Le Conte's Thrasher and Avian Monitoring Within the Carrizo Plain and San Joaquin Valley

2015 Summary Report to the Bureau of Land Management

LECONTE'S THRASHER (HARPORHYNCHUS LECONTEI)

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Introduction and Background

This project was initiated in 2010 to monitor avian populations within the Carrizo Plain National Monument (CPNM) with particular attention to the Le Conte's Thrasher (LCTH), a California Bird Species of Special Concern (BSSC) within the San Joaquin Valley (Shuford and Gardali 2008). In 2010-2011, monitoring methods were tested and refined and 120 area search survey plots (250m x 250m, approximating the size of a LCTH territory) were established within the CPNM (Jongsomjit et al. 2013) based on a presence-only based habitat suitability model and a relatively low resolution GIS vegetation layer. We continued to survey these plots in 2012 and 2013. In 2014 we developed imperfect detection models of occupancy and abundance (site-level models), and then used these results to train a geospatial population model (landscape-level model) of presence and abundance for the species across the CPNM using a high resolution GIS vegetation layer developed by the California Native Plant Society (Buck-Diaz and Evens 2011, Stout et al. 2013). The results of these models can be used to guide, prioritize, and evaluate management actions within the CPNM and beyond (Jongsomjit et al. 2014).

In line with recommendations from previous reports (Jongsomjit et al. 2013, 2014) and from the California Bird Species of Special Concern (Fitton 2008), in 2015 we added new survey locations within the CPNM to explore areas which our landscape-model predicted as suitable for LCTH, but where we had not surveyed. Surveying these plots can help to refine our models of LCTH distribution and abundance, improving our understanding of the habitats they require.

We also expanded our surveys to include areas outside of the CPNM, including the Maricopa-McKittrick and Lost Hills areas within the San Joaquin Valley. These areas have been impacted heavily by energy development, agriculture, and fragmentation, reducing suitable habitat for LCTH. Yet there have been relatively few studies, especially recently, of the LCTH population within these areas. Given the relatively small range of this distinct population, understanding its use of these areas is important for guiding management decisions. Distributional and habitat use information for LCTH in these areas will help inform and improve any conservation and restoration actions taken by the BLM. This may be especially true given the changes in climate we are seeing now and are projected to see into the future. As climate shifts across the landscape, species will have to adapt or shift as well. Reducing fragmentation and enhancing connectivity of suitable habitat can be an important climate change adaptation strategy.

Summary of 2015 Season

Site Selection

To increase our understanding of LCTH habitat use and inform any future modeling efforts (Jongsomjit et al. 2014), we added a total of 58 new plots within the CPNM boundary. Site selection was guided by our LCTH abundance models. These models indicated potentially suitable habitat within a portion of the LCTH range map developed by the BSSC that we had not surveyed before. We used the range map and our abundance model to create a total of 20 new plots in this area (Figure 1; Range Map Plots). The abundance models also indicated potentially suitable habitat outside of the LCTH range map within the steeper sloped areas along the Temblor Range on the eastern edge of the Monument. Thus, we placed a total of 28 new plots within this area (Figure 1; Slope Plots). Our modeling indicated a lack of information within habitats that contained no shrub cover. While we know from LCTH ecology that they require shrubs, we added 10 new plots (Figure 1; Grassland Plots) within areas with no shrub cover as indicated by the GIS vegetation layer developed by the CNPS. Surveys in these areas will help inform any future species habitat suitability modeling efforts.

A total of 56 plots were created within the San Joaquin Valley (SJ Valley Plots), outside of the CPNM boundary. For these plots we identified any areas that were within the Le Conte's Thrasher range map as indicated by the BSSC and within BLM managed lands as indicated by the LND Surface Estate GIS layer provided to us by the BLM. We gridded the intersection of these two layers into 250m plots then randomly selected 40 plots to survey. In addition to these 40 plots, we added 16 additional plots opportunistically in habitats that appeared to be suitable for LCTH and were near other plots for logistical reasons.

Figure 1. Location of area search plots located within CPNM or BLM managed lands. Each plot color represent a specific sampling strategy as described in the methods section. The Bird Species of Special Concern (Shuford and Gardali 2008) current and historic range map for Le Conte's Thrasher is shown.
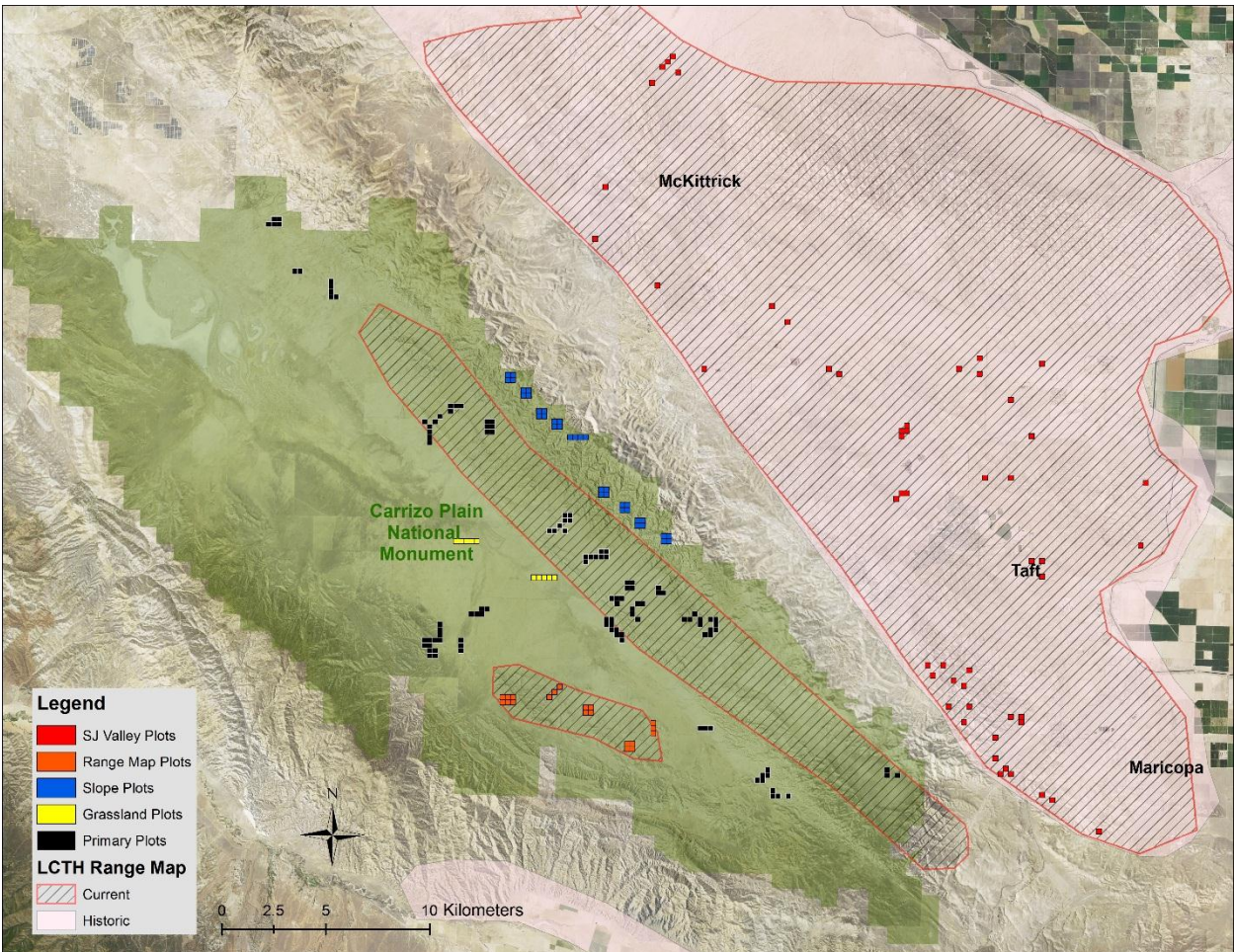
Surveys

We conducted area search surveys from February 18th through March 5th with 12 different surveyors. In total 459 surveys were completed across 154 unique plots. Except for 3 plots which were surveyed twice, plots were surveyed three times throughout the season. Following protocols from previous years, we conducted systematic area searches, recording all birds detected over a 20-minute period within 250x250 plots. Mammals were detected opportunistically. Vegetation relevés were conducted for each plot as well as within a 50-meter radius at the location of each LCTH sighting.

We detected 55 unique bird species over all our surveys (Table 1). In total, we detected 52 Le Conte's Thrashers, although some of these may have been the same individual sighted more than once. Of these 52 detections, 13 occurred during area search surveys, and the rest were

detected outside of area search plots or outside of a survey time window. We also located 4 LCTH nests, 1 with chicks on February 20th, 1 being built on February 24th, and 2 with eggs on March 3th and 4th. Interestingly, one of these nests with eggs was assumed to be within an inoperable oil pump, but the nest could not be checked because it was inaccessible. However, a LCTH adult was seen repeatedly entering the pump area without material or food, thus assumed to be incubating, and then was flushed from within the oil pump on the next day.

Table 1. Birds and mammals detected during area search surveys in 2015.			
American Crow	Chipping Sparrow	Le Conte's Thrasher	Sage Thrasher
American Kestrel	Chukar	Lesser Goldfinch	Savannah Sparrow
American Pipit	Cliff Swallow	Loggerhead Shrike	Spotted Towhee
Anna's Hummingbird	Common Poorwill	Mountain Bluebird	Swainson's Hawk
Audubon's Warbler	Common Raven	Mourning Dove	Tree Swallow
Bell's Sparrow	European Starling	Mountain Plover	Turkey Vulture
Bewick's Wren	Ferruginous Hawk	Northern Mockingbird	Vesper Sparrow
Blue-gray Gnatcatcher	Golden Eagle	Peregrine Falcon	White-crowned Sparrow
Black Phoebe	Greater Roadrunner	Prairie Falcon	Western Meadowlark
Brewer's Blackbird	House Finch	Ruby-crowned Kinglet	White-throated Swift
Brewer's Sparrow	Horned Lark	Rock Wren	**Mammals**
Burrowing Owl	House Wren	Red-tailed Hawk	Black-tailed Jackrabbit
California Towhee	Killdeer	Red-winged Blackbird	Coyote
California Quail	Lawrence's Goldfinch	Say's Phoebe	Desert Cottontail
California Thrasher	Lark Sparrow		San Joaquin Antelope Squirrel

We did not detect any LCTH within the new steeper slope plots, the grassland plots, or the range map plots (Figure 1). Out of all 52 LCTH detections, 30 were located within the new SJV plots, outside of the CPNM (Figure 2). These SJV detections were located north of McKittrick or north of Taft, but none were detected in the hills west of Maricopa, along the southeastern edge of the Monument or in the northern most plots north of Avenal (not shown on maps).

Figure 2. Area search plots overlaid with locations where Le Conte's Thrashers were detected both within and outside of an official survey.
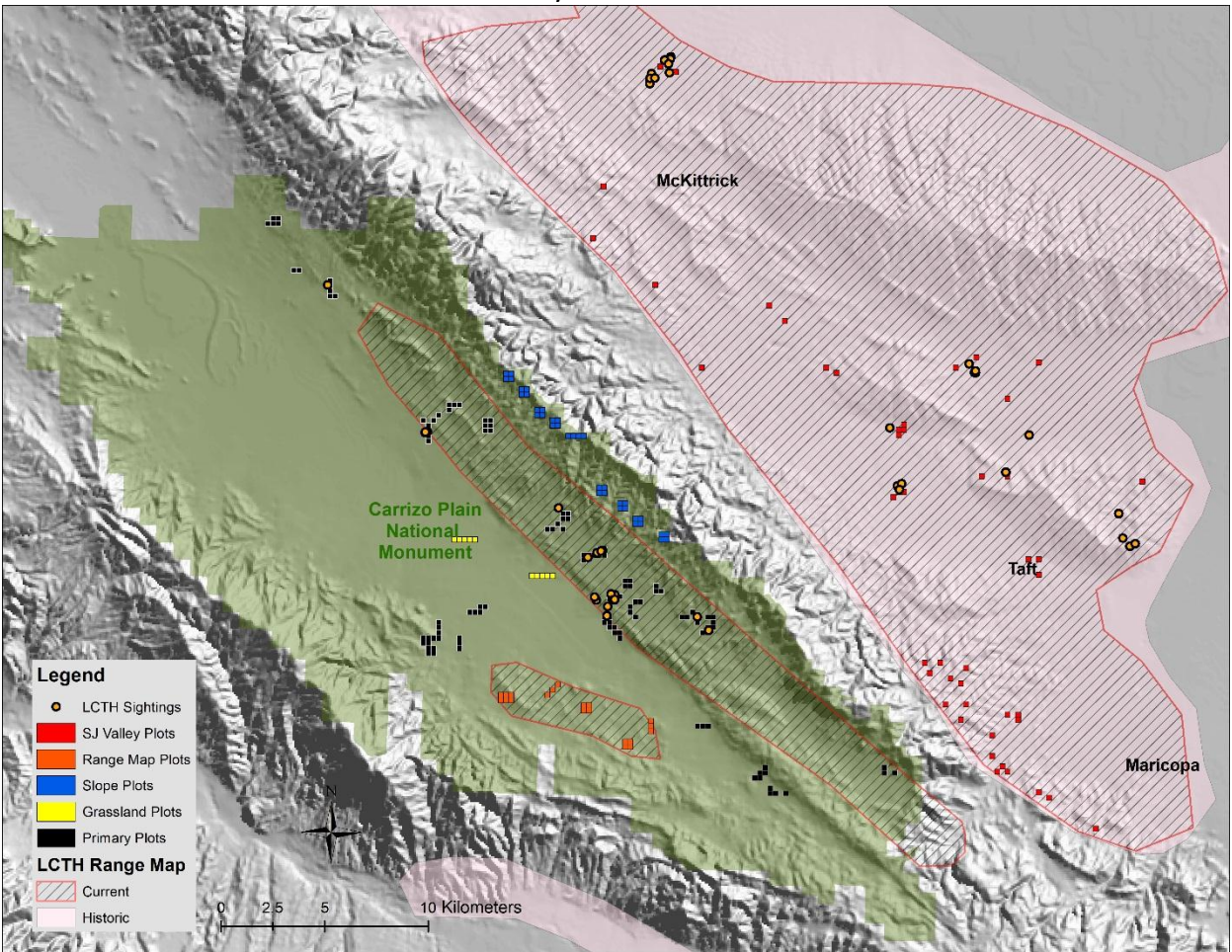
Discussion and Recommendations

Given previous experience and the habitat, it was not surprising to find no Le Conte's Thrashers within the Slope plots or the Grassland plots. However, we did expect to detect LCTH within the Range Map plots given that they have been detected there within the recent past. The Range Map plots were fairly steep and had fairly low amounts of saltbush within them. It may be worth exploring other areas near these plots, especially sites along creeks which tend to contain more saltbush, to try to confirm if LCTH are still using this area.

Similar to our experience at the CPNM, we did not find LCTH in the steep, hilly terrain west of Maricopa. Instead we found them in areas with well-developed saltbush within landscapes that were relatively flat or had a moderate gradient.

We did find LCTH in areas that had oil development, so long as a sufficient amount of habitat still existed. More research is needed to determine impacts of the industrial footprint on LCTH.

We speculate that at our sites just north of McKittrick the high erosion of intermittent and perennial creeks may have lowered the water table and, in conjunction with the 4-year drought, may have potentially killed off areas of saltbush habitat adjacent to these eroded areas, where we did not detect any Le Conte's Thrashers. One site within the CPNM also showed similar signs of erosion. Both of these sites were eroded downstream from where they intersected a roadway indicating a potential interaction between the roads, creeks, and water availability that could be impacting habitat. Given the long-term projected changes in climate, and this year's changes in precipitation, it will be interesting to see how the vegetation that these birds rely on will change across various timescales.

We recommend continuing population monitoring of LCTH and other birds within the primary plots in the CPNM. Keeping this base level of surveys is important to be able to detect and analyze changes in the avian populations and the potential causes of these changes, especially in the context of a changing climate. The high erosion of creeks associated with roadways has the potential to inform land management practices that could positively impact habitat suitability. We recommend discussing and exploring this issue further in the upcoming survey season. We feel there is more to be learned about the distribution of LCTH outside of the CPNM and recommend continuing surveys in this area. For example, we did not detect LCTH at plots within specific areas outlined as within the current range of LCTH by the BSSC report. Given the small range of this species, it would be good to examine these areas further, refine the precision of the known range, and verify whether or not the species has become recently extirpated from some areas and why. It's also important to get a better understanding of the impacts of fragmentation and development on LCTH, and we feel that surveys in and around these areas can help illuminate patterns that will ultimately inform land management decisions.

Acknowledgements

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