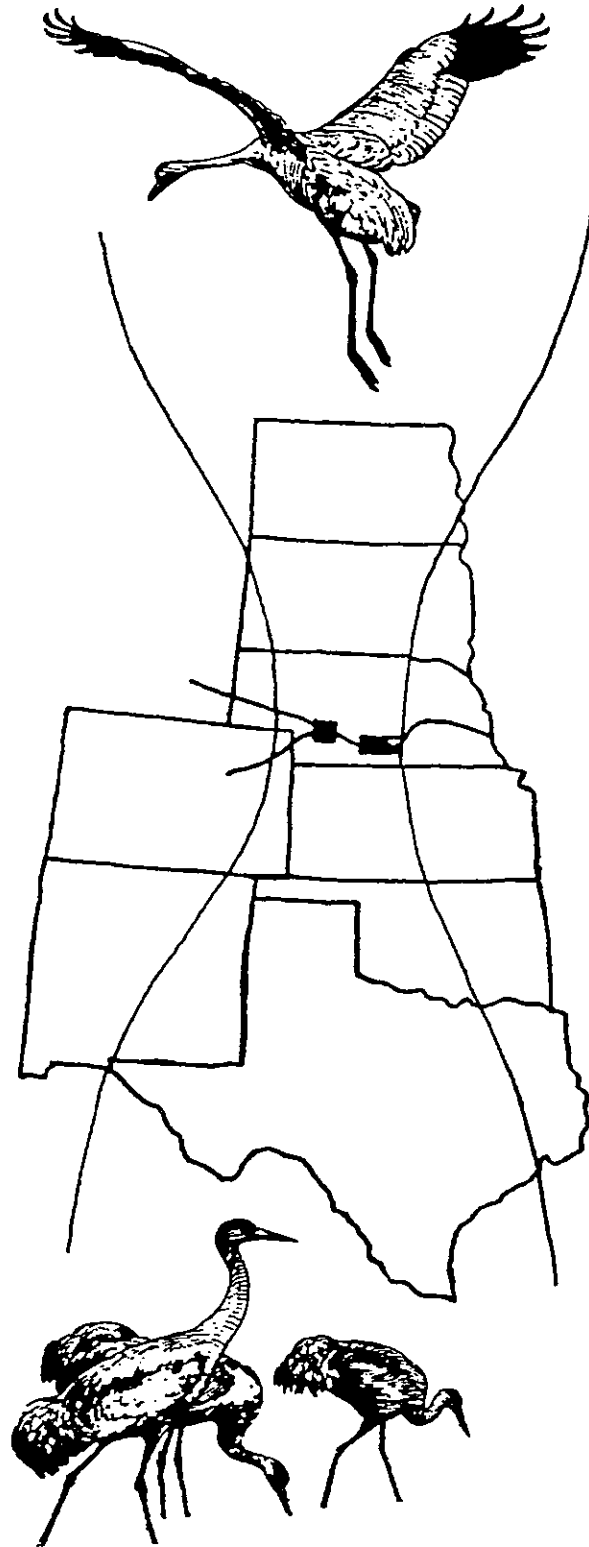


COORDINATED SPRING MID-CONTINENT SANDHILL CRANE SURVEY

1990



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COORDINATED SPRING MID-CONTINENT SANDHILL CRANE SURVEY

SURVEY DATES: 27-28 March 1990

SURVEY PERSONNEL:

Aerial Survey

Observer/pilot - John W. Solberg, USFWS, MBMO, Kearney, NE
Observer - James S. Walter, USFWS, MBMO, LaCrosse, WI
Photographer - Bruce Hanson, USFWS, NPWRC, Jamestown, ND

Ground Surveys - Areas and Coordinators

North Dakota - S. Kohn (NDGFD) - John Cornely (USFWS)
South Dakota - S. Vaa (SDGFP) - John Cornely (USFWS)
Nebraska - J. Gabig (NGPC) - John Cornely (USFWS)
Kansas - M. Kraft (KDWP) - John Cornely (USFWS)
Texas - R. George (TPWD) - Jeff Haskins (USFWS)

ABSTRACT: The 1990 coordinated spring mid-continent (MC) sandhill crane survey was conducted 27-28 March 1990 with no procedural changes from 1989. The aerial survey, conducted in Nebraska's Platte River Valley, yielded an estimated 412,154 (photo corrected) sandhill cranes. Cranes reported in Kansas and Texas (15,590) reached their highest level since 1981. No significant overflights of cranes were observed in South or North Dakota on or prior to the survey date. The combined observations (aerial portions plus all ground counts observed in the Official Survey Area - OSA) totaled 438,694 birds. This index represents an 11% increase from the 1989 figure and is slightly above the previous 3-year (1987-1989) average.

METHODS: Methods used during the 1990 coordinated survey were similar to those used in 1989 and included the coverage changes adopted by the Central Flyway - CMU in 1985. Ground portions of the survey were conducted by various field personnel and coordinated by state and federal individuals (Table 4). Observations were forwarded to the Flyway Biologist (Kearney, NE) for inclusion in the final report. The aerial portion of the survey was completed by USFWS personnel and continued to utilize an ocular, line transect sampling scheme. Coverage is divided into 10 strata sampled at a rate of approximately 25%. The survey employed, for the ninth consecutive year, subsampling of crane flocks using 35mm oblique photography. The photos are used to quantify flock estimate errors and provide observer specific correction factors. Correction factors are applied to the aerial portion of the coordinated effort which has provided the major component (72-99%) of the Mid-Continent Sandhill Crane index in past years.

Elsewhere in the flyway, survey conditions varied. In Texas, dry conditions were reported generally although it was noted that most alkaline lakes held shallow water. Temperatures were cool (35^o-45^o) with overcast skies and some fog and showers encountered.

In Kansas (Quivira NWR), water units were at optimum levels. Cool temperatures (40's) were coupled with partly cloudy skies and light (5-10 mph) winds.

In the Dakotas, sky, temperature, and winds were good for conducting surveys. Both states were essentially snowless and the continued depressed wetlands were generally ice-free south of Interstate 94 (ND).

RESULTS: The 1990 combined estimate of Mid-Continent Sandhill Cranes was 438,694 (Table 1). Included are 412,154 aerially counted birds (photo corrected) plus an additional 10,950 birds observed in Nebraska (outside the area of aerial coverage), Kansas (5,250), and Texas (10,340). The 1990 index increased 11% from the 1989 figure and provided no change (+3%) from the 1987-89, 3-year average of 427,000. Tables 2 and 3 present aerial indices and standard errors for all years of ocular transect survey design. These tables reflect the initiation of photo correction in 1982.

DISCUSSION: Although first sightings in Nebraska in 1990 were 2-3 weeks earlier than normal (similar to 1989), flocked birds arrived "typically" in the 10-15 February period. Crane numbers increased through March. Major departures from the state were observed during the first few days of April.

Reports from North and South Dakota on or prior to the survey date provided only about 100 birds. The first sizeable flocks of cranes in South and North Dakota were recorded on 3 and 4 April respectively. This information further supports the early April Nebraska departure observations. Dakota coordinators believed there had been no significant immigration or overflight prior to 3/27.

The combined ground counts from Kansas and Texas yielded 15,590 birds. This was the highest contribution to the index since 1981. Although only 3-4% (KS & TX) of the total index was recorded south of Nebraska, and with knowledge that migration from Nebraska and into the Dakotas did not begin until early April, it appears that the survey may have been slightly early.

Cool temperatures and strong winds during the aerial portion of the survey were not conducive to soaring. Few soaring birds were observed by the aerial crew. Furthermore, flock sizes seemed more numerous but smaller than during the 1989 effort. Although extremely labor intensive, the aerial photography aspect of the operation continues to lend itself by allowing us to make statements of precision.

Table 1. Distribution of sandhill cranes within the mid-continent region during the coordinated spring survey, 1974-90.

| DATE | ND ⁵ | SD ⁵ | NEBRASKA | | | | KS | CO ⁶ | OK ⁶ | NM ⁶ | TX | TOTAL | | |
|--------------|-----------------|-----------------|------------------------------------|-----------------|----------------------------------|----------------------|-------|-----------------|-----------------|-----------------|---------|---------------------------------------|-------------------------------|-----------------------------------|
| | | | Central Platte Valley ¹ | | Other | | | | | | | NE other KS, OK, CO, NM, and TX plus: | | |
| | | | Ocular cruise | Ocular transect | Ocular trans. w/photo correction | Vert. photo transect | | | | | | Ocular cruise | Ocular transect (uncorrected) | Ocular transect (photo corrected) |
| 3/24-31/74 | 0 | 0 | 162,600(97%) ⁴ | - | - | 9,000 | - | 400 | - | 3,200 | 177,100 | - | - | |
| 3/25-30/75 | 0 | 0 | 223,600(98%) | - | - | 2,300 | 500 | 100 | 100 | Tr | 227,500 | - | - | |
| 3/22-26/76 | - ² | 0 | 147,500(97%) | - | - | 2,800 | - | 100 | 1,000 | 800 | 152,500 | - | - | |
| 3/13-23/77 | 0 | 300 | 173,400(79%) | - | - | 1,100 | - | 400 | 12,500 | 30,700 | 220,000 | - | - | |
| 3/20-24/78 | - | 0 | 149,800(94%) | 188,600(95%) | - | 2,200 | - | - | 2,300 | 4,900 | 159,900 | 198,700 | - | |
| 3/20-29/79 | 0 | 0 | 203,600(97%) | - | - | 2,600 | 500 | 1,500 | 0 | 0 | - | 209,300 | - | |
| 3/24-4/15/80 | Tr ³ | - | 223,400(95%) | 254,400(96%) | - | 5,000 | 0 | 100 | 500 | 1,400 | 234,500 | 265,500 | - | |
| 3/22-28/81 | 0 | 0 | 248,900(86%) | - | - | 8,300 | 500 | 0 | 0 | 21,800 | - | 290,400 | - | |
| 3/22-27/82 | 0 | Tr | 348,000(95%) | 417,300(95%) | 490,100(96%) | 7,100 | 2,800 | 0 | 0 | 7,800 | - | 367,800 | - | |
| 3/25-26/83 | 0 | 0 | 306,300(96%) | 343,400(97%) | - | 4,100 | 0 | 200 | 0 | 7,000 | - | 317,800 | - | |
| 3/25-30/84 | 0 | Tr | 222,710(91%) | 261,800(93%) | - | 18,100 | - | 1,100 | Tr | 800 | - | 243,600 | - | |
| 3/25-26/85 | - | - | 378,127(72%) | 514,763(97%) | - | 11,500 | - | - | - | 1,200 | - | 390,700 | - | |
| 3/25-26/86 | Tr | Tr | 317,025(89%) | 353,040(99%) | - | 1,000 | - | - | - | 2,100 | - | 320,325 | - | |
| 3/24-26/87 | 0 | 0 | 383,581(92%) | 416,058(100%) | - | - | - | - | - | 350 | - | 383,931 | - | |
| 3/21-25/88 | 0 | 0 | 386,853(87%) | 463,457(98%) | - | - | - | - | - | 7,730 | - | 394,583 | - | |
| 3/28-29/89 | 0 | 200 | 391,353(99%) | 391,995(100%) | - | 100 | - | - | - | 800 | - | 393,253 | - | |
| 3/27-28/90 | Tr | Tr | 385,950(88%) | 412,154(94%) | - | 10,950 | - | - | - | 10,340 | - | 412,490 | - | |

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

²/No survey.

³/Less than 50.

⁴/Percent of total H-C population index.

⁵/Crane sightings for North and South Dakota from 1985 and later are noted (overflight monitoring purposes) but not included in totals.

⁶/CO, OK, NM were eliminated from the official Survey Area in 1985 by the Central Flyway CRU.

Table 4. Coordinated spring mid-continent sandhill crane survey participation by state - 1990.

| | Survey Dates | No. of Aircraft | No. of Auto's | Miles Covered Air/Auto | No. of observers Federal | State |
|---------------|------------------|-----------------|---------------|------------------------|--------------------------|-------|
| North Dakota* | 27 March 1990 | - | 1 | -/250 | 1 | - |
| South Dakota* | 27 March 1990 | - | - | -/ - | 3 | - |
| Nebraska | 26-28 March 1990 | 1 | 11 | 900/1030 | 4 | 9 |
| Kansas | 27 March 1990 | - | 3 | -/ 75 | 3 | - |
| Texas | 27 March 1990 | - | 2 | -/330 | 3 | - |
| Total | | 1 | 25 | 900/1685 | 14 | 9 |

*Monitors for overflights on or prior to scheduled survey date.

Coordinated Spring Mid-Continent Sandhill Crane Survey

Distribution

| | |
|--|----|
| Central Management Unit Technical Committee | 11 |
| Chief, MBMO, Washington, D.C. | 1 |
| Chief, Branch of Operations, MBMO, Washington, D.C. | 1 |
| Central Flyway Representative, Golden, CO | 1 |
| Chief, Branch of Surveys, MBMO, Laurel, MD | 1 |
| Wildlife Biologist, Waterfowl Harvest Surveys, MBMO, Laurel, MD | 1 |
| Chief, Section of Waterfowl Population Surveys, Portland, OR | 1 |
| Flyway Biologists, MBMO, Laurel, MD | 4 |
| Flyway Biologist, MBMO, La Crosse, WI | 1 |
| Flyway Biologists, MBMO, Lafayette, LA | 2 |
| Flyway Biologist, MBMO, Golden, CO | 1 |
| Project Leader, Waterfowl Investigations, USFWS, Juneau, AK | 1 |
| Region 6 - USFWS (Regional Director and Migratory Bird Coordinator) | 2 |
| Region 2 - USFWS (Regional Director and Migratory Bird Coordinator) | 2 |
| Region 7 - USFWS (Regional Director and Migratory Bird Coordinator) | 2 |
| Project Leader, Rainwater Basin WMD, Kearney, NE | 1 |
| Whooping Crane Coordinator, USFWS, Albuquerque, NM | 1 |
| Director, Northern Prairie Wildlife Research Center, Jamestown, ND | 1 |
| Doug Johnson, Northern Prairie Wildlife Research Center, Jamestown, ND | 1 |
| Gary Krapu, Northern Prairie Wildlife Research Center, Jamestown, ND | 1 |
| State Supervisor, FWE, USFWS, Grand Island, NE | 1 |
| Nick Lyman, Nebraska Game & Parks Commission, North Platte, NE | 1 |
| Director, Western and Northern Region, CWS, Edmonton, AB | 1 |
| Population Management Biologist, CWS, Saskatoon, SK | 1 |
| Jack Smith, CWS, Saskatoon, SK | 1 |
| Librarian, CWS, Saskatoon, SK | 1 |
| Provincial Waterfowl Biologist, Winnipeg, MB | 1 |
| Provincial Waterfowl Biologist, Saskatoon, SK | 1 |
| Provincial Waterfowl Biologist, Edmonton, AB | 1 |
| Gary Lingle, Platte River Trust, Grand Island, NE | 1 |
| Ken Strom, National Audubon Society, Gibbon, NE | 1 |
| Richard S. Miller, Yale University, New Haven, CT | 1 |