

APPENDIX 10

NORTHERN SPOTTED OWL DEFINITIONS WITHIN TIMBER HARVESTING PLANS AND REFLECTIONS ON WEBINAR 1 “TERRESTRIAL HABITAT AND RESTORATION USING NSO AS A RESOURCE OF CONCERN” CONDUCTED ON APRIL 19, 2018

Definitions relevant to NSO

Definitions of Northern Spotted Owl habitat are provided at various scales to address the ecology and life history stages. Definitions of the territorial home range (an area in which an owl or pair of owls would reside and defend throughout the year), core area (a more localized area with the highest quality habitat and where NSO may most often be found), and activity center (location within the core area associated to nesting, pair roosting, female roosting, or regular male presence) are spatially oriented within a landscape. Habitat definitions of foraging and nesting/roosting describe the stand structures within the home range, core area, and at the activity center. All stands that are not determined to be foraging or supporting nesting/roosting are deemed non-suitable.

In order to demonstrate a proposed timber harvest is not likely to result in impacts to Northern Spotted Owls, THPs employ one of several take avoidance strategies identified in the FPR 9.19.9. The THPs used for assessing THPs as a tool for informing about restoration opportunities and evaluating information for cumulative effects analysis identified 919.9 (e) using the 2011 USFWS Northern Spotted Owl take avoidance and guidance for the California Coast Forest District (a.k.a. Attachment A) as the strategy to avoid take. Attachment A identifies current USFWS survey protocol as the recommended survey method, but goes on to provide quantifiable habitat defines in addition to prescribing protection measures. The U.S. Fish and Wildlife Service endorsed a range-wide NSO survey protocol in 1992 for the purposes of Northern Spotted Owl research and management. Due to the influence of Barred Owl expansion into the Northern Spotted Owl's range, and the documented response of NSO to detection levels no longer deemed statistically valid, NSO survey methods were updated. The 2012 USFWS survey protocols facilitate statically viable data collection while attempting to provide to lowest likelihood of impacts. Definitions in the protocol guide efforts towards appropriate habitat, and the determination occupancy, nesting, and reproduction status based on scientifically defensible processes. Subsequently, USFWS guidance documents Attachment A and the 2012 USFWS survey protocols include differing habitat definitions. These differences are provided in NSO Table 1 and 2.

	Attachment A Definitions	2012 Survey Protocols
Home Range	Defined as a 0.7 mile radius circle centered on the Activity Center for the coast redwood ecotype found in the Coast District.	The area in which a spotted owl conducts its activities during a defined period of time (USFWS 1992b) that provides important habitat elements for nesting, roosting, and foraging. Home range sizes vary generally increase from south to north and vary in relation to habitat conditions and prey availability and composition
Core Area	100 acres of the 200 acres of Nesting/Roosting habitat retained within a 0.7 mile radius contiguous with the Activity Center. If 100 acres of contiguous Nesting/Roosting is not available, then the highest quality habitat available shall be included.	An area of concentrated use within a home range that receives disproportionately high use (Bingham and Noon 1993), and commonly includes nest sites, roost sites, and foraging areas close to the activity center. Core use areas vary geographically, and in relation to habitat conditions. This is a biological definition of core use area and is not the same as a 70-acre core as defined by the Oregon Forest Practices Act nor is it equivalent to the 100acre LSRs referred to as NSO cores on federal lands.
Activity Center	<p>Area of concentrated activity of either a pair of NSO or a single territorial NSO, represented by a mapped location (e.g., usually a nest tree) that occurs within, but not necessarily in the exact center of, the "Core Area," defined below.²</p> <p>²NSOs have been characterized as central-place foragers, where individuals forage over a wide area and subsequently return to a nest or roost location that is often centrally-located within the home range (Rosenberg and McKelvey 1999)</p>	Spotted owls have been characterized as central-place foragers, where individuals forage over a wide area and subsequently return to a nest or roost location that is often centrally-located within the home range (Rosenberg and McKelvey 1999). Activity centers are a location or point representing the best of "detections" such as nest stands, stands used by roosting pairs or territorial singles, or concentrated nighttime detections. Activity centers are within the core use area and are represented by this central location.

A10-Table 1. Comparison of Home Range, Core Area, and Activity Center Definitions in USFWS guidance documents Attachment A and the 2012 Survey Protocols

Habitat Type	Attachment A	2012 Survey Protocols
Foraging	Habitat that contains $\geq 40\%$ canopy cover of trees that are ≥ 11 " DBH (diameter at breast height), and have a basal area ≥ 75 square feet per acre of trees ≥ 11 " DBH. Trees may be conifer or hardwood.	Foraging habitat is defined as habitat that provides foraging opportunities for spotted owls, but without the structure to support nesting and roosting (USFWS 1992b). Owls often forage in forest conditions that meet the definition of nesting/roosting habitat, but also use a broader range of forest types for foraging. This definition identifies habitat that functions as foraging habitat, but does not meet requirements for nesting /roosting.
Nesting/Roosting	Forested habitat that supports successful nesting and associated roosting behavior by NSO. Habitat with $\geq 60\%$ canopy cover of trees that are ≥ 11 " DBH, and have a basal area ≥ 100 square feet per acre of trees ≥ 11 " DBH. Trees may be conifer or hardwood.	Habitat that provides nesting and roosting opportunities for spotted owls. Important stand elements may include high canopy closure, a multi-layered, multispecies canopy with large overstory trees and a presence of broken-topped trees or other nesting platforms (e.g., mistletoe clumps (USFWS 1992b)). The appearance and structure of these forests will vary across the range of the spotted owl, particularly in the dry-forest provinces.

A10-Table 2. Comparison of Northern Spotted Owl habitat types in USFWS guidance documents Attachment A and the 2012 Survey Protocols

Attachment A references activity center locations contained in the California Natural Diversity Database (CNDDDB) Spotted Owl database maintained by CDFW. The data available in the Spotted Owl database is comprised of self-reported Spotted Owl survey efforts. These survey data are not screened for survey completion or area coverage, and rely on the discretion of reporting entity for completeness and data accuracy. The Spotted Owl database identifies activity center locations based on the USFWS 2012 protocols for locating an activity center based on the survey information submitted to the database. As such, activity centers are designated using a hierarchy of the most biologically significant detection location. Currently, the database is only able to designate a single activity center while both the 2012 survey protocols and Attachment A provide for multiple activity centers when appropriate. The activity center biological hierarchy is as follows:

1. Nest site
 1. Pair location
 1. Female location
 1. Male location
 1. Unknown Owl

In addition to NSO detections, the Spotted Owl database includes reported negative detection survey results. The Spotted Owl database facilitates records that may include detection used to establish occupancy status, nesting status, and/or reproductive status through the entry of pair information, nest determination and number of fledge, however the database only includes what is reported and does not infer data from reported data. The 2012 survey protocol provides that detections should be recorded to the Township, Range, ¼ and 1/16 Section and recommends the use of coordinates when possible.

The above definitions are appropriate for the Campbell Creek Planning Watershed, but may not apply in other planning watersheds if a landowner has an Incidental Take Permit or some other agreement with a responsible wildlife agency.

Reflections upon Webinar 1 “Terrestrial habitat and restoration using NSO as a resource of concern” conducted on April 19, 2018¹

Northern spotted owl (NSO) data contained in THPs/NTMPs is not consistent across the northern spotted owl’s range. For this pilot project none of the situations listed below were present, though they are things that must be considered in general:

- Where landowners are operating with a Spotted Owl Resource Plan, habitat maps found in THPs/NTMPs would look the same but the habitat represented by each category (nesting/roosting, foraging and non-habitat) could be defined differently. The minimum diameter of trees and percentage of canopy cover required for nesting/roosting and foraging habitat can differ from the U.S. Fish and Wildlife Service guidelines used in THPs/NTMPs in the Campbell Creek Planning Watershed.
- There may be landowners with an Incidental Take Permit (ITP) for northern spotted owls. There is often little, if any, detailed NSO data in those THPs. Landowners with an ITP report NSO data annually to the U.S. Fish and Wildlife Service, which may be able to provide an alternate source of information.
- Public lands (state, county, city and federal) may have no data, or none that is easily accessible.

The webinar identified seven northern spotted owl activity centers, three in and four adjacent to the Campbell Creek Planning Watershed. There was some overlap between the 0.7-mile habitat circles. There didn’t appear to be an under-representation of northern spotted owls indicated by the data that was presented in the webinar. It is not clear how a need for restoration can be determined or how to determine fitness of the existing habitat. That aspect of data review was not pursued.

With respect to THP/NTMP preparation: large industrial timberland landowners (i.e., Lyme Redwood Timberlands, LLC in the Campbell Creek Planning Watershed) already possess the NSO information that can be generated by “mining” THPs because they prepared/submitted those THPs and timberland owners are unlikely to be considering restoration on property owned by others. So, for whom might the NSO data from THPs/NTMPs be useful?

- Public lands, like County or State parks perhaps. A problem will be, unless the size of the park is small the data from THPs/NTMPs will only shed light on the outer edges of the public land. The CDFW database may have detections based on observations not associated with

¹ Observations by Ruth Norman, RPF#2474

THPs/NTMPs that could fill some gaps but habitat mapping would have to come from another source (remote sensing or on the ground survey). The pilot project area didn't provide a good test for this situation.

- Small landowners may want an idea of how their property fits into the "big picture," whether they are interested in timber harvesting or not. Mapping may show if suitable habitat on adjacent ownerships is connected to suitable habitat identified in THPs/NTMPs. The history of NSO activity centers would also be available from the past harvest history in a planning watershed. This could be explored in a pilot project in a watershed with more small landowners than are found in the Campbell Creek Planning Watershed.
- Related to the points above, if there haven't been THPs/NTMPs in the immediate area there may be substantial data gaps. For example, Lake County has few harvest plans but that doesn't mean there aren't NSOs residing there, and improvements that could be made to attract more NSOs. This was not an issue that could be answered by this pilot project.

Planning watersheds or sub-watersheds may not be the best scale at which to collect NSO information, especially when the data is pulled from individual THPs/NTMPs. There may be places near the planning watershed boundary where there have been no recent THPs/NTMPs. This could present a false gap in the available THP/NTMP data if only those plans within the planning watershed are considered. However, the area mapped in THPs/NTMPs on the coast is the defined habitat area for NSO, which is 0.7 miles from an activity center (regardless of planning watershed), per U.S. Fish and Wildlife Service "Northern Spotted Owl Take Avoidance Analysis and Guidance for California Coast Forest District"

http://calfire.ca.gov/resource_mgt/downloads/Revised_USFWS_Attachement_A_NS_O_Take_Avoidance_Analysis--_Coast%20Redwood_3-15-11.pdf. Therefore, data may be available associated with a THP and/or NTMP outside of the planning watershed. An activity center near a watershed divide often requires mapping that extends into an adjacent planning watershed, with the potential to fill some gaps that may occur near watershed boundaries.

The public must pay to get information from the CDFW NSO database website (Spotted Owl Data Viewer in BIOS 5). What information from that database is or can be made public to give users a quick overview of NSO abundance, approximate number of activity centers in areas of similar size and habitat type, etc.? Is there other information that could be supplied from the CDFW database, in a more usable format than the CDFW database reports that are included in THPs/NTMPs?

The system is not static. Most habitat elements change over time, tree growth can move a stand from foraging to nesting/roosting and non-habitat to foraging. Therefore, if it is necessary to use an old THP/NTMP for habitat maps (not all areas will have recent coverage), it might show some stands that are now better habitat than was originally mapped, due to growth over the time since the THP/NTMP was prepared. Timber harvest or fire that occurs after the watershed information is made public can downgrade habitat.

If an NSO map or database for public use is created, consideration should be given to keeping NSO information current with periodic updates. One approach might be to create a habitat map clearly labeled as current as of the date it was prepared (noting where older data was used), followed by a tutorial on where to go in current THPs/NTMPs to see if more current maps are available.