

Final Report: Lesser Prairie-Chicken Survey – Kiowa and Rita Blanca National Grasslands, 2014

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Introduction

The Lesser Prairie-Chicken (*Tympanuchus pallidicinctus*) (LEPC) occupies grassland habitat consisting of sand sagebrush (*Artemisia filifolia*), sand shinnery oak (*Quercus havardii*) and mixed grass vegetation communities of the southern Great Plains. Since the 19th century, LEPC and the habitat upon which they depend has diminished across their historical range (Crawford and Bolen 1976, Taylor and Guthery 1980a), with recent estimates of current occupied range totaling approximately 17% of the estimated area of their historical range. Causes for this reduction in occupied range are primarily attributed to habitat loss and fragmentation (USFWS 2012). Habitat loss has been caused by conversion of native prairie to cropland (Bent 1932, Copelin 1963, Taylor and Guthery 1980) and long term fire suppression (Woodward et al. 2001) leading to tree invasion (Fuhlendorf et al. 2002). Grazing management practices would help improve habitat if managed to benefit LEPC. Heavily grazed fields that leave no residual vegetation for broods can be detrimental to LEPC (Sell 1979, Hunt and Best 2010). Habitat fragmentation has resulted from a combination of habitat loss and degradation caused by oil and gas development (Hunt 2004) and suspected effects of wind energy development (Pruett et al. 2009).

The LEPC is not thought to occur in Kiowa and Rita Blanca National Grasslands (KRB) (Giesen 2003), however some parcels within the grasslands are managed for LEPC. There are anecdotal reports of single birds reported in Union County, New Mexico (Bailey and Williams 2000). The nearest populations are approximately 200 km east in Texas (Sullivan et al. 2000), and 100 km north in Colorado, with active leks 50 km northeast in Oklahoma (Giesen 2003). The mixed pattern of land ownership within the NG does not necessarily preclude it from being managed for potential breeding LEPC, as some interspersed cropland with rangeland may be tolerated by birds (Crawford and Bolen 1976). Suitable habitat patches should be at least 50 km² and connected within 30-50 km of occupied habitat (Giesen 1998). To better understand whether LEPC are using KRB for breeding, the U.S. Forest Service (USFS) requested a survey of LEPC and potential leks by Rocky Mountain Bird Observatory (RMBO) in 2014. The last survey on KRB was conducted in 2003, therefore an updated survey was recommended due to the large interlude, especially in light of the recent listing as a threatened species by U.S. Fish and Wildlife Service in 2012.

Methods

Field preparations were made with the assistance of the USFS in providing GIS data layers to map survey routes, in particular the Range Management Specialist, Angela Safranek assisted with field planning. Surveys were conducted by a volunteer recommended by RMBO staff, who has conducted LEPC lek surveys on the Comanche National Grasslands in Colorado for several years. She travelled to the study area and conducted roadside surveys at predetermined listening stops every 0.5-1 mile once per survey point from April 25-April 29 2014 (Figs. 1-2). Due to budget constraints repeated surveys were not conducted and it was believed the likelihood of locating an active lek was minimal. Survey

protocols were conducted according to those for Cimarron and Comanche National Grasslands provided by Andy Chappell, Wildlife Biologist with Cimarron National Grassland in Kansas (Appendix 1). Roads within the grassland boundaries were driven during the survey window with stops occurring every mile. In addition she drove much of the grassland after the survey window to assess the habitat and make plans for the next survey day. We also noted other species seen or heard (Table 1).

Results and Discussion

We detected no lesser prairie-chickens on the Kiowa and Rita Blanca National Grasslands in 2014, nor any sign of presence of LEPC. All potential sand sage and other known LEPC habitat were surveyed or visited. The GIS data layer of the Terrestrial Ecological Units highlighting sand sage was provided to target priority habitats. Blue Grama, feathergrass, sand dropseed and prairie threeawn mix were the predominant grass type throughout the grasslands. RB-65 was known to have potential habitat and possibly LEPC and was surveyed again, no LEPC found but habitat was favorable (Figure 3).

Drought over many years has degraded much of the habitat suitable for LEPC (A. Safranek pers. comm.). Areas near High Lonesome road on Rita Blanca exhibited the worst drought conditions and thus poor possible LEPC habitat that experienced little to no rains since 2009. An area near RB32-37 and 52-56 had a wildfire in 2012 that potentially created suitable habitat for the LEPC. This area also contained the predicted sand sage habitat desired by the LEPC. Much of the far southwestern portions of RB/Kiowa had good habitat, sand sage but center pivot agriculture had increased since the predicted map was developed. We noted potential lek sites, based on habitat conditions, included primarily Kiowa in pasture K 132A and sand sage slightly east of that pasture, sand sage in the northern sections of Kiowa just south of Sugar Loaf road, and south-central sections of sand sage habitat in Kiowa just east of Craft Ranch road and west of road K111 and good high flat areas.

Management Implications

To ensure a sustainable population, Applegate and Riley (1998) recommended clusters of 6-10 or more leks, each with a minimum of 6 males, separated from one another by 1.9 km or less. Kiowa and Rita Blanca may not support a population of LEPC in the near future but if habitat were maintain it could support incidental birds. Recommendations from Geisen (2003) included annual LEPC surveys in this area. We are not sure if those surveys were conducted annually since 2003 or intermittently. The document also included grazing and prescribed burn as management options for improving LEPC habitat. In most scenarios grazing can improve rangeland health. On Kiowa, grazing last occurred in 2010 leaving four years of growth, possibly precluding leks forming due to dense vegetation. Two local ranchers indicated they have never seen a prairie chicken in that area.

Large areas of crop agriculture encompassed much of Rita Blanca, mostly center pivots surrounding intact grassland which may diminish the necessary space requirements for leks, however small conversions may not be considered a significant threat (Haufler et al. 2013). We also noticed increased noise in some areas by generators near windmills that could potentially affect LEPC avoidance, but there were not likely enough of them on the landscape to cause complete abandonment. In 2013 an invasive *Kochia* spp. bloom, due to late rains, covered much of the landscape in certain areas.

In general a land management plan that maintains rangeland in both early (native annual forbs) and late stages (perennial-native tall grasses, forbs and legumes) of plant succession are necessary to meet habitat requirements throughout the annual cycle (Elmore et al. E-1014). A. Safranek (pers. comm.) suggested land swaps for certain key parcels to reduce fragmentation, where a landowner might "trade" parcels with the USFS to increase intact blocks of grassland for wildlife habitat. Promote grazing

practices that improve habitat at various seral stages important for LEPC and using prescribed burns when applicable are positive steps for the species. However changes in weather patterns leading to continues droughts may negate current recommendations. In addition we noted numerous fences throughout, outreach to landowners about the use of fence markers to lesson possible collision risk for various grassland species, if applicable, could be suggested.

Tables and Figures

Table 1. Incidental sightings of species located at Kiowa and Rita Blanca during the Lesser Prairie-Chicken survey

Location	Species
Kiowa	American Wigeon
Kiowa	Blue-winged Teal
Kiowa/Rita Blanca	Cassin's Sparrow
Kiowa/Rita Blanca	Common Raven
Kiowa	Gadwall
Kiowa/Rita Blanca	Grasshopper Sparrow
Kiowa	Green-winged Teal
Rita Blanca	Hermit Thrush
Kiowa/Rita Blanca	Horned Lark
Kiowa/Rita Blanca	Lark Bunting
Kiowa	Lark Sparrow
Kiowa	Long-billed Curlew
Kiowa	Mallard
Kiowa/Rita Blanca	Mourning Dove
Kiowa/Rita Blanca	Northern Mockingbird
Kiowa	Northern Shoveler
Kiowa	Red-tailed Hawk
Kiowa	Ruddy Duck
Kiowa	Song Sparrow
Kiowa	Swainson's Hawk
Kiowa/Rita Blanca	Turkey Vulture
Kiowa/Rita Blanca	Vesper Sparrow
Kiowa/Rita Blanca	Western Kingbird
Kiowa/Rita Blanca	Western Meadowlark
Kiowa/Rita Blanca	White-crowned Sparrow
Kiowa	Wilson's Phalarope
Kiowa/Rita Blanca	Yellow Warbler

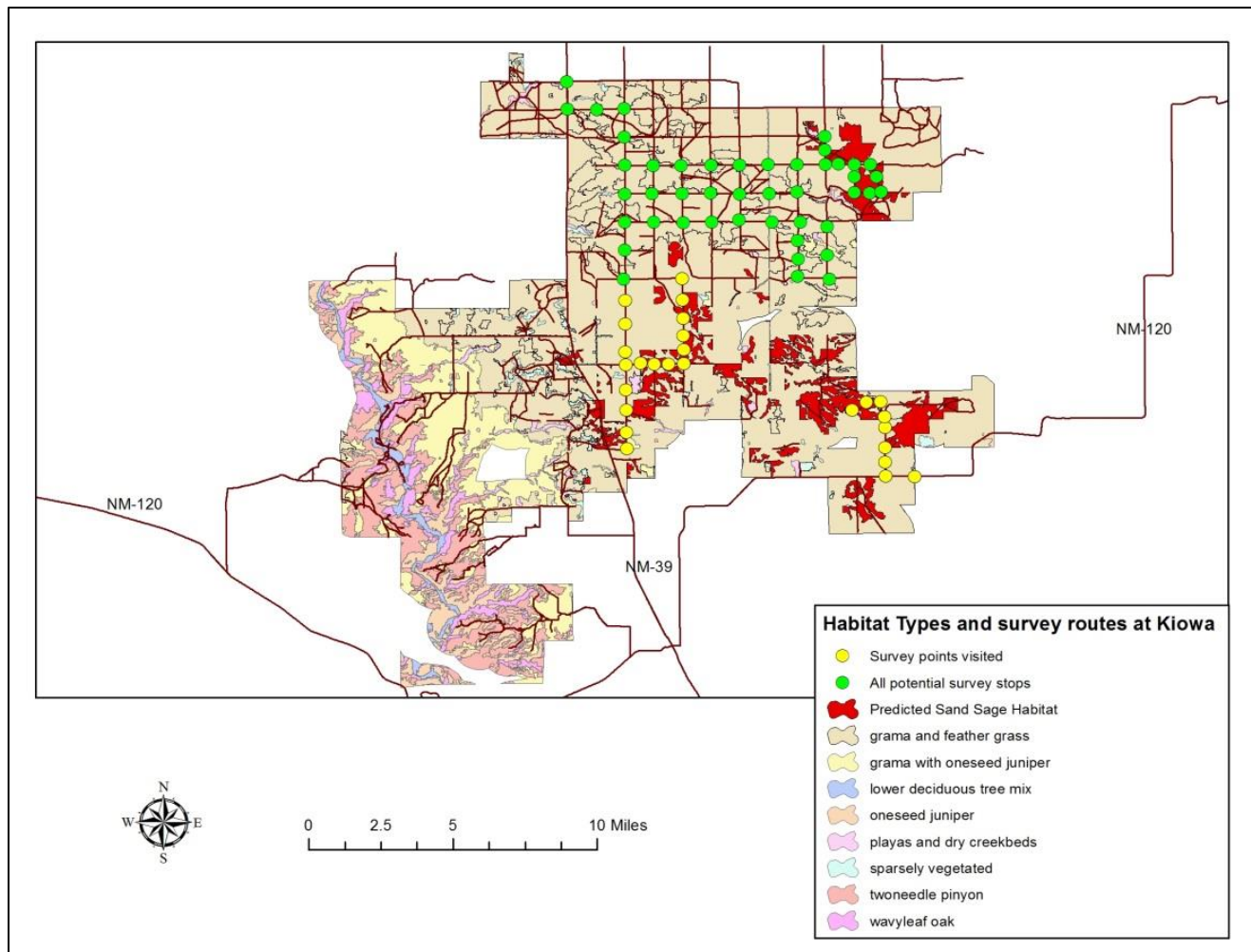


Figure 1. Survey routes completed during LEPC survey in 2014 on Kiowa.

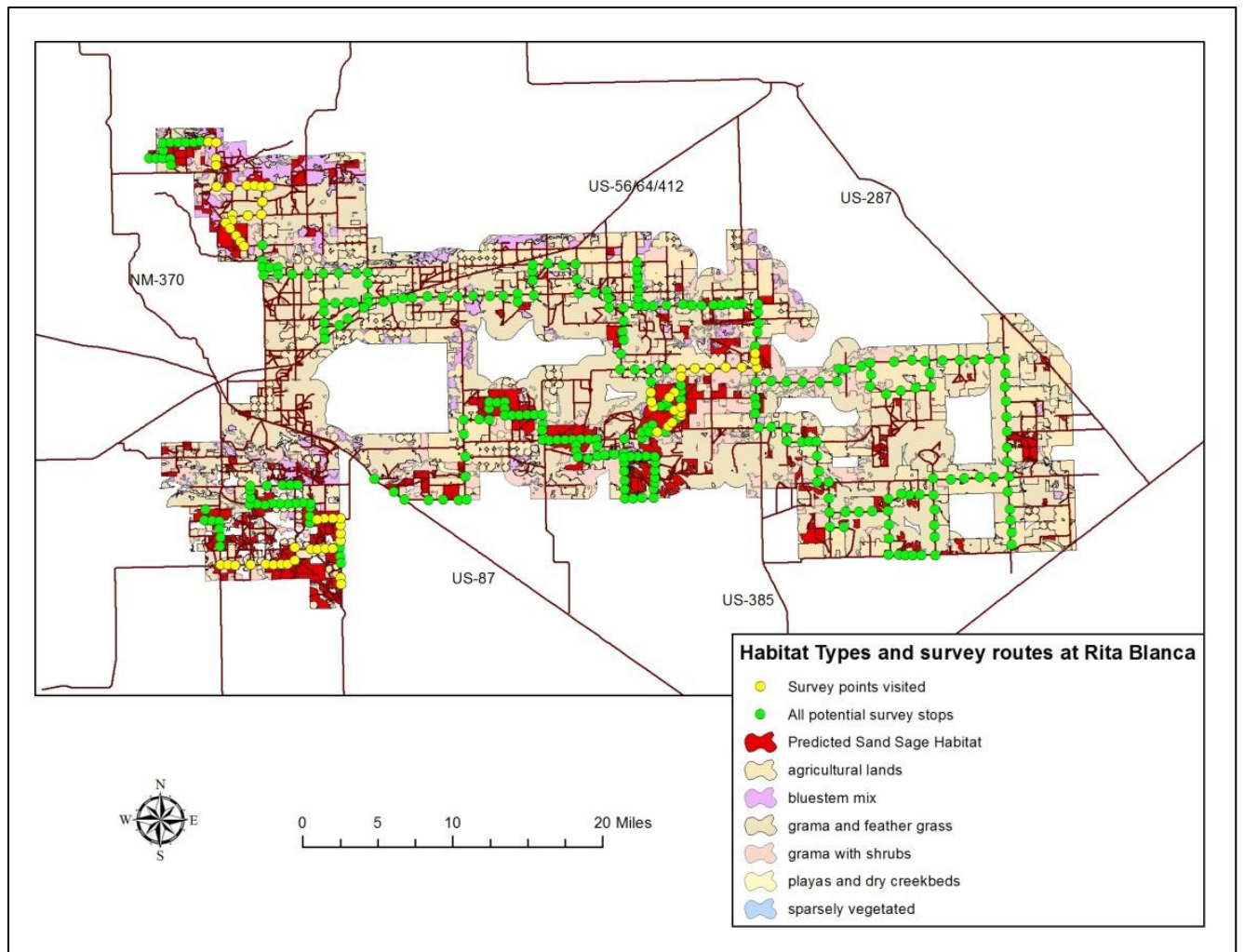


Figure 2. Survey routes completed during LEPC survey in 2014 on Rita Blanca.



Figure 3. View of RB 65 pasture at dawn. Sage, yucca, dropseed and grama mix. Best potential habitat for LEPC and 40-50 miles from known LEPC sightings. Photo by Petrea Mah

Literature Cited

- Applegate, R. D., and T. Z. Riley. 1998. Lesser Prairie-Chicken management. *Rangelands* 20:13-15.
- Bailey, J. A. and S. O. Williams III. 2000. Status of the Lesser Prairie-chicken in New Mexico, 1999. *Prairie Naturalist* 32:157-168.
- Bent, A. C. 1932. Life histories of North American gallinaceous birds. U.S. National Museum Bulletin 162.
- Copelin, F. F. 1963. The lesser prairie-chicken in Oklahoma. Oklahoma Department of Wildlife Technical Bulletin 6, Oklahoma City, Oklahoma, USA.
- Crawford, J. A. and E. G. Bolen. 1976. Effects of land use on lesser prairie-chickens in Texas. *Journal of Wildlife Management* 40:96-104.
- Elmore, D., T., Bidwell, R. Ranft and D. Wolfe. Habitat evaluation guide for the Lesser Prairie-Chicken. E-1014. Oklahoma Cooperative Extension Service. Stillwater, Oklahoma
- Fuhlendorf, S.D. and A. J. Woodward, D. M. Leslie Jr., and J. S. Shackford. 2002. Multiscale effects of habitat loss and fragmentation on lesser prairie-chicken populations. *Landscape Ecology* 17:601-615.
- Giesen, K. M. 2003. Breeding surveys and habitat evaluation for Lesser Prairie-Chickens and Mountain Plovers on the Kiowa and Rita Blanca Grasslands in New Mexico, Texas and Oklahoma. Final Report.
- Haufler, J. B., G. Beauprez, D. Klute, S. Kyle, J. Pitman, D. Schoeling, B. Van Pelt, and C. Hagen. 2013. Range-wide conservation plan for lesser prairie-chicken. 352 pages.
- Hunt, J. L. 2004. Investigation into the decline of the lesser prairie-chicken (*Tympanuchus pallidicinctus* Ridgway) in southeastern New Mexico. Dissertation. Auburn University, Auburn, Alabama, USA.
- Hunt, J.L. and T.L. Best. 2010. Vegetative characteristics of active and abandoned leks of Lesser Prairie-Chickens (*Tympanuchus pallidicinctus*) in southeastern New Mexico. *The Southwestern Naturalist* 55(4):477-487.
- Pruett, C. L., M. A. Patten, and D. H. Wolfe. 2009. It's not easy being green: wind energy and a declining grassland bird. *BioScience* 58:257-262.
- Sell, D. L. 1979. Spring and summer movements and habitat use by lesser prairie chickens in Yoakum County, Texas. Thesis. Texas Tech University, Lubbock, Texas, USA.
- Sullivan, R. M., J. P. Hughes and J. E. Lionberger. 2000. Review of the historical and present status of the Lesser Prairie-Chicken (*Tympanuchus pallidicinctus*) in Texas. *Prairie Naturalist* 32: 177-188.

Taylor, M.A. and F. S. Guthery. 1980. Status, ecology, and management of the lesser prairie chicken. USDA Forest Service General Technical Report RM-77, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado, USA.

U.S. Fish and Wildlife Service. 2012. Endangered and Threatened Wildlife and Plants; Listing the Lesser Prairie- Chicken as a Threatened Species. Federal Register Volume 77, No. 238:73827-73888.

Appendix 1. Lesser Prairie-chicken Survey Protocol for Cimarron and Comanche National Grasslands

This protocol was modified slightly to fit the budget and time constraints on our survey crew.

If no known leks exist, then go by habitat, get habitat map, sand sage, check

The basis of the protocol comes from the Kansas Department of Wildlife and Parks Instructions for Prairie-chicken Lek Counts guidelines. Since this is an area survey and not a route survey, some modifications have been made to get the best coverage of the survey area.

- Start the survey on or about March 20th and end about April 25th.
- Do not survey in high wind (above 20mph) or rain.
- Start at sunrise at a known lek site and flush the lek.
- Record all data information, such as:
 - Lek Number
 - Survey Year
 - Date
 - Time
 - Temperature
 - Wind Speed
 - Cloud Cover
 - Number of Birds
 - Status of Lek
 - Observer
 - A lek is active only if there are 3 or more males displaying on it.
 - A data dictionary has been set up for this information for the GPS unit.
 - If the lek site is new, then collect the GPS point and the data mentioned above. If the position of the lek site has been previously recorded, then only collect the data.
- Move to other known active or historical lek sites.
- Make frequent stops between active and historical lek sites, and listen for new sites along the way.
 - Frequent stops vary due to the terrain. Best listening points are on hill tops and are not necessarily at predetermined intervals. Use your best judgment to determine the listening points to get good coverage of the survey area.
 - If the terrain is mostly flat, then use predetermined intervals, but no more than 1 mile apart. Again, use good judgment to determine the best listening points to get good coverage of the survey area.
- At each stop, shut off engine and get out, and move 5 or more yards away from the vehicle and listen >3 minutes to determine if there is a lek in the area.
 - Hearing the same lek from 2 locations allows you to triangulate its approximate location.
- Survey areas for new lek locations using the same techniques mentioned above.
- Do not survey after 9:00 am.
- Complete 3 surveys of the area.
- If high wind exists, (between 15 and 20 mph), survey known active or historical leks that day.