2007 SONGBIRD SURVEYS AND GRAY VIREO MONITORING IN THE BUREAU OF LAND MANAGEMENT'S FARMINGTON RESOURCE AREA

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TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

EXECUTIVE SUMMARY

In 2007, the Bureau of Land Management (BLM), Farmington Field Office, contracted Hawks Aloft, Inc. to conduct songbird surveys and monitoring in northwestern New Mexico, with special emphasis on Gray Vireo (*Vireo vicinior*), a state-threatened songbird of pinyon-juniper woodland, and a U.S. Fish and Wildlife Service Bird of Conservation Concern. We conducted point count surveys in proposed pinyon-juniper treatment plots on Crow Mesa near Counselor, and Gray Vireo territory monitoring in a portion of Gobernador Canyon with considerable oil and gas development.

We recorded 35 bird species during point count surveys, including 20 Gray Vireos. Although our observations indicate that adjacent canyons and slopes might provide better habitat for Gray Vireos than the mesas proposed for treatments, BLM should consider that any juniper reduction in the treatment areas could have a negative effect on Gray Vireos, and other associated species. Considerable sagebrush understory on one of the plots also provides habitat for two sage-obligates and Birds of Conservation Concern with limited breeding distribution in New Mexico: Sage Sparrow (*Amphispiza belli*) and Brewer's Sparrow (*Spizella breweri*). We advise BLM to avoid alteration of the sagebrush in this plot, and to avoid removing trees or shrubs on any of the treatment plots during the Gray Vireo nesting season (i.e., May – August).

We monitored 11 Gray Vireo nests on 10 territories in 2007. We documented a low rate of nest parasitism (11%) and a high rate of nest failure (73%). Some Gray Vireos nested relatively close to gas well pads. We suggest that gas wells probably have little effect on nest-site selection, but future oil and gas development could have a considerable effect on habitat fragmentation and Gray Vireo territory selection.

INTRODUCTION

The Bureau of Management (BLM), Farmington Field Office, is responsible for balancing a variety of resource management concerns in northwestern New Mexico. Primary concerns include oil and gas leasing and development, land ownership adjustments, off-highway vehicle and recreation use, special designation areas, and coal leasing (Bureau of Land Management 2003). Another concern in the vast pinyon-juniper landscape of northwestern New Mexico is juniper reduction for perceived restoration, water conservation, or forage production benefits. It is important to conduct surveys to determine if activities, such as oil and gas development and pinyon-juniper treatments, have an effect on wildlife and birds, especially species of conservation concern.

The Gray Vireo (*Vireo vicinior*) is a bird of conservation concern, inhabiting low-elevation pinyon-juniper woodland in the southwestern United States, particularly where junipers (*Juniperus* spp.) predominate over pinyons (*Pinus edulis*) (Barlow et al. 1999, Schlossberg 2006). Although Gray Vireo is not federally listed, the New Mexico Department of Game and Fish (2004) lists Gray Vireo as threatened in the state of New Mexico. Gray Vireo is also designated as a Bird of Conservation Concern by the U.S. Fish and Wildlife Service (2002). In New Mexico, potential pinyon-juniper habitat is widespread, but junipers are extensively cleared in an attempt to restore historic conditions, increase forage production, or conserve the watershed (Clary and Jameson 1981, Roundy and Vernon 1999). In northwestern New Mexico, thousands of oil and gas wells dot the landscape, some of them in occupied Gray Vireo habitat (Reeves 1999, Wickersham and Wickersham 2006). It is unknown how oil and gas leasing and pinyon-juniper treatments affect Gray Vireos in the Farmington Resource Area.

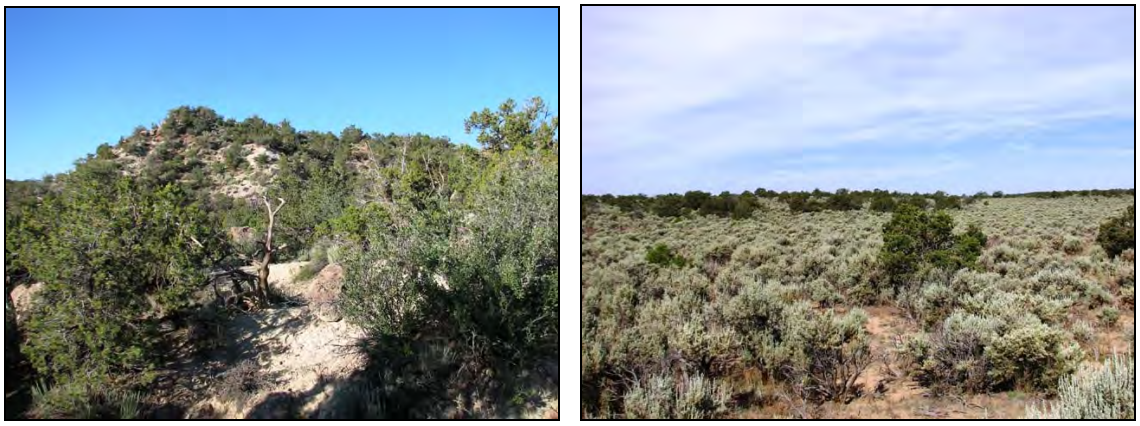
In 2007, BLM contracted Hawks Aloft, Inc. to conduct Gray Vireo surveys and monitoring in pinyon-juniper woodland in the Farmington Resource Area. Although we recorded multiple species, we focused on Gray Vireo. Already addressing raptors in a separate concurrent project, we considered Gray Vireo to be of the greatest conservation concern among songbirds likely present. We also considered Gray Vireo to be a reasonable indicator of pinyon-juniper woodland quality. We conducted two types of surveys: 1) point count surveys to document Gray Vireo and other species within plots identified by BLM as future treatment sites and 2) Gray Vireo territory monitoring in woodland around existing gas wells. In this report, we assess the value of the treatment sites for birds, including Gray Vireo, and present nesting and productivity information for Gray Vireos in monitored territories.

STUDY AREA

Point Count Surveys

We conducted point count surveys in four plots (totaling about 340 ha) identified by BLM along Crow Mesa, approximately 10 km west of Counselor, in eastern San Juan and southwestern Rio Arriba Counties, New Mexico (Fig. 1). The four plots consisted of three treatment plots and one control plot, labeled 1 through 4 from north to south. Plot 1 was 8 km north of Highway 550 and consisted of pinyon-juniper woodland with variable canopy coverage and localized sage understory. Plot 2 was 5 km north of Highway 550 and consisted of more open pinyon-juniper woodland than plot 1, and more extensive sage than any of the other plots. Plot 3 was a control plot 3 km north of Highway 550 and consisted of open pinyon-juniper woodland similar to the other plots, but with greater

topographic relief. Plot 4 was situated on the mesa adjacent to Highway 550 at Lybrook and consisted of open pinyon-juniper woodland. All plots, and associated survey points, were located on mesa tops, but observations likely included at least some birds outside of the treatment plots on adjacent slopes.



All four plots contained open pinyon-juniper woodland, like the control (left), but some areas in plot 2 (right) contained extensive sagebrush.

Territory Monitoring

We monitored Gray Vireo territories on or near the south side of Gobernador Canyon along Highway 64, east of Bloomfield in eastern San Juan and western Rio Arriba Counties, New Mexico (Fig. 2). Territories were scattered among three general sites. The westernmost site was situated at the base of Manzanares Mesa on the eastern edge of San Juan County. Another site was situated along Devil's Spring Mesa about 15 km east of the Rio Arriba County line. The easternmost site was situated just south of Highway 64 near Gobernador. Habitat at all monitoring sites consisted of pinyon-juniper woodland on canyon slopes extending to mesa tops. Gas wells and dirt access roads were present at each site within or adjacent to Gray Vireo habitat.

Many Gray Vireo territories occurred on rocky slopes.

METHODS

Point Count Surveys

We conducted point count surveys (Bibby et al. 2000) at each of the four plots (totaling 48 points) once in June. We spaced survey points at least 250 m apart and attempted to fit as many survey points within each plot as possible. The size of plots 1, 2, 3 (control), and 4 allowed the establishment of 12, 8, 13, and 15 survey points, respectively. We chose not to mark survey point locations with flagging tape; we instead recorded Universal Transverse Mercator (UTM) coordinates (North American Datum 27, Appendix 1) and took digital photographs to assist with relocation in the event that these points are surveyed again in future seasons.

A surveyor, experienced with avian identification by sight and sound, hiked to each point and recorded all birds seen or heard for five minutes while standing at the point. We separated observations into seven distance intervals (0-5, 6-25, 26-50, 51-75, 76-100, 101-125, and >125 meters) and noted separately any birds flying overhead. We used one observer for surveys at plots 1-3 (15 June and 20 June) and another observer for surveys at plot 4 (15 June). For each survey morning, observers began point counts within 30 minutes after sunrise and concluded within four hours.

We evaluated plots based on detection rates, species richness, and the presence and number of species of conservation concern, such as the state-threatened Gray Vireo. We calculated detection rates for each site by adding the number of birds observed within 100 m of each point and dividing by the number of points at a site. We present detection rates with 95% confidence intervals. We present a list of all species observed during point counts (Appendix 2) and report the number of Gray Vireos detected. We also report any other federal or state-listed bird species and other U.S. Fish and Wildlife Service (2002) Birds of Conservation Concern.

Territory Monitoring

We selected territories to monitor from a sample of Gray Vireos observed early in the season during habitat searches in the Farmington Resource Area. We searched some of the sites documented by Reeves (1999), particularly in the Cedar Hill region north of Aztec and Gobernador Canyon east of Bloomfield. Finding Gray Vireos in both areas, we selected Gobernador Canyon for monitoring because we considered this area to be more accessible for repeated visits. We selected the first 10 male Gray Vireos we encountered

in this region, assuming that they would maintain breeding territories. We recorded UTM coordinates for territories based on the first observed location of a singing male.

We visited territories approximately every ten days between mid-May and early to mid-July, or as necessary to determine nest outcomes. Although we did not mark birds with identifying bands, the spacing of territories and nests, along with observations of territorial disputes, made us fairly certain that we were monitoring the same individuals on consecutive visits. We observed the behavior of vireos to ascertain pair status and locate nests. For example, female vireos were often easily found when singing males traveled with them prior to nest building. We often located nests by watching vireos deliver nesting material or watching them approach the nest to incubate. Vireos also occasionally sang near or on the nest, further assisting our efforts to find nests.

Upon locating nests, we noted the contents, photographed the site, and recorded UTM coordinates. We chose not to flag nest locations, relying instead on the coordinates and photographs to relocate nests. During each monitoring visit, we noted the number of Gray Vireo eggs and nestlings present, as well as the number of Brown-headed Cowbird (*Molothrus ater*) eggs and nestlings. We estimated fledging dates based on a 13-day incubation stage and a 13-day nestling stage (Ehrlich et al. 1988). We attempted to visit all nests on the estimated fledging date to improve our ability to determine outcome. If nestlings were still in the nest on the anticipated fledging date, and appeared ready to fledge (i.e., well feathered on the head, extending to just above the upper mandible), we assumed that the nest would fledge the number of young present during that check. We assumed that nests failed if they were empty well before the anticipated fledging date, or if territory searches yielded no indication that adults were attending young. We present

nest success as the percentage of nests fledging at least one Gray Vireo. We present nest parasitism as a percentage of parasitized nests, defining a parasitized nest as a nest observed with a cowbird egg or nestling at any time while the nest was active. We present productivity as the average number of Gray Vireos fledged from successful nests and the minimum number of young fledged for the entire monitoring area. Finally, we report the average distance of nests from the nearest gas well pad, based on ArcGis measurements between nest and well pad coordinates.

RESULTS

Point Count Surveys

We recorded a detection rate of 6.7 birds per point (± 1.3) for point count surveys in 2007. Detection rates were variable among plots, but lower at the control (3.1 ± 1.0) and plot 2 (4.6 ± 1.4) than at plots 1 (6.2 ± 1.0) and 4 (11.3 ± 2.7).

We observed 35 bird species during point count surveys in 2007, including 20 Gray Vireos (Appendix 2). Seven Gray Vireos were recorded during surveys on the control plot, and 13 Gray Vireos were recorded during surveys on treatment plots. Many of the Gray Vireos recorded during surveys on the treatment plots were actually located outside of the plots. At the northernmost plot 1, only one of the six Gray Vireos was located within the plot; three males were singing from across the boundary road on the north side of the plot and two others were singing across the eastern edge of the plot. Both Gray Vireos recorded on plot 2 were believed to be located within the plot. At the southernmost plot 4, only one of the five Gray Vireos recorded were on the mesa top within the plot; the remaining four were detected at some distance on adjoining slopes.

Although many Gray Vireos were detected just outside the treatment plots, their territories might have included portions of the treatment plots.

We observed two other Birds of Conservation Concern, according to the U.S. Fish and Wildlife Service (2002): Brewer's Sparrow (*Spizella breweri*) and Sage Sparrow (*Amphispiza belli*). Brewer's Sparrow is on the national list, whereas Sage Sparrow is on the Region 2 (Southwest Region) list. Both species are widely considered to be sagebrush obligates (Braun et al. 1976). They were observed only on plot 2, the plot most heavily dominated by sagebrush. Although not listed as Birds of Conservation Concern, Juniper Titmouse (*Baeolophus griseus*) and Gray Flycatcher (*Empidonax wrightii*) are strongly associated with pinyon-juniper woodland; both were observed on all plots. We also observed a pair of Red-tailed Hawks (*Buteo jamaicensis*) on plot 4 that exhibited territorial behavior, perhaps indicative of a nearby nest.

View of Gray Vireo territories 2 and 8. Territory 8 bordered two gas well pads.

Territory Monitoring

We observed females in all 10 Gray Vireo territories monitored in 2007, for a pair success of 100% (Table 1). We located at least one active nest in all but two territories (6 and 7). In territory 6, we discovered an empty, inactive, nest late in the season but could not determine if that nest had been successful. In territory 7, we located a pair of Gray Vireos on 16 May but were unable to relocate them in three subsequent searches. During one of those searches on 6 June, we located an active Long-eared Owl (*Asio otus*) nest.

Table 1. Summary of 10 Gray Vireo territories monitored in the Bureau of Land Management Farmington, New Mexico, Resource Area in 2007. Universal Transverse Mercator easting and northing coordinates are provided in North American Datum 27.

Territory	Easting	Northing	Paired?	Visits	Nests Monitored
1	279869	4062711	Yes	5	1
2	280378	4060529	Yes	7	1
3	280335	4060092	Yes	7	2
4	280692	4059649	Yes	6	2
5	280915	4060512	Yes	6	1
6	286542	4061128	Yes	4	0
7	286447	4060695	Yes	4	0
8	280553	4060784	Yes	5	1
9	263435	4067739	Yes	10	2
10	263721	4067621	Yes	4	1

We monitored 11 Gray Vireo nests (Table 2, Appendix 3). Ten nests were placed in junipers and one nest was placed in a pinyon; the average height of nests was nine feet above the ground. Gray Vireos nested an average 338 m from the nearest gas well pad, with nests for territories 8 (120 m) and 9 (135 m) the closest. We determined that only one of nine (11%) nests was parasitized; two nests failed before the end of the laying stage and were therefore not included in our calculation of parasitism rate. Three Gray

Vireo nests (27%) fledged young and eight nests (73%) apparently failed. Successful nests fledged an average 2.7 vireos, and a minimum eight Gray Vireos fledged from monitored territories. Because we did not attempt to locate second broods in territories that fledged young, or perhaps missed young fledging later in the season, we likely underestimate the actual number of fledglings in monitored territories.

Table 2. Summary of 11 Gray Vireo nests monitored in the Bureau of Land Management, Farmington, New Mexico, Resource Area in 2007. Universal Transverse Mercator easting and northing coordinates are provided in North American Datum 27. We define exposure days as the estimated number of days a nest was monitored during the incubation and nestling stages. We provide the distance from nests to the nearest gas well pads, in meters. See Appendix 3 for nest site photographs.

Nest	Easting	Northing	Parasitized?	Exposure Days	Nearest Gas Well	Final Outcome
1.1	279876	4062708	No	13	157	Fledged 1
2.1	280378	4060529	No	8	215	Failed
3.1	280335	4060092	No	24	608	Failed
3.2	280298	4060027	No	7	636	Failed
4.1	280536	4059706	No	7	466	Failed
4.2	280706	4059574	No	25	554	Fledged 3
5.1	280940	4060738	Yes	13	402	Failed
8.1	280553	4060784	No	7	120	Failed
9.1	263430	4067797	No	7	135	Failed
9.2	263435	4067739	No	31	147	Fledged 4
10.1	263663	4067550	No	0	278	Failed

DISCUSSION

Point Count Surveys

Gray Vireos were fairly numerous along our point count survey route, but slopes and canyons surrounding the treatment plots probably provide superior habitat, based on the number of vireos detected just outside the plots. We considered our Gray Vireo

sample size to be insufficient for running a distance-based density analysis (see Buckland et al. 2001); therefore, we do not provide a true measure of Gray Vireo abundance. To better understand Gray Vireo abundance and measure effects of treatments in pinyon-juniper woodland in that region, we recommend territory monitoring within and adjacent to the plots. Territory monitoring in that region can provide the true number of pairs in the area (i.e., density), identify changes in abundance over time, evaluate the use of mesa habitat for nesting relative to adjacent woodland, and allow BLM to protect critical sites during the nesting season.

There are many compelling reasons why land managers treat pinyon-juniper woodland. Selective clearing, particularly junipers, is widely employed for a variety of perceived advantages, such as improving forage production (Clary and Jameson 1981), restoring a more natural or historic condition (Pieper 1990, Brockway et al. 2002), or increasing recharge to local aquifers (Roundy and Vernon 1999). However valid any of these perceived benefits might be, we are not optimistic that treatments on these plots will benefit breeding birds. Juniper reduction would likely be disadvantageous for Gray Vireos and other species strongly associated with junipers, including Gray Flycatcher and Juniper Titmouse. One of the plots also contains considerable sagebrush. Sagebrush habitat is limited in New Mexico and among the most imperiled and undervalued ecosystems in North America (Knick et al. 2003, Welch and Criddle 2003). Any alteration of sage coverage in plot 2 could have a negative effect on two resident species of conservation concern, Brewer's and Sage Sparrows. We advise BLM to avoid treatments that alter sagebrush in plot 2, and to avoid removal of trees and shrubs on any of the plots during the Gray Vireo nesting season (i.e., May – August).

Pinyon-juniper woodland offers nesting habitat for a variety of songbird and raptor species. This Long-eared Owl was brooding young near Gobernador on 6 June 2007.

Territory Monitoring

Although we report only a modest sample of nests, Gray Vireos in the Farmington Resource Area might have several nesting characteristics different from Gray Vireos at a site we monitored in the Guadalupe Mountains, southeastern New Mexico, from 2005-2007 (Hawks Aloft 2006). Nests in the Farmington area were located almost exclusively in junipers and averaged nine feet above the ground. Nest substrate was more variable for 32 nests in the Guadalupe Mountains from 2005-2007; 17 were in junipers (53%), 13 were in oaks (41%), and 2 were in pinyons (6%). Height for those nests in the Guadalupe

Mountains averaged less than six feet above the ground. In 2007, nest parasitism in the Farmington area was low (11%), whereas nest parasitism in the Guadalupe Mountains from 2005-2007 was much higher at 62% (16 of 26 eligible nests).

Despite low nest parasitism, we observed low nest success for our sample of monitored nests. We observed aggressive interactions between Gray Vireos and Western Scrub-Jays (*Aphelocoma californica*) in three of the territories. In territory 1, a scrub-jay approached within 15 m of the nest and was aggressively chased from the area by the adult vireos; conversely, this pair displayed no apparent agitation in response to the observer's presence near the nest. Based on our observations of aggressive interactions and evidence of Western Scrub-Jays depredating nests of a similar vireo species (Stake and Cimprich 2003), we suspect that Western Scrub-Jays might be a regular predator of Gray Vireo nests, at least in the Farmington area. Because Gray Vireos persistently renest after a failure, nest predation might have limited overall effect on annual Gray Vireo territory productivity. However, the energy expended for multiple nesting attempts might have a considerable effect on adult survivorship and lifetime productivity.

Gas and oil wells probably have little effect on Gray Vireo nest-site selection, or at least do not deter them, but continued leasing and development might effect territory selection. Some Gray Vireos nested rather close to gas well pads; one pair nested in a pinyon along the edge of a well pad and successfully fledged four young. The biggest concerns for oil and gas leasing and development are pinyon-juniper woodland reduction and fragmentation. The number of well pads, and associated roads, could increase to such a degree that they severely fragment pinyon-juniper woodland in the future, perhaps rendering some areas of insufficient size for maintaining vireo populations or altering

Gray Vireo nest predator dynamics. Wickersham and Wickersham (2006) found a preliminary Gray Vireo density in eastern San Juan and western Rio Arriba Counties comparable to other regions, but temporal trends associated with continued development are unclear. In this period of almost certain oil and gas expansion in the Farmington Resource Area, annual studies of Gray Vireo (a state threatened species, a federal species of conservation concern, and a pinyon-juniper indicator species) are highly advised. We recommend a continuation of the distance-based density sampling currently performed by Wickersham and Wickersham (2006) in San Juan and Rio Arriba Counties to evaluate temporal trends in the region. We also recommend a continuation of nesting studies currently performed by Hawks Aloft, shifting territory monitoring to the treatment areas near Counselor, a more accessible study area for Hawks Aloft researchers based in Albuquerque. This will provide needed information on Gray Vireo territory selection, nesting success, and density trends. Multiple threats to this species of concern in the Farmington Resource Area provide ample reason for BLM to highly prioritize Gray Vireo research and conservation among their current management concerns.

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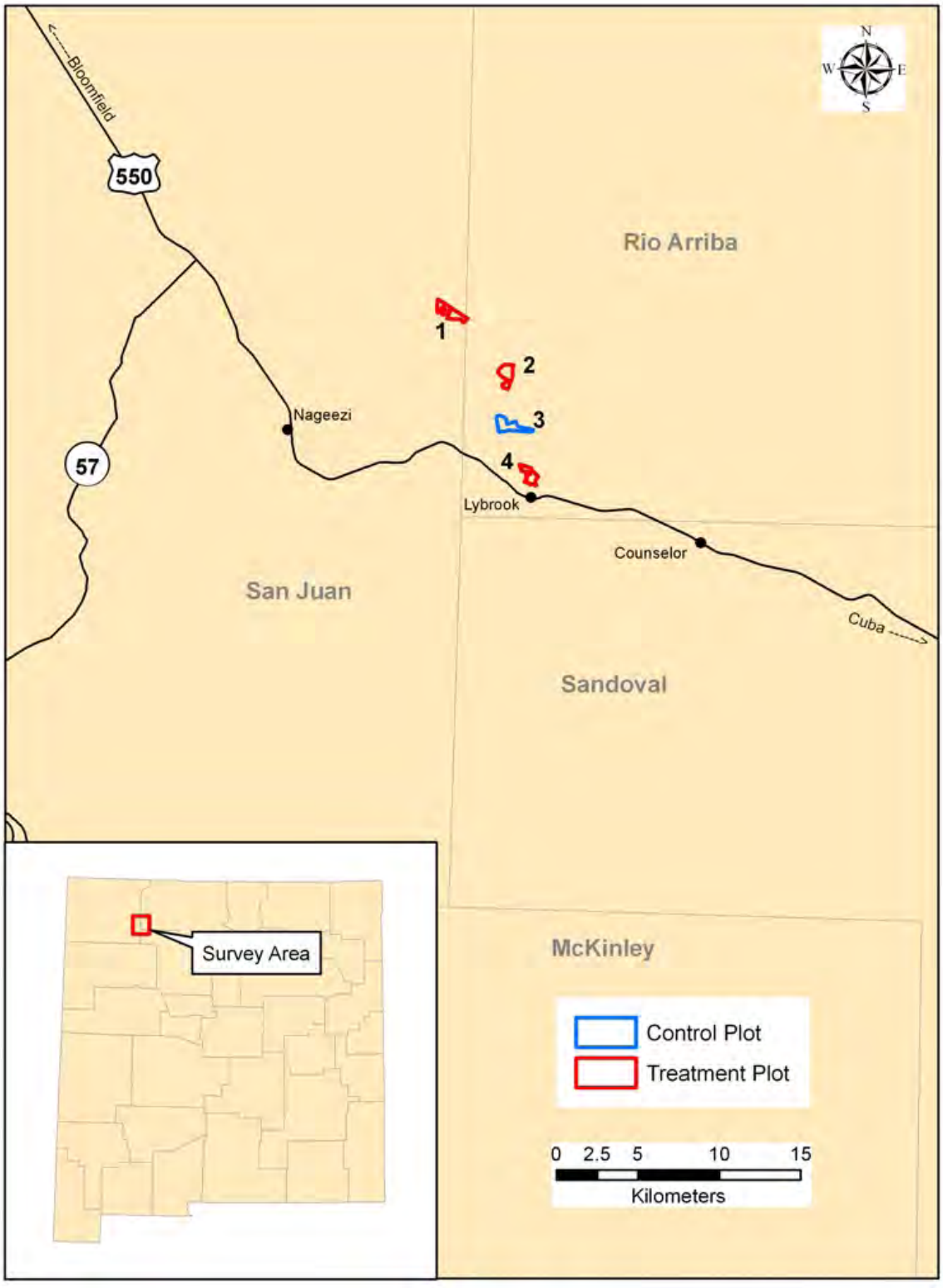


Figure 1. Treatment and control plots where we conducted point count surveys in the Bureau of Land Management Farmington, New Mexico, Resource Area in 2007.

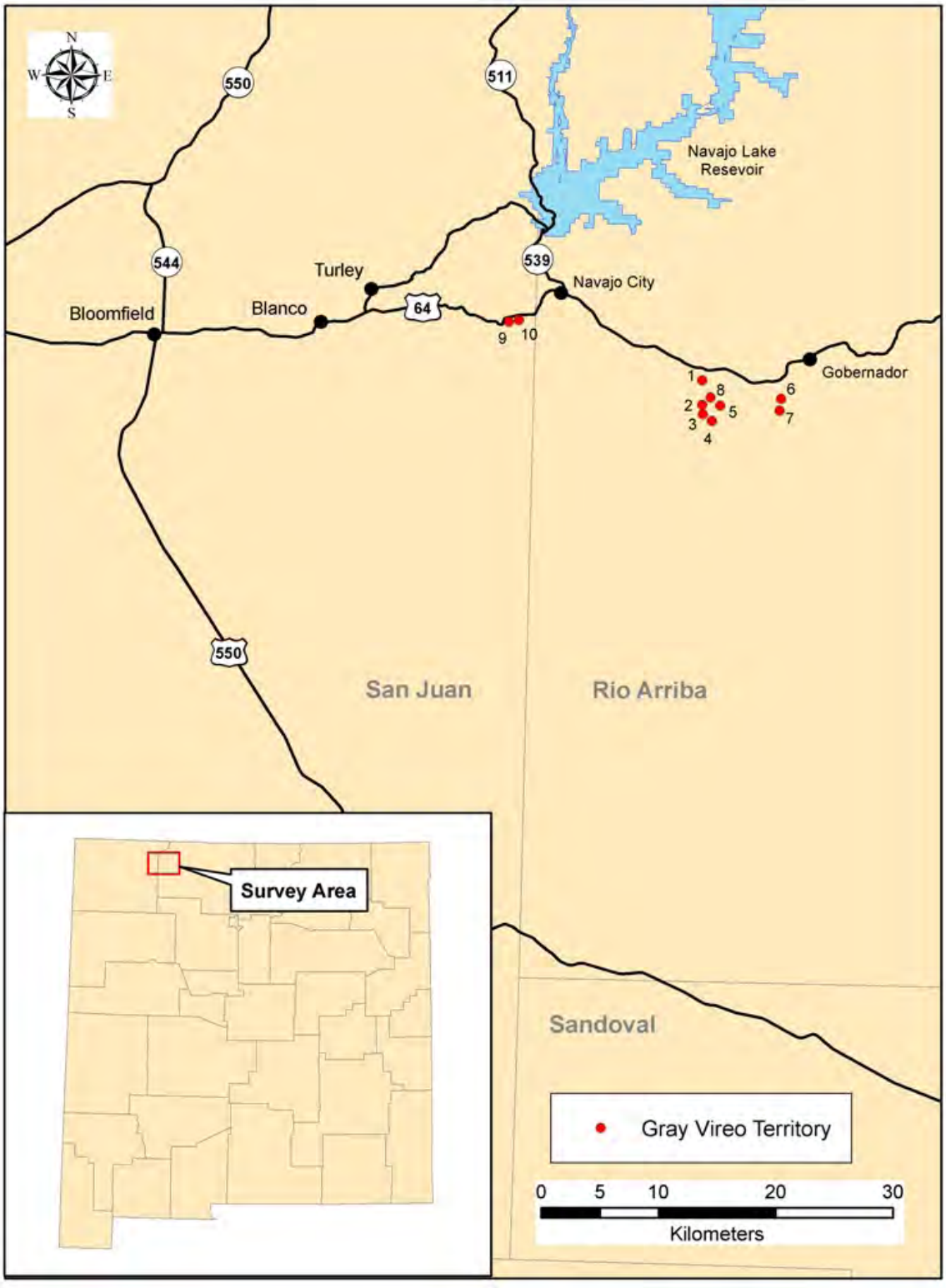


Figure 2. Location of 10 Gray Vireo territories monitored in the Bureau of Land Management Farmington, New Mexico, Resource Area in 2007.

Appendix 1. Universal Transverse Mercator easting and northing coordinates for 48 point count surveys at pinyon-juniper treatment and control sites identified by the Bureau of Land Management, Farmington Field Office, New Mexico in 2007.

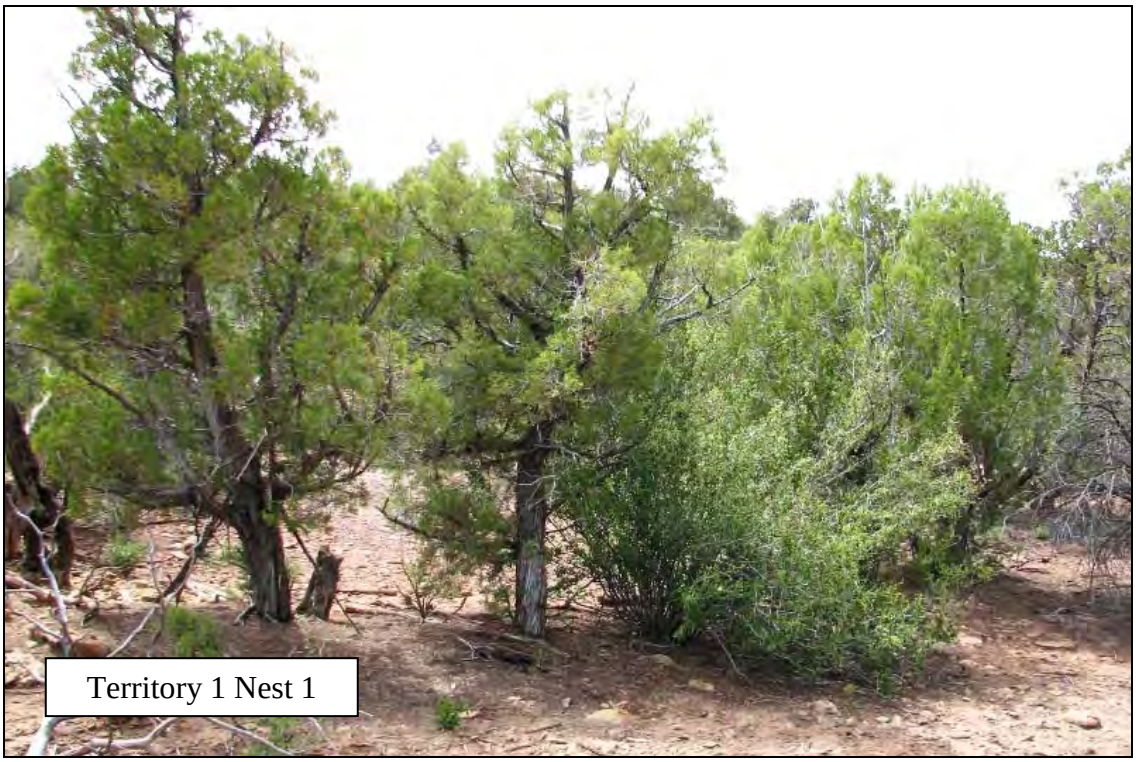
Point	Site	Easting	Northing	Datum	Gray Vireos Observed
1	1	262652	4024922	NAD 27	0
2	1	262902	4024805	NAD 27	0
3	1	263161	4024660	NAD 27	1
4	1	263424	4024469	NAD 27	0
5	1	263648	4024307	NAD 27	2
6	1	263891	4024137	NAD 27	1
7	1	264156	4023971	NAD 27	0
8	1	264401	4023818	NAD 27	0
9	1	264692	4023672	NAD 27	2
10	1	264381	4023542	NAD 27	0
11	1	264142	4023638	NAD 27	0
12	1	263868	4023695	NAD 27	0
13	2	266982	4020704	NAD 27	1
14	2	266909	4020395	NAD 27	1
15	2	266867	4020092	NAD 27	0
16	2	267171	4020077	NAD 27	0
17	2	267154	4020374	NAD 27	0
18	2	267268	4020680	NAD 27	0
19	2	267157	4019779	NAD 27	0
20	2	267158	4019464	NAD 27	0
21	3	267002	4016827	NAD 27	0
22	3	267300	4016832	NAD 27	1
23	3	267601	4016827	NAD 27	0
24	3	267903	4016906	NAD 27	0
25	3	267300	4017127	NAD 27	0
26	3	267099	4017132	NAD 27	1
27	3	266803	4017130	NAD 27	1
28	3	266796	4017429	NAD 27	0
29	3	266498	4017426	NAD 27	1
30	3	266500	4017133	NAD 27	0
31	3	266515	4016830	NAD 27	1
32	3	266800	4016842	NAD 27	1
33	3	266819	4016547	NAD 27	1
34	4	268032	4014012	NAD 27	0
35	4	268201	4013941	NAD 27	0
36	4	268332	4013800	NAD 27	0
37	4	268213	4013648	NAD 27	0
38	4	268290	4013502	NAD 27	1
39	4	268494	4013429	NAD 27	0
40	4	268670	4013446	NAD 27	0
41	4	268796	4013302	NAD 27	0

Point	Site	Easting	Northing	Datum	Gray Vireos Observed
42	4	268868	4013430	NAD 27	1
43	4	268755	4013605	NAD 27	0
44	4	268865	4013818	NAD 27	0
45	4	269033	4014000	NAD 27	1
46	4	268819	4014026	NAD 27	1
47	4	268647	4014200	NAD 27	1
48	4	268511	4014044	NAD 27	0

Appendix 2. List of 35 bird species and number of individuals observed during point count surveys at three pinyon-juniper treatment sites (1, 2, and 4) and one control site (3) identified by the Bureau of Land Management, Farmington Field Office, New Mexico in 2007. We provide the number of flyovers, recorded separately, in parentheses.

Common Name	1	2	3	4
Turkey Vulture	0	(1)	0	(1)
Red-tailed Hawk	0	0	0	(2)
American Kestrel	0	0	0	1
Mourning Dove	14 (10)	0	10	2
White-throated Swift	(1)	0	0	(24)
Northern Flicker	0	0	0	1
Gray Flycatcher	15	6	5	1
Cordilleran Flycatcher	0	0	1	0
Ash-throated Flycatcher	12	1	4	17
Cassin's Kingbird	0	0	0	2
Gray Vireo	**6**	**2**	**7**	**5**
Plumbeous Vireo	4	0	1	0
Western Scrub-Jay	1	0	2	10
Pinyon Jay	1	0	0	7
Common Raven	6	3 (1)	0	(2)
Violet-green Swallow	(2)	(1)	1 (3)	9 (73)
Mountain Chickadee	3	0	0	5
Juniper Titmouse	5	8	2	26
Bushtit	0	4	0	9
White-breasted Nuthatch	2	0	0	4
Rock Wren	2	0	3	8
Bewick's Wren	14	8	17	25
Blue-gray Gnatcatcher	3	0	1	0
Western Bluebird	(2)	1	0	0
Mountain Bluebird	0	2	0	0
American Robin	0	0	0	1
Black-throated Gray Warbler	8	0	3	8
Spotted Towhee	17	6	9	22
Chipping Sparrow	8	10	2	0
Brewer's Sparrow	0	2	0	0
Sage Sparrow	0	8	0	0
Black-headed Grosbeak	0	0	0	6
Brown-headed Cowbird	0	0	1	4 (3)
House Finch	1	0	2	10 (2)
Lesser Goldfinch	0	0	0	(3)

Appendix 3. Photographs of 11 Gray Vireo nest sites in the Bureau of Land Management Farmington, New Mexico, Resource Area in 2007.




Territory 3 Nest 1


Territory 3 Nest 2

Territory 4 Nest 1

Territory 4 Nest 2


Territory 5 Nest 1


Territory 8 Nest 1

Territory 9 Nest 1

Territory 9 Nest 2


Territory 10 Nest 1