2007 SONGBIRD SURVEYS IN THE BUREAU OF LAND MANAGEMENT'S SOCORRO RESOURCE AREA: EAST MAGDALENA AND CHUPADERA MESA

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TABLE OF CONTENTS

FIGURES

APPENDICES

EXECUTIVE SUMMARY

In 2007, the Bureau of Land Management (BLM), Socorro Field Office, contracted Hawks Aloft to conduct bird surveys and search for the state-threatened Gray Vireo (*Vireo vicinior*), or other species of conservation concern, in two areas undergoing current or future vegetative treatments (especially juniper reduction). We conducted point count surveys at 70 points along four routes at East Magdalena and at 72 points along four routes on the Chupadera Mesa. We observed 51 avian species, including four classified by U.S. Fish and Wildlife Service as Birds of Conservation Concern. No Gray Vireos were detected during point count surveys or searches, although we recorded a small number of vireos incidentally during previous years. Because half of our contract was earmarked for concurrent raptor studies in Socorro County, we had insufficient funds for implementing a more robust sample of songbird surveys and a more extensive Gray Vireo search. We recommend a more intense pre- and post-treatment study to generate greater statistical power for identifying meaningful effects on the avian community as treatments progress. However, because some treatments were initiated on the Chupadera Mesa even before our 2007 surveys, despite reports of Gray Vireos in previous years, we question whether or not BLM places a high enough priority on avian conservation in juniper habitat at these sites.

INTRODUCTION

The Bureau of Management (BLM), Socorro Field Office, is responsible for balancing a variety of resource management concerns in west-central New Mexico. Among the seven primary issues listed by the BLM (1989) Resource Management Plan is vegetative use (listed second after land ownership adjustments). BLM seeks to maintain appropriate levels of vegetation for livestock, wildlife, and watershed production (BLM 1989). Research and monitoring are important to determine appropriate levels and ensure that management activities properly balance the needs of livestock and other uses with protection of natural resources. Research and monitoring are especially important in areas that potentially host threatened or endangered species.

Vegetative land treatments have been attempted or proposed by BLM in open pinyon-juniper woodland, juniper savannah, or grassland in the Socorro Resource Area. Activities usually include juniper reduction for perceived restoration, water conservation, or forage production benefits. The Chupadera Mesa, in eastern Socorro County, is a site for current and planned vegetation manipulation through burning, mechanical, and chemical treatments. East Magdalena, west of Socorro, is another site where juniper reduction treatments are planned. It is unknown how treatments at these two sites will affect native birds. Of particular concern are species that are strongly associated with junipers, including Gray Vireo (*Vireo vicinior*), a small songbird listed as threatened in the state of New Mexico (New Mexico Department of Game and Fish 2004). This species has been known to occur locally around the Chupadera Mesa in small numbers.

In 2007, BLM contracted Hawks Aloft, Inc. to conduct bird surveys in current or future treatment areas and locate Gray Vireos or other species of conservation concern.

We conducted two types of surveys: 1) point count surveys to document Gray Vireo and other species within areas identified by BLM as treatment sites and 2) searches for Gray Vireo in potential pinyon-juniper woodland or juniper savannah habitat on the Chupadera Mesa and in East Magdalena. In this report, we provide results of point count surveys and Gray Vireo searches, a list of bird species observed, and we comment on potential impacts of juniper reduction on birds at these sites.

STUDY AREA

We conducted point count surveys at four sites in the East Magdalena area and at four sites in the Chupadera Mesa area in Socorro County (Fig. 1). A BLM natural resource specialist accompanied us on our first visit to East Magdalena and specified locations for the survey sites, based on proposed treatment areas (Fig. 2). Two of the sites covered upland pinyon-juniper woodland habitat, and they were named for associated canyons, Madera Canyon (12 points) and Chavez Canyon (20 points). We established a third site (i.e., Powerline) in juniper savannah habitat, with most of the 18 points aligned in a north-south line parallel to a prominent powerline. The fourth site, aptly named Creosote, contained 20 points in north-south lines within dense creosote brush.

We selected the four sites at Chupadera Mesa based on a map provided by the BLM specialist of locations for proposed and completed vegetation treatments (Fig. 3). This map contained names for three project areas (Middle School Section, Netwire, and Upper Taylor Canyon). We added a fourth site and named it Lobo Canyon, based on the name of a nearby canyon. Middle School Section (16 points) included grassland with scattered juniper at savannah to woodland density; the junipers in a portion of this site

had already been treated and were dead. Adjacent Netwire (14 points) was similar to Middle School Section, with junipers and cholla in grassland and patches of relatively dense juniper woodland; we did not observe that treatments had occurred at this site. Lobo Canyon, also adjacent to Middle School Section, contained 20 points, nearly half of which were in areas already treated. We established 22 survey points in Upper Taylor Canyon, placing half of the points in the proposed treatment area and extending the other half into a completed treatment area with grassland and dead junipers. Therefore, unlike at East Magdalena, where the 70 survey points were in pre-treated areas, many of the 72 Chupadera Mesa survey points (24, 33%) were in areas already treated.

Some of the survey points at Chupadera Mesa were in areas where junipers were treated.

METHODS

Point Count Surveys

We conducted point count surveys (Bibby et al. 2000) at each of the eight sites (totaling 142 points) once in June. We spaced survey points at least 250 m apart; the number of survey points at a site depended on the number we could visit in one morning, given the terrain. Anticipating the probability of only visiting each point once, 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. Each individual survey was conducted by a single observer, but three different observers were used to complete the eight surveys. For each survey morning, observers began point counts within 15 minutes after sunrise and concluded within four hours.

We evaluated areas 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 the site. Because treatments had already commenced in a portion of surveyed habitat at Chupadera Mesa, we also report detection rates for the 48 untreated points and the 24 treated points in that area. All

detection rates are presented with 95% confidence intervals. We present a list of all species observed during point counts at any distance from survey points (Appendix 2) and report the number of Gray Vireos detected, as well as other U.S. Fish and Wildlife Service (2002) Birds of Conservation Concern. For Chupadera Mesa, we compare species richness for survey points in treated areas and untreated areas, and we identify species that might generally be affected by treatments, based on the number of observations for these species in treated and untreated areas.

Gray Vireo Searches

We conducted additional searches for Gray Vireos in potential habitat during the afternoons following point count surveys. Potential habitat was identified during point count surveys or while exploring East Magdalena and Chupadera Mesa by vehicle. At Chupadera Mesa, we were aware of one particular historic Gray Vireo territory location, and we searched that area. For each search, we spent at least 30 minutes walking around the area and listening for Gray Vireos. We did not use tape playback to solicit vocalizations. We noted presence or apparent absence of Gray Vireos, recorded UTM coordinates, and took a photograph of the area (Appendix 3).

RESULTS

Point Count Surveys

We recorded a higher detection rate at the Chupadera Mesa sites (12.3 ± 1.1) than at the East Magdalena sites (5.9 ± 0.6). At the Chupadera Mesa sites, we recorded a

slightly higher detection rate at the untreated points (13.2 ± 1.8) than at the smaller number of treated points (10.4 ± 1.8).

We observed 51 bird species during point count surveys in 2007. Species richness was similar at East Magdalena (36 species at 70 survey points) and Chupadera Mesa (39 species at 72 survey points). No Gray Vireos were observed at either site, but we did record four species on the U.S. Fish and Wildlife Service (2002) list of Birds of Conservation Concern. We observed one Loggerhead Shrike (*Lanius ludovicianus*) and Olive-sided Flycatcher (*Contopus cooperi*) each at the Chavez Canyon site at East Magdalena. At the East Magdalena Madera Canyon site, we observed a Crissal Thrasher (*Toxostoma crissale*). We observed Black-chinned Sparrows (*Spizella atrogularis*) at both East Magdalena (N=5, Chavez Canyon) and Chupadera Mesa (N=4, Lobo Canyon). Of interest, from a distribution more than a conservation perspective, was a vocalizing Lesser Nighthawk (*Chordeiles acutipennis*) recorded during our survey at the East Magdalena Creosote site.

At Chupadera Mesa, we recorded 37 species at untreated points and 27 species at treated points, a difference not unexpected with twice as many untreated survey points. Two species, Cactus Wren (*Campylorhynchus brunneicapillus*) and Curve-billed Thrasher (*Toxostoma curvirostre*), were only observed at treated points. Twelve species were observed only at untreated points. Gray Flycatcher (*Empidonax wrightii*), a species strongly associated with juniper, was recorded five times at untreated points (four at Upper Taylor Canyon) but not at treated points. Juniper Titmouse (*Baeolophus griseus*) was observed both in untreated and treated areas, but 15 of the 16 titmouse observations were in untreated areas.

Gray Vireo Searches

Aside from point count surveys, we searched eight potential habitat patches for Gray Vireo, including six at East Magdalena (Fig. 2) and two at Chupadera Mesa (Fig. 3). No Gray Vireos were detected. In 2005, we observed a pair of Gray Vireos during a brief search of the Chupadera Mesa at UTM 384583-3751125 (North American Datum 27). No vireos were observed at this location on 8 June 2007. In 2002 and 2003, we observed Gray Vireos opportunistically while conducting a Loggerhead Shrike study for BLM on the Chupadera Mesa (Hawks Aloft 2003). However, we did not note the number of vireos or their location coordinates during that study.

DISCUSSION

Point Count Surveys

The difference in detection rates between East Magdalena and Chupadera Mesa, although substantial, is not necessarily meaningful. Observer differences can account for much of the apparent abundance at Chupadera Mesa. A low sample of survey points, with only one survey repetition, also reduced the power for determining differences in avian abundance. Our point count data simply provides an average number of birds detected within five minutes; for Chupadera Mesa, at least, this average was quite high.

Both the BLM natural resources specialist and Hawks Aloft desired a more intense songbird survey effort and a more extensive search for Gray Vireos, but adequate funding was not available. Some of our 2007 scope of work consisted of raptor nest searching and monitoring, including a costly aerial survey. Between monitoring raptors, conducting point counts, and searching for Gray Vireos, we engaged in a wide range of

activities, but the resources available were insufficient for devoting much time to any one of those desired activities. For future contract agreements, we recommend that the BLM, Socorro Field Office, prioritize their objectives, realize the costs of meeting those objectives, explicitly list the objectives they can financially cover in a written task order, and possibly postpone tasks that are extraneous or can not be thoroughly covered with current funding.

Gray Vireo Searches

We did not detect Gray Vireos at either East Magdalena or Chupadera Mesa, but juniper treatments would likely have an effect on this species and perhaps other species of conservation concern. Gray Vireos have been observed in the past in small numbers at Chupadera Mesa, and several bird species of conservation concern were observed during point count surveys in 2007 at both sites. Although not officially listed as a concern species, Gray Flycatcher and Juniper Titmouse are strongly associated with junipers and would likely be negatively affected by juniper reductions. During winter surveys, we have observed numerous Sage Thrashers (*Oreoscoptes montanus*), a sagebrush species, associated with junipers at various locations within New Mexico (Hawks Aloft 2006). Continued monitoring, as treatments progress, is important to document negative effects for juniper-associated species and potential positive effects for grassland species.

We do not necessarily protest juniper reduction. There are many compelling reasons why land managers treat juniper or pinyon-juniper woodland. Selective clearing 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). BLM acknowledges that improving livestock forage is an important stimulus for juniper reduction at East Magdalena and Chupadera Mesa. We do not discount this benefit, but we encourage BLM to also consider the potential impact on the avian community when making management decisions. Because some of these treatments took place before our 2007 surveys commenced, despite previous evidence of Gray Vireo presence (at Chupadera Mesa), we believe that the BLM, Socorro Field Office, did not seriously consider effects on the avian community when making those decisions.

The BLM Socorro Field Office might not realize that some birds, including a few species of conservation concern, might be negatively affected by treatments; they might not value the needs of birds as much as other interests; or, this realization and sense of value have not been conveyed to the decision makers. To improve BLM's understanding of how birds and other wildlife respond to habitat modification, we suggest shifting more of the resources used for treating the habitat toward conducting a more formal and intensive pre- and post-treatment study that documents effects.

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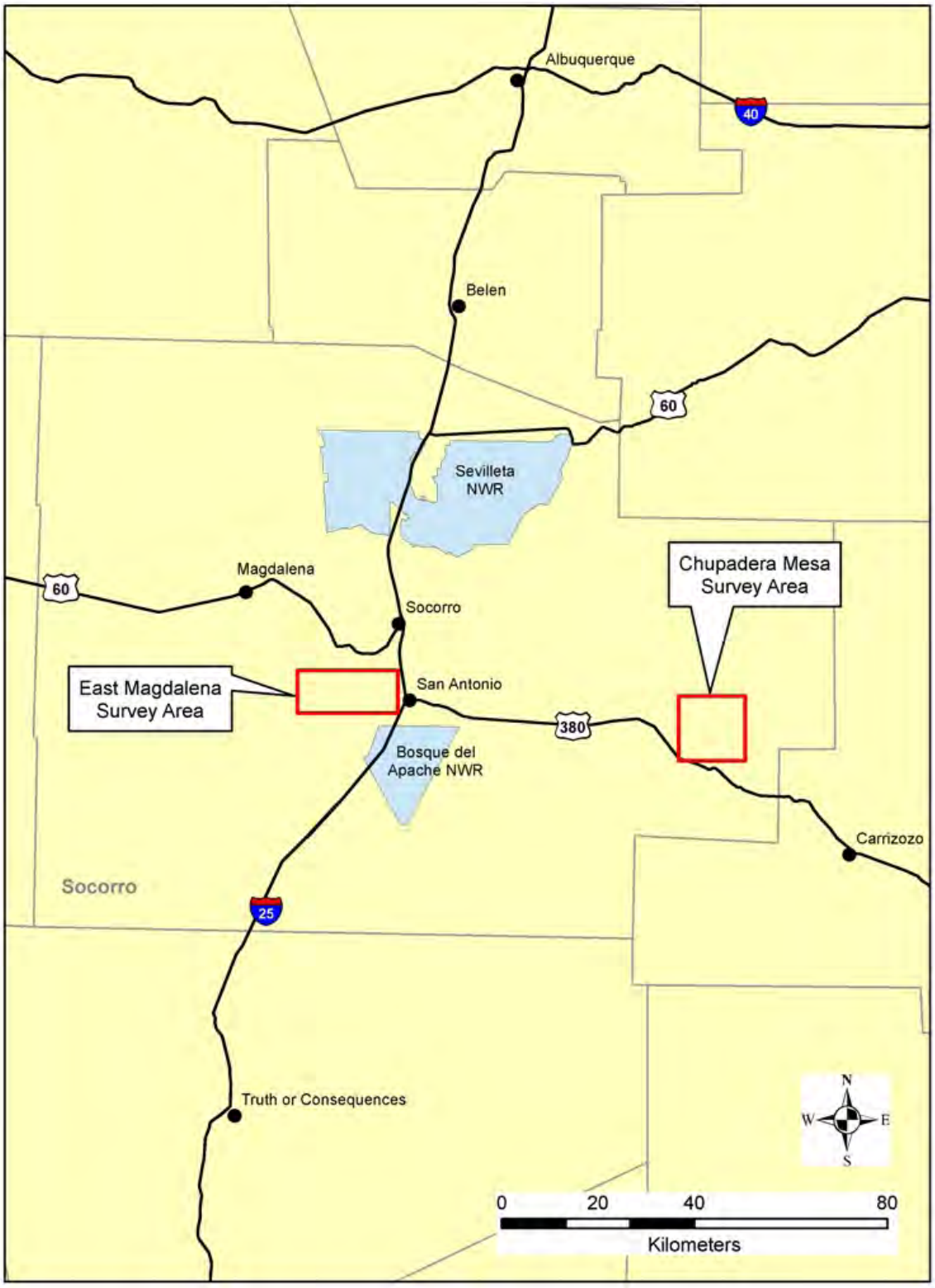

Figure 1. Location of East Magdalena and Chupadera Mesa where we conducted point count surveys in 2007 for the Bureau of Land Management, Socorro Resource Area.

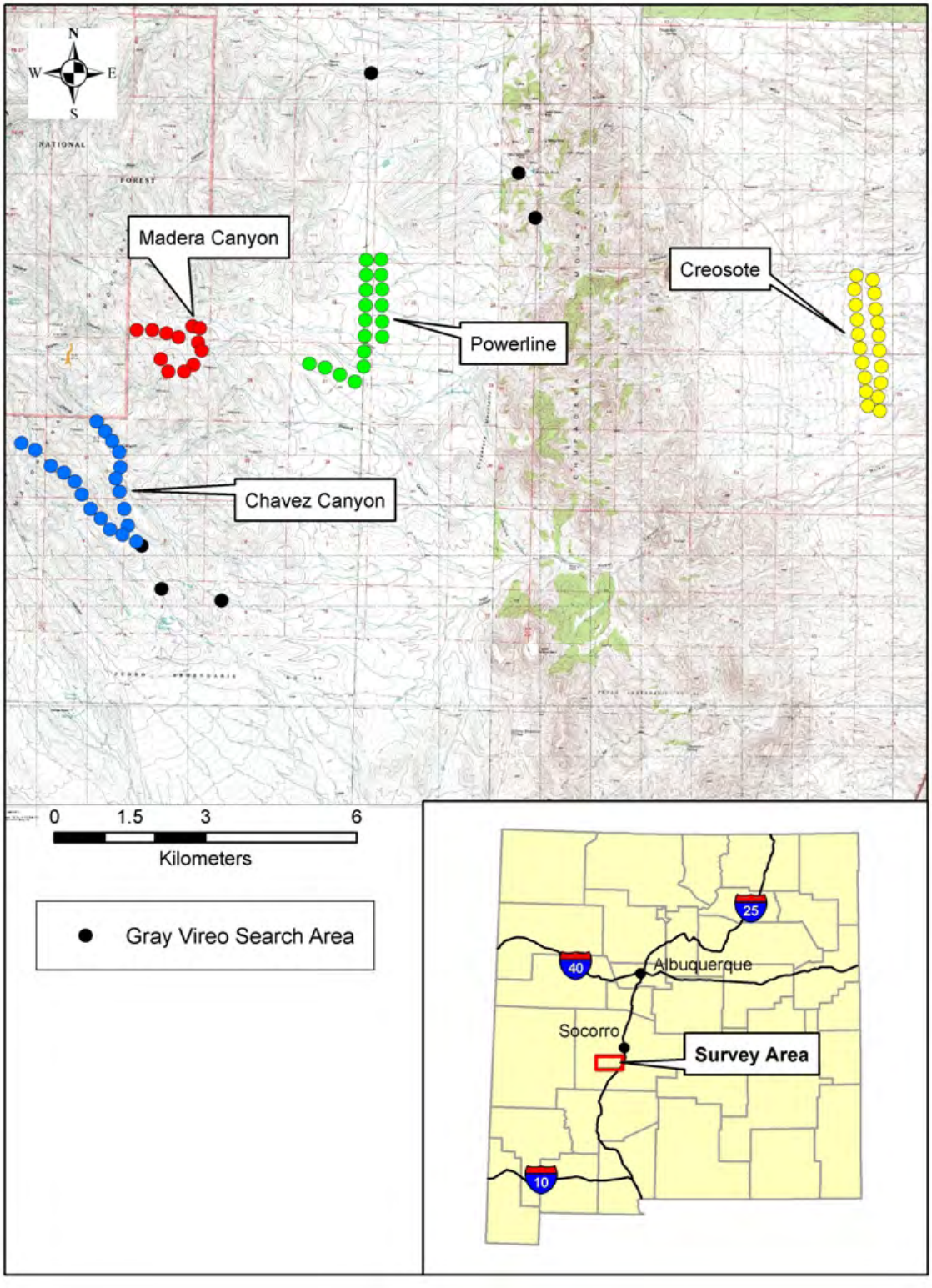

Figure 2. Location of the Chavez Canyon, Creosote, Madera Canyon, and Powerline point count survey routes, and Gray Vireo search areas, in East Magdalena, Socorro County, New Mexico.

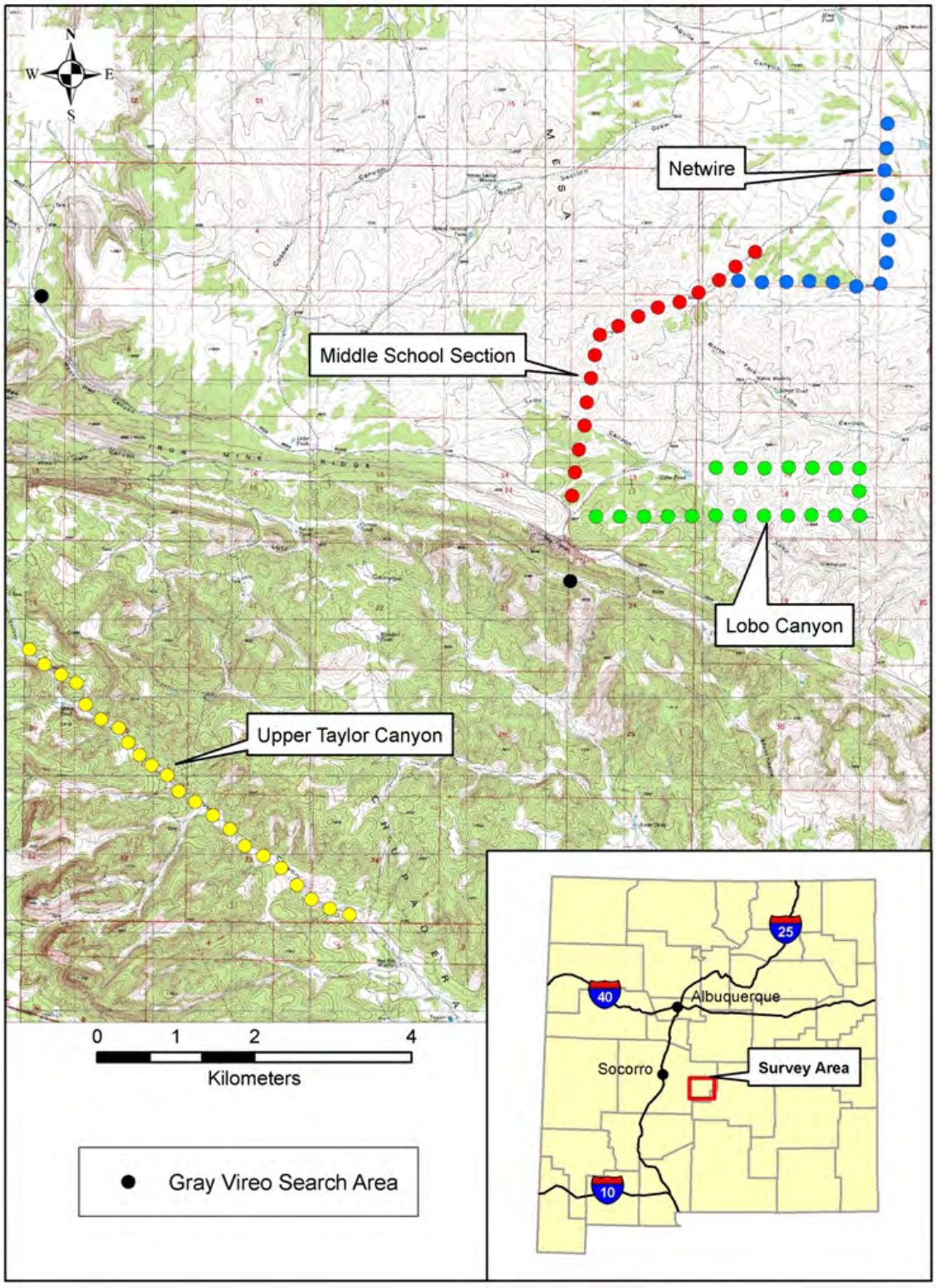

Figure 3. Location of the Lobo Canyon, Middle School Section, Netwire, and Upper Taylor Canyon point count survey routes, and Gray Vireo search areas, on the Chupadera Mesa, Socorro County, New Mexico.

Appendix 1. Universal Transverse Mercator easting and northing coordinates for point count surveys conducted in the BLM, Socorro Resource Area, New Mexico in 2007. We provide coordinates in North American Datum 27.

Site	Route	Point	Easting	Northing	Treated?
East Magdalena	Powerline	1	311424	3756823	No
East Magdalena	Powerline	2	311730	3756747	No
East Magdalena	Powerline	3	312032	3756603	No
East Magdalena	Powerline	4	312327	3756462	No
East Magdalena	Powerline	5	312503	3756764	No
East Magdalena	Powerline	6	312507	3757064	No
East Magdalena	Powerline	7	312523	3757370	No
East Magdalena	Powerline	8	312526	3757685	No
East Magdalena	Powerline	9	312536	3757986	No
East Magdalena	Powerline	10	312546	3758287	No
East Magdalena	Powerline	11	312553	3758591	No
East Magdalena	Powerline	12	312548	3758890	No
East Magdalena	Powerline	13	312849	3758900	No
East Magdalena	Powerline	14	312846	3758593	No
East Magdalena	Powerline	15	312868	3758300	No
East Magdalena	Powerline	16	312861	3757984	No
East Magdalena	Powerline	17	312870	3757660	No
East Magdalena	Powerline	18	312869	3757358	No
East Magdalena	Madera Canyon	1	307990	3757490	No
East Magdalena	Madera Canyon	2	308301	3757493	No
East Magdalena	Madera Canyon	3	308582	3757431	No
East Magdalena	Madera Canyon	4	308819	3757352	No
East Magdalena	Madera Canyon	5	309098	3757570	No
East Magdalena	Madera Canyon	6	309245	3757523	No
East Magdalena	Madera Canyon	7	309208	3757247	No
East Magdalena	Madera Canyon	8	309279	3757084	No
East Magdalena	Madera Canyon	9	309116	3756802	No
East Magdalena	Madera Canyon	10	308938	3756667	No
East Magdalena	Madera Canyon	11	308615	3756667	No
East Magdalena	Madera Canyon	12	308469	3756914	No
East Magdalena	Chavez Canyon	1	307192	3755672	No
East Magdalena	Chavez Canyon	2	307361	3755473	No
East Magdalena	Chavez Canyon	3	307507	3755286	No
East Magdalena	Chavez Canyon	4	307642	3755066	No
East Magdalena	Chavez Canyon	5	307669	3754765	No
East Magdalena	Chavez Canyon	6	307573	3754539	No
East Magdalena	Chavez Canyon	7	307649	3754278	No
East Magdalena	Chavez Canyon	8	307745	3753931	No
East Magdalena	Chavez Canyon	9	307817	3753603	No
East Magdalena	Chavez Canyon	10	307985	3753286	No
East Magdalena	Chavez Canyon	11	307709	3753415	No

Site	Route	Point	Easting	Northing	Treated?
East Magdalena	Chavez Canyon	12	307459	3753522	No
East Magdalena	Chavez Canyon	13	307278	3753742	No
East Magdalena	Chavez Canyon	14	307077	3753933	No
East Magdalena	Chavez Canyon	15	306899	3754220	No
East Magdalena	Chavez Canyon	16	306764	3754480	No
East Magdalena	Chavez Canyon	17	306546	3754656	No
East Magdalena	Chavez Canyon	18	306286	3754792	No
East Magdalena	Chavez Canyon	19	305977	3755110	No
East Magdalena	Chavez Canyon	20	305702	3755241	No
East Magdalena	Creosote	1	322608	3758495	No
East Magdalena	Creosote	2	322640	3758227	No
East Magdalena	Creosote	3	322664	3757905	No
East Magdalena	Creosote	4	322703	3757644	No
East Magdalena	Creosote	5	322724	3757377	No
East Magdalena	Creosote	6	322738	3757085	No
East Magdalena	Creosote	7	322778	3756765	No
East Magdalena	Creosote	8	322771	3756441	No
East Magdalena	Creosote	9	322712	3756162	No
East Magdalena	Creosote	10	322746	3755882	No
East Magdalena	Creosote	11	322509	3755986	No
East Magdalena	Creosote	12	322470	3756263	No
East Magdalena	Creosote	13	322455	3756544	No
East Magdalena	Creosote	14	322400	3756846	No
East Magdalena	Creosote	15	322351	3757131	No
East Magdalena	Creosote	16	322320	3757406	No
East Magdalena	Creosote	17	322296	3757698	No
East Magdalena	Creosote	18	322265	3757992	No
East Magdalena	Creosote	19	322240	3758299	No
East Magdalena	Creosote	20	322280	3758574	No
Chupadera Mesa	Middle School Section	1	391340	3748575	No
Chupadera Mesa	Middle School Section	2	391375	3748877	No
Chupadera Mesa	Middle School Section	3	391425	3749165	No
Chupadera Mesa	Middle School Section	4	391501	3749473	No
Chupadera Mesa	Middle School Section	5	391529	3749770	No
Chupadera Mesa	Middle School Section	6	391581	3750076	No
Chupadera Mesa	Middle School Section	7	391632	3750374	No
Chupadera Mesa	Middle School Section	8	391697	3750631	Yes
Chupadera Mesa	Middle School Section	9	391932	3750745	Yes
Chupadera Mesa	Middle School Section	10	392186	3750868	Yes
Chupadera Mesa	Middle School Section	11	392435	3750981	Yes
Chupadera Mesa	Middle School Section	12	392712	3751049	Yes
Chupadera Mesa	Middle School Section	13	392952	3751171	Yes
Chupadera Mesa	Middle School Section	14	393216	3751331	No
Chupadera Mesa	Middle School Section	15	393422	3751500	No
Chupadera Mesa	Middle School Section	16	393674	3751689	No

Site	Route	Point	Easting	Northing	Treated?
Chupadera Mesa	Lobo Canyon	1	391646	3748312	No
Chupadera Mesa	Lobo Canyon	2	391948	3748313	No
Chupadera Mesa	Lobo Canyon	3	392259	3748313	No
Chupadera Mesa	Lobo Canyon	4	392563	3748311	No
Chupadera Mesa	Lobo Canyon	5	392864	3748317	No
Chupadera Mesa	Lobo Canyon	6	393168	3748324	No
Chupadera Mesa	Lobo Canyon	7	393476	3748322	No
Chupadera Mesa	Lobo Canyon	8	393785	3748320	No
Chupadera Mesa	Lobo Canyon	9	394089	3748323	No
Chupadera Mesa	Lobo Canyon	10	394387	3748330	No
Chupadera Mesa	Lobo Canyon	11	394693	3748328	No
Chupadera Mesa	Lobo Canyon	12	395000	3748324	No
Chupadera Mesa	Lobo Canyon	13	394999	3748634	Yes
Chupadera Mesa	Lobo Canyon	14	395001	3748927	Yes
Chupadera Mesa	Lobo Canyon	15	394701	3748930	Yes
Chupadera Mesa	Lobo Canyon	16	394404	3748932	Yes
Chupadera Mesa	Lobo Canyon	17	394099	3748938	Yes
Chupadera Mesa	Lobo Canyon	18	393795	3748930	Yes
Chupadera Mesa	Lobo Canyon	19	393485	3748929	Yes
Chupadera Mesa	Lobo Canyon	20	393175	3748935	Yes
Chupadera Mesa	Upper Taylor Canyon	1	388508	3743234	Yes
Chupadera Mesa	Upper Taylor Canyon	2	388255	3743310	Yes
Chupadera Mesa	Upper Taylor Canyon	3	388021	3743425	Yes
Chupadera Mesa	Upper Taylor Canyon	4	387833	3743608	Yes
Chupadera Mesa	Upper Taylor Canyon	5	387635	3743827	Yes
Chupadera Mesa	Upper Taylor Canyon	6	387410	3743981	Yes
Chupadera Mesa	Upper Taylor Canyon	7	387172	3744106	Yes
Chupadera Mesa	Upper Taylor Canyon	8	386984	3744323	Yes
Chupadera Mesa	Upper Taylor Canyon	9	386766	3744496	Yes
Chupadera Mesa	Upper Taylor Canyon	10	386540	3744670	Yes
Chupadera Mesa	Upper Taylor Canyon	11	386330	3744805	No
Chupadera Mesa	Upper Taylor Canyon	12	386183	3745010	No
Chupadera Mesa	Upper Taylor Canyon	13	385985	3745139	No
Chupadera Mesa	Upper Taylor Canyon	14	385829	3745269	No
Chupadera Mesa	Upper Taylor Canyon	15	385684	3745426	No
Chupadera Mesa	Upper Taylor Canyon	16	385565	3745614	No
Chupadera Mesa	Upper Taylor Canyon	17	385341	3745723	No
Chupadera Mesa	Upper Taylor Canyon	18	385146	3745914	No
Chupadera Mesa	Upper Taylor Canyon	19	385029	3746191	No
Chupadera Mesa	Upper Taylor Canyon	20	384830	3746292	No
Chupadera Mesa	Upper Taylor Canyon	21	384618	3746425	No
Chupadera Mesa	Upper Taylor Canyon	22	384428	3746614	No
Chupadera Mesa	Netwire	1	393458	3751321	No
Chupadera Mesa	Netwire	2	393759	3751303	No
Chupadera Mesa	Netwire	3	394072	3751305	No

Site	Route	Point	Easting	Northing	Treated?
Chupadera Mesa	Netwire	4	394364	3751315	No
Chupadera Mesa	Netwire	5	394663	3751300	No
Chupadera Mesa	Netwire	6	394961	3751247	No
Chupadera Mesa	Netwire	7	395268	3751282	No
Chupadera Mesa	Netwire	8	395345	3751553	No
Chupadera Mesa	Netwire	9	395367	3751843	No
Chupadera Mesa	Netwire	10	395387	3752130	No
Chupadera Mesa	Netwire	11	395356	3752420	No
Chupadera Mesa	Netwire	12	395324	3752730	No
Chupadera Mesa	Netwire	13	395345	3753013	No
Chupadera Mesa	Netwire	14	395358	3753324	No

Appendix 2. List of 51 bird species and number of individuals observed during 142 point count surveys at Lobo Canyon (LO), Middle School Section (MS), Netwire (NE), and Upper Taylor Canyon (UT) on the Chupadera Mesa, and at Chavez Canyon (CH), Creosote (CR), Madera Canyon (MA), and Powerline (PO) in East Magdalena. Surveys were conducted in the BLM, Socorro Resource Area, New Mexico in 2007.

	Chupadera Mesa				East Magdalena			
Species	LO	MS	NE	UT	CH	CR	MA	PO
Scaled Quail	-	-	-	-	-	9	-	7
Gambel's Quail	-	-	-	-	-	2	-	-
Turkey Vulture	3	4	1	1	3	-	-	-
Red-tailed Hawk	1	2	-	-	-	-	-	-
Mourning Dove	37	10	46	57	9	8	5	13
Greater Roadrunner	-	-	-	-	-	-	-	1
Lesser Nighthawk	-	-	-	-	-	1	-	-
Common Nighthawk	-	-	10	6	-	-	-	-
Ladder-backed Woodpecker	-	2	1	-	-	-	-	-
Downy Woodpecker	-	-	-	1	-	-	-	-
Hairy Woodpecker	-	-	-	4	-	-	-	-
Olive-sided Flycatcher	-	-	-	-	1	-	-	-
Western Wood-Pewee	-	-	-	3	4	-	4	-
Gray Flycatcher	-	-	1	4	-	-	-	-
Say's Phoebe	1	-	2	3	-	-	1	1
Ash-throated Flycatcher	4	7	22	5	5	2	2	6
Cassin's Kingbird	-	-	-	3		-	-	-
Western Kingbird	-	-	-	-	2	-	3	1
Loggerhead Shrike	-	-	-	-	1	-	-	-
Plumbeous Vireo	-	-	-	2	1	-	-	-
Western Scrub-Jay	3	11	7	-	2	-	-	5
Pinyon Jay	1	1	5	-	17	-	-	
Common Raven	3	8	3	5	-	3	2	6
Northern Rough-winged Swallow	-	-	-	-	-	1	-	-
Juniper Titmouse	-	-	8	8	-	-	-	-
Bushtit	3	10	14	2	8	-	3	-
Cactus Wren	-	-	-	3	-	-	-	-
Rock Wren	1	2	1	10	12	-	5	-
Canyon Wren	-	-	-	-	1	-	1	-
Bewick's Wren	17	38	28	18	1	-	-	-
House Wren	-	-	-	-	1	-	-	-
Blue-gray Gnatcatcher	-	-	-	2	1	-	-	-
Mountain Bluebird	-	-	-	1	-	-	-	-
Northern Mockingbird	64	76	57	87	17	33	18	70
Curve-billed Thrasher	-	-	-	1	-	-	-	-
Crissal Thrasher	-	-	-	-	-	-	1	-
Hepatic Tanager	-	-	-	3	-	-	-	-
Summer Tanager	-	-	-	-	-	-	1	-

Species	Chupadera Mesa				East Magdalena			
	LO	MS	NE	UT	CH	CR	MA	PO
Spotted Towhee	24	11	6	6	6	-	2	-
Canyon Towhee	2	3	6	3	10	-	1	1
Rufous-crowned Sparrow	2	-	7	1	-	-	-	-
Chipping Sparrow	-	5	2	3	4	-	-	-
Black-chinned Sparrow	4	-	-	-	5	-	-	-
Lark Sparrow	1	14	29	3	-	-	-	2
Black-throated Sparrow	2	3	15	1	1	58	-	7
Black-headed Grosbeak	-	1	-	2	5	-	4	-
Brown-headed Cowbird	1	2	5	2	2	3	-	6
Bullock's Oriole	-	1	-	-	-	-	-	-
Scott's Oriole	3	2	1	4	5	-	-	7
House Finch	11	28	38	24	3	-	6	-
Pine Siskin	-	-	-	2	-	-	-	-

Appendix 3 (following pages). Photographs of Gray Vireo search sites in the Bureau of Land Management Socorro Resource Area, New Mexico in 2007. No Gray Vireos were found in areas searched.

Area searched at East Magdalena (308087-3753197, North American Datum 1927).

Area searched at East Magdalena (308483-3752341, North American Datum 1927).

Area searched at East Magdalena (309672-3752105, North American Datum 1927).

Area searched at East Magdalena (315575-3760618, North American Datum 1927).

Area searched at East Magdalena (312650-3762605, North American Datum 1927).

Area searched at East Magdalena (315907-3759726, North American Datum 1927).

Area searched on the Chupadera Mesa (391301-3747496, North American Datum 1927).