Project Title: EMC-2017-011 - October 3, 2017 Effectiveness of detecting barred owls using the current (2012) USFWS NSO survey protocol which has been incorporated into the California Forest practice rules as the primary method of avoiding take of NSO.

Introduction, Background and Justification

Barred owls (*Strix varia*) are a recent arrival to the state of California (1) and have been shown to have detrimental affects on Northern Spotted Owl (*Strix occidentalis caurina*) populations where the two species overlap (2,13). The barred owl geographical range has expanded from eastern to western North America and now completely overlaps the range of the northern spotted owl, a federally and state threatened species (3). The U.S. Fish and Wildlife Service (USFWS) in 2012 updated the "Protocol for surveying proposed management activities that may impact northern spotted owls" (the protocol) to address the affects of barred owls on northern spotted owl detectability. Work from the interagency Barred Owl Work Group provided considerable input to the development of the 2012 NSO protocol (4). The new protocol required an increase in the number of NSO surveys per year from 3 to 6 and also required that surveys be conducted for a minimum of 2 years before forest management projects could begin. The rationale being that this was a way of increasing the probability of spotted owl detectability when barred owls are present. The protocol has been "unofficially" integrated into the California Forest Practice rules so that State agencies, primarily Cal-Fire and the Department of Fish and Wildlife, can make "take avoidance determinations" in the approval process of forest management projects. Incidental barred owl detections during northern spotted owl surveys are recorded and used in evaluating survey results by the various state and federal agencies. For example, barred owl detections during spotted owl surveys are used to evaluate whether "spot-check" surveys are required in years 3 and 4 of surveys (if such surveys are required due to delays in project completion or other factors) (5). The protocol also has optional recommendations for surveys when barred owls are detected or when historic NSO are not detected which include; using barred owl calls for 5 minutes following a 10 minute NSO survey at a station (pg 12) or conducting daytime stand searches when barred owls have taken over NSO activity centers (pg 22). Barred owl detections or lack thereof have also been used by USFWS in letters of technical assistance issued for various timber harvesting projects (personal experience), often citing the lack of barred owl detections as a factor in determining that the proposed timber harvesting operations were not likely to result in the take of northern spotted owl. This presents a serious problem in relying on the current NSO protocol in detecting barred owls as current research that went into the development of the new protocol concludes that NSO surveys are not adequate in detecting barred owls and recommend conducting conspecific surveys for barred owls in order to adquately assess barred owl presence (6,7,8,9,11). It is also worth noting that all of the studies on barred owl detectability using NSO surveys were conducted outside of California and relied on the old (1992) NSO survey protocol for conducting surveys. There does not appear to be any follow-up studies on barred owl detectability utilizing the 2012 NSO survey protocol. NSO demographic studies have shown declines in population, site occupancy, fecundity, and site fidelity throughout the species' range including California, with barred owls being a significant contributor to those declines (10).

In 2017 the USFWS announced it will no longer be providing technical assistance for proposed management activities that may impact northern spotted owls. In 2017 the California Fish and Game commision finalized the listing of the northern spotted owl as a threatened species under the California endangered species act. These two recent developments will undoubtedly affect state agencies' involvement in reviewing northern spotted owl survey results and forest management project approvals. As part of the "Final NSO Status Review" authored by CDFW for The Fish and Game Commission, the following "Management Recommendations" were offered; #11 - Continue annual monitoring of the Northern Spotted Owls population trend to track whether the California population continues to decline, and expand demographic monitoring throughout other portions of its California

range (see RA2). #27 - Conduct Barred Owl specific surveys to assess Barred Owl abundance and distribution within the California range of the Northern Spotted Owl. #28 - Continue investigations on the effects of Barred Owls on Northern Spotted Owl site occupancy, reproduction, survival and population trends in California (see RA23). #31 - Investigate resource partitioning of sympatric Barred Owls and Northern Spotted Owls (see RA26). All of these management recommendations are relevent to this proposal.

The Board of Forestry and Fire Protection has also been tasked with reviewing CDFW rule plead options within the FPR's regarding NSO and in 2017 the Board of Forestry forest practice committee made this request priority 1 for the year. Also, CDFW met with stakeholders in 2017 to discuss the NSO rule pleads and other aspects of NSO and published the findings on August 23, 2017 in a document titled " Report on Northern Spotted Owl Stakeholder Meetings" - California Department of Fish and Wildlife Timberland Conservation Program, August 23, 2017. This report contains numerous comments on a number of aspects regarding NSO rules in the FPR's and does include some suggestions regarding barred owls such as;

"The Protocol was developed with data from outside California. California needs a detectability analysis accounting for BDOW presence or absence."

"Consider the Barred Owl - Barred Owl (BDOW) is tough to incorporate into the FPR, and the problem is not yet statewide. However, it needs to be recognized as an issue."

Following these comments are "Monitoring ideas for the EMC - Detection Probability" - "What is the detection probability of BDOW during NSO surveys? How does BDOW respond to BDOW versus NSO calling?" and "Survey for BDOW on the landscape". These comments and recommendations are directly relevant to this proposal.

Objectives and Scope

The goal of this project is to determine the effectiveness of NSO surveys as required by the current forest practice rules, in detecting barred owls. A combination of surveys would be utilized on a landscape level in northern Mendocino County on the Usal forest owned and operated by the non-profit Redwood Forest Foundation Inc.(RFFI)/Usal Redwood Forest Company(URFC). This property has extensive NSO survey history and activity center monitoring going back 30 years. In 2016 and 2017 the entire ownership was surveyed for NSO using the 2012 USFWS NSO survey protocol including NSO activity center searches on all known NSO territories. There are 298 unique individual NSO survey stations on the property (the number actually surveyed can flucuate year to year based on NSO occupany, access etc...). There are 22 NSO territories located on the property (including 3 NSO territories within 1,000 feet of the property boundary). 7 NSO territories have had barred owls detected within their activity centers. An additional 8 NSO teritories have not been detected in the last 5 years, with 5 of these territories not being detected within the past 2 years. The entire property has not fledged any NSO in over 5 years.

Barred owl surveys can be incorporated into the continuing NSO survey effort in numerous ways. Specific survey methods for barred owls are under consideration with input coming from many different sources. Some of the current ideas for survey design would be to keep ½ of the property as a control area and the remaining area as the test area. The test area could utilize barred owl surveys conducted at the end of NSO surveys at each station as has been experimented with on some other properties in California (MRC, Green Diamond). Another option could include, conducting barred owl specific surveys independent of the NSO surveys. Randomizing barred owl specific surveys across the landscape is another consideration. This project can be implemented as soon as funding is allocated, hopefully for the 2018 survey season.

Property/Location of Study Area –

This project will take place within the Usal Redwood Forest owned and operated by Usal Redwood Forest Company (URFC) / Redwood Forest Foundation Inc.(RFFI). RFFI is a private non-profit, Section 501(c)3 organization. Located in the Coastal Redwood Region of Northern California, the Usal Redwood Forest, just under 50,000 acres, is approximately 25 miles north of Fort Bragg in Mendocino County. The property is generally bounded by the South Fork Eel River on the east, Sinkyone Wilderness State Park and the Intertribal Sinkyone Wilderness on the west, the Humboldt / Mendocino County line on the north, and state Highway 1 on the south -- with a smaller, but significant area south of Highway 1. The nearest human 'population centers' are Whitethorn, Piercy, Leggett, and Hales Grove. The area was once a thriving ancient redwood and Douglas fir forest. It contains more than 18 creeks and tributaries, many of them historically important and currently crucial spawning and rearing habitat for listed salmon and steelhead, including Usal Creek and South Fork Eel River tributaries such as Indian and Standley Creeks. Originally harvested for its old-growth timber between 1900 and 1950's, and then again between the 1970's and early 2000, the Usal Redwood Forest is now dominated by young second and third growth forest, primarily Douglas-fir, tanoak and redwood. RFFI purchased the property in 2007 and began work on restoring the forest and many of its watercourses. Lidar imagery is available for approximately 2/3 of the ownership.

RFFI's **vision** is to establish community-based forests that provide both critical habitat for increased biodiversity and improved regional economic vitality.

RFFI's **mission** is to acquire, protect, restore, and manage forestlands and other related resources in the redwood region for the long-term benefit of the communities located there.

EMC Critical Question or Priority: Theme 7: Wildlife Habitat: Species and Nest Sites. Sub Themes : 7.3 - The effectiveness of Section 919.9(g) in avoiding take of Northern Spotted Owls, 7.4 - Effectiveness of Northern spotted owl rules and regulations in protecting and conserving the species

Rules or Regulations: PRC 2080 (CESA); FPR 919.9 (939.9) (g) ,919.10 (939.10); 16 USC-1538 (a) (1) (ESA), Fish and Game Code 2081 (b), Fish and Game Commission T+E species policy and Raptor policy.

Collaborators: Redwood Forest Foundation Inc. (RFFI)/Usal Redwood Forest Company, Strix Wildlife Consulting, and others to be determined (possibly Cal-Fire and CDFW)

Timeline: Beginning spring 2018 or 2019 depending on funding, lasting 2 or 3 field seasons, depending on funding

Funding Request: $150,000 for additional survey effort costs over the course of 3 years 2018-2020 or 2019-2021.

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