From: McCain, Rachel <rachel_mccain@nps.gov>
Sent: Thursday, May 01, 2014 4:13 PM
To: Wildlife Management
Cc: Kristin Schmidt
Subject: Fwd: Northern Spotted Owl - Redwood National and State Parks comments/information
Attachments: RNSP to CDFW_nso comments_050114.pdf; 2012_SPOW_Report_Redwood.pdf

Please see the attached files. Hard copies were mailed to Sacramento.

--
Rachel McCain
Superintendents' Secretary
Redwood National and State Parks
1111 Second Street, Office #1
Crescent City, CA 95531
Office: 707.465.7301
Cell: 707.498.4080
Fax: 707.464.1812

United States Department of the Interior
California Department of Parks and Recreation
Redwood National and State Parks
1111 Second Street
Crescent City, California 95531

N1621 (Northern Spotted Owl)

May 1, 2014

Neil Clipperton
California Department of Fish and Wildlife
Nongame Wildlife Program
1812 9th Street
Sacramento, California 95811

Re: California Department of Fish and Wildlife's Status Review of the Northern Spotted Owl

Dear Mr. Clipperton:

Enclosed please find the *Northern Spotted Owl Monitoring and Inventory, Redwood National and State Parks, 2012 Annual Report,* the most recent report on file. This report summarizes what we believe to be the current status of the northern spotted owl in the parks. The dominant *Strix* species residing in the parks is now the barred owl (*Strix varia*).

Although the 2013 annual report has not yet been written, we can tell you that out of 13 sites surveyed (historic spotted owl activity centers or project areas) in 2013, spotted owls were detected in 2 of the sites and barred owls were detected in the remaining 11 sites. Barred owls continue to be a factor in our ability to detect spotted owls within the parks, assuming those historic sites are still occupied, which appears to be unlikely.

Thank you for considering this information.

Sincerely,

Stephen Prokop
NPS Superintendent

Jeff Bomke
CDPR Sector Manager

Redwood
National and State Parks

National Park Service
U.S. Department of the Interior

California State Parks
Department of Parks & Recreation

NORTHERN SPOTTED OWL MONITORING AND INVENTORY
REDWOOD NATIONAL AND STATE PARKS
2012 ANNUAL REPORT

April 16, 2013

ACKNOWLEDGMENTS

The spotted owl monitoring and inventory program at Redwood National and State Parks (RNSP) is dependent upon the dedication of many hardworking field technicians, volunteers, and biologists. Specifically, thanks go to seasonal biological technicians Joanna DiTommaso, Susannah Manning, Alder Gustafson, Tony Kurz, and Jesse Sargent, for their excellent fieldwork. Permanent NPS staff biological technicians Kyle Max and Heather Brown provided leadership in the field and with data collection. Kyle and Heather also entered and proofed both this season's and past seasons' data and created field maps. Terry Hines, NPS supervisory biological technician, and Amber Transou, CSP staff environmental scientist, provided quality oversight to the field effort; Terry also has been instrumental in processing data from the original parks' spotted owl inventory. Trevor Bence and Nick Kelly, from Green Diamond Resource Company, assisted with surveying a spotted owl territory that RNSP and Green Diamond "share" inside the national park. Thanks go to Judy Wartella, RNSP GIS Specialist, for her assistance with database management and GIS coverage for both spotted owls and barred owls.

EXECUTIVE SUMMARY

Annual monitoring of known northern spotted owl (*Strix occidentalis caurina*) activity centers in Redwood National and State Parks (RNSP) continued in 2012, at a reduced level. Project-level, or "compliance", surveys also were conducted for a forest restoration project and annual maintenance sites. The goals of the spotted owl program in RNSP are to:

Determine the status of the parks' spotted owl population (occupancy trends);

Provide information that will contribute to the overall knowledge base regarding the recovery of the sub-species;

Document the presence of barred owls (*Strix varia*) and where possible determine social and reproductive status of barred owl territories;

Protect spotted owls from harassment or harm that could be caused by park operations taking place during the breeding season.

In recent years, as more and more spotted owl territories appear to have been abandoned, likely due to the rapid increase in barred owls within their territories, the spotted owl monitoring program in the parks has tapered off. Many of the historic activity centers and surrounding home ranges are in locations that now involve much time and effort to survey. Therefore, the parks' occupancy data currently are incomplete, that is, we cannot definitely say how many of the historic sites are currently occupied/unoccupied. However, based on the many consecutive years of negative survey results, coupled with the persistent presence of barred owls, we believe it is likely that spotted owl occupancy rates within RNSP are currently very low.

Five spotted owl activity centers that were monitored in 2012 had the potential of being "active" (defined as being occupied by one or more spotted owls within the previous three years); 2 others that were inactive also were monitored in 2012. Six of the activity centers were surveyed to protocol. Monitoring of these territories primarily focused on the 0.25-mile core area around each activity center. No home range inventories were conducted in 2012.

Four territories in RNSP were occupied by spotted owls in 2012; three were occupied by single females and one by a single male.

Compliance surveys for one project site and four annual maintenance site using 47 pre-established call points were conducted. No spotted owls were detected during compliance surveys, however, barred owls were detected at a number of locations.

If a barred owl was detected during a survey, a limited effort was made to determine its occupancy and reproductive status. There were 17 barred owl detections at 10 sites which represented at least 17 individuals. There was one new barred owl site documented in 2012. Barred owls continued to be a factor influencing spotted owl presence and detectability in the parks.

INTRODUCTION

The goals of the northern spotted owl (*Strix occidentalis caurina*) monitoring and inventory program in Redwood National and State Parks (RNSP or "parks") historically were to:

Monitor a portion of the parks' spotted owl population to provide information on occupancy;

Provide information that will contribute to the overall knowledge-base regarding the recovery of the subspecies;

Document the presence of barred owls (*Strix varia*) and where possible determine social and reproductive status of barred owl territories;

Protect spotted owls from harassment or harm that could be caused by park operations taking place during the breeding season.

In recent years, as more and more spotted owl territories appear to have been abandoned, likely due to the rapid increase in barred owls within their territories, the spotted owl monitoring program in the parks has tapered off. Many of the historic activity centers and surrounding home ranges are in locations that now involve much time and effort to survey. This is due to the remoteness of many of the sites in rugged terrain, where there is no longer road access due to watershed restoration activities, or because of failure of abandoned logging roads. Therefore, the parks' occupancy data currently are incomplete, that is, we cannot definitely say how many of the historic sites are currently occupied/unoccupied. However, based on the many consecutive years of negative survey results, coupled with the persistent presence of barred owls, we believe it is likely that spotted owl occupancy rates within RNSP are currently very low.

Not conducting routine monitoring of a large portion of historic sites reduces the parks' ability to inform the overall knowledge-base regarding recovery of the subspecies. We continue to document the presence of barred owls and in late 2012 conducted a mapping exercise to determine, to the best extent practicable, the approximate number of unique barred owl sites within the parks. Over time we increasingly are keeping track of barred owls, as that is the species most often detected by our spotted owl surveys when and where they occur.

We are continuing to conduct "compliance" surveys in project areas where park operations take place during the breeding season to ensure that we are not causing harassment to spotted owls that may have gone previously undetected, or are in the vicinity of known spotted owl activity centers whether active or inactive.

The original spotted owl inventory work conducted in 1993 through 1995 identified at least 37 and perhaps as many as 40 spotted owl activity centers in RNSP (Tanner 1999). An additional 3 sites in the Mill Creek addition to Del Norte Coast Redwoods State Park also were added to the parks' database/ monitoring program beginning in 2003. During the original inventory, as many spotted owls as possible were captured, fitted with U.S. Fish and Wildlife Service number bands, and uniquely color-banded. Since 1995, banding of adult spotted owls has continued sporadically, with attempts made to band owls residing in those territories that are in the

Redwood Creek watershed, particularly those in close proximity to the boundary with Green Diamond Resource Company commercial timberlands. Also, attempts are made to capture juvenile spotted owls in the parks and band them with young of the year (cohort) bands. Banded cohorts that are located in the parks are recaptured and fitted with adult color bands whenever possible.

In 2012, seven spotted owl activity centers were monitored in RNSP. Five had the potential of being "active" (defined as being occupied by one or more spotted owls within the previous 3 years); the other 2 sites were considered "inactive" (no spotted owls detected within the previous 3 years).

Each year from 1996 through 2001, most or all of the parks' owl activity centers were monitored to assess occupancy and reproductive status. Because of the relatively large proportion of activity centers that were inactive, in 2002 we began conducting territory-wide inventories. This involved a survey of all suitable nesting and roosting habitat within a 1.0 mi-radius circle centered on the historic activity center. The purpose of this broader inventory was to determine whether the spotted owls moved outside the core area (e.g., beyond ~ 0.25 mi from the historic activity center) or had abandoned the territory.

Home range inventories were completed to the previous version of the 2-year survey protocol (USFWS 1992, RNSP 2003) in 20 territories scattered throughout the parks (see Appendix A). The results indicated that 15 of the inventoried territories were no longer occupied by spotted owls, *based on the lack of response of spotted owls using the now obsolete protocol.* Barred owls were detected in 19 of the 20 inventoried territories. The most recent home range inventories were completed in 2009; no new inventories have been started since then, primarily due to the difficulty with accessing the remaining inactive sites.

Project-level surveys, begun in 1998 under the annual maintenance program, of RNSP roads, trails, and campgrounds (referred to as "compliance surveys"), were conducted in 2012. These surveys are done to avoid disturbance to nesting spotted owls from noise generated by RNSP maintenance operations. Compliance surveys are conducted in north and south areas of RNSP in alternate years.

One other proposed project, Lost Man Creek Forest Restoration Phase 2, was surveyed to the standards in the revised protocol (USFWS 2011) for the second year. Davison Road, not considered a "project" under routine maintenance, was surveyed for informational purposes only.

In 2012, we continued to collect data relative to barred owls detected during spotted owl surveys. Although no follow-up or reproductive status visits were done specifically for barred owls, all relevant data were recorded and entered into a database including sex, and social and reproductive status, if determined.

SPOTTED OWL HABITAT WITHIN REDWOOD NATIONAL AND STATE PARKS

There are approximately 97,000 ac (39,000 ha) of forested land in Redwood National Park and Prairie Creek Redwoods, Del Norte Coast Redwoods, and Jedediah Smith Redwoods State Parks

in northwestern coastal California (Fig. 1). Elevations range from sea level to about 3,100 ft (945 m) within RNSP. Forested terrain is primarily steep, rugged, and covered with dense vegetation. Extreme seasonal temperature variations are rare; annual temperatures range from an average of 45°F (7.2°C) in winter to an average of 69°F (20.5°C) in summer. Average rainfall is 69" (175 cm) per year. Redwood National and State Parks lie within a temperate rain forest ecosystem strongly influenced by coastal fog.

The forests within RNSP are dominated by coast redwood (*Sequoia sempervirens*) and Sitka spruce (*Picea sitchensis*). Other common tree species include Douglas-fir (*Pseudotsuga menziesii*), tanoak (*Lithocarpus densiflorus*), western hemlock (*Tsuga heterophylla*), grand fir (*Abies grandis)*, and red alder (*Alnus rubra*). White oak (*Quercus garryana*), black oak (*Q. kelloggii*) and Douglas-fir dominate upstream areas in Redwood Creek toward the southeast boundary of the national park. There are approximately 9,000 ac (3,600 ha) of non-forested habitats within RNSP including coastal scrub, coastal prairie, and inland prairie.

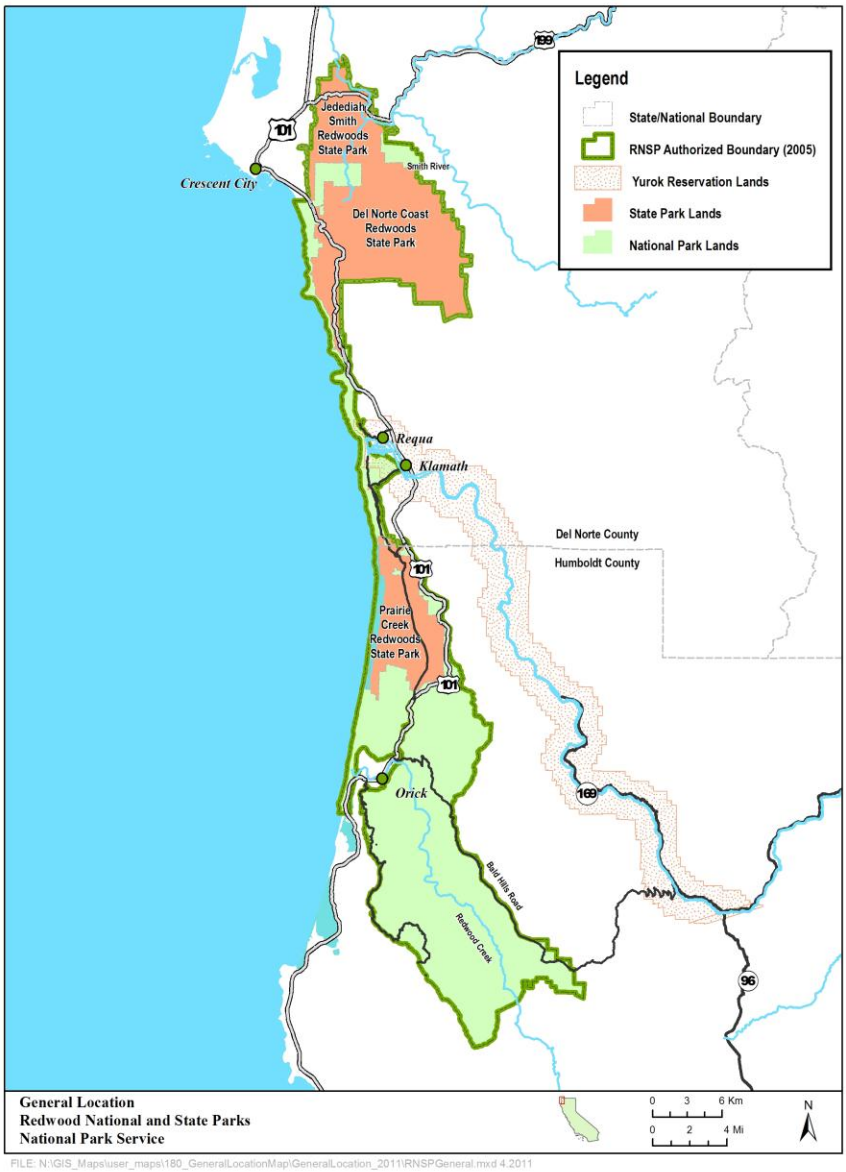

Figure 1. Redwood National and State Parks general location.

Within RNSP there are 41,071 ac (16,621 ha) of old growth forest, all of which is considered suitable spotted owl nesting, roosting, and foraging habitat. Prior to Redwood National Park's establishment and expansion, and addition of the former Stimson Lumber Company land to Del Norte Coast Redwoods State Park, timber harvest occurred in old growth stands on land that is now within the parks. More than 75,000 ac (30,300 ha) were harvested, primarily in the national park and the former Stimson land, using seed tree retention and clearcut harvest prescriptions. These stands are now between 15 and 100 yrs old. As of 2012, there were 43,277 ac (17,514 ha) of second growth forest $\geq$40 years old that may be considered suitable for nesting and roosting by spotted owls. Forested stands <40 yrs old may be currently suitable for spotted owls where they contain residual old growth trees in sufficient numbers to provide the stand structure

requisite for nesting and roosting habitat (RNSP unpub. data). There are an estimated 330 ac (133 ha) in RNSP with residual old growth that are assumed to be suitable for spotted owls. Some unknown proportion of the remaining second growth may be suitable foraging habitat (Gutierrez and Meyer 1993, USDI and CDPR 1999).

METHODS

Monitoring Known Activity Centers

Spotted owl activity centers (ACs) were monitored in 2012 to determine occupancy, partially following the 2011 U.S. Fish and Wildlife Service endorsed protocol, and partially using the old protocols (USFWS 1992, RNSP 2003). Either nighttime surveys or late afternoon/evening or early morning walk-ins were conducted to determine spotted owl presence/absence at an AC. The calling method (use of electronic digital callers) and time spent at each survey station followed the 2011 protocol, but the total number of visits in one case did not. If either a spotted owl or barred owl responded, a bearing in the direction of the response was taken, and an attempt was made to visually locate the owl(s). Sex and age were determined, if possible, for each spotted owl detected and color bands were read if present. Once visual contact was made with one or more owls, surveyors used standard "mousing" techniques (USFWS 1992) to determine nesting or reproductive status. Owl locations were documented with a global positioning system (GPS) unit in NAD 83 X-Y coordinates.

If great horned owls (*Bubo virginianus*), red-tailed hawks (*Buteo jamaicensis*), or other spotted owl predators responded or were otherwise detected, the predator's location was recorded and the survey ended for that outing.

Surveys were not conducted during heavy rain or when wind speeds were greater than 15 mph. Field data forms were checked and the data were entered into a Microsoft Access database.

Pertinent information regarding spotted owl and barred owl occupancy, and spotted owl reproductive status was summarized for all the years in which surveys have occurred in RNSP.

Compliance Surveys

Surveys using established call points were conducted according to protocol (USFWS 2011a) at 5 project sites. Field methods for compliance were the same as those described above for monitoring activity centers and home range inventories.

Barred Owl Information

As much information as possible (without risking disturbance to spotted owls), was recorded in the same manner for barred owls as for spotted owls. This information included sex, UTM X-Y coordinates of the owl's location, and social and reproductive status by observing barred owl behavior whenever possible, however, barred owls were rarely moused.

A barred owl "site" in RNSP is defined as a location where one or more barred owls were detected on ≥2 occasions. Unless the survey data (or data from a prior radio telemetry project) indicated a need to do otherwise, clusters of barred owl detections were designated within a site, and separated from adjacent sites by a minimum of a 1.0 mi (1.6 km) radius centered on the site center. Although this is slightly more than the 0.86 mi (1.38 km) average home range radius described by Hamer (1988) for barred owls in Washington and the 0.89 mi radius (1.43 km) used by Kelly et al. (2003) for barred owls in Oregon, it was chosen as an efficient, albeit, conservative "rule" for designating sites in RNSP. This greater distance also was based on evidence indicating there are fewer barred owls in California than in Oregon and Washington (Courtney et al. 2004). Sites were designated less than 1.0 mi from each other if there was definitive evidence of multiple sites in an area. Site "centers" were designated for each site in a manner similar to activity center designations for spotted owls, e.g., a nest tree, young location, or the most recent daytime pair location.

Incidental Observations

We received a couple of reports by other parks' staff or visitors of some type of "Strix" either heard or seen. Survey crews followed up on these incidental observations as soon as possible after learning of the report.

RESULTS

Area Surveyed in 2012

A total of 4,604 ac (1,863 ha), or 5.4%, of the suitable spotted owl nesting and roosting habitat in RNSP was surveyed in 2012 by resource staff in association with monitoring and compliance. Of the area surveyed 1,692 ac (685 ha) were in old growth**,** 2,859 ac (1,157 ha) were in suitable second growth habitat, and 53 ac (21 ha) of residual old growth habitat were surveyed. In addition, there were 586 ac (237 ha) of potentially suitable foraging habitat included in the area surveyed.

Monitoring Known Spotted Owl Activity Centers

Survey Effort

Visits to the 7 ACs took place between April 9 and August 30, 2012. There were 2 complete visits (USFWS 1992, RNSP 2003, USFWS 2011) to 1 AC; 3 complete visits to 1 AC; 4 complete visits to 1 AC; and 6 complete visits to 4 ACs. In total, there were 33 complete visits to spotted owl territories in RNSP in 2012. A total of 81 person-hrs were spent conducting monitoring visits.

2012 Monitoring Results

Of the 7 territories surveyed, 3 were occupied by single females (Coyote Creek, Coyote Rock, and George's Saddle), and one (Paragon) was occupied by a single male spotted owl. The

George's Saddle female was detected once, on February 17, and not again during the rest of the breeding season. The female at Coyote Creek was a new bird based on her color band; the females at Coyote Rock and George's Saddle were the same birds that have been there for the past several years, also based on their color bands.

Miller Creek, which historically has been occupied by both spotted and barred owls, and was the last territory in RNSP known to have successfully reproduced, was not occupied by either species in 2012.

Of the territories surveyed, 3 were occupied by a pair of barred owls (East Side Trail, Kelly Creek, and George's Saddle; see Appendix B).

Compliance Surveys

Survey Effort and Results

Project-level surveys were conducted at one project site, the Lost Man Creek Forest Restoration Phase 2 project, between April 17 and August 14. Thirteen call points were visited 6 times each. Compliance surveys also were conducted at routine maintenance project sites-, 2 trails, 1 road, and 1 facility, using a total of 35 call points. All were surveyed to the standards in the 2011 USFWS-endorsed protocol. In total, 102 person-hrs were spent conducting 30 site-visits for compliance surveys. One owl believed to have been a "sparred" owl (spotted owl- barred owl hybrid) was detected along Howland Hill Road. Barred owls were detected in 6 separate locations, including one in close proximity to the location of the "sparred" owl.

Miscellaneous Surveys

Survey Effort and Results

In 2012, we surveyed the entire length of Davison Road, between Elk Meadow and the Gold Bluffs Beach kiosk, as this area had not been surveyed in many years. It was surveyed 6 times to protocol; a single barred owl and an unidentified *Strix* were detected. Staff also followed up on a report of a *Strix* pair in the Prairie Creek Campground. These birds were not detected during any of 3 visits. Staff also followed up on a belated report of a spotted owl detected in the vicinity of Elk Valley in 2011 by a Klamath Inventory and Monitoring bird surveyor. Two attempts were made to find this owl, without success. In total, 23 person-hrs were spent conducting these miscellaneous surveys.

Barred Owls

There were 17 barred owl detections (a pair equaling one detection) at 10 different sites in 2012 in association with spotted owl surveys, including one on Green Diamond Resource Company land east of the park. These observations represented a total of at least 17 individuals. Three pairs were detected in the course of monitoring spotted owl ACs, and the remainder were detected during compliance surveys (3 pairs, one with a juvenile, and 4 singles). All but one of the barred owls detected in 2012 were in previously known barred owl sites. The one new site

consisted of a single barred owl (plus an unknown *Strix* likely to have been a barred owl) detected at the west end of Davison Road. Barred owl pairs were detected in 3 historic spotted owl ACs (East Side Trail, Kelly Creek and George's Saddle).

A thorough evaluation of all barred owl detections dating back to the original inventory in 1993 was conducted to best estimate the potential numbers of barred owl territories within the parks. This exercise resulted in an estimated total of 58 barred owl sites not including those areas with single detections.

DISCUSSION

The objectives of determining the status of the parks' spotted owl population and gathering information that will enhance recovery of the subspecies are becoming more problematic and difficult to achieve due to the presence of barred owls. If no response means spotted owls are no longer occupying their former territories (perhaps a questionable assumption given recent studies, e.g., Olson et al. 2005, Crozier et al. 2006, Diller and Dumbacher 2011) then the status of the parks' spotted owl population is bleak. Without conducting actual barred owl surveys, surveyors or others documented the presence of barred owls at 10 sites in 2012, and determined social and/or reproductive status at 7 of these sites. Using the 1-mile spacing criterion as a guide for determining separate territories, as of 2012 we have documented what may be as many as 58 independent barred owl sites, not including one-time only observations. Many of the barred owl sites have been "surveyed" during multiple field seasons, however, current occupancy status is not known for others that have not been recently visited.

Recent research completed in Washington and Oregon (Singleton et al. 2010, Wiens et al. 2011) investigated barred owl behavior in response to a variety of barred and spotted owl calls, detection probabilities, and landscape occupancy patterns. These studies showed dense-packing of barred owls to an extent previously unknown, with spotted owl home ranges 8 times larger than barred owl home ranges in Washington (Singleton et al. 2010). Wiens (2012) estimated home ranges of spotted owls in central Oregon to be 2-5 times larger than those estimated for barred owls. If a barred owl was present within a spotted owl home range the spotted owl increased its use of space, thus further expanding its home range. Furthermore, in the central Oregon study area barred owls nested more often, had fewer nest failures and produced over 6 times as many young as spotted owls. Over a 3-year study period spotted owls produced 13 fledglings at 15 territories while barred owls produced 80 fledglings at 20 territories. Spotted owls never successfully reproduced when attempting to nest within 1.5 km (0.9 mi) of a barred owl site (Wiens 2012).

Although similar data for California are lacking, there is some evidence that barred owl numbers are increasing in California (Diller and Dumbacher 2011, M. Higley, pers. comm.). In RNSP, spotted owls were detected at just 4 territories in 2012, two at the very southeast end of the national park in the Coyote Creek area, where barred owls have yet to be detected, and in Mill Creek (Del Norte Coast Redwoods State Park). A single female spotted owl belonging to the radio-tagged George's Saddle pair was detected on February 17. This bird was not detected again in the course of surveys during the breeding season.

Data from the 20 inventoried home ranges indicate that spotted owls are no longer occupying as many as 18 (90%) of the territories inventoried (see Appendix A). Barred owls have moved into 19 of these territories, only 5 of which also had spotted owls somewhere in the home range circle. However, subsequent visits to 2 of these territories have again failed to relocate the spotted owls in three consecutive years. There was no known spotted owl reproduction for the second consecutive year in RNSP.

RECOMMENDATIONS/ FUTURE PLANS

It is uncertain whether forest restoration in second growth habitat within the parks will benefit the spotted owl by providing increased nesting and roosting habitat, or if these improved stands also will become home to barred owls. However, the revised spotted owl recovery plan (USFWS 2011b) and proposed revised spotted owl critical habitat (Federal Register 2012) both recommend increasing the amount of suitable spotted owl habitat through forest restoration projects designed to restore natural ecological processes.

There are 5 inactive spotted owl territories that have yet to be inventoried. Unfortunately, all of these sites are in areas with minimal access (roads that were in place when the site was originally found have since been removed). Although it would be very energy-intensive it would be best to attempt to inventory these remaining territories. A re-inventory of all accessible habitat in the parks should take place using the revised USFWS-endorsed spotted owl protocol to determine whether spotted owls have moved into formerly unoccupied areas, or have re-occupied historic sites, and whether barred owls have moved in or are still occupying known sites. A grant from the US Fish and Wildlife Service allowed us to purchase 5 remote digital acoustic listening devices to help determine if spotted owls are still present at recently occupied sites, but hooting only infrequently.

It's hoped that proposed research involving a barred owl removal experiment (USFWS 2012) will shed light on whether spotted owls would re-occupy former territories in RNSP if barred owls were removed or if some other factor is preventing the parks' spotted owl population from recovering.

The Redwood Region spotted owl/barred owl resource selection study, that took place in part in RNSP, will inform us as to the degree of habitat partitioning that may occur between the 2 species. Results of this study are in process of being analyzed.

Prepared by: Kristin Schmidt, Wildlife Biologist, Redwood National and State Parks, Orick, CA

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PERSONAL COMMUNICATION

Mark Higley, Wildlife Biologist, Hoopa Tribe, Hoopa, CA

Appendix A. Summary of territories with inactive ACs that were inventoried (all suitable nesting/roosting habitat surveyed within a 1.0 mi radius circle centered on the historic AC).

Territory	Old Growth Habitat Acres	>40 Year 2nd Growth Habitat Acres	Total Nesting/ Roosting Habitat Acres in 1.0 Mile Circle (%)[1]	Years Inventor-ied	Spotted Owl Presence in Years Surveyed	Barred Owl Presence in Years Surveyed
Cedar Creek	1,414	37	1,451 (72.5)	2002/2003	No	Yes- Pair with young
Damnation Creek	1,394	133	1,527 (76.3)	2002/2003	No	Yes
Elam Creek (2)	566	18	584 (29.2)	2002/2003	No	No
Leah Creek (2)	1,671	0	1,671 (83.6)	2002	No spotted owls- not surveyed in 2003 due to barred owl saturation of territory in 2002.	
McArthur Creek 3	15	334	353 (17.6)	2002/2003	No	Yes
Richardson Creek	426	219	645 (32.2)	2002/2003	No	Yes
So. Fork Little Lost Man	1,586	272	1,868 (93.4)	2002	Yes	Yes
Brown Creek	936	107	1,043 (52.1)	2003/2004	No	Yes- Pair
Cole Creek (3)	693	472	1,168 (58.4)	2003/2004	No	Yes
Miller Creek (3)	765	436	1,203 (60.2)	2003	Yes	Yes- Pair
Forty-four (4) Creek	149	1,182	1,331 (65.5)	2004/2005	No	Yes
Home Creek	1,901	67	1,968 (98.4)	2004/2005	No	Yes
Skunk Cabbage	712	445	1,157 (57.8)	2004/2005	No	Yes- Pair with young
McArthur Creek 1 (5)	997	128	1,125 (56.0)	2005/2006	No	Yes
Tom (4) MacDonald Creek	473	1,263	1,763 (86.4)	2005/2006	Yes	Yes
Hatchery Hill	957	210	1,167 (58.3)	2006/2007	No	Yes
McArthur Creek 2 (5)	204	253	457 (22.9)	2006/2007	No	Yes
Bridge Creek 1 (6)	285	898	1,183 (59.1)	2008/2009	No	Yes
Bridge Creek 2 (6)	468	592	1,060 (53.0)	2008/2009	Yes- ‘08 No- ‘09	Yes
Bridge Creek 3 (6)	681	866	1,547 (77.3)	2008/2009	Yes- ‘08 No- ‘09	Yes

[1] Four territories have less than the entire 1.0 mi radius home range within the park: Cedar Ck (83.0%), Richardson Ck (62.9%), Brown Creek (65.0%), and McArthur Creek 3 (76.8%).
(2), (3), (4), (5), (6) Territories overlap and acres of suitable habitat are shared.

Appendix B. Summary of territories surveyed in 2012 in Redwood National and State Parks.

Territory Name	***Activity Center Status in 2012***	***Best Historical Status (SPOW)***	***"Best" Spotted Owl Status in the period 2008-2012***
Coyote Creek	Pair- nest failed	Reproductive Pair	Pair w/ 1 fledgling
Coyote Rock	Single female	Reproductive Pair	Pair
East Side Trail	Vacant- barred owl pair	Pair	Vacant- barred owl pair
George's Saddle	Single female	Reproductive Pair	Pair w/ 1 fledgling
Kelly Creek	Vacant- barred owl pair	Pair	Vacant
Miller Creek	Vacant	Reproductive Pair	Nest w/ 1 young
Paragon	Single male	Reproductive Pair	Single male