

Four Forest Restoration Initiative

Mexican Spotted Owl, *Strix occidentalis lucida*

Monitoring Report

USDA Forest Service-Coconino National Forest, Flagstaff Ranger District

2022



Introduction

The U.S. Forest Service Coconino National Forest is working with the U.S. Fish and Wildlife Service (USFWS) to implement the Mexican spotted owl (MSO) management experiment for the Four Forest Restoration Initiative (4FRI), Phase 1. 4FRI is a collaborative effort between the Coconino, Kaibab, Apache-Sitgreaves and Tonto National Forests intended initiate forest restoration within the ponderosa pine forests of northern Arizona.

The project proposes to conduct forest management activities (e.g., thinning, burning, etc.) that may affect designated MSO protected activity centers (PACs). For more information about the MSO and recommended management, please refer to the Recovery plan for the Mexican Spotted Owl (*Strix occidentalis lucida*), First Revision (USFWS 2012, Recovery Plan). Included in this report are the results of the required 2022 MSO PAC monitoring for the 4FRI MSO Management Experiment (USFWS 2015) and recovery habitat (inventory) surveys.

Methods

We used the USFWS 2012 Mexican Spotted Owl Survey Protocol (USFWS 2012, Appendix D).

4FRI PAC Monitoring

Of the 18 PACs monitored this season (Tables 1 & 2), we detected MSO in 11 PACs in 2022 (Tables 3 & 4). MSO in eight PACs produced young, and we detected pairs in three additional PACs. We surveyed the remaining five PACs six times each, but no MSO were located. This was the final year of required monitoring for the Group 2 PACs.

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

Treatment PAC	Reference PAC	Requirement
Archies	Lake #1	Management Experiment Biological Opinion
Mayflower Tank	Lee Butte	Management Experiment Biological Opinion
Bonita Tank	Crawdad	Management Experiment Biological Opinion
Iris Tank	Bar M	Objection Resolution Agreement

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

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

* James Canyon and Pumhouse Wash PACs were dropped from the monitoring plan due to the difficulties related to treating James Canyon. The District fire program does not intend to use prescribed fire in these PACs under the Proposed Action.

Table 3. Monitoring Results for 4FRI Treatment PACs

4FRI Mechanical Thin and Prescribed Burn (Group 1)						
PAC	2017	2018	2019	2020	2021	2022
Archies	A	A	A	A	A	A
Bonita Tank	O-2Y	O-NU	A	A	M-NU	A
Mayflower Tank	O-NN	M-NU	O-NN	O-NN	O-1Y	O-NN
Iris Tank	O-1Y	O-NU	O-NU	O-1Y	O-1Y	O-2Y
4FRI Prescribed Burn Only (Group 2)						
PAC	2017	2018	2019	2020	2021	2022
Coyote Park	O-NF	O-NU	O-1Y	O-NN	O-NF	O-NN
Gash Mountain	O-NU	O-NU	S-NU	O-2Y	O-2Y	O-2Y
Mustang	O-NN	O-NU	O-NN	O-NU	M-NU	A
Roundup	A	O-NU	S-NU	A	M-NU	-- ¹
Spruce Tank	O-1Y	S-NU	S-NU	O-NN	O-1Y	O-2Y

¹ US Fish and Wildlife and Forest Service biologists analyzed the 1990s demography study data and recent survey data from 2014 – 2022 for Gash Mountain & Roundup PACs. Based on the data, it was determined that one MSO is using both areas. In 2022, biologists from the two agencies worked together to re-delineate the Gash Mountain PAC to include the highest-quality habitat from the two PACs.

Table 4. Monitoring Results for 4FRI Reference PACs

4FRI Mechanical Thin and Prescribed Burn (Group 1)						
PAC	2017	2018	2019	2020	2021	2022
Lake #1	O-2Y	O-NN	A	O-2Y	O-NF	O-2Y
Bar M	A	A	M-NU	A	A	A
Crawdad	O-1Y	O-NN	O-NU	A	M-NU	O-NN
Lee Butte	O-1Y	O-NN	O-2Y	O-NN	O-NF	O-2Y
4FRI Prescribed Burn Only (Group 2)						
PAC	2017	2018	2019	2020	2021	2022
Boondock	O-NU	O-NN	O-2Y	O-NN	O-NF	O-2Y
Coulter Ridge	O-1Y	O-NU	O-NN	O-2Y	O-NN	O-1Y
MB Smith	O-NN	O-NU	A	A	A	-- ²
Nestor	O-NF	O-NU	A	A	A	A
Pierce Tank	O-1Y	O-NN	O-NU	O-2Y	O-2Y	O-2Y
Occupancy:			Reproductive Status:			
A = Absent O = Pair occupancy inferred or confirmed M = Male inferred or confirmed F = Female inferred or confirmed S = Single (sex unknown) inferred or confirmed NR = No response (surveyed to protocol)			#Y = Number of young fledged NU = Nesting unknown NN = Non-nesting/non-reproduction confirmed NF = Nest failed IM-NR = Informal monitoring, no response (less than 4 surveys completed)			

² US Fish and Wildlife and Forest Service biologists analyzed the 1990s demography study data and recent survey data from 2014 – 2022 for Pierce Tank & Roundup PACs. Based on the data, it was determined that one pair of owls is using both areas. In 2022, biologists from the two agencies worked together to re-delineate the Pierce Tank PAC to include the best habitat from the two PACs.

Other PACs Monitored

Nineteen additional PACs in the 4FRI footprint were informally monitored in 2022 (Table 5), with one to three visits to each PAC. MSO in three of the PACs successfully fledged young and nesting attempts in four PACs failed. Surveys detected an MSO pair in two PACs and a single MSO in three additional PACs. No MSO were detected in the other seven PACs visited.

Table 5. Occupancy status for other 4FRI related PACs monitored in 2022

PAC Name	Occupancy Status	Reason for Monitoring
Abineau	IM-NR	Ongoing 4FRI timber project
Bargaman	O-NF	Future 4FRI prescribed fire project
Blade Tank	O-NU	Assist with monitoring of Pierce Tank
Bootlegger	O-1Y	Future 4FRI timber project
Canyon Vista	S	Potential climbing area effects
Clark	O-NN	Ongoing 4FRI timber project
Crusher	O-NF	Future 4FRI prescribed fire project
Frank	IM-NR	Assist with monitoring of Round-up & Gash Mountain PACs
Fry Canyon	O-NF	Future 4FRI timber project
Happy Jack	IM-NR	Prescribed burn planned in 2021
Hochderffer	O-1Y	Future 4FRI timber project
Howard Mountain	IM-NR	Assist with monitoring Lake #1 PAC
Meadow Tank	O-NF	Assisted with monitoring Spruce Tank PAC
Powerline Tank	O-2Y	Assist with monitoring Spruce Tank PAC
Sawmill Springs	IM-NR	Future 4FRI prescribed fire project
Sin Agua	IM-NR	Assist with monitoring Boondock PAC
Whitehorse	M	Ongoing 4FRI timber project
Wing Mountain	S	Future 4FRI timber project
Woody Ridge	IM-NR	Future 4FRI prescribed fire project

4FRI Inventories

We surveyed 11 inventory areas to protocol in 4FRI footprint in 2022 (Table 6). We detected two MSO pairs during these surveys, one of the pairs produced one young.

Table 6. 4FRI Inventory Areas surveyed in 2022

Inventory	Detections	Reason for Survey	Detection Outcomes
Bargaman	No response	Fire project year 1	
Broillar Park	No response	Support Forest restoration activities	

Inventory	Detections	Reason for Survey	Detection Outcomes
Hochderffer	No response	Support Forest restoration activities	
Hutch Mountain	No response	Timber project year 2	
Kendrick Hills	O-NN	Support Forest restoration activities	Fanny PAC created
Luke Mountain	No response	Support Forest restoration activities	
Mint West	No response	Support Forest restoration activities	
Newman	O-1Y	Timber project renewal (5 years since last survey)	Newman PAC created
NW of Lockett Meadow	M	Support Forest restoration activities	No MSO found on follow-up
T-Six	No response	Support Forest restoration activities	
Upper James Canyon	M	Support Forest restoration activities	No MSO found on follow-up

Management Activities

Mechanical treatments in 4FRI Mechanical Thin & Prescribed Burn PACs facilitated by the National Forest Foundation began in Fall 2021. All 275 acres in the Mayflower Tank PAC and 343 acres in the Bonita Tank PAC were completed in 2022. Treatments are scheduled to begin again in Fall 2023 and will be completed before the contract expires on February 28, 2024.

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.
- U.S. Department of Interior, Fish and Wildlife Service (USFWS 2012). [Recovery Plan for the Mexican spotted owl \(*Strix occidentalis lucida*\), First Revision](#). Albuquerque, NM. 413 pp.
- _____. 2014. Biological Opinion, Four Forest Restoration Initiative, Phase 1. Cons. #22140-2011-F-0145, October 20, 2014. Arizona Ecological Services Office, Phoenix, AZ. 49 pp.