

Managing for Other Late-successional Species in Dry Forest Environments, the Fisher



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Objectives

- Compare and contrast resource use by northern spotted owls and fisher in dry forest ecosystems.
- Provide data to support landscape project planning and site specific implementation for retention of fisher habitat components.
- Introduce project design criteria to minimize treatment effects on fisher and their habitat.
- Accuracy in conveying research results.

Landscape Level

Distribution
of Home Ranges

Abiotic Features
of Home Ranges

Resting Habitat
Suitability

Home Range

Rest/Den Site Stand
Features

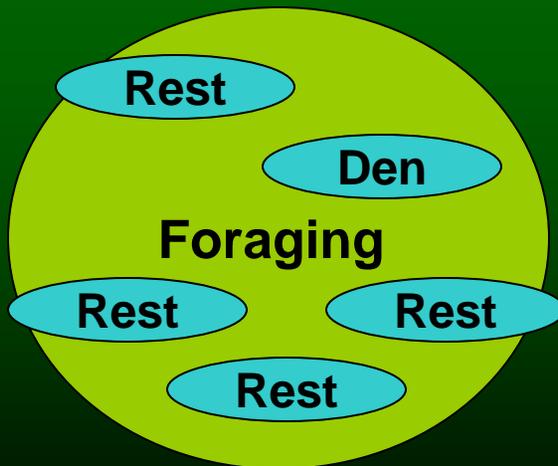
Rest Structures

Abiotic Features

Den Structures

Patch Size?

Prey Diversity/Density

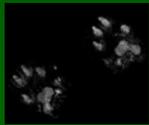


Landscape Assessment

- **Abiotic Features:** elevation, water ?
- **Territoriality:** polygynous mating system, competitors, juvenile dispersal (?)
- **Habitat Features:** distribution of forest community types, past disturbance relative to key habitat structures

Abiotic factors may influence the distribution of NSO territories

- Fisher home ranges are correlated with elevation.



Low to mid-elevation forests without frequent deep snow fall.

- Abiotic features such as distance to stream, steep slopes or lower slope position may be important for rest site locations.

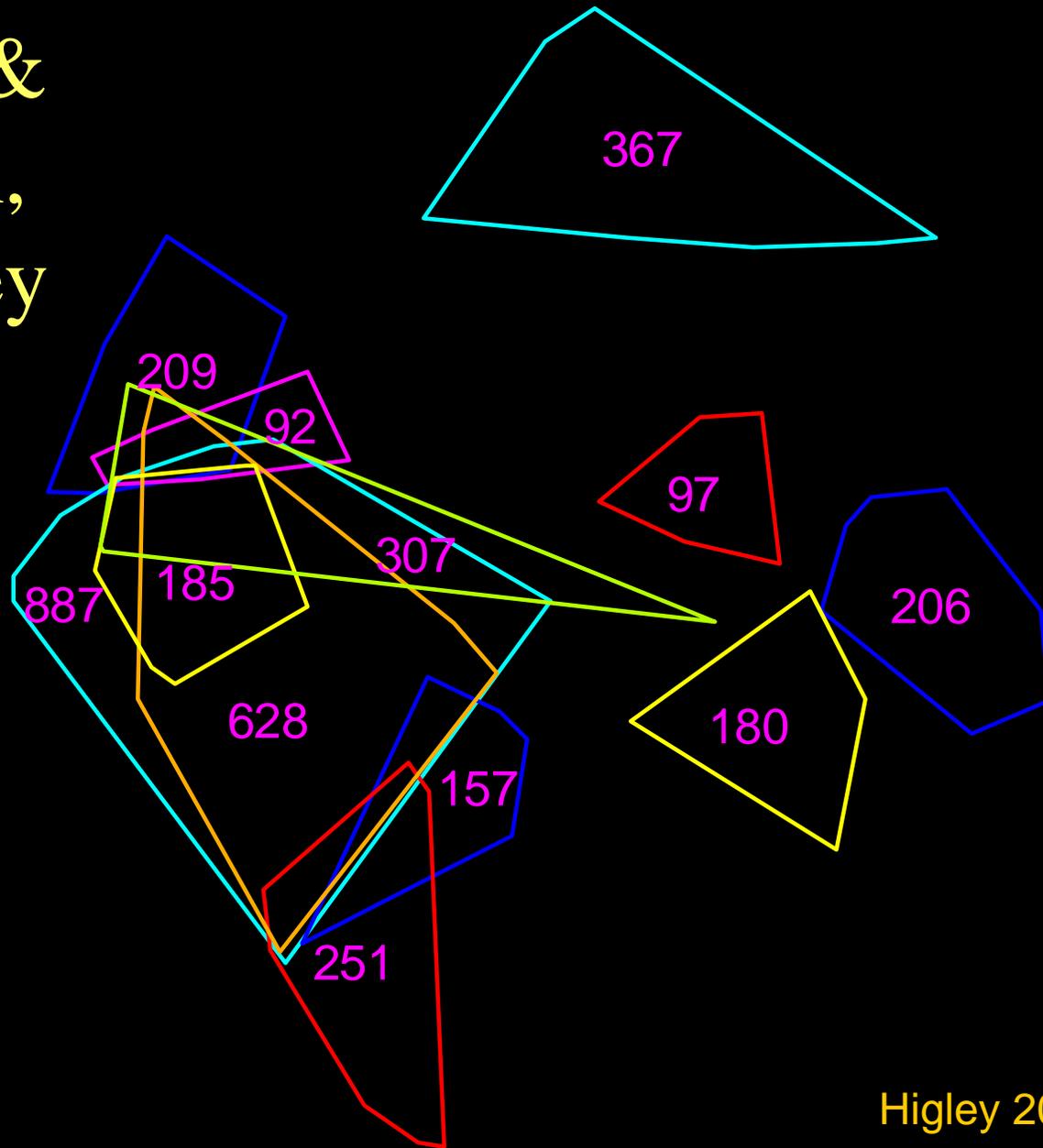


Yaeger 2005, Zielinski et. al. 2004, Mazzoni 2002, Seglund 1995.

Fisher Home Range Size & Distribution, Hoopa Valley

Female 175 ha
SD 50 (n = 7)

Male 745 ha
SD 183 (n = 2)



Higley 2005

Home Range Area

Study Area	N	Sex	Home Range Area (acres)		Source
			MMCP	95%Adaptive Kernel	
Sierra	8	F	1302 (160)		Zielinski et al 2004
	4	M	7405 (1932)		
Trinities, CA	2	F		13310 (8398)	Dark 1997
	4	M		13313 (12350)	
Oregon	3	F	6520 (864)		Aubry 1998
	1	M	9880		

Home Range Habitat Characteristics in the Sierra Nevada^a

	Canopy Closure	Size Class Avg. dbh (inches)	% Hardwood & Hardwood, Conifer
Males	40-59%, 27%(11) 60-100%, 56%(16)	11-24, 60%(20) 24+, 13% (4)	10.7% (7)
Females	40-59%, 20%(7) 60-100%, 72%(9)	11-24, 61%(21) 24+, 13% (13)	20% (19%)
Total	40-59%, 22%(9) 60-100%, 66%(14)	11-24, 61%(20) 24+, 13% (11)	16% (16)

Resting Habitat Characteristics

Location	Canopy Cover	Mean dbh (in) 4 largest trees	# Hardwood Species
Hoopa Valley (n=129) ^a	>50%; 91% >75%; 79%	18.7 (0.7)	3.1 \pm 0.1
Shasta Trinity, east (n=66) ^a	>50%; 75% >75%; 44%	17.4 (0.9)	1.2 \pm 0.1
Sierra (n ~ 336) ^b	92% \pm 6.4%	Avg. conifer > 22.5 (4.7)	BA 13.3 (7.5)

a: Yaeger, 2005. 0.04ha plots

b: Zielinski et.al., 2004. variable radius plots

Rest Structures

Location	Conifer dbh, inches	Hardwood	Snags
Hoopa (n=218) ^a	43 (2), 65% C=1%, P=59%	30 (1), 35% C=99%, P=41%	10%
Shasta- Trinity (n=296) ^a	40 (1), 84% C=30%, P=99%	28 (2), 16% C=70%, P=1%	11%
Sierra (n=78) ^b	37 (12), 86%	dbh not reported 14%	46 (18)

a: Yaeger, 2005 b: Mazzoni, 2002

Den Structures

Location	Conifer	Hardwood	dbh (in)
Hoopa (n=12) ^a	Snag, N=1	Snag, N=1 Live, N=10	Mean: 26 (2) Range 18-33
Shasta- Trinity (n=6) ^a	Snag, N=1	Live, N=5	Mean: 29 (4) Range 16-49

a: Yaeger, 2005

Project Design Criteria to Minimize Treatment Effects on Fisher and Their Habitat

- Maintain habitat elements such as large hardwoods and snags that take decades to create and are more susceptible to fire.
- If burning before mid-May, avoid habitats with high densities of den structures.
- Disperse treatments over time and space within the size of a home range area.
- Leave patches of resting habitat (higher canopy closure) dispersed across the landscape.
- Evaluate specific forest management alternatives and monitor change using FIA data to assess resting habitat

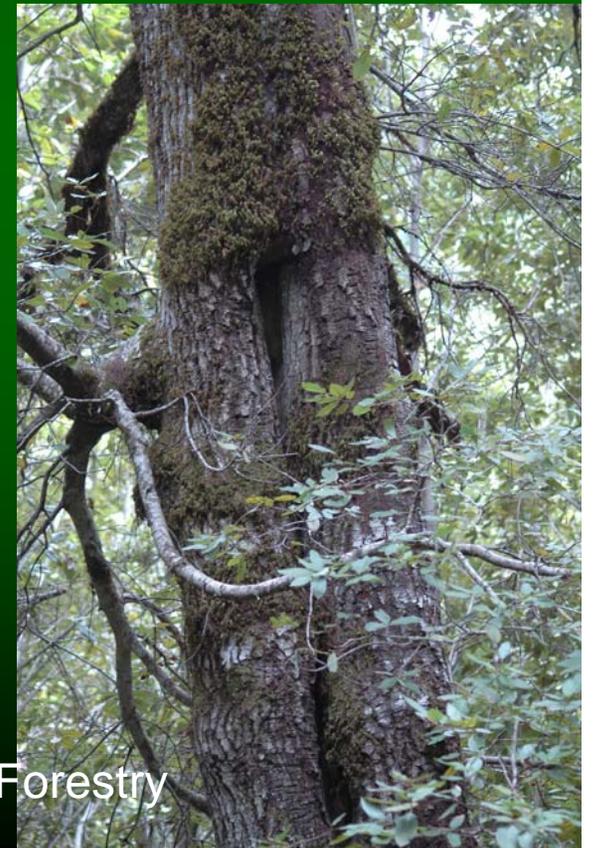
Hoopa Valley Fisher Den Trees



8 of 22 den trees had fire scars at the base



7 of 33 den cavities the result of fire scars



Photos and Preliminary Data Courtesy Hoopa Valley Tribal Forestry