

## **Appendix G**

### **Beaver Creek Watershed Analysis**

### **Northern Spotted Owl**

#### **I. Background**

The Beaver Creek Watershed is located within the eastern portion of the Siskiyou Mountains of the Klamath Province. This watershed contains a large portion of the Mt. Ashland Late Successional Reserve #RO248 and eight 100 acre late successional reserves in Matrix lands. Most of the lower 1/3 of the watershed is in checkerboard ownership with Fruit Growers Supply Company and Timber Products Company being the primary private landholders. Northern spotted owls in this province appear to use a wider range of habitat conditions in comparison to the northern spotted owls found in the Oregon Cascades located approximately thirty miles to the north-east of this watershed. Moisture regimes, geology, soils, and a high fire frequencies in this area all result in smaller blocks of contiguous forested stands of varied age and structure. In spite of this fragmented landscape, a history of reproductive success for the northern spotted owl has been documented since the mid 1980's when large scale monitoring began.

#### **II. Klamath Province Suitable Definition**

A definition of suitable nesting and roosting northern spotted owl habitat in the Klamath Province is difficult to identify because of the variety of ecological types and frequent fire history. Owl pairs occur here and reproduce in a wide range of vegetative conditions. Through a combined use of satellite imagery, aerial photo interpretation, timber typing and field verification, biologists have attempted to standardize habitat definitions to other forest-level typing. Though forest level typing is not designed for the purpose of describing stand level characters of habitat, it does provide a landscape viewpoint.

The difficulty in describing suitable habitat within the Klamath Province is not new to the scientific community. In the Conservation Strategy for the Northern Spotted Owl, the Interagency Scientific Committee (ISC) stated that, "The full range of suitable habitats for spotted owls in California has not yet been determined, although much is known."

The Province currently lacks the demographic based data to fully and quantitatively describe potential suitable northern spotted owl habitat. What is known is what habitat conditions exist in known historic owl activity centers. Significant environmental variables need to be considered when making a judgement as to the potential suitability of a given stand. These include: canopy closure, DBH, stand layering, size of stands, adjacency, slope and aspect.

The following are forest types and general stand conditions which support spotted owls in the Beaver Creek Watershed.

#### **True Fir Type**

1. **Elevation** - Up to 7,000 feet
2. **Overstory** - Primary species: white fir, red fir, with scattered incense cedar and ponderosa pine.
3. **Overstory Tree Size** - Average dbh  $\geq 15"$
4. **Understory** - Typically, little to no understory is present
5. **Total Canopy Cover** -  $\geq 60\%$  (\*)
6. **Coarse Woody Material** - A) Snags-min  $\geq 5/\text{ac.}$   $\geq 15"$  dbh  
B) Logs-min  $\geq 5/\text{ac.}$   $\geq 15"$  dbh at large end
7. **Decadence** - Presence of deformed trees desired (mistletoe, heart rot, etc.)

### **Mixed Conifer Type**

1. **Elevation** - less than 6,500 feet
2. **Overstory** - Primary species: Douglas fir, ponderosa pine, sugar pine, incense cedar, white fir, red fir.
3. **Understory** - Same species as in the overstory, plus hardwood component including white oak, black oak, madrone and tanoak.
4. **Overstory tree size** - Average dbh  $\geq 18"$
5. **Total canopy cover**  $\geq 60\%$  (\*) (Understory must be open enough to allow for owl movement)
6. **Coarse Woody Material** - A) Snags-Min 2/ac. w/ ave. dbh  $\geq 18"$   
B) Logs-Min 2/ac. w/ dia. lrg end  $\geq 18"$
7. **Decadence** - Presence of deformed trees desired (mistletoe, heart rot, etc.)

\* Canopy closure includes all overstory **and** understory cover, regardless of species. Overstory component can be as low as 40% cover. All canopy above approximately seven to ten feet will contribute to suitable spotted owl habitat. At the lower percentages of canopy cover other attributes begin to play an important role. These attributes may include the presence of hardwoods, adjacency to water, adjacency of other suitable stands, characteristics of stand (i.e. presence of down woody debris, deformed trees, etc.).

**WHR Types.** The following is the list of Wildlife Habitat Relationships (WHR) types considered to be suitable NSO habitat within the Beaver Creek Watershed.

<u>Species</u>	<u>Species Code</u>	<u>DBH Size Class</u>	<u>Canopy Closure Class</u>
Douglas Fir	DFR	3, 4, 5	M, D
Klamath Mixed			
Conifer	KMC	3, 4, 5	M, D
Montane Hardwood			
Conifer	MHC	3, 4, 5	M, D
Montane Hardwood	MHW	3, 4, 5	M, D
Ponderosa Pine	PPN	3, 4, 5	M, D
Red Fir	RFR	3, 4, 5	M, D
White Fir	WFR	3, 4, 5	M, D

### **III. Amount and quality of NSO suitable habitat in the Beaver Creek Watershed.**

Based on satellite imagery and on the ground knowledge of local the District Silviculturist and District Wildlife Biologist it was determined that approximately **30,350 acres** of suitable habitat occurs within the boundary of the Beaver Creek Watershed. 7,750 acres are on private land and 22,600 acres are on national forest lands. Some of the 11,100 acres of mid-successional 11"-17" dbh conifer stands function on a site specific basis for species like the northern spotted owl (the summarized acres do not contain 11"-17" data under suitable habitat).

#### Suitable Spotted Owl Habitat Types by Ownership

Habitat Type	Land Owner	Acres
11"-17"	KNF	5,800
	FGS	3,650
	TP	1,450
	OTHER	200
	Total	11,100
>17"	KNF	22,600
	FGS	5,050
	TP	1,500
	OTHER	1,200
	Total	30,350

The Beaver Creek watershed suitable habitat is fragmented by high elevation meadows along the Siskiyou Crest to the north and the plantations and shrub fields from the large Haystack Fire on the southern lower elevations. Fragmentation of mid-elevational habitat is the result of past timber harvest and road construction on private and Forest Service lands.

Within the watershed the variation of distribution and quality of suitable habitat is diverse. This appears to be directly correlated to elevational zones. The following is a brief discussion of dominant habitat types in the watershed and thier function for NSO habitat.

**TRUE FIR ZONE.** Mt. Ashland and the Siskiyou Crest are typical of the true fir zone (5,000'-7,000'). There are approximately 11,000 acres of this type in the watershed. 9,810 acres are suitable for NSO reproduction and roosting. The remaining 1,190 acres are of younger and lower canopy closure stands that do not function as suitable. Fragmentation is moderate to low in this area. The largest blocks of functional suitable habitat in the watershed occur in this true fir zone. This zone can retain snow pack through the end of June in wetter years. Due to the wetness of these stands, fire has played a less significant role in their development however fire prevention has resulted in much downed woody material and fine fuels in portions of these stands. Owls do not appear to be limited by elevation in this watershed as there are 3 known owl activity centers above 5,000'.

MIXED CONIFER TYPE. Mixed Conifer type occurs in the mid elevations of the watershed. The mid elevational zones are more influenced by fire patterns typically found in the Klamath Province. This mid elevation zone is the dominant type in the watershed (3,000'-6,000'). There are 37,000 acres of this type of which 25,000 are suitable for NSO. Most of the watershed's forest fragmentation from timber harvest occurs in this area. 16 known owl activity centers occur in this zone. Due to the higher amount of timber harvest in the mixed conifer zone, these owls have home ranges with fewer large blocks of habitat and more seral stage diversity. Younger stands in this area may serve as an important function for foraging but do not provide characters for reproductive needs.

HARDWOOD/CONIFER TYPE. The next dominant habitat type in the watershed is the Hardwood/Conifer type. There are approximately 9,000 acres in the watershed. This type is a dominant feature at lower elevations and may play a minor role of suitability for NSO particularly in draws or when they occur adjacent to more suitable stands. There is one known activity center in this type, and this habitat likely serves as a very important role for foraging spotted owls due to the high dusky footed woodrat populations.

The remaining habitat types in the watershed; Hardwood, Shrub and Grass/Herbs are not suitable for NSO but may play a minor role for foraging if located near suitable habitat.

## **VI. Owl Activity History:**

Historic Surveys on in the Watershed. Historic surveys in the watershed date back to 1986. Between 1986 and 1993, sporadic NSO surveys were conducted primarily in timber sale planning areas. During the 1993-1994 breeding period, complete protocol surveys were conducted on 90% of the Klamath portion of the Mt. Ashland LSR. These surveys followed Region 5 (Pacific Southwest Region) NSO survey protocol and were conducted over two consecutive years (Mt. Ashland LSR owl Survey Summary 1994). For the portion surveyed in 1993-1994, nine pairs and two territorial singles were recorded. The remaining (non LSR) portion of the watershed has had intermittent surveys conducted by Forest Service and Private Company biologists. The non LSR portion of the watershed has had no entire comprehensive survey conduct therefore confidence levels for this area is variable.