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A Century of Breeding Birds in Nebraska*

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With the imminent publication of the Nebraska Breeding Bird Atlas and the turning of a new millennium, it is perhaps an appropriate time to survey the state of breeding birds in Nebraska. Wayne Mollhoff's summary of the N.O.U.'s Nebraska Breeding Birds Aliasing Project (Mollhoff, 2000) provides important databases for the latter part of the past century, and the historic overview by James Ducey (1988) offers a useful basis for judging the breeding avifauna of Nebraska from about the beginning of the century. The Biological Resources Division of the U. S. Geological Survey's (WSGS–BRD) annual Breeding Bird Survey data currently extends back more than three decades and continues to accumulate new information. And R. S. Sharpe, W. R. Silcock, and J. G. Jorgensen will publish in early 2001 their authoritative book, *The Birds of Nebraska*.

Ducey (1988) plotted individual county breeding records for records for three time periods, namely pre–1920, 1921–1960, and from 1961 until the late 1980s. His data summary thus overlaps with the Nebraska Ornithologists' Union's period of data collection for the Breeding Bird Atlas, which extended from 1984 to 1988. We have counted and tallied all of the counties for which one or more breeding record existed within each of Ducey's three time periods. These totals thus probably often represent a smaller overall number than would the total number of breeding records per county, which were usually not indicated. Mollhoff (2000) classified the available N.O.U. records into four categories of increasing confidence for breeding; but for our tallying purposes, we used and summed only the three highest probability categories.

The Breeding Bird Survey data are based on standardized survey routes of 24.5 miles, with periodic stops for visual and auditory sampling of birds. These data are later analyzed both as to relative species abundance and for statistically significant trends in population density over multi-year time periods to 1993 (Price et al., 1995).

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The most recent BBS data (through 1998) are available from internet sources, but these do not provide relative abundance data for Nebraska as a whole. The only state-based summary data thus available are for long-term population trend estimates, and the summed sample sizes (total routes in which the species was encountered) provided for two data subsets (1966–79, and 1980–98) seem to offer the best general index to relative statewide abundance. In a very few cases there were more data points indicated for the entire time period than for the summed subsets; in such cases the larger numbers were used. These numbers are shown in the table, as well as positive or negative trend estimates for estimates based on larger sample sizes (usually those of ten or more data points). Those trends that are significant at the 99 percent confidence level are indicated by asterisks.

A summary of all three of these data sources is presented in Table 1. They suggest that the number of species now breeding in Nebraska is approximately 200, which agrees closely with an earlier summary (Johnsgard, 1979). Several species that were listed by Ducey clearly now no longer breed in Nebraska; such records were either erroneous, represent species that have since become extirpated or extinct, or are extralimital records of species now breeding only some considerable distance from Nebraska's borders. We have suggested the likely basis for the records of these species, which are listed in parentheses. Several species (dark's Grebe, Pileated Woodpecker, Eurasian Collared-dove, Yellow-throated Warbler, Henslow's Sparrow) have certainly bred in Nebraska recently, but were not documented in any of these listings; and the Sage Thrasher is also a very likely if rare Nebraska Panhandle breeder that still needs documentation.

For the purpose of identifying Nebraska's rarer breeding species, we have constructed a "Rarity Index" representing the sum of the three sets of Ducey's numbers, plus those of Mollhoff, and provided such totals relative to those species for which the total is less than 20. These "Watch-list" species are also underlined in the accompanying table. They represent species that are rare in Nebraska for various reasons, such as are those at the edges of their overall ranges (the majority of the listed species); those species having inherently small and scattered populations (several large falcons and hawks); are elusive and easily overlooked species (such as the King Rail and Brown Creeper); or are ones that have suffered serious population declines (such as the several threatened and endangered species on the list, including the Mountain Plover, Least Tern and Piping Plover).

Grassland-adapted species that have been in serious decline nationally recently (1966–1993) include the Greater Prairie-chicken (–85.3% decline nationally); Long-billed Curlew (–36.5%); Loggerhead Shrike (–54.7%); Bell's Vireo (–40.4%); Field Sparrow (–57%); Lark Sparrow (–61.2%); Grasshopper Sparrow (–67.8%); Lark Bunting (–44.1%);

and Dickcissel (–35.8%). The collective average rate of national decline for these nine species is –53.6%, but the mean trend for these same species in Nebraska is +1.1%! All of these species are grassland-dependent birds, and most of them are concentrated in the Nebraska Sandhills. Nebraska should be regarded as critical habitat for all of these species, only one of which is a “gamebird” and is thus receiving adequate monitoring by state agencies. The Henslow’s Sparrow is also in very sharp decline nationally (–74.7%), but is clearly increasing both its range and abundance in southeastern Nebraska, perhaps because of the C.R.P land-use program.

At the opposite end of the spectrum, Nebraska’s four most abundant breeders, judging from Ducey’s data, are (in descending sequence) Red-winged Blackbird, Barn Swallow, House Wren, and Western Kingbird. Judging from Mollhoff’s data, they are the Mourning Dove, Barn Swallow, Western Meadowlark and Eastern Kingbird. According to the Breeding Bird Survey, they would include the Mourning Dove, Barn Swallow, Western Meadowlark and Red-winged Blackbird. Curiously, the Barn Swallow appears all three lists, while the Red-winged Blackbird and Western Meadowlark each are on two. Few would have predicted the Barn Swallow to head the state abundance list, and breeding density data published by Price et al. (1995) suggest that on a statewide basis, the Barn Swallow is probably less common than the Mourning Dove, Red-winged Blackbird or Western Meadowlark, any one of which might thus qualify as our most abundant breeding bird.

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Table 1. Checklist of Nebraska Breeding Birds

	Ducey 1988 Pre-1920	(County Records)		Mollhoff 2000 1984-88 records	Rarity Index* (Total prior records)	BBS data 1966-98	
		1921-60	Post-1960			Years	Trend
Pied-billed Grebe	9	2	10	55		4	+1.6
<u>Horned Grebe</u>	1		1		2		
Eared Grebe	5	2	3	31			
Western Grebe	1	2	6	26			
(Clark's Grebe)	(Breeding occurs but was not documented during cited studies)						
Double-c. Cormorant		6	3	31		7	+15.3
American Bittern	6	4	3	37		5	+8.9
<u>Least Bittern</u>	4	3	1	11	19		
Great Blue Heron	4	7	30	198		35	+4.4
<u>Great Egret</u>		1			1		
<u>Snowy Egret</u>	2	1	3		6		
<u>Little Blue Heron</u>	1		1		2		
Cattle Egret		1			1		
Green Heron	9	5	4	82		7	+4.0
Black-c. Night-Heron	6	6	6	32		3	-5.0
<u>Yellow-c. Night-Heron</u>			2		2		
<u>White-faced Ibis</u>	1		2	1	3		
Turkey Vulture	8	2	7	113		13	+2.0
Canada Goose	6	1	12	47		7	+15.2
(Snow Goose)	1(dubious record)						
Trumpeter Swan	2	3	9				
Wood Duck	2	1	13	194		13	+16.5
Gadwall	2	3	13	42		6	+3.7
American Wigeon	1	1	4	19			
Mallard	8	9	24	250		33	+3.0
Blue-winged Teal	8	8	19	154		18	-3.6
<u>Cinnamon Teal</u>		1	1	8	10		
Northern Shoveler	5	5	10	57		5	-3.8

	Ducey 1988 Pre-1920	(County Records)		Mollhoff 2000 1984-88 records	Rarity Index* (Total prior records)	BBS data 1966-98	
		1921-60	Post-1960			Years	Trend
Northern Pintail	1	8	13	77		10	-10.8
Green-winged Teal	3	1	3	39		2	+4.0
<u>Canvasback</u>	1	1	4	11	17		
Redhead	5	3	4	40		5	+8.4
<u>Ring-necked Duck</u>	4 (extirpated?)				4		
<u>Lesser Scaup</u>			1 (extralimital)		1		
<u>Hooded Merganser</u>		1			1		
<u>Common Merganser</u>	2			1 (extralimital)	3		
Ruddy Duck	4	3	8	38		3	-6.3
(Osprey)	2(extirpated)						
(Swallow-tailed Kite)	4 (extirpated)						
(Mississippi Kite)			(Has bred during 1990s at Ogallala)				
Bald Eagle	5		2	2	9		
Northern Harrier	13	6	13	65		21	-3.0
<u>Sharp-shinned Hawk</u>	2		2	7	11		
Cooper's Hawk	8	2	2	18			
<u>Red-shouldered Hawk</u>	4	2	1		7		
<u>Broad-winged Hawk</u>	2	1	1		4		
Swainson's Hawk	5	10	19	140		27	+0.5
Red-tailed Hawk	10	6	33	249		37	+3.6
Ferruginous Hawk	2	1	9	10		3	-13.7
Golden Eagle	5	3	14	18		3	+24.7
American Kestrel	7	4	16	255		36	+1.3
<u>Merlin</u>			3	3	6		
Prairie Falcon	3	2	7	14			
<u>Peregrine Falcon</u>	1				1		
Gray Partridge			1	13	14		
(Chukor)		3 (unsuccessfully introduced)					

	Ducey 1988	(County Records)		Mollhoff 2000	Rarity Index* (Total prior records)	BBS data	
	Pre-1920	1921-60	Post-1960	1984-88 records		1966-98 Years	Trend
Ring-necked Pheasant		11	27	339		44	-1.2
(Sage Grouse)	1	2 (extirpated)					
(Ruffed Grouse)	2 (extirpated)						
Greater Prairie-Chicken	1	5	8	52		8	+16.6
Sharp-tailed Grouse	5	3	9	82		6	+4.4
Wild Turkey	1		10	134		12	+4.4
Northern Bobwhite	8	17	19	240		34	-1.1
(Scaled Quail)			1 (unsuccessfully introduced)				
(California Quail)		1 (unsuccessfully introduced)					
<u>King Rail</u>	2				2		
Virginia Rail	3	3	4	20			
Sora	6	3	5	23		2	-0.7
<u>Common Moorhen</u>	3	2	3		8		
American Coot	11	5	15	86		6	+8.5
Sandhill Crane	2				2		
Piping Plover	4	8	24	30			
Killdeer	11	10	33	387		43	+1.0
<u>Mountain Plover</u>	3	1			4		
<u>Black-necked Stilt</u>		2	2		4		
American Avocet	1	3	5	25		4	-9.2
(Greater Yellowlegs)	1 (dubious or extralimital record)						
(Lesser Yellowlegs)	1	1 (dubious or extralimital records)					
(Solitary Sandpiper)	1 (dubious or extralimital record)						
Willet	3	3	3	33		5	-4.7
Spotted Sandpiper	7	2	6	126		4	+41.7
Upland Sandpiper	9	8	24	234		36	+1.9
Long-billed Curlew	5	6	12	68		14	-8.2
(Marbled Godwit)	1 (dubious or extralimital record)						

	Ducey 1988	(County Records)		Mollhoff 2000	Rarity Index* (Total prior records)	BBS data	
	Pre-1920	1921-60	Post-1960	1984-88 records		1966-98 Years	Trend
Common Snipe	2	1	6	35		7	+20.3
American Woodcock	3	3		15			
Wilson's Phalarope	3	4	7	72		5	-3.6
(Franklin's Gull)		1 (extralimital record)					
(Ring-billed Gull)	1 (dubious or extralimital record)						
Forster's Tern	3	1	3	13		3	-2.1
Least Tern	6	12	27	41			
Black Tern	5	2	3	54		6	-13.7
Rock Dove	2	13		182		31	+22.5
(Eurasian Collared-Dove)		(Bred during 1990s at Kearney)					
Mourning Dove	15	27	53	440		44	-0.8
(Carolina Parakeet)	1 (extinct)						
Black-billed Cuckoo	6	3	11	102		17	-2.2
Yellow-billed Cuckoo	9	11	14	198		33	-0.4
Barn Owl	13	7	35	26			
Eastern Screech-Owl	12	4	16	118			
Great Horned Owl	18	17	37	222		30	-4.8
Burrowing Owl	14	4	18	70		13	+0.3
Barred Owl	6	2	3	19			
Long-eared Owl	6	3	7	7			
Short-eared Owl	6	4	5	16			
(N. Saw-whet Owl)	2 (extralimital records)						
Common Nighthawk	10	3	17	202		28	-4.8
Common Poorwill	1	1	5	15			
<u>Chuck-will's-widow</u>			1	8	9		
Whip-poor-will	4		1	22			

	Ducey 1988 (County Records)			Mollhoff 2000 1984-88 records	Rarity Index* (Total prior records)	BBS data 1966-98	
	Pre-1920	1921-60	Post-1960			Years	Trend
Chimney Swift	7	3	11	210		29	-0.7
<u>White-throated Swift</u>	3	3	1	7	12		
<u>Ruby-th. Hummingbird</u>	3	1	3	11	18		
Belted Kingfisher	7	2	12	197		12	-12.4
<u>Lewis's Woodpecker</u>	2	1	1	1	5		
Red-headed Woodpecker	10	9	26	357		40	-0.6
Red-bellied Woodpecker	2	4	10	109		11	+6.1
(Yellow-bellied Sapsucker) 2 (extralimital records)							
Downy Woodpecker	11	8	22	247		24	+0.4
Hairy Woodpecker	8	5	12	102		11	-4.6
Northern Flicker	10	10	29				
Yellow-shafted Flicker (see also Northern Flicker)				335		34	-1.7
Red-shafted Flicker (see also Northern Flicker)				30		7	-18.1
(Pileated Woodpecker) (Bred in 1999 at Fontenelle Forest)							
Western Wood-Pewee	2	2	3	39		4	-0.2
Eastern Wood-Pewee	4	2	7	103		7	+20.3
<u>Acadian Flycatcher</u>	1	1			2		
(Alder Flycatcher)	4	4 (dubious or extralimital records)					
Willow Flycatcher	3	1	3	42		7	+4.3
<u>Least Flycatcher</u>	2			2			
<u>Cordilleran Flycatcher</u>	1			2	3		
Eastern Phoebe	12	9	20	135		17	-13.5
Say's Phoebe	12	14	15	50		11	-1.7
Great Cr. Flycatcher	10	6	9	157		16	+1.7
<u>Cassin's Kingbird</u>				10			
Western Kingbird	12	15	34	363		44	-2.9
Eastern Kingbird	13	10	35	424		44	-0.1
<u>Scissor-tailed Flycatcher</u>		5	1	2	8		

	Ducey 1988 (County Records)			Mollhoff 2000 1984-88 records	Rarity Index* (Total prior records)	BBS data 1966-98	
	Pre-1920	1921-60	Post-1960			Years	Trend
Loggerhead Shrike	8	8	26	200		42	-0.9
(White-eyed Vireo) 4 (extralimital record)							
Bell's Vireo	11	11	11	133		15	+0.8
<u>Plumbeous Vireo</u>	1	1	1	3	6		
Yellow-throated Vireo	7	3	2	9			
Warbling Vireo	7	8	12	265		27	+6.0
Red-eyed Vireo	4	11	8	81		12	-11.5
Blue Jay	9	9	23	333		40	+0.7
<u>Pinyon Jay</u>	3	1	1	10	15		
<u>Clark's Nutcracker</u>		1		3	4		
Black-billed Magpie	5	6	17	151		24	-14.2
American Crow	12	8	16	288		43	+1.9
(Chihuahuan Raven) 1 (probably extirpated)							
(Common Raven) 1 (extirpated)							
Horned Lark	18	13	23	261		41	-3.1
Purple Martin	11	7	16	59		10	-2.7
Tree Swallow	6		8	57		4	-17.4
<u>Violet-green Swallow</u>	1	1	1	10	13		
Northern R-w. Swallow	11	4	18	311		29	+1.2
Bank Swallow	13	4	13	86		15	-17.9
Barn Swallow	16	12	42	433		44	-1.1
Cliff Swallow	16	17	28	193		25	+2.2
Black-capped Chickadee	12	12	18	277		29	-1.6
Tufted Titmouse		1	3	18		4	-2.6
Red-breasted Nuthatch			3	21			
White-breasted Nuthatch	4	2	9	160		14	+6.0
<u>Pygmy Nuthatch</u>		1	2	8	11		
<u>Brown Creeper</u>	3		2		5		

	Ducey 1988 (County Records)			Mollhoff 2000 1984-88 records	Rarity Index* (Total prior records)	BBS data	
	Pre-1920	1921-60	Post-1960			1966-98 Years	Trend
Rock Wren	10	5	5	40		3	-4.6
<u>Carolina Wren</u>		2	3	5	10	2	+15.0
<u>Bewick's Wren</u>	1	2 (possibly extirpated)			3		
House Wren	10	15	40	342		38	+1.3
Sedge Wren	3		2	16		3	+14.3
Marsh Wren	4	5	8	48		3	-20.0
Blue-gray Gnatcatcher	4	2	4	15			
Eastern Bluebird	11	8	23	144		22	+5.2
Mountain Bluebird	3	1	3	16			
<u>Townsend's Solitaire</u>	1	1		1	3		
<u>Swainson's Thrush</u>	1	1			2		
(Hermit Thrush)	1 (dubious or extralimital record)						
Wood Thrush	13	7	4	43			
American Robin	11	19	45	393		44	+0.9
Gray Catbird	10	10	17	228		23	-2.2
Northern Mockingbird	14	6	9	61		16	-3.1
(Sage Thrasher)	(Breeding probably occurs but not yet documented for Nebraska)						
Brown Thrasher	14	20	31	364		41	-0.6
European Starling		7	22	336		41	+1.9
Cedar Waxwing	2	5	6	67		8	+22.7
<u>Blue-winged Warbler</u>	2				2		
(Tennessee Warbler)		1 (extralimital record)					
(Nashville Warbler)	1	1 (extralimital record)					
<u>Northern Parula</u>		1			1		
Yellow Warbler	13	12	15	278		32	+1.0
<u>Chestnut-sided Warbler</u>	1		1		2		
<u>Yellow-rumped Warbler</u>	1	1	1	8	13		
(Prairie Warbler)	2 (extralimital records)						

	Ducey 1988 (County Records)			Mollhoff 2000 1984-88 records	Rarity Index* (Total prior records)	BBS data	
	Pre-1920	1921-60	Post-1960			1966-98 Years	Trend
(Yellow-throated Warbler) (Breeding occurs but was not documented in cited studies)							
<u>Cerulean Warbler</u>	2		1	4	7		
Black-and-white Warbler	8	1		14			
American Redstart	14	2	4	33			
<u>Prothonotary Warbler</u>	3	1		7	11		
Ovenbird	5	2	6	27			
(Northern Waterthrush)	3 (extralimital or dubious records)						
<u>Louisiana Waterthrush</u>	4	1	1	4	10		
<u>Kentucky Warbler</u>	4	1		9	14		
Common Yellowthroat	13	7	14	340		39	-0.3
Yellow-breasted Chat	9	7	1	67			
<u>Summer Tanager</u>	1		2	7	10		
Scarlet Tanager	7	3	3	18			
<u>Western Tanager</u>	1			12	13		
Rufous-sided Towhee	15	11	11	144			
Eastern Towhee (recently split from Rufous-sided Towhee)						9	+2.7
<u>Spotted Towhee</u> (recently split from Rufous-sided Towhee)				1	1	7	-17.3
<u>Cassin's Sparrow</u>			1	3	4		
Chipping Sparrow	9	9	12	135		23	+1.4
<u>Clay-colored Sparrow</u>	1	1	1		3		
<u>Brewer's Sparrow</u>		3	2	6	10		
Field Sparrow	15	10	14	190		26	+5.0
Vesper Sparrow	14	5	5	42		14	+2.7
Lark Sparrow	12	23	28	310		37	+0.8
Lark Bunting	17	8	16	157		34	-1.3
<u>Savannah Sparrow</u>	1				1		
(Baird's Sparrow)	1 (extralimital record)						
Grasshopper Sparrow	11	9	21	319		43	-1.1

	Ducey 1988 (County Records)			Mollhoff 2000 1984-88 records	Rarity Index* (Total prior records)	BBS data 1966-98	
	Pre-1920	1921-60	Post-1960			Years	Trend
(Henslow's Sparrow)	(Breeding occurs but was not documented in cited studies)						
Song Sparrow	1	3	9	81		10	+15.7
Swamp Sparrow	3	2	2	29			
Dark-eyed Junco	2		2	4	8		
McCown's Longspur	1		2	9	12		
Chestnut-c. Longspur	1	1	2	8	12	4	+18.5
Northern Cardinal	9	16	21	204		25	+3.3
Rose-breasted Grosbeak	14	16	11	135		15	-4.1
Black-headed Grosbeak	12	12	6	52		4	-13.1
Blue Grosbeak	8	18	13	152		31	-1.7
Lazuli Bunting	2		1	22			
Indigo Bunting	12	9	10	179		20	-3.9
Dickcissel	13	15	19	305		37	-0.7
Bobolink	11	2	8	133		25	+3.6
Red-winged Blackbird	16	17	38	422		44	+0.2
Eastern Meadowlark	1	5	8	101		20	-9.4
Western Meadowlark	14	12	23	424		44	-0.8
Yellow-headed Blackbird	13	6	12			18	+0.1
Brewer's Blackbird	4	1	6	12		3	-12.8
(Rusty Blackbird)			1 (extralimital record)				
Common Grackle	13	14	34	410		44	-2.4
Great-tailed Grackle			6	14			
Brown-headed Cowbird	15	8	27	406		44	+0.1
Orchard Oriole	12	17	24	355		42	-1.2
Northern Oriole	18	12	25				
Baltimore Oriole (previously part of Northern Oriole)				339		37	+0.9
Bullock's Oriole (previously part of Northern Oriole)				48		5	+26.8
Cassin's Finch			1		1		

	Ducey 1988 (County Records)			Mollhoff 2000 1984-88 records	Rarity Index* (Total prior records)	BBS data	
	Pre-1920	1921-60	Post-1960			1966-98 Years	Trend
House Finch	1	2	4	37		11	+26.0
Red Crossbill		3	3	16			
Pine Siskin	4	11	9	23			
American Goldfinch	13	16	18	358		39	+1.2
House Sparrow	5	5	31	381		43	-1.9

Total Species 209 169 205 191

Note: Ducey's records refer to numbers of counties with one or more nestings for the indicated period, not the total number of records.

Mollhoff's records include all possible, probable, and confirmed records.

The "Rarity index" is the sum of Ducey's county records plus the Mollhoff records, for species with fewer than 20 such records.

Extinct, extirpated species, and those species with records considered dubious are not tallied, and such species are shown in parentheses.

Breeding Bird Survey records show sample size and population trends for those species appearing on surveys from 1966 through 1998.