

2010 Mexican Spotted Owl Inventory, Interim Report,
Alamosa and Jarita Mesa Allotments, Carson National Forest, New Mexico



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Executive Summary

The Mexican Spotted Owl (*Strix occidentalis lucida*) was listed as a threatened species by the United States Fish and Wildlife Service in 1993. This listing followed the listing of the northern subspecies, the Northern Spotted Owl (*S. o. caurina*), as a threatened species in 1990. In 2009, the USDA Forest Service contracted Hawks Aloft, Inc. to conduct two years (2010-2011) of inventory surveys and monitoring for the presence and reproductive success of the Mexican Spotted Owl in the Jarita Mesa and Alamosa allotments of the Carson National Forest, Rio Arriba County, New Mexico. Prior to the onset of the survey period, Hawks Aloft created call point locations with ArcGIS. A 0.4 mile grid was placed over the survey area, and 132 points that were logistically accessible and coincided with areas identified as Mexican Spotted Owl restricted and protected habitat, were selected. All points were visited at the onset of the survey season, and eight points that proved not to meet the habitat criteria were dropped. The remaining 124 points were to be surveyed four times over the course of the season according to United States Forest Service Region 3 Spotted Owl Protocol; but, six of these points were erroneously surveyed only three times. Surveys occurred during 79 nights between 1 March and 31 August, 2010. No Spotted Owls were detected during the surveys in 2010. However, 79 detections of five other owl species did occur during surveys.

Introduction

The Mexican Spotted Owl (*Strix occidentalis lucida*) is a medium-sized owl that primarily occurs in mixed conifer and pine-oak mountains and canyons in Utah, Colorado, New Mexico, Arizona, western Texas, and south through the Sierra Madre Occidental and Oriental in Mexico (Gutiérrez et al. 1995). Two other subspecies, the Northern (*S. o. caurina*) and California (*S. o. occidentalis*) Spotted Owls, occur from southern British Columbia to northern Baja California.

The minimum population size of the Mexican Spotted Owl in the United States was estimated at between 777 and 1554 individuals between 1990 and 1993 (USDI 1995).

The subspecies was listed as threatened in 1993, due primarily to habitat loss and alteration in the form of timber harvest (USDI 1993, 1995). A recovery team was formed after the listing and a recovery plan for the Mexican Spotted Owl was developed. This plan made the following four recommendations: (1) protection of habitat (243 ha) around owl nest sites, or roosting areas if nest sites are not known; (2) protection of habitat in wilderness areas, research natural areas, and on steep ($> 22^\circ$) slopes; (3) changes in timber extraction policy (primarily to uneven-aged tree management) in other areas; and (4) restoration and greater protection of riparian zones (Gutiérrez et al. 1995).

In 2009, the Forest Service contracted Hawks Aloft to conduct two years (2010-2011) of inventory surveys and monitoring for the presence and reproductive success of the Mexican Spotted Owl in the Jarita Mesa and Alamosa allotments of the Carson National Forest. This report provides a summary of the first year of survey effort.

Study Area

The study area was located in northern New Mexico, approximately 22 miles northeast of Abiquiu and 13 miles southwest of Tres Piedras, between U.S. Highways 84 and 285 (Figure 1). The inventory survey was conducted within the boundaries of the Alamosa and Jarita Mesa allotments of the Carson National Forest, and included a 0.5 mile buffer zone. The survey encompassed habitat areas designated as “protected” and “restricted” for Mexican Spotted Owl. Within the study area, over 3,600 acres are classified as protected habitat and over 14,500 acres are classified as restricted habitat. In the Alamosa and Jarita Mesa allotments, nearly all of the acreage specified as protected and restricted occurs in the northwestern quadrant where survey effort was concentrated (Figure 2). The majority of survey points occurred in mixed-conifer stands, which were often dominated by ponderosa pine (*Pinus ponderosa*). Spruce (*Picea sp.*), fir (*Abies sp.*), Gambel’s oak (*Quercus gambelii*), and quaking aspen (*Populus tremuloides*) occurred at varying densities at many of the survey points. Temperatures during survey nights in 2010 ranged from 20-70° F.

Methods

Mexican Spotted Owl surveys were conducted according to United States Forest Service Region 3, Spotted Owl Protocol (USFWS 2003). Prior to the onset of the survey period, Hawks Aloft created 132 call point locations by placing a 0.4 mile grid over the survey area in ArcGIS and identifying points that occurred within habitat designated as protected or restricted for the Mexican Spotted Owl. After visiting the points to determine if access

was safe and logistically practical, and to determine if potential Spotted Owl habitat existed at each point, the number of survey points was reduced to 124 (Figure 3, Appendix 1). According to protocol, four surveys at each point were conducted between 1 March and 31 August (except at six of the points where only three replicates occurred). In 2010, the surveys were completed over the course of 79 nights between 10 April and 14 August. Surveys began after sunset, and typically continued for up to 3.5 hrs, depending on the number of points surveyed each night. At each point, the Mexican Spotted Owl four-note location call (Forsman et al. 1984) was vocally imitated by surveyors or broadcast by a compact disc and speaker system. The owl vocalizations were continued for 15 minutes and were interspersed with periods of listening for response.

Had Mexican Spotted Owls been detected, daytime follow-up surveys would have been conducted according to protocol. Follow-up surveys would encompass a half-mile radius search area centered around Spotted Owl responses from night surveys. All follow-up visits would be completed within 48 hours of night visit detections and would be at least four person-hours long. Spotted Owls located during the daytime would be offered live mice to facilitate the detection of mates, determine pair and breeding status, and nest success. Located Spotted Owl nests would be checked regularly during daytime hours to determine reproductive success.

Results

No Spotted Owls were detected during the 495 surveys at 124 points in 2010. Six of the 124 points were only surveyed three times; initial surveys occurred early in the season at five points that were later dropped because they did not meet the habitat criteria. Although evidence of Spotted Owl presence was not found, 79 detections of five other owl species occurred during counts (Table 1). These detections were made at 61 of the points (Figure 4). Details for individual species are provided below.

Table 1. Owl detections during Spotted Owl Surveys in 2010, Alamosa and Jarita Mesa allotments of Carson National Forest, Rio Arriba County, New Mexico.

Species	Detections	Points with Detections	Earliest	Latest
Northern Saw-whet Owl	9	9	13-Apr	12-May
Great Horned Owl	29	24	7-May	14-Aug
Northern Pygmy-Owl	2	2	10-Apr	25-May
Flammulated Owl	37	29	20-May	10-Aug
Barn Owl	1	1	11-Aug	11-Aug
Unidentified Owl	1	1	20-Jul	20-Jul

- Barn Owl (*Tyto alba*): A single Barn Owl was encountered on 11 August at point 125. This species is typically found in open habitats (Cramp 1985) and likely is rare in the forested sections of Carson National Forest where survey points occur.
- Great Horned Owl (*Bubo virginianus*): Detections of Great Horned Owls occurred on 29 surveys between 7 May and 14 August. These detections occurred at 24 different points, but because the call of this species can be heard over great distances,

observers suspected that the same individual was heard at multiple points on a few occasions. Spotted Owl surveys were aborted when this predatory species was encountered.

- Northern Saw-whet Owl (*Aegolius acadicus*): Detections of Northern Saw-whet Owls occurred on nine occasions at nine separate points. All detections occurred between 13 April and 12 May.
- Flammulated Owl (*Otus flammeolus*): Flammulated Owls were the most regularly detected species during 2010 surveys. Thirty-seven owls were heard at 28 points. An additional, unidentified call on 20 July was suspected to be this species, perhaps a juvenile bird. Flammulated Owl is a migratory species in North America (Mccallum and Archibald 1994); detections occurred between 30 May and 10 August.
- Northern Pygmy-Owl (*Glaucidium gnoma*): Two Northern Pygmy-Owls were detected during surveys. One was heard at point 37 on 10 April, and a second was heard at point 136 on 25 May.

Discussion

Although Mexican Spotted Owls were not documented in 2010, the possibility remains that the species occurs in the Jarita Mesa and Alamosa allotments; a second year of surveying will better enable us to report with confidence on the presence or absence of the species in the study area. The survey area is within the elevational range of Mexican

Spotted Owl utilization, and includes topographic features and patches of habitat associated with the subspecies, primarily uneven-aged trees with high canopy closure, a multi-layered canopy, and high levels of large snags and downed woody debris (USDI 1995).

Seamans and Gutiérrez (1995) found that Mexican Spotted Owls show strong selection for forest areas with more complex structure than neighboring areas with less complexity, and Ganey and Balda (1989) documented that, in contiguous forests, the subspecies showed a preference for old-growth forest over younger stands. Carson National Forest includes some patches of habitat that seem ideal for the Mexican Spotted Owl; however, large sections of the forest appear to have been heavily altered by timber extraction and grazing. These practices can result in a park-like forest structure that may lack the physical features preferred by Mexican Spotted Owls. They also could restrict undergrowth which might limit the diversity and abundance of Spotted Owl prey. Although this inventory included no vegetation measurements, surveyors believed that the majority of points occurred in mixed-conifer stands heavily dominated by ponderosa pine, often with a low range of tree ages, low canopy closure and limited mid-level canopy layers and understory. Although Mexican Spotted Owls utilize mixed-conifer forests with ponderosa pine components, the subspecies appears to prefer stands co-dominated by fir and various pine species (USDI 1995) as opposed to near monocultures of ponderosa pine.

The possible lack of appropriate habitat at some survey points is further supported by detections of other owl species that have habitat preferences that differ from those of the Mexican Spotted Owl. The open mosaics preferred by Barn Owls and the open pine forests with brushy understories preferred by Flammulated Owls (Mccallum and Archibald 1994) are habitats in which Mexican Spotted Owls are less likely to occur. The detections of these two species at 30 of the survey points (1/4 of the total) indicate that, although they were placed in areas designated as Mexican Spotted Owl protected or restricted habitats, habitat at these points may not be conducive to Mexican Spotted Owl utilization. Figure 4 shows that a number of these points are close to the periphery of the designated habitats; at these points, detections of Barn and Flammulated owls may represent individuals calling from non-designated areas; however, other points, where detections of these species occurred, are surrounded by large swaths of designated habitat. This indicates that some of the areas designated as restricted or protected habitat for Mexican Spotted Owls may include habitat patches not suitable for the species. Although Great Horned Owls overlap with Mexican Spotted Owls to a greater degree than Barn or Flammulated Owls are likely to overlap with the latter, studies in Arizona indicate that some habitat segregation occurs between the two species (USDI 1995). The detection of Great Horned Owls at 24 survey points (22 of which were different from the points where Barn and Flammulated Owls were detected) may support the thesis that suitable Mexican Spotted Owl habitat may be limited within the survey area.

Acknowledgements

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Literature Cited

- Cramp, S. 1985. The birds of the western Palearctic. Vol. 4. Oxford Univ. Press, Oxford.
- Forsman, E., Meslow, E. C., and H. M. Wight. 1984. Distribution and biology of the Spotted Owl in Oregon. *Wildlife Monographs* 87:1-64.
- Ganey, J. L. and R. P. Balda. 1989. Home-range characteristics of Spotted Owls in northern Arizona. *Journal of Wildlife Management* 53:1159-1165.
- Gutiérrez, R. J., A. B. Franklin, and W. S. Lahaye. 1995. Spotted Owl (*Strix occidentalis*). In *The Birds of North America*, No. (A. Poole and F. Gills, eds.). The Academy of Natural Sciences, Philadelphia, and the American Ornithologists' Union, Washington, D.C.
- Mccallum, D. Archibald. 1994. Flammulated Owl (*Otus flammeolus*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/093doi:10.2173/bna.93>
- Seamans, M. E., and R. J. Gutiérrez. 1995. Breeding habitat of the Mexican Spotted Owl in the Tularosa Mountains, New Mexico. *Condor* 97:944-952.
- USDI Fish and Wildlife Service. 1993. Endangered and threatened wildlife and plants: Final rule to list the Mexican Spotted Owl as a threatened species. *Federal Register* 58:14248-14271.
- USDI Fish and Wildlife Service. 1995. Recovery Plan for the Mexican Spotted Owl: Vol. I. Albuquerque, New Mexico.
- United States Fish and Wildlife Service. 2003. Mexican Spotted Owl Survey Protocol. 24 April 2008. <http://www.fws.gov/mountainprairie/endspp/protocols/MSOSurveyProtocol.pdf>



Figure 1. Location of the 2010 Mexican Spotted Owl Inventory study site in the Alamosa and Jarita Mesa allotments of Carson National Forest, Rio Arriba County, New Mexico. The red line is the buffer zone that encircles the allotments; the majority of the points are in the northern section of the study site.

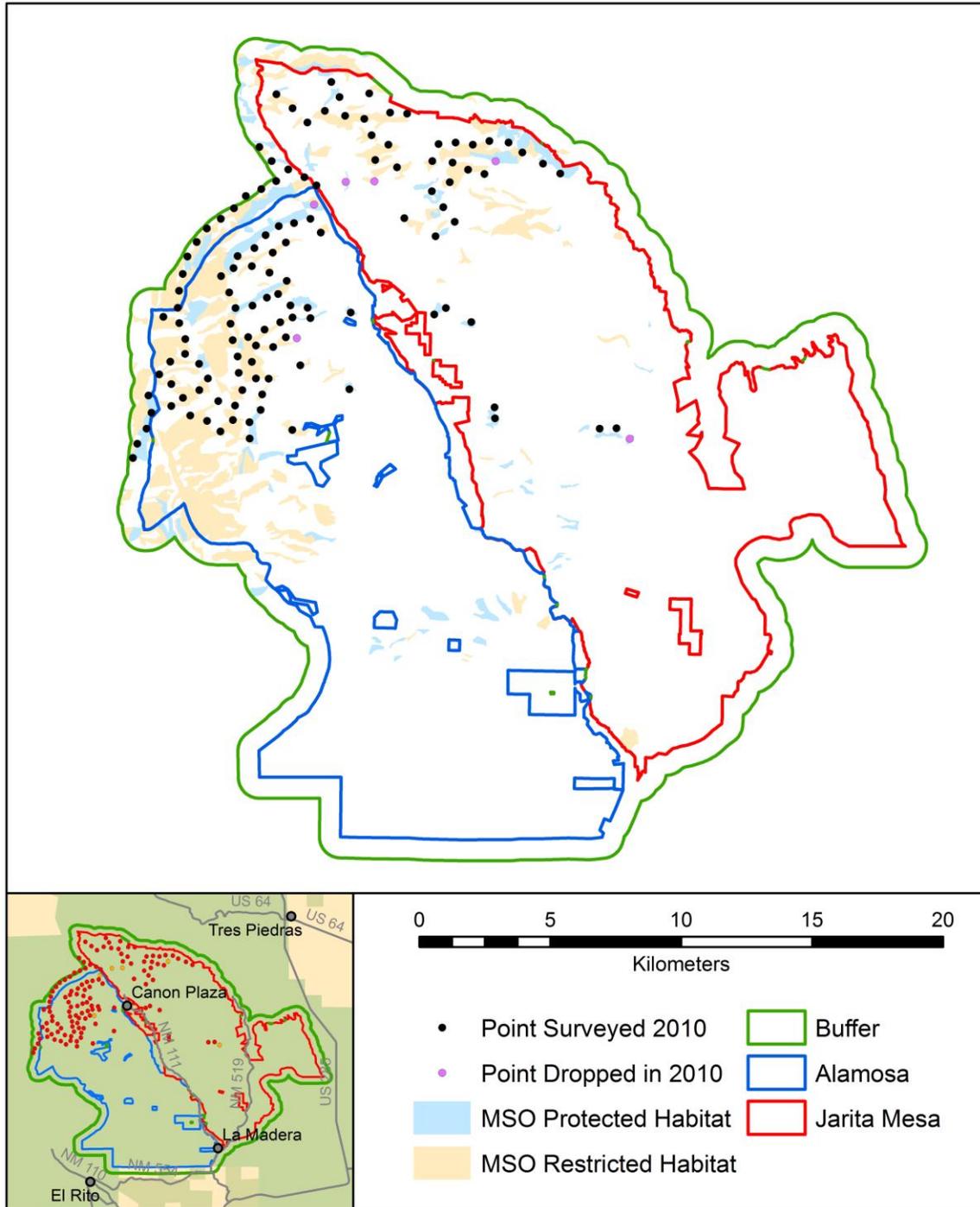


Figure 2. Location of 2010 survey points and habitat designated as protected and restricted for the Mexican Spotted Owl within the Alamosa and Jarita Mesa allotments of Carson National Forest, Rio Arriba County, New Mexico.

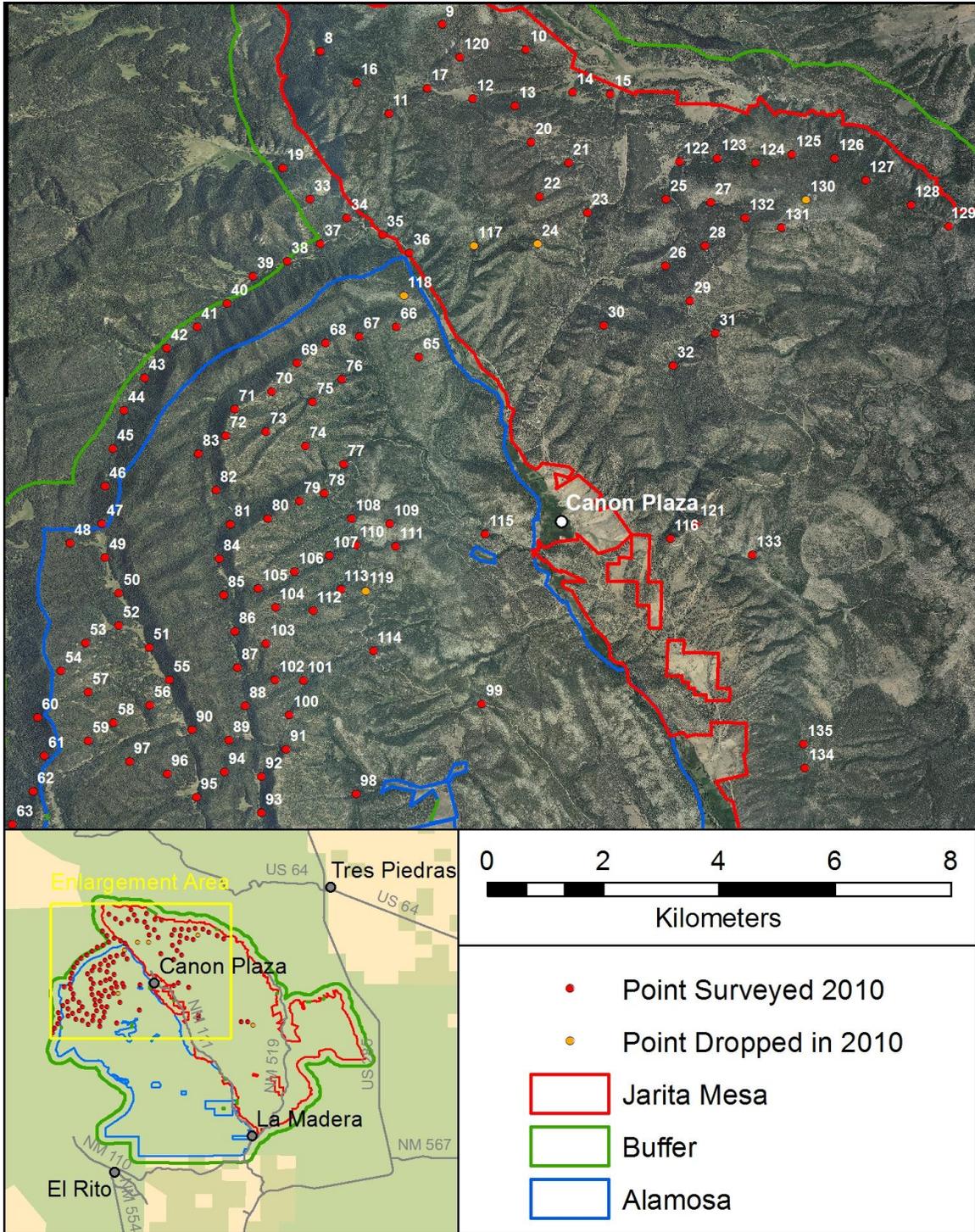


Figure 3. Locations of survey points of the 2010 Mexican Spotted Owl Inventory study site in the Alamosa and Jarita Mesa allotments of Carson National Forest, Rio Arriba County, New Mexico. Three outlying points located to the southeast (136 and 137, and point 138, which was dropped during the season) are not shown in this figure.

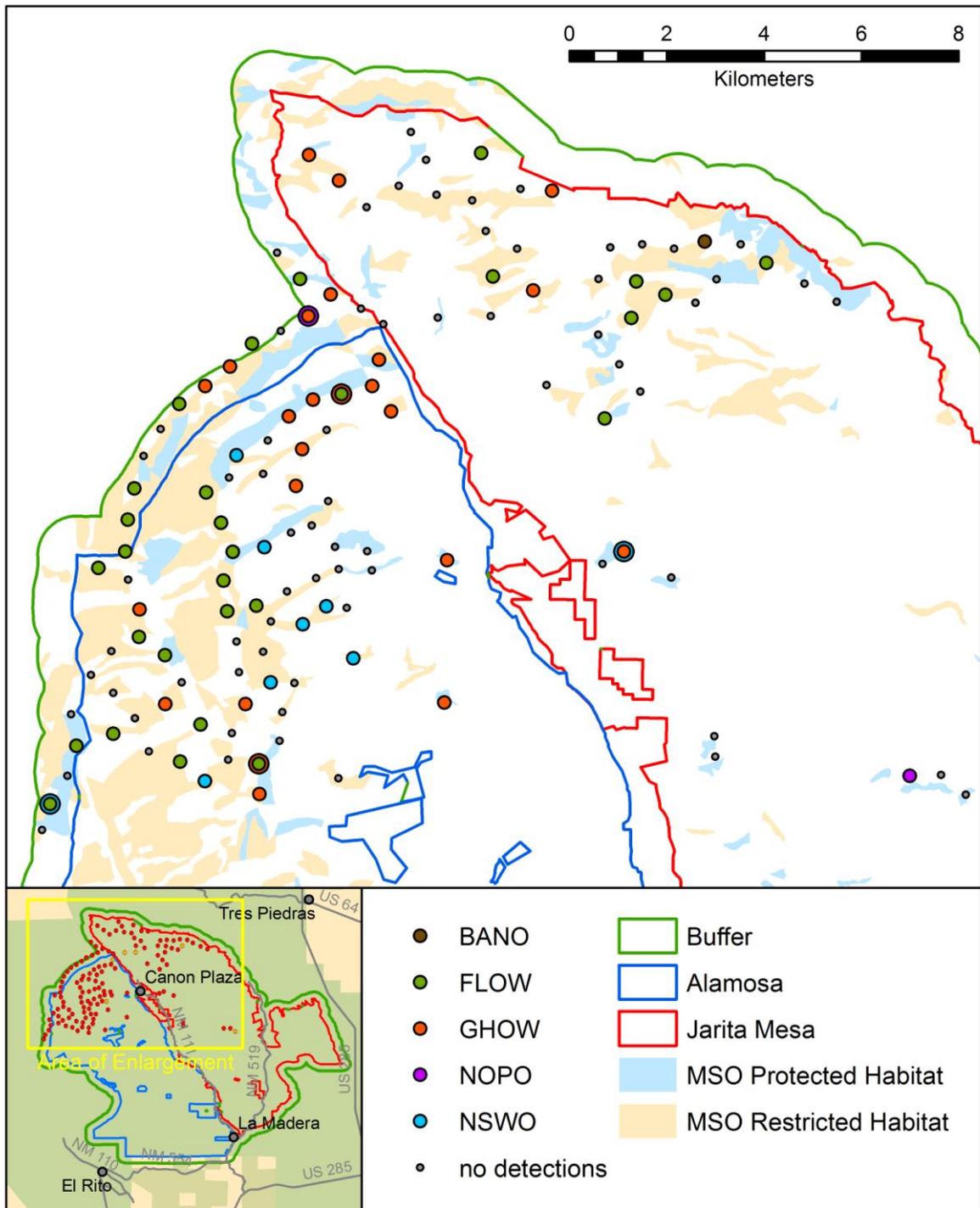


Figure 4. Locations of owl detections during 2010 surveys in the Alamosa and Jarita Mesa allotments of Carson National Forest, Rio Arriba County, New Mexico. The following abbreviations are used for owl species detected during surveys: BANO (Barn Owl), FLOW (Flammulated Owl), GHOW (Great Horned Owl), NOPO (Northern Pygmy-Owl), and NSWO (Northern Saw-whet Owl). Where more than one species was detected at a point, a larger circle was used for one of the species.

Appendix 1. UTM Coordinates (Zone 13, NAD27) of Mexican Spotted Owl survey points in the Alamosa and Jarita Mesa allotments of Carson National Forest, Rio Arriba County, New Mexico.

Point	Easting	Northing	USGS Quad
8	393267	4053123	Canon Plaza
9	395362	4053596	Canon Plaza
10	396811	4053157	Canon Plaza
11	394450	4052049	Canon Plaza
12	395893	4052303	Canon Plaza
13	396621	4052188	Canon Plaza
14	397614	4052422	Canon Plaza
15	398266	4052384	Canon Plaza
16	393884	4052592	Canon Plaza
17	395114	4052488	Canon Plaza
19	392614	4051108	Canon Plaza
20	396904	4051558	Canon Plaza
21	397544	4051195	Canon Plaza
22	397048	4050617	Canon Plaza
23	397879	4050335	Canon Plaza
25	399224	4050571	Los Tablas
26	399213	4049422	Los Tablas
27	399999	4050519	Los Tablas
28	399896	4049765	Los Tablas
29	399645	4048811	Los Tablas
30	398152	4048389	Canon Plaza
31	400080	4048255	Canon Plaza
32	399350	4047701	Canon Plaza
33	393085	4050570	Canon Plaza
34	393716	4050253	Canon Plaza
35	394336	4049959	Canon Plaza
36	394794	4049639	Canon Plaza
37	393257	4049804	Canon Plaza
38	392687	4049501	Canon Plaza
39	392101	4049238	Canon Plaza
40	391645	4048766	Canon Plaza

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Point	Easting	Northing	USGS Quad
41	391138	4048366	Canon Plaza
42	390604	4047996	Canon Plaza
43	390223	4047481	Canon Plaza
44	389868	4046928	Canon Plaza
45	389681	4046259	Canon Plaza
46	389547	4045617	Canon Plaza
47	389495	4044963	Canon Plaza
48	388942	4044624	Canon Plaza
49	389550	4044379	Canon Plaza
50	389786	4043771	Canon Plaza
51	390312	4042828	Canon Plaza
52	389777	4043204	Canon Plaza
53	389205	4042910	Canon Plaza
54	388788	4042424	Canon Plaza
55	390652	4042266	Canon Plaza
56	390318	4041826	Canon Plaza
57	389249	4042050	Canon Plaza
58	389693	4041528	Canon Plaza
59	389249	4041210	Canon Plaza
60	388379	4041616	Canon Plaza
61	388491	4040961	Canon Plaza
62	388301	4040346	Canon Plaza
63	387950	4039769	Mogote Peak
64	387783	4039230	Mogote Peak
65	394958	4047842	Canon Plaza
66	394570	4048368	Canon Plaza
67	393939	4048199	Canon Plaza
68	393353	4048085	Canon Plaza
69	392858	4047745	Canon Plaza
70	392425	4047245	Canon Plaza
71	391780	4046944	Canon Plaza
72	391624	4046485	Canon Plaza
73	392324	4046556	Canon Plaza
74	393001	4046309	Canon Plaza

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Point	Easting	Northing	USGS Quad
75	393129	4047071	Canon Plaza
76	393629	4047461	Canon Plaza
77	393663	4045999	Canon Plaza
78	393329	4045494	Canon Plaza
79	392901	4045351	Canon Plaza
80	392353	4045051	Canon Plaza
81	391705	4044956	Canon Plaza
82	391462	4045551	Canon Plaza
83	391153	4046175	Canon Plaza
84	391515	4044361	Canon Plaza
85	391591	4043732	Canon Plaza
86	391781	4043108	Canon Plaza
87	391829	4042480	Canon Plaza
88	391967	4041822	Canon Plaza
89	391686	4041227	Canon Plaza
90	391043	4041403	Canon Plaza
91	392667	4041065	Canon Plaza
92	392239	4040594	Canon Plaza
93	392248	4039970	Canon Plaza
94	391605	4040679	Canon Plaza
95	391129	4040241	Canon Plaza
96	390619	4040641	Canon Plaza
97	389976	4040851	Canon Plaza
98	393877	4040298	Canon Plaza
99	396053	4041856	Canon Plaza
100	392724	4041660	Canon Plaza
101	392972	4042256	Canon Plaza
102	392481	4042270	Canon Plaza
103	392324	4042899	Canon Plaza
104	392486	4043523	Canon Plaza
105	392190	4043849	Canon Plaza
106	392815	4044137	Canon Plaza
107	393415	4044413	Canon Plaza
108	393801	4045056	Canon Plaza

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Point	Easting	Northing	USGS Quad
109	394463	4044966	Canon Plaza
110	393882	4044599	Canon Plaza
111	394563	4044570	Canon Plaza
112	393143	4043465	Canon Plaza
113	393624	4043837	Canon Plaza
114	394182	4042765	Canon Plaza
115	396110	4044785	Canon Plaza
116	399304	4044709	Canon Plaza
120	395674	4053019	Canon Plaza
121	399744	4044959	Los Tablas
122	399465	4051221	Los Tablas
123	400116	4051281	Los Tablas
124	400775	4051195	Los Tablas
125	401404	4051341	Los Tablas
126	402140	4051281	Los Tablas
127	402671	4050900	Los Tablas
128	403455	4050472	Los Tablas
129	404114	4050099	Los Tablas
131	401216	4050078	Los Tablas
132	400595	4050245	Los Tablas
133	400719	4044426	Los Tablas
134	401624	4040741	Los Tablas
135	401604	4041163	Los Tablas
136	405621	4040346	Los Tablas
137	406262	4040366	Los Tablas