

# Flagstaff Watershed Protection Project

## Mexican Spotted Owl, *Strix occidentalis lucida*

### Monitoring Report

USDA Forest Service-Coconino National Forest, Flagstaff Ranger District

2023



## Introduction

Since 2015, the U.S. Forest Service Coconino National Forest and U.S. Fish and Wildlife Service (USFWS) are monitoring Mexican spotted owls (MSO) as part of the [Flagstaff Watershed Protection Project](#) (FWPP). FWPP is the result of the 2012 passage of a bond measure by the voters of the City of Flagstaff (City) to fund fuels reduction work on National Forest System lands within the Coconino National Forest and Arizona State trust lands. The project involves work in the Rio de Flag watershed, north of Flagstaff, to reduce the risk of post-wildfire flooding into the City as well as work in the Mormon Mountain area to reduce the potential for post-fire sedimentation within the Lake Mary watershed. Project activities will occur over the next five to ten years.

The project proposes to conduct forest management activities (e.g., thinning, burning, etc.) that may affect up to nine 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 2018 MSO PAC monitoring for the FWPP 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).

## PAC Monitoring Results

Per the FWPP Management Experiment, we are monitoring 11 PACs: six treatment and five reference in the Dry Lake Hills and Mormon Mountain project areas (Tables 1 & 2). Through the objection resolution process, the Forest Service also agreed to monitor three additional PACs. More information is in the FWPP Biological Opinion (USFWS 2015) and the FWPP Record of Decision (USFS 2015a). Due to the uncertainty of timing of treatments, we may monitor PACs annually until they occur.

**Table 1. FWPP - Mormon Mountain Treatment and Reference PACs**

Treatment	Reference	Requirement
Mormon Mountain North	Moore Well	Management Experiment
De Toros <sup>1</sup>	Dairy Springs	Management Experiment
	Red Raspberry	Management Experiment
Lockwood		Objection Resolution Agreement
Mormon Mountain		Objection Resolution Agreement

<sup>1</sup> US Fish and Wildlife and Forest Service biologists analyzed the 1990s demography study data and recent survey data from 2016 – 2022 for De Toros & Weimer Springs 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 De Toros PAC to include the best habitat from the two PACs.

**Table 2. FWPP - Dry Lake Hills Treatment and Reference PACs**

Treatment	Reference	Requirement
Mt. Elden	Little Spring	Management Experiment
Orion Spring	Snowbowl Road	Management Experiment
Schultz Creek	East Bear Jaw	Management Experiment
Weatherford 2		Objection Resolution Agreement

In 2023, we monitored seven PACs in the Dry Lake Hills (Table 3). MSO were detected in all PACs with five PACs producing young and one MSO pair confirmed to be non-nesting. In addition, we informally monitored Peaks Crag and Aspen Spring PACs with a single MSO detected in each PAC.

**Table 3. Survey Results for the Dry Lake Hills PACs from 2015-2023**

Dry Lake Hills PACs	2016	2017	2018	2019	2020	2021	2022	2023
East Bear Jaw	O-NU	O-NF	O-NN	O-NN	O-1YD	A	A	O
Little Spring	O-NU	O-1Y	O-NN	O-2Y	O-2Y	O-NU	O-1Y	O-1Y
Mt. Elden	O-NU	O-2Y	O-NN	O-2Y	O-NF	O-NF	O-2Y	O-1Y
Oldham	-	-	O-NU	M-NU	-- <sup>1</sup>	--	--	--
Orion Spring	O-NU	S-NU	O-NU	O-NU	O-NF	O-NU	O-NN	O-2Y
Schultz Creek	O-NN	O-2Y	O-NU	O-2Y	O-NN	O-NF	O-1Y	O-NN
Snowbowl Road	O-NU	O-NU	O-1Y	O-NU	O-2Y	O-NU	O-1Y	O-1Y
Weatherford 2	O-NN	O-NF	O-NU	O-NN	O-1Y	O-1Y	O-2Y	O-1Y

<sup>1</sup> US Fish and Wildlife and Forest Service biologists analyzed the data we collected since 2013 in the Mt. Elden PAC and the information upon which we delineated the Oldham PAC. Based on the data, we determined that one MSO pair is using both areas. In 2021, biologists from the two agencies worked together to re-delineate the Mt. Elden PAC to include the highest-quality habitat from both PACs.

Since operations began in the project area in 2021, we have formally monitored the PACs in the Mormon Mountain project area (Table 4). All six PACs were occupied with four PACs producing young.

**Table 4. Survey Results for the Mormon Mountain PACs from 2015-2023**

Mormon Mt. PACs	2016	2017	2018	2019	2020	2021	2022	2023
Dairy Spring	O-NU	IM-NR	S	O	O-2Y	O-2Y	O-NN	O-2Y
De Toros	M-NU	IM-NR	O-NU	S	O-NU	A	O-NF	F
Lockwood	O-1Y	O-2Y	O-NU	O-1Y	O-NU	O-2Y	O-1Y	O-1Y
Moore Well	O-NU	O-NU	M-NU	O-1Y	O-1Y	O-NF	O-1Y	O-1Y
Mormon Mountain	A	IM-NR	IM-NR	IM-NR	A	-- <sup>1</sup>	--	--
Mormon Mountain North	O-NU	O-1Y	O-NU	IM-NR	A	A	O-1Y	O
Red Raspberry	O-NU	O-1Y	O-NU	O-NU	O-NN	O-2Y	O-2Y	O-1Y
Weimer Springs	O-NU	IM-NR	O-NU	O-NU	A	O-NF	A	-- <sup>2</sup>

<sup>1</sup> US Fish and Wildlife and Forest Service biologists analyzed the data collected for the Mormon Mountain PAC since 2008. Based on the data, we determined that detections associated with this PAC were birds from surrounding PACs and, therefore, the Mormon Mountain PAC does not meet the definition of a PAC. The designation was removed in 2021.

<sup>2</sup> US Fish and Wildlife and Forest Service biologists analyzed the 1990s demography study data and recent survey data from 2016 – 2022 for De Toros & Weimer Springs 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 De Toros PAC to include the best habitat from the two PACs.

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 NI = No Information (PAC not monitored) IM-NR = Informally Monitored, No Response	#Y = Number of young fledged NU = Nesting Unknown (NOT done to protocol) NN = Non-nesting/Non-reproduction confirmed NF = Nest Failed

## Inventory Survey Results

Surveys are current in both Dry Lake Hills and Mormon Mountain project areas, so no inventory surveys were conducted in 2023.

## Management Activities

The Dry Lake Hill Integrated Service Resource Contract was closed out in 2023. Five units totaling 259 acres were completed and one unit was dropped from the contract as it could not be completed before the contract end date. No operations occurred in the Schultz Tank or North Mountain Mormon timber sales in 2023.

## Literature Cited

U.S. Department of Agriculture, Forest Service. 2015a. [Record of Decision for the Flagstaff Watershed Protection Project](#). MB-R3-04-29. Coconino National Forests. October 2015.

\_\_\_\_\_. 2015b. [Final Environmental Impact Statement for the Flagstaff Watershed Protection Project](#). MB-R3-04-27. Coconino National Forests. June 2015.

U.S. Department of Interior, Fish and Wildlife Service. 2012. [Recovery plan for the Mexican spotted owl \(\*Strix occidentalis lucida\*\), First Revision](#). Albuquerque, NM. 413 pp.

\_\_\_\_\_. 2015. [Biological Opinion-Flagstaff Watershed Protection Project](#). Consultation # 02EAAZ00-2013-F-0190. June 5, 2015. Arizona Ecological Services Office, Phoenix, AZ. 50 pp.