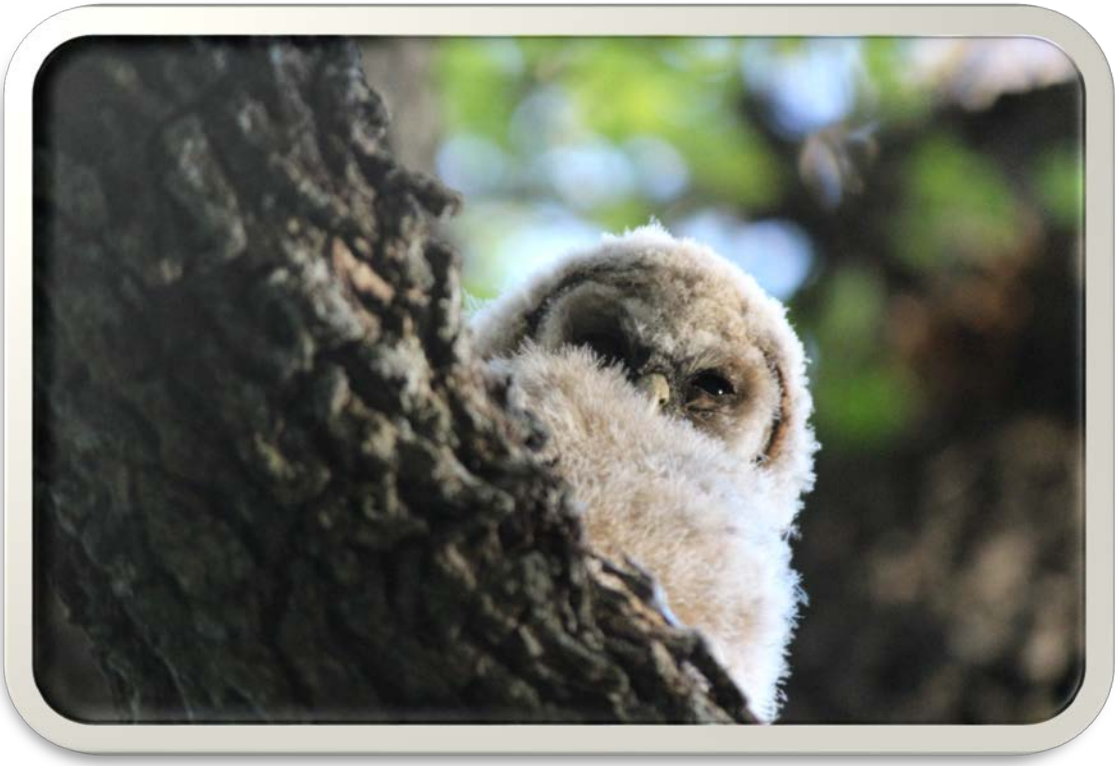
Four Forest Restoration Initiative

Mexican Spotted Owl *(Strix occidentalis lucida)*
Monitoring Report

USDA Forest Service –Coconino National Forest, Flagstaff RD

2017



Picture courtesy of R. Greer

Introduction

Over the last several years the Coconino National Forest has been coordinating with the United States Fish and Wildlife Service (USFWS) to implement the Four Forest Restoration Initiative (4FRI) First EIS. 4FRI is a collaborative effort between the Coconino, Kaibab, Apache-Sitgreaves and Tonto National Forests intended to restore the ponderosa pine forest ecosystems that stretch along the Mogollon Rim of northern Arizona. Unsustainable historical land use and fire exclusion have severely degraded the health of these forests. The goal of this project is to restore forest ecosystems that support natural fire regimes, functioning populations of native plants and animals, and forests that pose little threat of destructive wildfire to forest communities, as well as support sustainable forest industries that strengthen local economies while conserving natural resources and aesthetic values.

The project proposes landscape scale restoration that has the potential to affect up to 70 known Mexican Spotted Owl (MSO) protected activity centers (PACs). PACs are intended to sustain and enhance areas that are presently, recently or historically occupied by breeding MSOs, and must be at least 600 acres (USFWS 2012). A PAC is not intended to encompass the entire home range of an owl (USFWS 2012). For more information about the MSO, please refer to the 2012 Recovery plan for the Mexican Spotted Owl (*Strix occidentalis lucida*), First Revision, (USFWS 2012).

The effects of forest treatments on owls and their habitat are not fully known, but in Attachment 1 of Appendix E of the 4FRI Environmental Impact Statement (4FRI EIS) (USFS 2015) it was recognized that a "hands-off" approach within PACs may be more detrimental to the owl habitat then the treatments themselves, which could allow the PAC to better withstand a severe wildfire. Therefore, during consultation with the USFWS and the objection resolution, the Coconino NF agreed to a monitoring plan involving 18 to 20 MSO PACs. As stated in Attachment 1 of Appendix E, the plan will pair treated and reference PACs within the project area to compare occupancy, reproductive success, and habitat changes. There will be two groups of study PACs. The first group will consist of PACs receiving thinning and burning treatments and corresponding paired reference PACs (Group 1) and the second group of PACs will consist of PACs receiving prescribed fire-only treatments and their corresponding paired reference PACs (Group 2). The USFS had consulted on a total of 18 potential PACs for use in Group 1 and 51 PACs for use in Group 2 for a total of 69 PACs. During consultation with the USFWS, the USFS agreed to monitor three treatment and three reference PACs for Group 1 and six treatment and six reference PACs for Group 2. During the objection resolution period the USFS agreed to add an additional pair of PACs to Group 1. In 2017, the agencies dropped one pair of Group 2 PACs (James Canyon/Pumphouse Wash) due to complications in implementing the burning of James Canyon without impacting the adjoining reference PAN, Pumphouse Wash. In 2015 the wildlife crew monitored approximately 30 of the 69 MSO PACs that were most likely to have occupancy in order to identify which would best meet the requirements for the monitoring plan. Included in this report are the 2015-2017 results for the PACs that were chosen as treatment and reference PACs based on our 2015 surveys.

Methods

All surveys were conducted according to the USFWS Mexican Spotted Owl Protocol (2012) unless otherwise noted. These surveys allow us to determine the presence or absence of MSO and to determine reproductive status. Known PACs received an initial daytime visit at the beginning of the season in an attempt to locate and mouse the owls without conducting nighttime calling surveys. Mousing was used to determine the reproductive status when an owl was located. If owls were not located in the PAC or there was an area of suitable habitat that needed to be surveyed, then nighttime surveys were conducted and any detections were followed up within 48 hours by a daytime follow-up survey. Nighttime surveys began by establishing calling points along roads and walking routes to ensure complete coverage of the PACs and survey areas. If calling points existed from previous years, they were retained for consistency. Call points were placed approximately 0.30 – 0.50 miles apart, and a minimum of 4 complete surveys were conducted at appropriate times during the breeding season (March 1 to August 31). Each call point takes a minimum of 15 minutes. For the complete protocol, please refer to the 2012 Recovery Plan (USFWS 2012).

4FRI PAC Monitoring Results

In July of 2015, after the reproductive status of many of the PACs was known, a group of Coconino NF biologists coordinated with Shaula Hedwall of the USFWS to determine which six PACs (Table 1), of the 18 consulted on, would best meet the intention of the monitoring plan as required in the Biological Opinion (USFWS 2014). Many variables had to be taken in to consideration when determining which PACs to use, including occupancy, habitat similarity, fire history and percentage of planned treatments. Of the 12 remaining PACs; five (Foxhole, Frank, Knob, Rock Top, T-Six Tank) were not monitored, as the habitat quality was considered so poor that they were highly unlikely to have occupancy; one (Holdup) was surveyed, but found to have no occupancy; another PAC (Sawmill Springs) was affected by the Camillo Fire (2015); and three additional PACs (Red Raspberry, Bear Seep and Red Hill) did not have comparable habitat to the 6 that were already committed, or to the ponderosa pine forest type that 4FRI is affecting. The remaining two (Iris Tank and Bar M) satisfy the commitment made during the objection resolution process to monitor an additional pair of PACs. Shaula Hedwall noted that these two PACs were not ideal for the USFWS study design since the pre-treatment condition differs from the remaining 6 PACs selected for monitoring. While it is true that both PACs experienced disturbance from recent fires (2014), the Forest Service expects that they will still provide additional information when answering questions dealing with the effects of restoration treatments on MSO and their habitat.

Table 1. 4FRI Mechanical Thinning and Prescribed Burn Treatment PACs (Group 1)

Treatment	Reference	Requirement
Archies	Lake #1/Seruchos	Biological Opinion
Mayflower Tank	Lee Butte	Biological Opinion
Bonita Tank	Crawdad	Biological Opinion
Iris Tank	Bar M	Resolution Agreement

Table 2. 4FRI Prescribed Burn Only Treatment PACs (Group 2)

Treatment	Reference	Requirement
Spruce Tank	Boondock	Biological Opinion
Roundup	Pierce	Biological Opinion
Gash Mountain	MB Smith	Biological Opinion
Mustang	Coulter Ridge	Biological Opinion
Coyote Park	Nestor	Biological Opinion
James Canyon*	Pumphouse Wash*	Biological Opinion

*James Canyon and Pumphouse Wash were dropped from the monitoring plan and not surveyed in 2017

Table 3. Monitoring Results for 4FRI Treatment PACs

4FRI Mechanical Thin and Prescribe Burn (Group 1)			
PAC	2015 Survey Results	2016 Survey Results	2017 Survey Results
Archies	Male, Nesting-unknown	Absent	Absent
Bonita Tank	Single Male/Female, Nesting-unknown	Pair, Nesting-unknown	Pair, 2 Fledglings
Iris Tank	Pair, Nesting-Failed	Pair, 2 Fledglings	Pair, 1 Fledgling
Mayflower Tank	Pair, 2 Fledglings	Pair, Nesting-unknown	Pair, non-nesting

4FRI Prescribed Burn Only (Group 2)			
PAC	2015 Survey Results	2016 Survey Results	2017 Survey Results
Coyote Park	Pair, Nesting-unknown	Pair, 1 Fledgling	Pair, Nesting Failed
Gash Mountain	Pair, Nesting-unknown	Female, Nesting-unknown	Pair, Nesting-unknown
Mustang	Pair, 2 Fledglings	Pair, Nesting-unknown	Pair, non-nesting
Roundup	Pair, Nesting-unknown	Absent	Absent
Spruce Tank	Pair, Nesting-unknown	Pair, Nesting-unknown	Pair, 1 Fledgling

Table 4. Monitoring Results for 4FRI Reference PACs

4FRI Mechanical Thin and Prescribe Burn (Group 1)			
PAC	2015 Survey Results	2016 Survey Results	2017 Survey Results
Lake #1/Seruchos	Pair, Nesting-unknown	Pair, 1 Fledgling	Pair, 2 Fledglings
Bar M	Male, Nesting-unknown	Absent	Absent
Crawdad	Pair, Nesting-unknown	Pair, Nesting-unknown	Pair, 1 Fledgling
Lee Butte	Pair, Nesting-unknown	Pair, Non-nesting	Pair, 1 Fledgling

4FRI Prescribed Burn Only (Group 2)			
PAC	2015 Survey Results	2016 Survey Results	2017 Survey Results
Boondock	Not Surveyed	Pair, Nesting-unknown	Single M/F, Nesting-unknown
Coulter Ridge	Pair, Nesting-unknown	Pair, Nesting-unknown	Pair, 1 Fledgling
MB Smith	Pair, Nesting-unknown	Pair, Non-nesting	Pair, Non-nesting
Nestor	Pair, 1 Fledgling	Pair, Nesting-unknown	Pair, Nesting Failed
Pierce Tank	Male-Survey not to protocol	Pair, Nesting-unknown	Pair, 1 Fledgling

Summary

We surveyed all 18 PACs this season. Of those, three had no owl detections, one had a single female, and sixteen had pairs, two of which produced a total of 3 fledglings. Based on protocol, nesting status for 12 of the pairs could not be determined (nesting-unknown). A non-nesting determination can only be made when a female is seen roosting for at least 60 minutes between April 1 and 30, or one or both members of the pair are offered a minimum of 2 mice, which they cache, sit with for 30-60 minutes, or refuse to take. The non-nesting determination must then be verified with one additional visit between May 15 and July 15. Often times this protocol can be very difficult to meet due to limited owl responses and daylight constraints. The non-nesting determination also includes owls that may have nested and failed prior to the first surveys.

2017 4FRI Project Inventories

As agreed in the 4FRI Environmental Impact Statement (USFS 2015), MSO surveys will be conducted in MSO habitat within implementation areas (Task Order (TO)/Timber Sale (TS) or prescribed burn (Rx burn)) plus a half mile beyond the perimeter the year of implementation or one year prior to implementation to determine occupancy in new areas. These are referred to as inventory areas and are surveyed according to the MSO survey protocol (USFWS 2012). Detections of new MSOs will likely result in the establishment of a new PAC. 2016 detections in the Mormon Lake Basin, Mint West, and Kachina inventory areas were followed up on in 2017. No owls were detected in the Mormon Lake Basin or Mint West inventories, but one detection occurred in the Kachina inventory area. Follow-ups were still inconclusive and the area will be checked again in 2018.

Table 5. Inventory areas and acres that were surveyed in 2016 for the 4FRI project area

Inventory Name	2017 Survey Results	Project Type	Acres
Arboretum	No response	Rx Burn	251
Horse Park	No response	Rx Burn	1,944

Inventory Name	2017 Survey Results	Project Type	Acres
Kachina	1 detection. Follow-up found no MSO	Rx Burn	1,852
Little Springs	New pair. White Horse PAC created	TO/TS	481
Lower Lake Mary	No response	TO/TS	2,218
Mayflower Buffer	No response	TO/TS	453
Mint West	No response	Rx Burn	2,838
Mormon Lake Basin	No response	Rx Burn	1,353
Munds Park	No response	Rx Burn	6,414
Newman	No response	TO/TS	3,237
Upper Lake Mary East	No response	Rx Burn	3,219
Upper Lake Mary West	No response	Rx Burn	2,361
Willard	No response	TO/TS	4,370
Total			30,991

Project Activities

Hand-thinning was initiated in the thin/burn PACs in September 2017. Mechanical thinning will commence in the fall of 2018, followed up with prescribed burns.

Flagstaff and Mogollon Rim Ranger District fire staff completed the prescribed burn treatments in the five identified burn-only PACs this past in October and early November. October 2017 was the driest October since 1917, and conditions were not ideal for first entry burns in structurally complex habitat that had not experienced fire for many decades. To minimize effects to key habitat components such as large trees and snags, fire staff conducted night burns in these areas to take advantage of higher humidity and favorable winds. Prescriptions were met across most of the PACs with some pockets of higher-severity fire effects. However, fire is an imprecise tool and we expected to kill trees and to kill patches of trees, particularly on drier, south-facing slopes and in patches with high fuel loads. Vegetation will be monitored in the burn-only PACs following the 2018 monsoon to obtain data on forest structure.

Literature Cited

U.S. Department of Agriculture, Forest Service (USFS). 2015. Final Environmental Impact Statement for the Four Forest Restoration Initiative with Errata and Objection Resolution Modifications Volume 1. MB-R3-04-23. Coconino and Kaibab National Forests. Updated April 2015. 575 pp plus Appendices. Available online at www.fs.usda.gov/4fri.

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