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BREEDING MOUNTAIN PLOVERS IN KANSAS

by
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Introduction

Mountain Plovers (*Charadrius montanus*) were historically found in shortgrass prairie and desert shrub communities across the Great Plains and Colorado Plateau (Knopf 1996). Due to a dramatic decrease in population numbers, they are currently being considered for listing as a federally threatened species under the Endangered Species Act (USFWS 1999). It is estimated that the population has dropped more than 50% in the past 33 years (Ibid.). Based on winter counts, the 1995 North American population was estimated to be 8,000-10,000 individuals (Ibid.).

The Mountain Plover was a confirmed breeder and formerly listed as common in western through central Kansas (Goss 1891). Rising and Kilgore (1964) collected four specimens from Hamilton County in July 1964. None of these birds were in breeding condition although they may have bred in the vicinity prior to collection. With no known breeding in Kansas, the Kansas Department of Wildlife and Parks



Photo 1 – Mountain Plover at the nest in Morton County, spring 1999. Photographed by Robert J. Gress

(formerly the Kansas Fish and Game Commission), reintroduced Mountain Plovers into Wallace County northeast of Sharon Springs in 1982 trying to reestablish a breeding population in Kansas (Ptacek and Schwilling 1983). None of the plovers were known to return to the release area in subsequent years (Thompson and Ely 1989). At least two of the 50 plovers released were eaten by Swift Fox (*Vulpes velox*) (Ptacek and Schwilling 1983), and the fate of the remaining birds is unknown. It is possible that they returned to the area but remained undetected, nested elsewhere, or died after leaving the release site.

Interest in the Kansas breeding population of Mountain Plovers was again sparked by the 1993 discovery of an adult and two chicks by Marvin Schwilling in Morton County. Since 1993 there have been additional reports of suspected and confirmed breeding. Most of the reports are unpublished, anecdotal or mixed in with reports from other states. The following is a summary of breeding records for Kansas.

Methods

A search was conducted of prospective nesting areas in Morton and surrounding counties in southwestern Kansas, by the authors in May 1999. The areas most intensively searched were those reported as having yielded plovers and their nests in the past, i.e., recently burned pasture (Knopf pers. comm.), plowed fields (Smith and Smith pers. comm.) and heavily disturbed or grazed pasture land (USFWS 1999). Nests were found by scanning the area for plovers sitting on nests and by watching for birds returning to their nests, either because of disturbance or after regular nest relief periods. Records were requested from Kansas Ornithological Society members and other birders in Kansas. A literature search was undertaken for information on breeding season plover sightings in Kansas and additional information was requested directly from several individuals working on Mountain Plovers in southwestern Kansas.

Results

Table 1 summarizes the confirmed breeding records in Kansas. Confirmed breeding was determined by the presence of a nest with eggs or adults with unfledged, downy young. Distraction displays, without a known nest or young, and sightings of fledged or young of unreported age were not considered confirmed nesting records due to the possibility of unsuccessful breeding territories (Knopf 1996), mobility of precocial chicks (Ibid.) and the nearness of the Colorado state line. Data are presented as best interpreted from records provided either by the observer, Kansas Natural Heritage Inventory (KNHI), notes from Cimarron National Grasslands (CNG), or from published sources. Where possible, habitat types are indicated.

Table 2 summarizes additional records gathered which suggest possible breeding in Kansas. Birds considered to be migratory, staging prior to migration, and sightings of birds outside the breeding season (1 April to 31 July) are not included. Fledged or young of unreported age, single birds seen during the breeding season in appropriate habitat, and birds performing courtship, territorial defense and/or distraction displays were considered as possible breeding records. Data are presented as best interpreted from records provided by the observer, Kansas Ornithological Society (KOS) newsletters, Kansas Natural Heritage Inventory (KNHI), notes from Cimarron National Grasslands (CNG), or from published sources. Where possible, habitat types are indicated.

The authors found four active nests and one chick/adult pair in May 1999. The adult and chick were found on a dirt road in a buffalo-grass (*Buchloe dactyloides*) pasture and observed for over an hour at a distance of less than 10 m from the vehicle. The chick still had its egg tooth. It would struggle across the grass for perhaps 18 m before stopping to rest. The parent stayed within about 5 m and would return to the chick as it rested to brood it. The chick was brooded approximately every 15

Table 1 – Confirmed breeding records of Mountain Plovers in Kansas.

Description of Plovers	Location	Date	Observer
1 adult, 2 chicks	CNG, Morton Co	6-5-93	Schwilling
1 adult, 2 chicks (probably the same as above)	CNG, Morton Co	6-8-93	Smith and Smith
1 nest	Stanton Co	93	Shackford (Knopf 1996)
4 nests	Hamilton Co	93	Shackford (Knopf 1996)
2 adults, 3 young	Morton Co	6-2-94	Smith (KNHI)
3 adults, 1 chick	Morton Co	6-22-94	Smith and Smith
17 at least 3 chicks	2 locations, Morton Co	6-30-94	Smith and Smith
3 nests	Morton Co	94	Shackford (Knopf 1996)
nest	Morton Co	5-14-96	Cline (CNG)
1 adult, 3 chicks	Morton Co	6-3-96	Cline (CNG)
3 sightings of 1 adult with 2 chicks each	3 locations, Morton Co	6-96	Smith and Smith
1 adult, 1 chick	Greeley Co	7-6-96	Boyd
2 adults, nest w/ 3 eggs	CNG, Morton Co	5-15-97	Cline (KNHI)
1 adult, 3 young	Morton Co	6-20-97	Seltman
1 adult, 1 very young	Morton Co	7-12-97	Seltman (KNHI)
4 adults, 9 juveniles several too young to fly	Morton Co	7-20-97	Seltman (KNHI)
1 adult, 1 chick	south of Hwy 51, Morton Co	6-5-98	Rader
3 nests each w/ 3 eggs	burned pasture land, south of Hwy 51, Morton Co	5-15-99	Fellows
1 nest w/ 3 eggs	burned pasture land, south of Hwy 51, Morton Co	5-20-99	Gress
1 adult, 1 chick	Buffalo-grass pasture, CNG, Morton Co	5-21-99	Gress
4 adults, 3 chicks	Morton Co	6-2-99	Smith and Smith
1 nest	Morton Co	6-2-99	Smith and Smith
1 adult, 1 chick	Morton Co	6-3-99	Smith and Smith
2 adults, 2 chicks	Morton Co	6-9-99	Smith and Smith
26 adults, 9 chicks	3 locations, Morton Co	6-29-99	Smith and Smith

minutes for about five minutes each time. No other adults or chicks were observed in the area.

All four nests found by the authors had three eggs each. The nests were all in burned fields that had green growth about 10 cm high. One nest was built on top of a dried cow chip and partially lined with pieces of dried grass. Two of the nests were within 1 m of one or more cow chips and were also littered with dead grass in the nest bowl itself. The fourth nest was between three grass tufts taller (30 cm) than the surrounding vegetation. The nest scrape was also partially lined with old grass stalks and the bare ground surrounding the nest scrape was also littered with partially burned grass stalks. Two of the nests were in a field where four Long-billed Curlews (*Numenius americanus*) and seven other plovers were feeding about 500 m from either nest.

No "typical" plover distraction displays were seen by the authors at any of the nest sites. Birds slunk off the nest and moved off about 90 m before hiding in the short vegetation when their nests were approached. Without knowing the stage of incubation and without future nest site visits, it is unknown if the lack of distraction displays was due to timing or individual traits. No "typical" plover distraction dis-

Table 2 – Possible breeding records of Mountain Plovers in Kansas.

Description of Plovers	Location	Date	Observer
4	Morton Co	5-5-90	KOS-Schwillig
2 pair	CNG, Morton Co	5-4/5-91	KOS (Cable, et al. 1996)
>5 pairs, courtship	Stanton Co, Hamilton Co	5-4/18-92	Shackford (KNHI)
males performing courtship calls/flights	Morton Co	5-17-92	Shackford (Cable, et al. 1996)
many birds	Hamilton Co, Stanton Co	5-19-92	Shackford (KNHI)
2 males, courtship calls/flights	Hamilton Co	5-19-92	Shackford (KNHI)
many birds	Hamilton Co, Greeley, Co	6-14-92	Shackford (KNHI)
pair scraping	Greeley Co	6-14-92	Shackford (KNHI)
pair scraping, single adult	Greeley Co	6-14-92	Shackford (KNHI)
2 males, courtship calls/flights	Greeley Co	6-14-92	Shackford (KNHI)
1 adult	Greeley Co	6-15-93	Horak (KNHI)
1	Morton Co	6-12-94	Smith and Smith
2	Morton Co	6-13-94	Smith and Smith
1	Morton Co	6-15-94	Smith and Smith
2, possible nest	Morton Co	6-18-94	Smith and Smith
19, 7 fledged young	4 locations, Morton Co	6-19-94	Smith and Smith
2	Morton Co	6-22-94	Smith and Smith
13 adults and young	3 locations, Morton Co	6-23-94	Smith and Smith
12 adults and young	Morton Co	6-30-94	Smith and Smith
territorial pair	Hamilton Co	5-3-96	Shackford (KNHI)
2	Morton Co	5-26-96	Cline (KNHI)
2	Morton Co	6-3-96	Cline (CNG)
8 adults	6 locations, Morton Co	6-96	Smith and Smith
2	disked cropland, Morton Co	6-16-96	Dinsmore (KNHI)
2	CNG, Morton Co	4-16-97	Hartman
4 adults, courtship	burned pasture, Morton Co	4-16-97	Cline (KNHI)
2, one scraping	prairie dog town, Morton	4-26-97	Dinsmore (KNHI)
7	4 locations, Morton Co	4-26-97	Winter (CNG)
3	2 locations, Morton Co	4-27-97	Winter (CNG)
1	CNG, Morton Co	4-29-97	Smith and Smith
3	2 locations, Morton Co	5-24-97	Winter (CNG)
2	2 locations, Morton Co	5-27-97	Winter (CNG)
3	2 locations, Morton Co	5-31-97	Winter (CNG)
2, possible chicks	prairie dog town, Morton Co	5-31-97	Dinsmore (KNHI)
1	Morton Co	5-31-97	Cline (CNG)
1 calling	Morton Co	4-26-97	Seltman (KNHI)
2 pairs, 1 giving distraction display	Morton Co	6-13-97	Seltman (KNHI)
1 adult, 3 large juveniles	Morton Co	7-12-97	Seltman (KNHI)
2 lone juveniles	Morton Co	7-12-97	Seltman (KNHI)
> 16	planted wheat, Morton Co	4-13-98	Dinsmore (KNHI)
courting pair + single	burned grassland, Morton Co	4-13-98	Dinsmore (KNHI)
6	Morton Co	4-22-98	Chynoweth
1	CNG, Morton Co	5-4-98	Chynoweth

Table 2 – (continued) Possible breeding records of Mountain Plovers in Kansas.

Description of Plovers	Location	Date	Observer
17	Morton Co	4-1-99	Dennett and Dennett (CNG)
2	south of Hwy 51, Morton Co	4-18-99	Edwards
1	CNG, Morton Co	5-6-99	Elson (CNG)
1	Morton Co	5-8-99	Smith and Smith
1	Morton Co	5-8-99	Smith and Smith
7 none w/ known nests	south of Hwy 51, Morton Co	5-15-99	Fellows
1	Morton Co	6-16-99	Smith and Smith
9	3 locations, Morton Co	6-24-99	Smith and Smith
58 adults and young	Morton Co	6-28-99	Chynoweth
23	2 locations, Morton Co	6-29-99	Smith and Smith
14	Morton Co	7-8-99	Smith and Smith

plays were seen with the adult-chick pair. By remaining in the vehicle, a safe “blind,” the adult-chick pair could be readily observed without the birds perceiving the observer as a threat. It is possible that distraction behavior may have been employed if the observer had left the vehicle. Rader (pers. comm.) reported that an adult with a chick tried to distract him with displays when he got close to them. Chicks or nests were suspected in other cases (see Table 2) when observers were the objects of distraction displays by adult plovers. The only territorial display seen by the authors was directed toward a pair of foraging curlews feeding near one of the nesting plovers. Smith and Smith (pers. comm.) reported aggressive interactions between nesting plovers and Killdeer (*Charadrius vociferus*). In these cases the plovers were successful in driving away the intruders. Horned Larks (*Eremophila alpestris*) have displayed aggressive behavior toward foraging Mountain Plovers in which the plovers were driven from the area (Ptacek and Schwilling 1983).

Discussion

Mountain Plovers are one of only nine bird species endemic to the shortgrass prairie ecosystem and are declining faster than any other grassland bird (USFWS 1999). Reasons for recent declines in populations have been attributed to the loss of native prairies to agriculture and development, pesticide use and high body accumulations of DDE and DDT, removal of native herbivores [primarily Pronghorn (*Antilocapra americana*), American Bison (*Bison bison*), and Black-tailed Prairie Dogs (*Cynomys ludovicianus*)], poor nesting success due to depredation by Swift Fox and destruction of nests by inclement weather (Knopf 1996). The conversion of shortgrass and mixed prairies to sunflower, millet, wheat and other tall crops makes it impossible for plovers to detect predators (Ibid.). The use of heavy farm equipment during critical periods of nesting can destroy eggs and chicks (Ibid.). Nationally, cultivated fields are considered reproductive traps, areas which the birds are attracted to for breeding but where they suffer a greater than average mortality, thus being a detriment to Mountain Plovers (Cable, et al. 1996; USFWS 1999).

However, Shackford et al. (1999), suggests that cultivated fields may not necessarily be detrimental to the breeding populations of Mountain Plovers in the southern Great Plains, including Kansas. Birds in the southern plains benefit from a potentially longer breeding season. In Kansas, fields of winter wheat, requiring no spring tilling, provide an opportunity for plovers to nest and fledge young without untimely disturbance. Lower predation rates and perhaps a historically larger population of Mountain Plovers, may also contribute to successful breeding found in the southeastern part of their breeding range (Shackford et al. 1999). Better monitoring of plovers in relation to nest site selection and farming practices is needed to draw

conclusions as to the validity of the reproductive trap hypothesis in southwestern Kansas. There are about 292,000 acres farmed annually in Morton County alone (Cable, et al. 1996). Conceivably, by providing landowners in southwestern Kansas with better data for timing the management of their fields, these suspected negative effects, if present, can be reduced.

Thompson and Ely (1989) report a confirmed range of occurrence between 18 April and 16 September but assumed Mountain Plovers arrived earlier and left much later. In the Cimarron National Grasslands, plovers are reported from 4 May to 16 September (Cable et al 1996). Bent (1929) lists an early breeding date of 30 April for Kansas and Colorado birds. Shackford and Leslie (1995) determined that the breeding season in southwestern Kansas lasted from 15 April to 14 July, approximately 91 days. It took an individual pair 46-50 days to successfully complete courtship through hatching of young (Ibid.). Knopf (1996) based his estimate of 50-53 days on a 29-day incubation, a 2-3 day period per egg for laying, and an 18-day pair bond forming period. Counting back from the earliest seen young (Table 1), it appears that Mountain Plovers in Kansas have arrived in southwestern Kansas as early as the end of March. It may be as late as mid-July before the last of the late broods of young are fledged and capable of leaving a field.

Shortgrass prairies of Pawnee National Grasslands, Colorado and Charles M. Russell National Wildlife Refuge, Montana are considered to have the highest Mountain Plover breeding populations in the nation (reviewed in USFWS 1999). Estimates place the size of the entire Kansas breeding population to no more than 150 birds (reviewed by USFWS 1999). Fallow fields, heavily grazed pasture, and grasslands managed by periodic prescribed burning, such as those found in and around Cimarron National Grasslands and other areas in southwestern Kansas, have all provided breeding records for Mountain Plovers. The breeding population of plovers in Kansas is poorly understood. Due to their relatively reclusive habits and ability to blend into their background these "prairie ghosts" (Knopf 1996), can be difficult birds to survey. Kansas has very little public land and privately owned lands are usually only viewed from public roadways. There is also a scarcity of experienced surveyors specifically monitoring Mountain Plovers regularly throughout the entire breeding season in southwestern Kansas.

Currently the Kansas Department of Wildlife and Parks (Collins et al. 1995) designates Mountain Plovers as Species in Need of Conservation. The professional and nonprofessional birding community can provide extensive information on population numbers, breeding records, behavior, and habitat use. This information can assist the U. S. Fish and Wildlife Service and Kansas Department of Wildlife and Parks in determining if there is a need to list the Mountain Plover. This information is also helpful in providing recommendations for management and conservation of Mountain Plovers and other grassland obligate species.

Acknowledgments

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CHANGES IN WINTERING CROW POPULATIONS IN KANSAS

By
William Langley

American Crows (*Corvus brachyrhynchos*) have steadily increased since the mid 1970's according to the survey-wide yearly index of Christmas Bird Counts (CBC) (Sauer, Schwartz and Hoover, 1996). The purpose of this study was to describe the change in the number of crows in Kansas over the last 50 years.

Methods

Data were collected from CBC's published in the March issues of the Kansas Ornithological Society Bulletin from 1949-1997. CBC's frequently introduce several biases in analyzing data. Not all counties report every year and there are differences in the number of party hours spent, habitat covered, weather and actual time of count (Podrebarac and Finck 1991, Young and Pate, 1995). My approach was to compare the mean number of crows in CBC counts before 1973 with 1973 and after. That year, 1973, represents the median year for CBC's in Kansas. Only 18 CBC sites contained 25 or more years of data that occurred before and after 1973. A Mann-Whitney U test was used to test the differences. To determine if the total party hours affected the number of crows counted, a correlation coefficient was calculated between the two for 13 years from 1985 to 1997 when the greatest variation in counts occurred.

Results and Discussion

A larger number of crows were seen in counts that occurred in the eastern half of

the state than in the western when all the data were combined. This parallels what others have noted (Goodrich, 1945; Thompson and Ely, 1992). Figure 1 shows number of crows began to increase in the mid 1970's and continued into the 1990's. Crows are conspicuous and not often missed. The number of crows counted did not correlate with the total party hours ($r = 0.08$, 284 d.f., $t = 1.55$, $P > 0.05$).

Figure 2 compares the mean number of crows counted before and after 1973 for 18 CBC sites. In 15 of these sites, the number was greater after 1973 than before (Mann-Whitney U test, $P < 0.05$). Wichita showed the greatest difference followed by Manhattan. In the Arkansas City and Quivira counts, the differences were not significant ($z = 0.79$, 23 d.f. $P > 0.05$ and $z = 1.55$, 27 d.f., $P > 0.05$). The Halstead count showed the opposite trend: significantly more birds were seen before 1973 than afterwards (Fig. 2)(Mann-Whitney U test, $P < 0.05$). In western and eastern Kansas, CBC's such as Olathe and Garden City, which exhibited low numbers of crows, showed little change in number of crows seen over the years. Several thousand crows appeared at 10 different CBC sites at irregular intervals (Table 1). These counts suggest that sometimes a large number of crows select a particular area but this can occur over a wide area and at irregular intervals.

The increase number of crows seen after 1973 is consistent with the increase population of crows seen nationwide (Sauer, Schwartz and Hoover, 1996). However, the particularly large number of crows seen in the Wichita area raises another possibility: the crows shifted the habitat that they used for winter roosts from rural to urban areas (Gilbert, 1992). A large increase in the number of crows began to occur in the cities of Wichita and Hutchinson during the late 1970's and early 1980's (Mike Everhart et. al, 1981; Dave Razo, Reno County Health Department, pers. comm.). A similar pattern of increase in the number of crows occurred in smaller towns such as Newton (Dwight Platt, pers. comm.) and Lawrence (Richard Johnston, pers. comm.).

Further evidence of this shift is the decrease in the number of crows west of Wichita in the south-central Kansas. Hundreds of thousands to a million crows were reported in the Stafford County and the surrounding area during mid 1940's to mid 1950's (Madson, 1976; Scott, 1974). Thousands of crows were still reported in this

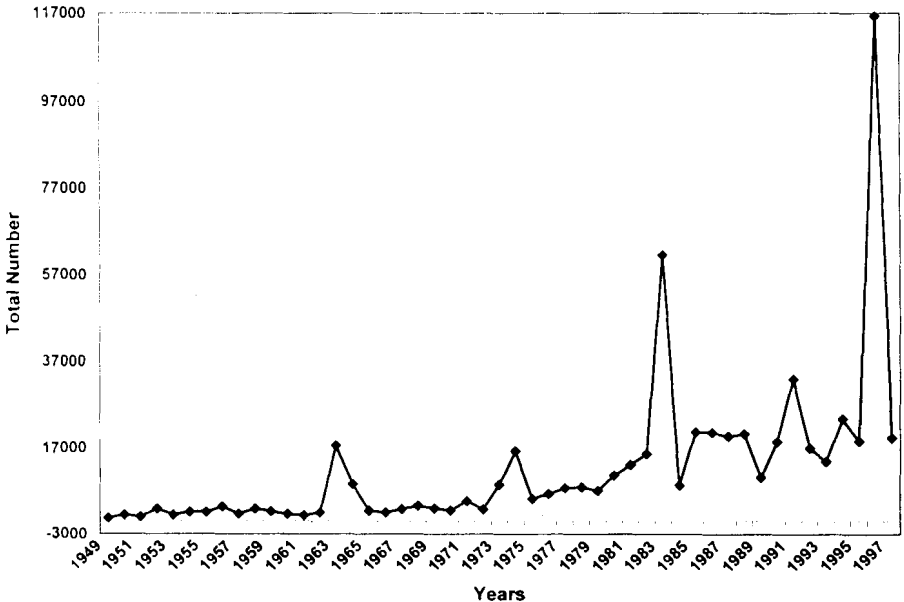
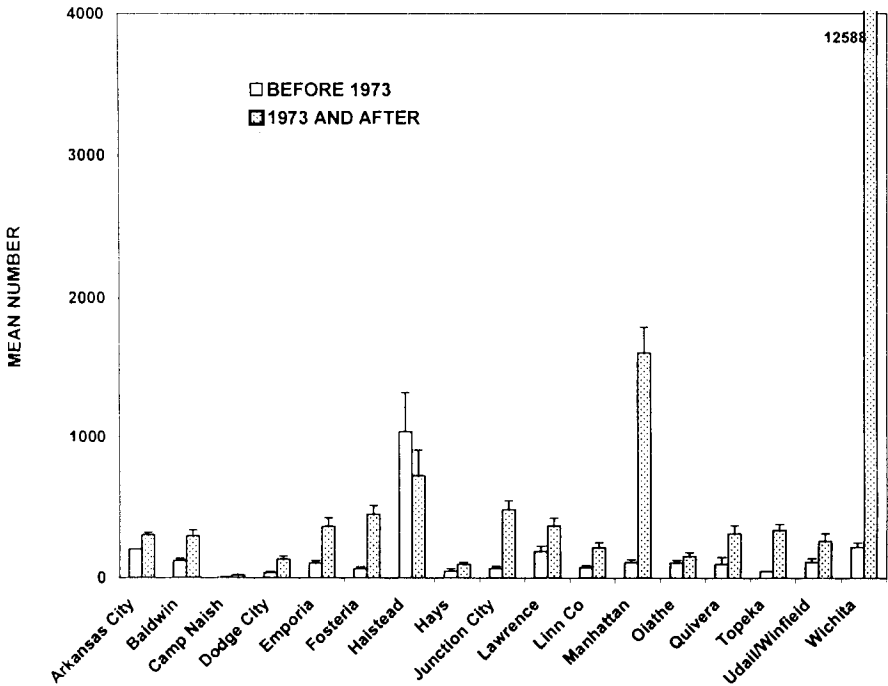


Figure 1 – The total number of crows reported for all CBC's from 1949 through 1997.

Figure 2 – The mean number (+ SE) of crows seen before and after 1973. Only CBC's that had sufficient number of counts in both time periods are shown. The number of counts for each comparison varied from 24 to 49.



area during the 1960's and 1970's (Marvin Schwilling, per. comm.). In the mid-1980's, only small numbers of crows were seen in CBC's done in this area.

A change in habitats also occurred during this time. Since the 1950's, many catalpa groves, typically used by crows for roosts, have been destroyed (Marvin Schwilling, pers. comm.). In contrast, the trees in urban areas have increased and matured. The crows may have adapted to the urban forests as roosting habitats. A further incentive for roosting in urban forests may be reduced mortality where survivorship approaches 95% (John Marzluff, pers. comm.).

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Site	Number	Year
Ellinwood/Barton Co.	5006	1964
Halstead/Newton	2198	1964
Quivira	3411	1974
Wichita	51,781	1983
Fosteria	2500	1985
Wichita	10,000	1985
Wichita	15,000	1986
Wichita	13,920	1987
Wichita	11,983	1988
Emporia	2893	1990
Wichita	23,452	1991
Wichita	12,280	1994
Topeka	2960	1995
Manhattan	3964	1996
Olsburg	4360	1996
Wichita	100,000	1996
John Redmond	2985	1997

Table 1 – A particularly large number of crows seen in a Christmas Bird Counts.

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Barred Owl Sunning Behavior. — On 9 June, 1999, approximately 5 miles NW Ottawa, Franklin County, Kansas, while driving west on Sand Creek Road, I saw a Barred Owl (*Strix varia*) in sunning posture on the roadside edge. I have not found this behavior recorded for Barred Owls, and herewith present the details.

The time was 1:50 pm CDST, under full sunlight and no cloud cover. The air temperature was about 80°F and humidity was relatively low. The owl was on the edge of the road on blacktop that had recently been renewed, and thus was black, not gray like the most of the roadway in that area. The bird's posture was as commonly recorded for sunning birds—belly down, facing the sun, wings opened halfway in a delta-shape, with the dorsal surface exposed to the sun; the bird's head was raised, the head and neck feathers erected; the eyes, however, were open.

I passed the bird at about 40 mph, following another vehicle doing about the same speed. The wheels of both cars came close to the bird as they passed, but the bird seemed to pay no attention to them. I initially assumed that the bird had been struck by a car some time earlier, and decided to salvage the corpse for a specimen. As I passed, however, I saw the bird's eyes staring upward at a steep angle. I stopped at the earliest turnaround and drove back to collect what I now thought was an injured bird that might be saved by a rehabilitation facility. I decided to park on the owl's side of the road to minimize the chance that a passing vehicle would hit the bird. As I parked next to the owl, it lightly lifted off the road and flew into the woodland nearby. As far as I could see, the bird had not been injured in any way.

In discussing my observations with members of the Kansas Bird List (an e-mail discussion group supported by Kansas State University), no one recalled seeing Barred Owls in sunning posture. Additionally, no observations of other kinds of owls in sunning posture were reported. A number of instances of other owls holding their wings open were interpreted as a part of the birds's efforts at drying their feathers following being wetted.

I sampled the encyclopedic literature (including Landsborough Thompson (1964), Campbell and Lack (1985), Brooke and Birkhead (1991), and Ehrlich,

Dobkin, and Wheye (1988), the first three of which discussed sunning behavior but none of which noted owls as birds that sun. Some owls nevertheless sun, and these include a congener of the Barred Owl, the diurnal Great Gray Owl, *Strix nebulosa* (Bull and Duncan, 1993; "rarely seen sunbathing in the wild"), as well as the diurnal Short-eared Owl, *Asio flammeus* (Holt and Leasure, 1993; "sun-bathing by facing sun, closing eyes, extending head forward, and spreading wings"), and the Barn Owl, *Tyto alba* (Marti, 1992; "sunbathing apparently very rare"). We should note that some diurnally-active owls—the Northern Hawk Owl, *Surnia ulula* (Duncan and Duncan, 1998), and Burrowing Owl, *Athene cunicularia* (Haug, Millsap, and Martell, 1993)—have not been observed to undertake sunning.

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Possible Western Meadowlark Predation on a Six-lined Racerunner. — The North American Icteridae are not notorious for taking herptiles as a food source. The grackles of the genus *Quiscalus* have been reported taking a few lizards, toads and frogs on occasion, however, this behavior has not been observed in the Western Meadowlark (*Sturnella neglecta*) (Martin et al. 1951, Bent 1958, and Lanyon 1994).

On 6 May 1999, while driving the river road south of the Arkansas River and Garden City, Finney County, Kansas we observed a Western Meadowlark around 1910 hrs. The bird flew up to a fence post on the north side of the road next to a large river bottom Conservation Reserve Program (CRP) field and was carrying what appeared to be a scrap of paper and presumed nesting material. Nearing the bird, we discovered it was carrying a lizard most closely resembling a Six-lined

Racerunner (*Cnemidophorus sexlineatus*), a common species (Choate et al. 1981) in Finney County.

The tail of the lizard was missing and there appeared to be a puncture wound in the anterior portion of the ventral side of the thoracic region. The racerunner did not appear flattened nor did we see any internal organs protruding from the sides of the lizard, which might have indicated it had been run over by a vehicle.

The question that immediately came to mind was how the meadowlark acquired a high speed land vertebrate such as the racerunner. The Western Meadowlark is a ground feeder (Lanyon 1994) that normally moves very slowly, probing the ground with its bill. It is conceivable that a racerunner crossed paths with the meadowlark, giving it a rare opportunity to catch such a prey item. The Western Meadowlark is an opportunist, preying on eggs and nestlings of such species as the Horned Lark (*Eremophila alpestris*) and Lark Bunting (*Calamospiza melanocorys*). This behavior may be a response to immediate food opportunities, or may be some form of interspecific competition (Creighton and Porter 1974).

Opportunistic feeding on road killed birds has been observed in New Mexico by meadowlarks (Hubbard and Hubbard 1969). The North American *Sturnella* have also been observed during the winter capturing and devouring Tree Sparrows (*Spizella arborea*) (Schrick 1979); Pine Siskins (*Carduelis pinus*) and American Goldfinches (*Carduelis tristis*) in Oklahoma (Waters 1990).

The racerunners are just becoming active in May (Collins 1993). Therefore, it seems likely that the species is much slower at that time of the month and that hour of the evening. This, along with the previously mentioned meadowlark attacks on small higher vertebrates and the fact that the lizard was not flattened would suggest that the observed Western Meadowlark did indeed capture the Six-lined Racerunner.

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