



# Pileated Woodpecker

*Dryocopus pileatus*

Habitat Suitability in Cedar River Watershed

Tadd Wheeler & Julie Simmons

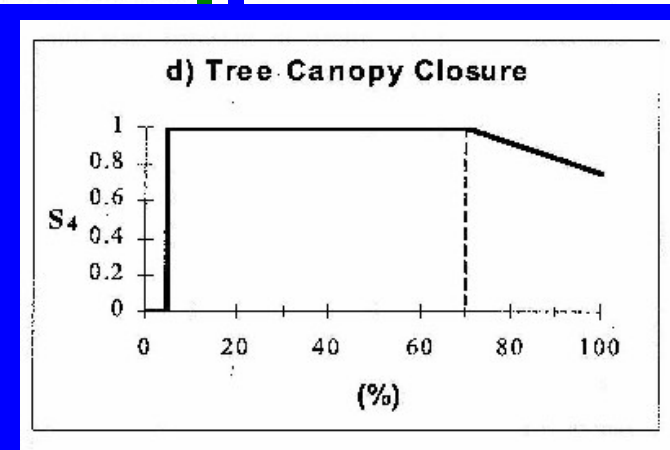
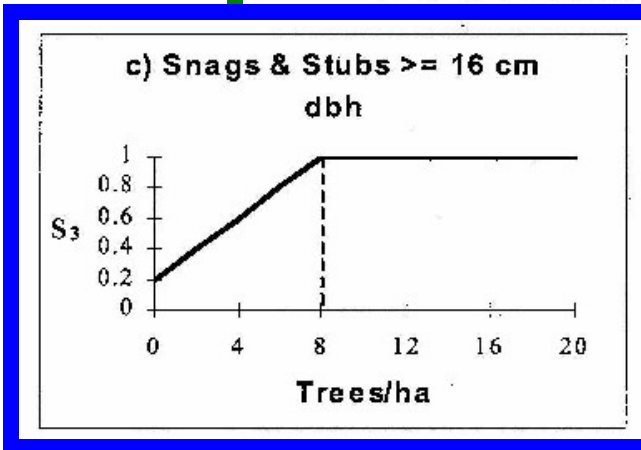
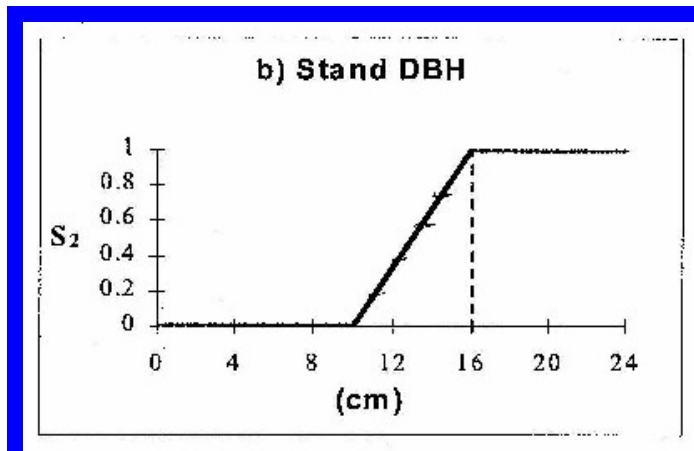
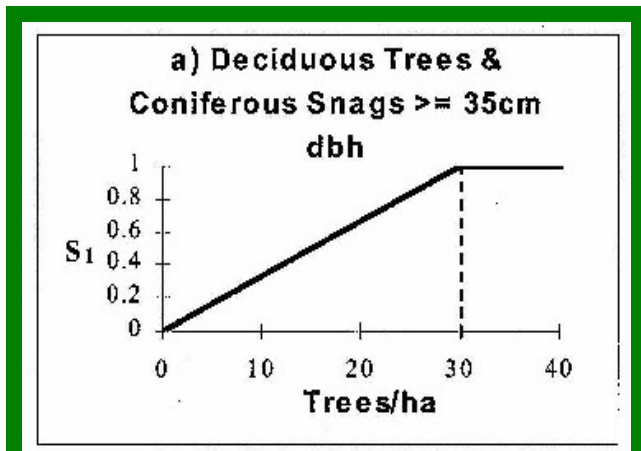
# Habitat Use for Washington/Oregon

- **(Aubry and Raley 2002)** Washington coast
- Observed selection against western hemlock for roosting and nesting.
- Utilizes trees 65-154cm dbh for nesting with a mean height of 39 meters
- **(Bull et al. 1992)** Northeastern Oregon
- Roost predominantly in both live and dead fir with extensive decay by Indian paint fungus *Echinodontium tinctorium*.
- Utilized trees with mean dbh 71cm and mean height 22 meters.
- **(Bull and Hothausen 1993)** Northeastern Oregon
- Mated pair mean home range = 407ha, unmated bird mean range = 597ha.
- Canopy closure = 60% used more.
- Observed equal foraging on downed logs and dead trees.

# Habitat Use for Washington/Oregon

- **(Mellen et al. 1992)** Western Oregon
- Mean individual bird home range = 478ha.
- Observed selection for stand age > 40 years and deciduous riparian areas for foraging.
- Nesting and roosting only occurred in stands older than 70 years.
- **(Raley and Aubry 2006)** Washington coast
- Primary food sources: carpenter ants, round-headed beetle larvae, and dampwood termites.
- Forage almost exclusively on standing structures in early to moderate stages of decay.
- Forage predominantly in western hemlock and Pacific silver fir.
- Downed woody debris of low foraging use do to the wet coastal climate and its limiting effects on termite populations.
- Open pre-canopy areas rarely used do to predation risk.

# HSI Models



**S<sub>5</sub> Tree Species**

Nesting = 0.33  
 + Roosting = 0.33  
 + Foraging = 0.33

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1.00

$$\frac{S_1 + 3S_2 + S_3}{3} + S_4 + S_5$$

(Bonar 1999)

# Determining HSI

FID	Shape *	AGE_RC	SPP1	ACT_HHX	MUHT	Acres	Hectares	muadmnhbst	HSI
102	Polygon	30	CC	CC	MU102CC30	623.37191	252.269662	0.00	1
103	Polygon	30	DF		MU103DF30	180.607311	73.089186	50.00	3
104	Polygon	30	DF	ECOLOGICAL THIN 1980	MU104DF30	16.491381	6.673825	30.00	2
105	Polygon	30	DF	RESTORATION THIN 98 DOWN	MU105DF30	62.065491	25.117013	25.00	2
106	Polygon	30	Natural		MU106N30	3.711925	1.502163	20.00	2
107	Polygon	30	TF		MU107TF30	2508.829521	1015.287286	13.00	1
108	Polygon	30	TF	CC & RESTORATION THIN 98	MU108TF30	4.283141	1.733326	13.00	1
109	Polygon	30	TF	ECOLOGICAL THIN 1980	MU109TF30	0.801847	0.324496	13.00	1
110	Polygon	30	TF	RESTORATION THIN 98 DOWN	MU110TF30	161.222272	65.244339	22.00	2
111	Polygon	30	WH		MU111WH30	645.227782	261.114419	11.00	1
112	Polygon	30	WH	RESTORATION THIN 98 DOWN	MU112WH30	37.539666	15.191764	11.00	1
113	Polygon	4			MU113_4	5.876217	2.378021	0.00	1
114	Polygon	4	Air Strip		MU114SH4	9.912259	4.011349	0.00	0
115	Polygon	4	Brush		MU115SH4	473.170207	191.485189	31.00	2
116	Polygon	4	Cliff		MU116SH4	1032.018687	417.643145	0.00	0
117	Polygon	4	Conifer forest		MU117SH4	13.702038	5.545018	0.00	1
118	Polygon	4	Grass		MU118SH4	87.970992	35.600598	0.00	1
119	Polygon	4	Gravel pit		MU119SH4	4.687207	1.896845	0.00	0
120	Polygon	4	Landslide		MU120SH4	5.3328	2.158108	0.00	0

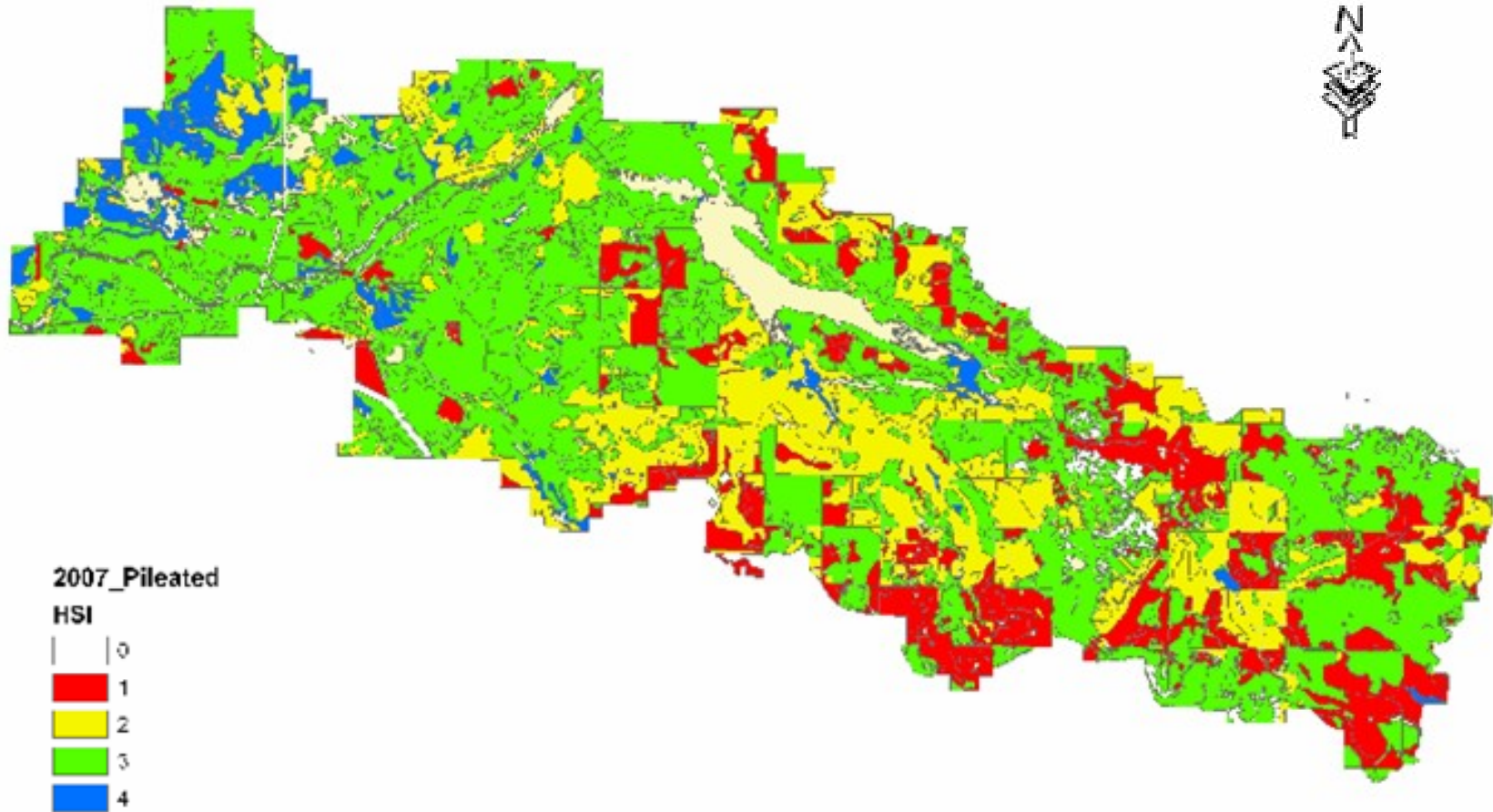
- Conversion from the formula to HSI

0-18=1, 18-44=2, 44-71=3, 71-98=4

- Determine missing values



# 2007 HSI Distribution



# Patch Analysis

<i>Hsi</i>	<i>CA</i>	<i>TLA</i>	<i>NumP</i>	<i>MPS</i>	<i>%LAND</i>
0	16332.20	18403.31	133.00	122.80	88.75
0	157.80	18403.31	6.00	26.30	0.86
0	98.62	18403.31	5.00	19.72	0.54
0	1735.79	18403.31	77.00	22.54	9.43
0	78.90	18403.31	4.00	19.72	0.43
1	157.80	59726.94	7.00	22.54	0.26
1	52981.03	59726.94	133.00	398.35	88.71
1	2288.09	59726.94	86.00	26.61	3.83
1	4201.40	59726.94	154.00	27.28	7.03
1	98.62	59726.94	5.00	19.72	0.17
2	611.47	82450.00	28.00	21.84	0.74
2	2761.48	82450.00	101.00	27.34	3.35
2	70733.42	82450.00	171.00	413.65	85.79
2	7377.11	82450.00	245.00	30.11	8.95
2	966.52	82450.00	36.00	26.85	1.17
3	214231.93	214231.92	89.00	2407.10	100.00
4	177.52	18876.71	8.00	22.19	0.94
4	39.45	18876.71	2.00	19.72	0.21
4	591.75	18876.71	26.00	22.76	3.13
4	1992.21	18876.71	71.00	28.06	10.55
4	16075.78	18876.71	90.00	178.62	85.16

CA = Sum of areas of all patches belonging to a given class.

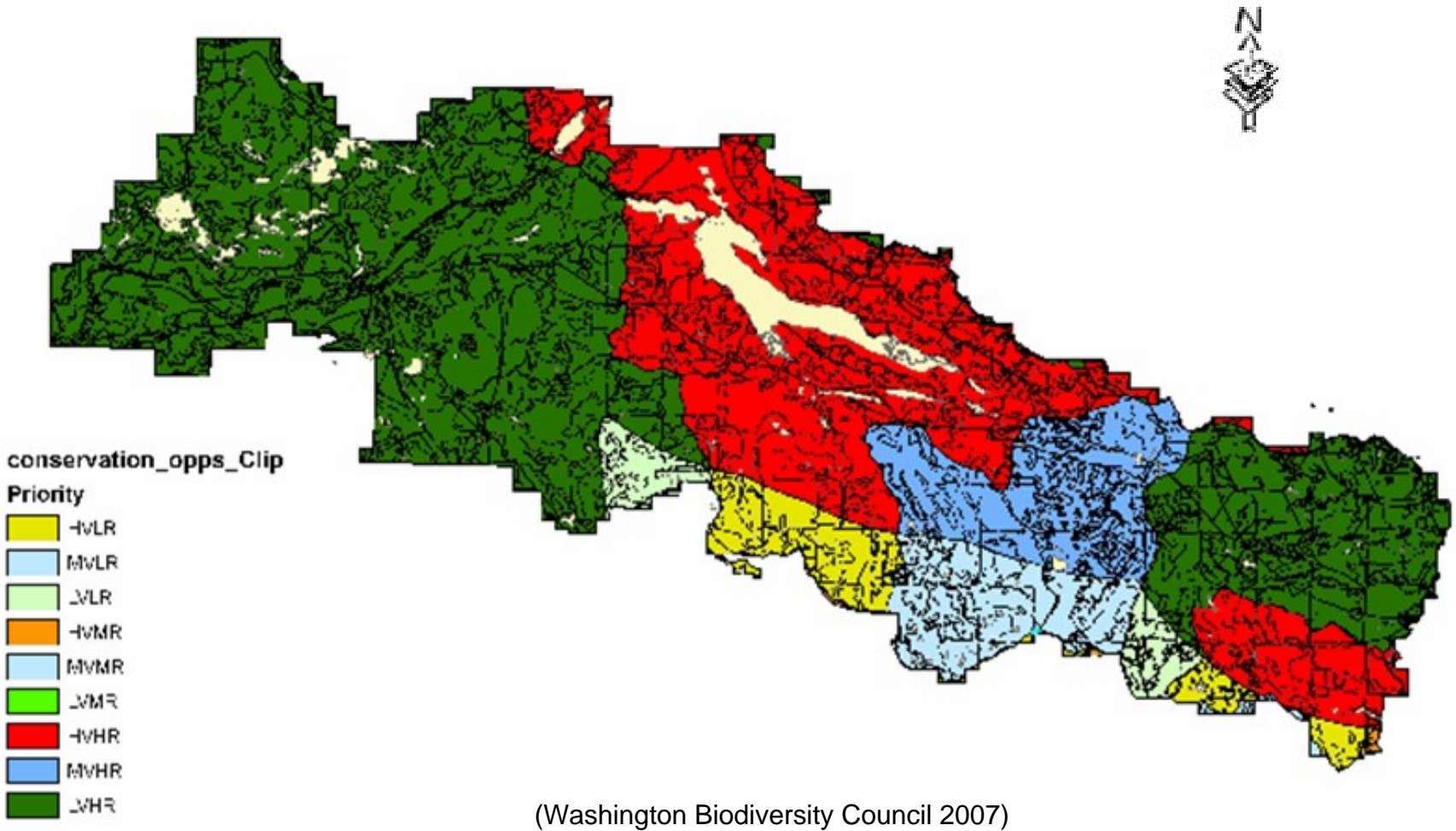
TLA = Sum of areas of all patches in the landscape

NumP = Total number of patches for each individual class

MPS = Mean patch size

%LAND = Percentage of land that the patch occupies

# Conservation Opportunity Priority Standings

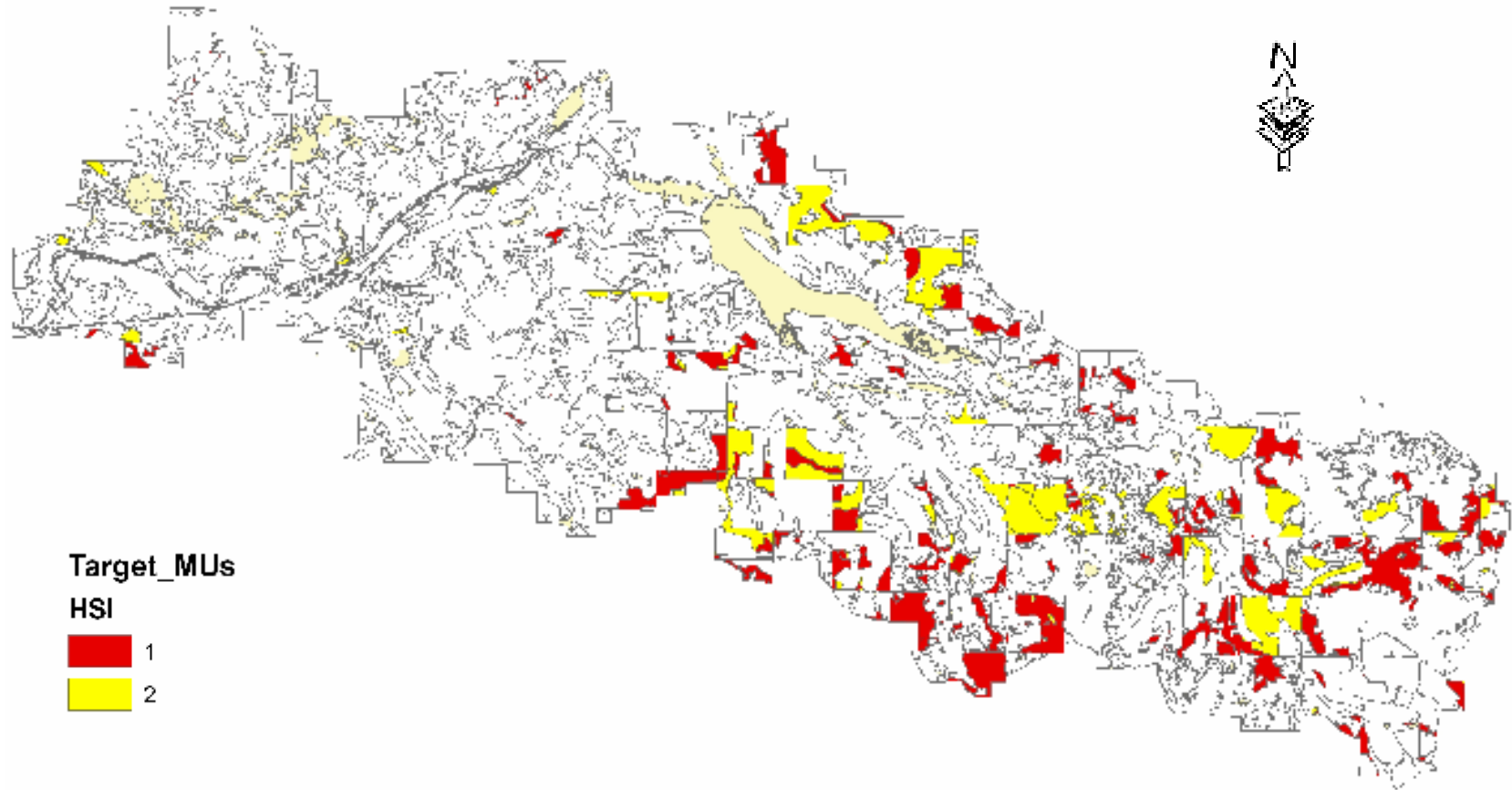


(Washington Biodiversity Council 2007)

# Simple Management Options

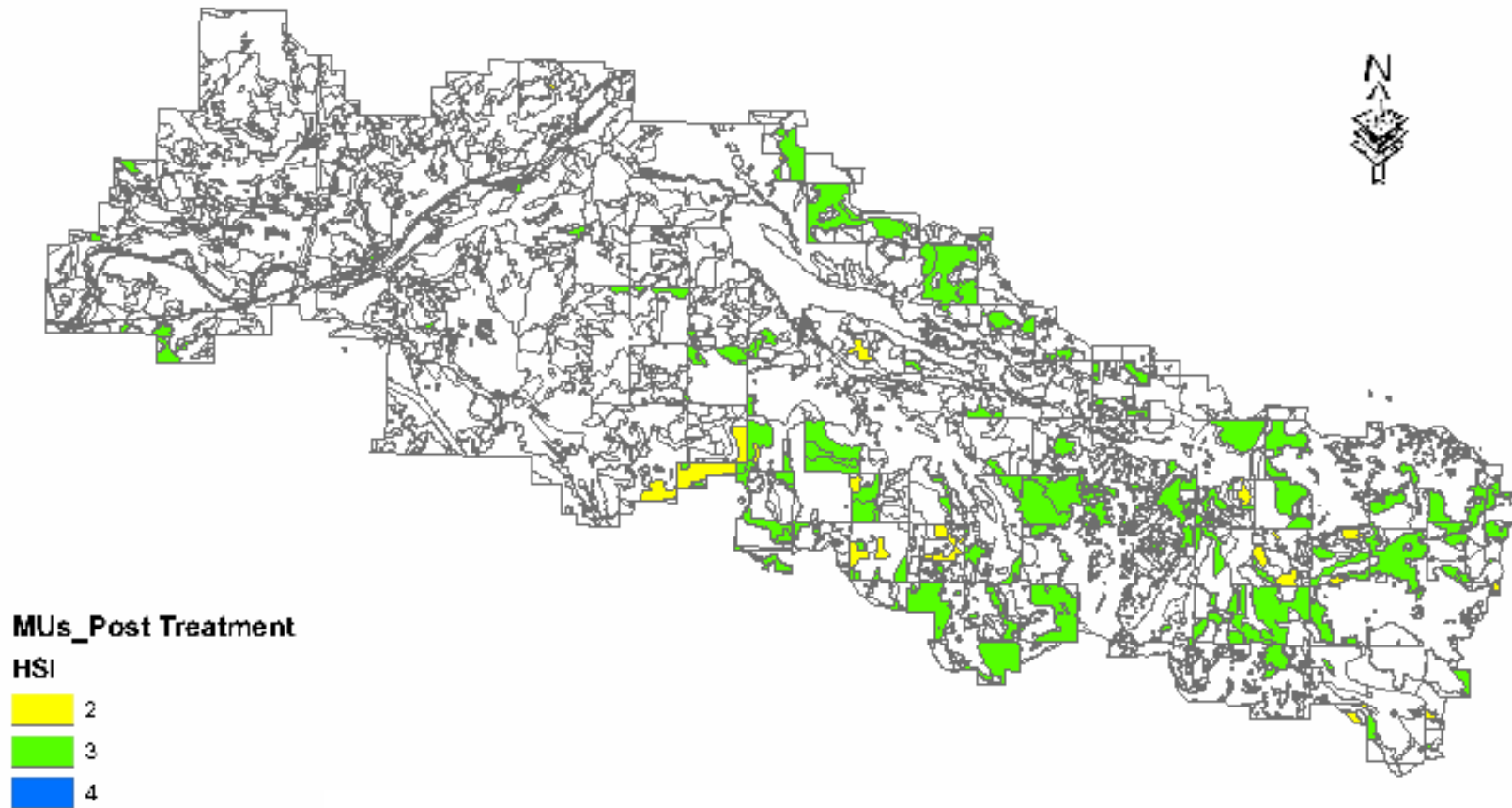
- Targeted snag enhancement
  - Utilizing pathogens and topping
- Give it time

# Target Areas for Pileated Habitat Improvements

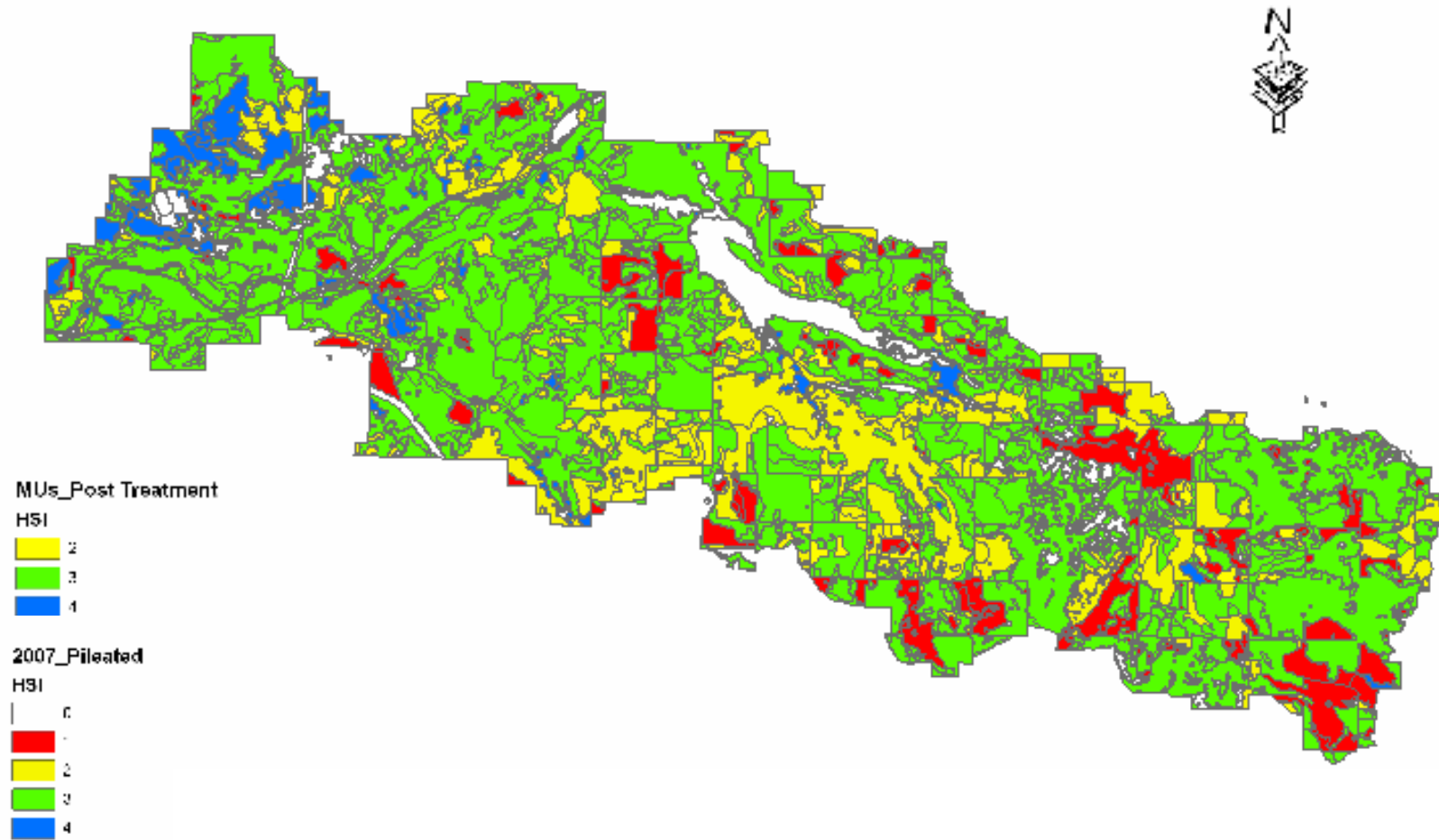


# Post Treatment HSI

After creating  $> 8$  snags per hectare at  $\geq 16$  cm



# Cedar River Watershed Post Snag Treatment for Pileated Woodpecker



# Estimated Populations

- ~500 ha/home range
- HSI values 2 – 4
- Current Population
  - Area = 29,303 ha
  - 59 Available breeding pair home ranges
- Projected Population
  - Area = 33,289 ha
  - 66 Available breeding pair home ranges

# Literature Cited

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