

COORDINATED SPRING SURVEY OF MID-CONTINENT SANDHILL CRANES

2004



2004

COORDINATED SPRING SURVEY OF MID-CONTINENT SANDHILL CRANES

2004 TOTAL: 447,600
2004 AERIAL TRANSECT: 426,500
THREE-YEAR AVERAGE (2002-04): 363,200
SURVEY DATES: 22 - 25 March 2004

SURVEY PERSONNEL:

Aerial Survey

Observer/pilot: John Solberg, USFWS, DMBM, Bismarck, ND
Observer: Jeff Drahota, USFWS, Rainwater Basin WMD, Kearney, NE
Photographer: Rich Walters, NGPC, Kearney, NE

Ground Surveys

(State Coordinators)
North Dakota: Stan Kohn, NDGFD, Bismarck, ND
South Dakota: Spencer Vaa, SDGFP, Brookings, SD
Nebraska: John Dinan, NGPC, Lincoln, NE
Kansas: Helen Hands, KDWP, Great Bend, KS
Texas: Jay Roberson, TPWD, Austin, TX

ABSTRACT: The aerial portion of the coordinated spring survey of mid-continent sandhill cranes was conducted on 23 March in Nebraska's Platte and North Platte River valleys. The 2004 photo corrected aerial estimate was 426,500 birds. Ground observations were conducted 22 - 25 March. Outside aerial coverage boundaries, observers in the Official Survey Area (OSA) of Nebraska, Kansas, and Texas reported an additional 21,100 cranes. The total 2004 estimate (447,600) increased 18% since 2003 and is the eighth highest in twenty-three years of comparable figures. The current three-year average (2002 - 2004), based on photo corrected aerial counts, is 363,200.

METHODS: The annual target date for the coordinated survey is the 4th Tuesday of March. Survey methods utilized in 2004 were unchanged since 2003 and incorporate coverage changes adopted by the Central Management Unit Technical Committee (CMU) in 1985. The aerial portion of the survey utilizes an ocular transect design with a sampling rate of approximately twenty-five percent. Sub-sampling crane flocks, using 35 mm oblique photography, allows determination of observer specific estimation correction factors which are applied to aerial counts. Ground efforts, directed by state coordinators, are conducted outside the region of aerial coverage in areas of traditional crane use/occurrence. Observations by ground personnel are not photo corrected. Specific details regarding personnel, photography, habitat, and weather conditions are on file in the Bismarck office of the USFWS.

RESULTS: The aerial transect component of the 2004 survey was conducted as scheduled, on 23 March. Concurrently, USGS field researchers reported 82% of their radio marked cranes present in the Platte River Valley (Dave Brandt, USGS, pers. comm.). The 2004 estimate of mid-continent sandhill cranes is 447,600 (Table 1), which includes 426,500 birds from aerial transects (Tables 2 and 3), and 21,100 cranes from other regions in the OSA. Correction factors, applied to aerial estimates, were calculated from photographs of 95 unique flocks (Drahota 45, Solberg 50). Observer effort in the 2004 survey is presented in Table 4. The 2004 index increased 18% from the 2003 figure and is the eighth highest of comparable record (23 years). The current three-year average (2002-2004), based on the photo-corrected Nebraska aerial portion, is 363,200 (Figure 1) and is within the management range (343,000 - 465,000) established by the CMU (Management Guidelines for Mid-Continent Sandhill Cranes, revised March 1993).

Appreciation is expressed to all coordinators, observers, and participants who assisted in the 2004 survey. Two long time contributors, Dr. Douglas Johnson (Northern Prairie Wildlife Research Center) for his statistical analysis and Mr. John Steiner (Jamestown, ND) for his photo processing and interpretation, continued their able assistance and support in completing the final report.

John W. Solberg
June 2005

Reference:

Benning, D. S. and D. H. Johnson. 1987. Recent improvements to sandhill crane surveys in Nebraska's Central Platte Valley. pp 10 – 16 in J. C. Lewis (ed.), Proc. 1985 Crane Workshop, Platte River Whooping Crane Habitat Maint. Trust, Grand Island, NE.

Table 1. Distribution of Sandhill Cranes within the Mid-Continent region during the coordinated spring survey, 1974-2004 (rounded to nearest 100).

Date	ND ₅	SD ₅	NEBRASKA Central Platte Valley ¹				KS	TX	TOTAL (OSA)	OK ₅	NM ₅	CO ₅	TOTAL of all sources (excluding ND & SD) when added to the following:			
			Ocular cruise	Ocular transect	Ocular trans. w/photo correction	Vertical photo transect							Ocular cruise	Ocular transect uncorrected	Ocular transect photo corrected	Vertical photo transect
3/24-31/74	0	0	162,600(92%) ⁴	-	-	9,000	1,900	-	400	0	0	177,100	-	-	-	-
3/25-30/75	0	0	223,600(98%)	-	-	2,300	900	-	100	100	500	227,500	-	-	-	-
3/22-26/76	-2	0	147,500(97%)	-	-	2,800	300	-	100	1,000	0	152,500	-	-	-	-
3/13-23/77	0	300	173,400(79%)	-	-	1,100	1,600	-	400	12,500	0	220,000	-	-	-	-
3/20-24/78	0	0	149,800(94%)	-	-	2,600	700	-	2,300	0	0	159,900	-	-	-	-
3/20-29/79	0	0	203,600(97%)	-	-	2,600	1,100	-	1,500	0	500	209,300	-	-	-	-
3/24-4/15/80	Tr ³	0	223,400(95%)	-	-	5,000	4,100	-	100	500	0	234,500	-	-	-	-
3/22-28/81	0	0	248,900(86%)	-	-	8,300	11,200	-	8,300	0	200	265,500	-	-	-	-
3/22-27/82	0	Tr	348,000(95%)	-	-	7,100	2,000	-	0	100	2,800	367,800	-	-	-	-
3/25-26/83	0	0	306,300(96%)	-	-	4,100	200	-	200	Tr	0	317,800	-	-	-	-
3/25-30/84	0	Tr	222,700(91%)	-	-	18,100	900	-	800	0	0	243,600	-	-	-	-
3/25-26/85	-	0	378,100(96%)	-	-	11,500	3,000	-	1,200	Tr	0	393,800	-	-	-	-
3/25-26/86	Tr	Tr	317,000(99%)	-	-	1,000	200	-	2,100	-	-	320,300	-	-	-	-
3/24-26/87	0	0	383,600(100%)	-	-	0	0	-	400	0	0	384,000	-	-	-	-
3/21-25/88	0	0	463,500(98%)	-	-	0	Tr	-	7,700	-	-	471,200	-	-	-	-
3/28-29/89	0	200	391,400(100%)	-	-	100	1,000	-	800	-	-	393,900	-	-	-	-
3/27-28/90	Tr	Tr	386,000(94%)	-	-	11,000	5,200	-	10,300	-	-	438,700	-	-	-	-
3/25-26/91	0	200	297,800(100%)	-	-	100	800	-	200	-	-	341,700	-	-	-	-
3/19-25/92	200	Tr	257,700(95%)	-	-	12,200	300	-	1,100	-	-	420,100	-	-	-	-
3/23-24/93	0	100	253,800(79%)	-	-	16,800	37,700	-	13,500	-	-	446,900	-	-	-	-
3/20-22/94	400	0	395,500(96%)	-	-	14,600	0	-	0	-	2,400	412,500	-	-	-	-
3/28-30/95	200	0	273,400(88%)	-	-	30,400	0	-	0	-	6,700	310,500	-	-	-	-
3/25-26/96	0	0	318,900(96%)	-	-	7,600	0	-	0	-	3,900	330,400	-	-	-	-
3/20-26/97	Tr	Tr	350,900(96%)	-	-	16,200	100	-	0	-	-	550,900	-	-	-	-
3/24-26/98	0	Tr	337,200(96%)	-	-	13,600	100	-	0	-	-	544,500	-	-	-	-
3/22-25/99	0	500	219,800(68%)	-	-	3,500	100,000	-	0	-	-	388,400	-	-	-	-
3/10-29/00	100	800	484,600(92%)	-	-	16,900	26,100	-	500	-	-	533,600	-	-	-	-
3/25-27/01	0	Tr	387,300(87%)	-	-	10,500	42,300	-	3,500	-	-	443,600	-	-	-	-
3/25-27/02	Tr	0	309,000(90%)	-	-	17,100	15,100	-	1,200	-	-	348,200	-	-	-	-
3/22-27/03	Tr	400	300,900(90%)	-	-	24,800	4,100	-	3,800	-	-	380,700	-	-	-	-
3/22-25/04	50	600	365,400(94%)	-	-	17,700	1,200	-	2,200	-	-	447,600	-	-	-	-

¹ Utilizing various survey techniques within Nebraska's Central Platte Valley.

² No survey.

³ Less than 50.

⁴ Percent of total M-C population index.

⁵ Crane sightings for North and South Dakota from 1985 and later are noted for over flight monitoring purposes and are not included in totals.

⁶ OK, NM, CO were eliminated from the Official Survey Area in 1985 by the Central Flyway CMU; crane sightings are noted for informational purposes only.

Table 2. Results of ocular transect survey for Mid-Continent Sandhill Cranes in the central Platte Valley of Nebraska during the coordinated spring surveys.

<u>YEAR</u>	<u>Population Index</u>	<u>Standard Error</u>	
1978	188,582	± 23,948	(± 12.7%)
1979	203,574	± 24,968	(± 12.1%)
1980	254,417	± 51,738	(± 20.3%)
1981	248,882	± 31,957	(± 12.8%)
1982	347,996	± 33,353	(± 9.6%)
1983	306,316	± 21,257	(± 6.9%)
1984	222,710	± 17,466	(± 7.8%)
1985	378,127	± 34,230	(± 9.1%)
1986	317,025	± 32,461	(± 10.2%)
1987	383,581	± 53,508	(± 13.9%)
1988	386,853	± 35,775	(± 9.2%)
1989	391,353	± 44,066	(± 11.2%)
1990	385,950	± 40,585	(± 10.5%)
1991	297,831	± 27,551	(± 9.2%)
1992	257,709	± 24,551	(± 9.5%)
1993	253,799	± 29,896	(± 11.2%)
1994	395,543	± 40,430	(± 10.2%)
1995	273,376	± 30,316	(± 11.1%)
1996	318,514	± 36,182	(± 11.3%)
1997	350,932	± 58,925	(± 16.7%)
1998	337,203	± 39,505	(± 11.7%)
1999	219,794	± 32,164	(± 14.6%)
2000	484,585	± 57,598	(± 11.9%)
2001	387,336	± 47,679	(± 12.3%)
2002	309,029	± 34,399	(± 11.1%)
2003	300,918	± 32,869	(± 10.9%)
2004	365,370	± 31,001	(± 8.5%)

Table 3. Results of ocular transect survey with photo correction fo for Mid-Continent Sandhill Cranes in the central Platte Valley of Nebraska during the coordinanted spring surveys.

<u>YEAR</u>	<u>Population Index</u>	<u>Standard Error</u>	
1982	417,263	± 42,331	(± 10.1%)
1983	343,378	± 31,674	(± 9.2%)
1984	261,802	± 24,198	(± 9.2%)
1985	514,763	± 49,650	(± 9.6%)
1986	353,040	± 37,340	(± 10.6%)
1987	416,058	± 65,588	(± 15.7%)
1988	463,457	± 53,213	(± 11.4%)
1989	391,995	± 51,349	(± 13.0%)
1990	412,154	± 50,496	(± 12.2%)
1991	340,645	± 33,897	(± 10.0%)
1992	406,457	± 50,644	(± 12.4%)
1993	378,883	± 50,454	(± 13.3%)
1994	477,215	± 50,910	(± 10.7%)
1995	326,181	± 35,256	(± 10.8%)
1996	519,984	± 62,582	(± 12.0%)
1997	534,630	± 86,889	(± 16.2%)
1998	530,848	± 79,164	(± 14.9%)
1999	284,858	± 35,599	(± 12.5%)
2000	490,118	± 71,754	(± 14.6%)
2001	413,498	± 64,221	(± 15.5%)
2002	315,044	± 42,218	(± 13.4%)
2003	348,023	± 41,263	(± 11.9%)
2004	426,534	± 43,337	(± 10.2%)

Table 4. Coordinated spring Mid-Continent Sandhill Crane survey effort by state - 2004.

<u>State</u>	<u>Date</u>	<u>Coverage Means</u>		<u>Effort</u> (Miles) Air/Gnd.	<u>Observer Affiliation</u>		
		Aircraft	Ground		Federal	State	Volunteer
ND*	23 March 2004	1	9	500/520	8	5	-
SD*	23 March 2004	-	?	- /?	12	5	-
NE	22-25 March 2004	1	12	700/1000	1	11	-
KS	22-23 March 2004	-	9	- / 294	0	6	4
TX	23 March 2004	-	6	- /1095	0	6	-
Total		2	36	1200/2900	21	40	4

* Monitors for over flights on or prior to scheduled survey date.

Figure 1. Annual and three-year average photo-corrected ocular transect spring population indices and population objective thresholds for Mid-Continent sandhill cranes.

