

Long-billed Curlews and other birds on the Smokey Rim Ranch



30 September 2016



Bird Conservancy of the Rockies

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Technical Report #SC-TNC-LBCU-01

BIRD CONSERVANCY OF THE ROCKIES

Connecting people, birds and land

Mission: conserving birds and their habitats through science, education and land stewardship

Bird Conservancy of the Rockies conserves birds and their habitats through an integrated approach of science, education and land stewardship. Our work radiates from the Rockies to the Great Plains, Mexico and beyond. Our mission is advanced through sound science, achieved through empowering people, realized through stewardship and sustained through partnerships. Together, we are improving native bird populations, the land and the lives of people.

Goals

- Guide conservation action where it is needed most by conducting scientifically rigorous monitoring and research on birds and their habitats within the context of their full annual cycle
- Inspire conservation action in people by developing relationships through community outreach and science-based, experiential education programs
- Contribute to bird population viability and help sustain working lands by partnering with landowners and managers to enhance wildlife habitat
- Promote conservation and inform land management decisions by disseminating scientific knowledge and developing tools and recommendations.

Bird Conservancy accomplishes its mission by:

Monitoring long-term bird population trends to provide a scientific foundation for conservation action

Researching bird ecology and population response to anthropogenic and natural processes to evaluate and adjust management and conservation strategies using the best available science

Educating people of all ages through active, experiential programs that create an awareness of and appreciation for birds

Partnering with state and federal natural resource agencies, private citizens, schools, universities and other non-governmental organizations to build synergy and consensus for bird conservation

Fostering good stewardship on private and public lands through voluntary, cooperative partnerships that create win-win situations for wildlife and people

Sharing the latest information on bird populations, land management and conservation practices to create informed publics

Delivering bird conservation at biologically relevant scales by working across political and jurisdictional boundaries in western North America and beyond

Suggested Citation:

Blakesley, J. A. 2016. Smokey Rim Ranch Long-Billed Curlew Study. Bird Conservancy of the Rockies. Brighton, Colorado, USA.

Cover Photo:

Early morning on the Smokey Rim Ranch by Tori Swift. Used with permission.

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EXECUTIVE SUMMARY

Smokey Rim Ranch is a 38,015 acre working cattle ranch in southeastern Colorado, protected by a conservation easement. In the spring of 2016, The Nature Conservancy engaged Bird Conservancy of the Rockies to conduct bird surveys, primarily to locate and describe the habitat of Long-billed Curlews (*Numenius americanus*) on the Smokey Rim Ranch.

We conducted surveys for Curlews at 182 points within 40 randomly located 1-km² sampling units, and surveys for all bird species at 42 points within 9 of these sampling units. Our field technician observed one Curlew on each of two sampling units in the northern portion of the ranch, in shortgrass prairie (grassland). The ranch owners indicated two locations on the southern end of the ranch where they had observed Curlews.

During morning surveys, the field technician observed 31 bird species including some species dependent on Pinyon-Juniper woodlands (e.g., Juniper Titmouse; *Baeolophus ridgwayi*), some dependent on grasslands (e.g., Cassin's Sparrow; *Aimophila cassinii*) and others found in a wide variety of habitats (e.g., American Robin; *Turdus migratorius*).

ACKNOWLEDGEMENTS

Smokey Rim Ranch owners Florence and Everett Jackson were very generous in providing lodging for our field technician and sharing their knowledge with us. Tori Swift was a field technician extraordinaire. Thanks to Chris Pague of the Nature Conservancy for collaborating with Bird Conservancy of the Rockies to design and implement this project. This project was funded by The Nature Conservancy under Project number P102353.

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INTRODUCTION

Smokey Rim Ranch is a 38,015 acre working cattle ranch in southeastern Colorado, protected by a conservation easement. The Nature Conservancy (TNC) facilitated the recent sale of this property and establishment of the easement, which includes access to the ranch for science and training. The Smokey Rim Ranch and surrounding area (approximately 100,000 acres) were identified by TNC as one of the largest intact grasslands in the region.

The Long-billed Curlew (*Numenius americanus*) is a large shorebird that nests in shortgrass and mixed grass prairie and other grasslands (Dugger and Dugger 2002). This species was identified as a “Species of Greatest Conservation Need” in Colorado’s State Wildlife Action Plan (CPW 2015) and was given similar federal designations by the Forest Service, Bureau of Land Management and Fish and Wildlife Service. The greatest threats to Long-billed Curlews in Colorado are habitat loss and degradation, primarily through conversion of native prairie to cropland, alteration of native vegetation due to grazing, and water pollution from herbicides and pesticides (CPW 2015).

In the spring of 2016, The Nature Conservancy engaged Bird Conservancy of the Rockies to conduct bird surveys, primarily to locate and describe the habitat of Long-billed Curlews on the Smokey Rim Ranch. Specific objectives of this project are outlined below.

Objectives

1. Determine the location of Long-billed Curlews (*Numenius americanus*) on the Smokey Rim Ranch by the following methods:
 - A. Interviewing the Ranch owners;
 - B. Surveying randomly-located sites on the ranch;
 - C. Looking for Curlews while travelling among survey locations by motor vehicle and on foot.
2. Describe the habitat associated with location(s) of Curlews on the ranch.
3. Map the location(s) of Curlews on the ranch using a Geographical Information System (GIS).
4. Record all bird species detected during morning surveys of randomly-located sites.
5. Make management recommendations regarding Curlews on the ranch.

METHODS

Study Area

Smokey Rim Ranch is located in Las Animas County, north of Kim, Colorado. Topographically, the ranch consists of mesas divided by deep canyons. According to the Southwest Regional Gap Analysis Project (SWReGAP) the majority of the ranch (>95%) consists of three vegetation cover types: Pinyon-Juniper Woodland, Juniper Woodland and Savanna, and Shortgrass Prairie (Figure 1; Prior-Magee et al. 2007). The Nature Conservancy personnel determined that Shortgrass Prairie is under-represented in the SWReGAP data (Chris Pague, personal communications). Juniper Woodland and Savanna is defined as grassland with widely-spaced mature Juniper and occasional Pinyon Pine (Prior-Magee et al. 2007); it may be difficult to delineate boundaries between the this vegetation type and Shortgrass Prairie (grassland). Less than 5% of the ranch area consisted of Forbland, Agriculture, Sandhill Shrubland, and Riparian Woodland and Shrubland.

Prior to conducting surveys, the field technician and I met with Ranch owners, Florence and Everett Jackson. They indicated on a large map of the ranch where they had seen Long-billed Curlews.

Sampling Design

The program Integrated Monitoring in Bird Conservation Regions (IMBCR) monitored landbirds in 11 western states in 2008-2016 using a rigorous sampling design and field protocol (Hanni et al. 2016). We used simplified versions of this design and protocol to survey birds on the Smokey Rim Ranch. Sampling units consisted of 1-km² areas, defined by the US National Grid (<http://usngcenter.org/portfolio-item/usng-gis-data>). I obtained a digital version of the ranch boundary from TNC and compiled all spatial data using ARCGIS 10.1 (ESRI 2010). The majority of 150 grid cells fell within the Smokey Rim Ranch; these defined the sampling frame. I selected a random sample of 40 cells (sampling units) to be surveyed for birds.

In a departure from the IMBCR protocol, I defined 5 survey points (rather than 16) within each sampling unit (Figure 2). The reasons for choosing 5 rather than 16 points within each sampling unit were (1) the target species, Long-billed Curlew, can be observed from a greater distance than can many songbird species, and (2) having fewer points per sample allowed the field technician to survey more locations per day.

Survey Methods

We followed IMBCR methods to survey birds (Hanni et al. 2016). Under this protocol, the field technician recorded each bird seen and/or heard at each survey point. In addition, the technician recorded information about the structure and composition of the vegetation at each point based on ocular estimates (Hanni et al. 2016). If a survey point could not be accessed on foot safely due to steep and/or unstable terrain, it was not surveyed.

We conducted surveys early in the Curlew breeding season (Dugger and Dugger 2002) between dawn and late evening. During all surveys, the technician recorded observations of Long-billed Curlews, Curve-billed Thrashers (as requested by TNC; Chris Pague, personal communication) and Greater Roadrunners (because they are conspicuous throughout the day). During surveys conducted between dawn and 9:00 AM, the period when songbirds are most vocal, the technician recorded observations of all bird species (Figure 3).

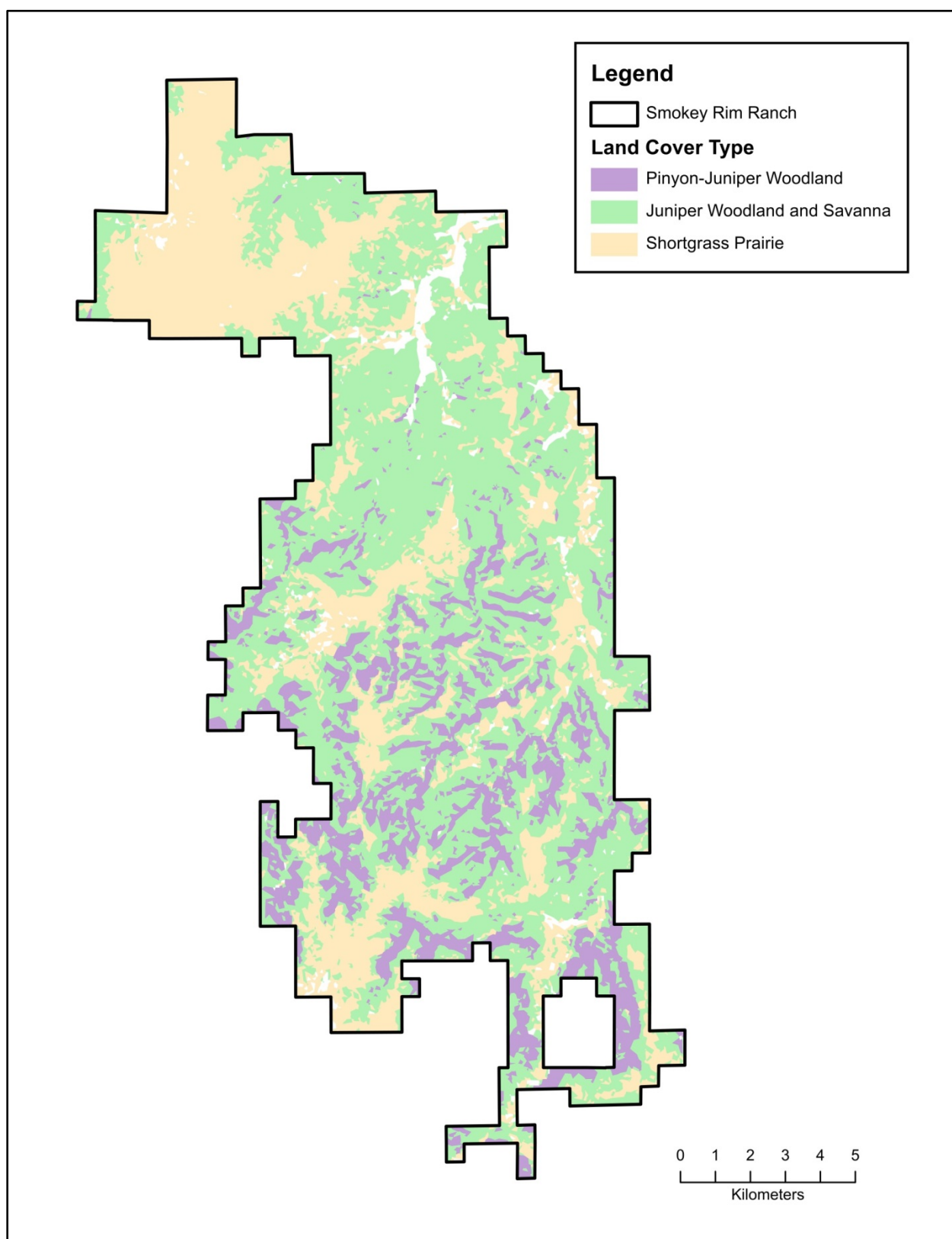


Figure 1. Major vegetation cover types of the Smokey Rim Ranch. Source: Southwest Regional Gap Analysis Project.

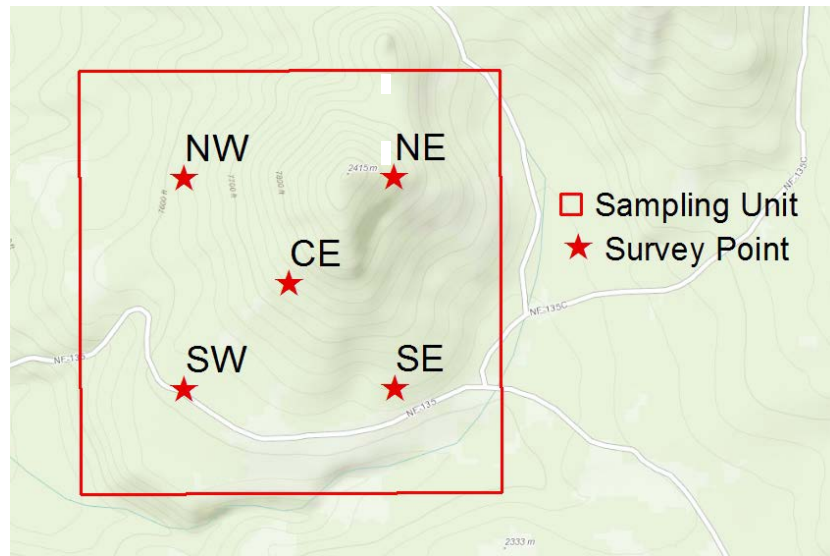


Figure 2. 1-km² square sampling unit containing 5 survey points.

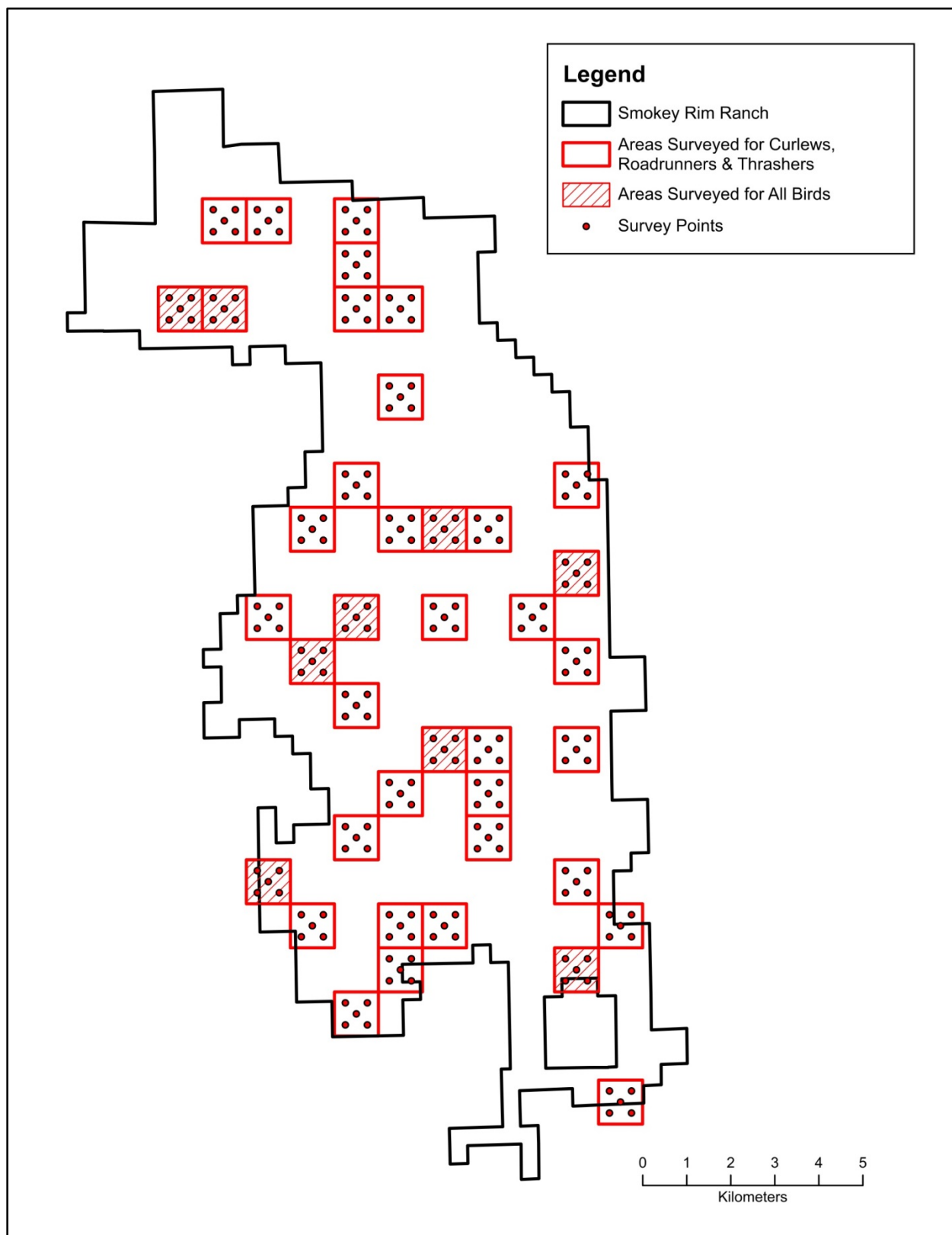


Figure 3. Sampling units surveyed for birds on the Smokey Rim Ranch, April 2016.

RESULTS

The field technician conducted surveys for Curlews, Roadrunners and Thrashers at 182 points within 40 sampling units, and surveys for all bird species at 42 points within 9 of these sampling units. Eighteen points were not surveyed because they could not be safely accessed on foot due to steep or unstable terrain.

Florence and Everett Jackson indicated two locations in the southern portion of the Smokey Rim Ranch and one location near their home (outside the ranch) where they had seen Long-billed Curlews (Figure 4). Our field technician observed one Curlew on each of two sampling units in the northern portion of the ranch (Figure 4). Each area indicated by the Jacksons and both survey points from which the Curlews were observed were characterized as Shortgrass Prairie (dominated by grasses rather than by woody vegetation). The technician also watched for Curlews while travelling on foot or by car while conducting field work. She observed Curlews near the Jacksons' home and flying over a road outside the ranch, but did not observe any Curlews while travelling inside the ranch.

Greater Roadrunners (*Geococcyx californianus*) were observed throughout the ranch, in grassland as well as areas dominated by Junipers (Figure 5). Curve-billed Thrashers (*Toxostoma curvirostre*) were observed in grassland interspersed with cholla cactus (Figure 6).

During morning surveys, the field technician observed 31 bird species (Table 1) including some species dependent on Pinyon-Juniper woodlands (e.g., Juniper Titmouse; *Baeolophus ridgwayi*), some dependent on grasslands (e.g., Cassin's Sparrow; *Aimophila cassinii*) and others found in a wide variety of habitats (e.g., American Robin; *Turdus migratorius*). Both the Juniper Titmouse and Cassin's Sparrow are Species of Greatest Conservation Need (CPW 2015).

Table 1. Bird Species observed during morning surveys on the Smokey Rim Ranch, April 2016.

Common name	Scientific name	Common name	Scientific name
Cooper's Hawk	<i>Accipiter cooperii</i>	Juniper Titmouse	<i>Baeolophus ridgwayi</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Bushtit	<i>Psaltiriparus minimus</i>
American Kestrel	<i>Falco sparverius</i>	Rock Wren	<i>Salpinctes obsoletus</i>
Wild Turkey	<i>Meleagris gallopavo</i>	Canyon Wren	<i>Catherpes mexicanus</i>
Scaled Quail	<i>Callipepla squamata</i>	Bewick's Wren	<i>Thryomanes bewickii</i>
Killdeer	<i>Charadrius vociferus</i>	Mountain Bluebird	<i>Sialia currucoides</i>
Long-billed Curlew	<i>Numenius americanus</i>	American Robin	<i>Turdus migratorius</i>
Mourning Dove	<i>Zenaida macroura</i>	Northern Mockingbird	<i>Mimus polyglottos</i>
Greater Roadrunner	<i>Geococcyx californianus</i>	Curve-billed Thrasher	<i>Toxostoma curvirostre</i>
Hairy Woodpecker	<i>Picoides villosus</i>	Spotted Towhee	<i>Pipilo maculatus</i>
Northern Flicker	<i>Colaptes auratus</i>	Canyon Towhee	<i>Pipilo fuscus</i>
Say's Phoebe	<i>Sayornis saya</i>	Cassin's Sparrow	<i>Aimophila cassinii</i>
Western Scrub-Jay	<i>Aphelocoma californica</i>	Lark Sparrow	<i>Chondestes grammacus</i>
Common Raven	<i>Corvus corax</i>	Western Meadowlark	<i>Sturnella neglecta</i>
Horned Lark	<i>Eremophila alpestris</i>	House Finch	<i>Carpodacus mexicanus</i>
Barn Swallow	<i>Hirundo rustica</i>		

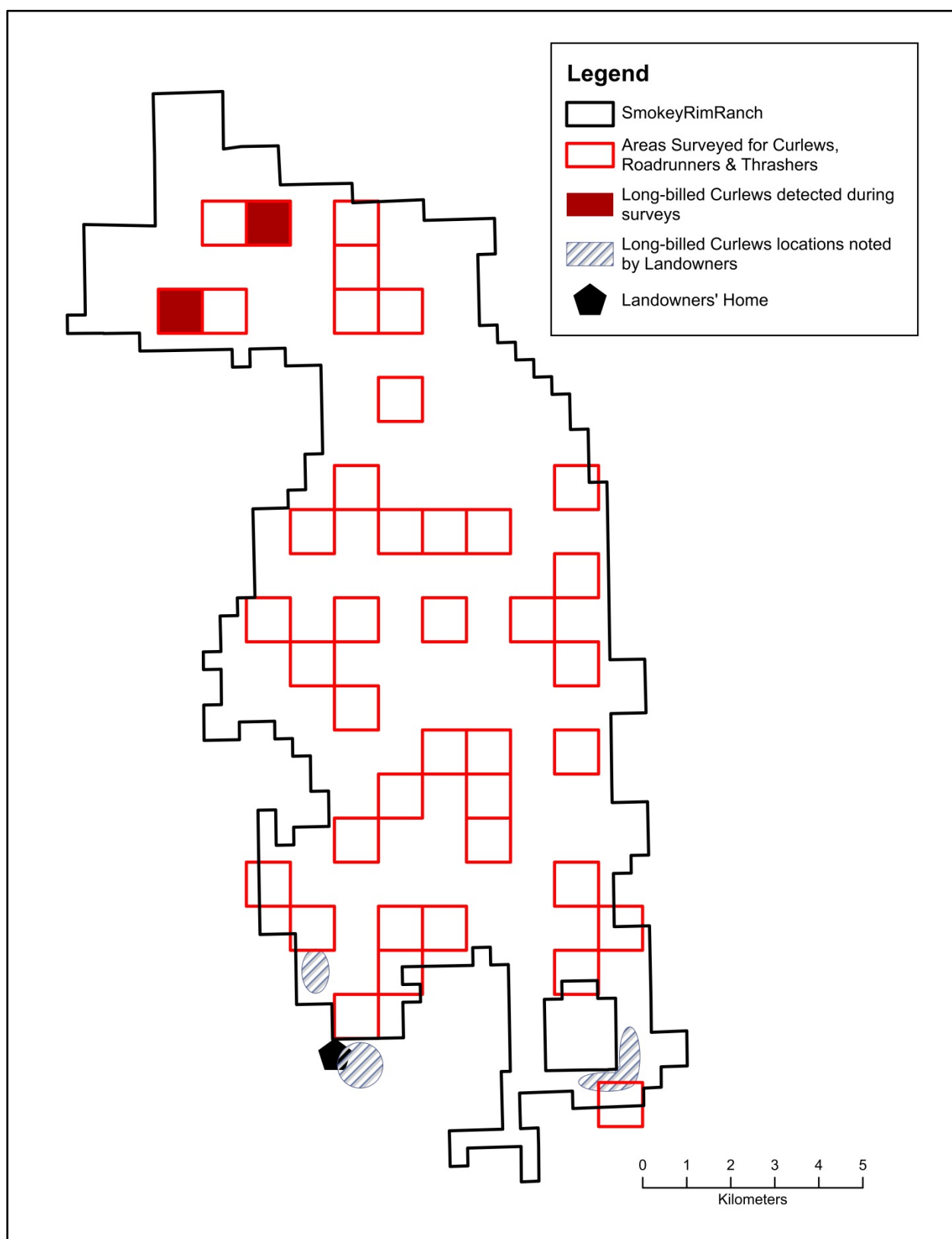


Figure 4. Locations of Long-billed Curlews on and near the Smokey Rim Ranch, April 2016.

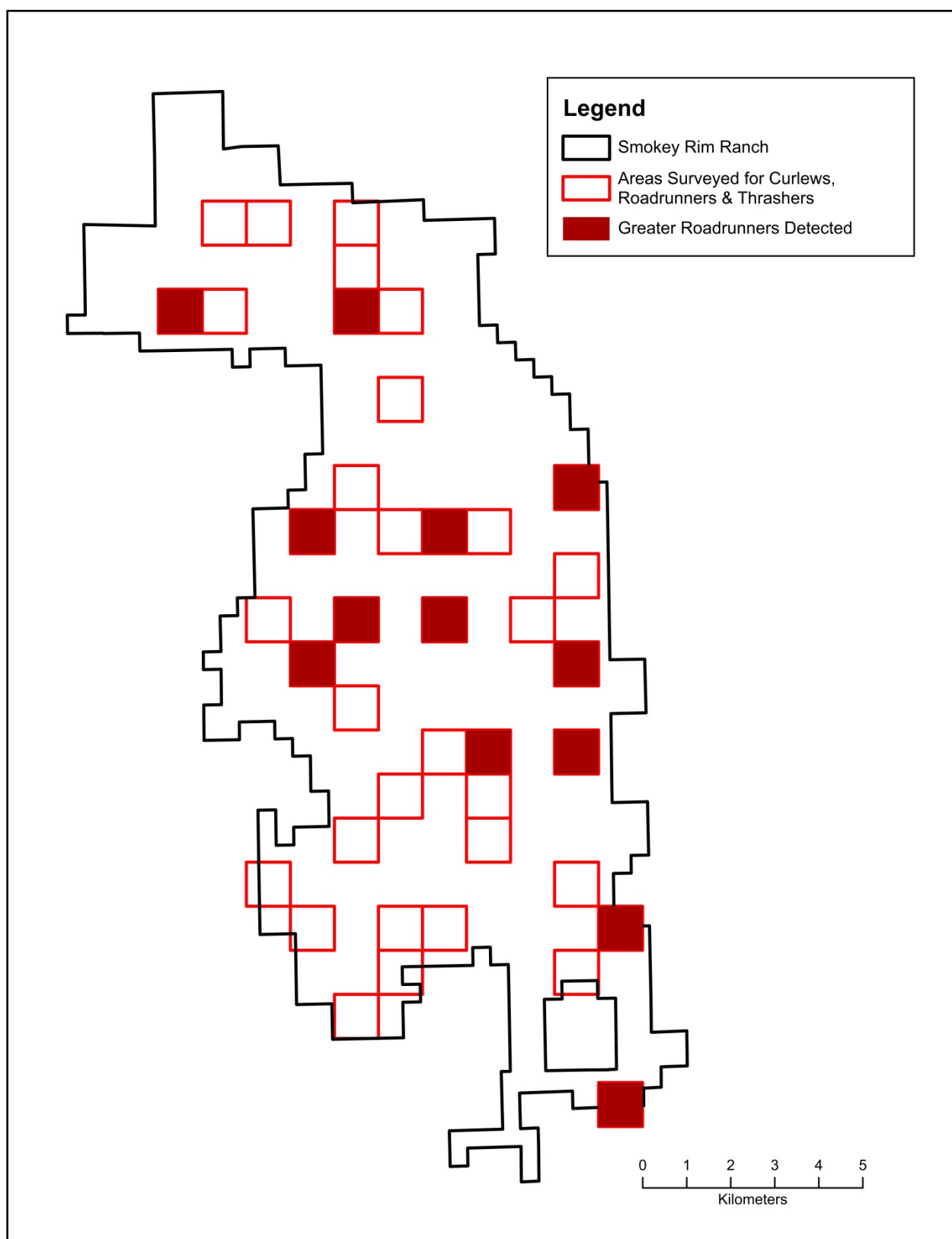


Figure 5. Locations of Greater Roadrunners on the Smokey Rim Ranch, April 2016.

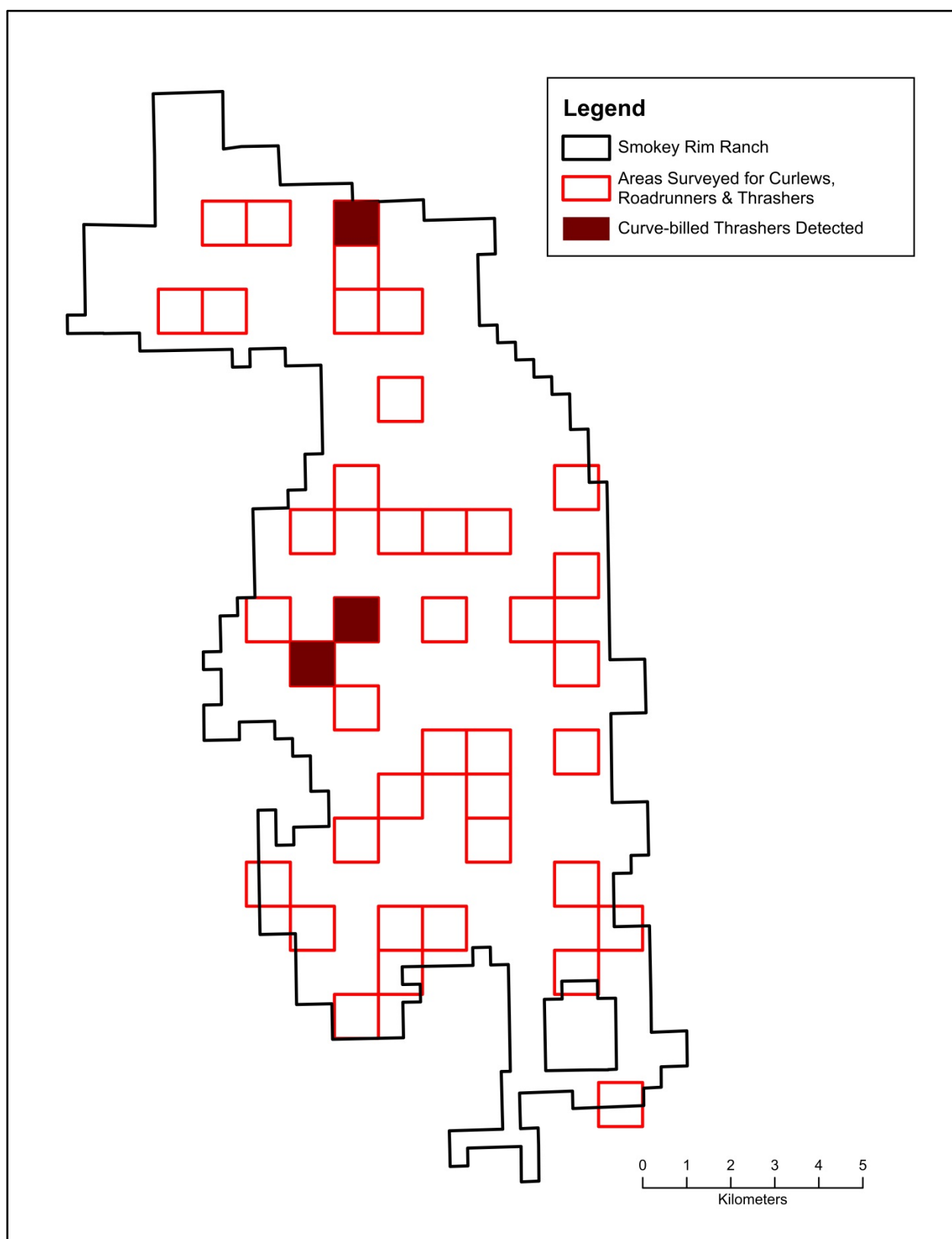


Figure 6. Locations of Curve-billed Thrashers on the Smokey Rim Ranch, April 2016.

DISCUSSION

In a nation-wide survey to estimate the size of the breeding population of Long-billed Curlews, Stanley and Skagen (2007) timed surveys to coincide with the pre-incubation portion of breeding cycle, when the male Curlews are most visible. In southeastern Colorado, this occurred 28 March – 20 April. Because we were unable to begin our surveys until 20 April, we may have surveyed during the incubation period, during which time male Curlews were still vocalizing (personal observation). Note that some migratory songbirds do not return to southeastern Colorado to breed until May. Consequently, the list of bird species we observed in April likely does not constitute all species that breed on the ranch.

Management Recommendations

I talked with Smokey Rim Ranch owners, Florence and Everett Jackson, about how to improve the grassland areas on the ranch, particularly in the northern portion. They noted that the abundance of cholla cactus in the grasslands was an indication of past overgrazing, and that restoration of these areas would be facilitated by prescribed burning. Dormant-season prescribed fire increased abundance of Mountain Plover the following year (*Charadrius montanus*) on grazed grassland in Weld County, Colorado (Augustine 2011). This species of Conservation Concern was not observed on the ranch through our surveys nor in recent years by the ranch owners (Florence and Everett Jackson, personal communication). Plover are known to breed on the nearby Comanche National Grassland (Comanche National Grassland 2005).

Recommended conservation actions for this Long-billed Curlew in Colorado include habitat protection through conservation easements, implementation of compatible grazing practices and implementation of best management practices for agricultural production (CPW 2015). These protections and practices are already in place or planned for the Smokey Rim Ranch.

The combination of shortgrass prairie and pinyon-juniper and the intermediate savanna on the Smokey Rim Ranch provided a range of habitats for birds, from strictly grassland to savanna to dense woodland. Maintaining this full range of vegetation composition and structure will be necessary to maintain the diversity of native bird species recently observed on the ranch.

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