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DYNAMICS OVER A CENTURY IN THE SUMMER AVIFAUNA OF LITTLE SALT MARSH, QUIVIRA NATIONAL WILDLIFE REFUGE, IN CENTRAL KANSAS

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ABSTRACT

Little Salt Marsh, located at the southern end of Quivira National Wildlife Refuge in central Kansas, represents a native saline wetland in the central Great Plains. Biologists from the University of Kansas Natural History Museum surveyed the area during the summers of 1925–1928, which resulted in large series of specimens preserved in the collections of the University of Kansas (KU) Biodiversity Institute (including the KU Natural History Museum). As a step towards a deeper understanding of the processes that drive biodiversity change over the past century, we compared the species represented among those historical specimen series to species detected by the birdwatching community and shared globally via the eBird platform for 2019–2024. Although much of the summer avifauna of Little Salt Marsh remains as it was in the 1920s, important components have changed: numerous nonnative species have moved into the region; several southern species have expanded their ranges northward, likely in response to global climate change; and several woodland-associated eastern species have expanded westward, likely in response to large-scale woody plant encroachment across the Great Plains. The complications involved in such comparisons, as well as the inferences that can be derived from them, are explored in this contribution.

INTRODUCTION

The past century has been a period of dramatic environmental change in the Great Plains region. After European colonization in the 1800s, the region saw

pervasive conversion to farmland and rangeland. The 1930s saw the drought and disaster of the Dust Bowl, which devastated landscapes across the region (Worster 2004). The middle part of the twentieth century saw the accumulating effects of fire suppression, woody plant encroachment, and the massive-scale transformation of the Great Plains into a “great shrubland” covered by a “green glacier” (Engle et al. 2008). Finally, beginning in the 1980s, global climate change processes began to manifest as warming climates and changing weather patterns (IPCC 2001), again with important implications for the region. A question for which answers are only fragmentary as of yet, however, is how this series of environmental changes has affected the biota of the region.

The University of Kansas (KU) Biodiversity Institute (including the KU Natural History Museum, KUNHM) has a history of biodiversity research across the Great Plains that reaches back to the late 1800s, such that its collections form a rich basis for comparisons. Specifically, early KUNHM biologists Lewis Lindsay Dyche (Sullivan and Sharp 1990) and Charles Dean Bunker (Warner 2019), among others, led numerous efforts to characterize and document the biota of first Kansas, and then the Great Plains more broadly. Their visits to sites across the region resulted in series of specimens that have been cared for, maintained, and improved over the ensuing decades.

This contribution offers an analysis of avifaunal change at one distinctive site in central Kansas, the “Little Salt Marsh,” in the southern part of what is now Quivira National Wildlife Refuge (QNWR), Stafford County, Kansas, and that was the focus of early collecting and inventory efforts by KUNHM personnel. The Little Salt Marsh forms part of a larger-scale complex of salt flats and playas that make up the national wildlife refuge, and that collectively represent an important wetland area globally (RAMSAR 2024), designated as a national wildlife refuge in 1955 (QNWR 2013). We compare the early KUNHM specimen series with large-scale observational data that have accumulated as part of the eBird initiative (Sullivan et al. 2009). Such comparisons are not simple, however, in view of dramatic imbalances in numbers of records available from different time periods, and comparing laboriously collected specimen series with easily accumulated and reported observational records in eBird (Machado-Stredel et al. 2022). Further, the differences in the state of knowledge of avifaunas and equipment available are notable (Parker III 1991). Nonetheless, interesting insights often result from such comparisons, such that we analyze and explore how the avifauna of the site has changed over a century.

METHODS

Historical data.—In June–August of 1925–1928, a team of ornithologists from KUNHM visited the Little Salt Marsh area, currently within the QNWR. The work appears to have been done mostly by William H. Burt and Theodore E. White, though Charles Dean Bunker is listed as the collector of one of the specimens. Bunker was directing early KUNHM sampling efforts across the state at the time (Warner 2019).

Most of the early specimens remain at KUNHM, and are the subject of a long tradition of careful specimen care and curation, digitization, and open data-sharing initiatives. To detect the relative few specimens that have been exchanged with other institutions, however, we searched iDigBio (iDigBio 2024) for bird specimens from Kansas, with the string “Little Salt Marsh” anywhere in the data record, using the search string (“core_type”: “records”, “rq”: (“stateprovince”: “Kansas”, “data”: (“type”: “fulltext”, “value”: “\Little Salt Marsh”), “class”: “Aves”), “form”: “dwca-csv”, “core_source”: “indexterms”, “mediarecord_fields”: null, “record_fields”: null, “mq”: null) (note that iDigBio searches use curly brackets instead of parentheses). This search revealed 263 specimens from the site, of which 33 were at institutions other than KUNHM (Museum of Southwestern Biology, University of New Mexico; Peabody Museum, Yale University), including a few that were meaningful additions to the historical bird list for the site.

Recent data.—To assemble a rich store of bird occurrence records, we took advantage of the eBird data portal (Sullivan et al. 2009). We requested all data from Stafford County, Kansas (eBird 2024a), as that was the specification in the historical data. We obtained data for the period January 2019 through the end of January 2024, choosing a 5-year period to avoid short-term effects (e.g., the drought years of 2022–2023), but also to avoid including too much temporal turnover, as might occur with a longer period. We thus began with a total of 161,330 records from the site. We retained historical, incidental, and stationary records, and also retained traveling records with low travel distances (i.e., <15,000 m), which left a total of 136,098 records. We retained records with taxonomic information corresponding to “form,” “intergrade,” “issf,” and “species,” and discarded the others, which corresponded to domestic forms or forms with uncertain species identifications. We did not impose any restrictions on the length of observation duration. These filtering steps left 131,642 records in the dataset. Because the historical material was collected during June–August, we restricted the recent data to June–August, which reduced the dataset further, to 28,274 records.

At this point, we moved the data into a GIS (QGIS version 3.32), to be able to filter the data spatially to sites that would be included under the descriptor “Little Salt Marsh.” To this end, using imagery from Google Earth, we traced the outline of Little Salt Marsh, and projected the resulting vector shapefile to the US National Atlas Equal Area Projection (EPSG:2163). We buffered that polygon by 10 km, to match (at least roughly) the possible range of movement and searching in the historical collecting activities (Figure 1). We used the buffer file to reduce the occurrence data still further, leaving out records from elsewhere in the county, for a final total of 20,016 records in the recent dataset.

Data analyses.—The two lists were aligned and compared, using the taxonomy of the eBird data, which is based on the Clements list for birds of the world (Clements et al. 2023). To avoid confusion brought on by instability in common names, we use scientific names throughout, though common names from the Clements list are provided in the Appendix. For key species, we rechecked specimens to assure that identifications were correct. Coincidences and differences between the

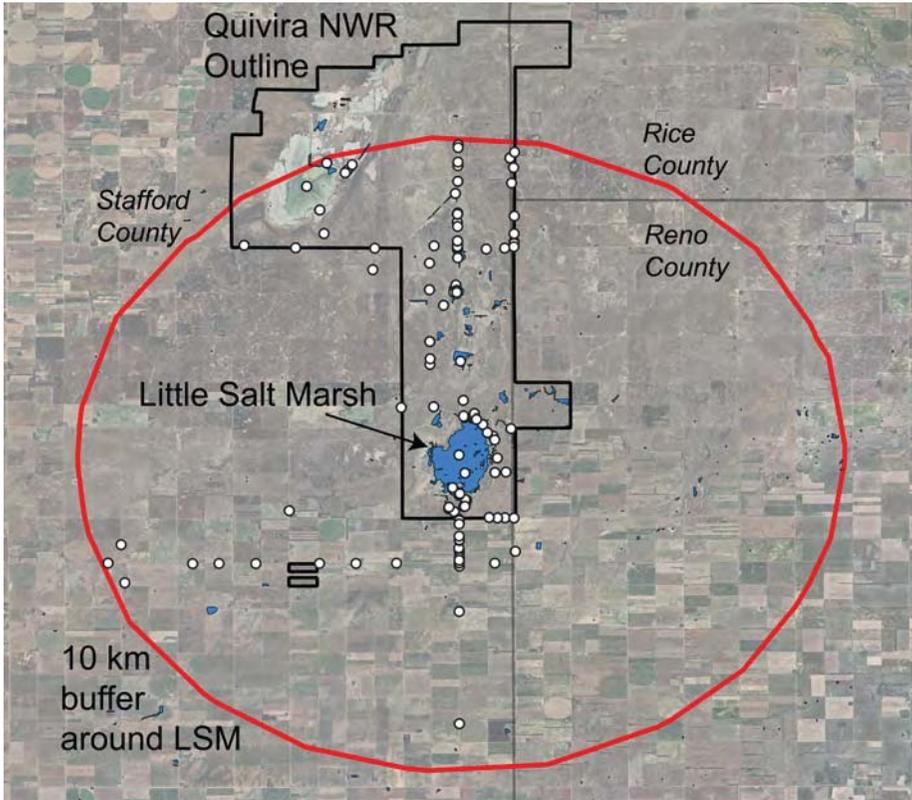


Figure 1. Geographic depiction of Little Salt Marsh study area. White circles indicate sites from which eBird data records are available for 2019–2024. Black polygon indicates the limits of Quivira National Wildlife Refuge; red outline shows the 10 km buffer around the Little Salt Marsh area, though only the Stafford County portion was used in analyses. Land use is shown, at least roughly, via imagery from Google Earth, and county boundaries are demarcated by narrow black lines, with parts of Stafford, Reno, and Rice counties included in the area of the image.

two lists were assembled via standard spreadsheet functions. Minimal data formatting was also performed in R 4.3.1 (R Core Team 2023) using the package *tidyverse* (Wickham et al. 2019).

RESULTS

The historical dataset comprised 254 specimens of 62 species, ranging from single specimens of species up to 25 individuals for *Calidris mauri* and 23 for *Leucophaeus pipixcan* (Appendix). The recent dataset was far larger, as it summarized observational efforts by hundreds of persons. Specifically, the recent data comprised 20,016 records of 188 species (Appendix, Figure 2). As expected of a mostly open marshland area, most of the species represented were water-associated species.

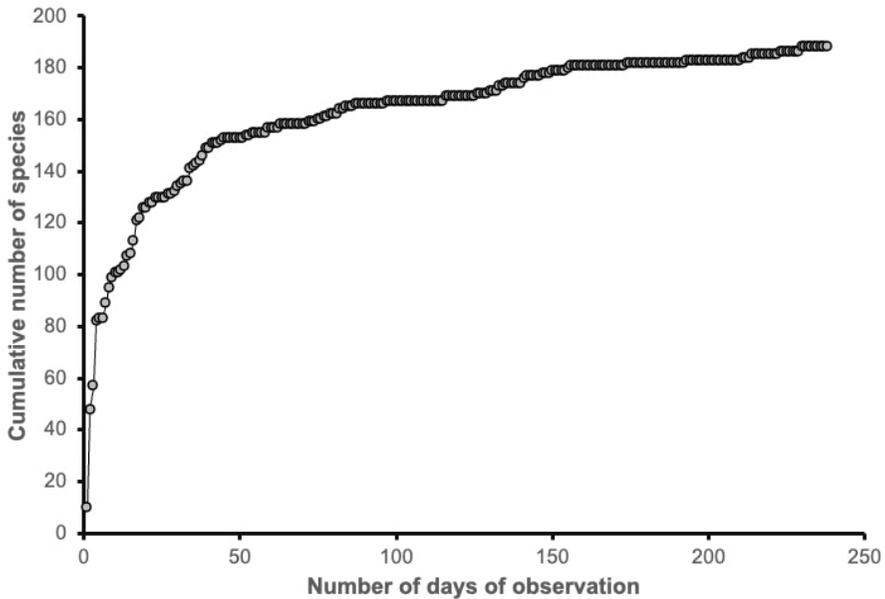


Figure 2. Summary of accumulation of species in the recent (2019–2024) eBird data for Little Salt Marsh, Quivira National Wildlife Refuge, central Kansas. The graphic presents the total number of species known from within 10 km of Little Salt Marsh as a function of the number of summer days (June–August) of observation by eBird contributors during the recent period.

Relatively few species were detected historically, but not in the much more extensive recent sampling. Specifically, *Thryomanes bewickii* and *Passerculus sandwichensis* are both represented by single specimens in the early collections, yet neither has been detected in our study season in the Little Salt Marsh area since 2019. For *T. bewickii*, breeding populations of the species are distributed in a broad, flat triangle extending from the southwestern corner of Kansas northeast to the vicinity of Manhattan, and then southeast to the southeastern corner of the state. The Little Salt Marsh area is located along the northern and western edge of this area, so the historical record, from 13 July 1925, is of uncertain status. Recent records exist from just north of the study region, 18–20 km northwest of the Little Salt Marsh, such that this difference in the two sets of records appears to be of little significance.

For *P. sandwichensis*, most records come from Spring or Fall periods. Only 7 of 8,545 total Kansas records (eBird 2024a) were from summer months (June, August), all from counties far from Stafford County. Two Little Salt Marsh records also come from late summer or early fall (17 and 28 August), but from prior to the beginning of our recent time window (2003 and 2015, respectively). The historical record, in the form of a skeleton (originally KUNHM 14799, now in the collections of the Museum of Southwestern Biology, University of New Mexico), was a female collected on 21 July 1925. The specimen inexplicably was prepared as a skeleton, but

comparisons by Andy Johnson of the Museum of Southwestern Biology indicate that the identification is correct. It could be an early southbound migrant, a summer-resident stray (non-breeding), or a peripherally distributed breeding individual, but the record is certainly of interest. To put in context, Thompson et al. (2011) indicated only a 17 July record of a territorial individual in Stafford County, and two specimens from Woodson County on 28 July 1926 (KUNHM 15535, 15538), but the species has not been documented to breed in the state.

As expected, a much larger set of species was not detected historically but has been recorded at Little Salt Marsh since 2019 (Appendix). Species were likely indeed present historically but not collected, owing to the relative difficulty of obtaining specimens of particular species; such species in the present case would include *Chaetura pelagica* and *Aythya affinis*. Species meriting special comment, or that are of particular interest are summarized in the paragraphs that follow.

Invasive species.—Four nonnative species have appeared in central Kansas since the time of the historical collections at Little Salt Marsh. These species include *Phasianus colchicus*, *Streptopelia decaocto*, *Sturnus vulgaris*, and *Haemorrhous mexicanus*. All four represent species introduced in other parts of North America or the Caribbean that have expanded subsequently into the Great Plains. *Passer domesticus* appears to have already been present at the time of the historical collections, as one specimen was included in the material from the 1920s, taken on 10 July 1925 at Little Salt Marsh.

Nonnative exotic species.—Two species colonized the Americas naturally in the 1800s: *Bubulcus ibis* and *Plegadis falcinellus*. *Bubulcus ibis* colonized the Americas, most likely from Africa, in the 1870s, arriving in the United States in the 1940s and 1950s, and expanded rapidly, nesting as far north as Missouri within a decade of its arrival in the United States (Telfair II 2023). This species likewise established itself in Kansas in the years between our historical and recent study periods, with a first state record in 1961 (Thompson et al. 2011). *Plegadis falcinellus* colonized North America from Eurasia in the early 1800s, and was soon well established as a breeding species in the United States (Oswald et al. 2019). In the mid-1980s, however, *P. falcinellus* expanded broadly into the interior of North America (Patten and Lasley 2000), with a first Kansas record in 1992 (Thompson et al. 2011). Indeed the species appears in the Little Salt Marsh area in the time interval between historical and recent data that are available to us.

Forest species moving westward.—A further five species have expanded their ranges steadily westward over the second half of the twentieth century. These species are all forest- or woodland-associated and have colonized westward along river courses, jumping among “green” areas associated with towns and cities, and diffusing more generally into the shrubby or scrubby forest matrix that continues to expand across the eastern Great Plains (Scholtz et al. 2018). In light of large numbers of recent records, some of these species are clearly now resident in the Little Salt Marsh region, such as *Melanerpes carolinus* (now confirmed as breeding in the county; Thompson et al. 2011) and *Meleagris gallopavo* (present in the 1800s,

extirpated, and now re-introduced and established broadly; Thompson et al. 2011). Other species (*Accipiter cooperii*, *Megascops asio*, *Strix varia*) are represented by fewer recent summer records, which may represent breeding individuals, or occasional visitors. All three appear to be established as breeders in the surrounding region (i.e., in Stafford County or nearby counties in Kansas; Otte 2025).

Other range expansions.—A further seven species have expanded their geographic ranges (Thompson et al. 2011, Otte 2025), but in different contexts from those mentioned above. Species such as *Quiscalus mexicanus*, possibly *Geococcyx californianus*, *Nannopterum auritum*, *N. brasilianum*, and *Cardinalis cardinalis* have expanded their ranges; in the cases of *Q. mexicanus*, *N. brasilianum*, and *C. cardinalis*, the expansion is northward perhaps in response to warming temperatures that permit them to survive at higher latitudes (bird feeding may play a significant role in the latter case). *Ictinia mississippiensis* has an uncertain history in central Kansas, being present in the mid-to-late nineteenth century in Woodson County, and less common and persistent in northeastern Kansas (Parker and Ogden 1979). Its absence from the historical Little Salt Marsh collections may reflect the relative difficulty of its collection, or genuine local absence at that time owing to absence of forested areas (see Discussion). For *C. cardinalis*, the Little Salt Marsh site would have been at the edge of its nineteenth-century range, so the reality of its absence in the 1920s at the site is unclear.

For *Zeniada asiatica*, the species is clearly in a process of expanding its range in the central and western parts of North America that began in the 1980s (Butcher et al. 2014). The species was not represented among historical Little Salt Marsh collections, but has been reported only a single time in the past five years. As such, the status of the single bird at Little Salt Marsh is best interpreted as representing a vagrant, but the species has been breeding at nearby Claflin for a number of years (M. B. Robbins, pers. comm.).

Closely-related species pairs.—For the *Icterus galbula* complex, which includes both the eastern *I. galbula* and the western *Icterus bullockii*, the historical specimen series ostensibly included both forms. However, looking at the actual specimens, the series of four individuals prepared as study skins (KUNHM 16726–9, 16866) are all females or immature males. Four individuals identified as *I. bullockii* were all prepared as skeletons, and are therefore not diagnostic without genomic studies. The 2,396 such orioles observed in the recent samples are all identified as *I. galbula*, and none is noted as being the *I. bullockii* form. Indeed, searching the entire eBird database, only a very few hybrid *I. galbula* × *I. bullockii* individuals have been reported from the vicinity of Little Salt Marsh (eBird 2024b). Whether these individuals represent wayward individuals, misidentifications, or are indicative of occasional local hybridization remains to be seen. Rather, the hybrid zone appears to have been stable in western Kansas and Nebraska during the late 1900s and early 2000s (Rising 1996, Walsh et al. 2020).

For the meadowlark species pair, *Sturnella magna* and *S. neglecta*, both species are known to breed in Stafford County. Five of the historical specimens are referred to

the western species, *S. neglecta*, but were prepared as skeletons, so their definitive identification must await DNA-based studies. The single historical skin specimen is referable to *S. magna*. Among current records, we found 364 *S. magna* compared to just 49 *S. neglecta*. The significance of these contrasts, if any indeed exist, is not clear.

Declining species.—Three species recorded at the site are experiencing broad, rangewide population declines (NABCI 2016), and merit specific comments; however, in each of the cases, the implications of the Little Salt Marsh comparisons are unclear. One specimen of *T. bewickii* was included in the historical sample, but the species has not been recorded in the recent sampling, though it has been recorded from nearby localities recently (M. B. Robbins, pers. comm.), so no geographic changes are indicated. Similarly, the historical specimen material includes one specimen of *P. sandwichensis*, but the status of this individual as a breeder or early fall migrant is impossible to know. Finally, the recent records include two of *Tympanuchus cupido*, a species that has declined massively across its range (McNew et al. 2012, NABCI 2016). Although no historical specimens were collected, we presume that this absence reflects the season at which the historical collectors were working and perhaps a bit of distance from the actual salt marsh system to the nearest prairie-chicken populations, rather than any population expansion.

DISCUSSION

General.—This contribution illustrates two broad realities of efforts to document biodiversity dynamics on broad time scales: that they are complex, and that data will often be limiting. In the current case, given that the early collectors were present for a short period of time and were not random or unbiased in their collecting activities, we were unable to use quantitative assessment tools (Chao 1987, Chao et al. 2000) for biodiversity inventory completeness as a filter for the quality of the historical inventory information (see, e.g., Machado-Stredel et al. 2022). Rather, we were forced to take the historical material for what it is: a set of presence records at a specified point in time.

The current data were much more abundant; in fact, more than 78-fold more records were available for 2019–2024 compared to the historical records. This super-abundance of recent records is mostly a blessing, in that many observers contribute large numbers of checklists and other observations. It is a bit of a curse as well, however, as current observation and reporting can be so intensive that the inventory of species present may include species that are not present as breeders or residents, but rather as vagrants and accidentals (Khalighifar et al. 2020), not to mention identification errors that manage to pass eBird quality-control filters. Regardless, the picture is clearly one in which the onus is on the user of such data to filter and interpret the data carefully, especially when the data compiled include unverifiable site data from users of unknown ability.

Avifaunal changes observed.—The comparisons between a modest-sized collection made over the course of a few weeks in the summers in the late 1920s and large numbers of community-scientist reports via the eBird platform from the Little

Salt Marsh area of Quivira National Wildlife Refuge point towards several major trends in bird community composition. Clearly, most species that were present in the 1920s are also still present now. Some species will actually have been present at both points in time, but went undetected in one or the other of the time periods (Chao et al. 2005); particularly with regards to the much-smaller historical sample, this factor remains difficult to control. However, the set of species that were present in one inventory and not in the other can point towards some interesting lessons about the biodiversity of the region, particularly when those species have some interesting shared characteristics.

The Little Salt Marsh area has seen the addition to its avifauna of six species that are not native to the region, being either introduced species, or via natural movement into the Americas, all of which expanded their geographic distributions in recent decades to include central Kansas (Bates and Bertelsmeier 2021). A further five newly recorded species are associated with forest, and have taken advantage of broadscale woody plant encroachment into central Kansas ecosystems (Figure 3) to be able to colonize, or at least explore by disperser individuals, the Little Salt Marsh area (Bernath-Plaisted et al. 2023). A third suite of at least four species appeared at Little Salt Marsh in association with broad, northward range expansions likely related to warming climatic conditions (Barnes and Hoffman 2023).

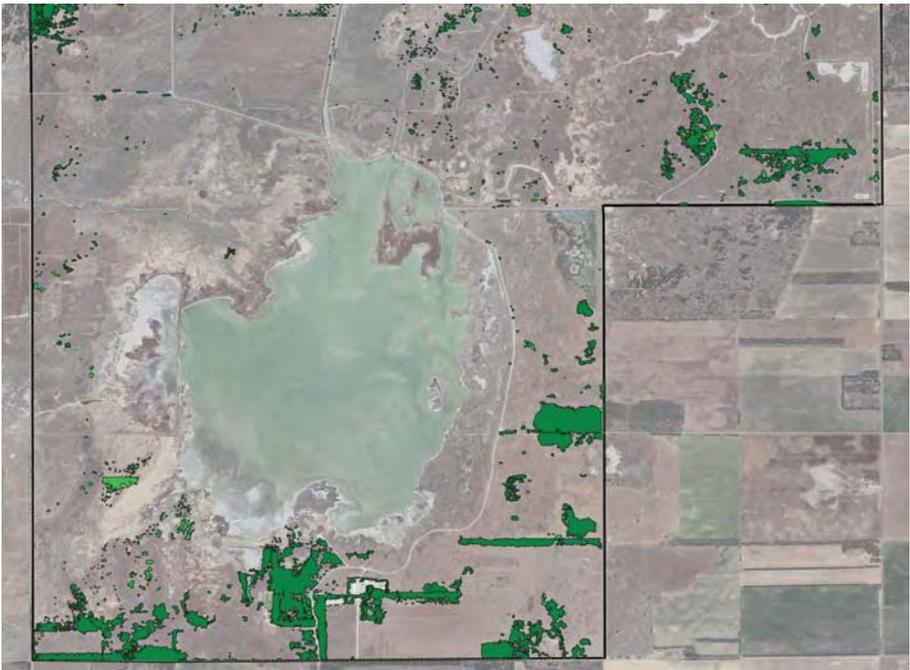


Figure 3. View of the immediate vicinity of Little Salt Marsh, showing forest (dark green) and woodland (light green) vegetation that was mapped as present in 2010 (Heitmeyer et al. 2012); no forest or vegetation was present in this area originally (Heitmeyer et al. 2012). Black line shows the national wildlife refuge boundary.

These changes point toward considerable dynamism in local bird community composition and, by extension, in geographic distributions of species, when those compositional and distributional patterns are viewed on a scale of decades to centuries. In shorter-term studies, community composition may appear stable, yet that stability breaks down as time scales are expanded. The challenge, nonetheless, is one of encountering the historical information necessary to be able to make such comparisons.

What has changed at Little Salt Marsh.—The Little Salt Marsh ecosystem has been in place deep into the recent history of the region, and is—for example—clearly visible on the earliest U.S. Geological Survey topographic maps, dating to the 1880s (Heitmeyer et al. 2012). A 1904 plat book for Stafford County, Kansas, showed the marsh with only one building within several kilometers of the marsh *per se* (Geo. A. Ogle & Co. 1904). Unlike other Kansas wetlands areas (e.g., Piva et al. 2016), the actual wetland site appears to have no history of cultivation. Its inclusion within the QNWR, decreed in 1955, has protected it from many of the most significant local-scale disturbance phenomena, such as cultivation and overly intensive ranching, although other changes have indeed occurred (e.g., oil drilling).

One significant change is the broad colonization of the region by woody plants, which has manifold implications, including changing suitability for different bird species, but also the hydrology of the landscape (Huxman et al. 2005). A U.S. Fish & Wildlife Service report (Heitmeyer et al. 2012) presented a map of likely original vegetation around Little Salt Marsh, which included only open water, aquatic ecosystems, and prairie-type grasslands as vegetation types likely present at the site historically. A 2010 vegetation mapping effort, however, painted a radically different picture, with forest and woodland ecosystems present along much of the southern and eastern edges of the salt marsh (Figure 3). These vegetation changes have already attracted several forest-associated bird species to the salt marsh that were not known to occur there previously.

Conclusions.—Bird distributions and local species assemblages are quite dynamic when viewed on modestly broad time scales, in this case of decades up to almost a century. The insights deriving from before and after comparisons for Little Salt Marsh point to the utility of such broader time scales, which have generally been neglected in ecological studies (Estes et al. 2018). These insights in turn highlight the importance (and challenges) of identifying, documenting, and preserving early datasets (Tingley et al. 2009, Tingley and Beissinger 2013, Rowe et al. 2014, Peterson and Navarro-Sigüenza 2017). Such datasets may take the form of early specimen series, field notes, or even narrative accounts, but have considerable promise to illuminate what are slower processes in biodiversity dynamics.

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APPENDIX

Complete list of bird species recorded in 1925–1928 and in 2019–2024 at the Little Salt Marsh, in Quivira National Wildlife Refuge, in central Kansas. For each time period, we present the number of individuals (specimens or observations) and the number of days on which a species was observed. Species are ordered according to the Clements checklist (Clements et al. 2023). Species represented among recent observations, but not represented among historical samples, are indicated with an asterisk.

Scientific name	Common name	1925–1928 no. specimens	2019–2024 no. individuals	2019–2024 no. days
ANATIDAE				
<i>Branta canadensis</i> *	Canada Goose	0	297	148
<i>Aix sponsa</i> *	Wood Duck	0	131	79
<i>Spatula discors</i>	Blue-winged Teal	1	391	180
<i>S. cyanoptera</i> *	Cinnamon Teal	0	22	14
<i>S. clypeata</i> *	Northern Shoveler	0	180	96
<i>Mareca strepera</i> *	Gadwall	0	76	51
<i>M. americana</i> *	American Wigeon	0	33	25
<i>Anas platyrhynchos</i> *	Mallard	0	335	159
<i>A. acuta</i> *	Northern Pintail	0	92	58
<i>A. crecca</i> *	Green-winged Teal	0	100	53
<i>Aythya valisineria</i> *	Canvasback	0	17	12
<i>A. americana</i> *	Redhead	0	142	82
<i>A. collaris</i> *	Ring-necked Duck	0	7	4
<i>A. marila</i> *	Greater Scaup	0	2	1
<i>A. affinis</i> *	Lesser Scaup	0	26	18
<i>Bucephala albeola</i> *	Bufflehead	0	2	1
<i>B. clangula</i> *	Common Goldeneye	0	1	1
<i>Lophodytes cucullatus</i> *	Hooded Merganser	0	16	11
<i>Oxyura jamaicensis</i> *	Ruddy Duck	0	152	91
ODONTOPHORIDAE				
<i>Colinus virginianus</i>	Northern Bobwhite	3	339	147
PHASIANIDAE				
<i>Meleagris gallopavo</i> *	Wild Turkey	0	18	15
<i>Tympanuchus cupido</i> *#	Greater Prairie-Chicken	0	2	2
<i>Phasianus colchicus</i> *	Ring-necked Pheasant	0	122	76
PODICIPEDIDAE				
<i>Podilymbus podiceps</i> *	Pied-billed Grebe	0	250	120
<i>Podiceps nigricollis</i> *	Eared Grebe	0	24	17
<i>Aechmophorus occidentalis</i> *	Western Grebe	0	8	5
COLUMBIDAE				
<i>Streptopelia decaocto</i> *	Eurasian Collared-Dove	0	22	14
<i>Zenaida asiatica</i> *	White-winged Dove	0	1	1
<i>Z. macroura</i>	Mourning Dove	2	461	180
CUCULIDAE				
<i>Geococcyx californianus</i> *	Greater Roadrunner	0	2	1
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	5	30	17
CAPRIMULGIDAE				
<i>Chordeiles minor</i>	Common Nighthawk	1	53	36
<i>Phalaenoptilus nuttallii</i> *#	Common Poorwill	0	1	1

Scientific name	Common name	1925–1928 no. specimens	2019–2024 no. individuals	2019–2024 no. days
APODIDAE				
<i>Chaetura pelagica</i> *	Chimney Swift	0	18	14
TROCHILIDAE				
<i>Archilochus colubris</i> *	Ruby-throated Hummingbird	0	3	2
RALLIDAE				
<i>Rallus elegans</i> #	King Rail	4	36	26
<i>R. limicola</i> *	Virginia Rail	0	43	27
<i>Porzana carolina</i> *	Sora	0	19	11
<i>Gallinula galeata</i>	Common Gallinule	1	12	7
<i>Fulica americana</i>	American Coot	2	197	98
GRUIDAE				
<i>Antigone canadensis</i> *	Sandhill Crane	0	5	4
RECURVIROSTRIDAE				
<i>Himantopus mexicanus</i>	Black-necked Stilt	3	435	195
<i>Recurvirostra americana</i> *	American Avocet	0	483	198
CHARADRIIDAE				
<i>Pluvialis squatarola</i> *	Black-bellied Plover	0	52	27
<i>P. dominica</i> *	American Golden-Plover	0	18	11
<i>Charadrius vociferus</i>	Killdeer	5	563	214
<i>C. semipalmatus</i> *	Semipalmated Plover	0	93	57
<i>C. melodus</i> #	Piping Plover	1	7	5
<i>Anarhynchus nivosus</i> #	Snowy Plover	3	298	159
SCOLOPACIDAE				
<i>Bartramia longicauda</i> *#	Upland Sandpiper	0	46	28
<i>Numenius americanus</i> *	Long-billed Curlew	0	3	2
<i>Limosa haemastica</i> *	Hudsonian Godwit	0	2	1
<i>L. fedoa</i> *	Marbled Godwit	0	62	32
<i>Limnodromus griseus</i> *	Short-billed Dowitcher	0	75	47
<i>L. scolopaceus</i> *	Long-billed Dowitcher	0	199	99
<i>Gallinago delicata</i> *	Wilson's Snipe	0	9	6
<i>Phalaropus tricolor</i> *	Wilson's Phalarope	0	238	124
<i>P. lobatus</i> *	Red-necked Phalarope	0	26	14
<i>Actitis macularius</i>	Spotted Sandpiper	1	173	93
<i>Tringa solitaria</i>	Solitary Sandpiper	1	46	32
<i>T. flavipes</i>	Lesser Yellowlegs	16	319	138
<i>T. semipalmata</i> *	Willet	0	80	45
<i>T. melanoleuca</i> *	Greater Yellowlegs	0	320	143
<i>Arenaria interpres</i> *	Ruddy Turnstone	0	3	2
<i>Calidris himantopus</i>	Stilt Sandpiper	4	240	114
<i>C. subruficollis</i> *#	Buff-breasted Sandpiper	0	21	13
<i>C. alba</i>	Sanderling	1	32	20
<i>C. alpina</i> *	Dunlin	0	8	6
<i>C. bairdii</i> *	Baird's Sandpiper	0	192	92
<i>C. fuscicollis</i>	White-rumped Sandpiper	2	52	35
<i>C. minutilla</i>	Least Sandpiper	11	314	136
<i>C. melanotos</i>	Pectoral Sandpiper	9	143	79
<i>C. mauri</i>	Western Sandpiper	25	88	50
<i>C. pusilla</i>	Semipalmated Sandpiper	12	225	111
LARIDAE				
<i>Leucophaeus pipixcan</i>	Franklin's Gull	23	208	108
<i>Larus delawarensis</i> *	Ring-billed Gull	0	226	105
<i>Sterna antillarum</i> #	Least Tern	1	138	85
<i>Hydroprogne caspia</i> *	Caspian Tern	0	4	2

Scientific name	Common name	1925–1928 no. specimens	2019–2024 no. individuals	2019–2024 no. days
<i>Chlidonias niger</i>	Black Tern	11	296	150
<i>Sterna forsteri</i>	Forster's Tern	1	124	74
<i>S. hirundo</i> *	Common Tern	0	4	4
GAVIIDAE				
<i>Gavia immer</i> *	Common Loon	0	1	1
PHALACROCORACIDAE				
<i>Nannopterum auritum</i> *	Double-crested Cormorant	0	195	111
<i>N. brasilianum</i> *	Neotropic Cormorant	0	4	2
PELECANIDAE				
<i>Pelecanus erythrorhynchos</i> *	American White Pelican	0	391	182
ARDEIDAE				
<i>Ixobrychus exilis</i> *	Least Bittern	0	37	28
<i>Botaurus lentiginosus</i>	American Bittern	1	95	61
<i>Nyctanassa violacea</i> *	Yellow-crowned Night Heron	0	68	43
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	9	76	51
<i>Egretta caerulea</i> *	Little Blue Heron	0	25	19
<i>E. tricolor</i> *	Tricolored Heron	0	12	5
<i>E. thula</i> *	Snowy Egret	0	367	178
<i>Butorides virescens</i>	Green Heron	1	35	26
<i>Ardea alba</i> *	Great Egret	0	485	190
<i>A. herodias</i> *	Great Blue Heron	0	567	209
<i>Bubulcus ibis</i> *	Cattle Egret	0	51	36
THRESKIORNITHIDAE				
<i>Plegadis falcinellus</i> *	Glossy Ibis	0	15	6
<i>P. chihi</i> *	White-faced Ibis	0	296	139
CATHARTIDAE				
<i>Cathartes aura</i> *	Turkey Vulture	0	243	123
PANDIONIDAE				
<i>Pandion haliaetus</i> *	Osprey	0	5	4
ACCIPITRIDAE				
<i>Ictinia mississippiensis</i> *	Mississippi Kite	0	60	38
<i>Circus hudsonius</i>	Northern Harrier	1	27	23
<i>Haliaeetus leucocephalus</i> *	Bald Eagle	0	59	40
<i>Buteo swainsoni</i> *#	Swainson's Hawk	0	7	6
<i>B. jamaicensis</i> *	Red-tailed Hawk	0	172	92
<i>Accipiter cooperii</i> *	Cooper's Hawk	0	11	8
TYTONIDAE				
<i>Tyto alba</i>	Western Barn Owl	0	3	2
STRIGIDAE				
<i>Megascops asio</i> *	Eastern Screech-Owl	0	2	2
<i>Bubo virginianus</i> *	Great Horned Owl	0	42	31
<i>Athene cucularia</i> #	Burrowing Owl	2	1	1
<i>Strix varia</i> *	Barred Owl	0	1	1
ALCEDINIDAE				
<i>Megaceryle alcyon</i> *	Belted Kingfisher	0	18	15
PICIDAE				
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	4	289	137
<i>M. carolinus</i> *	Red-bellied Woodpecker	0	24	16

Scientific name	Common name	1925–1928 no. specimens	2019–2024 no. individuals	2019–2024 no. days
<i>Dryobates pubescens</i>	Downy Woodpecker	2	27	17
<i>D. villosus</i>	Hairy Woodpecker	1	10	9
<i>Colaptes auratus</i>	Northern Flicker	1	58	39
FALCONIDAE				
<i>Falco sparverius</i> *	American Kestrel	0	29	21
<i>F. columbarius</i> *	Merlin	0	1	1
<i>F. peregrinus</i> *	Peregrine Falcon	0	38	23
TYRANNIDAE				
<i>Contopus cooperi</i> *	Olive-sided Flycatcher	0	5	2
<i>C. virens</i> *	Eastern Wood-Pewee	0	27	22
<i>Empidonax traillii</i> *	Willow Flycatcher	0	1	1
<i>E. minimus</i>	Least Flycatcher	2	9	5
<i>Sayornis phoebe</i> *	Eastern Phoebe	0	67	44
<i>S. saya</i> *	Say's Phoebe	0	1	1
<i>Myiarchus crinitus</i>	Great Crested Flycatcher	5	97	62
<i>Tyrannus verticalis</i>	Western Kingbird	7	156	92
<i>T. tyrannus</i>	Eastern Kingbird	10	535	187
<i>T. forficatus</i> *	Scissor-tailed Flycatcher	0	27	21
VIREONIDAE				
<i>Vireo bellii</i>	Bell's Vireo	1	130	80
<i>V. gilvus</i>	Warbling Vireo	5	62	40
<i>V. olivaceus</i>	Red-eyed Vireo	1	8	5
LANIIDAE				
<i>Lanius ludovicianus</i> #	Loggerhead Shrike	3	15	10
CORVIDAE				
<i>Cyanocitta cristata</i>	Blue Jay	3	132	75
<i>Pica hudsonia</i> *	Black-billed Magpie	0	1	1
<i>Corvus brachyrhynchos</i>	American Crow	2	18	13
ALAUDIDAE				
<i>Eremophila alpestris</i>	Horned Lark	1	13	11
HIRUNDINIDAE				
<i>Riparia riparia</i> *	Bank Swallow	0	116	63
<i>Tachycineta bicolor</i> *	Tree Swallow	0	181	106
<i>Progne subis</i> *	Purple Martin	0	13	10
<i>Stelgidopteryx serripennis</i> *	Northern Rough-winged Swallow	0	86	45
<i>Hirundo rustica</i>	Barn Swallow	8	461	179
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	1	309	148
SITTIDAE				
<i>Sitta carolinensis</i> *	White-breasted Nuthatch	0	5	4
POLIOPTILIDAE				
<i>Polioptila caerulea</i> *	Blue-gray Gnatcatcher	0	25	17
TROGLODYTIDAE				
<i>Troglodytes aedon</i> *	Northern House Wren	0	208	101
<i>Cistothorus stellaris</i> *	Sedge Wren	0	14	4
<i>C. palustris</i> *	Marsh Wren	0	7	5
<i>Thryothorus ludovicianus</i> *	Carolina Wren	0	4	3
<i>Thryomanes bewickii</i> #	Bewick's Wren	1	0	0
STURNIDAE				
<i>Sturnus vulgaris</i> *	European Starling	0	193	99

Scientific name	Common name	1925–1928 no. specimens	2019–2024 no. individuals	2019–2024 no. days
MIMIDAE				
<i>Dumetella carolinensis</i> *	Gray Catbird	0	41	31
<i>Toxostoma rufum</i>	Brown Thrasher	2	86	53
<i>Mimus polyglottos</i>	Northern Mockingbird	4	25	19
TURDIDAE				
<i>Sialia sialis</i> *	Eastern Bluebird	0	18	13
<i>Turdus migratorius</i> *	American Robin	0	86	56
BOMBYCILLIDAE				
<i>Bombycilla cedrorum</i> *	Cedar Waxwing	0	3	3
PASSERIDAE				
<i>Passer domesticus</i>	House Sparrow	1	11	9
FRINGILLIDAE				
<i>Haemorhous mexicanus</i> *	House Finch	0	10	6
<i>Spinus tristis</i> *	American Goldfinch	0	277	122
PASSERELLIDAE				
<i>Ammodramus saviannarum</i>	Grasshopper Sparrow	2	25	18
<i>Spizella passerina</i> *	Chipping Sparrow	0	7	5
<i>S. pusilla</i> *	Field Sparrow	0	183	99
<i>Chondestes grammacus</i>	Lark Sparrow	1	41	31
<i>Calamospiza melanocorys</i> *	Lark Bunting	0	2	1
<i>Zonotrichia albicollis</i> *	White-throated Sparrow	0	1	1
<i>Passerculus sandwichensis</i>	Savannah Sparrow	1	0	0
ICTERIDAE				
<i>Icteria virens</i> *	Yellow-breasted Chat	0	1	1
ICTERIDAE				
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird	1	155	89
<i>Dolichonyx oryzivorus</i> *#	Bobolink	0	2	2
<i>Sturnella neglecta</i> #	Western Meadowlark	5+	49	33
<i>S. magna</i> #	Eastern Meadowlark	1	364	156
<i>Icterus spurius</i>	Orchard Oriole	2	156	83
<i>I. galbula</i>	Baltimore Oriole	4	259	118
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	6	626	215
<i>Molothrus ater</i>	Brown-headed Cowbird	1	138	73
<i>Quiscalus quiscula</i>	Common Grackle	2	144	82
<i>Q. mexicanus</i> *	Great-tailed Grackle	0	36	23
PARULIDAE				
<i>Seiurus aurocapilla</i> *	Ovenbird	0	1	1
<i>Geothlypis trichas</i> *	Common Yellowthroat	0	211	111
<i>Setophaga ruticilla</i> *	American Redstart	0	2	1
<i>S. petechia</i> *	Yellow Warbler	0	95	52
<i>Cardellina pusilla</i> *	Wilson's Warbler	0	2	1
CARDINALIDAE				
<i>Piranga rubra</i> *	Summer Tanager	0	1	1
<i>Cardinalis cardinalis</i> *	Northern Cardinal	0	88	62
<i>Passerina caerulea</i>	Blue Grosbeak	2	77	46
<i>P. cyanea</i> *	Indigo Bunting	0	49	37
<i>P. ciris</i> *	Painted Bunting	0	1	1
<i>Spiza americana</i> *	Dickcissel	0	417	163

+ Prepared as skeletons, so species identity not clearly established.

Species that can be considered as under threat by federal, state, or non-governmental agencies.

ANECDOTAL REPORTS OF AMERICAN DIPPER (*Cinclus mexicanus*) FROM KANSAS

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Abstract - There are no confirmed records of American Dipper (*Cinclus mexicanus*) from Kansas, although there have been sight records of the species that have never been formally reviewed. There is limited evidence of vagrancy of this species into the plains with a scattering of records primarily in the fall and winter. This paper presents two anecdotal records of American Dipper in Kansas.

INTRODUCTION

The American Dipper (*Cinclus mexicanus*) is a passerine resident in the mountainous and coastal areas of the American West ranging from Alaska to Costa Rica (Kingery and Willson 2020). The species is most easily found in or near fast-moving cold-water streams or rivers though it can be found in ponds, lakes, estuaries, and seashores occasionally. The bird is unique in that it swims, dives, and walks underwater to procure food. The bird derives its name from a dipping action where it raises and lowers its body repeatedly. This behavior, and its overall brown to gray color, makes it difficult to confuse with any other North American species (Kingery and Willson 2020).

Extralimital records of American Dipper are rare. Bent (1948) implies that vagrancy in the American Dipper is a function of streams or ponds freezing and forcing birds to relocate either downstream or across drainages. This movement, as a function of open water and food resources, is supported in studies of American Dipper on the front range in Colorado (Price and Bock 1983). Sharpe et al, (2001) suggest that the most likely time to find extralimital records is the first week of October when the eastern Rocky Mountains experience a severe and early winter. Vagrant dipper records onto the eastern plains include two Colorado records: one from Julesburg Reservoir (Sedgwick County) in December 1983, located 185 km from Kansas; the second, from Muir Springs (Morgan County) in November 1988, was 261 km from Kansas (Andrews and Righter 1992). The accepted Nebraska records outside of the Panhandle are from Chase (June 1903), Adams (October 1967), and Holt (December 1969) Counties; 89, 105, and 443 km respectively from Kansas (Sharpe et al. 2001). The one spring record involved two birds collected on 2 June 1903 in Chase County, Nebraska, and noted to be suggestive of breeding (Sharp et al. 2001). Additionally, there is an odd extralimital record from Cook County, Minnesota, on the north shore of Lake Superior (Green and Janssen 1975), and one record from Plano, Texas, in late December of 2004 (Ashbaugh 2004). Ebird (Sullivan et al. 2009) accounts outside of mountainous areas include only the Chase County, Nebraska, record and the aforementioned Texas record, along with records from the plains of Canada. Silcock and Jorgensen (2024) question the

Nebraska spring record due to concerns about the origin of the specimens collected. The Texas record is well out of range and appears accepted with no supporting documentation. There are no established records for Kansas. Herewith, we report anecdotal records for American Dipper in the state.

HISTORICAL SIGHTINGS

On 23 June 2015, Stanley and Edna Withium sat for an interview with Friesen in their room in a retirement complex in Hesston, Kansas. Edna was an avid birdwatcher who enjoyed the hobby without connections to other individuals or groups who shared her interest. After a move to western Kansas, Edna and Stanley learned of Lake Scott State Park (Scott County) and often visited the area. The park contains a spring-fed lake located in a canyon with the upper end of the lake featuring a small pool of clear water referred to as the big spring. While the water is not fast moving, it is relatively cold and clear. On one visit to the big spring area of the park Edna and Stanley witnessed a bird they had not seen before. Both described the bird as a compact bird, gray in color, and it behaved differently than anything they had seen before. At times it sat on a rock but the rest of the time the bird walked around underwater and appeared to be catching food. In consulting their bird guide they determined the bird was an American Dipper. Later they saw an American Dipper in Colorado and described it as the same bird they saw in Scott County. Stanley and Edna could not give the date for the record but recalled wearing short sleeves without a coat at the time of the sighting. Edna noted making a record of the sighting but, with multiple moves, had lost the book containing her notes. They moved to the area in 1976 and left in 1983 giving a rather long range of possible dates for the record.

In the early 2000s, Otte had conversations with Celia White Markum regarding possible sightings of American Dippers at the outflow of what is now known as the Old Herington City Lake, Dickinson County. Celia was a long-time birder and past president of the Kansas Ornithological Society (1970 – 1972). She was an active and astute bird watcher and birded all over the United States and Canada, as well as trips overseas. In the late 1960s/early 1970s, in two different winters, Celia accurately described seeing an American Dipper, and possibly two birds on separate occasions, in the outflow area of the Old Herington City Lake. They were described as small dark birds, jumping into the stream and emerging less than a minute later elsewhere along the stream. While she mentioned it to a few other birders, she never talked about it much because, she noted, “No one would ever believe me.” Celia kept notes of all her birding trips and told Otte that she had recorded the sight record somewhere. Unfortunately, Celia died in 2014 and efforts by her daughter (pers. comm.) to find the record of her American Dipper observations have not been successful. Of note, the area below the lake at the Old Herington City Lake is rocky and similar in structure to the mountain stream habitat used by this species.

CONCLUSION

Despite the limited records of vagrancy for American Dipper into the eastern plains, the pattern of vagrancy noted in the literature suggests the possibility of records for the state of Kansas. The two anecdotal records noted in this paper present a plausible case for such with descriptions of the birds noted leading to, as Kingery and Willson (2020) suggested, little confusion with other species.

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KANSAS ORNITHOLOGICAL SOCIETY BULLETIN

INDEX OF BIRD NAMES VOLUME 76, 2025

This index represents only the common and scientific names as they appear within Volume 76, Numbers 1-4. Names, regardless of use (common or scientific) are only included as they appear in text, figures, and tables, with the exception of the annual Christmas Bird Count (CBC) Table. Therefore, there is no cross reference with common and scientific names, unless they happen to appear as such within an article. Thus, common names used in CBC text/figures, or other data oriented tables are all that appear within this index. The CBC Table occurs on pages 45-52 (No. 3) for easy reference. In addition, an Appendix appears on pages 67-71 (No. 4), which includes family, common, and scientific names for the associated article, but only names within the text of the manuscript are included within this index.

Thanks to Max Thompson for his review of all the names, especially his extraordinary expertise with scientific names.

- Accipiter cooperii*: 59
Anas diazi: 18
Anser fabalis: 24
 A. serrirostris: 24
Aramus gurauna: 18
Archilochus alexandrii: 18
Artemisiospiza nevadadensis: 23
Aythya affinis: 58
Blackbird, Brewer's: 29
 Red-winged: 27
 Rusty: 29
 Yellow-headed: 28
Bluebird, Eastern: 30
 Mountain: 30
Bobwhite, Northern: 28, 31
Brambling: 22
Bubulcus ibis: 58
Calidris acuminata: 18-19
 C. mauri: 56
Calypte anna: 18-19
Cardinal, Northern: 31
Cardinalis cardinalis: 59
Catbird, Gray: 28
Centronyx henslowii: 6
Chaetura pelagica: 58
Chickadee, Black-capped: 30
 Carolina: 30
Cinclus mexicanus: 72
Collared-Dove, Eurasian: 29
Coragyps atratus: 20
Cowbird, Brown-headed: 27
Cranes, Sandhill: 27
 Whooping: 27
Crossbill, Red: 30
Crow, American: 27
Dipper, American: 72-74
Dove, Mourning: 29
 White-winged: 29
Duck, Black-bellied Whistling-: 27
 Long-tailed: 27
 Mexican: 18
Eagle, Bald: 28
 Golden: 29
Egret, Great: 28
Empidonax hammondi: 20
 E. wrightii: 21
Falcon, Peregrine: 28
 Prairie: 29
Finch, House: 30
 Purple: 30
Flycatcher, Gray: 21
 Hammond's: 20
 Vermilion: 21
Fringilla montifrigilla: 22
Gavia adamsii: 20
Geococcyx californianus: 59

Goldfinch, American: 30
 Goose, Cackling: 31
 Canada: 27
 Snow: 27
 Taiga/Tundra Bean: 24
 Goshawk, American: 28
 Grebe, Clark's: 27
 Eared: 27
 Western: 27
 Gull, California: 27
 Franklin's: 27
 Iceland: 27
 Lesser Black-backed: 27
Haemorrhous mexicanus: 58
 Harrier, Northern: 28
 Hawk, Ferruginous: 28
 Harlan's: 29
 Red-shouldered: 29
 Red-tailed: 27, 29
 Rough-legged: 29
 Hen, Heath: 10
 Hummingbird, Anna's: 18-19
 Black-chinned: 18
 Rufous: 27
Icterus bullockii: 59
 I. galbula: 59
 I. galbula x *I. bullockii*: 59
Ictinia mississippiensis: 59
 Jaeger, Pomarine: 19
 Kestrel, American: 27
Leucophaeus pipixcan: 56
Leucosticte tephrocotis: 23
 Limpkin: 18
 Longspur, Chestnut-collared: 31
 Lapland: 31
 Loon, Pacific: 27
 Yellow-billed: 20
 Magpie, Black-billed: 29
 Mallard: 27
 Meadowlarks (all forms): 31
Megascops asio: 59
Melanerpes carolinus: 58
Meleagris gallopavo: 58
Melospiza fusca: 24
 Merlin: 29
Nannopterum auritum: 59
 N. brasilianum: 59
 Night-heron, Black-crowned: 28
 Nuthatch, Red-breasted: 30
 White-breasted: 30
 Oriole, Baltimore: 27
 Osprey: 28
 Owl, Snowy: 28
 Parakeet, Carolina: 24
Passer domesticus: 22, 58
 P. montanus: 22, 24
Passerculus sandwichensis: 57, 60
 Pelican, American White: 27
Phasianus colchicus: 58
 Phoebe, Eastern: 28
 Say's: 28
 Pigeon, Passenger: 24
 Rock: 29
 Pipit, American: 28
 Sprague's: 27
Plegadis falcinellus: 58
 Prairie-Chicken, Greater: 1-3, 8-11, 28
 Lesser: 28
Pyrocephalus rubinus: 21
 Quail, Scaled: 28
Quiscalus mexicanus: 59
 Raven, Chihuahuan: 28
 Common: 28
 Robin, American: 30
 Rosy-Finch, Gray-crowned: 23
 Sage-Grouse, Gunnison: 24
 Sandpiper, Least: 27
 Sharp-tailed: 18-19, 24
 Spotted: 26
 Sapsucker, Red-naped: 20
 Scaup, Greater: 27
 Scoter, Black: 27
 Surf: 27
 Shrike, Loggerhead: 29
 Northern: 29
 Siskin, Pine: 30
 Solitaire, Townsend's: 30
 Sparrow, Brewer's: 27
 Chipping: 28
 Eurasian Tree: 22, 24
 Harris's: 30-31
 Henslow's: 6, 10
 House: 22, 27
 LeConte's: 28

Sagebrush: 23
 Savannah: 30
 Song: 27
 Vesper: 28
Sphyrapicus nuchalis: 20
 Starling, European: 27
Stercorarius pomarinus: 19
Streptopelia decaocto: 58
Strix varia: 59
Sturnella magna: 59-60
 S. neglecta: 59-60
Sturnus vulgaris: 58
 Swallow, Tree: 27
 Violet-green: 21
 Swan, Trumpeter: 28
Tachycineta thalassina: 21
 Thrasher, Brown: 28
 Curve-billed: 28
 Thrush, Hermit: 30
Thryomanes bewickii: 57, 60
 Titmouse, Tufted: 30
 Towhee, Canyon: 24
Troglodytes pacificus: 21
 Turkey, Wild: 28
Tympanuchus cupido: 1, 60
 T. c. cupido: 10
 Vireo, Cassin's: 21
 Philadelphia: 21
Vireo cassinii: 21
 V. philadelphicus: 21
 Vulture, Black: 20, 28
 Warbler, Audubon's: 28
 Orange-crowned: 28
 Pine: 27-28
 Yellow-rumped: 30
 Woodpecker, Downy: 30
 Hairy: 30
 Pileated: 29-30
 Red-headed: 29
 Wren, Northern House: 28
 Pacific: 21
 Rock: 28
 Sedge: 26
 Yellowlegs, Greater: 27
 Yellowthroat, Common: 28
Zeniada asiatica: 59

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Avian Data for Slate Creek Wetlands Requested

After 70+ years of avian studies at Slate Creek Wetlands (SCW), Sumner County, Kansas, it is about time to consider production of numerous publications associated with the complex. Therefore, Max Thompson and I are asking the KOS community for help by providing bird records from SCW. Many of you have birded the area for years and know of it's diversity and uniqueness. A couple years ago KOS recognized Kurt Grimm, Kansas Department of Wildlife and Parks Land Manager, as "Avian Conservationist of the Year" for his hard work in development of new wetlands and enhancement of the old. It is time to recognize the wetlands as the "Pearl of the Prairie" and get it included within the Western Hemisphere Reserve Network as a site of regional importance for shorebirds, to help with conservation efforts, and ascertain the status of potential species in need of conservation.

What we would like is old data that you might have, prior to eBird days, which can be provided as you wish. We will take it in electronic form or traditional mail form. If you have eBird data, would you make sure records can be reviewed by us? What are we looking for, specifically? Simple records of occurrence associated with early or late dates (use Birds of Kansas as a guide); species you think are rare or unusual; unusually high numbers, any data on numbers; nesting records; locality data (part of the complex, ex. state land vs private marshes); or anything else that you think might be of interest. We are especially interested in photos of rare or less common species for documentation. All contributors will be acknowledged in future publications.

Any hard copy material or CDs, flash drives, etc., can be sent to

Eugene A. Young, Editor: KOS Bulletin, Northern Oklahoma College, 1220 E. Grand, PO Box 310, Tonkawa, OK 74653-0310.

Electronic correspondence can be sent to:

eugene.young@noc.edu, and maxt@cox.net.

Sincerely,

Eugene A. Young
Max C. Thompson

Manuscripts Needed

The *Kansas Ornithological Society Bulletin* is the official peer-reviewed journal of the Society, which is published quarterly. The *KOS Bulletin* is devoted to the field study of birds in Kansas, although other suitable materials can be published. Featured Articles, and short notes of scientific or general interest are solicited; potential authors are encouraged to submit any materials that contribute to the understanding of birds in Kansas, including details for documentation of unusual or rare species. Please see the March 2025 issue for guidelines (<https://www.ksbirds.org/kos/bulletin/Bulletin.htm>).

Specifically, KOS is seeking articles pertaining to new State or County records, interesting nesting records, etc. If you go to the aforementioned web page (above) and look at older *Bulletins* you will see a rich history documenting unique ornithological behaviors and records. In today's modern world eBird, and formerly the KSBIRDS list, took on the role of providing up-to-date records and interesting observations, but little is done to elucidate the significance of such from an ornithological perspective. In today's social media and "Citizens for Science" opportunities, I'm recommending to the average bird-watcher, why not take it to the next step?

As an example, there was an extraordinary sighting in Kansas last year, the first state record of a Tropical Parula. In and of itself that was remarkable, but perhaps even of greater ornithological interest was that Tropical Parula appeared to pair up with a Northern Parula and nested (photos on social media). However, there appeared to have been no follow up or additional observations made. Even an inexperienced bird-watcher with a little guidance from the plethora of KOS expertise could've made a rather unique and valued ornithological contribution to understand not only Kansas ornithology but perhaps perspectives on distribution and hybridization to the larger ornithological community.

There are many observations that could be turned into notes, especially with all the photographic evidence available. Why not do a little investigative work and publish a note using your photographs, published in color?

Thus, yes I'm soliciting manuscripts. KOS has some of the best ornithological minds in the state and region, some of which are internationally recognized, that would be willing to help you get published.

Any questions or ideas, please contact me, and I look forward to helping you.

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