

Mexican Spotted Owl – Mogollon, NM

Survey and Roost Monitoring, 2025



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Definitions

Action Area – area of mineral exploration and reclamation

AtoZec – AtoZ Environmental Consulting

MSO – Mexican spotted owl

MMD – New Mexico Mining and Minerals Division

NMDGF – New Mexico Department of Game and Fish

PAC – Protected Activity Center

PCE – Primary Constituent Element

Permit – Minimal Impact Exploration Operation Permit No.CA027EM

Silver 47 – Silver 47 Exploration Corp

Survey Area – 0.5-mile buffer around the Action Area

Survey Protocol – *Mexican Spotted Owl Survey Protocol, 2012 (Updated 3/15/2022)*

USFS – United States Forest Service

USFWS – U.S. Fish and Wildlife Service

1. Project Overview

1.1 Introduction

Silver 47 Exploration Corp (Silver 47) received Minimal Impact Exploration Operation Permit No.CA027EM (Permit) from the New Mexico Mining and Minerals Division (MMD) on September 8, 2021 (MMD 2021). Section 10, Part E, Mexican Spotted Owl Mitigations to be Performed, of the Permit states:

“To minimize potential impacts to Mexican Spotted Owl, all drilling and disturbance activities should be performed outside of the breeding and fledgling-dependency period of March 1 through August 31 when possible. If drilling activities cannot be avoided during the breeding and fledgling-dependency period, spotted owl surveying shall be conducted within a 0.5-mile buffer zone prior to any road work, drill pad construction, and drilling. Surveys shall be conducted by qualified biologists using the U.S. Fish and Wildlife Service (USFWS) *Mexican Spotted Owl Survey Protocol, 2012 (Updated 3/15/2022)* (hereafter Survey Protocol) and in accordance with New Mexico Department of Game and Fish (NMDGF) recommendations. If an occupied breeding territory is located within the 0.5-mile buffer zone, drilling activities shall not occur until the young have fully fledged and dispersed from the area (MMD 2021).”

Silver 47 has been conducting flora and fauna surveys of areas within its current permit, as well as expanded areas consisting of their unpatented claims administered by the U.S. Forest Service (USFS), in accordance with their Wildlife Survey Work Plan as approved under the guidelines established under the Gila National Forest Scope of Work for Wildlife Reporting and Effects Analysis

Silver 47 contracted with AtoZ Environmental Consulting (AtoZec) to perform Mexican spotted owl (*Strix occidentalis lucida*; MSO) surveys and roost monitoring in compliance with their Permit. Experienced AtoZec biologist Eric Herman performed the surveys and monitoring under a USFWS Section 10(a)(1)(a) research and recovery permit and NMDGF Authorization For Taking Protected Wildlife for Scientific Purposes.

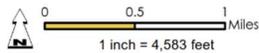
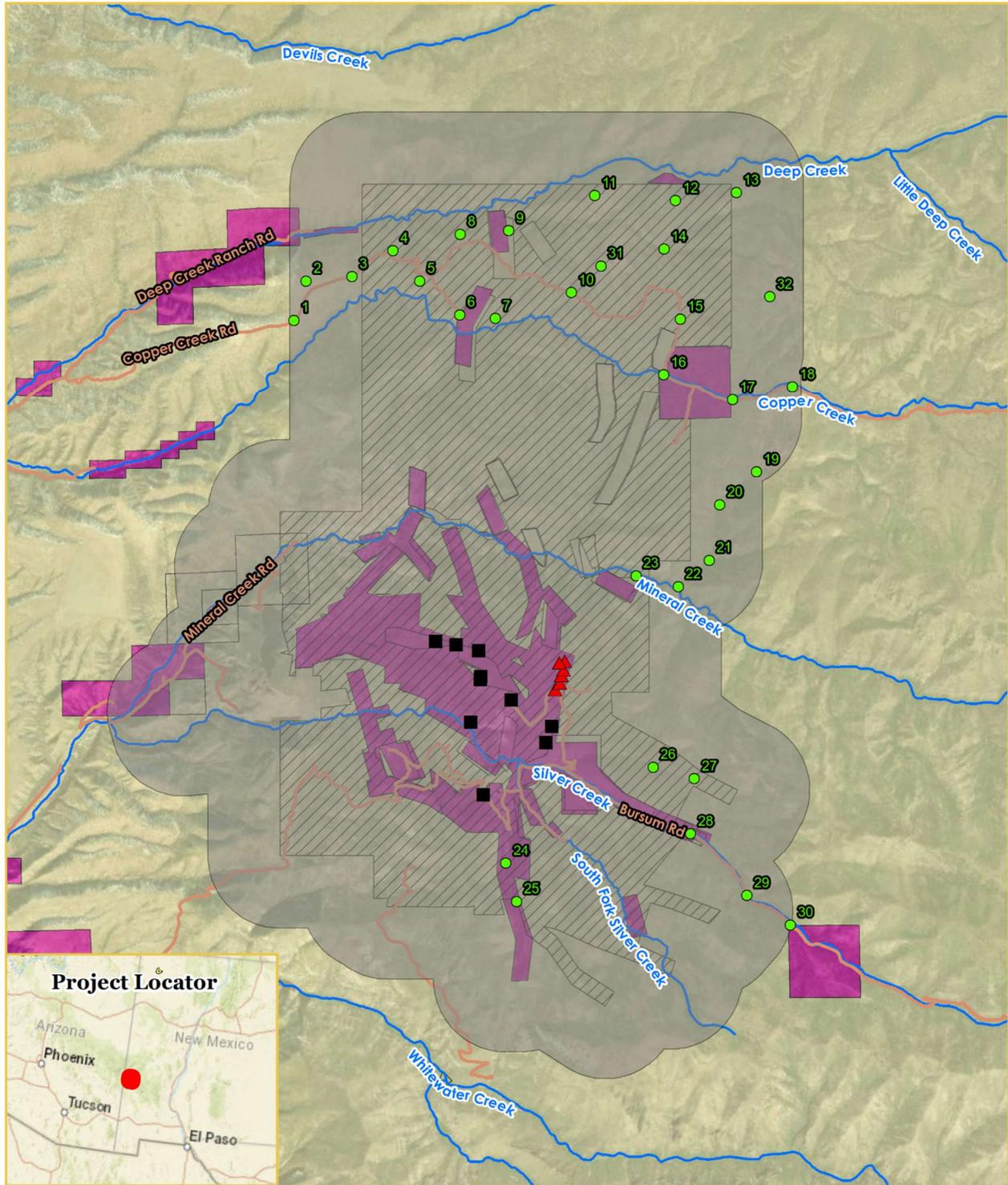
This Survey Report summarizes the 2025 MSO survey and roost inspections and provides recommendations. The 2025 MSO survey is the first year of a 2-year protocol survey effort. Four MSO roosts inspected were identified during the 2-year protocol MSO surveys performed in 2022 and 2023, one identified in 2024, and seven identified during the 2025 survey.

1.2 Project Area

The area of mineral exploration and reclamation (Action Area) is located in the historic Mogollon Mining District in the vicinity of Mogollon, NM (Figure 1) within the Gila National Forest; approximately 75 miles north of Silver City. The Action Area includes the drill pads, work areas, current roads, 10 feet to either side of roads requiring modification, and 10 feet to either side of new roads. This area of disturbance totals 1.35 acres (MMD 2021). The Survey Area includes a 0.5-mile buffer around the Action Area. Within this Survey Area 5 previously identified MSO roosts were inspected and 6 additional roosts identified during the 2025 survey.

Over several decades, numerous underground mining activities have extracted high-grade gold and silver veins from three primary mines: Fanney, Last Chance, and Consolidated (Cision PR Newswire 2020; The Assay 2022). Mining activities ceased in 1942, and the district has since been largely inactive, except for a few exploratory drilling projects conducted in the 1980s and 2010 (Cision PR Newswire 2020). The property hosts approximately 21 miles of near-continuous epithermal-associated veins and faults (Cision PR Newswire 2020; Summa Silver 2022a, b). Approximately 1 mile of veins and faults in the Action Area have been drill tested.

Figure 1. Mexican Spotted Owl Survey Area



Coordinate System: NAD 1983 UTM Zone 12N

- MSO CPs (2025-2026)
- ▲ Work Area
- Drill Pads
- Survey Area
- ~ Stream or River
- Action Area
- Private
- Gila National Forest
- Landowner**



Date: 9/12/2025

2. Mexican Spotted Owl

2.1 Life History

The MSO is a medium sized owl without ear tufts, an average length of 16.1-18.9 inches long, and a wingspan of 39.8 - 44.9 inches. They are brown colored with large, irregular and numerous white spots on the head, neck, back, and underparts. The tail has about ten light bands. The large, round, brownish facial disks are concentrically barred with dark brown, with a dark brown border. Their eyes appear almost black. The sexes are nearly identical, but females are slightly larger, have darker head and face color, and breeding females have brood patches. Juvenile spotted owls (hatchling to approximately 5 months) have a white downy appearance. Subadults (5 to 26 months) possess adult plumage but have pointed rectrices with white tips. The rectrices of adults (>27 months) have rounded and mottled tips. Adults are generally long-lived; however, there is a low survival of young to breeding age. Based on banding studies, the species often live for 16-17 years (AGFD 2023).

MSOs do not build their nests; they use cavity or abandoned platform nests, ledges on cliffs, and mistletoe clusters. They are monogamous, breeding sporadically, and generally not nesting every year (USFWS 2012). In good years most of the population will nest, whereas in other years only a small proportion of pairs will nest (USFWS 2012). They have one brood, with egg laying peaking as early as early March. They lay 1-3 (usually 2) faintly buff, unmarked. Incubation by female lasts 28-32 days with hatching in late April to early May. Females leave nest only to regurgitate pellets, defecate, and receive prey from male during the incubation period and first half of the brooding period. Male feeds the female and young until young are two weeks old, when both parents begin prey delivery. Young leave the nest at about 5 weeks (June), and fly at about 6-7 weeks of age. They stay near the nest for several weeks, and are fed by the adults until late summer, typically staying with adults through August (AGFD 2023). Adults breed at 2-3 years of age, but may not breed every year. Reproductive success is generally low with the average number of young fledged per pair at about 1.0 (USFWS 2012).

MSOs are mostly solitary outside the breeding season. Seasonal migration of some individuals occurs in many or most MSO populations, and in both sexes, but not always year to year. When migration occurs to wintering areas, it is generally from higher to lower elevations, and to more open habitats (AGFD 2023). Territory fidelity is high with MSO and they return to their territories year to year after migration.

Prey is snatched from the ground in talons after a gliding descent from a perch. Their common prey includes woodrats, deer mice, lagomorphs, voles, and invertebrates, but also may prey upon various birds, bats, lizards, and snakes. MSOs will regularly cache excess food on tree branches (AGFD 2023).

The MSO is Listed Threatened by the USFWS.

2.2 Habitat

General

MSOs are found amongst forested mountains and steep canyons extending from the southern Rocky Mountains in Colorado and the Colorado Plateau in southern Utah, southward through Arizona, New Mexico, and far western Texas, through the Sierra Madre Occidental and Oriental, to the mountains at the southern end of the Mexican Plateau (AGFD 2023).

They primarily roost and breed in dense old-growth mixed-conifer forests with complex structure. Forests are typically uneven-aged and multistoried (USFWS 2012). These sites have high canopy closure, high basal area, many snags, and many downed logs. For foraging, multistoried forest with many potential

patches is desirable, but MSO forage in a variety of habitats: managed and unmanaged forests, pinyon-juniper woodlands, mixed-conifer and ponderosa pine forests, cliff faces and terraces between cliffs, and riparian zones (Ganey et al. 2003).

The 1995 Recovery Plan, updated in 2012 (USFWS 2012), includes the following Primary Constituent Elements (PCE) for MSO critical habitat. Critical habitat is an area occupied by the species at the time of federal listing that contains physical or biological features essential to conservation of the species and may require special management considerations or protection. Critical habitat is present in the northeast and slightly in the eastern portions of the Survey Area (Figure 1). While the majority of the Survey Area is not within critical habitat, these attributes are used to assess suitable MSO habitat everywhere (USFWS 2012).

PCEs Related to Forest Structure:

- A range of tree species, including mixed-conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30-45% of which are large trees with a trunk diameter of ≥ 0.3 m (12 in) when measured at 1.4 m (4.5 ft) from the ground.
- A shaded canopy created by the tree branches and foliage covering $\geq 40\%$ of the ground.
- Large, dead trees (i.e., snags) with a trunk diameter of at least 0.3 m (12 in) when measured at 1.4 m (4.5 ft) from the ground.

PCEs Related to Maintenance of Adequate Prey Species:

- High volumes of fallen trees and other woody debris.
- A wide range of tree and plant species, including hardwoods.
- Adequate levels of residual plant cover to maintain fruits, seeds, and allow plant regeneration.

PCEs Related to Canyon Habitat (one or more of the following):

- Presence of water (often providing cooler air temperature and often higher humidity than the surrounding areas).
- Clumps or stringers of mixed-conifer, pine-oak, pinyon-juniper, and/or riparian vegetation.
- Canyon walls containing crevices, ledges, or caves
- High percentage of ground litter and woody debris.

Project Area

Suitable habitat for the MSO is present in several canyons and side drainages of the Survey Area demonstrating the PCEs above. Large, mature coniferous species of Douglas fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), and one-seed juniper (*Juniperus monosperma*) grow from canyon slopes into the uplands. The canyon bottoms contain a diverse mix of Gambel's oak (*Quercus gambelii*), Arizona sycamore (*Platanus wrightii*), box elder (*Acer negundo*), Arizona alder (*Alnus oblongifolia*), New Mexico locust (*Robinia neomexicana*), and other deciduous species. These create upper, mid, and lower story canopies creating a multilayered vertical structure with ample shade. Woody debris and old tree snags are abundant throughout the canyon habitat. Ample rocky cliffs with numerous ledges and grottos extend along the length of the canyons. Water was present sporadically and in low amounts in the intermittent and ephemeral drainages during the 2025 survey season.

Rising up the mountainsides from the canyon tops habitat suitability degrades into juniper woodlands. Mixed tree species ranging in different sizes and creating a canopy are not common at the higher elevations of the Survey Area, above the canyons. Cliffs, shade, and water are all lacking.

A Protected Activity Center (PAC) is an “area of at least 243 ha (600 acres) surrounding the “core area,” which is the nest site, a roost grove commonly used during the breeding season in absence of a verified nest site, or the best roosting/nesting habitat if both nesting and roosting information are lacking (USFWS 2022).” Based on information from the USFS Glenwood Ranger District, two MSO PACs were previously documented approximately 2 miles northeast of the Survey Area in 2002 and east of the Survey Area in 2004. In 2009, two PACs were recorded within 2 miles southeast of the Survey Area (USFS 2022).

3. Survey Methods

The MSO survey was conducted following the protocol found in *Mexican Spotted Owl Survey Protocol, 2012 (Updated 3/15/2022)* (USFWS 2022). The survey dates can be found in Table 1 below. In brief, the survey consists of broadcasting MSO calls from a call point for at least 20 minutes or continuously calling while hiking a route. If no response, the surveyor moves to the next call point. Depending on habitat structure, call points may be spaced between .25 and .5 mile. If an MSO response is recorded, the surveyor records pertinent data. The surveyor then moves at least .5 to .75 mile to the next call point. For MSO responses, the surveyor makes a daytime visit to the area an MSO called from through triangulated data. The surveyor searches the area for an MSO and follows the Survey Protocol to determine roosting status. This visit must be conducted within 2 days from the night the MSO was detected from the call point. Once an owl location was known, nighttime calling was not conducted from call points within 0.5 mile of the roost and a daytime visit to the roost was made.

A survey is complete once all call points have been surveyed from and day-time follow-up visits made to roosts. This is repeated 4 times throughout the survey season from March 1 to August 31. A specific number of surveys can be completed each month with 5 days elapsing between calling from a single call point. The full survey is complete after conducting the Survey Protocol for two years. More details on timing, daytime surveys, follow-up visits, and alternative call methods can be found in the Survey Protocol (USFWS 2022). The survey in 2025 is the first year of a 2-year inventory in additional locations from the 2022-2023 survey.

Call point locations are established to obtain complete coverage of the survey area so owls will be able to hear a surveyor calling and a surveyor will be able to hear the owl responding (USFWS 2022). Call points are placed to obtain satisfactory coverage of an area up to 0.5 mile away, taking topography and background noise into consideration.

A complete 2-year inventory for MSO was completed from 2022 to 2023 for a portion of the Survey Area following the methods found in the Survey Protocol. The results of those surveys yielded 5 MSO roosts for future monitoring. The 2025 roost monitoring did not resurvey the 2022-2023 call points, but focused only on conducting visits to the identified roost sites to confirm MSO presence. An additional 7 roosts were identified for monitoring during the 2025 survey. The roost visit dates can be found under each roost section in Section 4. These roost inspections followed the “Conducting Daytime Follow-up Surveys” section from the Survey Protocol as a guideline.

In brief, a roost visit searches all habitats within at least a 0.5 mile radius of the known roost area, centering on locations of previous MSO sightings. This involves walking throughout the area, calling, listening, and watching for owl sign. A minimum of one to two hours were typically spent searching for owls during each visit, unless owls were observed sooner. Inspections were centered around early morning or late afternoon, when possible, to overlap with periods of higher MSO activity. In some cases where owls were not observed during a daytime visit, nighttime calling was conducted. As these visits

were not part of the initial 2-year inventory, this was not done in all cases if substantial owl sign was observed to confirm presence.

Table 1. MSO Nighttime Survey Dates, 2025

Date	Call Point Numbers
Survey 1	
3/17	17, 18, 19, 20, 21, 22, 23
3/18	11, 12, 13, 14, 15, 16
3/19	1, 2, 3, 4, 8, 9, 10, 31
3/20	26, 27, 28, 29, 30
3/21	5, 6, 7
3/26	24, 25
4/9	32
Survey 2	
4/1	24, 25, 26, 27, 28
4/2	15, 16, 17, 18, 19, 20, 21, 23
4/3	11, 13, 14, 31
4/4	8, 9, 10
4/6	2, 3, 4
4/9	6, 7
No Call*	1, 5, 12, 22, 29, 30
Survey 3	
4/28	2, 4, 8, 9
4/29	24, 25
4/30	16, 17, 18, 19
5/1	26, 27, 28
5/4	13, 14, 32
5/6	3, 10, 15, 31
No Call*	1, 5, 6, 7, 11, 12, 20, 21, 22, 23, 29, 30
Survey 4	
6/10	15, 16, 17, 18
6/20	19, 32
6/22	3, 13
7/8	26, 27, 28
7/10	24, 25
7/17	2, 9, 10, 31
No Call*	1, 4, 5, 6, 7, 8, 11, 12, 14, 20, 21, 22, 23, 29, 30
Roost Call Points	
4/29	SH1, SH2
6/12	SC1, SC2
7/5	SC1

Notes: *Call points not used if within ½ mile of a roost.

4. Survey Results

All owls detected during daytime and nighttime surveys were part of a roost in the Survey Area. Survey results are discussed by each established roost below, with photos located in Appendix A. Datasheets with roost details are provided only to the USFWS.

An overall trend throughout all roosts below in 2025 was less pre-season precipitation and precipitation during the season. Additionally, while pellet contents were predominantly rodent, more insect parts were observed during the second half of the season. A brief description is included on habitat within each roost; however, they all shared the structural components described under Section 2.2.

4.1 Silver Creek Roost 1

Table 2. Silver Creek Roost 1, 2025

MSO	Date				
	3/20	3/27	5/1	5/22	6/23
# of MSO	1	1	1	1	3
Sex	M	M	M	M	?, ?, ?
Stage	A	A	A	A	A, J, J
Sign	ww, p, f	ww, p, f	ww, p	ww, p, f	ww

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

Habitat in Silver Creek Roost 1 consists of a wide canyon with high cliffs. Large Douglas fir, ponderosa pine, and Gambel’s oak dominate the upper portion of the roost, with more oak, box elder, New Mexico locust, and cottonwood approaching the canyon bottom. These create a multilayered vertical structure with ample shade and abundant woody debris throughout the canyon habitat. Numerous ledges and grottos extend along the length of the canyon offering potential nesting and roosting locations. Silver Creek typically has a small flow; however, in 2025 water levels were considerably lower.

In 2022 a breeding pair of MSOs with 2 juveniles was confirmed in Silver Creek Roost 1. In 2023 and 2024 the pair of MSOs were confirmed, but breeding was not.

Silver Creek Roost 1 was again active in 2025. Fresh whitewash, pellets, and feathers were consistently located beneath and within ledges and grottos throughout the season. The female was not observed; the absence of the female MSO from April until July could indicate she was on nest and not visible. On the 6/23 visit two juveniles were observed with an adult of unknown sex. After the juveniles were recorded the surveyor vacated the roost; it is possible the second adult was nearby. The observation of juveniles confirms both MSO adults were present in the roost.

Breeding was successful in Silver Creek Roost 1 in 2025.

4.2 Silver Creek Roost 2

Table 3. Silver Creek Roost 2, 2025

MSO	Date					
	3/21	4/29	6/11	6/11	7/5	7/6
# of MSO	0	0	0	0	1	4
Sex	-	-	-	-	F	M, F, ?, ?
Stage	-	-	-	Night	Night	A, A, J, J
Sign	ww, p, f	ww, p	ww	Calls	Calls	ww

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

Habitat in Silver Creek Roost 2 consists of a wide canyon with high cliffs and a narrow side canyon. Large Douglas fir, ponderosa pine, and Gambel’s oak dominate the roost, along with, box elder, New Mexico locust, and cottonwood approaching the canyon bottom. These create a multilayered vertical structure with ample shade and abundant woody debris throughout the canyon habitat. Numerous ledges and grottos extend along the length of the canyons offering potential nesting and roosting locations. Silver Creek typically has a small flow; however, in 2025 water levels were considerably lower.

In 2022 a breeding pair of MSO with 2 juveniles was confirmed in Silver Creek Roost 2, while in 2023 breeding was again confirmed with 1 juvenile. Juveniles were not observed in 2024; however, extensive spoor and both adults were observed.

Visits to the roost from March to June yielded no MSO observations, though fresh sign was observed. Night calling began on 6/11 to try and relocate the owls. On 7/5 the female responded with 4-note and contact calls. On the following day two juveniles were observed in the same location juveniles were observed in 2023. The roost center contained fresh sign throughout the season; however, the nesting location was not confirmed. Multiple pellets were noted to contain bat remains.

Breeding was successful in Silver Creek Roost 2 in 2025.

4.3 Silver Creek Roost 3

Table 4. Silver Creek Roost 3, 2025

MSO	Date						
	3/21	4/1	5/1	5/21	6/4	6/23	7/5
# of MSO	2	1	1	2	2	2	2
Sex	M, F	M	M	M, F	M, F	M, F	M, F
Stage	A, A	A	A	A, ?	A, A	A, A	A, A
Sign	ww, p	ww, p, f	ww, p	ww, p	ww	ww, p, f	ww, p

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

Habitat in Silver Creek Roost 3 consists of a wide canyon with gently sloping hillsides, a small side canyon, and a regularly used dirt road. A stand of large ponderosa pine dominates the roost with scattered Douglas fir. Gambel’s oak and box elder grow closer to the road and creek. The multilayered vertical structure typical of MSO roosts is not as prevalent as other roosts; however, ample shade is present and numerous snags and woody debris. The small side canyon offers rocky ledges and cliffs. Silver Creek typically has a small flow; however, in 2025 water levels were considerably lower. No water was present in the side canyon.

The 2025 surveys located this pair of owls for the first time during the first year of the 2-year protocol. Both the male and female were observed together during the 3/21 visit; however, on the 4/1 and 5/1 visits only the male was observed. On subsequent visits from 5/21 through the final roost visit the male and female were always observed perched together displaying a full array of vocalizations through the July visit. If the pair bred, it could be expected the female would not be seen from late March to mid-May, when she would leave the nest. Not seeing the female in the roost with the male until 5/21 could indicate a potential nesting attempt. Extensive and diligent searching was conducted for juveniles and they were not observed throughout the survey season. If juveniles were present, it is anticipated they would be near the adults and within 0.2 mile of the nest (Ward and Salas 2000). Reproductive success is generally low in MSO (USFWS 2012); it is presumed based on the roost visit observations that nesting was attempted but failed. Whitewash and pellets were observed throughout the roost and concentrated in an approximately 50-meter radius where the owls were always observed. Approximately 1000 meters southeast and outside of the survey area a PAC and pair of MSOs are monitored by the Glenwood Ranger District. Based on the survey results and other pairs of MSOs occurring in close proximity, it is likely these are two different roosts. Surveys will be coordinated with the Glenwood Ranger District in 2026 to verify this.

While breeding was not confirmed, it is confirmed by the extensive owl spoor and the presence of the MSO pair that Silver Creek 3 is an active roost and a failed nesting attempt is presumed.

4.4 Mineral Creek Roost

Table 5. Mineral Creek Roost, 2025

MSO	Date			
	3/27	4/28	6/6	6/23
# of MSO	0	2	2	4
Sex	-	M, F	M, F	M, F, ?, ?
Stage	-	A, A	A, A	A, A, J, J
Sign	ww, p	ww, f	ww	ww, p

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

The Mineral Creek Roost contains a large area full of high cliffs and numerous rocky crevices, ledges, and grottos. A multilayered tree structure exists including Douglas fir, ponderosa pine, Gambel’s oak, New Mexico locust, box elder, and cottonwood, among others. The creek, while generally flowing as a result of precipitation events, was largely dry in 2025.

Detections from 2022 through 2024 confirmed the location of an active roost; no juveniles were observed.

Mineral Creek continued to be active in 2025. The adult MSOs were first observed on 4/28; the female was observed in a crevice adjacent to a ledge used for nesting in the past. Owl spoor was observed throughout the roost at each visit. Two juveniles were located on 6/23, 200 meters from the crevice the female was previously located in. The adults were 135 meters from the juveniles.

Breeding was successful in Mineral Creek Roost in 2025.

4.5 FR716B Roost

Table 6. FR716B Roost, 2025

MSO	Date				
	3/28	4/29	5/22	6/21	8/1
# of MSO	1	1	1	1	1
Sex	M	M	M	M	M
Stage	A	A	A	A	A
Sign	ww, p, f	ww, p, f	ww, p	ww	ww, p

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

FR716B consists of large stands of ponderosa pine at the upper reaches of a steep side canyon, with Douglas fir, Gambel’s oak, and box elder in the middle, and more oaks, elder, New Mexico locust, and cottonwood at the bottom. Rocky cliffs, ledges, and crevices are found throughout this side canyon, as well as woody debris and snags. Water drains down the canyon only after precipitation events, though consistent water is located within half a mile.

The 2022 surveys did not locate owls in this area; however, the 2023 and 2024 surveys confirmed a pair of MSOs in this roost. No juveniles were recorded.

Despite a pair of MSOs observed the last two years, only the male was observed in 2025. Early in the season this could be explained if the female was on a nest hidden in a crevice or ledge. It would be anticipated; however, that the female would be seen or heard during the 5/22 visit and after. Extensive searches were performed seeking the female and juveniles throughout the season. Whitewash, pellets, and feathers were consistently identified throughout the roost, including a ledge that sees heavy use each year. It is possible the female is deceased or left the roost, though this is not confirmed.

While breeding was not confirmed and the female MSO from was previous years not identified, it is confirmed by the extensive owl spoor and the presence of the adult male MSO that FR716B is an active roost.

4.6 Sheridan Roost

Table 7. Sheridan Roost, 2025

MSO	Date						
	3/28	4/7	4/29	6/6	6/23	7/13	8/5
# of MSO	0	0	Night	1	1	1	2
Sex	-	-	Calls	M	M	M	M, ?
Stage	-	-		A	A	A	A, J
Sign	ww	-		ww	ww	ww, p	ww, p

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

The Sheridan Roost is a small side canyon off Mineral Creek consisting largely of Gambel’s oak and narrow, steep rocky cliffs in the area of owl activity. Douglas fir, ponderosa pine, and juniper are found moving up the canyon. Cottonwood, New Mexico locust, and box elder dominate the lower portions at Mineral Creek. Downed trees and woody debris are found throughout. The roost in Mineral Creek consists of tall, inaccessible cliffs, ledges, and grottos. No water was located in Sheridan Canyon, but water was present, in lower quantities than previous years, in Mineral Creek.

Breeding was confirmed in 2024, Sheridan Roost’s first year of surveys.

Early in the survey season owls were not located in this large, difficult to fully access roost. An adult male was consistently observed starting in June throughout the end of the survey season. This adult, and the female as well, was likely present in the roost the entire season but due to many inaccessible areas and the large size of the roost, was not observed. During the 8/5 visit a juvenile was observed in an approximately 100-meter stretch of canyon that is not accessible. The adult male and juvenile were identified audibly in a stand of Gambel’s oak. It is possible this is the location of the roost center and nest; however, numerous areas suitable for nesting exist.

Breeding was successful in Sheridan Roost in 2025.

4.7 Sled Roost

Table 8. Sled Roost, 2025

MSO	Date			
	3/18	4/4	5/2	6/25
# of MSO	1	0	1	1
Sex	M	-	M	M
Stage	SA	-	SA	SA
Sign	ww, p	ww, p, f	ww, p	ww, p

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

The Sled Roost consists of intermittent sections of narrow cliff faces, rocky outcrops, and vegetated hillsides along a side canyon of Mineral Creek. Narrow, dense stands of ponderosa pine, Douglas fir, and Gambel’s oak create a multilayered, shady canopy. Woody debris and snags are present. Water drains down the canyon only after precipitation events, though consistent water is located within half a mile at Mineral Creek.

The 2025 surveys identified the Sled Roost during the first year of the 2-year survey protocol. A sub-adult male was located on three of the four surveys. Extensive searches were conducted to identify a second owl or juveniles, but none were observed. Heavy amounts of whitewash and pellets were located at the sub-adult’s preferred roosting locations, with less amounts of spoor identified throughout the roost.

While breeding was not confirmed and a female MSO not identified, it is confirmed by the extensive owl spoor and the presence of the sub-adult male MSO throughout the season that Sled Roost is an active roost.

4.8 Copper Creek 1 Roost

Table 9. Copper Creek 1 Roost, 2025

MSO	Date						
	3/20	4/3	4/30	6/3	6/11	7/3	7/11
# of MSO	2	1	1	1	2	2	2
Sex	M, F	M	?	?	M, F	M, F	M, F
Stage	A, A	A	A	A	A, A	A, A	A, A
Sign	ww, p	ww, p	ww, p	ww	ww, p	ww, p	ww, p, f

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

The Copper Creek 1 Roost core area is a narrow canyon with little vegetation, but numerous ledges and grottos, as well as ample shade. Downstream from the core area is a multilayered forested portion of the canyon dominated by sycamore, cottonwood, and juniper. Further downstream and upstream the forested structure is thinner with less canopy, but suitable for MSO. Downed trees and woody debris are present. Water was not present within the core area, but small pools were seasonally filled throughout the larger roost area.

The 2025 surveys identified the Copper Creek 1 Roost during the first year of the 2-year survey protocol. Both the male and female were observed together during the first survey on 3/20; however, on the subsequent three visits through early June only the male was observed. From June 11 until the final visit the male and female were always observed perched together. On only the 6/11 visit was there an auditory response; the female contact called multiple times. If the pair bred, it could be expected the female would not be seen during the early April to early June visits if she was within a crevice nesting. A suitable crevice exists in the center of the core early that had copious amounts of whitewash and pellets beneath throughout the survey season. Not seeing the female in the roost with the male until 6/11 could indicate a potential nesting attempt. Extensive and diligent searching was conducted for juveniles and they were not observed throughout the survey season. If juveniles were present, it is anticipated they would be near the adults and within 0.2 mile of the nest (Ward and Salas 2000) during the June and July visits.

Reproductive success is generally low in MSO (USFWS 2012); it is presumed based on the roost visit observations that nesting was attempted but failed.

While breeding was not confirmed, it is confirmed by the extensive owl spoor and the presence of the MSO pair that Copper Creek 1 is an active roost and a failed nesting attempt is presumed.

4.9 Copper Creek 2 Roost

Table 10. Copper Creek 2 Roost, 2025

MSO	Date					
	3/23	4/2	4/28	5/21	6/19	7/18
# of MSO	0	1	1	2	2	2
Sex	-	M	M	M, F	M, F	M, F
Stage	-	?	A	A, A	A, A	A, A
Sign	ww, p	ww, p	ww, p	ww, p	ww, p, f	ww, p

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

The Copper Creek 2 Roost extends through a portion of Copper Creek and adjoining side drainage. The core area in the narrow side drainage has numerous cliffs, grottos, and ledges offering potential nesting habitat. The multilayered consists of an overstory of Gambel’s oak and Douglas fir, with an understory of Arizona walnut, Gambel’s oak, and box elder. Woody debris and snags were present. Copper Creek in this area is narrow with sporadic tree coverage, and shady throughout. Water was not present within the core area, but small pools were seasonally filled throughout the larger roost area.

The 2025 surveys identified the Copper Creek 2 Roost during the first year of the 2-year survey protocol. Both the male and female were observed together on the 3/21-night survey but not located during the daytime follow up. In early April the roost location was discovered in the side canyon and only the male was observed. The female was not observed again until 5/21. During this survey and remaining surveys, the male and female were always observed perched together in the core area. No juveniles were observed during extensive searching. If the pair bred, it could be expected the female would not be seen during the early April to late May visits if she was within a grotto or crevice nesting. Not seeing the female in the roost with the male until 5/21 could indicate a potential nesting attempt. If juveniles were present, it is anticipated they would be near the adults and within 0.2 mile of the nest (Ward and Salas 2000) during the June and July visits. Reproductive success is generally low in MSO (USFWS 2012); it is presumed based on the roost visit observations that nesting was attempted but failed. Extensive whitewash, pellets, and feathers were observed throughout the roost.

While breeding was not confirmed, it is confirmed by the extensive owl spoor and the presence of the MSO pair that Copper Creek 2 is an active roost and a failed nesting attempt is presumed.

4.10 Deep Creek 1 Roost

Table 11. Deep Creek 1 Roost, 2025

MSO	Date			
	3/30	4/8	5/4	6/24
# of MSO	1	1	1	3
Sex	M	M	M	M, F, ?
Stage	A	A	A	A, A, J
Sign	ww, p, f	ww, p	ww, p, f	ww, p, f

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

The Deep Creek 1 Roost core area consists of large Douglas firs along steep, rocky cliffs. The understory consists of Gambel’s oak, box elder, sycamore, and other deciduous trees. The cliffs offer numerous ledges and crevices and tree snags and woody debris are abundant. Water was present in Deep Creek throughout the survey season.

The 2025 surveys identified the Deep Creek 1 Roost during the first year of the 2-year survey protocol. Only the male was observed during the first three surveys. On the first visit, 3/30, it could be possible a female would be on a nest and explain not observing her on the subsequent two visits. On 6/24 the female and one juvenile was observed perched with the male in the core area of the roost. At this date in the season, it is expected the juvenile would be within 0.2 mile of the nest (Ward and Salas 2000). This aligns with observations of large amounts of whitewash and pellets beneath the cliffs adjacent to the stand of fir trees, the presumed nesting location.

Breeding was successful in the Deep Creek 1 Roost in 2025.

4.11 Deep Creek 2 Roost

Table 12. Deep Creek 2 Roost, 2025

MSO	Date			
	6/9	6/22	7/19	8/6
# of MSO	1	0	0	0
Sex	M	-	-	-
Stage	SA	-	-	-
Sign	ww	ww, f	ww	ww, p

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

The Deep Creek 2 Roost includes a long stretch of Deep Creek and side canyons. Steep, rocky cliffs with numerous ledges and crevices are present throughout the roost. Tree structure includes a dense stand of Arizona sycamore in one section of the roost, with scattered Gambel’s oak, Arizona walnut, box elder, juniper, and ponderosa pine elsewhere. A multilayer canopy, while thinner overall than other roosts, does

exist. The narrow canyon also offers ample shade with numerous downed trees and woody debris. Water was present in Deep Creek throughout the survey season.

The 2025 surveys identified the Deep Creek 2 Roost during the first year of the 2-year survey protocol. Responses in the roost were not observed during the night surveys; however, a first-year sub-adult was observed while investigating the roost during the day. Whitewash, pellets, and feathers were identified throughout a large area of Deep Creek, with concentrated whitewash and pellets in two small core areas. The male sub-adult was only observed once as the roost boundaries were being determined, but fresh spoor was observed throughout the season. Despite copious amounts of whitewash and pellets, only observing the MSO once during the survey of Deep Creek 2 Roost leads to an inconclusive result. While habitat is suitable in the roost for MSO breeding, it is possible the sub-adult was passing through and will not return. More information will be gathered during the year 2 survey.

While the complete status of Deep Creek 2 Roost is undetermined, it is presumed this is an active MSO roost.

4.12 Claremont Roost

Table 13. Claremont Roost, 2025

MSO	Date					
	5/5	5/26	6/5	6/24	7/14	8/4
# of MSO	0	2	2	1	2	2
Sex	-	M, F	M, F	?	M, F	M, F
Stage	-	A, A	A, A	A	A, A	A, A
Sign	ww, p, f	ww, p, f	ww, p	ww, p, f	ww, p, f	ww, p, f

Notes: M=male, F=female, A=adult, J=juvenile, SA=sub-adult, ?=unknown, ww=whitewash, p=pellets, f=feathers

The Claremont Roost is a small side drainage with an open canopy of Douglas fir and ponderosa pine. Oak and box elder make up a small understory. The core area of the roost is a narrow, rocky slot amongst gentler hillsides; vegetation in this area is denser. The rocky ledges and crevices in the slot offer ample shade and nesting opportunities. Woody debris and snags are numerous throughout the roost. No flowing water was present in the side drainage, but small pools held water after rain events.

The 2025 surveys identified the Claremont Roost during the first year of the 2-year survey protocol. MSO responses in the roost were not observed during the night surveys; however, large amounts of whitewash, pellets, and feathers were observed in suitable habitat on 5/5. The male and female MSO were located on 5/26 and observed together on all remaining surveys except for one. Small amounts of whitewash were identified over a large area, but the core area where the owls were always observed exhibited a high amount of owl spoor. Because the roost was not identified until May, it is unknown if a nesting attempt was made. No juveniles were observed during extensive searches. If juveniles were present, it is anticipated they would be near the adults and within 0.2 mile of the nest (Ward and Salas 2000) during the June and July visits. Reproductive success is generally low in MSO (USFWS 2012); it is possible, though no observations to support it, that nesting was attempted but failed.

While it is unknown if nesting was attempted, it is confirmed by the extensive owl sign and the presence of the MSO pair that Claremont is an active roost.

5. Recommendations

Based on the continued roost inspection evidence since 2022 and new surveys, there are 12 active roosts in the Survey Area. At least five of these roosts have had breeding success during a survey/inspection year. Based on these observations, MSOs not breeding every year, MSO low reproductive success, and suitable MSO habitat throughout the Survey area, the following recommendations are made:

- The 12 known roost sites are surveyed by an MSO qualified biologist using the USFWS *Mexican Spotted Owl Survey Protocol, 2012 (Updated 3/15/2022)* as a guideline throughout project duration.
- Year 2 of the 2-year USFWS *Mexican Spotted Owl Survey Protocol, 2012 (Updated 3/15/2022)* conducted in 2026.
- If an occupied breeding territory is located within the 0.5-mile buffer zone, drilling activities shall not occur until the young have fully fledged and dispersed from the area.
- Continued absence of drilling activities during the MSO breeding season.
- Continued coordination with Silver 47, USFWS, USFS, NMDGF, and MMD to develop additional actions, PAC delineations, or to determine if any additional information is needed.

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Appendix A – Roost Photos

Silver Creek 1



Photo 1. Adult male perched on ledge.



Photo 2. Juvenile MSO perched in Gambel's oak.



Photo 3. Overall view of roost.



Photo 4. Feathers, whitewash, and pellets in grotto.

Silver Creek 2



Photo 5. Juveniles in the canyon bottom.



Photo 6. Habitat in an active area of the roost.



Photo 7. Pellets and whitewash in a mine adit.



Photo 8. Bat remains in a pellet.

Silver Creek 3



Photo 9. Habitat within side drainage.



Photo 10. MSO pair perching.

Mineral Creek



Photo 11. Habitat within the roost.



Photo 12. Juveniles perched together.



Photo 13. Female in crevice adjacent to a ledge used in a previous year for nesting.



Photo 14. Adults perched in a Douglas fir.

FR716B Roost



Photo 15. Roost habitat from above.



Photo 16. Habitat from within roost.



Photo 17. Male MSO.



Photo 18. Male MSO.

Sheridan Canyon Roost



Photo 19. Inaccessible habitat where the juvenile was located.



Photo 18. Overall photo of roost.



Photo 19. Habitat within roost where male MSO often perched.



Photo 20. Adult male MSO.

Sled Roost



Photo 21. Cliffs, crevices, and ledges within roost.



Photo 22. Tree structure within roost.



Photo 23. Sub-adult MSO male perched low to the ground.



Photo 24. Closeup of MSO tail showing sub-adult status.

Copper Creek 1 Roost



Photo 25. Narrow, rocky portion of roost with crevice and large amounts of whitewash.



Photo 26. Vegetated portion in active area of roost.



Photo 27. Adult MSO pair early in the season.



Photo 28. Adult MSO pair perched together late in the season.

Copper Creek 2 Roost



Photo 29. Looking down from cliff top into core area of roost.



Photo 30. Multilayered tree structure within the roost.



Photo 31. Adult MSO perched inside a grotto.



Photo 32. Adult MSO perched in core area of roost.

Deep Creek 1 Roost



Photo 33. Habitat within roost core area.



Photo 34. Habitat in roost, but outside of core area.



Photo 35. Adult male MSO perched.



Photo 36. Juvenile MSO perched in core area of roost.

Deep Creek 2 Roost



Photo 37. Habitat within roost.



Photo 38. Habitat within roost.



Photo 39. Sub-adult perched in a side canyon.



Photo 40. Closeup of MSO tail showing sub-adult status.

Claremont Roost



Photo 41. Core area of roost with short, narrow rocky habitat.



Photo 42. Tree structure outside of core area.



Photo 43. Adult MSO pair perched in a Douglas fir.



Photo 44. Adult MSO perched in a grotto within core area of roost.