

2010 AVIAN INVENTORY OF UTE MOUNTAIN
BUREAU OF LAND MANAGEMENT, TAOS RESOURCE AREA



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January 2010

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EXECUTIVE SUMMARY

In 2005, Hawks Aloft, Inc. began an avian inventory of Ute Mountain, a formerly private property acquired by the Bureau of Land Management (BLM), in northern Taos County, New Mexico. Avian inventory surveys, consisting of point counts and searches for species of conservation concern, occurred from 2005-2008; point count surveys were reinitiated in 2010. We observed 105 avian species on Ute Mountain, in surrounding sagebrush and grasslands, and in the Rio Grande gorge from 2005-2008, and in 2010. Of these, 81 species were observed during point counts and 24 species were only observed incidentally on the property. We documented the greatest species richness in ponderosa woodland (55 species), followed by pinyon-juniper (51 species), sagebrush (35 species), and grassland (18 species). In the five survey years where point counts were conducted, a total of 5,537 individuals were detected utilizing habitat during point counts and an additional 431 individuals were detected as flyovers. Detection rates (total detections, excluding flyovers, divided by number of point counts conducted) were highest in ponderosa woodland (12.0), followed by sagebrush (10.0), grassland (9.3) and pinyon-juniper (9.0). In 2010, both the number of species detected (excluding flyovers) during counts (n=49), and the total number of individuals detected (n=813) were below the 2005-2008 means (53 species, 1,181 individuals).

We did not observe any federally endangered or threatened bird species at Ute Mountain, despite call playback surveys in previous survey years for the endangered Southwestern Willow Flycatcher (*Empidonax traillii extimus*), the threatened Mexican Spotted Owl (*Strix occidentalis lucida*), and Northern Goshawk (*Accipiter gentilis*).

Potential pinyon-juniper habitat for the state-threatened Gray Vireo (*Vireo vicinior*) is heavily dominated by pinyon and probably unsuitable for a nesting population.

A variety of U.S. Fish and Wildlife Service Birds of Conservation Concern were observed at Ute Mountain, including two sage-obligate species, Sage Sparrow (*Amphispiza belli*) and Brewer's Sparrow (*Spizella breweri*). Because sagebrush is an imperiled ecosystem and of limited distribution in New Mexico, BLM should place a high priority on monitoring and maintaining sagebrush at Ute Mountain. Sagebrush habitat, along with adjacent grasslands, is particularly vulnerable to alteration as the Ute Mountain property experiences increasing public use.

INTRODUCTION

The Bureau of Land Management (BLM), Taos Field Office, purchased Ute Mountain in northern Taos County, New Mexico in 2005. An additional 240 ha south of the original area was purchased in January 2008. The acquired property (about 6,000 ha) includes the mountain (10,093 ft at the peak) and surrounding land west to the Rio Grande gorge and north to the Colorado border. Because of an extensive habitat gradient, including grassland, sagebrush, and coniferous forest, and a relative lack of disturbance (e.g., grazing), this formerly private property is unique and potentially valuable for wildlife. The acquisition of Ute Mountain extends BLM management of the Rio Grande National Wild and Scenic River. BLM's goal is to allow recreational use of the area while preserving the natural and cultural environment (BLM 2005).

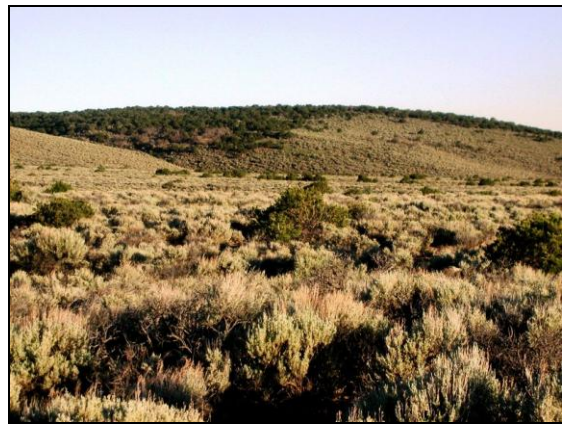
Proper management of the Ute Mountain property requires a plan, predicated on an understanding and appreciation of the resources present. The Taos Field Office Resource Management Plan (RMP) is currently being amended, and it will address long-term management of Ute Mountain. Because the property was opened to the public during the fall of 2005 (i.e., before the amended RMP), an Interim Management Plan was adopted. The purpose of the Interim Management Plan "is to prevent any irreversible commitment of resources until the RMP amendment is approved" (BLM 2005). To protect the resources of Ute Mountain, it is important to know what resources are present and how they might be affected by the implementation of management decisions. The Interim Management Plan proposed research to improve the knowledge of Ute Mountain's resources, including baseline wildlife inventories, identification of species of special concern, and continued monitoring (BLM 2005).

In 2005, BLM contracted Hawks Aloft, Inc. to conduct an avian inventory and monitoring study to learn more about the resources on the Ute Mountain property. From 2005-2008, and in 2010, we conducted point count surveys in four habitats on Ute Mountain and, in some years, supplemented surveys with searches for species of conservation concern. Federally endangered or threatened birds that could occur at or near Ute Mountain include the endangered Southwestern Willow Flycatcher (*Empidonax traillii extimus*), threatened Gray Vireo (*Vireo vicinior*), and threatened Mexican Spotted Owl (*Strix occidentalis lucida*). A variety of U.S. Fish and Wildlife Service (2008) Birds of Conservation Concern (e.g., Burrowing Owl, *Athene cunicularia*) or U.S. Forest Service Sensitive Species (e.g., Northern Goshawk, *Accipiter gentilis*) also potentially occur on Ute Mountain. In this report, we provide an inventory of summer avian residents based on data from 2005-2008 and 2010.

STUDY AREA

The Ute Mountain property acquired by BLM is located about 10 km west of Costilla, New Mexico, and is flanked by the Rio Grande gorge on the west, the Colorado border on the north, private land on the east, and BLM land on the south (Fig. 1). The property is centered on an extinct volcano (i.e., Ute Mountain) that forms a habitat island of coniferous forest amidst sage-steppe rangeland, and a narrow riparian canyon. The property contains planted patches of crested wheatgrass (*Agropyron sibiricum*) and Indian rice grass (*Oryzopsis hymenoides*) on the north and west sides of the mountain, respectively. These grasslands have not recently been grazed by cattle, but elk (*Cervus elaphus*), mule deer (*Odocoileus hemionus*), and pronghorn (*Antilocapra americana*)

have been observed (BLM 2005). The sage-steppe surrounding Ute Mountain merges into pinyon (*Pinus edulis*) woodland with scattered junipers (*Juniperus* spp.) on the lower slopes. A higher elevation zone contains ponderosa pine (*P. ponderosa*) forest with a relatively closed canopy and open understory. Around the mountain peak, coniferous forest consists of Douglas fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), and quaking aspen (*Populus tremuloides*).



Ute Mountain contains a variety of habitat types, including grassland, sagebrush, pinyon-juniper, and mixed coniferous woodland.

We concentrated our surveys and species searches on the north side of the mountain, primarily because the steep terrain on the south side limited safe access to

some areas. Based on BLM recommendations in 2005, we established point count transects in four habitat types: grassland, sagebrush, pinyon-juniper, and higher-elevation coniferous forest (i.e., ponderosa) (Fig. 2). We established the grassland transect in the small patch of rice grass and nearby wheatgrass, on the northwest side of the mountain. The sagebrush transect began on the north base of the mountain and skirted the east side of the mountain. We established the pinyon-juniper transect in a similar semi-circular pattern, starting just south of the sagebrush transect and at a slightly higher elevation. The ponderosa transect began at the ponderosa pine and pinyon ecotone on the north side of the mountain and extended directly uphill to the south, ending at the peak.

METHODS

Avian Inventory

Beginning in 2005, the avifauna of Ute Mountain was sampled by conducting point counts, playback searches for target species (described in the next section), and recording opportunistic observations. Surveys encompassing these components were conducted from 2005 to 2008, but when surveys were reinitiated in 2010, it was decided that playback searches for target species would not be conducted due to funding levels. Point count transects were originally established by placing survey points at least 250 m apart along four transects which were designed to sample four habitat types that occurred on the Ute Mountain property: grassland, sagebrush, pinyon-juniper and ponderosa pine. Although we surveyed the same four transects each year, we adjusted the number of points for two of the transects. The grassland transect was extended from 8 points in 2005 to 12 points in 2006. The sagebrush transect was reduced from 18 points in 2006 to 12

points in 2007 to account for updated knowledge of BLM property boundaries. The pinyon-juniper and ponderosa transects contained 18 and 12 points, respectively, in all years. Locations for the 54 current point count stations are plotted in Figure 2, and coordinates are provided in Appendix 1.

We conducted two surveys per year at each transect from 2005-2008, and in 2010. All surveys were conducted within the first four hours after sunrise in June, or in the case of the second replicate in 2010, early July. We separated consecutive surveys at a given transect by at least two weeks. A surveyor, experienced with avian identification by sight and sound, stopped at each point and recorded all birds detected in a five minute period. In 2005 and 2006, we separated observations into two distance categories: 0-100 m and >100 m. Beginning in 2007, we separated observations into seven distance categories: 0-5, 6-25, 26-50, 51-75, 76-100, 101-125, and >125 m. We also noted flyovers and birds encountered between survey points.

Species of Conservation Concern

To evaluate potential presence of federal and state endangered and threatened birds, and other species of conservation concern on Ute Mountain, we supplemented point count surveys with tape playback surveys and opportunistic observations during general area searches.

Federal Endangered and Threatened Species: We conducted surveys for Mexican Spotted Owl in 2005 and 2007, and for Southwestern Willow Flycatcher in 2006. One observer played a tape of Spotted Owl vocalizations, or imitated the call, at random call points in coniferous woodland on Ute Mountain. The two Spotted Owl surveys were

conducted during evening hours in August (2005) and June (2007), and each lasted several hours. We conducted a Southwestern Willow Flycatcher survey during a float trip down the Ute Mountain section of the Rio Grande in late May 2005. The observer played a tape of Southwestern Willow Flycatcher vocalizations in willow habitat along the Rio Grande-Costilla Creek confluence and in several other potentially suitable patches along the Rio Grande. Because we were guests on a trip designed to meet multiple exploration objectives, we were unable to satisfy standard protocol for a formal Willow Flycatcher survey (Sogge et al. 1997); namely, we did not return to the site for multiple surveys, and we did not confine our playback to early morning hours.

State Endangered and Threatened Species: We did not design specific surveys or searches for any New Mexico state endangered or threatened species. Of the five state endangered or threatened species whose range overlaps Ute Mountain (New Mexico Department of Game and Fish 2004), we considered that only Gray Vireo and Peregrine Falcon (*Falco peregrinus*) might be present. We decided that our best chance of encountering Gray Vireos would be during general point count surveys along the pinyon-juniper transect. We decided that Peregrine Falcon would be just as likely to be observed opportunistically as during a formal search. We did not consider that White-tailed Ptarmigans were present, because Ute Mountain lacked suitable alpine habitat above the treeline. Bald Eagle and Baird's Sparrow could occur in the area during winter and migration, respectively, but are not likely during summer, when surveys were conducted.

Birds of Conservation Concern and Sensitive Species: We conducted playback surveys for Northern Goshawk, a BLM (2005) and U.S. Forest Service Sensitive Species, in 2005 and 2007, and we monitored Burrowing Owls, a U.S. Fish and Wildlife Service

(2008) Bird of Conservation Concern, in 2006 and 2007. We played a tape of Northern Goshawk calls during three June mornings (two in 2005 and one in 2007) at 56 callback points (42 in 2005 and 14 in 2007) in potentially suitable coniferous forest on Ute Mountain. We located Burrowing Owls by searching areas where BLM staff had previously observed owls and by searching known prairie dog colonies. We returned to active burrows as many times as possible to document productivity.

RESULTS

Avian Inventory

We observed 81 bird species during point counts from 2005-2008 and 2010, on the Ute Mountain property (Appendices 2 and 3). An additional 24 species were recorded on the property outside of point counts during the same period (Appendix 4), resulting in a total of 105 avian species recorded during the five survey years. A total of 5,537 individuals comprising 77 species were recorded as utilizing the habitat during point counts during survey years, and an additional 431 individuals comprising 22 species were recorded flying over the habitat during counts.

Excluding flyovers, where individuals are not actively utilizing the habitat, the highest species richness occurred in ponderosa (n=55), followed by pinyon-juniper (n=51), sagebrush (n=35), and grassland (n=18). Although the highest number of individuals, excluding flyovers, detected during counts occurred in pinyon-juniper habitat (n=1,619), this habitat also contained the highest number of point count surveys. When the number of surveys conducted is taken into account (i.e. detection rate: total detections divided by number of counts), the highest number of detections was recorded in

ponderosa (n=12.0 individuals/count), followed by sagebrush (n=10.0), grassland (n=9.3), and pinyon-juniper (n=9.0).

Two species, Steller's Jay (*Cyanocitta stelleri*) and Gray Jay (*Perisoreus canadensis*), were encountered for the first time on the Ute Mountain property in 2010. Both were detected on the ponderosa pine transect. In order of decreasing number of detections, excluding flyovers, the three species with the highest number of detections by habitat for all years is as follows:

- Grassland: Horned Lark (n=487), Vesper Sparrow (n=127) and Pinyon Jay (n=71)
- Pinyon-juniper: Spotted Towhee (n=284), Pinyon Jay (n=236), and Mourning Dove (n=168)
- Ponderosa: Yellow-rumped Warbler (n=192), Hermit Thrush (n=152), and Chipping Sparrow (n=146)
- Sagebrush: Pinyon Jay (n=263), Spotted Towhee (n=258), and Sage Sparrow (n=206)

For all survey years, the mean number of species detected, excluding flyovers, was 52 and the mean number of individuals detected was 1,107. The lowest species richness and total number of detections occurred in 2005 (866 detections of 48 species) and 2010 (813 detections of 49 species). The highest species richness occurred in 2008 (57 species) and the highest number of detections occurred in 2006 (1,588 individuals).

Species of Conservation Concern

Federal Endangered and Threatened Species: We did not observe any federally-threatened or endangered species on the Ute Mountain property during 2005-2008, or 2010. No Mexican Spotted Owls were detected during two evenings of playback surveys in 2005 and 2007. No Southwestern Willow Flycatchers were detected during limited playback surveys along the Rio Grande in 2005. Although willow patches lining the bottom of the gorge might be smaller than ideal for Willow Flycatcher breeding, the dense structure of this vegetation was suitable for several other, non-listed, riparian obligate species, such as Yellow-breasted Chat (*Icteria virens*) and Yellow Warbler (*Dendroica petechia*).

State Endangered and Threatened Species: We twice observed Peregrine Falcons, a New Mexico threatened species (New Mexico Department of Game and Fish 2004), on the Ute Mountain property. We observed a pair of Peregrine Falcons in the Rio Grande gorge on 23 May 2006 and one individual in flight over grassland on the north side of the mountain on 25 June 2007. We did not record any Gray Vireos during surveys, nor did we encounter any likely habitat for this species at Ute Mountain.

Birds of Conservation Concern and Sensitive Species: We observed Northern Goshawk on four occasions at Ute Mountain. A subadult goshawk was detected in flight during tape playback on 26 June 2007. Two probable juvenile goshawks were observed during a Mexican Spotted Owl survey on 9 August 2005. Other opportunistic sightings were of a subadult on 8 June 2006 and an apparent adult on 26 June 2007. Incidentally, during Northern Goshawk playback surveys, we twice observed a Long-eared Owl (*Asio otus*), a non-listed, but uncommon species.

We observed Burrowing Owls at a prairie dog colony on the north side of Ute Mountain. We recorded a minimum of three adults and one young in 2006 and two adults and four young in 2007.

Including Burrowing Owl and Peregrine Falcon, we observed nine U.S. Fish and Wildlife Service (2008) Bird Conservation Region (BCR) 16 Birds of Conservation Concern on Ute Mountain from 2005-2008, and 2010. Pinyon Jay was recorded in all four habitat types, but was most common in sagebrush and pinyon-juniper. Brewer's Sparrow was numerous and among the most frequently recorded species in sagebrush habitat (Appendix 2). Juniper Titmouse (*Baeolophus inornatus*) was uncommonly recorded along the pinyon-juniper transect, and occasionally found along the ponderosa pine transect. Grace's Warbler (*Dendroica graciae*) was regularly recorded in high-elevation coniferous woodland during 2008, but not in other survey years. Prairie Falcon (*Falco mexicanus*) was occasionally seen hunting near the solar panels between sagebrush and grassland north of the mountain. Golden Eagle (*Aquila chrysaetos*) was observed on one occasion as a flyover during point counts in 2007. Five additional species, which have been observed on the Ute Mountain property, were listed as BCR 16 Birds of Conservation Concern on the 2002 U.S. Fish and Wildlife Service list, but were not included in the updated 2008 version. These species include Swainson's Hawk (*Buteo swainsoni*), Williamson's Sapsucker (*Sphyrapicus thyroides*), Virginia's Warbler (*Vermivora virginiae*), Black-throated Gray Warbler (*Dendroica nigrescens*), and Sage Sparrow.

DISCUSSION

Avian Inventory

In all survey years, when calculating results of avian detections during point counts for each habitat type, we have included individuals detected at all distance intervals. In relatively open habitats, bird vocalizations can often be heard over long distances. We suspect that for purposes of analysis of species by habitat type, the inclusion of individuals detected at distances greater than 100 m may result in increased likelihood of including individuals utilizing habitats other than the one in which the transect was placed. This may account for unusual findings in species dominance; a prime example is the Pinyon Jay which, excluding flyovers, was the most commonly detected species on the sagebrush transect and the third most commonly detected species on the grassland transect. This species is strongly associated with pinyon-juniper woodland, utilizes sagebrush to a lesser extent, and would not be expected to regularly utilize grassland. When presenting findings for habitat types in future years, we propose reanalyzing past data where detections greater than 100 m are truncated. This will result in better understandings of avian habitat usage on the Ute Mountain property.

Our observations indicate a fairly high avian diversity on Ute Mountain. The variety of habitats attract a diversity of species, and the fact that previously undocumented species continue to be found on the property indicates that our knowledge of the avifauna of Ute Mountain is far from complete. Continued monitoring of the point count transects will better enable BLM to manage the avian resources on this diverse property.

Species of Conservation Concern

Federal Endangered and Threatened Species: We did not observe any Mexican Spotted Owls, and coniferous woodland on Ute Mountain might be suboptimal for this species. Ute Mountain contains mixed conifer woodland and steep terrain, typical of Mexican Spotted Owl habitat (Gutierrez et al. 1995). However, the spatial extent of this woodland and its configuration in the landscape is disadvantageous for the establishment of a population. Mexican Spotted Owls occupy large home ranges of about 700-1,000 ha (Gutierrez et al. 1995). Coniferous woodland on Ute Mountain covers about 1,000 ha, but is probably not extensive enough for more than one pair. Coniferous woodland on Ute Mountain is an island habitat, surrounded by a vast landscape of rangeland and shrub-steppe. Although Ute Mountain is within the range of Mexican Spotted Owl, the amount of available habitat and its distance from other source populations might make immigration prohibitive. Nevertheless, we recommend continuing Mexican Spotted Owl surveys because it is important to evaluate nesting potential for this endangered species based on as much current information as possible; surveys can complement ongoing diurnal songbird surveys with little additional cost.

Our limited survey effort for Southwestern Willow Flycatchers neither confirms the presence or the absence of this species. The willow patches lining the Rio Grande gorge might be too small or narrow to attract breeding Willow Flycatchers, but migrants might use these patches as stopover habitat, as indicated by a 1997 record of a Willow Flycatcher near the confluence of the Rio Grande and Costilla Creek (BLM 2005). Migration routes used by Willow Flycatchers, including the endangered Southwestern subspecies, are not well documented (U.S. Fish and Wildlife Service 2002), but Yong

and Finch (1997) suggested that the Rio Grande provides important migration stopover habitat for Southwestern Willow Flycatchers to replenish energy stores. The U.S. Fish and Wildlife Service (2002) advised that even riparian patches unsuitable for breeding might be important resources affecting flycatcher survival. Therefore, willow patches along the Rio Grande adjacent to Ute Mountain, even if situated near the northern limit of Southwestern Willow Flycatcher distribution and less than ideal, should be protected as potential habitat. Discouraging camping or other activities in select patches could deter habitat alteration and prolonged disturbance to any flycatchers that might be present. Maintaining seasonal rafting restrictions in this section of the Rio Grande gorge to limit disturbance to nesting raptors also might benefit Willow Flycatchers.

State Endangered and Threatened Species: We consider it unlikely that the state-threatened Gray Vireo regularly breeds on Ute Mountain. According to a status review by DeLong and Williams (2006), few Gray Vireos have been recorded in Taos County, and none in adjacent counties to the east (Maxwell and Mora), suggesting that Ute Mountain is at the edge of Gray Vireo's distribution. Gray Vireo's primary habitat preference is for areas where junipers predominate over pinyon pine (Schlossberg 2006). Pinyon-juniper woodland on Ute Mountain is dominated by pinyon and is relatively dense. Such habitat is more suitable for Plumbeous Vireo (*Vireo plumbeus*), which were numerous during our surveys. However, our search did not include the relatively dry southern base of Ute Mountain, where more suitable habitat might exist.

The state-threatened Peregrine Falcon occurs regularly at Ute Mountain, along with the non-listed, but of conservation concern, Prairie Falcon; both falcons likely use the sheer canyon walls of the Rio Grande gorge for nesting and adjacent open areas for

hunting. It is important to protect this section of the gorge during the nesting season (i.e., March through August) from disturbance associated with recreation activities.

Birds of Conservation Concern and Sensitive Species: We observed at least one U.S. Fish and Wildlife Service (2008) BCR 16 Bird of Conservation Concern or sensitive species in all four of the habitats surveyed by point counts, underlying the importance of each. Consistent observations of Northern Goshawk from 2005-2008, including possible juveniles in 2005, indicate that a pair might nest on Ute Mountain. Continued tape playback surveys for Northern Goshawk are probably not necessary, but additional nest searches might be profitable as time allows during future visits. Our grassland point count surveys documented few bird species, but Sage Sparrow and Brewer's Sparrow were regularly recorded, and regular observations of two birds of conservation concern beyond transect boundaries, Swainson's Hawk and Burrowing Owl, and several mammals (e.g., badger, elk, and pronghorn), demonstrate the value of grassland habitat for maintaining avian and wildlife diversity at Ute Mountain. Although lacking the avian diversity of woodland habitats, the sagebrush surrounding Ute Mountain provides valuable habitat for birds. Sagebrush habitats are among the most imperiled and undervalued ecosystems in North America (Knick et al. 2003, Welch and Criddle 2003), yet they are important for the continued existence of several sage-obligates and/or species of conservation concern, such as Sage Thrasher, Sage Sparrow, and Brewer's Sparrow (Braun et al. 1976).

We consider the sagebrush steppe habitat, along with adjacent grasslands, to be particularly vulnerable to alteration as the Ute Mountain property experiences increasing public use. Because accessible portions of existing roads do not extend beyond the sagebrush into the higher elevation pinyon-juniper and ponderosa habitats, the sagebrush

belt could receive a disproportional amount of vehicle and foot traffic. In all years, we have located active nests in sagebrush or on the ground under sage. If public access and recreation are not adequately regulated in sagebrush habitat, many nests on or near the ground could be threatened each spring and summer. BLM (2005) plans to limit the number of open roads on the property, and strictly prohibit vehicle and mountain bike traffic beyond designated routes. We support this plan as a method to limit habitat alteration. By closing portions of some of the roads that existed prior to the acquisition, BLM has already demonstrated adherence to the plan. We recommend continuing point count surveys on all transects to determine temporal avian trends associated with public use.

ACKNOWLEDGMENTS

The Bureau of Land Management, Taos Field Office, funded this project. We thank Valerie Williams, BLM Biologist, for providing access, maps, and other logistic support. Point count surveys in 2010 were conducted by Randy Seeley, Ron Kellermueller, and Erik Andersen. Report and cover photograph by Erik Andersen. This report was reviewed by Trevor Fetz and Gail Garber, executive director of Hawks Aloft.

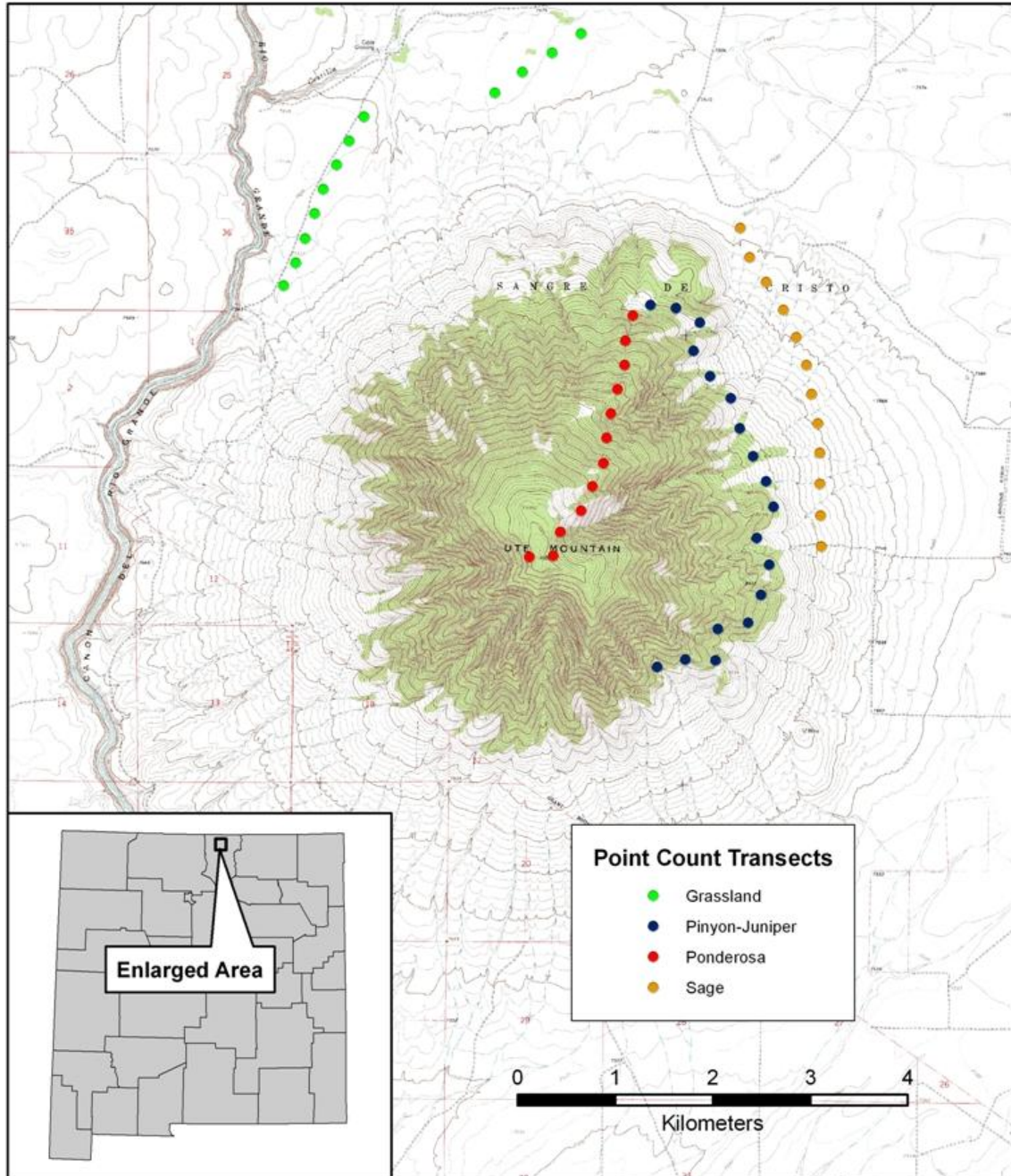
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Figure 1. Location of Ute Mountain, a Bureau of Land Management acquisition, in Taos County, New Mexico.



Figure 2. Location of point count surveys on the grassland, sagebrush, pinyon-juniper, and ponderosa transects on Ute Mountain. Area shown is an enlarged portion of the Ute Mountain, New Mexico USGS Quadrangle Map.



Appendix 1. Universal Transverse Mercator coordinates (Zone 13, NAD27) of 2005-2008, and 2010 point count surveys on the Bureau of Land Management's Ute Mountain property in Taos County, New Mexico.

Transect	Point	Easting	Northing
Grassland	1	436532	4090764
Grassland	2	436653	4090999
Grassland	3	436751	4091248
Grassland	4	436849	4091503
Grassland	5	436935	4091754
Grassland	6	437072	4092004
Grassland	7	437203	4092248
Grassland	8	437354	4092497
Grassland	9	438697	4092742
Grassland	10	438978	4092955
Grassland	11	439281	4093150
Grassland	12	439580	4093348
Pinyon-Juniper	1	440292	4090565
Pinyon-Juniper	2	440554	4090532
Pinyon-Juniper	3	440799	4090385
Pinyon-Juniper	4	440734	4090094
Pinyon-Juniper	5	440904	4089833
Pinyon-Juniper	6	441115	4089609
Pinyon-Juniper	7	441207	4089299
Pinyon-Juniper	8	441344	4089013
Pinyon-Juniper	9	441476	4088754
Pinyon-Juniper	10	441554	4088495
Pinyon-Juniper	11	441382	4088173
Pinyon-Juniper	12	441511	4087899
Pinyon-Juniper	13	441426	4087591
Pinyon-Juniper	14	441293	4087303
Pinyon-Juniper	15	440981	4087240
Pinyon-Juniper	16	440958	4086920
Pinyon-Juniper	17	440651	4086926
Pinyon-Juniper	18	440361	4086852
Ponderosa	1	440110	4090454
Ponderosa	2	440035	4090200
Ponderosa	3	440027	4089948
Ponderosa	4	439955	4089700
Ponderosa	5	439886	4089450
Ponderosa	6	439842	4089202
Ponderosa	7	439810	4088942
Ponderosa	8	439698	4088702
Ponderosa	9	439580	4088455
Ponderosa	10	439367	4088239
Ponderosa	11	439295	4087990

Transect	Point	Easting	Northing
Ponderosa	12	439048	4087980
Sagebrush	1	441211	4091356
Sagebrush	2	441307	4091054
Sagebrush	3	441477	4090799
Sagebrush	4	441654	4090516
Sagebrush	5	441788	4090235
Sagebrush	6	441888	4089950
Sagebrush	7	441941	4089651
Sagebrush	8	442003	4089351
Sagebrush	9	442025	4089047
Sagebrush	10	442023	4088730
Sagebrush	11	442030	4088405
Sagebrush	12	442038	4088089

Appendix 2. Detections of 81 bird species observed during point count surveys, by habitat, from 2005-2008, and 2010 on the Ute Mountain property in Taos County, New Mexico. We include the number of individuals for each species recorded during point count surveys on the grass (GR), pinyon-juniper (PJ), ponderosa (PP), and sagebrush (SA) transects. Birds observed as utilizing the habitat and those observed as flyovers are shown separately.

Species	Point Detections					Flyovers				
	GR	PJ	PP	SA	Total	GR	PJ	PP	SA	Total
Turkey Vulture	0	0	0	0	0	1	0	0	0	1
Red-tailed Hawk	0	0	0	1	1	0	0	0	0	0
Golden Eagle	0	0	0	0	0	0	1	0	0	1
American Kestrel	0	1	0	1	2	0	0	0	0	0
Band-tailed Pigeon	0	0	1	0	1	0	0	0	0	0
Mourning Dove	65	168	44	140	417	4	16	0	11	31
Common Nighthawk	3	0	0	2	5	0	1	0	8	9
Common Poorwill	0	1	0	0	1	0	0	0	0	0
White-throated Swift	3	0	0	0	3	3	3	9	0	15
Black-chinned Hummingbird	0	2	0	0	2	0	2	0	0	2
Broad-tailed Hummingbird	0	5	4	2	11	2	1	0	7	10
Hairy Woodpecker	0	1	7	0	8	0	0	0	0	0
Northern Flicker	0	6	20	2	28	0	0	0	0	0
Olive-sided Flycatcher	0	0	2	1	3	0	0	0	0	0
Western Wood-Pewee	0	30	7	2	39	0	0	0	0	0
Hammond's Flycatcher	0	3	23	0	26	0	0	0	0	0
Gray Flycatcher	0	61	20	1	82	0	0	0	0	0
Dusky Flycatcher	0	4	57	0	61	0	0	0	0	0
Cordilleran Flycatcher	0	5	1	0	6	0	0	0	0	0
Say's Phoebe	0	0	0	3	3	0	0	0	1	1

Species	Point Detections					Flyovers				
	GR	PJ	PP	SA	Total	GR	PJ	PP	SA	Total
Ash-throated Flycatcher	0	32	9	4	45	0	0	0	0	0
Cassin's Kingbird	0	0	0	5	5	0	0	0	0	0
Loggerhead Shrike	2	0	0	0	2	0	0	0	1	1
Plumbeous Vireo	0	106	49	0	155	0	0	0	0	0
Warbling Vireo	0	9	49	0	58	0	0	0	0	0
Gray Jay	0	0	5	0	5	0	0	0	0	0
Steller's Jay	0	0	1	0	1	0	0	0	0	0
Western Scrub-Jay	0	2	0	0	2	0	0	0	0	0
Pinyon Jay	71	236	22	263	592	0	88	50	2	140
Clark's Nutcracker	0	16	43	7	66	0	0	0	0	0
American Crow	0	0	0	0	0	0	0	2	0	2
Common Raven	15	35	20	31	101	14	6	0	10	30
Horned Lark	487	1	0	2	490	30	0	0	2	32
Violet-green Swallow	0	0	7	0	7	0	2	7	3	12
Cliff Swallow	5	0	0	0	5	89	1	1	0	91
Black-capped Chickadee	0	0	1	0	1	0	0	0	0	0
Mountain Chickadee	0	53	120	2	175	0	0	0	0	0
Juniper Titmouse	0	10	1	0	11	0	0	0	0	0
Bushtit	0	49	13	2	64	0	0	0	0	0
Red-breasted Nuthatch	0	3	26	0	29	0	0	0	0	0
White-breasted Nuthatch	0	1	27	0	28	0	0	0	0	0
Pygmy Nuthatch	0	1	17	0	18	0	0	0	0	0
Brown Creeper	0	0	2	0	2	0	0	0	0	0
Rock Wren	8	45	3	20	76	0	0	0	0	0
Canyon Wren	0	1	0	0	1	0	0	0	0	0

Species	Point Detections					Flyovers				
	GR	PJ	PP	SA	Total	GR	PJ	PP	SA	Total
Bewick's Wren	0	35	5	2	42	0	0	0	0	0
House Wren	0	0	9	0	9	0	0	0	0	0
Ruby-crowned Kinglet	0	0	29	0	29	0	0	0	0	0
Blue-gray Gnatcatcher	0	80	1	6	87	0	0	0	0	0
Mountain Bluebird	0	3	6	5	14	0	0	0	0	0
Townsend's Solitaire	0	0	8	0	8	0	0	0	0	0
Hermit Thrush	0	9	152	0	161	0	0	0	0	0
American Robin	0	9	14	0	23	0	0	0	0	0
Northern Mockingbird	1	23	1	40	65	0	0	0	0	0
Sage Thrasher	69	11	0	109	189	0	0	0	0	0
Virginia's Warbler	0	0	3	0	3	0	0	0	0	0
Yellow Warbler	0	0	1	0	1	0	0	0	0	0
Yellow-rumped Warbler	0	7	192	0	199	0	0	1	0	1
Black-throated Gray Warbler	0	28	2	0	30	0	0	0	0	0
Grace's Warbler	0	0	13	0	13	0	0	0	0	0
Yellow-breasted Chat	0	1	0	0	1	0	0	0	0	0
Western Tanager	0	26	55	1	82	0	0	0	0	0
Green-tailed Towhee	6	51	19	83	159	0	0	0	0	0
Spotted Towhee	0	284	29	258	571	0	0	0	0	0
Chipping Sparrow	0	97	146	2	245	0	0	0	0	0
Brewer's Sparrow	85	2	0	194	281	0	0	0	0	0
Vesper Sparrow	127	1	0	17	145	0	0	0	0	0
Lark Sparrow	1	0	0	7	8	0	0	0	0	0
Black-throated Sparrow	1	0	0	4	5	0	0	0	0	0
Sage Sparrow	81	1	0	206	288	0	0	0	0	0

Species	Point Detections					Flyovers				
	GR	PJ	PP	SA	Total	GR	PJ	PP	SA	Total
Dark-eyed Junco	0	0	43	0	43	0	0	0	0	0
Black-headed Grosbeak	0	1	3	0	4	0	0	0	0	0
Western Meadowlark	15	0	0	1	16	2	0	0	0	2
Brewer's Blackbird	0	0	0	0	0	1	0	0	0	1
Brown-headed Cowbird	0	26	8	8	42	0	5	0	2	7
Cassin's Finch	0	0	2	0	2	0	0	0	0	0
Red Crossbill	0	25	35	0	60	0	0	28	0	28
Pine Siskin	0	3	57	0	60	0	4	7	0	11
Lesser Goldfinch	0	8	2	0	10	0	2	0	1	3
American Goldfinch	0	1	0	0	1	0	0	1	0	1
Evening Grosbeak	0	0	3	0	3	0	0	0	0	0
Total Species	18	51	55	35	77	8	13	9	11	22
Total Individuals	1045	1619	1439	1434	5537	145	132	106	48	431
Number of Counts	112	180	120	144	556	112	180	120	144	556
Mean Detections per Count	9.3	9.0	12.0	10.0	10.0	1.3	0.7	0.9	0.3	0.8

Appendix 3. Detections of 81 bird species observed during point count surveys, by year, from 2005-2008, and 2010 on the Ute Mountain property in Taos County, New Mexico. Birds observed as utilizing the habitat and those observed as flyovers are shown separately.

Species	Point Detections						Flyovers					
	2005	2006	2007	2008	2010	Total	2005	2006	2007	2008	2010	Total
Turkey Vulture	0	0	0	0	0	0	0	0	0	1	0	1
Red-tailed Hawk	0	1	0	0	0	1	0	0	0	0	0	0
Golden Eagle	0	0	0	0	0	0	0	0	1	0	0	1
American Kestrel	1	1	0	0	0	2	0	0	0	0	0	0
Band-tailed Pigeon	0	0	1	0	0	1	0	0	0	0	0	0
Mourning Dove	80	168	76	71	22	417	2	18	4	7	0	31
Common Nighthawk	0	3	0	2	0	5	3	2	0	1	3	9
Common Poorwill	0	0	1	0	0	1	0	0	0	0	0	0
White-throated Swift	0	0	0	3	0	3	1	1	3	10	0	15
Black-chinned Hummingbird	0	0	2	0	0	2	0	0	0	2	0	2
Broad-tailed Hummingbird	6	1	1	2	1	11	1	1	3	0	5	10
Hairy Woodpecker	0	3	0	3	2	8	0	0	0	0	0	0
Northern Flicker	0	5	5	10	8	28	0	0	0	0	0	0
Olive-sided Flycatcher	3	0	0	0	0	3	0	0	0	0	0	0
Western Wood-Pewee	8	8	7	8	8	39	0	0	0	0	0	0
Hammond's Flycatcher	1	3	1	2	19	26	0	0	0	0	0	0
Gray Flycatcher	9	14	18	17	24	82	0	0	0	0	0	0
Dusky Flycatcher	14	16	16	15	0	61	0	0	0	0	0	0
Cordilleran Flycatcher	1	1	0	4	0	6	0	0	0	0	0	0
Say's Phoebe	0	0	2	1	0	3	0	0	0	1	0	1
Ash-throated Flycatcher	5	11	14	11	4	45	0	0	0	0	0	0

Species	Point Detections						Flyovers					
	2005	2006	2007	2008	2010	Total	2005	2006	2007	2008	2010	Total
Cassin's Kingbird	0	3	0	0	2	5	0	0	0	0	0	0
Loggerhead Shrike	0	1	0	0	1	2	1	0	0	0	0	1
Plumbeous Vireo	33	37	36	20	29	155	0	0	0	0	0	0
Warbling Vireo	11	12	12	9	14	58	0	0	0	0	0	0
Gray Jay	0	0	0	0	5	5	0	0	0	0	0	0
Steller's Jay	0	0	0	0	1	1	0	0	0	0	0	0
Western Scrub-Jay	0	0	1	0	1	2	0	0	0	0	0	0
Pinyon Jay	80	347	99	57	9	592	1	1	50	88	0	140
Clark's Nutcracker	13	19	7	20	7	66	0	0	0	0	0	0
American Crow	0	0	0	0	0	0	0	0	0	2	0	2
Common Raven	16	48	19	14	4	101	0	15	6	1	8	30
Horned Lark	31	87	107	91	174	490	0	0	10	14	8	32
Violet-green Swallow	6	0	0	0	1	7	2	5	3	2	0	12
Cliff Swallow	0	0	0	5	0	5	8	11	18	24	30	91
Black-capped Chickadee	0	0	0	1	0	1	0	0	0	0	0	0
Mountain Chickadee	27	64	50	24	10	175	0	0	0	0	0	0
Juniper Titmouse	0	0	0	11	0	11	0	0	0	0	0	0
Bushtit	21	14	7	22	0	64	0	0	0	0	0	0
Red-breasted Nuthatch	5	11	4	5	4	29	0	0	0	0	0	0
White-breasted Nuthatch	2	10	8	5	3	28	0	0	0	0	0	0
Pygmy Nuthatch	1	3	7	2	5	18	0	0	0	0	0	0
Brown Creeper	1	0	0	1	0	2	0	0	0	0	0	0
Rock Wren	25	21	9	20	1	76	0	0	0	0	0	0
Canyon Wren	0	1	0	0	0	1	0	0	0	0	0	0
Bewick's Wren	5	11	7	12	7	42	0	0	0	0	0	0

Species	Point Detections						Flyovers					
	2005	2006	2007	2008	2010	Total	2005	2006	2007	2008	2010	Total
House Wren	1	1	5	0	2	9	0	0	0	0	0	0
Ruby-crowned Kinglet	4	7	3	5	10	29	0	0	0	0	0	0
Blue-gray Gnatcatcher	11	20	22	18	16	87	0	0	0	0	0	0
Mountain Bluebird	1	7	2	4	0	14	0	0	0	0	0	0
Townsend's Solitaire	1	1	0	0	6	8	0	0	0	0	0	0
Hermit Thrush	23	26	33	45	34	161	0	0	0	0	0	0
American Robin	0	15	2	5	1	23	0	0	0	0	0	0
Northern Mockingbird	0	52	2	6	5	65	0	0	0	0	0	0
Sage Thrasher	18	54	66	34	17	189	0	0	0	0	0	0
Virginia's Warbler	1	1	0	0	1	3	0	0	0	0	0	0
Yellow Warbler	0	0	0	1	0	1	0	0	0	0	0	0
Yellow-rumped Warbler	39	48	45	28	39	199	0	0	1	0	0	1
Black-throated Gray Warbler	3	8	7	4	8	30	0	0	0	0	0	0
Grace's Warbler	0	0	0	13	0	13	0	0	0	0	0	0
Yellow-breasted Chat	0	0	1	0	0	1	0	0	0	0	0	0
Western Tanager	13	29	14	13	13	82	0	0	0	0	0	0
Green-tailed Towhee	36	60	32	14	17	159	0	0	0	0	0	0
Spotted Towhee	84	150	158	78	101	571	0	0	0	0	0	0
Chipping Sparrow	44	48	75	46	32	245	0	0	0	0	0	0
Brewer's Sparrow	43	47	107	36	48	281	0	0	0	0	0	0
Vesper Sparrow	13	24	37	41	30	145	0	0	0	0	0	0
Lark Sparrow	1	0	0	7	0	8	0	0	0	0	0	0
Black-throated Sparrow	0	0	0	5	0	5	0	0	0	0	0	0
Sage Sparrow	73	31	106	45	33	288	0	0	0	0	0	0
Dark-eyed Junco	7	16	9	9	2	43	0	0	0	0	0	0

Species	Point Detections						Flyovers					
	2005	2006	2007	2008	2010	Total	2005	2006	2007	2008	2010	Total
Black-headed Grosbeak	2	1	0	0	1	4	0	0	0	0	0	0
Western Meadowlark	0	2	3	10	1	16	0	0	0	2	0	2
Brewer's Blackbird	0	0	0	0	0	0	0	0	0	1	0	1
Brown-headed Cowbird	9	9	8	5	11	42	0	0	1	0	6	7
Cassin's Finch	0	1	1	0	0	2	0	0	0	0	0	0
Red Crossbill	24	0	2	34	0	60	26	2	0	0	0	28
Pine Siskin	10	6	1	24	19	60	9	2	0	0	0	11
Lesser Goldfinch	0	0	1	9	0	10	1	0	1	1	0	3
American Goldfinch	0	0	1	0	0	1	0	0	1	0	0	1
Evening Grosbeak	0	0	0	3	0	3	0	0	0	0	0	0
Total Species	48	54	52	57	49	77	11	10	13	14	6	22
Total Individuals	866	1588	1260	1010	813	5537	55	58	102	156	60	431

Appendix 4. Avian species observed only outside of point counts from 2005-2008, and 2010 on the Ute Mountain property in Taos County, New Mexico.

Species	Year First Observed
Canada Goose	2006
Mallard	2006
Green-winged Teal	2006
Common Merganser	2006
Cooper's Hawk	2007
Northern Goshawk	2005
Swainson's Hawk	2005
Peregrine Falcon	2006
Prairie Falcon	2007
American Coot	2006
Killdeer	2006
Spotted Sandpiper	2006
Great Horned Owl	2006
Burrowing Owl	2006
Long-eared Owl	2005
Williamson's Sapsucker	2005
Black-billed Magpie	2006
Purple Martin	2005
Northern Rough-winged Swallow	2006
Orange-crowned Warbler	2005
Hepatic Tanager	2005
Song Sparrow	2006
Bullock's Oriole	2006
House Finch	2006