Appendix 23

LSR Expected Wildfire Ignitions and Acres Burned Calculations for Each LSR

Introduction

The following tables display the figures used to calculate the Total Expected Ignitions and Total Expected Burned Acres for each LSR.

To calculate the Total Expected Ignitions, GIS identified the number of acres of each LSR in each FMAZ, shown in the "Acres" row. From data collected from 1979 to 1988 (refer to Forest-Wide FMAZ Ignition Rates and Acres Burned, 1979-1988 table below) the number of ignitions per 1,000 acres annually was known for each FMAZ across the Forest. This ignition rate per 1,000 acres was then multiplied by the LSR acres in each FMAZ to yield an expected ignition rate for each FMAZ by LSR. This ignition rate for each FMAZ was then totaled to yield a "Total Expected Ignitions" for each LSR.

To calculate the "Total Expected Burned Acres" for each LSR, GIS identified the number of acres of each LSR in each FMAZ, shown in the "Acres" row. From data collected from 1979 to 1988 (refer to Forest-Wide FMAZ Ignition Rates and Acres Burned, 1979-1988 table below) the number of acres expected to be burned for each FMAZ was known. By dividing the number of LSR acres in each FMAZ by the total number of acres across the Forest for that FMAZ a "Percentage" was calculated. This percentage was then multiplied by the number of acres expected to burn across the Forest.

The results of these calculations provide insight into the annual number of fire ignitions expected and how many acres that would be expected to burn annually for each LSR.

Forest-Wide FMAZ Ignition Rates and Acres Burned, 1979-1988

Fire Management Analysis Zones (FMAZ)	Acres	Ignitions/1,000 ac./Year	Expected Burned Acres
1	314,825	0.102	9379.83
2	256,725	0.074	353.03
3	699,104	0.044	387.15
4	346,519	0.046	199.79
5	516,008	0.03	185.91
6	31,000	0.164	48.68

Boundary Butte Wildfire Ignitions and Acreage Calculations (8,714 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	8,258	0	456	0	0	
Ignitions /1,000 acres/year	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.842	0.000	0.020	0.000	0.000	
Total expected ignitions						**0.862**
LSR Acres by FMAZ	8,258	0	456	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	2.62%	0.00%	0.07%	0.00%	0.00%	
Expected burned acres	246.04	0.00	0.25	0.00	0.00	
Total expected burned ac. in this LSR						**246.290**

Bumping Wildfire Ignitions and Acreage Calculations (14,989 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	0	0	0	12,707	2,282	
Ignitions /1,000 acres/year	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	0.000	0.000	0.585	0.068	
Total expected ignitions						**0.653**
LSR Acres by FMAZ	0	0	0	12,707	2,282	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	0.00%	0.00%	3.67%	0.44%	
Expected burned acres	0.00	0.00	0.00	7.33	0.82	
Total expected burned ac. in this LSR						**8.149**

Chiwawa Wildifre Ignitions and Acreage Calculations (107,044 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	19,222	0	79,810	0	8,012	
	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	1.961	0.000	3.512	0.000	0.240	
Total expected ignitions						**5.713**
LSR Acres by FMAZ	19,222	0	79,810	0	8,012	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	6.11%	0.00%	11.42%	0.00%	1.55%	
Expected burned acres	572.70	0.00	44.20	0.00	2.89	
Total expected burned ac. in this LSR						**619.780**

Deadhorse Wildfire Ignitions and Acreage Calculations (18,297 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	14,090	0	4,207	0	0	
Expected Ignitions by FMAZ	1.437	0.000	0.185	0.000	0.000	
Total expected ignitions						**1.622**
LSR Acres by FMAZ	14,090	0	4,207	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	4.48%	0.00%	0.60%	0.00%	0.00%	
Expected burned acres	419.79	0.00	2.33	0.00	0.00	
Total expected burned ac. in this LSR						**422.124**

Icicle Wildfire Ignitions and Acreage Calculations (14,288 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	2,478	0	9,404	0	2,406	
Ignitions /1,000 acres/year	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.253	0.000	0.414	0.000	0.072	
Total expected ignitions						**0.739**
LSR Acres by FMAZ	2,478	0	9,404	0	2,406	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.79%	0.00%	1.35%	0.00%	0.47%	
Expected burned acres	73.83	0.00	5.21	0.00	0.87	
Total expected burned ac. in this LSR						**79.904**

Little Wenatchee Wildfire Ignitions and Acreage Calculations (52,524 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	0	0	27,250	0	25,266	
	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	0.000	1.199	0.000	0.758	
Total expected ignitions						**1.957**
LSR Acres by FMAZ	0	0	27,250	0	25,266	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	0.00%	3.90%	0.00%	4.90%	
Expected burned acres	0.00	0.00	15.09	0.00	9.10	
Total expected burned ac. in this LSR						**24.193**

Lucerne Wildfire Ignitions and Acreage Calculations (8,531 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	5,258	0	3,273	0	0	
	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.536	0.000	0.144	0.000	0.000	
Total expected ignitions						**0.680**
LSR Acres by FMAZ	5,258	0	3,273	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	1.67%	0.00%	0.47%	0.00%	0.00%	
Expected burned acres	156.66	0.00	1.81	0.00	0.00	
Total expected burned ac. in this LSR						**158.468**

Manashtash Wildfire Ignitions and Acreage Calculations (104,566 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	0	12,706	47,851	31,386	12,623	
Ignitions /1,000 acres/year	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	0.940	2.105	1.444	0.379	
Total expected ignitions						**4.868**
LSR Acres by FMAZ	0	12,706	47,851	31,386	12,623	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	4.95%	6.84%	9.06%	2.45%	
Expected burned acres	0.00	17.47	26.50	18.10	4.55	
Total expected burned acres. in this LSR						**66.615**

Rattlesnake LSR Wildfire Ignitions and Acreage Calculations (10,484 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	0	5,241	0	5,243	0	
Ignitions /1,000 acres/year	0.102	0.074	0.044	0.046	0.03	
	0.000	0.388	0.000	0.241	0.000	
Total expected ignitions						**0.629**
LSR Acres by FMAZ	0	5,241	0	5,243	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	2.04%	0.00%	1.51%	0.00%	
Expected burned acres	0.00	7.21	0.00	3.02	0.00	
Total expected burned ac. in this LSR						**10.230**

Sawtooth Wildfire Ignitions and Acreage Calculations (15,220 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	0	0	15,220	0	0	
	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	0.000	0.670	0.000	0.000	
Total expected ignitions						**0.670**
LSR Acres by FMAZ	0	0	15,220	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	0.00%	2.18%	0.00%	0.00%	
Expected burned acres	0.00	0.00	8.43	0.00	0.00	
Total expected burned ac. in this LSR						**8.429**

Shady Pass Wildfire Ignitions and Acreage Calculations (76,186 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	3,117	0	73,069	0	0	
	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.318	0.000	3.215	0.000	0.000	
Total expected ignitions						**3.533**
LSR Acres by FMAZ	3,117	0	73,069	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.99%	0.00%	10.45%	0.00%	0.00%	
Expected burned acres	92.87	0.00	40.46	0.00	0.00	
Total expected burned ac. in this LSR						**133.331**

Slide Peak Wildfire Ignitions and Acreage Calculations (1,656 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	1,656	0	0	0	0	
	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.169	0.000	0.000	0.000	0.000	
Total expected ignitions						**0.169**
LSR Acres by FMAZ	1,656	0	0	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.53%	0.00%	0.00%	0.00%	0.00%	
Expected burned acres	49.34	0.00	0.00	0.00	0.00	
Total expected burned ac. in this LSR						**49.339**

Swauk LSR Wildfire Ignitions and Acreage Calculations (107,897 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	24,707	81,698	1,492	0	0	
Ignitions /1,000 acres/year	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	2.520	6.046	0.066	0.000	0.000	
Total expected ignitions						**8.631**
LSR Acres by FMAZ	24,707	81,698	1,492	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	7.85%	31.82%	0.21%	0.00%	0.00%	
Expected burned acres	736.12	112.35	0.83	0.00	0.00	
Total expected burned ac. in this LSR						**849.287**

Teanaway Wildfire Ignitions and Acreage Calculations (34,042 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	0	17,275	16,767	0	0	
Ignitions /1,000 acres/year	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	1.278	0.738	0.000	0.000	
Total expected ignitions						**2.016**
LSR Acres by FMAZ	0	17,275	16,767	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	6.73%	2.40%	0.00%	0.00%	
Expected burned acres	0.00	23.76	9.29	0.00	0.00	
Total expected burned ac. in this LSR						**33.041**

Tieton Wildfire Ignitions and Acreage Calculations (39,973 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	0	5,183	0	34,790	0	
	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	0.384	0.000	1.600	0.000	
Total expected ignitions						**1.984**
LSR Acres by FMAZ	0	5,183	0	34,790	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	2.02%	0.00%	10.04%	0.00%	
Expected burned acres	0.00	7.13	0.00	20.06	0.00	
Total expected burned ac. in this LSR						**27.186**

Upper Nile Wildfire Ignitions and Acreage Calculations (9,191 Acres)

	FMAZ					
	1	2	3	4	5	
LSR Acres by FMAZ	0	0	0	9,191	0	
Ignitions /1,000 acres/year	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	0.000	0.000	0.423	0.000	
Total expected ignitions						**0.423**
LSR Acres by FMAZ	0	0	0	9,191	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	0.00%	0.00%	2.65%	0.00%	
Expected burned acres	0.00	0.00	0.00	5.30	0.00	
Total expected burned ac. in this LSR						**5.299**

Appendix 24
Expected Wildfire Ignitions and Acres Burned Calculations for Each MLSA

Camas MLSA Wildfire Ignitions and Acreage Calculations (1,551 Acres)

	FMAZ					
	1	2	3	4	5	
MLSA Acres by FMAZ	1,551	0	0	0	0	
Ig/1,000 ac/yr	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.158	0.000	0.000	0.000	0.000	
Total expected ignitions						**0.158**
MLSA ac n FMAZ	1,551	0	0	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.49%	0.00%	0.00%	0.00%	0.00%	
Expected burned acres	46.21	0.00	0.00	0.00	0.00	
Total expected burned ac. in this MLSA						**46.210**

Crow MLSA Wildfire Ignitions and Acreage Calculations (12,479 Acres)

	FMAZ					
	1	2	3	4	5	
MLSA Acres by FMAZ	0	0	0	12,479	0	
Ig/1,000 ac/yrf	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	0.000	0.000	0.574	0.000	
Total expected ignitions						**0.574**
MLSA Acres by FMAZ	0	0	0	12,479	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	0.00%	0.00%	3.60%	0.00%	
Expected burned acres	0.00	0.00	0.00	7.19	0.00	
Total expected burned ac. in this MLSA						**7.195**

Appendix 24 - Expected Wildfire Ignitions and Acres Burned Calculations for Each MLSA

Eagle MLSA Wildfire Ignitions and Acreage Calculations (5,266 Acres)

	FMAZ					
	1	2	3	4	5	
MLSA Acres by FMAZ	5,255	0	11	0	0	
Ig/1,000 ac/yr	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.536	0.000	0.000	0.000	0.000	
Total expected ignitions						**0.536**
MLSA ac n FMAZ	5,255	0	11	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	1.67%	0.00%	0.00%	0.00%	0.00%	
Expected burned acres	156.57	0.00	0.01	0.00	0.00	
Total expected burned ac. in this MLSA						**156.572**

Haystack MLSA Wildfire Ignitions and Acreage Calculations (24,649 Acres)

	FMAZ					
	1	2	3	4	5	
MLSA Acres by FMAZ	0	16,393	0	8,256	0	
Ig/1,000 ac/yr	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	1.213	0.000	0.380	0.000	
Total expected ignitions						**1.593**
MLSA Acres by FMAZ	0	16,393	0	8,256	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	6.39%	0.00%	2.38%	0.00%	
Expected burned acres	0.00	22.54	0.00	4.76	0.00	
Total expected burned ac. in this MLSA						**27.303**

Appendix 24 - Expected Wildfire Ignitions and Acres Burned Calculations for Each MLSA

Milk Creek MLSA Wildfire Ignitions and Acreage Calculations (15,710 Acres)

	FMAZ					
	1	2	3	4	5	
MLSA Acres by FMAZ	0	2,914	0	12,796	0	
Ig/1,000 ac/yr	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	0.216	0.000	0.589	0.000	
Total expected ignitions						**0.804**
MLSA ac in FMAZ	0	2,914	0	12,796	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	1.14%	0.00%	3.69%	0.00%	
Expected burned acres	0.00	4.01	0.00	7.38	0.00	
Total expected burned ac. in this MLSA						**11.385**

Natapoc MLSA Wildfire Ignitions and Acreage Calculations (5,573 Acres)

	FMAZ					
	1	2	3	4	5	
MLSA Acres by FMAZ	1,072	0	0	0	0	
Ig/1,000 ac/yr	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.109	0.000	0.000	0.000	0.000	
Total expected ignitions						**0.109**
LSR ac in MLSA	1,072	0	0	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.34%	0.00%	0.00%	0.00%	0.00%	
Expected burned acres	31.94	0.00	0.00	0.00	0.00	
Total expected burned ac. in this MLSA						**31.939**

Appendix 24 - Expected Wildfire Ignitions and Acres Burned Calculations for Each MLSA

Russell MLSA Wildfire Ignitions and Acreage Calculations (12,335 Acres)

	FMAZ					
	1	2	3	4	5	
MLSA Acres by FMAZ	0	10,084	0	2,251	0	
Ig/1,000 ac/yr	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	0.746	0.000	0.104	0.000	
Total expected ignitions						**0.850**
MLSA Acres by FMAZ	0	10,084	0	2,251	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	3.93%	0.00%	0.65%	0.00%	
Expected burned acres	0.00	13.87	0.00	1.30	0.00	
Total expected burned ac. in this MLSA						**15.165**

Sand Creek MLSA Wildfire Ignitions and Acreage Calculations (9,205 Acres)

	FMAZ					
	1	2	3	4	5	
MLSA Acres by FMAZ	9,025	0	0	0	0	
Ig/1,000 ac/yr	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.921	0.000	0.000	0.000	0.000	
Total expected ignitions						**0.921**
MLSA ac in FMAZ	9,025	0	0	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	2.87%	0.00%	0.00%	0.00%	0.00%	
Expected burned acres	268.89	0.00	0.00	0.00	0.00	
Total expected burned ac. in this MLSA						**268.889**

Appendix 24 - Expected Wildfire Ignitions and Acres Burned Calculations for Each MLSA

Tumwater MLSA Wildfire Ignitions and Acreage Calculations (4,079 Acres)

	FMAZ					
	1	2	3	4	5	
MLSA Acres by FMAZ	1,682	0	2,397	0	0	
Ig/1,000 ac/yr	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.172	0.000	0.105	0.000	0.000	
Total expected ignitions						**0.277**
MLSA Acres by FMAZ	1,682	0	2,397	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.53%	0.00%	0.34%	0.00%	0.00%	
Expected burned acres	50.11	0.00	1.33	0.00	0.00	
Total expected burned ac. in this MLSA						**51.441**

Twin Lake MLSA Wildfire Ignitions and Acreage Calculations (5,573 Acres)

	FMAZ					
	1	2	3	4	5	
MLSA Acres by FMAZ	0	0	5,573	0	0	
Ig/1,000 ac/yr	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	0.000	0.245	0.000	0.000	
Total expected ignitions						**0.245**
MLSA Ac in FMAZ	0	0	5,573	0	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	0.00%	0.80%	0.00%	0.00%	
Expected burned acres	0.00	0.00	3.09	0.00	0.00	
Total expected burned ac. in this MLSA						**3.086**

Appendix 24 - Expected Wildfire Ignitions and Acres Burned Calculations for Each MLSA

Lost Lake MLSA Wildfire Ignitions and Acreage Calculations (6,951 Acres)

	FMAZ					
	1	2	3	4	5	
MLSA Acres by FMAZ	0	6,386	0	565	0	
Ig/1,000 ac/yr	0.102	0.074	0.044	0.046	0.03	
Expected Ignitions by FMAZ	0.000	0.473	0.000	0.026	0.000	
Total expected ignitions						**0.499**
MLSA Acres by FMAZ	0	6,386	0	565	0	
Forest Acres in FMAZ	314,825	256,725	699,104	346,519	516,008	
Percentage	0.00%	2.49%	0.00%	0.16%	0.00%	
Expected burned acres	0.00	8.78	0.00	0.33	0.00	
Total expected burned ac. in this MLSA						**9.107**

Appendix 25

Wild Plants of Interior Salish Speaking Groups

Wild Plants of Interior Salish Speaking Groups of the Chelan County Region, Washington

Researched and Written by Bernice Green
1984 (Revised October 1985)

Common Name	Scientific Name	Salish Term	
Alder	*Alnus spp.*	Quis kie up huh	
Alumroot	*Heuchera cylindrica*	Cheer ur	
Arrowleaf Balsamroot	*Balsamorhiza deltoidea*	Mah sah we	
Avens	*Geum triflorum*	Ku'loo min'tn	
Beargrass	*Xerophyllum tenax*	Loo kush tia	
Birch	*Betula spp.*	Cook heen	
Bitteroot	*Lewisia rediviva*	Spat lum	
Black Cottonwood	*Populus trichocarpa*	Tu tu hie pu	
Black Hawthorn	*Crataegus douglasii*	Sh'wah neek	
Black Moss	*Alectora jubata*	Sh'kuk'st	"Coyote's Hair"
Blackberry	*Rubus laciniatus*	Wish bin kin	
Blackcap Raspberry	*Rubus leucodermis*	Mits'q	
Blue Elderberry	*Sambucus cerulea*	Ch'queek qua	
Blueberry	*Vaccinium scoparium*	L'al meeh	
Bracken Fern	*Pteridium aquilinum pubescens*	Pt'pt'n'wah ko	
Buckbrush	*Ceanothus sanquineus*	Way wunth'p	
Buttercup	*Ranunculus occidentalis*	Sh'neer min	
Camas	*Camassia quamash*	Eet qu	
Camas (Lomatium spp.)	*Lomatium canbyi*	Stuk a loo sa	
Camas	*Lomatium farinosum*	Too too kwa	
Camas	*Lomatium geyeri*	Pah lee wa	
Canada Mint	*Mentha canadensis*	Su hoh su hoh	
Canyon Heather	*Eriogonum niveun*		
Carrot Leaf	*Lomatium dissectum*	Stut kim	
Cascara	*Rhamnus purshiana*	Step tep sah lu	
Cattail	*Typha latifolia*	Kwus kwus	
Cedar	*Thuja plicata*	Soo kwum	
Chaenactis	*Chaenactis douglasii*	Tip tip a lopes	"Spider Plant"
Chokecherry	*Prunus virginiana*	Puk al huh	
Cinquefoil	*Potentilla arguta,*	H'wah wah kin	

Common Name	Scientific Name	Salish Term	
	Potentilla gracilis		
Clematis	*Clematis spp.*	Kuts ah snee na	
Cluster Lily	*Brodiaea grandiflora*	Tri toe tia	
Coltfoot	*Petasites speciosa*	Hoh tee pu	
Columbine	*Aquilegia spp.*	Pum pum	"Hummingbird"
Cous or Kouse	*Lomatium cous*		
Cow Parsnip	*Heracleum lanatum*	Wh'hoh leelp	
Cudweed Sagewort	*Artemisia gnaphalodes*	Quil quil kin	
Curled Dock,	*Rumex crispus*	Kay muh'n	
Golden Currant	*Ribes aureum*	Sh'cheer's	
Prickly Currant	*Ribes lacustre*	Tah tah kin	"Hammer Head"
Death Camas	*Zygadenus venenosus*	T'kow	
Desert Parsley	*Lomatium macrocarpum*	Stoh kwum	
Devil's Club	*Oplopanax horridum*	Pu poo up	
Dogwood	*Cornus canadensis*	Wah hiep	
Dragon Safewort	*Artemisia dracunculoides*	Tsi tsi hee pu	
Elecampane	*Inula helenium*	T'chap ku wich ia	
Fir	*Abies spp.*	Ch'at spu	
Fireweed	*Epilobium angustifolium*	Hah hah	"Crow Smoking a Pipe"
Foamberry	*Sheperdia canadensis*	Sh'hoo shum	
Gaillardia	*Gaillardia aristata*	Wil wul kust	
Glasswort	*Salicornia pacifica*		
Golden Fleabane	*Erigeron aureus*	Koh koh hopes	
Goldenrod	*Solidago canadensis*	Tp'k'spoos'n	
Gooseberry	*Ribest lacustre, Ribes irriquum*	Pee nous	
Greasewood	*Purshia tridentata*	Mits mits aiph	
Green Moss (lichen)	*Letharia volpina*	Quir yum	
Hawkweed	*Hieracium scouleri*	Kwi kwee'lhp	
Hazelnut	*Corylus cornuta californica*	Kee pu wa	
Heart-leaved Erigonum	*Eriogonum compositum*	Kaw kay tia	
Hemlock	*Tsuga mertensiana, Tsuga heterophylla*	Ho wye kos teen	
Honeysuckle	*Lonicera ciliosa*	Kir yir mit'sn	
Hooker's Balsamroot	*Balsamorhiza hookeri*	Skee ous	
Horsetail (Joint Grass)	*Equisetum spp.*	Eet ats'm	
Huckleberry	*Vaccinium spp.*	Swi na'huh	
Indian Hemp	*Apocynum*	Sh'hut at kin	

Common Name	Scientific Name	Salish Term	
	cannabinum		
Indian Pipe	*Monotropa uniflora*	K'quoit o quoit	
Juniper	*Juniperus spp.*	Poon'th	
Kinnikinnick	*Arctostaphylos uva-ursi*	Squil quil ee shup	
Lady Slipper	*Cypripedium montanum*	Sh'meow skoh hin	"Coyote's Slipper"
Larch (Tamarack)	*Larix lyallii, Larix occidentalis*	Chee quil qua	
Large-flowered Brodiaea	*Brodiaea grandiflora*	T'ch hiech	
Large Purpose Fleabane	*Erigeron speciosus*	Snuk-nkt-kane	
Larkspur	*Delphinium nuttallianum*	Quah quah k'nich	
Lobella	*Lobelia spp.*	Ti ti hoosh	
Lupine	*Lupinus spp.*	Quee quee kim up huh	
Maple	*Acer macrophyllum*	Soam hoh hoh masp	
Mariposa Lily	*Calochortus macrocarpus*	Yuk a yuk'sp	
Milkweed	*Asclepias speciosa*	Snuk lip'sn	
Mountain Ash	*Sorbus sitchensis*	Tsah kwut	
Mountain Balm	*Ceanothus spp.*	Sh'munt	
Mule Ears	*Wythia amplexicaulis*	Pee eek	
Mullein	*Verbascum thapsus*	Hire hors ma	
Mushrooms (beefsteak)	*Cryptogam*	Hah pin ta	
Mushrooms (morrell)	*Morcella esculenta*	Pt'kane	
Narrow-leaved Parsley	*Lomatium triternatum*	Ah la pis pus	
Nettle	*Urtica lyallii*	Tse nah wah'ln	
Northern Gentian	*Gentiana spp.*	Hah hah sko kluh,	"Crow Plant"
Ocean Spray	*Holodiscus discolor*	Sh'hoom up	
Onion	*Allium douglasii*	Sh'hie qua	
Onion (Geyer's onion)	*Allium geyeri*	Sh'hie qua	
Onion (Hooker's onion)	*Allium acuminatum*	Nke ka ka	
Onion (Nodding Onion)	*Allium cernuum*	An ath poi poi	
Oregon Grape	*Mahonia aquifolium*	Sh'tu tus	
Oxeye Daisy	*Chrysanthemum leucanthemum*	Wil wul kust	"Frog Plant"
Pasture Wormwood	*Artemisia frigida*	Kwel kwel keen	
Pearly Everlasting	*Anaphalis*	Quoie quoie	

Common Name	Scientific Name	Salish Term	
	margaritacea		
Penstemon	*Penstemon spp.*	Sh'munt see	
Pine (Ponderosa Pine)	*Pinus ponderosa*	Coo coo chin	
Pine (Lodgepole Pine)	*Pinus contorta*	Wah'ksn	
Pipsissewa	*Chimaphila umbellata*	Ques ques nee qua	
Plantain	*Plantago spp.*	Swee out h'kmeen	"Goat's Horns"
Prickly Pear	*Opuntia polyacantha*	Shwee ah na	
Purple Aster	*Aster conspicuus*	Kum its koos	
Quaking Aspen	*Populus tremuloides*	Hon mun nee ah	
Rabbit Brush	*Chrysothamnus nauseosus*	Pah pah lam'h	
Raspberry	*Rubus idaeus*	Th'ah la	
Red-osier Dogwood	*Cornus stolonifera*	Sh'tip tik'sh whath'p	
Rock Cress	*Arabis drummondii*	Chalk al nast ia	
Rose	*Rosa spp.*	Tsk'tsk'poon' th'p	
Rye Grass	*Elymus cinereus*	Skul nus tia	
Sagebrush	*Artemisia tridentata*	Kwel Kwel k'nath'p	
Purple Sage	*Salvia dorrii*	Kin kin tuck keen	"Indian Head"
Salmon-colored Collomia	*Collomia grandiflora*	Chit tut tu	"Rattlesnake's tail"
Salmonberry	*Rubus spectabilis*	Yer kin	
Salsify	*Tragopogon pratensis*	Pah nee wa	
Sedge	*Carex spp.*	Sta'h cheen	
Sedum	*Sedum spp.*	Ee tee tum nih	
Serviceberry	*Amelanchier spp.*	Hump shoo caus em, Shay et'th, Sh'ya ya (most commonly used), Squah shee'wsh	
Shooting Star	*Dodecatheon pauciflorum*	Quie quielth	"Curlew"
Skunk Cabbage	*Lysichitum americanum*	Sh'keel tu	
Snowberry	*Symphoricarpos albus*	Tum tum nye'th'p	"Poison"
Spidergrass	*Aristida longiseta*	Tip tip a lopes	
Spirea	*Spiraea betulifolia lucida*	Squahts w hopes	
Spreading Dogbane	*Apocynum androsaemifolium*	Putch putch chin wa'q	
Spring Beauty	*Claytonia lancelolota*	Squin quin um	
Spring Gold	*Lomatium utriculatum*	Eye eet	
Spruce	*Picea englemannii*	Ch'ahp	
Star Flower	*Trientalis latifolia*	Smet su nah luk	
Strawberry	*Fragaria spp.*	Tee low qu or Ta gum ta gun	

Common Name	Scientific Name	Salish Term	
Sulphur Eriogonum	*Eriogonum umbellatum*		
Sumac	*Rhus glabra*	Tuk tuk tilp	
Sunflower	*Balsmorhiza sagittata*	Smoo qua'hn	
Sweet Cicely	*Osmorhiza spp.*	Ah yu	
Sweet Grass	*Hierochloe odorata*	Tow quin pa	
Sword Fern	*Polystichum minitum*	T'kash eeks	
Syringa	*Philadelphus lewisii*	Wha wa hee pu	
Tarweed	*Madia spp.*	Sh'whee whee	
Thimbleberry	*Rubus parviflorus*	Pool pool kin	
Thistle	*Cirsium edule*	Tee tee oh klo	
Tiger Lily	*Lilium paryiflorum*	Stu chin	
Trailing Blackberry	*Rubus pedatus*	Wis kin kane	
Trillium	*Trillium ovatum*	km'km'stee na	
Tule	*Scirpus acutus*	Sh'how wash't	
Valerian	*Valeriana edulis*	What'sk	
Vetch	*Vicia americana*	Yir yir kin	
Vine Maple	*Acer circinatum*	Huk a put kil	
Watercress	*Rorippa nasturtium*	Sa taht quin	
Western Baneberry	*Actaea arguta*	Stum tum na nee eeh	
Western Yew	*Taxus brevifolia*	Ps'ps'usthp	"Owl Plant"
White Pussytoes	*Antennaria rosea*	Tee tee hoosh	
Wild Buckwheat	*Eriogonum heracleoides, Eriogonum compositum*	K'tie hoosh	
Wild Carrot (See Desert Parsley)			
Wild Celery	*Lomatium nudicaule*	T'la qua	
Wild Cherry	*Prunus emarginata*	Paw col huh	
Wild Geranium	*Geranium viscosissimum*	Tah kwa	
Wild Iris	*Iris tenax, Iris missouriensis*	Uts uts qu hopes	
Willow	*Salix spp.*	T'thu quit	
Wormwood	*Artemisia absinthimum*	Shwee yat'q	
Yampa	*Carum gairdneri*	Toh koh	
Yarrow	*Achillea millefolium*	Kw'ets kw'ets so hopes	
Yellow Avalanche Lily	*Erythronium grandiflorum*	Squee hoh	
Yellow Moss	*Everina lancelota*	Quar yum	
Yellowbell	*Frittillaria pudica*	Stee wa	

Appendix 26
Three Creeks ORV Trail Project
Social Module Implications

Introduction

The following documents the results of applying the social module developed for the Wenatchee National Forest LSR Assessment to the Three Creeks ORV Trail project on the Entiat Ranger District. This was done for two purposes, to support the Three Creeks Trail Project, and to serve as a test for the Social Module, a part of the LSR Assessment.

The Social Module was developed specifically as a way to deal with projects occurring in LSR's that are derived for purposes other than meeting LSR objectives. It is intended that it be applied early in the project analysis process to determine whether REO review is needed for that specific project. It does this by making an early and general assessment of project effects, specifically as they relate to late successional objectives. In addition to determining the need for REO review, mitigation measures are also identified for the project that are intended to avoid or minimize effects on late successional habitat.

The Three Creeks Trail project is shown on the attached map. It includes the construction of 8.5 miles of new motorized ORV trails, 6.7 miles of new non-motorized trails within and between the Shady Pass and Chiwawa LSR's. In additionally, 14 miles of road and trails will be closed (7.5 within LSR's) and 1.9 miles of existing road will be turned into trails. Of the new trail construction, there will be 5.85 miles of new motorized trail construction within the Shady Pass LSR and .5 miles of new non-motorized trail construction within the Chiwawa LSR.

Three Creeks ORV Trail Results:

1) Does the project have forest-wide implications?

No, use a district ID Team to assess effects.

2) Can the projects purpose and need be met outside of the LSR?

No.

3) Can the project be located to avoid late successional habitat?

No, Apply analysis modules to determine consistency with ROD or determine that effects are neutral or beneficial.

Forest-Wide sustainability

There are minor beneficial effects on vegetation at risk to fire resulting from construction of the ORV trail. This is due to the removal of small amounts of vegetation and increased access into the area. The effect on risk of ignition is slightly increased due to more motorcycles in more places than what currently exists.

Forest-Wide owl network

There will be approximately 1/2 mile of new non-motorized trail within the Chiwawa LSR. (the Chiwawa is one of the 3 LSR's on the forest designated as a source area for owls where this analysis applies.) The clearing associated with this new construction will have a marginal effect on forest-wide owl issues. Never-the-less, removal of large diameter trees in clearing should be avoided, and any trees cut should not be removed from this area.

Forest-Wide connectivity

A connectivity barrier already exists for low mobility species between the Chiwawa and Shady Pass LSR's along the Entiat River road. Additional trails in this area do not change this situation. Moderate and high mobility species are not affected by trails.

Unique Habitats and Species

New trail locations (1/2) mile skirt some unique meadow habitats in the Chiwawa LSR and portions of this same trail are within a riparian reserve. These are of minor significance in effects. Gray wolf surveys should be conducted in this area as it has potential as a rendezvous area. In the Shady Pass LSR there will be 7 new riparian reserve crossings and portions of trail cross some interior forest unique habitats. Keeping clearing to the stated minimums will result in only minor effects. Any talus or cliff areas should be avoided, trails that skirt these areas should leave some vegetation and tree structure between these areas and trails.

There are no identifiable effects on species with special status.

Connectivity within LSR's

There are no connectivity effects within the Chiwawa or Shady Pass LSR's. There will be a net change of 7.5 miles less roads and trails within the area due to closure of some roads and trails. This constitutes a beneficial effect on connectivity.

Spotted Owl

No owl activity centers in the Chiwawa LSR are in proximity to this project. In the Shady Pass LSR, trail construction will effect 12 acres of suitable habitat. this effect will be a minor change in structural characteristics and result in no loss of habitat. The exact trail locations have not been flagged on the ground, but it appears that trails will be constructed within the activity center of owls #502, #503, and #504. The map location of the trail is near the 100 acre nest site core of owl #504. The trail must be located to avoid this core area! Habitat for these 3 owls is at or above threshold acreage. Construction activities must not take place between March 1 and August 31 within 1/2 mile of nest sites.

Disturbance

Effects are neutral or beneficial, see sustainability comments.

Aquatic

The 7.5 mile reduction in the amount of open roads and trails in the area is a beneficial effect. Some of these are within riparian areas. New trails constructed crossing riparian areas should be hardened, and hydraulic permits will be required for construction of 2 trail bridges.

Noxious weeds

Noxious weed related effects are neutral. Disturbed areas of closed roads and trails should be seeded with an aggressive seed mixture.

General comments

The Three Creeks trail project has been determined to be consistent with LSR objectives or to have neutral or beneficial effects, therefore the project can proceed without REO review, based on this documented finding. If final trail location does enter the core area of owl 504 or if planned road and trail closures are not implemented, this project would require REO review.

Appendix 27
Terrestrial Vertebrate Species with Special Status

SURVEY AND INVENTORY DATA: TERRESTRIAL LATE-SUCCESSIONAL-ASSOCIATED SPECIES AND SPECIES WITH SPECIAL STATUS

COMMON NAME	LATIN NAME	FD	FS	VEGETATION TYPE							UNIQUE HABITATS													HOME RANGE (TERRITORY)	COMMENTS AND MANAGEMENT CONSIDERATIONS
				dry	*mesic df*	*moist gf / mesic hemlock*	*valley bottom mixed conif*	*wet forest group*	*subalpine fir*	*whitebark pine / subalpine*	*rivers, creeks, streams*	*lakes, resevoirs, ponds*	*marshes, bogs, swamps*	*slow-running water*	*fast-running water*	*edges*	*snags*	*down logs*	*burrows*	*cliffs, rimrock*	*talus*	*caves*		
BIRDS																									
COMMON LOON	*Gavia immer*		R6																						
BARROW'S GOLDENEYE	*Bucephala islandica*			X	X	X	X	X			BF	BF	BF	F			B	B						5+ nest sites/acre	Shallow wetlands, 50-75% cover, abundant cwd, 12"dbh trees w/ ca
WOOD DUCK	*Aix sponsa*			X	X	X	X	X			BF	BF	BF	F	F	B	B	B						2 acres of suitable marsh/pair	Shallow wetlands, 50-75% cover, abundant cwd, 12"dbh trees w/ ca
COMMON MERGANSER	*Mergus merganser*			X	X	X	X	X			BF	BF	BF	F			B	B							
HARLEQUIN DUCK	*Histrionicus histrionicus*	C	S		X	X	X	X			BF			F	BF			B							Minimize disturbance; cwd, riparian veg and macroinverts near strm
NORTHERN GOSHAWK	*Accipiter gentilis*	C	S	X	X	X	X	X	X		F		F			F	F			F	F			300 acres/ 25000-38000/pair	Nest single-storied mature to old-growth for high canopy cov min un
BALD EAGLE	*Haliaeetus leucocephalus*	T	MI	X	X	X	X	X			BF	BF	F				F							1.6 mile radius from nest	Prefers unevern-aged conif. stands, OG components, min human di
MARBLED MURRELET	*Brachyramphus marmoratus*	T					X	X									B								
BARRED OWL	*Strix varia*				X	X	X	X	X		BF	BF	BF				BF	F						595 acres	
NORTHERN SPOTTED OWL	*Strix occidentalis caurina*	T	MI		X	X	X	X			BF					BF	F							400-600 acres	Multi-layer multi-spp canopy; >30"dbh conif overst, snags, cwd, mist
GREAT GRAY OWL	*Strix nebulosa*		PB		X	X	X	X	X						BF	B								4.5 km^2 (1.3-6.5km^2)	Nests in the vicinity of marshes, lakes, wet meadows and pastures.
FLAMMULATED OWL	*Otus flammeolus*		PB	X	X										BF	BF								15-30 acres	Trees with cavities essential. Dense mature stands near brushy cle
NORTHERN PYGMY-OWL	*Glaucidium gnoma*			X	X						BF	BF	BF			BF	BF				F				
NORTHERN SAW-WHET OWL	*Aegolius acadicus*			X	X	X	X	X	X				BF				B								Inhabits dense conifrerous or mixed forests or wooded swamps.
COOPER'S HAWK	*Accipiter cooperii*																								
SHARP-SHINNED HAWK	*Accipiter striatus*				X	X			X																
PEREGRINE FALCON	*Falco peregrinus*	E	MI																						
PILEATED WOODPECKER	*Dryocopus pileatus*		MI	X	X	X	X	X	X		BF	BF					BF	F						300 acres/pair	Maintain one 600 acre habitat area for one pair, every 1200 acres.
DOWNY WOODPECKER	*Picoides pubescens*		MI		X	X	X	X	X								BF								
HAIRY WOODPECKER	*Picoides villosus*		MI	X	X	X	X	X	X								BF							25 acres/pair	
WHITE-HEADED WOODPECKER	*Picoides albolarvatus*		PB	X	X	X											BF							20 acres/pair	Mature p.pine and mixed conifer w/ 40-70% closure; 25"+ snags.
BLACK-BACKED WOODPECKER	*Picoides arcticus*		PB	X	X	X	X	X	X							F	BF	F						75 acres/pair	Mature to old-growth p.pine, l.p.pine, mixed conif, w/ many pole-size
THREE-TOED WOODPECKER	*Picoides tridactylus*		MI		X	X	X	X	X								BF	F						75 acres/pair	75 acres management area consisting of mature/OG mixed/lpp stan
RED-BREASTED SAPSUCKER	*Sphyrapicua ruber*		MI		X											F	BF								
WILLIAMSON'S SAPSUCKER	*Sphyrapicus thyroideus*		MI	X	X	X	X	X	X		BF	BF	F			F	BF								Mature/OG, mixed conif, multilayer, 75% canopy. Requires both live
NORTHERN FLICKER	*Colaptes auratus*		MI	X	X											F	BF								
RUFFED GROUSE	*Bonasa umbellus*		MI																						
WESTERN FLYCATCHER	*Empidonax difficilis*			X	X	X	X	X	X		BF	F	F			F	F	F							
HAMMOND'S FLYCATCHER	*Empidonax hammondii*			X	X	X	X	X	X		BF	F	F			BF	F	F						1.5-3.8 acres	Found in drier mature and old-growth forests.
LITTLE WILLOW FLYCATCHER	*Empidonax trailii*	C	S		X	X	X	X																	
OLIVE-SIDED FLYCATHCHER	*Contopus borealis*	C	S		X	X	X										BF								
VAUX'S SWIFT	*Chaetura vauxi*			X	X	X	X	X	X		F	F	F			F	B			BF	F				Maintain pockets mature/OG w/ snags. Retain all snags and large d
CHESTNUT-BACKED CHICKADEE	*Parus rufescens*			X	X	X	X	X	X		BF	BF	F				BF	F							

SURVEY AND INVENTORY DATA: TERRESTRIAL LATE-SUCCESSIONAL-ASSOCIATED SPECIES AND SPECIES WITH SPECIAL STATUS

COMMON NAME	LATIN NAME	FD	FS	VEGETATION TYPE							UNIQUE HABITATS												HOME RANGE (TERRITORY)	COMMENTS AND MANAGEMENT CONSIDERATIONS
				dry	*mesic df*	*moist gf / mesic hemlock*	*valley bottom mixed conif*	*wet forest group*	*subalpine fir*	*whitebark pine / subalpine*	*rivers, creeks, streams*	*lakes, resevoirs, ponds*	*marshes, bogs, swamps*	*slow-running water*	*fast-running water*	*edges*	*snags*	*down logs*	*burrows*	*cliffs, rimrock*	*talus*	*caves*		
MOUNTAIN CHICKADEE	*Parus gambeli*			X	X	X			X															
BLACK-CAPPED CHICKADEE	*Parus atricapillus*			X	X				X															
BROWN CREEPER	*Certhia americana*			X	X	X	X	X			F	F	F				BF	F						Inhabits mature/OG, utilizes loose tree bark for nests
RED-BREASTED NUTHATCH	*Sitta canadensis*		MI	X	X	X	X	X	X		F	F				F	BF	F						
WHITE-BREASTED NUTHATCH	*Sitta carolinensis*			X	X	X										F	BF	F						
PYGMY NUTHATCH	*Sitta pygmaea*		PB	X	X	X					F	F				F	BF						4.9 acres/pair	Retain 3-5 snags/acre, >19"dbh
SOLITARY VIREO	*Vireo solitarius*			X	X											BF								Nest often <10' above ground
WINTER WREN	*Troglodytes troglodytes*				X	X					BF						B	BF						
GOLDEN-CROWNED KINGLET	*Regulus satrapa*				X	X	X	X	X		F	F												
HERMIT THRUSH	*Catharus guttatus*				X	X	X	X	X		F	F						BF					0.6-1.0 ha	
VARIED THRUSH	*Ixoreus naevius*				X	X	X	X	X		F	F				F								
TOWNSEND'S WARBLER	*Dendroica townsendi*				X	X	X	X	X		BF	F	F											
WILSON'S WARBLER	*Wilsonia pusilla*			X	X						BF	BF	BF			BF		BF					2-11.2 acres	Needs high canopy cover; found in mesic old-growth sites.
RED CROSSBILL	*Loxia curvirostra*			X	X	X	X	X	X		F	F	F			F								
WARBLING VIREO	*Vireo gilvus*			X	X											BF								Nests w/in 12' of ground usually in deciduous trees
HERMIT WARBLER	*Dendroica occidentalis*			X	X											BF								
SWAINSON'S HAWK	*Buteo swainsoni*																							
FERRUGINOUS HAWK	*Buteo regalis*		S																					
FRANKLIN'S GROUSE (SPRUCE)	*Dendragapus canadensis*																							
CLARK'S NUTCRACKER	*Nucifraga columbiana*																							
GOLDEN EAGLE	*Aquila chrysaetos*																							
AMPHIBIANS/REPTILES																								
TAILED FROG	*Ascaphus truei*	C	S	X	X	X	X	X	X		BF				BF								72 feet/adult	Inhabit cool, fast-moving streams in forested landscapes.
RED-LEGGED FROG	*Rana aurora*			X	X	X	X	X				BF	BF	BF										
SPOTTED FROG	*Rana pretiosa*	C																						
CASCADES FROG	*Rana cascadae*	C	S		X	X	X	X	X			BF	BF											
PACIFIC TREE FROG	*Pseudocris regilla*			X	X	X	X	X	X			BF	BF											
PACIFIC GIANT SALAMANDER	*Dicamptodon tenebrosus*				X	X	X	X	X		BF	BF			BF									
NORTHWESTERN SALAMANDER	*Ambystoma gracile*					X	X	X	X		BF	BF			BF									
LONG-TOED SALAMANDER	*Ambystoma macrodactylum*			X	X	X			X		BF	BF		BF										
LARCH MOUNTAIN SALAMANDER	*Plethodon larselli*	C	SM/PB	X	X	X	X	X	X												BF			
ROUGH-SKINNED NEWT	*Taricha granulosa*			X	X	X	X	X	X		BF	BF		BF				F						
NORTHERN ALLIGATOR LIZARD	*Elgaria coeruleas*			X																				Frequent in riparian zones.
DELNORTE SALAMANDER			SM																					

SURVEY AND INVENTORY DATA: TERRESTRIAL LATE-SUCCESSIONAL-ASSOCIATED SPECIES AND SPECIES WITH SPECIAL STATUS

COMMON NAME	LATIN NAME	FD	FS	VEGETATION TYPE							UNIQUE HABITATS												HOME RANGE (TERRITORY)	COMMENTS AND MANAGEMENT CONSIDERATIONS
				dry	mesic df	moist gf / mesic hemlock	valley bottom mixed conif	wet forest group	subalpine fir	whitebark pine / subalpine	rivers, creeks, streams	lakes, resevoirs, ponds	marshes, bogs, swamps	slow-running water	fast-running water	edges	snags	down logs	burrows	cliffs, rimrock	talus	caves		
MOLLUSKS																								
WARTY JUMPING-SLUG	*Hemphillia glandulosa glandulosa*		SM																					
BLUE-GRAY TAIL-DROPPER	*Proghysaon coeruleum*		SM																					
PAPILLOSE TAIL-DROPPER	*Prophysaon dubium*		SM																					
COLUMBIA PEBBLESNAIL	*Fluminicola columbiana*	C		X	X	X			X															
CHELAN MOUNTAIN SNAIL	*Oreohelix new species*																							
MAMMALS																								
NORTHERN FLYING SQUIRREL	*Glaucomys sabrinus*			X	X	X	X	X	X		F	F				BF	BF	F					360 acres	Density does not appear to be strongly dependent on stand age alo
DOUGLAS SQUIRREL	*Tamiasciurus douglasii*			X	X	X	X	X	X															Closed conifer forests, not edge; avoids 50 m to edge; tied to cone
WESTERN GRAY SQUIRREL	*Sciurus griseus*			X	X	X					BF	BF	BF				BF	F					Minimum of 5 hectares	Requires GF-DF zones with walnuts; mean canopy >60%
TOWNSEND CHIPMUNK	*Eutamias townsendii*			X	X	X	X	X																
GOLDEN-MANTLED SQUIRREL	*Citellus lateralis*				X	X			X															
BUSHY-TAILED WOOD RAT	*Neotoma cinerea*				X	X					BF													
FOREST DEER MOUSE	*Peromyscus oreas*				X	X	X	X																
DEER MOUSE	*Peromyscus maniculatus*			X	X	X	X	X	X		BF	BF	BF			BF	BF	BF	BF	BF	BF	BF	40 acres/population	Not abundant in clearcuts; not found around swamps or bogs.
SHREW-MOLE	*Neurotrichus gibbsii*				X	X	X	X																Associated with cwd and deep soft soils with surface litter.
BOREAL RED-BACKED VOLE	*Clethrionomys gapperi*				X	X	X	X	X		F		F					B	B				.25 acre home range; pop to 10/acre	
LITTLE BROWN MYOTIS	*Myotis lucifugus*			X	X	X					F	F	BF		BF	B	B		BF	F		B		
LONG-LEGGED MYOTIS	*Myotis volans*	C	SM/PB	X	X	X					BF	BF	BF				B							
SMALL-FOOTED MYOTIS	*Myotis subulatus*					X																B		
LONG-EARED MYOTIS	*Myotis evotis*	C	PB	X	X	X	X	X	X													B		
FRINGED MYOTIS	*Myotis thysanodes*	C	PB	X	X	X																B		
YUMA MYOTIS	*Myotis yumanensis*	C		X	X	X	X	X	X													B		
CALIFORNIA MYOTIS	*Myotis californicus*			X	X	X											B					B		
BIG BROWN BAT	*Eptesicus fuscus*			X	X	X	X	X	X		F	F	BF				B			BF	F	B		
SILVER-HAIRED BAT	*Lasionycteris noctivagans*		PB	X	X	X	X	X	X		F	F	BF				B							
HOARY BAT	*Lasiurus cinereus*			X	X	X	X	X	X		F	F	F											
WESTERN BIG-EARED BAT	*Plecotus townsendii*	C	S			X																BF		
PALLID BAT	*Antrozous pallidus*		PB	X	X	X																B		
MULE DEER	*Odocoileus hemionus*		MI																					
ELK	*Cervus elaphus*		MI	X	X	X	X	X	X		F	F											3000 acre optimal habitat	Limit clear-cuts < 40 ac; > 50% thermal cov winter range; 1.5 mi/mi
LYNX	*Lynx canadensis*	C	S			X	X	X	X		BF							F		BF	BF	B	24 sq miles mean (8-120 range	Requires OG for cover, early seral for feeding. Managed units 20-4
BEAVER	*Castor canadensis*		MI		X	X					BF	BF	BF											

SURVEY AND INVENTORY DATA: TERRESTRIAL LATE-SUCCESSIONAL-ASSOCIATED SPECIES AND SPECIES WITH SPECIAL STATUS

COMMON NAME	LATIN NAME	FD	FS	VEGETATION TYPE							UNIQUE HABITATS												HOME RANGE (TERRITORY)	COMMENTS AND MANAGEMENT CONSIDERATIONS
				dry	*mesic df*	*moist gf / mesic hemlock*	*valley bottom mixed conif*	*wet forest group*	*subalpine fir*	*whitebark pine / subalpine*	*rivers, creeks, streams*	*lakes, resevoirs, ponds*	*marshes, bogs, swamps*	*slow-running water*	*fast-running water*	*edges*	*snags*	*down logs*	*burrows*	*cliffs, rimrock*	*talus*	*caves*		
GRIZZLY BEAR	*Ursus arctos*	T																						
GRAY WOLF	*Canis lupus*	E																						
MOUNTAIN GOAT	*Oreamnos americanus*		MI																					
BIGHORN SHEEP	*Ovis canadensis*	C	R6/S																					
MARTEN	*Martes americana*		MI	X	X	X	X	X	X								B	F		F	F	F	0.5 to 6 square miles	Maintain mesic mature/OG, >30% cover, large snags and cwd.
FISHER	*Martes pennanti*	C	S	X	X	X	X	X			BF	BF					B	BF		F	F	F	100 square miles	Maintain mature and uneven-aged w/ >80% cover, large snags and
WOLVERINE	*Gulo gulo*	C	S		X	X	X	X	X									B			B			

SURVEY AND INVENTORY DATA: TERRESTRIAL LATE-SUCCESSIONAL-ASSOCIATED SPECIES AND SPECIES WITH SPECIAL STATUS

COMMON NAME	LATIN NAME	FD	FS	LSRs																MLSAs										
				PERCENT OF AVAILABLE HABITAT SURVEYED																PERCENT OF AVAILABLE HABITAT SURVEYED										
				Lucerne	Sawtooth	Shady Pass	Slide Peak	Chiwawa	Little Wenatchee	Deadhorse	Icicle	Boundary Butte	Teanaway	Swauk	Manastash Ridge	Bumping	Rattlesnake	Tieton	Upper Nile	Twin Lakes	Natapoc	Turnwater	Eagle Creek	Camas Creek	Sand Creek	Milk Creek	Haystack	Russel Ridge	Lost Lake	Crow
BIRDS																														
COMMON LOON	*Gavia immer*		**R6**	0	0	0	0	0	40	###	70	###	###	###	###	<1	0	0	###	50	###	100	###	###	###	###	###	###	0	###
BARROW'S GOLDENEYE	*Bucephala islandica*			0	0	0	0	0	0	50	70	###	###	###	###	0	0	0	###	20	###	100	###	###	###	0	0	0	0	0
WOOD DUCK	*Aix sponsa*			0	0	50	0	0	0	50	70	###	0	###	###	0	0	0	###	20	###	100	###	###	###	###	###	###	0	###
COMMON MERGANSER	*Mergus merganser*			0	0	0	0	0	0	50	70	###	0	###	0	0	0	0	###	20	###	100	###	###	###	0	###	###	###	###
HARLEQUIN DUCK	*Histrionicus histrionicus*	**C**	**S**	0	0	0	0	10	10	50	70	###	0	###	0	0	0	0	###	20	###	100	###	###	###	100	0	###	###	0
NORTHERN GOSHAWK	*Accipiter gentilis*	**C**	**S**	10	5	10	0	20	10	5	0	60	10	10	40	0	0	0	0	0	50	40	10	0	60	0	0	0	0	0
BALD EAGLE	*Haliaeetus leucocephalus*	**T**	**MI**	10	5	5	5	10	10	50	100	###	###	###	0	0	0	100	0	50	0	100	###	###	###	0	0	0	0	0
MARBLED MURRELET	*Brachyramphus marmoratus*	**T**		0	0	0	0	###	0	###	0	###	###	###	<1	###	###	###	###	###	###	###	###	###	###	###	###	###	###	0
BARRED OWL	*Strix varia*			0	0	0	0	50	50	80	70	90		50	75	100	100	100	100	100	50	80	100	60	70	100	100	100	30	100
NORTHERN SPOTTED OWL	*Strix occidentalis caurina*	**T**	**MI**	10	0	30	10	50	50	80	70	90	40	100	100	100	100	100	100	100	50	80	100	60	70	100	100	100	30	100
GREAT GRAY OWL	*Strix nebulosa*		**PB**	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0
FLAMMULATED OWL	*Otus flammeolus*		**PB**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTHERN PYGMY-OWL	*Glaucidium gnoma*			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTHERN SAW-WHET OWL	*Aegolius acadicus*			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COOPER'S HAWK	*Accipiter cooperii*			0	0	0	0	0	5	0	10	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHARP-SHINNED HAWK	*Accipiter striatus*			0	0	0	0	0	0	0	10	10	0	10	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0
PEREGRINE FALCON	*Falco peregrinus*	**E**	**MI**	10	5	10	10	10		0	50	###	0	0	0	0	0	5	0			50	###	###	###	0	25	0	100	10
PILEATED WOODPECKER	*Dryocopus pileatus*		**MI**	0	0	0	0	5	0	0	10	10	0	5	5	25	0	0	0	0	0	0	0	0	0	0	<5	0	0	0
DOWNY WOODPECKER	*Picoides pubescens*		**MI**	0	0	0	0	5	0	0	10	10		5	5	<5	0	0	0	0	0	0	0	0	0	0	<5	0	0	0
HAIRY WOODPECKER	*Picoides villosus*		**MI**	0	0	0	0	5	0	0	10	10		5	5	<5	0	0	0	0	0	0	0	0	0	0	<5	0	0	0
WHITE-HEADED WOODPECKER	*Picoides albolarvatus*		**PB**	0	0	0	0	5	0	0	10	10	0	5	<5	###	0	0	###	0	0	0	0	0	0	0	<5	0	0	0
BLACK-BACKED WOODPECKER	*Picoides arcticus*		**PB**	0	0	0	0	5	0	0	10	10	0	5	<5	<5	0	0	0	0	0	0	0	0	0	0	<5	0	0	0
THREE-TOED WOODPECKER	*Picoides tridactylus*		**MI**	0	0	0	0	5	0	0	10	10	0	5	<5	<5	0	0	0	0	0	0	0	0	0	0	<5	0	0	0
RED-BREASTED SAPSUCKER	*Sphyrapicua ruber*		**MI**	0	0	0	0	0	0	0	10	10	0	5	<5	<5	0	0	0	0	0	0	0	0	0	0	<5	0	0	0
WILLIAMSON'S SAPSUCKER	*Sphyrapicus thyroideus*		**MI**	0	0	0	0	0	0	0	10	10	0	5	<5	<5	0	0	0	0	0	0	0	0	0	0	<5	0	0	0
NORTHERN FLICKER	*Colaptes auratus*		**MI**	0	0	0	0	0	0	0	10	10	0	5	<5	<5	0	0	0	0	0	0	0	0	0	0	<5	0	0	0
RUFFED GROUSE	*Bonasa umbellus*		**MI**	0	0	0	0	5	5	0	0	0	0	0	<5	<5	0	0	0	0	0	0	0	0	0	0	<5	0	0	0
WESTERN FLYCATCHER	*Empidonax difficilis*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
HAMMOND'S FLYCATCHER	*Empidonax hammondii*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
LITTLE WILLOW FLYCATCHER	*Empidonax trailii*	**C**	**S**	0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
OLIVE-SIDED FLYCATHCHER	*Contopus borealis*	**C**	**S**	0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
VAUX'S SWIFT	*Chaetura vauxi*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
CHESTNUT-BACKED CHICKADEE	*Parus rufescens*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0

SURVEY AND INVENTORY DATA: TERRESTRIAL LATE-SUCCESSIONAL-ASSOCIATED SPECIES AND SPECIES WITH SPECIAL STATUS

COMMON NAME	LATIN NAME	FD	FS	LSRs																MLSAs										
				PERCENT OF AVAILABLE HABITAT SURVEYED																PERCENT OF AVAILABLE HABITAT SURVEYED										
				Lucerne	Sawtooth	Shady Pass	Slide Peak	Chiwawa	Little Wenatchee	Deadhorse	Icicle	Boundary Butte	Teanaway	Swauk	Manastash Ridge	Bumping	Rattlesnake	Tieton	Upper Nile	Twin Lakes	Natapoc	Turnwater	Eagle Creek	Camas Creek	Sand Creek	Milk Creek	Haystack	Russel Ridge	Lost Lake	Crow
MOUNTAIN CHICKADEE	*Parus gambeli*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
BLACK-CAPPED CHICKADEE	*Parus atricapillus*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
BROWN CREEPER	*Certhia americana*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
RED-BREASTED NUTHATCH	*Sitta canadensis*		MI	0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
WHITE-BREASTED NUTHATCH	*Sitta carolinensis*			0	0	0	0	0	0	0	10	10	0	10	<5	<5	0	0	0	0	0	0	0	0	0	0	<5	0	0	0
PYGMY NUTHATCH	*Sitta pygmaea*		PB	0	0	0	0	0	0	0	10	10	0	10	<5	<5	0	0	0	0	0	0	0	0	0	0	<5	0	0	0
SOLITARY VIREO	*Vireo solitarius*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
WINTER WREN	*Troglodytes troglodytes*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
GOLDEN-CROWNED KINGLET	*Regulus satrapa*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
HERMIT THRUSH	*Catharus guttatus*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
VARIED THRUSH	*Ixoreus naevius*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
TOWNSEND'S WARBLER	*Dendroica townsendi*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
WILSON'S WARBLER	*Wilsonia pusilla*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
RED CROSSBILL	*Loxia curvirostra*			0	0	0	0	5	10	0	10	10	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
WARBLING VIREO	*Vireo gilvus*			0	0	0	0	5	10	0	10	0	0	10	<5	<5	0	0	0	10	10	0	0	0	0	0	<5	0	0	0
HERMIT WARBLER	*Dendroica occidentalis*			0	0	0	0	5	10	0	10	0		10	0	0	0	0	0	10	10	0	0	0	0	0	0	0	0	0
SWAINSON'S HAWK	*Buteo swainsoni*									0												0	0	0	0					
FERRUGINOUS HAWK	*Buteo regalis*		S							0												0	0	0	0					
FRANKLIN'S GROUSE (SPRUCE)	*Dendragapus canadensis*									0	0	0		0								0	0	0	0					
CLARK'S NUTCRACKER	*Nucifraga columbiana*									0	10	0		0								0	0	0	0					
GOLDEN EAGLE	*Aquila chrysaetos*									0												0	0	0	0					
AMPHIBIANS/REPTILES																														
TAILED FROG	*Ascaphus truei*	C	S	0	0	0	0	10	30	0	5	5	5	5	20	10	10	20	0	20	0	0	0	0	10	10	0	30	0	30
RED-LEGGED FROG	*Rana aurora*			0	0	0	0	0	5	0	5	0	5	5	<5	0	###	10	0	0	###	0	0	0	0	###	###	###	###	###
SPOTTED FROG	*Rana pretiosa*	C		0	0	0	0	10	30	0	5	5	5	5	5	10	10	10	0	20	0	0	0	0	10	10	10	10	0	10
CASCADES FROG	*Rana cascadae*	C	S	0	0	0	0	10	30	0	5	5	5	5	20	10	10	10	0	20	0	0	0	0	10	10	10	30	0	10
PACIFIC TREE FROG	*Pseudocris regilla*			0	0	0	0	0	5	0	5	80	0	0	5	10	10	10	0	0	0	0	0	0	0	10	10	30	0	10
PACIFIC GIANT SALAMANDER	*Dicamptodon tenebrosus*			0	0	0	0	10	30	0	5	5	###	###	30	10	###	10	###	20	0	0	0	0	10	###	###	###	###	###
NORTHWESTERN SALAMANDER	*Ambystoma gracile*			0	0	0	0	0	0	0	5	5	###	###	10	10	10	10	###	0	0	0	0	0	10	10	10	10	0	10
LONG-TOED SALAMANDER	*Ambystoma macrodactylum*			0	0	0	0	5	0	0	5	5	5	5	5	10	10	10	0	5	0	0	0	0	10	10	10	10	0	10
LARCH MOUNTAIN SALAMANDER	*Plethodon larselli*	C	SM/PB	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROUGH-SKINNED NEWT	*Taricha granulosa*			0	0	0	0	5	5	0	5	5	4	0	20	10	10	10	0	5	0	0	0	0	10	10	0	10	0	10
NORTHERN ALLIGATOR LIZARD	*Elgaria coeruleas*			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DELNORTE SALAMANDER			SM										0	0								0	0	0	0					

SURVEY AND INVENTORY DATA: TERRESTRIAL LATE-SUCCESSIONAL-ASSOCIATED SPECIES AND SPECIES WITH SPECIAL STATUS

COMMON NAME	LATIN NAME	FD	FS	LSRs																MLSAs										
				PERCENT OF AVAILABLE HABITAT SURVEYED																PERCENT OF AVAILABLE HABITAT SURVEYED										
				Lucerne	Sawtooth	Shady Pass	Slide Peak	Chiwawa	Little Wenatchee	Deadhorse	Icicle	Boundary Butte	Teanaway	Swauk	Manastash Ridge	Bumping	Rattlesnake	Tieton	Upper Nile	Twin Lakes	Natapoc	Turnwater	Eagle Creek	Camas Creek	Sand Creek	Milk Creek	Haystack	Russel Ridge	Lost Lake	Crow
MOLLUSKS																														
WARTY JUMPING-SLUG	*Hemphillia glandulosa glandulosa*		**SM**	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BLUE-GRAY TAIL-DROPPER	*Proghysaon coeruleum*		**SM**	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PAPILLOSE TAIL-DROPPER	*Prophysaon dubium*		**SM**	0	0	0	0	0	0	0	0	0	0	0	<5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COLUMBIA PEBBLESNAIL	*Fluminicola columbiana*	**C**		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHELAN MOUNTAIN SNAIL	*Oreohelix new species*			5	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MAMMALS																														
NORTHERN FLYING SQUIRREL	*Glaucomys sabrinus*			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOUGLAS SQUIRREL	*Tamiasciurus douglasii*			5	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WESTERN GRAY SQUIRREL	*Sciurus griseus*			0	0	0	0	###	###	0	0	0	0	0	###	###	0	0	###	###	###	0	0	0	0	###	###	0	0	###
TOWNSEND CHIPMUNK	*Eutamias townsendii*			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GOLDEN-MANTLED SQUIRREL	*Citellus lateralis*			0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BUSHY-TAILED WOOD RAT	*Neotoma cinerea*			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FOREST DEER MOUSE	*Peromyscus oreas*			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DEER MOUSE	*Peromyscus maniculatus*			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHREW-MOLE	*Neurotrichus gibbsii*			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOREAL RED-BACKED VOLE	*Clethrionomys gapperi*			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LITTLE BROWN MYOTIS	*Myotis lucifugus*			0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<5	<5	0	0	<5
LONG-LEGGED MYOTIS	*Myotis volans*	**C**	**SM/PB**	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<5	<5	0	0	<5
SMALL-FOOTED MYOTIS	*Myotis subulatus*			0	0	0	0	10	0	0	0	0	0	0	0	###	0	0	###	0	0	0	0	0	0	<5	<5	0	0	###
LONG-EARED MYOTIS	*Myotis evotis*	**C**	**PB**	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<5	<5	0	0	<5
FRINGED MYOTIS	*Myotis thysanodes*	**C**	**PB**	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<5	<5	0	0	<5
YUMA MYOTIS	*Myotis yumanensis*	**C**		0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<5	<5	0	0	<5
CALIFORNIA MYOTIS	*Myotis californicus*			0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<5	<5	0	0	<5
BIG BROWN BAT	*Eptesicus fuscus*			0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<5	<5	0	0	<5
SILVER-HAIRED BAT	*Lasionycteris noctivagans*		**PB**	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<5	<5	0	0	<5
HOARY BAT	*Lasiurus cinereus*			0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<5	<5	0	0	<5
WESTERN BIG-EARED BAT	*Plecotus townsendii*	**C**	**S**	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	<5	0	0	<5
PALLID BAT	*Antrozous pallidus*		**PB**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<5	<5	0	0	<5
MULE DEER	*Odocoileus hemionus*		**MI**	30	20	10	5	100	100	100	100	100		100	0	0	0	0	0	100	100	100	100	100	100	0	0	0	0	0
ELK	*Cervus elaphus*		**MI**	0	0	0	0	100	100	100	100	100		100	0	0	0	0	0	100	100	100	100	100	100	0	0	0	0	0
LYNX	*Lynx canadensis*	**C**	**S**	0	5	10	0	10	0	0	0	0	0	10	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0
BEAVER	*Castor canadensis*		**MI**	5	0	5	0	10	0	0	60	0	0	0	0	0	0	0	0	100	###	0	0	0	70	0	0	0	0	0

SURVEY AND INVENTORY DATA: TERRESTRIAL LATE-SUCCESSIONAL-ASSOCIATED SPECIES AND SPECIES WITH SPECIAL STATUS

COMMON NAME	LATIN NAME	FD	FS	LSRs																MLSAs										
				PERCENT OF AVAILABLE HABITAT SURVEYED																PERCENT OF AVAILABLE HABITAT SURVEYED										
				Lucerne	Sawtooth	Shady Pass	Slide Peak	Chiwawa	Little Wenatchee	Deadhorse	Icicle	Boundary Butte	Teanaway	Swauk	Manastash Ridge	Bumping	Rattlesnake	Tieton	Upper Nile	Twin Lakes	Natapoc	Turnwater	Eagle Creek	Camas Creek	Sand Creek	Milk Creek	Haystack	Russel Ridge	Lost Lake	Crow
GRIZZLY BEAR	*Ursus arctos*	T		10	10	10	10	30	20	0	40	0	10	20	10	0	0	0	0	50	50	0	0	0	0	0	0	0	0	0
GRAY WOLF	*Canis lupus*	E		20	20	20	80	30	20	0	70	0	10	30	50	0	0	0	0	0	50	0	40	60	30	0	0	0	0	0
MOUNTAIN GOAT	*Oreamnos americanus*		MI	10	5	10	0	70	20	###	60	50	0	###	25	50	50	50	50	70	###	60	###	###	###	0	0	20	0	30
BIGHORN SHEEP	*Ovis canadensis*	C	R6/S	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	###	50	###	###	###	###	###	###	###
MARTEN	*Martes americana*		MI	0	5	10	0	30	20	0	25	15	0	20	10	0	0	5	0	0	0	0	20	0	20	0	0	0	0	0
FISHER	*Martes pennanti*	C	S	0	5	10	0	30	20	0	25	15	0	20	5	0	0	0	0	0	0	0	20	0	20	0	0	0	0	0
WOLVERINE	*Gulo gulo*	C	S	0	5	5	0	10	0	0	40	0	0	20	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 28

Harvest Guidance within LSR's and MLSA's

This is a summary of the recommendations from our LSR assessment regarding harvesting spotted owl habitat within LSR's and MLSA's. The general philosophy behind treatments is that items A, 1 through 4 and B, 1 through 4 would be done progressively until risk to loss from catastrophic disturbance is reduced to an acceptable level. Treatment A 5 and B 5 would be done between LSR's, within LSR's outside of home range, within home ranges and within core areas in that order, until risk is reduced to an acceptable level.

Dry Forest and Mesic Forest Vegetation Groups

A) For all LSR's/MLSA's except Chiwawa, Swauk and Manastash: (The goal here is to increase the sustainability of late successional habitat by reducing fuel loading and restoring stand characteristics so that landscapes are capable of functioning within their inherent disturbance regimes.)

1) Management activities in areas between LSR's/MLSA's are aimed at reducing the risk of fire spread from LSR to LSR. Suitable habitat (nesting, roosting and foraging) as well as dispersal habitat can be made unsuitable to achieve the goal, except that in some key connectivity corridors management actions will need to maintain dispersal habitat characteristics. (This would likely be limited to riparian reserves, non-network owl sites, protection & buffer/survey & manage sites, 15% late successional structure, wilderness, ROD page 30 & FSEIS App G 19-20.) Non-network owl sites (unmapped LSR's) will retain the best 100 acres of nesting habitat. Although this scenario is not within LSR's, the assessment showed that some areas between LSR's were of high priority for treatment.

2) Management actions within the LSR/MLSA, but outside of 1.8 mile radius owl circles (home range). Suitable habitat can be made unsuitable to achieve the goal.

The exception is in some key connectivity corridors between owl home ranges, management actions will need to maintain dispersal or foraging habitat characteristics. (This would likely be along contiguous forest blocks, riparian reserves, TES sites, S&M sites, ROD page 30 & FSEIS App G 19-20).

3) Management actions within 1.8 mile radius home range. Suitable habitat can be made unsuitable to achieve the goal on acres above threshold (threshold is defined as a minimum of 2,663 acres within the 1.8 mile circle of suitable habitat, and a minimum of 500 acres within 0.7 mile circle of suitable habitat for nesting, roosting and foraging.)

The exception is in some key connectivity corridors within owl home ranges, management actions will need to maintain dispersal or foraging habitat characteristics. (This would likely be along contiguous forest blocks, riparian reserves, TES sites, S&M sites, ROD page 30 & FSEIS App G 19-20.)

4) Management actions within 1.8 mile owl circles, on acres needed to meet threshold. In these areas, the degree of harvest should not make habitat unsuitable for nesting, roosting or foraging. Actions should focus on areas between 0.7 miles and 1.8 miles of the activity center. A higher risk will be accepted within the spotted owl core area, habitat quality should be retained on acres below the 500 acre threshold within 0.7 mile core area. Refer to spotted owl desired conditions by vegetation type for habitat definitions.

The exception is in some key connectivity corridors within home ranges, management actions will need to maintain dispersal or foraging habitat characteristics. (This would likely be along contiguous forest blocks, riparian reserves, TES sites, S&M sites, ROD page 30 & FSEIS App G 19-20.)

5) In unsuitable habitat, i.e. not nesting, roosting, or foraging, or dispersal habitat, activities designed to reduce fuels or make habitat suitable can be conducted anywhere within the LSR/MLSA or anywhere within the owl home range. However, harvest activities within the 0.5 mile activity center must be restricted between 3/1 and 8/31.

B) In the Chiwawa, Swauk and Manastash LSR's: (The goal here is to increase the sustainability of late successional habitat by reducing fuel loading and restoring stand characteristics so that landscapes are capable of functioning within

their inherent disturbance regimes.) The assessment suggests that a higher level of risk be considered in these LSR's compared to the other LSR's/MLSA's.

1) Management activities in areas between LSR's/MLSA's are aimed at reducing the risk of fire spread from LSR to LSR. Suitable habitat (nesting, roosting, foraging and dispersal) can be made unsuitable to achieve the goal, except that in some key connectivity corridors management actions will need to maintain dispersal habitat characteristics. (This would likely be limited to riparian reserves, non-network owl sites, protection & buffer/survey & manage sites, 15% late successional structure, wilderness, ROD page 30 & FSEIS App G 19-20.)

2) Management actions within the LSR/MLSA, but outside of 1.8 mile radius owl circles (home range). Suitable habitat can be made unsuitable to achieve the goal. (Several key connectivity corridors were identified within the Swauk and Chiwawa, and are suspected in the Manastash, that may temper this in certain locations.)

3) Management actions within 1.8 mile radius home range. Suitable habitat can be made unsuitable to achieve the goal on acres above target habitat acreage (target habitat is defined as a minimum of 3,994 acres within the 1.8 mile circle of suitable habitat, and a minimum of 500 acres within 0.7 mile circle of suitable habitat for nesting, roosting and foraging.)

The exception is in some key connectivity corridors within owl home ranges, management actions will need to maintain dispersal or foraging habitat characteristics. (This would likely be along contiguous forest blocks, riparian reserves, TES sites, S&M sites, ROD page 30 & FSEIS App G 19-20.)

4) Management actions within 1.8 mile owl circles, on acreage that makes up target habitat. In these areas, the degree of harvest should not make habitat unsuitable for nesting, roosting or foraging. Actions should focus on areas between 0.7 miles and 1.8 miles of the activity center, habitat quality should be retained on acres below the 500 acre threshold within 0.7 mile core area. Refer to spotted owl desired conditions for habitat by vegetation group for definitions.

The exception is in some key connectivity corridors within owl home ranges, management actions will need to maintain dispersal or foraging habitat characteristics. (This would likely be along contiguous forest blocks, riparian reserves, TES sites, S&M sites, ROD page 30 & FSEIS App G 19-20.)

5) In unsuitable habitat, i.e. not nesting, roosting, or foraging, or dispersal, activities designed to reduce fuels or make habitat suitable can be conducted anywhere within the LSR/MLSA or anywhere within the owl home range. However, harvest activities within the 0.5 mile activity center must be restricted between 3/1 and 8/31.

Other Forest Vegetation Groups

C) Other forest vegetation groups in all LSR/MLSA's (moist grand fir, wet and subalpine fir): (The goal here should be to maintain spotted owl viability longer than 50 years by making unsuitable habitat suitable.)

1) Timber harvest activities can be designed anywhere within unsuitable habitat around the activity center. The focus should be on 1.8 mile owl circles that are below threshold acreage or target acreage. The target minimums are 3,994 acres within 1.8 miles and 500 acres within 0.7 miles for all LSR's, and threshold minimums are 2,663 acres within 1.8 miles and 500 acres within 0.7 miles for all MLSA's.

2) Forested structure manipulation may be warranted in suitable nesting, roosting or foraging habitat in "moist or high elevation forest groups", should sustainability be at a very high risk. These sites should be ranked for highest risk and compared to immediate need for spotted owls (i.e. proximity to nest, proximity to contiguous habitat etc.).

a) Activities would occur first outside LSR's, then outside home ranges, then within home ranges (but outside 500 acre core areas).

b) If ranking of stand is such that sustainability is high risk and the need to the owl is lesser (i.e. on fringe of home range in isolated patches), then reduction of habitat in moist and high elevation would occur as the following:

If owls are below target or threshold acres, habitat "quality" can be reduced, but habitat "quantity" can not. Identify vegetation group and manage for desired conditions for spotted owl habitat by that group.

If above threshold or target acres, habitat quantity can be reduced.

Note: Habitat in "the Wet Forest Vegetation Group" is at low risk of loss to catastrophic disturbance, and no harvest activity is expected to be needed for the purposes of increasing sustainability.

Biological Evaluations

Following the preceding guidelines will generally result in the findings from biological evaluations for actions affecting spotted owls as described below:

1) A "No Effect" to spotted owls would be made for actions A5, B5 and C1. except if activity is planned within 0.25 miles of an activity center. These actions are actually designed to have a beneficial effect.

2) A "May Effect, Not Likely to Adversely Effect" would be made for the other actions listed.

3) A "May Effect, Likely to Adversely Effect" would be made for actions which go beyond those described here. Project analysis should look at alternatives that do this when it appears that fire risk cannot be lowered to an acceptable level, as viewed from a landscape basis, by following the criteria listed. Doing this would however, require additional review by REO as well as create the likely need for an EIS due to the affect on critical habitat.

4) These guidelines are generally listed and may have extenuating circumstances that would have a higher or lower effects rating. Cumulative effects from other natural or management activities, the scale and duration of activity, and the juxtaposition of the stands, are items to consider.

Appendix 29

Sample Risk Assessment

Spotted Owl Stand Analysis vrs Risk Analysis

Introduction

When analyzing spotted owl habitat sustainability within LSR's and MLSA's, there may be a need to reduce spotted owl habitat to meet the objectives of spotted owls in the long term and for other late successional habitat in the short term. This would be if the risk of retaining habitat is extremely high, and the need to preserve the habitat for spotted owls is low. Other modules and late successional habitat concerns will overlay into this process, this is just one analysis within the LSR/MLSA's.

A possible method to use in project planning is described below. The concept is to rank each stand as to it's spotted owl quality and to it's risk of sustainability.

Methodology

The general LSR/MLSA assessment will highlight areas of concern for sustainability. It will also highlight spotted owl concerns. When these two concern are in opposing direction, the following stand ranking system may be of use to assist in future actions. This may also be useful in displaying effects in any decision document and biological evaluation.

The forested stand in question be evaluated based on the quality of habitat it is providing for spotted owls AND on the risk of loss due to fire or insects. A rating of high, medium and low will be summarized for both the value to spotted owls and the importance to treat from a risk stand point. This will inform the decision maker of the values for the stand in question.

A. Spotted Owl Habitat Quality Ranking

To achieve an overall rating for spotted owl habitat quality, the following items are rated on a stand-by-stand basis: 1) Quality or type of spotted owl and CHU habitat; 2) Connectivity of habitat; 3) Proximity to nest site or activity center; 4) Spotted owl home range acreage; 5) Spotted owl reproductive status; 6) Vegetation group; 7) Benefits for other Late Successional species; 8) LSR/MLSA target number for number of owl pair sites (FSEIS 3&4 223; Appendix G page 13 Table G-3, Draft CHU descriptions); and 9) Best professional judgment. Overall ratings will show a High, Medium or Low quality habitat needs for spotted owls.

High = > 50 rating: High quality habitat, immediate need critical to preserve.

Moderate = 20 to 50 rating: Moderate quality habitat, immediate need important to preserve.

Low = < 20 rating: Low quality habitat, immediate need may not be as important as long term sustainability.

1) Quality Of Spotted Owl Habitat Or Critical Habitat	2) Connectivity Of Habitat
Nesting = +10	Forest Interior includes Act.Cen. = +10
Roosting = +9	Forest stringer connects to 2 A.C.= +10
Foraging = +7	Forest stringer connects to 1 A.C. = +9
Dispersal = +5	Forest Interior patch = +8
Capable (of being suitable)= +1	Forest patch w/n home range = +7
Not Capable = +0	Forest stringer outside home range = +4
	Isolated forest patch (5 ac +) = +1

3) Proximity To Activity Center	4) Stand Is Part Of Threshold/Target Acres
Activity Center = 10+	Activity Center 100 Ac = +10
500 ac Core = +10	500 Acre core area = +10
Within .7 mi. Radius = +9	Hab < 2,663 ac or target 3,994 ac = +9
Within 1 mi. radius = +8	Hab 2,663-3,994 ac = +8
Within 1.5 mi. radius = +7	Hab > 3,994 ac = +7
Within 1.8 mi. radius = +6	Outside home range = +1
Within 2.25 mi. radius = +5	
Within 3 to 6 mi. radius = +4	
Greater than 6 mi. radius = +3	

5) VEGETATION GROUP	6) REPRODUCTIVE STATUS
Wet = +10	Pair with young = +10
Moist = +9	Pair = +9
Mesic = + 8	Residential single = +8
SAF = +6	Historical site = +5
Dry = + 4	

7) BENEFITS FOR OTHER L.S. SPECIES	8) LSR/MLSA TARGET OWL PAIR
Fisher, flying squirrel, tailed frog pileated woodpecker, bats, goshawk, marten = +10	0% meets target = +10 25% meets target = +9
Great gray owl, black-backed woodpecker, lynx denning = +6	50% meets target = +8 75% meets target = +7
Flammulated owl, pygmy nuthatch, white-headed woodpecker = +4	100% meets target = +6 >100% over target = +5

B. Risk To Sustainability Of Late Successional Forest Objectives

To achieve an overall rating for risk assessment, the following items are rated on a stand-by-stand basis: 1) Vegetation group; 2) Canopy closure; 3) Proximity to high risk areas; 4) Aspect and slope; 5) Placement on slope; 6) Proximity to ignition points; 7) Epidemic insect or disease outbreaks; 8) Windthrow potential, and 9) Best professional judgment. Overall ratings will show a High, Medium or Low risk of loss due to fire or insect/disease outbreaks.

High = > 40 rating: High risk of loss, immediate need to reduce risk.

Moderate = 20 to 40 rating: Moderate risk of loss, identified need to reduce risk.

Low = < 20 rating: Low risk of loss, immediate risk reduction may not be as important as retaining owl habitat.

1) Vegetation Group	2) Canopy Closure (Dry/Mesic/SAF/Moist-Dry)
Dry = -10	>70% Crown closure = -10
Mesic = -8	50%-70% CC = -8
SAF = -6	40%-50% CC = -5
Moist-dry = -5	30%-40% CC = -2
Moist-wet = -1	<30% CC = -1

1) Vegetation Group	2) Canopy Closure (Dry/Mesic/SAF/Moist-Dry)
Wet = -0	Other veg = -0

3) Proximity To High Risk Areas	4) Aspect & Slope
< .25 miles = -10	South &/or 70% slope = -10
.25 mi. to .5 mi. = -9	Southwest &/or 50-70% = -9
.5 mi. to 1 mi. = -8	Southeast = -8
1 mi. to 2 mi. = -5	West = -7
2 mi. to 6 mi. = -3	East &/or 30-50% = -6
6 mi. to 10 mi. = -2	Northwest &/or 10-30% = -2
> 10 mi. = -0	North/Northeast = -0

5) Placement On Slope	6) Proximity To Points Of Ignition
Top = -10	Lightning strike ridges = -10
Mid = -7	Campgrounds & High Use Roads = -9
Bottom = -3	Private homes = -8
	Other roads and trails = -7

7) Epidemic Insect Or Disease Outbreaks	8) Windthrow Potential
Radiating epidemic = -7	Windthrow prone ridges = -4
Endemic = -3	Clear cuts/shelterwoods near wind = -4
	Other = -0

Appendix 30
Vegetation in Wenatchee National Forest
LSR's and MLSA's
Maps

Vegetation Key

- Water
- Ice and Snow
- Cliff
- Bedrock
- Talus
- Scree

- Grassland and Shrubland
- Upland Meadow
- Wet Meadow
- Dry Meadow
- Brushfield
- Deciduous Forest
- Riparian, Non-Vegetated

- Agriculture/Developed/Private/I-90

- Dry Forest - Created Opening
- Dry Forest - Low Density
- Dry Forest - Dense/Successionally Advanced
- Dry Forest - Partial Cut

- Mesic - Created Opening
- Mesic - Single Layered
- Mesic - Layered/Mature
- Mesic - Open Parklike

- Moist Grand Fir - Created Opening
- Moist Grand Fir - Single Layered
- Moist Grand Fir - Layered/Mature
- Moist Grand Fir - Partial Cut
- Mesic Western Hemlock - Created Opening (Occurs on Naches Ranger District)
- Mesic Western Hemlock - Single Layered (Occurs on Naches Ranger District)
- Mesic Western Hemlock - Layered/Mature (Occurs on Naches Ranger District)
- Mesic Western Hemlock - Partial Cut (Occurs on Naches Ranger District)

- Valley Bottom Mixed Conifer - Created Opening (Occurs in Chiwawa LSR)

- Subalpine Fir - Created Opening
  - (Avalanche Origin)
- Subalpine Fir - Single Layered
  - (Avalanche Origin)
- Subalpine Fir - Layered Canopy
- Subalpine Fir - Subalpine Parkland
- Subalpine Fir - Droughty Sites

- Lodgepole Pine - Created Opening
- Lodgepole Pine - Single Layered
- Lodgepole Pine - Layered Canopy

- Wet Forest - Created Opening
  - (Avalanche Origin)
  - (Blowdown Origin)
- Wet Forest - Single Layered (Sapling/Pole)
  - (Avalanche Origin)
- Wet Forest - Single Layered (Pole)
  - (Avalanche Origin)
- Wet Forest - Layered or Mature
- Wet Forest - Parkland
- Wet Forest - Riparian Forest
- Wet Forest - Open Dry Forest (Droughty Site)
  - (Avalanche Origin)

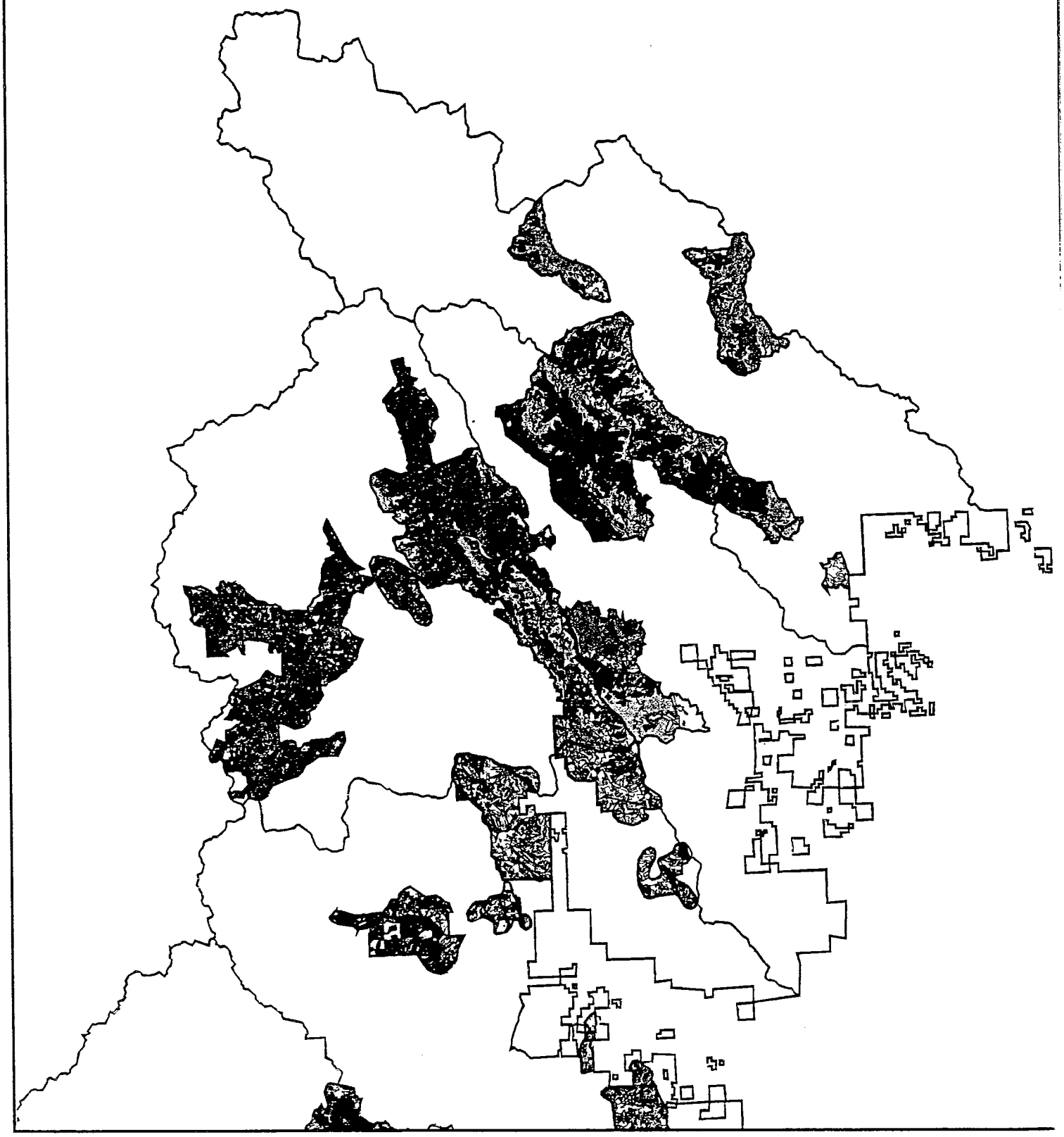
- Whitebark Pine/Subalpine Larch - Created Opening
- Whitebark Pine/Subalpine Larch - Not a Created Opening

- Sections (Individual LSR or MLSA maps)

- Forest and District Boundaries (Forest-wide maps)

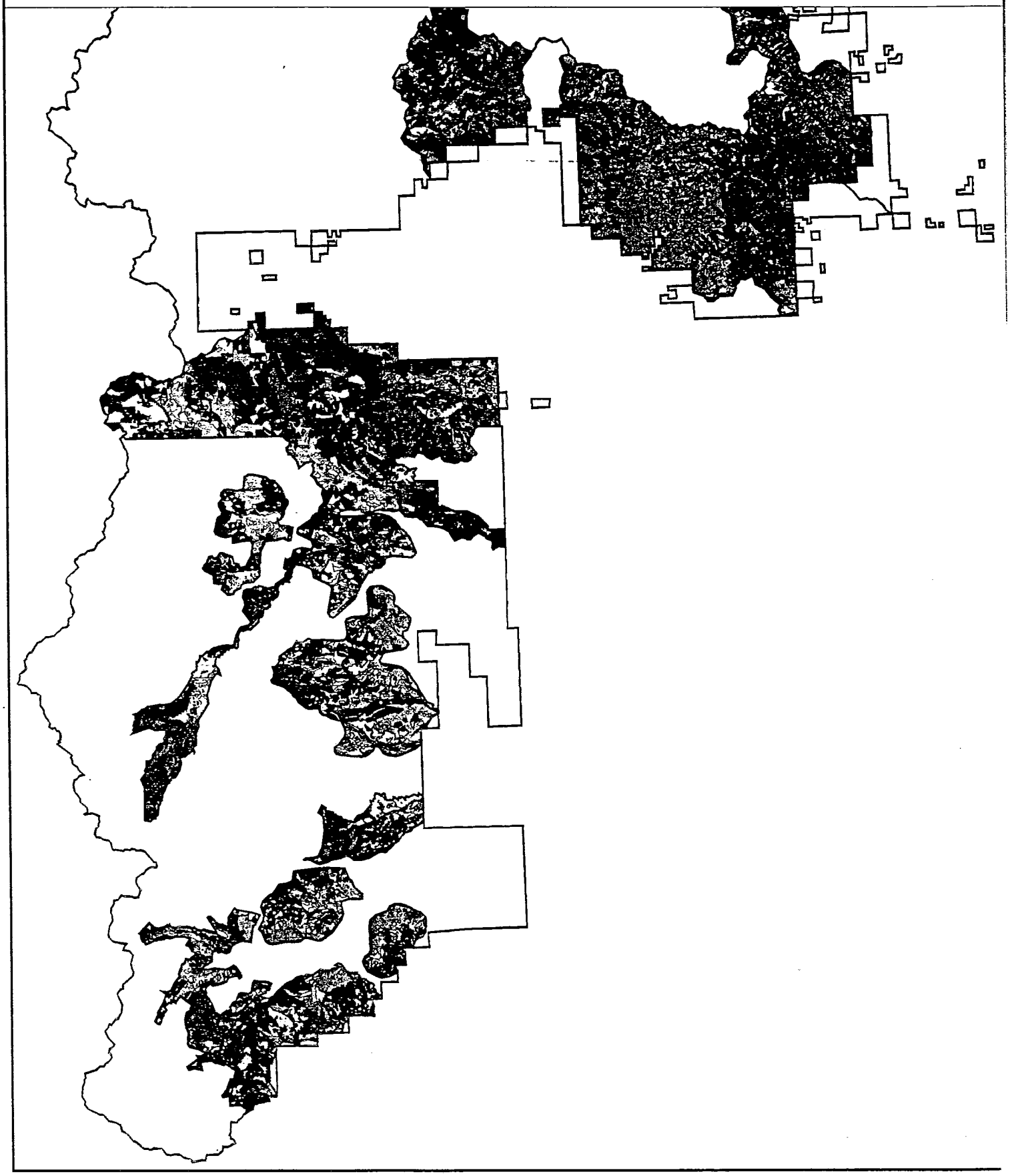
North Half

VEGETATION in Wenatchee National Forest LSRs and MSLAs



South Half

VEGETATION in Wenatchee National Forest LSRs and MSLAs

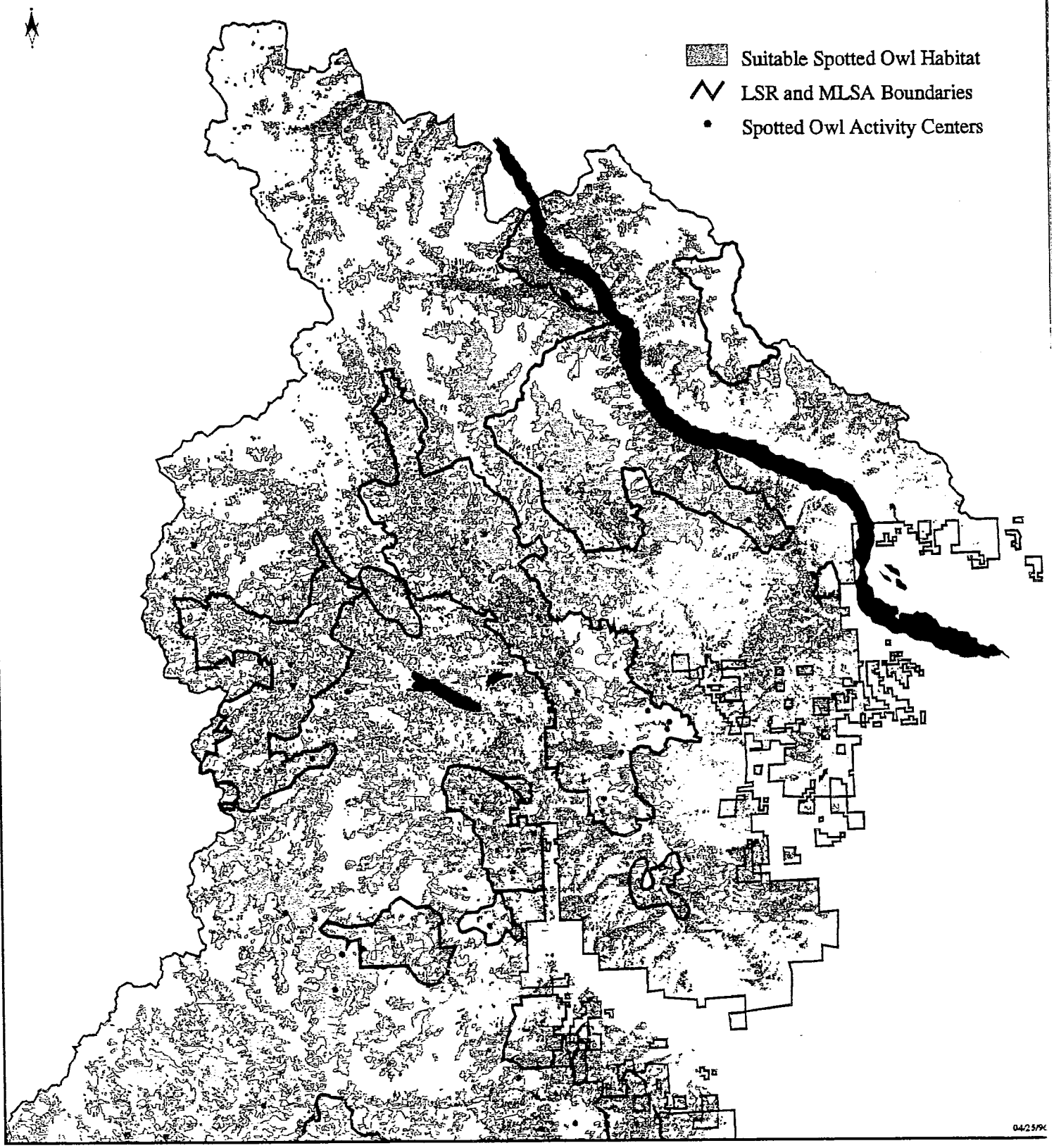


Appendix 31
Suitable Spotted Owl Habitat Maps
Wenatchee National Forest

North Half, Wenatchee National Forest

SUITABLE SPOTTED OWL HABITAT

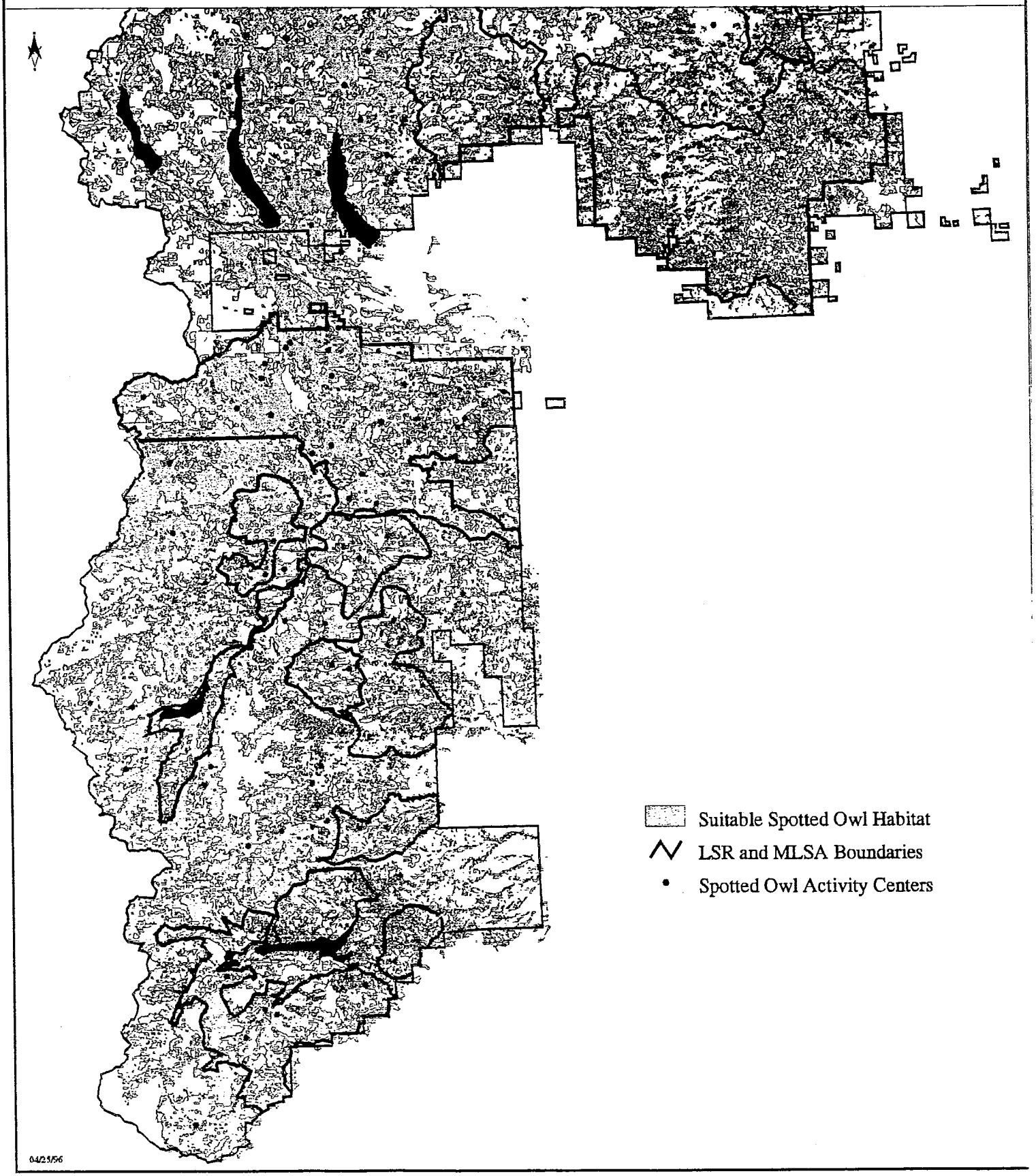
with Late Successional Reserves and Managed Late Successional Areas



South Half, Wenatchee National Forest

SUITABLE SPOTTED OWL HABITAT

with Late Successional Reserves and Managed Late Successional Areas

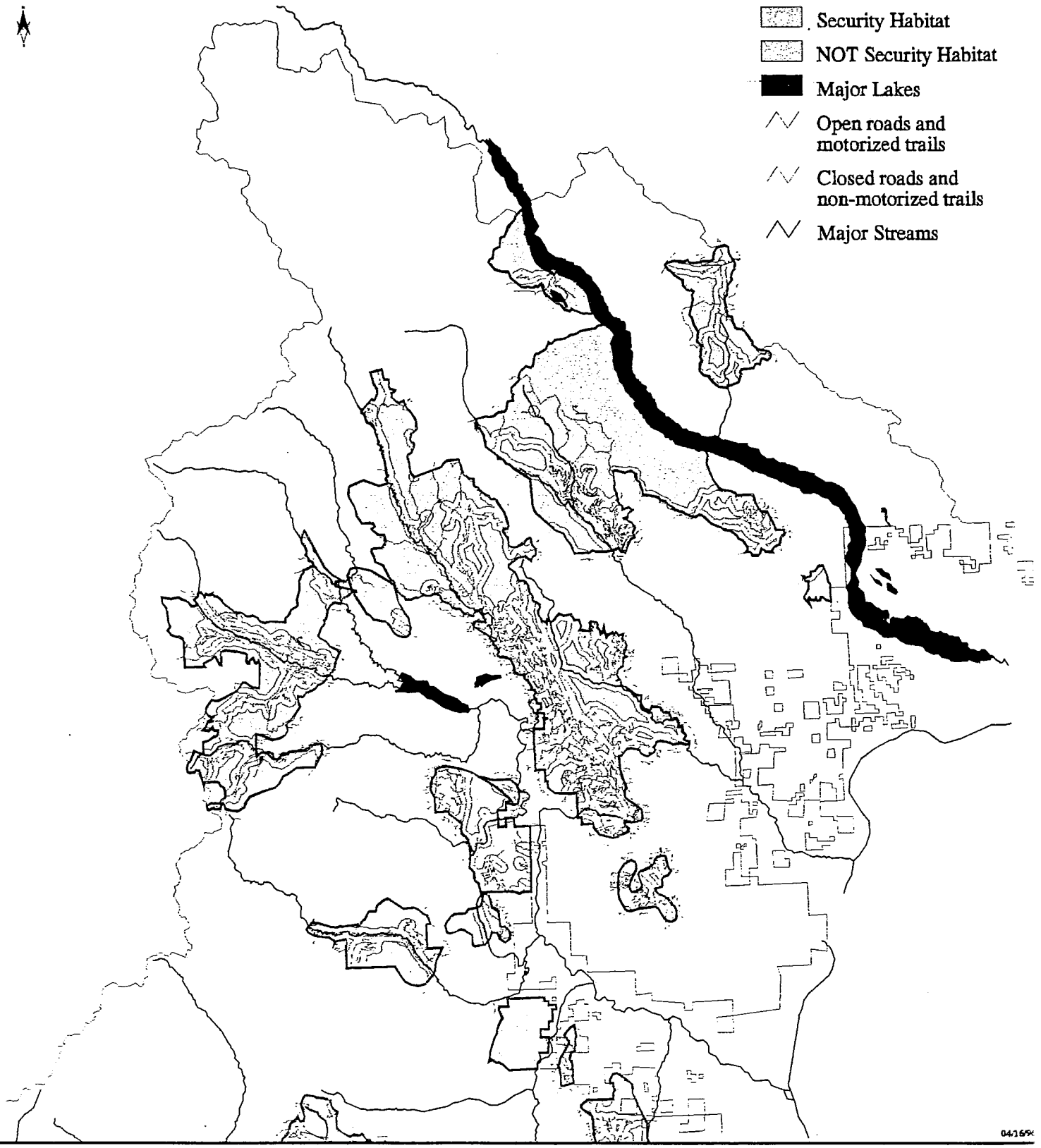


Appendix 32
Security Habitat Maps
Wenatchee National Forest

North Half, Wenatchee National Forest

SECURITY HABITAT

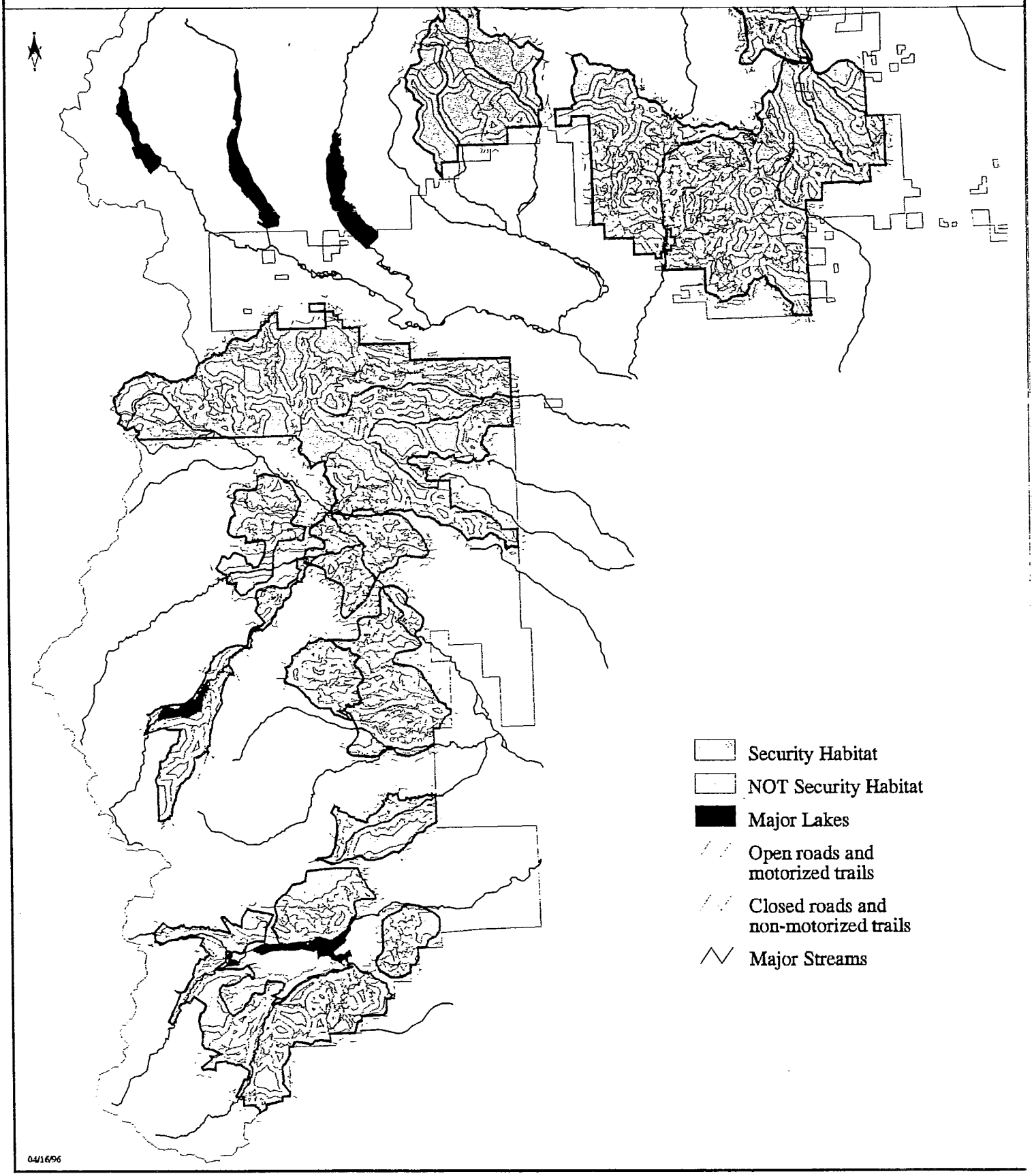
in Late Successional Reserves and Managed Late Successional Areas



South Half, Wenatchee National Forest

SECURITY HABITAT

in Late Successional Reserves and Managed Late Successional Areas

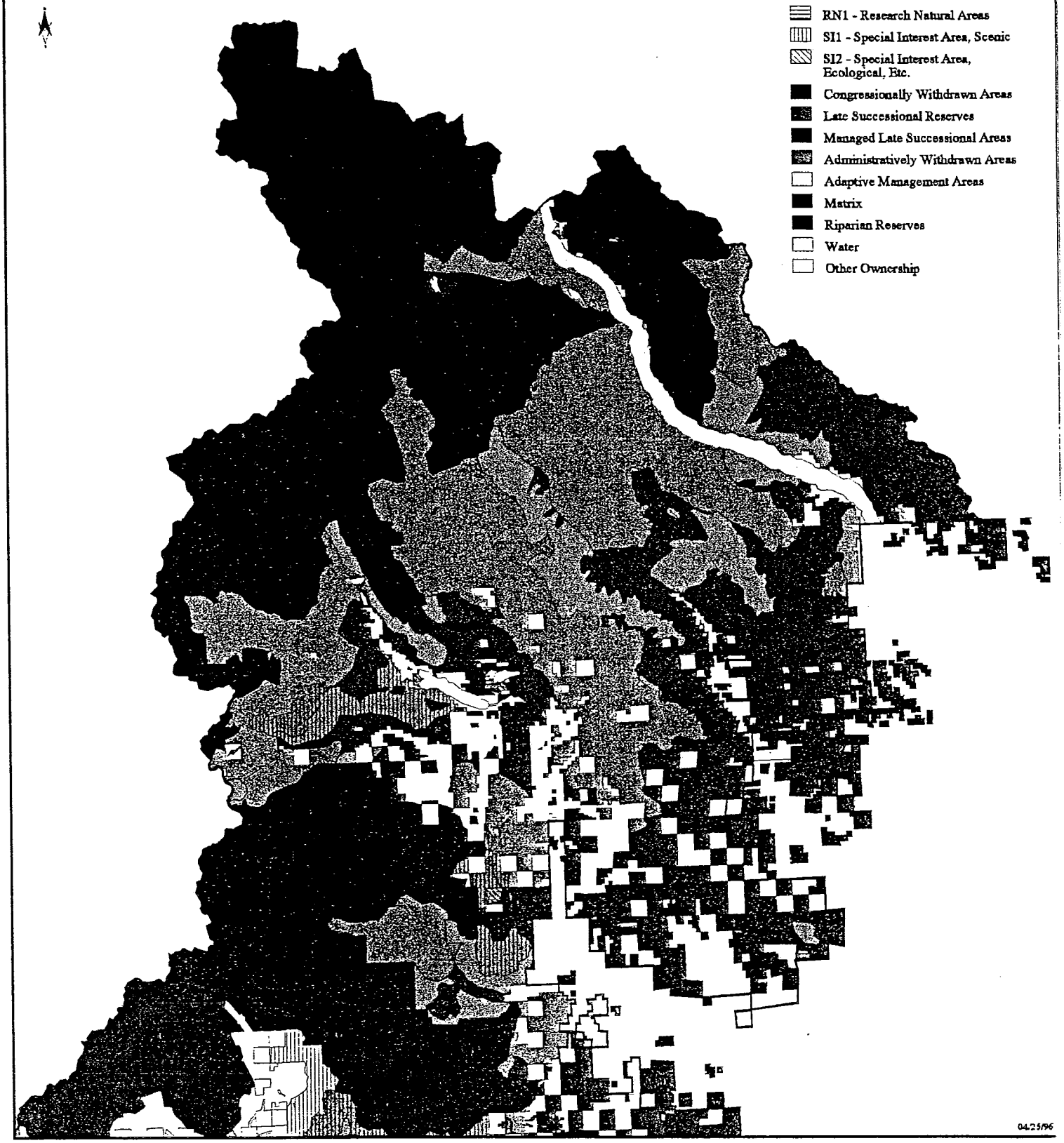


Appendix 33
Forest Plan Allocations Map
Wenatchee National Forest

North Half, Wenatchee National Forest

FOREST PLAN ALLOCATIONS

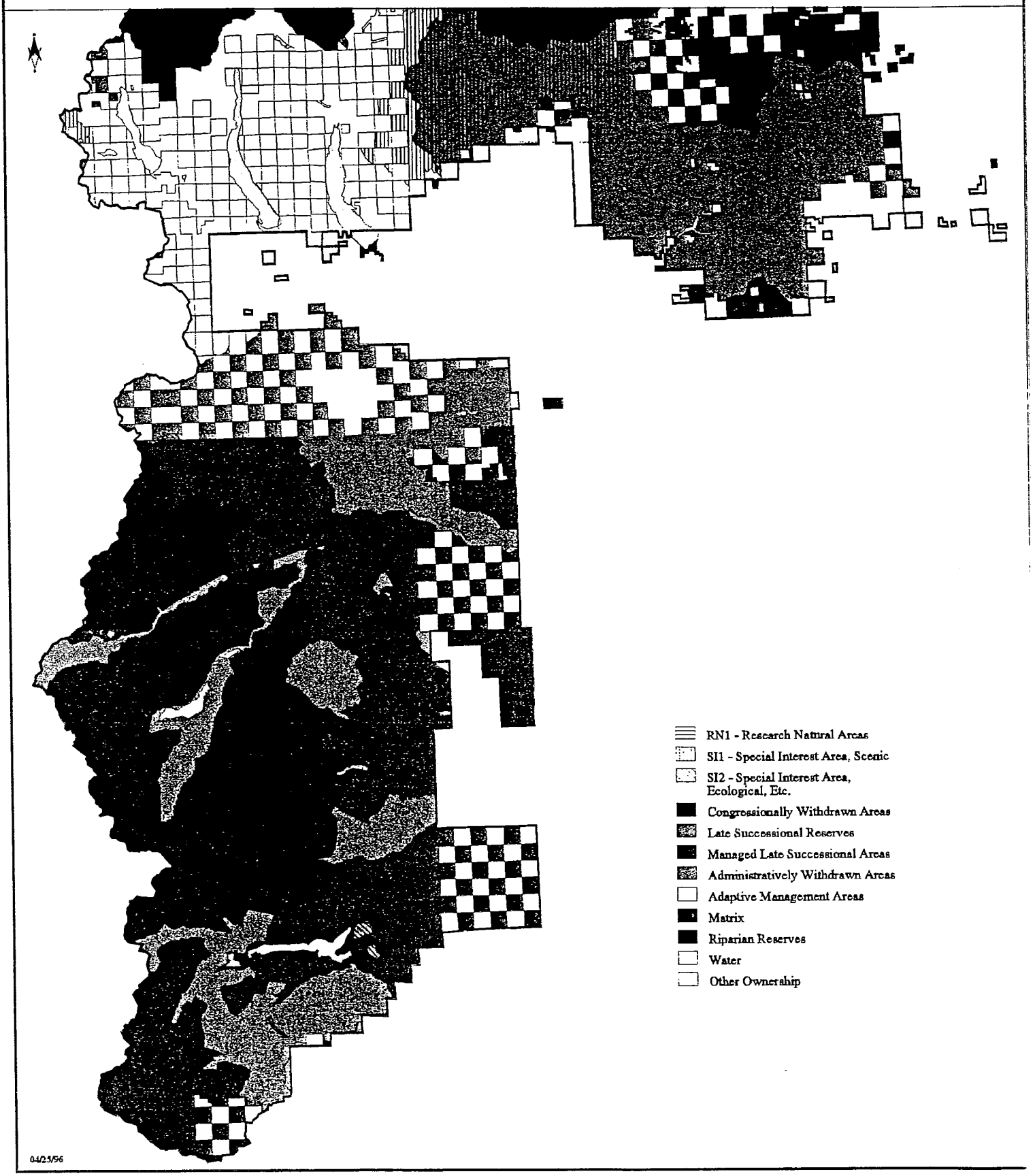
with Late Successional Reserves and Managed Late Successional Areas



South Half, Wenatchee National Forest

FOREST PLAN ALLOCATIONS

with Late Successional Reserves and Managed Late Successional Areas

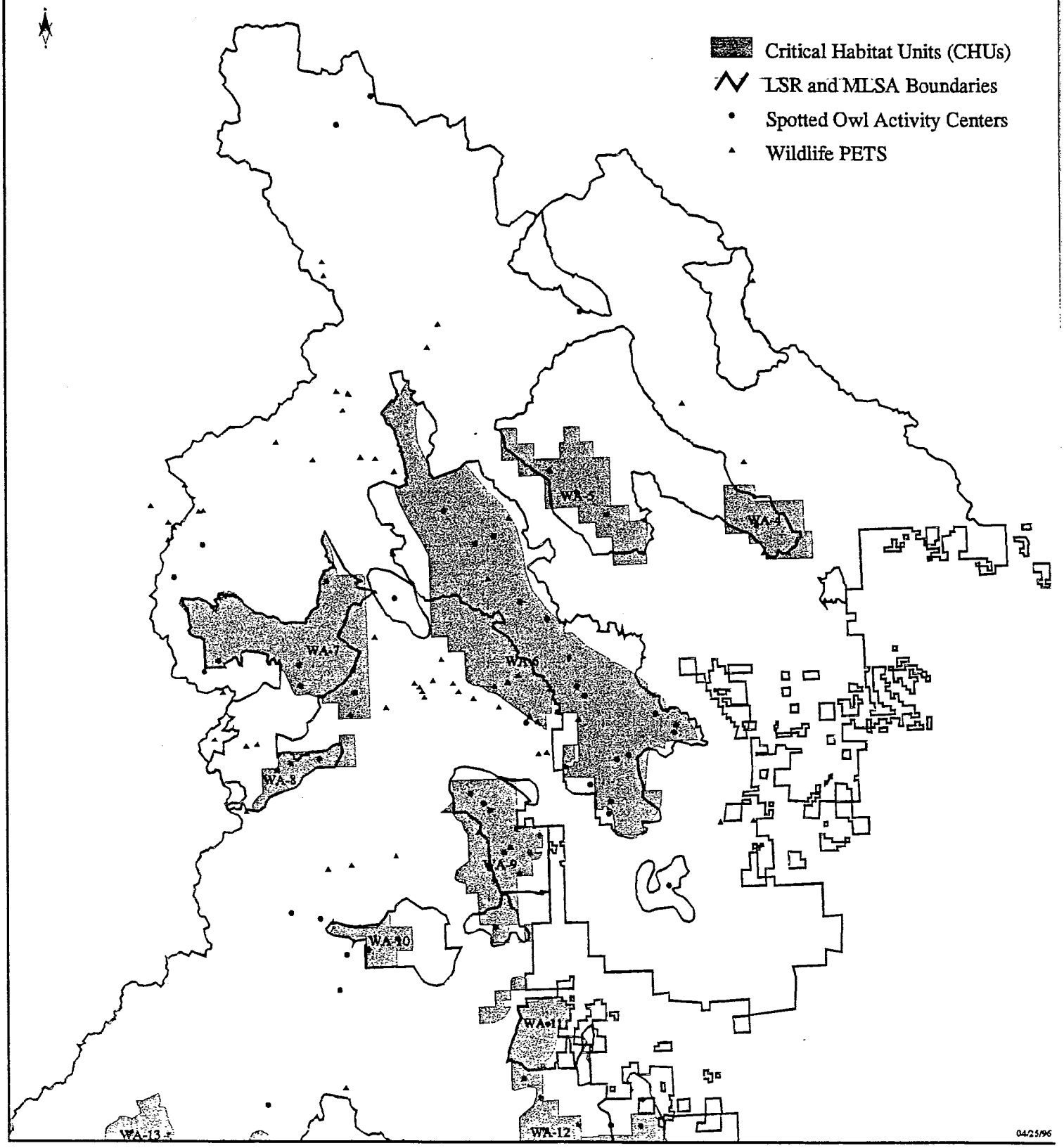


Appendix 34
Critical Habitat Units (CHU's)
Maps
Wenatchee National Forest

North Half, Wenatchee National Forest

CRITICAL HABITAT UNITS (CHUs)

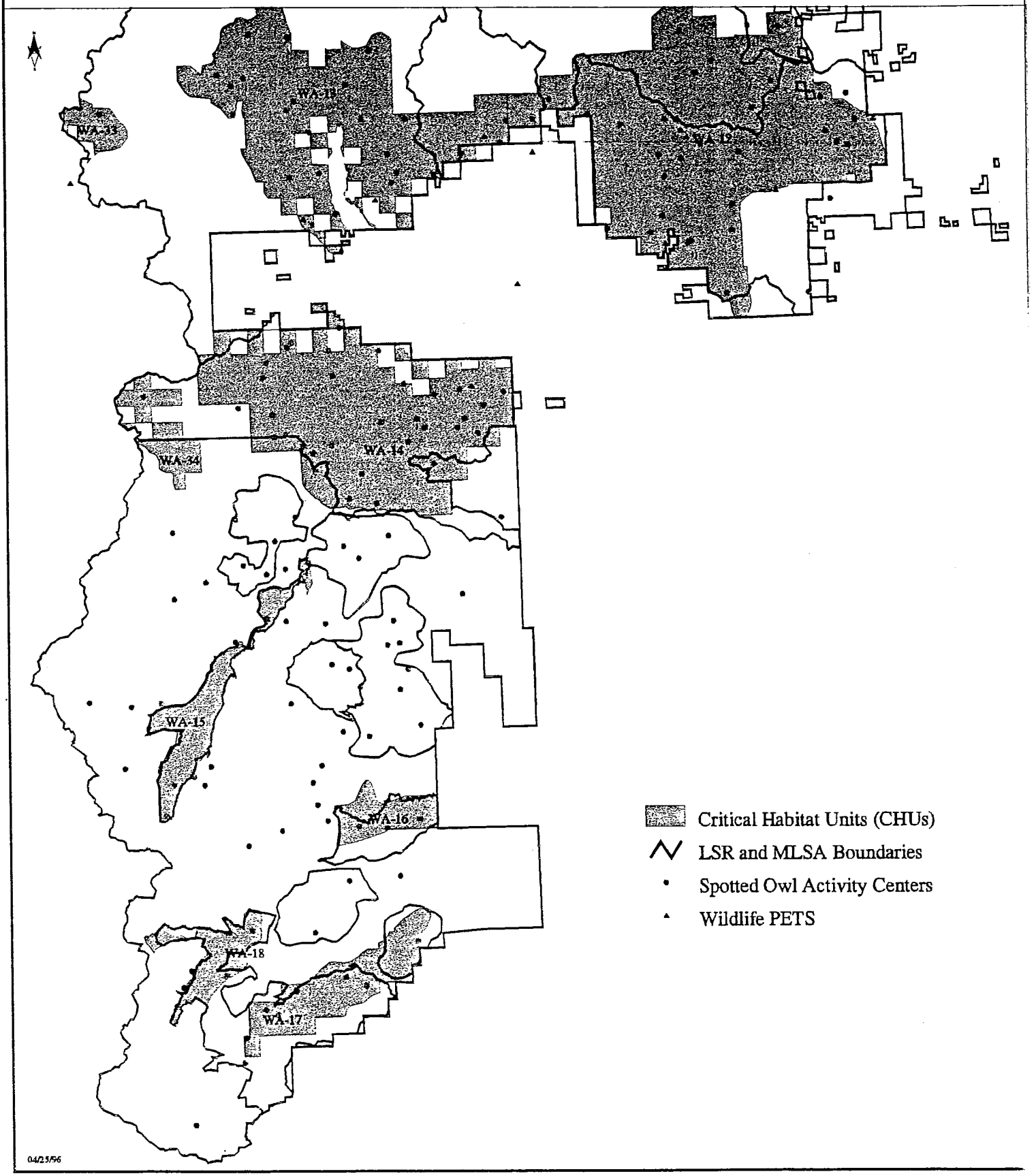
with Late Successional Reserves and Managed Late Successional Areas



South Half, Wenatchee National Forest

CRITICAL HABITAT UNITS (CHUs)

with Late Successional Reserves and Managed Late Successional Areas

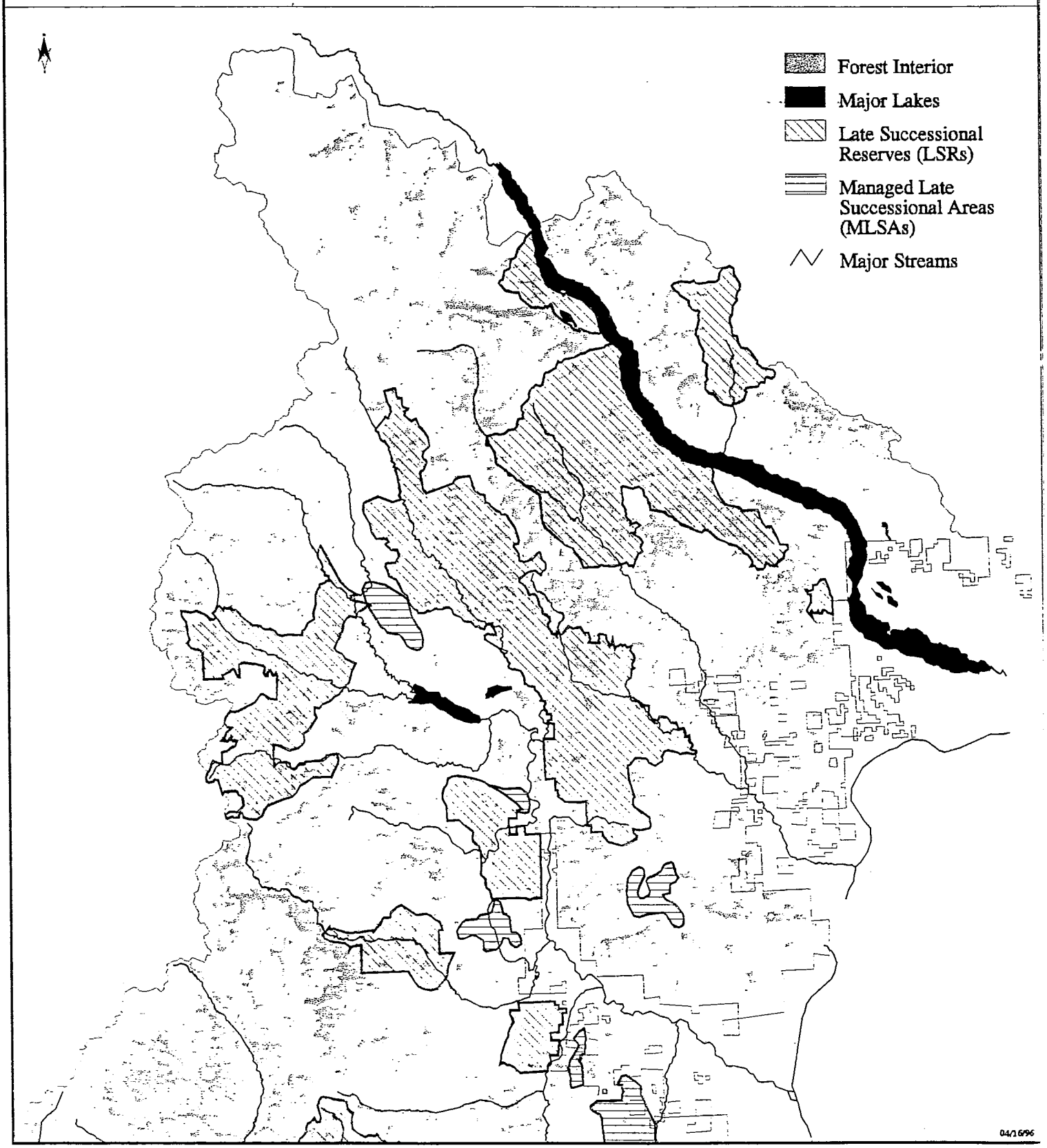


Appendix 35
Forest Interior Maps
Wenatchee National Forest

North Half, Wenatchee National Forest

FOREST INTERIOR

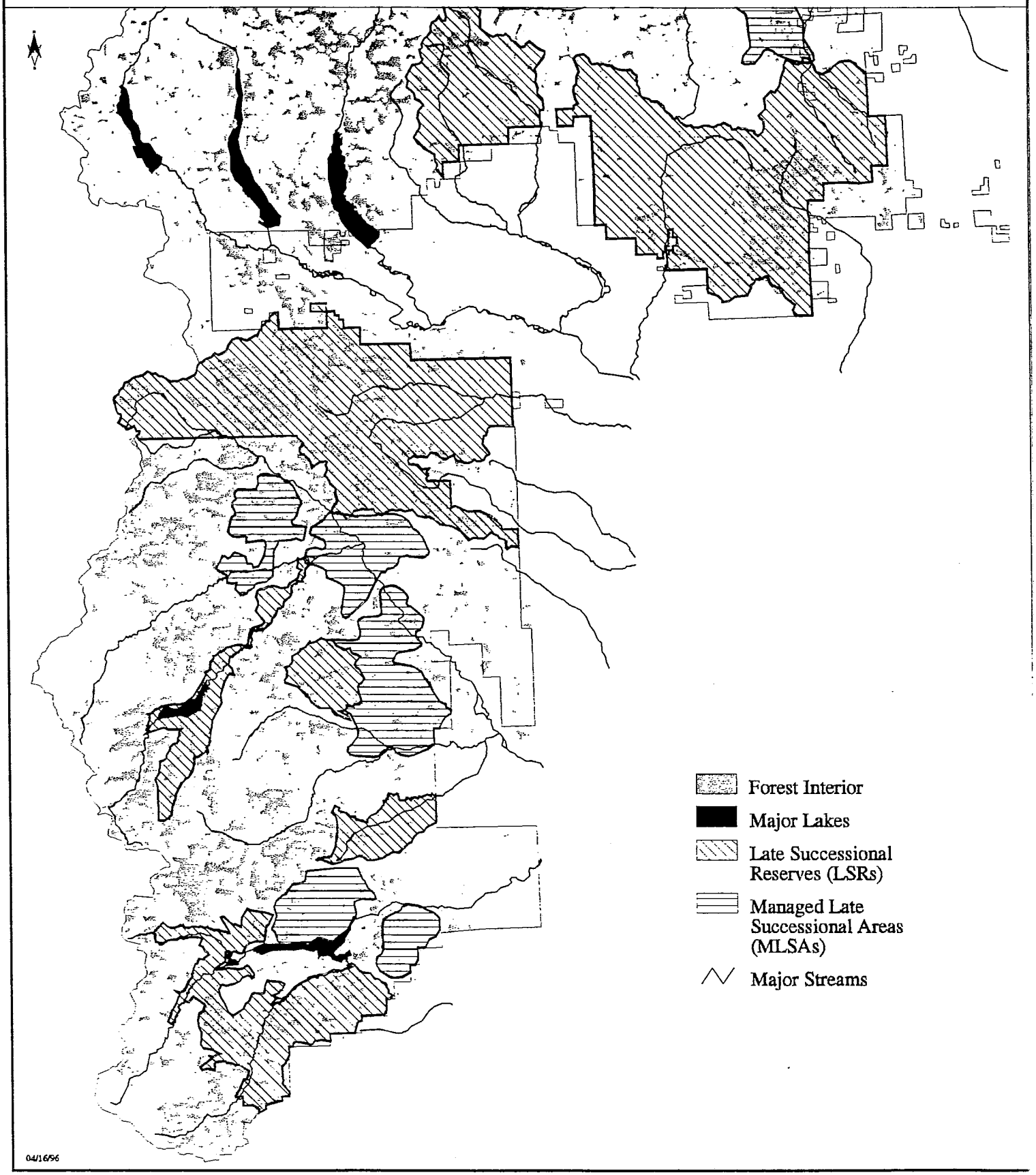
with Late Successional Reserves and Managed Late Successional Areas



South Half, Wenatchee National Forest

FOREST INTERIOR

with Late Successional Reserves and Managed Late Successional Areas



Appendix 36
Mammal Species List
Wenatchee National Forest

MAMMAL SPECIES FOR WENATCHEE N.F.	Spp Code	Mammals Found in Collections, (Includes Bat Work), By Ranger District	CWU & UW Zoology Collections	BURT, 1980 Mammals Field Guide	CHAPMAN, 1992 Wild Mammals of North America	HABITAT NOTES
Masked Shrew	Soci	02	RI	WIR		Wetland,Riparian,Forest,Grss,Shr/Br
Merrium Shrew	Some	3	ER	OR		Grass-dry
Dusky Shrew (Montane Shrew)	Soob (Somo)	03,08,02	RI	WIR		Wetlnd,Forest,Shrub/Brush,SubAlpine
Trowbridge Shrew	Sotr	03, 02	ER	RI		Forest
Vagrant Shrew	Sova	03, 02, 08	ER	WIR		Wetlands,Riparian,Stream,Forest
(Northern) Water Shrew	Sopa			WIR		Riparian,Wetland,Forest
Coast Mole (Pacific Mole)	Scor			RI	RI	Grass,Hardwood,Burrow
Townsends Mole	Scto	03	ER	ER	ER	SubAlpine,Wtlnd,Forest,Grass,Burrow
Shrew Mole	Negi	06,02,03,07	RI	ER	RI	Wetlnd,Stream,Burrow
Big Brown Bat	Epfu	06,05,02,07,08		WIR	WIR	Cave,Forest,Hardwood
California Myotis	Myca	07,08,02,06		WIR		Cave,Cliff,Talus,Forest
Small-footed Myotis	Myci + Mysu/le	02,08,05,07	RI	WIR		Forest,Cave,Shrb/Brush
Long-eared Myotis	Myev	3		WIR		Forest-dry,Cave
Keen's Myotis	Myke			OR		Cave,Forest
Little Brown Bat (Little Brown Myotis)	Mylu	06,08,07,02		WIR	WIR	Cave,Forest
Fringed Myotis	Myth			OR		Cave,Forest
Long-legged Myotis	Myvo	05,08		WIR		Cave,Cliff
Yuma Myotis	Myyu	02,06,07,08	RI	WIR		Cave,Forest-dry
Red Bat	Labo	6		RI	RI	Forest,Cave,Hardwood
Hoary Bat	Laci	6		WIR		Forest,Hardwood,Cave
Silver-haired Bat	Lano	6		WIR		Forest,Cave
Western Big-Eared Bat (Pacific or Townsends')	Plto	08	RI	WIR		Cave
Western Pipestrel	Pihe			OR		Cave,Riparian
Pallid Bat	Anpa			RI		Cave,Cliff, Forest
Big Free-tail Bat	Tamo			OR		Cave, Cliff
Pika	Ocpr	06, 08	RI	RI		Talus, Cliff
Snowshoe Hare	Leam	08	WI	WIR	WIR	Forest-2nd Growth, Shrub/Brush, Hardwood, Wetland, Forest
White-tailed Jackrabbit	Leto			OR	OR	Grass-dry
Nuttall's Cottontail (Mountain Cottontail)	Synu				EoR	Grass-dry,Cliff,Talus,Shrub/Brush

MAMMAL SPECIES FOR WENATCHEE N.F.	Spp Code	Mammals Found in Collections, (Includes Bat Work), By Ranger District	CWU & UW Zoology Collections	BURT, 1980 Mammals Field Guide	CHAPMAN, 1992 Wild Mammals of North America	HABITAT NOTES
Northern Flying Squirrel	Glsa	06,07,03	RI	RI		Forest,Hardwood
Douglas Squirrel (Douglas Ground Squirrel or Chickaree)	Tado	08,03,02	RI	RI	RI	Forest,Hardwood,Den
Red Squirrel	Tahu	02	ER	ER	ER	Forest,Hrdwd,Wetlnd,Den
Western Gray Squirrel	Scgr			ER	OR	Forest-dry, Oak
(Cascade) Golden-manteled Ground Squirrel	Spsa (Cila)	08, 06, 03	RI	RI	WIR	Forest-all, Shrub/Brush, Talus, Burrows
Townsends Ground Squirrel	Cito (Spto)	08,03	RI			Grass-dry
Yellow Pine Chipmunk	Euam (Taam)	02,08,03,06	WIR	RI		Forest-dry, Talus, Shrub-Brush
Townsends Chipmunk	Euto (Tato)	08, 06, 03, 02	WIR	OR, ER		Forest,Shrub/Brush, Burrows
Least Chimpunk	Eumi	03	RI	OR, ER		Forest,Talus,Burrows
N. Pocket Gopher (Thomomys Spp.)	Tata	03, 08, 07, 02	RI	RI	WIR	Forest,Forest-dry,Burrow, SubAlpine,Grass,Shr/Brsh
Bushy-tailed Woodrat	Neci	02, 05	RI	WIR		Talus,Forest,Cliff
Dusky-footed Woodrat	Nefu			OR		Hrdwd,Forest,Shr/Br,Rip
Calif. Red-backed Vole	Cloc			ER		Forest,Riparian
Red-backed Vole (Boreal or Southern)	Clga	08, 06, 03, 02	RI	WIR		Forest, Hardwood, Riparian, Wetlands
Western Red-backed Vole	Clca					
Red Tree Vole	Arlo (Phlo)			OR		Forest-Old Growth
Heather Vole (Mountain Phenacomys)	Phin	08, 06	RI	WIR		SubAlp,Forest,Talus,Rip
Sagebrush Vole	Lacu	08,03	RI	OR		Shrub/Brush-dry
Long-tailed vole	Milo	08, 03, 02	RI	WIR	WIR	Grass,Stream,SubAlp,S/B
Montane Vole (Mountain Vole)	Mimo	07,03	RI	ER	ER	Grass
Creeping Vole (Oregon Vole)	Mior	06,02,03	RI	WIR	RI	Grss,Forest-dry,Shr/Brsh
Meadow Vole	Mipe			RI	ER	Grass,Forest-dry, Stream, River, Lake
Water Vole (Richardson's Vole)	Miri	06, 03, 07	RI	RI	WIR	Grass, Wetlands, River, Lake, Streams

MAMMAL SPECIES FOR WENATCHEE N.F.	Spp Code	Mammals Found in Collections, (Includes Bat Work), By Ranger District	CWU & UW Zoology Collections	BURT, 1980 Mammals Field Guide	CHAPMAN, 1992 Wild Mammals of North America	HABITAT NOTES
Townsend Vole	Mito			RI		Grass,Wetlands,SubAlp
Deer Mouse	Pema	02, 06, 03, 08, 07	WIR	WIR		Grass,Forest-dry
Forest Deer Mouse	Peor	08, 03, 02	RI	?		
Great Basin Pocket Mouse	Pepa	02, 08, 03	RI	ER		Grass-dry, Forest-dry
(Western) Harvest Mouse	Reme	03	RI	RI		Grass,Shrub/Brush,Wetlnd
Western Jumping Mouse	Zapr	08	RI	OR		Stream, Wetland
Pacific Jumping Mouse	Zatr	08,06,02,03	RI	RI		Wetland,SubAlp,Forest
House Mouse	Mumu	02, 03	RI	RI		All
Marten	Maam	03, 08	RI	WIR	ER	Forest-OldGr,Rip,Gras,Dn
Fisher	Mape			RI	ER	Forest,For-OldGrwth,Den, Wetlnd,Riparian,Hardwod
Wolverine	Gugu			OR	RI	SubAlpine,Wetland
Ermine (Short-tailed Weasel)	Muer	6	RI	WIR	WIR	Shr/Brsh,Grass,Hrdwood, Rip,Wetlnd,Talus,Cave
Long-tailed weasel	Mufr	08,03		WIR	WIR	Grass,Rip,Wetlnd,Forest,Talus,Burrow
Mink	Muvi	08	RI	WIR	WIR	Wetlnd,Rv,Lk,Str,Riparian
River Otter	Luca			WIR	WIR	River,Lake,Den
Beaver	Caca	08	RI	WIR	WIR	River,Lake,Stream,Hrdwd
Muskrat	Onzi			WIR	WIR	Rvr,Lk,Str,Wetlnd,Den
Mountain Beaver	Apru			RI	ER	Forest-young,Burrow,Rip, Wetlands,Shrub/Brush
Hoary Marmot	Maca			RI	RI	Talus,SubAlpine,Burrow
Yellow-bellied Marmot	Mafl	08, 07, 02	RI	RI	WIR	Talus, SubAlpine, Burrow, Forest
(Northern) Raccoon	Prlo	06	RI	WIR	WIR	Rip,St,RvLk,Hrdwd,Wet,Clf
Porcupine	erdo	03, 08	RI	WIR	WIR	Forest,Cave,Den,Shr/Brsh
Badger	Taxta			ER	OR	Grass-dry,Den,Burrows
Striped Skunk	Meme	03	RI	WIR	WIR	Hardwood,Grass-dry, Rip, Talus,Den,Shrub/Brush
Spotted Skunk	Spgr			RI	ER	Grass, Shrub/Brush, Talus, River, Stream, Forest-dry, Den
Black Bear	Uram			WIR	WIR	Shrub/Brush,Grass,Rip,Hardwood, Forest, Forest-young,Wetland, ZOI
Grizzly Bear	Urar			OR (Since 1800's)	WIR	Grass,Cave,Den,Forest,SubAlp,ZOI, Current Mammal Book-Out of Range

MAMMAL SPECIES FOR WENATCHEE N.F.	Spp Code	Mammals Found in Collections, (Includes Bat Work), By Ranger District	CWU & UW Zoology Collections	BURT, 1980 Mammals Field Guide	CHAPMAN, 1992 Wild Mammals of North America	HABITAT NOTES
Coyote	Cala	03	RI	WIR	WIR	Grass,Shr/Brsh,Den, Talus,Forest-dry, all
Gray Wolf	Calu			OR (Since 1800's)	WIR	All Habs, Dens. Current Mammal Bks-Out of Rnge
Red Fox	Vuvu			RI	ER	Shr/Brush,Grass,Hrdwd,Forest-dry,Den
Cougar	Feco			WIR	WIR	Grss,Shr/Brsh,For,Talus,Cliff,Wetl,Den
Bobcat	Feru			WIR	WIR	Wtlnd,Clf,For,Grs,Tal,Den
Lynx	Fely (Lyca)			WIR	OR	For-2ndGwth,For-Young, Wetland,Hrdwd,Shr/Brsh, Talus,Cliff,Den
Elk	Ceel	03	RI	ER	OR	Grss,Sh/Br,Rip,Hrd,Fr-dry
Mule Deer	Odhe he			WIR	WIR	All,Sh/Br,Rip,Grass,Forest
Black-tailed deer	Odhe			RI	ER	All,Sh/Br,Rip,Forest
White-tailed deer	Odvi			WIR	OR	All,Sh/Br,Wetland,Forest
Moose	Alal			OR	OR	Hrdwd,Wetlnd,Shrb/Brsh, Riparian,Forest,SubAlpine
Mtn. Goat	Oram	02	RI	RI	WIR	Cliff,SubAlp,Talus,Grs,For
Mtn. Sheep	Ovca			OR	RI	Grss,Clf,Sh/Br,For-dry,ZOI
Virginia Opossum	(Divi)			ER	ER (introduced)	Hrdwd,Rip,For,Grs,Urban
		02 = Chelan RD			ER = Edge of Range	** HABITAT NOTES FROM CHAPMAN AND BURT.
		03=CleElum RD			RI = Range Inclusive	
		05 = Entiat RD		WIR = Well Inside Range		
		06=LkWen RD		OR = Outside of Range		
		07=Leavenworth				
		08= Naches RD				Wen

UNITED STATES
DEPARTMENT OF
AGRICULTURE

FOREST SERVICE

PACIFIC
NORTHWEST
REGION

JUNE 1996

MANASTASH RIDGE LATE SUCCESSIONAL RESERVE ASSESSMENT

CHAPTER XVII

WENATCHEE NATIONAL FOREST

MANASTASH RIDGE
LATE SUCCESSIONAL RESERVE
ASSESSMENT

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- Forest Interior
- Security Habitat
- Composite Risk
- Fire Risk
- Dwarf Mistletoe Risk
- Root Disease and Blister Rust Risk
- Insect Risk

Attachment A - Dispersal and Suitable Spotted Owl Habitat Within 1.8 Mile Circles by Ownership