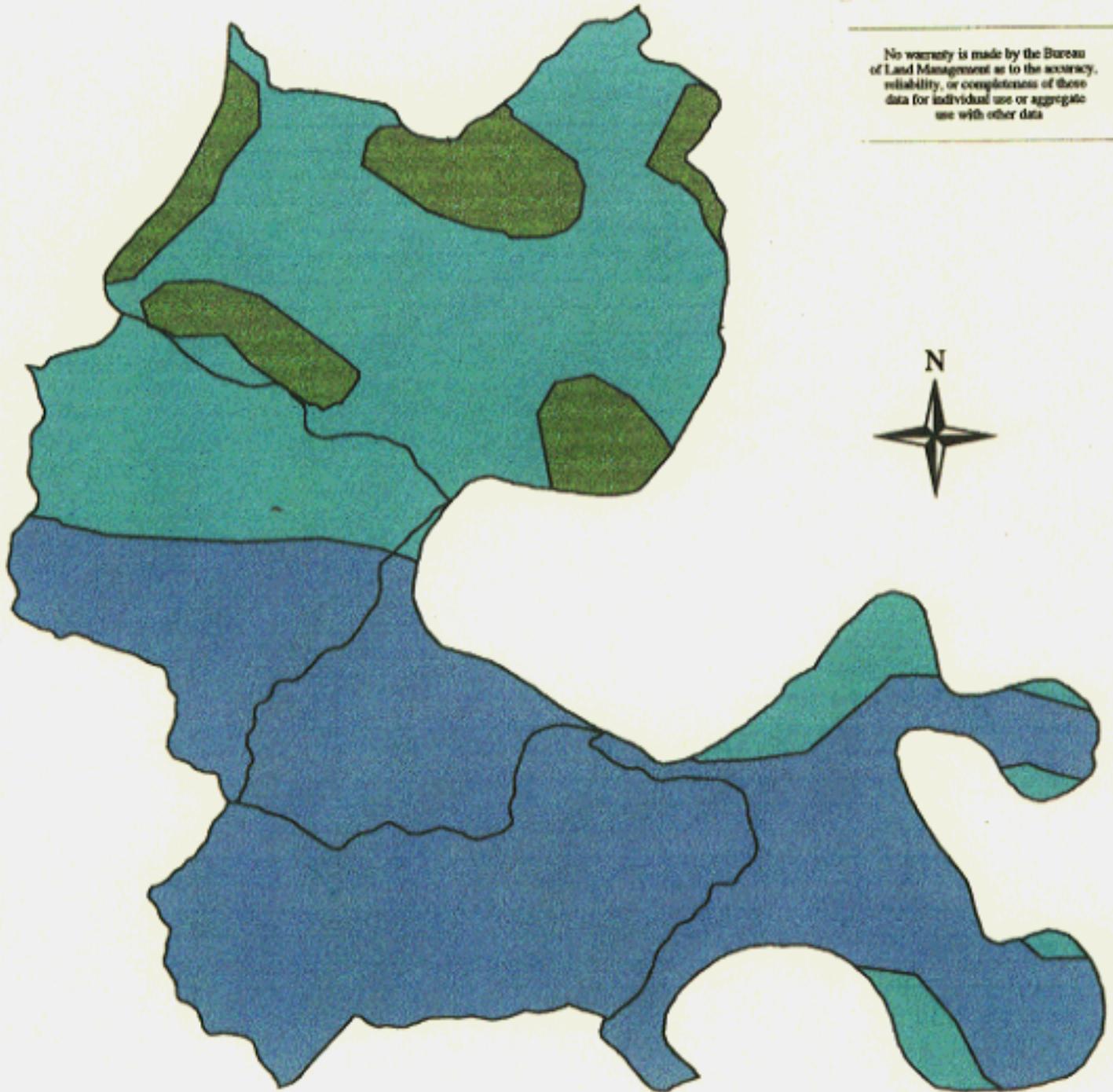


Note: Some map features shown in the legend may not appear in the mapped area.

MAP VEG-5
Upper Middle Umpqua Subwatershed

1900 Vegetation Map

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data

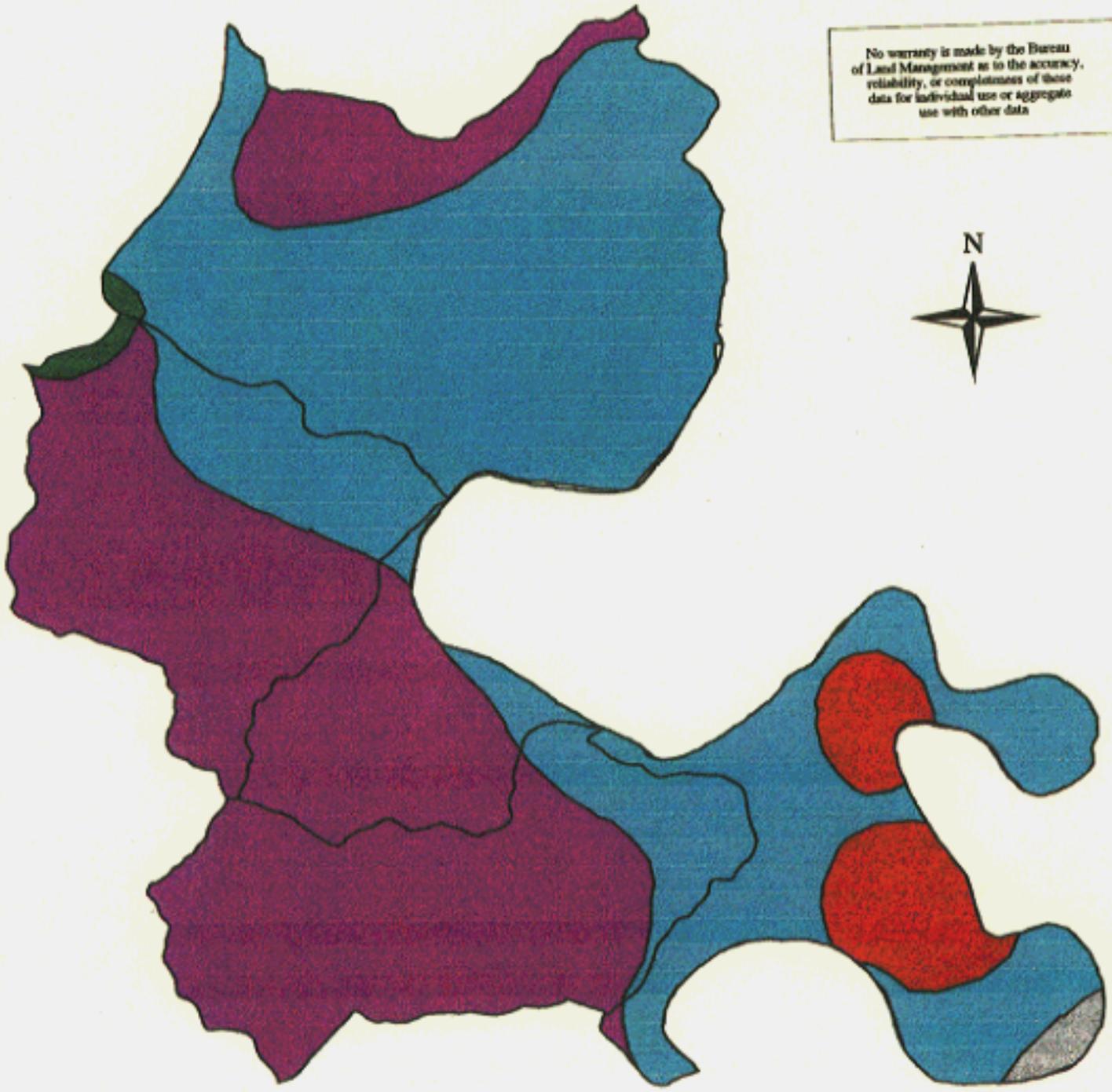


-  Subwatershed boundary
-  Timberless Area
-  0-5,000 B.M. per Acre
-  25,000-50,000 B.M. per Acre

1 0 1 2 Miles

MAP VEG-6
Upper Middle Umpqua Subwatershed
1914 Vegetation Map

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data



-  Subwatershed Boundary
-  Brush
-  Burned Areas not Re-Stocked
-  Burned Areas Re-Stocked
-  Merchantable Timber
-  Non-Timber Areas



**VEGETATION APPENDICES
UPPER MIDDLE UMPQUA SUBWATERSHED**

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Appendix VEG-1: Age Classes

Age Class 0 to 10 (1996 - 1986)

Year	Count	Acres
1976	5	154
1977	6	120
1978	6	120
1979	12	251
1980	10	207
1981	13	237
1982	4	85
1983	9	161
1984	2	94
1985	3	51
Total		1478

Age Class 11 to 20 (1985 - 1976)

Year	Count	Acres
1986	4	127
1987	11	204
1988	10	344
1989	12	214
1990	20	429
1991	3	70
1992	4	110
Total		1497

Age Class 21 to 30 (1975 - 1966)

Year	Count	Acres
1967	1	16
1968	6	121
1969	8	202
1970	3	71
1971	3	94
1972	10	205
1973	3	85
1974	7	220
1975	5	155
Total		1169

Age Class 31 to 40 (1965 - 1956)

Year	Count	Acres
1958	2	122
1959	1	13
1960	8	161
1962	1	65
1965	5	83
Total		445

Age Class 41 to 50 (1955 - 1946)

Year	Count	Acres
1950	6	63
Total		63

Age Class 51 to 60 (1945 - 1936)

Year	Count	Acres
1940	2	15
Total		15

Age Class 61 to 70 Nonexistent

Age Class 71 to 80 (1925 - 1916)

Year	Count	Acres
1920	4	146
Total		146

Age Class 81 to 90 (1915 - 1906)

Year	Count	Acres
1910	1	30
Total		30

Age Class 91 to 110 Nonexistent

Age Class 121 to 130 Nonexistent

Age Class 111 to 120 (1885 - 1876)

Year	Count	Acres
1880	2	249
Total		249

Age Class 131 to 140 (1865 - 1856)

Year	Count	Acres
1860	4	132
Total		132

Age Class 141 to 150 (1855 - 1846)

Year	Count	Acres
1850	1	1
Total		1

Age Class 151 to 160 (1845 - 1836)

Year	Count	Acres
1840	1	2
Total		2

Age Class 161 to 180 Nonexistent

Age Class 181 to 190 (1815 - 1806)

Year	Count	Acres
1810	2	117
Total		117

Age Class 191 to 200 (1805 - 1796)

Year	Count	Acres
1800	40	1194
Total		1194

Age Class 201 to 300 (1795 - 1696)

Year	Count	Acres
1700	7	277
1750	4	168
1770	1	0.6
Total		446

Age Class 301 to 400 (1695 - 1596)

Year	Count	Acres
1670	7	231
Total		231

Non-Forest Acres

Agriculture: 23.4 acres
 Grassland: 1.8 acres
 Cultural Development: 3.8 acres
 Water: 0.4 acres

**Appendix VEG-3: Potential Harvest Acres within the Upper Middle Umpqua
Subwatershed**

The Potential Harvest Acres are the remaining acres available for harvest after the removal of all restricted land classifications. The land base available for harvest (General Forest Management Area or GFMA and Connectivity/Diversity Blocks) minus land set aside for spotted owls minus Riparian Reserves minus fragile land classifications (Timber Production Capability Classification or TPCC withdrawn).

The acreage provided by this exercise is only as reliable as the information provided in GIS. A problem (not solved during the scope of this exercise) with the transportation theme prevented the road acres from being accounted for.

Potential Harvest Acres:	Less Than 30 Years	= 464.58 acres
	30 to 60 Years	= 55.25 acres
	Over 60 Years	= <u>228.66 acres</u>
	Total	= 748.49 acres

Acres in GFMA	= 1,447.33
Acres in Connectivity/Diversity Blocks	=
Less Riparian Reserve Acres	=
and TPCC withdrawn Acres	=

See maps for the proposed Sawyer Bridge Regeneration Harvest. These maps and additional information on this sale are the Timber Sale Plan for FY2000.

Appendix VEG-4: Riparian Vegetation

For the current condition of riparian vegetation, the Level 1 assesement from the DNR Module (Washington Foreset Practice Board, 1992, attached) was used on the 1992 photos in conjunction with Type maps. Riparian areas were delineated at 100' each side of the stream, rather than the 66' suggested by the Module.

Drainage	Creek	ID-#	Code	Rating	Length	Photo
Sawyer's Ferry	Gould Creek	15	dos	high	1621	11-49A-29
		16	dos	high	1621	
		17	cmd	low	1586	
		18	cmd	low	1034	
	No Name 1	19	dod	medium	1759	10-50A-27
		20	dos	high	1724	
		21	dms	high	1931	
		22	cmd	low	1621	
	No Name 2	23	cmd	low	1965	10-50A-24
		24	cmd	low	1034	
	No Name 3	46	dos	high	2034	10-51A-29
		47	dms	high	1862	
		48	dmd	medium	1103	
	No Name 4	49	dos	high	1897	10-51A-29
		50	dms	high	1448	
		51	dmd	medium	1241	
		52	cmd	low	2103	10-52B-25
	No Name 5	53	dos	high	1414	10-52B-22
		54	dms	high	1517	
		55	cys	high	1138	
		1	dos	high	1655	8-47-64
		2	dos	high	1517	
		3	dos	high	1379	
Sawyer Creek (cont)	Sawyer Creek	4	dod	medium	1862	
		5	cys	high	1759	
		6	dys	high	1862	8-47-63
		7	dys	high	1897	
		8	cms	medium	1621	8-47-61
		9	cys	high	1759	
		10	dms	high	1552	
		11	cos	medium	1172	
		12	cmd	low	1828	11-48-63
		13	cms	medium	1828	

Drainage	Creek	ID-#	Code	Rating	Length	Photo
		14	cms	medium	586	
Hedden Creek	Hedden Creek	34	dos	high	1862	10-50A-23
		35	dms	high	1172	11-49A-24
		36	dms	high	1621	
		37	dms	high	1621	
		38	dmd	medium	1621	
		39	dms	high	1793	11-48-59
		40	cys	high	1586	
		41	cod	low	1724	
		42	cys	high	897	
		43	cms	medium	1655	11-49A-24
		44	cmd	low	793	11-48-59
		45	cys	high	586	
Fitzpatrick Creek	Fitzpatrick Creek	25	dod	medium	1655	10-50A-21
		26	dod	medium	1931	
		27	dmd	medium	1793	
		28	cmd	low	1828	
Fitzpatrick (cont.)		29	cys	high	1655	11-49A-23
		30	cys	high	2138	
		31	dms	high	1690	10-50A-21
		32	cmd	low	1276	
		33	cmd	low	1428	
Mehl Creek	Mehl Creek	56	dos	high	1862	10-51A-21
		57	dos	high	1517	
		58	dos	high	1931	
		59	dms	high	1552	10-52B-14
		60	cmd	low	2103	
		61	cmd	low	1896	
		62	dos	high	1966	
		63	dos	high	1724	10-51A-19
		64	dms	high	1551	
		65	cms	medium	2000	
		66	cmd	medium	1386	10-50A-17
		67	cod	low	1690	
		68	cos	medium	2103	
		69	cos	medium	1489	11-49A-20
		70	cos	medium	1655	
		71	cos	medium	1103	
		72	cys	high	966	10-52B-14

Drainage	Creek	ID-#	Code	Rating	Length	Photo
		73	dms	high	1862	
		74	cys	high	1207	10-50A-17
		75	cys	high	1793	
		76	cmd	low	1103	
		77	cys	high	1414	11-49A-20
Mehl (cont.)		78	cys	high	1345	
Umpqua Big Bend	No Name 6	79	dos	high	517	6-54A-15
	No Name 7	80	mmd	low	1759	6-54A-12
		81	dms	high	1621	
	No Name 8	82	dos	high	1828	10-53B-15

Large organic debris ratings by stream reach are shown on Map Veg-3: Current Condition of Organic Debris Recruitment Potential. Copies of photos used to classify stream reaches are on file at the Coos Bay District Office.