NOTES

ANNUAL VARIATION IN HABITAT SELECTION OF LECONTE'S THRASHER

JOHN MARK SIMMONS, Great Basin Institute Wildlife Technician, Tule Springs Fossil Beds National Monument, 601 Nevada Way, Boulder City, Nevada 89004; johnmarksimmons2@gmail.com

ABSTRACT: Surveys of Tule Springs Fossil Beds National Monument near Las Vegas, Nevada, in 2021, after an exceptionally dry winter, revealed LeConte's Thrasher (*Toxostoma lecontei*) only in uniform stands of *Atriplex polycarpa* on flat terrain. But in 2022, after a winter of rainfall 2.7 times greater than average, several LeConte's Thrashers, including at least one nesting pair, appeared in Mojave Desert scrub on a rockier substrate and more sloped terrain, in an area where they had been absent the previous year. Thus habitat use by LeConte's Thrasher may vary in response to annual fluctuation in rainfall.

LeConte's Thrasher (*Toxostoma lecontei*) is a cryptic and difficult-to-detect species inhabiting some of the driest and sparsest habitats in the southwestern United States and Mexico (Fletcher 2009, Sheppard 2020). Land development for energy and agriculture, wildfires, climate change, and all-terrain-vehicle usage all significantly damage the habitat and prey base critical to the thrasher, which thrives in undisturbed environments (Sheppard 2018). Tule Springs Fossil Beds National Monument

FIGURE 1. Flats dominated by cattle saltbush (*Atriplex polycarpa*), the most common nesting habitat for *Toxostoma lecontei*. Photo taken at boundary of Tule Springs Fossil Beds National Monument and Desert National Wildlife Refuge after recent rain.

Photo by John Mark Simmons

FIGURE 2. Mojave Desert scrub at Tule Springs Fossil Beds. Larger and more abundant rocks, numerous rocky washes, higher diversity of flowering plants, and taller vegetation distinguish this habitat from to the saltbush-dominated survey plots.

Photo by John Mark Simmons

(National Park Service) in southern Nevada preserves 9170 hectares of the Mojave Desert in the urban Las Vegas Valley and represents a mosaic of disturbed and undisturbed sites. The population of LeConte's Thrasher at Tule Springs and the neighboring Corn Creek Important Bird Area is well known to birders and ornithologists. Reports posted to https://eBird.org provide a snapshot of the thrasher's occurrence in the Las Vegas Valley, where many occur along Corn Creek Road in uniform stands of allscale or cattle saltbush (*Atriplex polycarpa*), perching atop shrubs, fences, and signs. This habitat is characterized by alkaline soils and low plant diversity (Figure 1) (Sheppard 1970, Laudenslayer et al. 1992, Williams et al. 1998, Fletcher 2009) but also includes small buckhorn and silver chollas (*Cylindropuntia acanthocarpa* and *C. echinocarpa*), and creosote bush (*Larrea tridentata*). During a set of targeted surveys (n = 33 plots, each of 90,000 m^2) within the national monument, I found a breeding pair of LeConte's Thrashers in an atypical habitat.

LeConte's Thrasher surveys in the monument followed the area-search protocol developed by the Desert Thrasher Working Group (https://borderlandsbirds.org/projects/desert-thrasher/). During the 2022 season, I detected *T. lecontei* exclusively within saltbush-dominated plots, as expected. In 2022, no LeConte's thrashers were observed in Mojave Desert scrub habitat (n = 3 plots; Figure 2), which is much rockier, slightly steeper, and supports greater diversity of plant species than does the saltbush-dominated habitat. On a rockier substrate, these plots have varying amounts of desert pavement and gravel and much less bare ground than do the saltbush plots. This habitat is dominated by eastern Joshua trees (*Yucca brevifolia jaegeriana*), Mojave yucca (*Y. schidigera*), silver cholla, creosote bush, Mojave indigobush (*Psorothamnus arborescens*), and several other species of cacti and wildflowers

(Figure 2). In 2023, LeConte's thrashers bred on a surveyed plot in Mojave Desert scrub habitat with steeper slopes (>5°). I initially recorded *T. lecontei* at this plot on 24 March 2023, then again on 4 May, and finally on 8 June with recently fledged young. I also observed several individuals outside of the survey plot in this same habitat type. This represents an uncharacteristic terrain and vegetation preference compared to studies at Maricopa, Kern Co., California, where about 80% of nests were in cholla or saltbush (Sheppard 2018). Fletcher (2009) did not observe LeConte's Thrasher on slopes >5°. While this species is known to inhabit flatter Joshua tree-dominated habitats (Sheppard 1970, Laudenslayer et al. 1992, Fletcher 2009), the apparent shift of territories into this new habitat type is notable and may be a response to drought. LeConte's Thrasher's behavior during extreme drought years is still unknown and requires further study (Sheppard 2018).

The winter of 2021–2022 was very dry. From December through February, sensor 3954, Tule Springs NW, the closest and most relevant gauge (accessed 9 July 2024 via https://www.regionalflood.org/programs-services/rainfall-and-weather/historical-rainfall/rainfall-history-lookup) received zero rain, compared to the average for those three months of 12.95 mm. In the winter of 2022–2023 the station received 35.05 mm of precipitation, a notable increase from the previous season when I found no thrashers in the novel Mojave Desert scrub habitat. Droughts, influenced by the Pacific Decadal Oscillation and El Niño, are known to be significant drivers of the biodiversity of the Mojave Desert ecosystem and its birds (Hereford et al. 2006).

In the Las Vegas Valley, *T. leconteii* appears to preferentially select uniform stands of saltbush, on the basis of Tule Springs survey data, reports via eBird from the neighboring Corn Creek Important Bird Area, as well as available literature, such as Sheppard (2018). Nevertheless, it is worth considering that this species is extremely cryptic; many birders who report LeConte's Thrasher in this stand of saltbush spot the birds along Corn Creek Road, open to the public. As a result, observer effort in the easily accessible saltbush habitat is disproportionately higher than in the more remote areas farther from public roads, such as the adjacent Mojave Desert scrub. Land managers should not rely solely on eBird data to identify where thrashers decide to breed. An improved understanding of the annual and seasonal changes in the thrasher's habitat selection can help developers and land managers make appropriate decisions to benefit species conservation in the face of threats. Since desert thrashers are so cryptic and accurate surveys are challenging, additional phenological knowledge might improve detection rates. Better data should enable us to better predict the thrashers' responses to habitat loss (i.e., land conversion to agriculture or solar fields), which is the primary threat to this group of species (Williams et al. 1998, Shuford and Gardali 2008, Sheppard 2018). Finally, *T. lecontei* remains an understudied species. Given the current paucity of contemporary information and management strategies in the face of development, this reported observation can help build on our knowledge of the species and its ecology.

I thank Erin Eichenberg and the rest of the staff at Tule Springs for the opportunity and means to conduct these surveys. Dawn Fletcher and Lauren Harter from Great Basin Bird Observatory set me on the course of thrasher surveys in 2022, and I have been grateful for their continued involvement and expertise on this species. Liam Wolff and Lauren Parry provided knowledgeable edits and insight. I appreciate my association with the Desert Thrasher Working Group, which continues to accumulate valuable data on LeConte's and Bendire's Thrashers throughout the Southwest. I also thank the staff at Desert National Wildlife Refuge for their collaboration, and I would be remiss if I did not thank the reviewers and editors of *Western Birds* and specifically Jay M. Sheppard for their dedication and effort.

LITERATURE CITED

Fletcher, D. M. 2009. Distribution and site selection of Le Conte's and Crissal thrashers in the Mojave Desert: A multi-model approach. M.S. thesis, Univ. Nev., Las Vegas.

Hereford, R., Webb, R. H., and Longpré, C. I. 2006. Precipitation history and ecosystem response to multidecadal precipitation variability in the Mojave Desert region, 1893–2001. J. Arid Env. 67, suppl., pp. 13–34; doi.org/10.1016/j.jaridenv.2006.09.019.

Laudenslayer, W. F. Jr., England, A. S., Fitton, S., and Saslaw, L. 1992. The *Toxostoma* thrashers of California: Species at risk? Trans. W. Sec. Wildlife Soc. 28:22–29.

Sheppard, J. M. 1970. A study of the LeConte's Thrasher. Calif. Birds 1:85–94.

Sheppard, J. M. 2018. The biology of a desert apparition: LeConte's Thrasher (*Toxostoma lecontei*). Studies of Western Birds 2. W. Field Ornithol., Camarillo, CA.

Sheppard, J. M. 2020. LeConte's Thrasher (*Toxostoma lecontei*), *in* Birds of the World (P. G. Rodewald, ed.). Cornell Lab Ornithol., Ithaca, NY; doi.org/10.2173/bow.lecthr.01.

Shuford, W. D., and Gardali, T. 2008. California bird species of special concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. W. Field Ornithol., Camarillo, CA; https://westernfieldornithologists.org/product/california-bird-species-of-special-concern/.

Williams, D. F., Cypher, E. A, Kelly, P. A., Miller, K. J., Norvell, N., Phillips, S. E., Johnson, C. D., and Colliver, G. W. 1998. Recovery plan for upland species of the San Joaquin Valley, California. U.S. Fish and Wildlife Service, Portland, OR; https://esrp.csustan.edu/publications/recoveryplan.php.

Accepted 11 November 2024
Associate editor: Matthew J. Baumann