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RECENT BIRD MORTALITY AT A TOPEKA TELEVISION TOWER by

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Avian collisions with man-made structures such as television and radio transmission towers, buildings, lighthouses, power lines, and wind turbines, have been well documented (e.g., Tordoff and Mengel 1956, Klem 1990, Bevanger 1994) and often occur on nights with poor visibility, low cloud ceiling, and various forms of precipitation usually associated with either a passing or stationary cold front (Tordoff and Mengel 1956). Large television towers are estimated to kill about 1.2 million birds yearly in the continental United States alone (Banks 1979). What effect the resulting mortality may have on bird populations is unknown, but the impact on rare and endangered species could be significant. Such mortality events can also provide valuable distributional records for species not otherwise easily detectable.

Tower-related bird mortality in eastern Kansas was first documented by Tordoff and Mengel (1956), who used information from the Topeka WIBW television tower to study several aspects of fall migration. At the time, the WIBW tower was the tallest man-made structure in the Topeka area (290 m). Since then, a taller television tower (KTKA) has been erected. In this paper, we summarize some recent mortality events at the KTKA tower.

The tower is located about 4 km west of Topeka, Shawnee County $(39^{\circ} \ 02' \text{ N} \text{ and } 95^{\circ} \ 55' \text{ W})$, and is 439 m tall, supported by 27 guy wires, and equipped with incandescent lights. The wires rise from the ground to the tower at 150, 159, and 208 m.

We obtained data from four major mortality events at the Topeka tower: 25-26 September 1985, 30 September-1 October 1986, 11-12 October 1986, and 8-9 October 1994. These dates almost certainly do not represent the only, or perhaps even the largest mortality events, because the tower was not monitored on a daily basis.

All four kills reported herein occurred under conditions of low cloud ceiling, following a major decrease of wind speed, and preceding a drop of temperature. Little precipitation was associated with these events, except for that of 11-12 October 1986, which coincided with rainfall and light snow.

A total of 2808 individuals representing 91 species was found (Table 1), some of which were prepared as voucher specimens and deposited at the University of Kansas Natural History Museum. Gray Catbird (*Dumetella carolinensis*) and Sora (*Porzana carolina*) were the most abundant species on both September dates, whereas Orange-crowned Warbler (*Vermivora celata*) dominated species on the October dates (Table 1). The most significant records are discussed below.

Yellow Rail (Coturnicops noveboracensis). The tower kill data offer a unique view into the status and temporal pattern of migration of this secretive species. It is considered a rare migrant in eastern Kansas (Thompson and Ely 1992), with only two specimens from the state prior to the 1985 kill. However, the two individuals in 1985, 34 in 1986, and 5 in 1994 suggest that the species is a regular, and possibily even numerous, passage migrant in the state.

Yellow-bellied Flycatcher (Empidonax flaviventris). This flycatcher is a rare transient in eastern Kansas (Thompson and Ely 1992). The specimen (KU 86370),

	25-26	30	11-12	8-9	Total
0	Sept.	Sept	Oct.	Oct.	
species	1985	1 Oct.	1986	1994	
		1986			
Pied-billed Grebe Podilymbus podiceps	8	1	5	4	18
Double-crested Cormorant Phalacrocorax auritus			1	1	2
Least Bittern Ixobrychus exilis		1			1
Green Heron Bulorides virescens		2			2
Blue-winged Leal Anas discors	3	1		_	4
Yellow Rail Colurnicops noveboracensis	3		34	5	42
Virginia Kali Kalius limicola	21	4	1	3	35
Sora Porzana carouna	125	45	33	9	112
American Cool Funca americana Moning Dono Zengida magnung	2	3	4	3	14
Franklin's Cull Lance bibiesan	z	4	1	3	10
Right billed Cuckoo Cocorres anthrophthalmus	1	1			1
Vellow-billed Cuckoo Coccyzus engricanus	1	1			1
Relted Kingfisher Cervle alwan	1		2		9
Red-headed Woodpecker Melanerhes enthrocebhalus	1		9		3
Yellow-bellied Sapsucker Sphyrapicus varius	1	1	7	1	a a
Northern Flicker Colaptes a auratus	1		7	9	10
Eastern Pewee Contonus virens	î		í	-	9
Yellow-bellied Flycatcher Empidenax flaviventris	3		•	1	4
Alder/Willow Flycatcher Empidonax alnorum/traillii	8				8
Least Flycatcher Empidonax minimus	14				14
Empidonax sp.		7	1		8
Eastern Phoebe Sayornis phoebe		1	2		3
Great-crested Flycatcher Myiarchus crinitus	5				5
Eastern Kingbird Tyrannus tyrannus	3				3
Brown Creeper Certhia americana			14	2	16
House Wren Troglodytes aedon	13	22	56	9	100
Winter Wren Troglodytes troglodytes			5		5
Sedge Wren Cistothorus platensis	4		56	6	77
Marsh wren Cistolnorus palustris		3	29	2	34
Buby around Kinglet Regulus saltapa]	10	9	10
Voor Catharus fuscascons	8	1	54	4	99
Swainson's Thrush Catharus ustulatus	86	10	1		97
Hermit Thrush Catharus guttatus	00	10	6	1	7
Wood Thrush Hylocichla mustelina	1	3	2	Ŷ	6
Gray Catbird Dumetella carolinensis	170	176	18	16	380
Brown Thrasher Toxostoma rufum	16	20	9	1	46
Bell's Vireo Vireo bellii			1		1
Solitary Vireo Vireo s. solitarius	10	16	19	4	49
Warbling Vireo Vireo gilvus	15	6	1		22
Philadelphia Vireo Vireo philadelphicus	2	2	4		8
Red-eyed Vireo Vireo olivaceus	39	15	4	9	67
Tennessee Warbler Vermivora peregrina	4		1		5
Orange-crowned Warbler Vermivora celata	45	9	76	63	193
Nashville Warbler Vermivora rujicapilla		100	98	60	258
Northern Parilla Parula americana	54	10	1	1	1
Chastrut sided Worklor Dendroica heneylyanica	94 9	19	1		74 9
Magnolia Warbler Dendroica magnolia	2	9	1	1	5
Cane May Warbler Dendroica tigring	5	1	1	1	1
Black-throated Blue Warbler Dendroica caerulescens				1	î
Yellow-rumped Warbler Dendroica c. coronata			10	34	44
Black-throated Green Warbler Dendroica virens	1		3	5	9
Blackburnian Warbler Dendroica fusca	_		1	-	1
Palm Warbler Dendroica palmarum			6		6
Bay-breasted Warbler Dendroica castanea	2		1		3
Blackpoll Warbler Dendroica striata		2			2

Black-and-white Warbler Mniotilta varia	8	9	2	1	19
American Redstart Setophaga ruticilla		1			1
Ovenbird Seiurus aurocapillus	21	14	4	7	46
Northern Waterthrush Seiurus noveboracensis	16	3	1	1	21
Mourning Warbler Oporornis philadelphia	38	21	4	1	64
Common Yellowthroat Geothlypis trichas	42	54	33	40	169
Wilson's Warbler Wilsonia pusilla	21	11	6		38
Canada Warbler Wilsonia canadensis	2				2
Yellow-breasted Chat Icteria virens	5	1			6
Scarlet Tanager Piranga olivacea		1			1
Rose-breasted Grosbeak Pheucticus ludovicianus	6				6
Indigo Bunting Passerina cyanea			4	8	12
Dickcissel Spiza americana	20	11	5	9	45
Spotted Towhee Pipilo maculatus			2	1	3
Chipping Sparrow Spizella passerina	3		7	2	12
Clay-colored Sparrow Spizella pallida		5	4	4	13
Field Sparrow Spizella pusilla				2	2
Vesper Sparrow Pooecetes gramineus			2		2
Savannah Sparrow Passerculus sandwichensis	2	6	56	31	95
Baird's Sparrow Ammodramus bairdii			1		1
Grasshopper Sparrow Ammodramus savannarum	5	3	18	21	47
Le Conte's Sparrow Ammodramus leconteii			7		7
Nelson's Sharp-tailed Sparrow Ammodramus nelsoni	1	2	3	1	7
Fox Sparrow Passerella iliaca			2		2
Song Sparrow Melospiza melodia			2		2
Lincoln's Sparrow Melospiza lincolnii	1	11	47	24	83
Swamp Sparrow Melospiza georgiana			11	12	23
White-throated Sparrow Zonotrichia albicollis			7	5	12
White-crowned Sparrow Zonotrichia leucophrys			13	1	14
Dark-eyed Junco Junco hyemalis				1	1
Bobolink Dolichonyx oryzivorus	1	1			2
Orchard Oriole Icterus spurius	2				2
Baltimore Oriole Icterus galbula	44	3			47
NUMBER OF SPECIES	54	49	64	45	91
TOTAL	919	635	834	420	2,808
			1		

Table 1. List of species and numbers of individuals killed at the Topeka KTKA television tower in recent years.

found on 8 October 1994, ranks among the latest fall records for the state, although it may have been present at the site for a day or so, as it was somewhat decomposed.

Bell's Vireo (*Vireo bellii*). The adult specimen, preserved as a skeleton (KI 82964), found on 11-12 October 1986, extends the latest documented fall date by almost two weeks (Thompson and Ely 1992).

Cape May Warbler (*Dendroica tigrina*). This species is rare in eastern Kansas (Thompson and Ely 1992). One immature individual prepared as a study skin (KU 83057) was found on 30 September-1 October 1986.

Black-throated Blue Warbler (*Dendroica caerulescens*). This species is considered a rare transient statewide. An immature male found on 8 October 1994 is therefore noteworthy.

Blackpoll Warbler (*Dendroica striata*). This species is a rare fall transient in the midwest, because the bulk of the migrants passes through the eastern United States (Murray 1989). Two immatures (KU 83058, 83755) found on 30 Sept. - 1 Oct. 1986 represent the first fall specimen records from either eastern Kansas (M. C. Thompson pers. comm.) or Missouri (Robbins and Easterla 1992), as well as some of the latest records for Kansas.

Baird's Sparrow (Ammodramus bairdii). This species is a rare transient statewide, although more than half of all Kansas specimens are from TV tower kills, suggesting that they may be more numerous (Thompson and Ely 1992). A male (KU 82948),

found on 11-12 October 1986, is the first specimen for eastern Kansas (M. C. Thompson pers. comm.). The species is considered hypothetical in Missouri (Robbins and Easterla 1992).

Monitoring of avian mortality at man-made structures is important for understanding its implications for the long-term population status of the species involved, as well as for understanding migratory pathways and other features of migrant biology. For these reasons, we encourage qualified and interested individuals to undertake monitoring of avian mortality events at towers and other structures throughout the region. People interested in undertaking such studies are urged to contact the authors for further information and advice.

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THE HISTORICAL DEVELOPMENT OF WINTERING LARK BUNTING POPULATIONS NORTH OF THE THIRTY SEVENTH PARALLEL IN COLORADO AND KANSAS

by

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The accepted winter range of the Lark Bunting Calamospiza melanocorys at midtwentieth century, extended north into north central Texas (AOU, 1957). Even twothirds the way through the century, the Lark Bunting was not recorded wintering in Colorado (Bailey and Niedrach, 1965), Kansas (Johnston, 1965) nor Oklahoma (Sutton, 1967). 'I'he American Ornithologists' Union still recognized north central Texas as the northern limit of the Lark Bunting's wintering range in 1983 (AOU, 1983). However, the Lark Bunting started making an appearance in the Texas panhandle and was considered rare in the northern part by Oberholser (1974).

The Buffalo Lake National Wildlife Refuge (BLNWF) Texas Christmas Bird Count (CBC) recorded no Lark Buntings on its first ten counts between 1961 through 1976. During the period from 1977 through 1993, buntings were observed on 12 of 17 of the CBCs with a high count of 2,225 birds. The Friona, Texas, CBC 50 miles southwest of BLNWF, had buntings on 11 of 12 counts during the time period of 1961 through 1973. Like Buffalo Lake, the Amarillo, Texas, CBC recorded no buntings on 12 counts between 1961 and 1974. During the years 1975 through 1993, the buntings have been counted on eight of 18 counts with a high count of 435 birds. Farther north on the Arnett, Oklahoma, CBC, no Lark Buntings were observed on 11 counts from 1966 through 1976. From 1977 through 1993, the buntings have been observed on five of 17 counts with a high of 320 birds (these data were compiled by Ken Seyffert from the Christmas count issues of the Audubon Field Notes and American Birds).

Tyler (1985) reported that the Lark Bunting was first recorded in southwest Oklahoma in 1969, with buntings observed in all years except three from 1969 -1984. Flocks as large as 400 buntings were observed by the winter of 1975-76 in Jackson County, Oklahoma, in the extreme southwestern part of the state. Another large flock of around 275 birds apparently wintered farther east in Comanche County during the winter of 1979-80.

A single wintering Lark Bunting was observed and photographed in Winnipeg, Canada, 2-4 December 1975 (Knapton, 1976). Another bunting was observed at a feeder from 12 November 1976 through 22 April 1977 in Winona, Minnesota (Snyder and Snyder, 1977).

The first Colorado winter record of the Lark Bunting, a male, was collected near Clear Creek, 25 December 1901, near Denver by Felger (1910). The first evidence of possible wintering in Kansas was observed in Meade County, 26 March 1950 (Graber and Graber, 1951). These birds were the only ones observed until additional migrants started showing up three weeks later. A single male bunting was collected in Jewell County, in north central Kansas, 26 December 1964 (Charles A. Ely, pers. comm.)

The beginning of a fairly regular wintering population of Lark Buntings in Kansas was first observed, 31 December 1976, by the Morton County CBC participants. A total of 209 birds were observed at four locations. One flock feeding in a small cattle lot along the Santa Fe railroad, 3.5 mile northeast of Elkhart, was estimated at 150 buntings.

On the morning of 2 January 1977, Shane returned to the above location to see if the buntings had stayed through the previous night's blizzard. About 75 birds were picking up grit and possibly some spilled grain along the road. Other individuals were feeding in the nearby sorghum fields around the area. Checking the flock again at noon, Shane observed the buntings loafing in the tumbleweeds collected in the railroad ditches and sitting on the rails. All of the Lark Buntings observed had the buffy wing patch characteristic of the immature buntings.

Between 1300 and 1330 hours on 2 January 1977, Shane also drove the roads south of the Cimarron River in Baca County, Colorado. One Lark Bunting was found with a small flock of European Starlings (*Sturnus vulgaris*), 2.5 mile north of the Oklahoma border and 1.75 mile west of the Kansas border. One other winter male Lark Bunting was seen east of Platteville, Weld County, Colorado, February 1977, by Richard and Tony Esposito, (Moulton, 1977).

The Morton County, Kansas CBC (now Cimarron National Grassland CBC) has recorded Lark Buntings on 17 of the last 19 counts. The count year, total buntings per total party hours follow for Morton County: 1963, 0/8; 1973, 0/9; 1974, 10/20; 1975, 0/15; 1976, 209/30; 1977, 106/33; 1978, 3/28; 1979,306/38; 1980, 25/32; 1981, 8/39; 1982, 50/35.75; 1983, 87/41; 1984, 5/51; 1985, 0/24; 1986, 69/40; 1987, 0/27; 1988, 31/43.5; 1989, 124/45; 1990, 5/33; 1991, 4/48' 1992, 192/30; 1993, 4/69.75; 1994, 34/32. Other Kansas Christmas counts with Lark Bunting records include Clark County CBC 1977, 1/20; Liberal-seward County CBC 1992, 138/15; 1994, 45/17.5; Garden City CBC 1992, 42/31.25; Tribune CBC 1994, 4/8; and Cedar Bluff CBC 1944, 1/21. The above records were compiled from the March issues of the Kansas Ornithological Society Bulletin.

The Mesa County, Colorado area has several records of single birds, but as of this time, no wintering flocks. Bert Tignor found a bunting near Grand Junction from 4-6 January 1981 (Julian, 1981). A single Lark Bunting was found just east of

Highline Lake by Coen Dexter on 15 November 1989 and stayed in the area (Coen Dexter, pers. comm.) through 28 January 1990 (Martin, 1990), and another bird was found by Dexter, 9 January 1993, four mile northeast of the previous year's sighting (Prather, 1993).

Additional winter records include an immature male, five miles south of Goodland, Sherman County, Kansas, located by Shane and observed by John Palmquist and Steve Den on 19 February 1978, near a barnyard. This was also after a heavy blizzard with most areas covered with more than 12 inches of snow. Joe Rigli found one bunting at Weldona, 13 December 19, and one in Fort Morgan, Morgan County, Colorado, 7 January 1980. Over 50 buntings were located in Morton County, Kansas and 20 plus were observed near a feedlot in Haskell County by Mike Rader and Seltman on 9 February 1989 (Seltman, 1990). These birds stayed all winter through subzero weather in December and heavy snowfall in January and February. Other flocks were also seen throughout the period in the Oklahoma panhandle and Baca County, Colorado. Over 250 Lark Buntings were observed in the extreme southeast corner of Baca County, Colorado, one mile north of Oklahoma and one mile west of Kansas. Nine Buntings were seen west of Elkhart on 2 February 1991 by Seltman. Two buntings were observed by Joe Rigli near Fort Morgan, Colorado, 2 December 1992, and 250 were found by Seltman in southeastern Baca County, 6 February 1993 (Prather, 1993). About 150 buntings were observed west of Elkhart, Morton County, Kansas by Seltman on 6 February 1993. Twenty-two Lark Buntings wintered three miles SSW of Garden City, Finney County, Kansas, from 26 December 1992 - 1 March 1993 (Marie Osterbuhr, pers. comm.). These birds stayed around several horse corrals which were bordered by sandsage prairie.

The status of the March buntings, such as those previously mentioned from Graber and Graber (1951); one bunting in nonbreeeding plumage found by Tom Gatz and Bruce Webb at Union Reservoir, Weld County, Colorado, 13 March 1976 (Andrews, 1976); a flock of 30 males observed on 28 March 1977 near Ft. Collins, Larimer County, Colorado, by Al Harmata (Andrews, 1978); flocks of hundreds seen south of Plains, Meade County, Kansas, 25 March 1988 (Tom Flowers, pers. comm.); a female bunting was also observed one day later 26 March 1988, Prowers County, Colorado by Dan Bridges (Reddall, 1988); also a single bird observed at Burchfield State Wildlife Area, Baca County, Colorado, 29 March 1991 (Janeal Thompson, pers. comm.). The main Lark Bunting migration is not in full swing throughout eastern Colorado and western Kansas until the first of May. So March birds still might be classed as wintering. Observations of a full plumaged male observed by Sam Gadd, 27 March 1971, on U. S. Highway 24 near Falcon, El Paso County, Colorado (Davis, 1971), leave their status in March in question.

Not only has the Lark Bunting established wintering populations in Kansas and Colorado since the mid-nineteen seventies, but it has occurred simultaneously with those becoming established near and north of the 35th parallel in southwestern Oklahoma and the panhandle of Texas. Only four records cited in this paper north of the 37th parallel occurred between 1901 and 1974, while the five year period from 1975-1979, produced 13 records of the Lark Bunting. A lull during the years 1980-1987 accounted for only eight sightings. The buntings were reported 23 times during the seven years of 1988-1994. This latter period not only experienced more records but also produced more encounters with large flocks. The areas of southeast Baca County, Colorado and southern Morton County, Kansas now appear to be a regular part of the winter range of the Lark Bunting. For assistance we thank Dan Bridges, Coen Dexter, Charles A. Ely, Greg Farley, Tom Flowers, Debra Nusz, Marie Osterbuhr, Bob Righter, Ken Seyffert, Sara Shane, Janeal Thompson, and Jack Tyler.

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Two New Records For Meade County-Green-winged Teal, Anas crecca, occur throughout Meade County, Kansas, during migration, and winter on a regular basis at Meade State Lake. Numbers are never large, but up to 20 birds have been observed in a single flock in December.

Until this year (1995), the only summer record for Green-winged Teal in the county was for a single bird on a playa lake south of Missler on 20 July 1993.

On 14 July 1995, a female Green-winged Teal was observed swimming with six small ducklings at Lakeview, a large playa lake south of Fowler, Meade County, Kansas. Other species observed nesting on this playa this year included Mallard, Anas platyrhynchos, Blue-winged Teal, Anas discors, and Black-crowned Night-heron, Nycticorax nycticorax. Other species present all summer, and possibly nesting include Ruddy Duck, Oxyura dominica, Cattle Egret, Bubulcus ibis, and White-faced Ibis, Plegadis chihi.

There are few nesting records for Green-winged Teal outside of Cheyenne Bottoms, in central Kansas (Thompson, Max C. and Charles Ely. 1989. Birds in Kansas. Univ. Kansas Mus. Nat. Hist. Publ. Educ. Series no. 11). This is the first nesting record for Meade County, and may represent the only nesting record for this species on a western Kansas playa lake.

On 5 August 1995, an immature Louisiana Waterthrush (Seiurus motacilla), was

mist netted and banded in riparian woodland in southern Meade County, Kansas. This represents the first record for this species in Meade County, and one of the few records for the western half of Kansas.

The skull ossification was incomplete, indicating an immature bird. The broad, white superciliary along with irregular and restricted gray patches in the undertail coverts, separated this individual from the more common Northern Waterthrush, (Seiurus noveboracensis). In addition, the culmen length of 13.0 mm seperates it from the shorter culmen of the Northern Waterthrush (Pyle, Peter, Steve N. G. Howell, Robert P. Yunick and David F. DeSante. 1987. Identification Guide to North American Passerines. Slate Creek Press. Bokinas California).

Although this species once nested in the Flint Hills of Kansas (Thompson, Max C. and Charles Ely. 1992. Birds in Kansas. Vol 2. Univ. Kansas Mus. Nat. Hist. Publ. Educ. Series no. 12), this seems to be an unusually early date for western Kansas. In comparison, the Northern Waterthrush has not been recorded in Meade County in fall migration before August 21.

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Large Frog Predation By A Greater Yellowlegs—On 20 September 1995, a Greater Yellowlegs (*Tringa melanoleuca*), was observed capturing and eating a large frog. Most sources list the normal prey of this species as aquatic invertebrates, minnows, and tadpoles. The bird was feeding in shallow water at the southeast corner of the Big Salt Marsh, Quivira National Wildlife Refuge, Stafford Co., Kansas. The size and drab coloration of the frog suggested a sub-adult Bullfrog (*Rana catesbeiana*), although Plains Leopard Frogs (*Rana blairi*) are also common in the area.

Upon capturing the frog, the yellowlegs repeatedly repositioned the frog in its bill, shaking the animal and biting down on the frog's limbs and body. Twice during this procedure, the frog fell to the water but was quickly recaptured.

When the frog finally stopped struggling, the yellowlegs attempted to swallow the frog head-first. The first two attempts were unsuccessful, as the frog would not fit into the bird's throat. On the third try, the body of the frog disappeared into the bird's throat, forming a large bulge in the bird's neck. The hind feet of the frog still protruded from the bird's mouth. With one more effort the yellowlegs was able to completely swallow the frog.

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