

## **Attachment B: Take Avoidance Analysis-Interior**

### **I. Accuracy of NSO activity center location and status**

#### 1) Location

- a. Confirm plotted activity center location accuracy
  - i. CDFG Reports 2 and 3
  - ii. Data from adjacent landowners
  - iii. Recent surveys
- b. Document deviations from CDFG locations
- c. Update habitat analysis maps as necessary

#### 2) Status

- a. Valid site
  - i. Review page 11 of protocol to determine
  - ii. If not valid, report to CDFG for inclusion in next database update
- b. Current occupancy status
- c. Current reproductive status, if determined

### **II. Survey Effort**

#### 1) Coverage

- a. Surveys of nesting/roosting habitat out to 0.7 miles from THP boundary
  - i. Use THP habitat map(s) to verify

#### 2) Protocol survey

- a. Time of day
- b. Spacing between visits
- c. Number of surveys
- d. Survey dates
- e. Time spent at each call point

#### 3) Follow up visit(s)

- a. Confirm that the area searched covers suitable habitat within response location/last known location within a logical distance.
- b. Time of follow up and duration of follow up
- c. Additional night surveys
  - i. Review page 10 of protocol

### **III. Habitat**

#### 1) Typing

- a. Verify habitat typing with aerial photos, equivalent imagery, or field visits
- b. Changes to typing need to be reflected in the NSO habitat acres table and habitat analysis maps
- c. Post harvest typing

- i. Post-harvest habitat typing must agree with the silviculture prescription

2) Definitions

a. Nesting/roosting

i. High Quality Nesting/roosting Habitat

1. Basal Area = 210+ square feet, **and**
2.  $\geq 15''$  quadratic mean diameter (QMD) , **and**
3.  $\geq 8$  trees per acre (TPA) of trees  $\geq 26''$  in diameter at breast height (DBH) , **and**
4.  $\geq 60\%$  canopy closure

ii. Nesting/roosting Habitat

1. A mix of basal areas ranging from 150-180+ square feet, **and**
2.  $\geq 15''$  QMD, **and**
3.  $\geq 8$  TPA of trees  $\geq 26''$  DBH, **and**
4.  $\geq 60\%$  canopy closure

b. Foraging

i. Foraging Habitat

1. A mix of basal areas ranging from 120-180+ square feet, **and**
2.  $\geq 13''$  QMD, **and**
3.  $\geq 5$  TPA of trees  $\geq 26''$  DBH, **and**
4. A mix of  $\geq 40\%$ -100% canopy closure

ii. Low Quality Foraging Habitat

1. A mix of basal areas ranging from 80-120+ square feet, **and**
2.  $\geq 11''$  QMD, **and**
3.  $\geq 40\%$  canopy closure

3) Quantities

a. Within 1000 feet of activity center

- i. Outside breeding season (September 1 through January 31): no timber operations other than use of existing roads
- ii. During the breeding season (February 1 through August 31): no timber operations other than the use of existing, permanent, year-round roads

b. Within 0.5 mile radius (502 acres) centered on activity center

- i. Retention of habitat should follow Section III. 4 of this document
- ii. At least 250 acres nesting/roosting habitat present, as follows:
  1. 100 acres High Quality Nesting/roosting Habitat, **and**
  2. 150 acres Nesting/roosting Habitat

–AND–
- iii. At least 150 acres foraging habitat must be present, as follows:
  1. 100 acres Foraging Habitat, **and**
  2. 50 acres Low Quality Foraging Habitat
- iv. No more than 1/3 of the remaining suitable habitat may be harvested during the life of the THP

c. Between 0.5 mile radius and 1.3 miles radius circles centered on activity center

- i. Retention of habitat should follow Section III. 4 of this document
- ii.  $\geq 935$  acres suitable habitat must be present, as follows:
  1. At least 655 acres Foraging Habitat, **and**
  2. At least 280 acres Low Quality Foraging, **and**
  3. No more than 1/3 of the remaining suitable habitat may be harvested during the life of the THP

#### 4) Applying Habitat Definitions to Forest Stands

- a. Because the structural characteristics of forest stands used by Northern Spotted Owls are heterogeneous, management based on average values is unlikely to retain habitat suitability. For this reason, the habitat definitions provided under Section III.2.a and b. (above) are intended for application at the scale of roughly 20 acres (may be somewhat more or less depending on plot density or measurement technique). This means that within any given 20-acre area intended to serve as Nesting/Roosting or Foraging habitat, the values for QMD, basal area, TPA, and canopy closure should be variable, but stand averages should follow the standards provided under each habitat definition. Where ranges of values are provided (e.g. 150-180 ft<sup>2</sup> basal area), this means that the mean values can vary across the many 20-acre areas that make up a spotted owl core area and home range. It is important to recognize habitat quality will be compromised by timber harvesting that moves stand parameters towards uniformly low average values for stand density and tree size, even during multiple entries. This is particularly true at spotted owl territories with low (at or below quantities in Section III.3.a-c) amounts of habitat; in these cases the highest-quality habitat available should be identified and retained before treatment of other suitable habitat is considered.

#### 5) Priority Ranking of Habitat Retention Acres

- d. Tree species composition
  - i. Mixed conifer stands should be selected over pine dominated stands
- e. Abiotic considerations
  - i. Distance to nest
    1. Nesting/roosting and foraging habitat closest to identified nest trees, or roosting trees if no nest trees identified
  - ii. Contiguous
    1. Nesting/roosting habitat within the 0.5 mile radius must be as contiguous as possible
    2. Minimize fragmentation of foraging habitat as much as possible
  - iii. Slope position
    1. Habitats located on the lower 1/3 of slopes provide optimal micro-climate conditions and an increased potential for intermittent or year-round water sources
  - iv. Aspect
    1. Habitats located on northerly aspects provide optimal vegetation composition and cooler site conditions

v. Elevation

1. Habitat should be at elevations of less than 6000 feet, though the elevation of some activity centers (primarily east of Interstate 5) may necessitate inclusion of habitat at elevations greater than 6000 feet.

6) Size and Shape of Habitat Patch

- a. Narrow strips of habitat (WLPZs, retention areas between clearcuts, etc.) may contain the characteristics of nesting/roosting habitat. However, when these narrow strips of habitat are surrounded by unsuitable or low quality habitats, they function as foraging habitat at best.
- b. Narrow strips of habitat (100m or less), provide for a lot of edge habitat and little to no interior habitat. Franklin et al (2000) describe interior habitats as the amount of spotted owl habitat  $\geq 100\text{m}$  from an edge. They describe edge habitat as edge between spotted owl habitat and all other vegetation types.
- c. Because WLPZs, for example, are 100m or less in total width, they are considered edge habitats if surrounded by unsuitable habitat. Edge habitats do not provide for protection from predators nor do they provide the microclimates of interior habitats.

**IV. Determination**

- 1) If surveys are inadequate or do not meet the intent of protocol, take determination may not be possible.
- 2) If habitat typing is inadequate, take determination may not be possible.
- 3) If NSO home range habitat acres are below desired conditions (Section III. 2, 3, and 4), additional loss of suitable habitat can lead to take.
- 4) If NSOs are nesting, utilize seasonal restriction for all timber operations within 0.25 mile of nest (February 1 through August 31).
- 5) If effects are limited to noise disturbance (e.g., no suitable habitat in harvest units, but suitable habitat within 0.25 mile of units), a modified seasonal restriction may be used from February 1 through July 9
  - a. Seasonal restriction applies to unsurveyed suitable habitat within 0.25 mile of unit boundary.
  - b. If protocol surveys were conducted **and** did not detect reproductive NSOs, seasonal restrictions not warranted.
- 6) Multiple THPs located within a given NSO territory need to be considered collectively or a take determination may not be possible.

**V. TA Letter Contents**

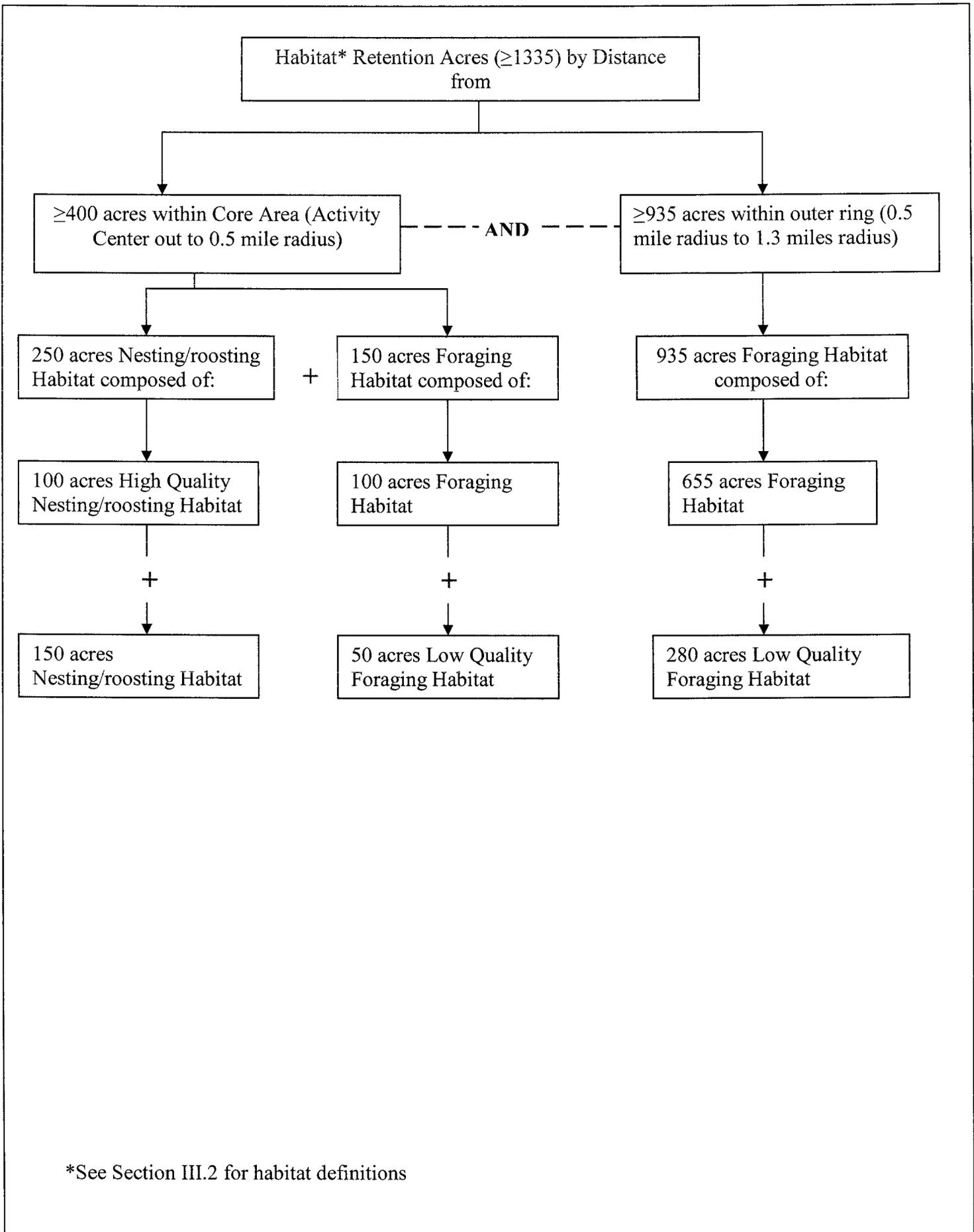
- 1) Date of written TA request
- 2) Date request received
- 3) Note if previous TA(s) provided in past
- 4) Number of acres within THP units
- 5) Amounts and types of silviculture prescriptions

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- 6) Location of THP
  - a. Township, Range, and Section
  - b. Meridian
  - c. County
- 7) Identify NSO activity centers returned by CDFG reports
- 8) Surveys conducted and activity center status
- 9) Logic behind take determination
  - a. Habitat considerations
    - i. Acres, quality, and location of suitable habitat pre- and post-harvest
    - ii. Effects of timber operations on suitable habitat
      1. Degrade: suitable habitat is harvested but still functions in the capacity it did pre-harvest (i.e. Foraging habitat before harvest functions as foraging habitat post-harvest, nesting/roosting habitat pre-harvest functions as nesting/roosting habitat post-harvest)
      2. Downgrade: pre-harvest nesting/roosting habitat becomes foraging habitat post-harvest
      3. Remove: nesting/roosting or foraging habitat is harvested such that it no longer functions as habitat post-harvest
  - b. Proximity of activity center to operations
  - c. Survey data
- 10) Sunset date and seasonal restrictions
  - a. If 2 year protocol and surveys are current and negative, additional TA needed if operations not completed by February 1, *YEAR* (review protocol page 3).
  - b. If 1 year protocol and surveys are current and negative, additional TA needed if operations not completed by February 1, *YEAR* (review protocol page 3).
  - d. If NSOs detected in previous surveys and operations are not complete before February 1, surveys are required to determine location and status of NSOs prior to operations during each breeding season that operations are ongoing.
  - e. If no owls within 1.3 miles of THP (CDFG reports), no suitable habitat within units, **and** no suitable habitat within 0.25 mile of units, additional technical assistance may not be required.
- 11) Name of agency person to contact if there questions regarding TA

### Literature Cited

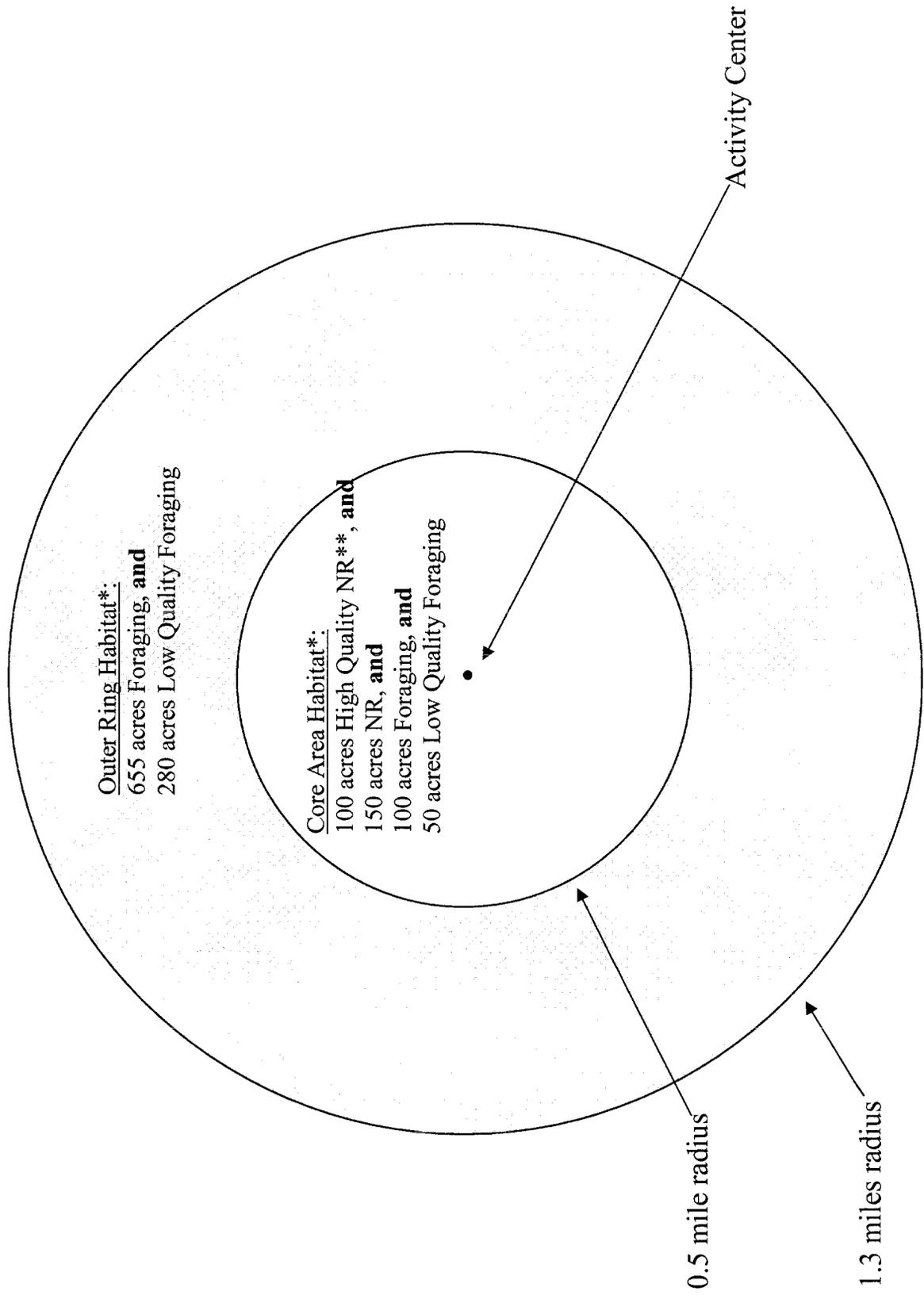
Franklin, A., D. Anderson, R. Gutierrez, and K. Burnham. 2000. Climate, Habitat Quality, and Fitness in Northern Spotted Owl Populations in Northwestern California. *Ecological Monographs*, 70(4), pp. 539-590



\*See Section III.2 for habitat definitions

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## Habitat Retention within Core Area and 1.3 mile Home Range–Interior



\*See Section III.2 for habitat definitions  
\*\*NR = Nesting/roosting