


MINNESOTA SANDHILL CRANE REPORT

1978



Minnesota
Department of
Natural
Resources

Results of an Observation Card Survey for
Eastern Greater Sandhill Cranes in Minnesota for 1978

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Section of Wildlife
Division of Fish and Wildlife
Department of Natural Resources
390 Centennial Building
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Acknowledgments

This survey was first proposed by Area Wildlife Manager Larry Bernhoft at Baudette, and it represents an inter-agency effort involving persons from the United States Fish and Wildlife Service, The Nature Conservancy, the United States Soil Conservation Service, and the Department of Natural Resources. Within the Department of Natural Resources, field personnel from the Divisions of Forestry, Ecological Services, Enforcement and Fish and Wildlife all submitted sighting data. Grateful appreciation is extended to everyone who contributed crane sighting cards and to the various agency managers who facilitated the coordination and implementation of this extensive effort. A list of persons who submitted crane observation cards is included in Appendix 1

Methods

In 1977, the Minnesota Department of Natural Resources initiated a nongame wildlife program within the Division of Fish and Wildlife. One of the first goals of that program has been to assess the current status and distribution of the greater sandhill crane in Minnesota so that appropriate research and management efforts can be directed toward this important species as more nongame funding becomes available.

An observation program was established in cooperation with field personnel of the Department of Natural Resources, United States Fish and Wildlife Service, and the Nature Conservancy. Observers were supplied with key-sort observation cards to fill out each time that cranes were observed. They were instructed to submit completed cards to the nongame supervisor in St. Paul on May 1, August 1, and December 1. A copy of the card and the accompanying instructions are given in Appendix 2.

Results

Cooperation has been excellent in the second year of this program's operation. Observers have submitted 147 crane observation cards and reported seeing a total of 1,545 cranes in 1978. During the spring migration period in March and April there were 30 sightings totaling 552 birds. From May through August, there were 112 sightings totaling 498 cranes, and in September and October there were seven sightings totaling 495 cranes. The statewide distribution of sightings of summer resident cranes for 1977 and 1978 is shown in Figure 1 by township.

The 1978 statistics show an increase in the total number of sightings from 133 in 1977 to 147 in 1978. The total number of cranes seen was down from 4,182 to 1,545, but most of this decrease was due to fewer migrants being reported in the fall. From May through August the total number of sightings increased from 105 to 112, but the number of cranes observed decreased from 656 to 498.

Table 1. Summary of resident sandhill cranes observed in northwest Minnesota in 1977 and 1978, by county.

County	Northwest Population					
	Breeding Pairs		Young		Nonbreeders	
	1977	1978	1977	1978	1977	1978
Becker	0	0	0	0	0	0
Beltrami	17	4	18	4	55	3
Lake of the Woods	6	7	2	2	0	16
Mahnomen	0	0	0	0	0	0
Marshall	15	26	7	11	23	16
Kittson	1	3	1	5	15	75
Pennington		4	2	1	0	1
Polk	2	1	1	1	12	0
Roseau	<u>19</u>	<u>23</u>	<u>18</u>	<u>13</u>	<u>84</u>	<u>158</u>
	61	68	49	37	189	269

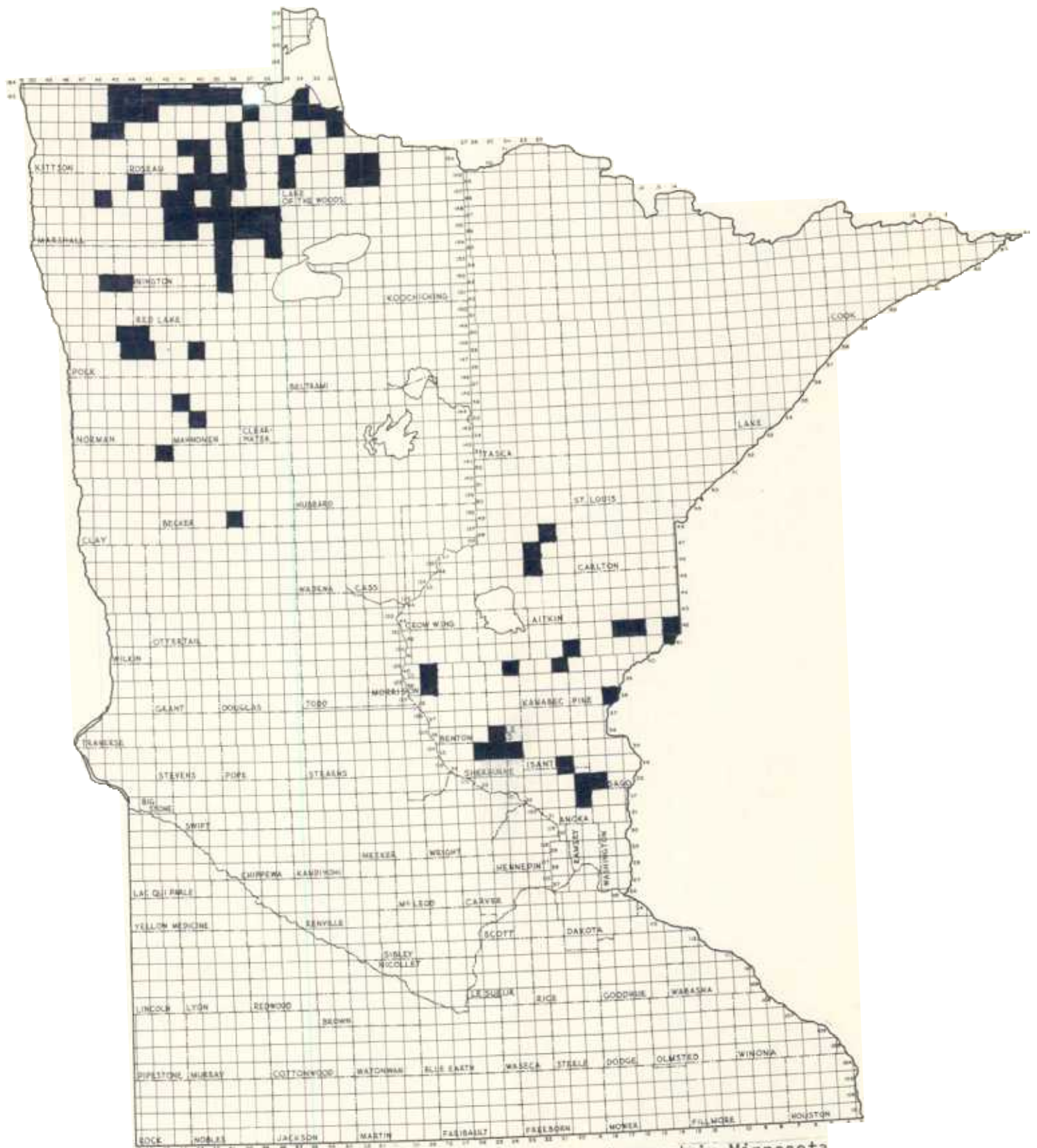


Figure 1. Location of sandhill cranes observed in Minnesota from May through August, 1977 and 1978.

Discussion

Breeding greater sandhill cranes now occur in Minnesota in at least fourteen counties in two separate regions: the northwest and the east central. In the northwest region cranes nest in Beltrami, Lake of the Woods, Marshall, Kittson, Pennington, Polk, and Roseau Counties. Some cranes are also expected to nest in western Koochiching County. Sightings documented the occurrence of 68 breeding pairs which produced at least 37 young. Nonbreeding birds present through the summer totaled 269, so the total fall count of resident cranes in the northwest would be a minimum of 375.

These figures compare with 61 pairs which produced at least 49 young in 1977. The number of nonbreeders increased from 189 in 1977 to 269 in 1978. The increased number of nonbreeders seen left the total fall count relatively unchanged from last year -- an increase from 360 to 375.

Since much of the sandhill crane nesting habitat in the northwest is in inaccessible bog country, the actual fall population could easily range from 500 to 1000 resident birds. A summary of the cranes observed by county in 1977 and 1978 is shown in Table 1.

A breeding population of sandhill cranes also occurs in seven counties of east central Minnesota. These counties include Anoka, Aitkin, Kanabec, Mille Lacs, Morrison, Pine, and Sherburne. Observers reported seeing 19 breeding pairs which produced 9 young, and 8 nonbreeding birds were also seen. The total fall count would then be 55 sandhill cranes.

As with the northwest, there was an increase in the number of breeding pairs observed, from 15 to 19, but the number of young observed decreased from 12 to 9. The total fall count was 54 in 1977 and 55 in 1978.

If 25 percent to 50 percent of the cranes present were observed, as was assumed for the northwest, then the total east central population could contain from 100 to 200 sandhill cranes. A summary of the observations for the east central counties is given in Table 2.

2. Summary of resident sandhill cranes observed in east central Minnesota in 1977 and 1978, by county.

East Central Population

<u>County</u>	Breeding Pairs		Young		Nonbreeders	
	<u>1977</u>	<u>1978</u>	<u>1977</u>	<u>1978</u>	<u>1977</u>	<u>1978</u>
Anoka	2	3	2	1	6	1
Aitkin	2	4	3	3	0	2
Chisago	0	0	0	0	0	0
Kanabec			0	0	0	0
Mille Lacs	2	0	2	0	0	0
Morrison	5	0	3	0	0	0
	2	6	1	0	0	0
Sherburne	<u>1</u>	<u>5</u>	<u>1</u>	<u>5</u>	<u>6</u>	<u>5</u>
	15	19	12	9	12	8

The total number of sandhill cranes breeding in the state was at least 87 pairs which produced at least 46 young. In 1977, at least 76 pairs produced 61 young. A total of 277 nonbreeding birds were seen in 1978, and 201 were seen in 1977.

The productivity of the crane pairs is difficult to assess, but if only the pair sightings are considered from June 1 to August 31, the following pattern emerges. In 1978, 46 pairs were seen from June 1 to August 31. No young were observed with 18 pairs, although they could have been present. This is 38 percent of the total pairs. One young was seen with 15 pairs. This is 33 percent of the total. Two young were observed with 13 pairs. This is 29 percent of the total crane pairs. The mean productivity was 0.82 young per nesting pair.

The actual number of resident sandhill cranes in Minnesota possibly ranged from 150 to 300 breeding pairs which produced from 150 to 300 young. The number of nonbreeders in 1978 is estimated at 300 to 600, for a total fall population of 600 to 1200 birds. This estimate is unchanged from 1977.

HABITAT USE

Crane observation cards contained space and instructions for reporting both the cover type and land use for each observation. A numbered and lettered key was provided on the back of the card. Items on the key are as follows:

<u>Cover Type</u>	<u>Land Use</u>
1. Row crop - give crop	A. Natural State
2. Small grain - give crop	B. Recently burned
3. Hayfield/Alfalfa	C. Grazed
4. Upland Prairie	D. Mowed
5. Improved pasture	E. Disked
6. Old field	F. Plowed
7. Fen/wet meadow	G. Harvested
8. Marsh - Type 1, 2, 3, 4	H. Other - give details
9. Open lake	
10. River	
11. Other - give details	

For purposes of analysis the reports were separated into four periods -- March through April, May through July, August, and September through October. Results of the habitat use analysis are given in Table 3.

Table 3. Number of Sandhill Cranes Observed by Habitat Type and Season

	Mar-Apr.		May-July		August		Sept.-Oct.		Total	
	1977	1978	1977	1978	1977	1978	1977	1978	1977	1978
1. Row Crops										
Corn stubble	531	1	0	7	0	0	0	0	531	8
2. Small Grain										
Wheat	300	79	23	15	11	123	754	51	1088	268
Oats	0	2	5	0	112	4	750	0	867	6
Other	<u>7</u>	<u>79</u>	<u>25</u>	<u>37</u>	<u>14</u>	<u>138</u>	<u>0</u>	<u>10</u>	<u>46</u>	<u>264</u>
Subtotal	307	164	53	52	137	265	1504	61	2001	538
3. Grassland										
Alfalfa	8	6	13	38	9	43	600	3	630	90
Prairie	0	103	16	9	0	8	0	30	16	150
Improved pasture	0	1	2	6	53	3	0	0	55	10
Summer fallow (old-field)	<u>2</u>	<u>1</u>	<u>9</u>	<u>49</u>	<u>18</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>29</u>	<u>50</u>
Subtotal	10	111	40	102	80	54	600	33	730	300
4. Wet Meadow										
	503	5	25	32	45	11	0	1	573	49
5. Marsh										
Type 1	0	4	0	5	15	0	0	0	15	9
Type 2	0	0	9	0	4	0	8	0	21	0
Type 3	0	0	6	2	0	3	0	0	6	5
Type 4	0	3	0	3	1	0	0	0	1	6
Unspecified	<u>11</u>	<u>41</u>	<u>97</u>	<u>16</u>	<u>31</u>	<u>3</u>	<u>43</u>	<u>0</u>	<u>182</u>	<u>60</u>
Subtotal	11	48	112	26	51	6	51	0	225	80
6. River										
	1	0	2	5	3	0	0	0	6	5
7. Other										
	0	30	11	3	10	0	0	0	21	33
TOTAL	1363	355	243	227	326	336	2155	95	4087	1013

March through April

Habitat types were reported for observations of 355 cranes from March through April. The three major habitat types used in that period were hayland, prairie, pasture, and old field (31 percent), small grain (46 percent), and wet meadows and marsh (15 percent).

May through July

Habitat types were reported for observations of 227 cranes from May through July. The three major habitat types used in that period were hayland, prairie, pasture, and old field (45 percent), small grain (23 percent), wet meadow/marsh (25 percent). As the nesting season proceeded the habitat use shifted away from small grain to nesting areas in wet meadows and marshes.

August

A substantial change occurred in August as the cranes emerged from their nesting marshes to begin feeding in small grain fields of wheat, oats, rye, and barley. Observations of 265 cranes in small grain fields accounted for 79 percent of all sightings in August. Grassland sightings decreased to 16 percent of all sightings, and wet meadow/marshland sightings accounted for only 5 percent of all sightings.

September-October

Relatively few cranes were reported for the period from September through October. Cranes in small grain fields accounted for 64 percent of all sightings, and cranes in grasslands accounted for 35 percent of the sightings.

Land Ownership

A summary of the land ownership status of Minnesota's sandhill crane habitat is given in Table 4. The amount of this land in public ownership holds the key to the future of this species in the state. Ruthless clearing and draining of privately owned crane habitat in northwest Minnesota means that this private

habitat will probably be gone in another ten years. Forty-three percent of the crane sightings in 1977 and 36 percent of the crane sightings in 1978 were on private lands. Much of this use is on small grain fields that have already been converted to agricultural purposes. Current encroachment into wet, marshy areas is destroying the nesting sites necessary for the cranes' survival

Most cranes, 54 percent, were seen on state-owned Wildlife Management Areas and another 18 percent were on private lands within one mile of Wildlife Management Areas. Eight percent of the cranes were on National Wildlife Refuges, and about three percent were either on or adjacent to Conservation Area or Trust Fund lands. The value of these lands for cranes is undoubtedly much greater than the statistics indicate because these lands frequently do not have good access to allow observations. These lands need to be designated as Wildlife Management Areas to insure the future of viable sandhill crane populations in Minnesota.

This will also provide the additional potential of protecting habitat that one day may support whooping cranes. Manitoba is interested in restoring whooping cranes by switching whooper eggs into sandhill crane nests. The Manitoba crane range is contiguous with that range in Minnesota. Therefore, if the project is successful, whooping cranes could be expected to pioneer into this state eventually.

In the northwest, the most important publicly-owned crane habitats are in the Roseau River Wildlife Management Area, the Red Lake Wildlife Management Area, Beltrami Island State Forest, Eckvoll Wildlife Management Area, and Agassiz National Wildlife Refuge.

The most important publicly-owned crane habitats for the east-central population are the Carlos Avery Wildlife Management Area, Mille Lacs Wildlife Management Area, Rice Lake National Wildlife Refuge, Sherburne National Wildlife Refuge, and the Grayling Wildlife Management Area. Other cranes are found in the vicinity of the St. Croix State Forest, Rice-Skunk Wildlife Management Area, and Kunkel Wildlife Management Area. Several other breeding pair territories are found on private lands in Morrison County and Pine County.

Table 4. Land Ownership of Sandhill Crane Habitat,
Statewide Composition

	Total Cranes		Percent of Total	
	1977	1978	1977	1978
<u>Public or Protected Lands</u>				
Federal NWR	47	31	1	8
State WMA	122	222	29	54
Trust Fund Lands	12	3	4	1
Conservation Area Lands	39	1	9	Tr.
TNC Lands	19	2	5	Tr.
State Forest Lands	0	2	0	Tr
<u>Private Lands</u>				
Adjacent to WMA	77	13	18	3
Adjacent to Trust Fund Lands	3	2	1	Tr.
Adjacent to Conservation Area Lands	13	7	3	2
Other Private Land	84	128	20	31
Private Land Subtotal	<u>177</u>	<u>150</u>	<u>43</u>	36
TOTAL	416	411	100	99

Summary

The status of the eastern greater sandhill crane in Minnesota seems stable at present according to data collected in 1977 and 1978, but land clearing in the northwest may initiate a permanent decline as privately-owned marshy nesting areas are destroyed

More field research and field surveys are now necessary to enhance the value of the data that have been collected by this observation card survey.

The future of the sandhills in Minnesota lies with the future of our public marshlands in crane range. The biggest opportunity to benefit this species currently depends on designating the Conservation and Trust Fund lands as Wildlife Management Areas.

Appendix 1

Persons who Submitted Crane Observation Cards:

United States Fish and Wildlife Service

Richard Schultz, Rice Lake NWR
Larry Hanson, Detroit Lakes WMD
Sarah Vasse, Agassiz NWR
K. Kenow, Sherburne NWR
T. Larson, Sherburne NWR
R. Johnson, Sherburne NWR
S. Williamson, Sherburne NWR
P. Dunham, Sherburne NWR
G. Wold, Sherburne NWR
Ron Bell, Agassiz NWR
Nault, Agassiz NWR
J. Alderson, Agassiz NWR

Division of Enforcement - DNR

Don Fearn, Thief River Falls
Paul Hoppe, Mora

Section of Wildlife - DNR

Dave Dickey, Aitkin
Stan Van Epps, Aitkin
Lloyd Knudson, Carlos Avery WMA
Walt Rohl, Carlos Avery WMA
Arlin Anderson, Lac qui Parle WMA
John Beech, Talcot Lake WMA
Larry Bernhoft, Baudette
Jeff Dittrich, Baudette
Bob Bohm, Thief Lake WMA
Phil Watt, Red Lake WMA
Terry Wolfe, Crookston
Lee Hemness, Hinckley
Glenn Fladmark, Crookston
Rod Kyar, Crookston
Al Berner, Madelia
Gary Ammius, Madelia
Kim Hennings, St. Paul
Jon Parker, St. Paul
Gordy Forester, St. Paul
Gerald Maertens, Thief Lake WMA
Frank Swendsen, Thief Lake WMA
Gary Lane, Thief River WMA
George Davis, Karlstad
G. T. Jolle, Thief River Falls

Minnesota Environmental Education Board

Howard Teague, Bemidji

Fergus Falls Audubon Club

Gary Otnes, Fergus Falls

Soil Conservation Service

Allan Gustafson, Thief River Falls
G.R. Hines, Thief River Falls

Manitoba Dept. of Renewable Resources

Robert Nero

Other Individuals

Robert B. Janssen
V. Vatthauer, Starbuck

Division of Forestry - DNR

Steve Morgan, Greenbush
Jim Fugleberg, Greenbush
John Stanton, Baudette
Jerry Langworthy, Eagle Head
Robert Ludwig, Eagle Head
Hockstedler, Warroad
Rick Olson, Wannaska
Greg Kvale, Wannaska

Division of Parks - DNR

Gladwin Lynne, Bronson Lake
Monte Gross, Bronson Lake

Ecological Services - DNR

LeRoy Dahlke, St. Paul
Gerry Gresening, St. Paul
Paul Renard, St. Paul
John Enblom, St. Paul
Steve Hanson, St. Paul

DEPARTMENT Natural Resources - Wildlife*Office Memorandum*

TO DNR Field Personnel and other Cooperators

DATE:

FROM Carol Henderson

PHONE: 3344

SUBJECT: Greater Sandhill Crane Observation Cards

One of the largest but least understood birds in Minnesota is the greater sandhill crane. A generation ago, it was extremely rare as a nesting species, but in recent years it has appeared to be making a modest comeback in a broad region that extends all the way from Roseau County to Anoka and Pine Counties.

Determination of the current distribution and status of the greater sandhill crane in Minnesota is one of the top priorities of the DNR's new non-game wildlife program. Your participation is critical to the success of this survey.

Please fill out a sandhill crane observation card for each occasion that cranes are seen or heard. Under the remarks section, you should also report the land ownership (federal, state, county, private) and the name of the landowner if nesting birds are involved. Cards should be filled out through each season and submitted to the address on the back of the card May 1, September 1, and December 1 of each year.

Negative information is also important. If you are certain that there are no nesting cranes in some townships or counties of your work area, list them and submit them to the non-game wildlife supervisor.

Sightings or nesting records from previous years should also be reported if they were not reported to the Minnesota Ornithologists' Union previously.

Periodic reports will be prepared concerning this survey and distributed to field personnel. Hopefully, it will help everyone understand how the few moments necessary to fill out these forms are an important contribution toward the continued recovery of this species in Minnesota.

CLH:pmt

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
P9	P8	MOUNTAIN	R5	R4	R3	R2	R1																			
SANDHILL CRANE OBSERVATION CARD																										
Minnesota Dept. of Natural Resources																										
DATE _____ TIME _____																										
COUNTY _____																										
SEC. _____ TWP. _____ RGE. _____																										
CRANES OBSERVED:																										
ADULTS _____																										
JUVENILES _____																										
UNKNOWN _____																										
TOTAL _____																										
COVER TYPE AND LAND USE (SEE BACK)																										
OBSERVATION MADE FROM:																										
CAR/TRUCK _____																										
AIRCRAFT _____																										
BOAT OR CANOE _____																										
ON FOOT _____																										
OTHER _____ (Specify)																										
REMARKS (Include whether birds were on breeding area or migrating)																										
OBSERVER: _____																										
HEADQUARTERS: _____																										

Cover Types*

1. Row crop — give crop
2. Small grain — give crop
3. Hayfield/Alfalfa
4. Upland prairie
5. Improved pasture
6. Old field
7. Fen/wet meadow
8. Marsh-type 1, 2, 3, or 4
9. Open lake
10. River
11. Other — give details

Land Use

- A. Natural state
- B. Recently burned
- C. Grazed
- D. Mowed
- E. Disked
- F. Plowed
- G. Harvested
- H. Other — give details

*Give dominant plant species and note presence of shrubs, stands of phragmites, or aspen islands.

RETURN COMPLETED FORMS ON MAY 1, AUGUST 1, AND DECEMBER 1 TO THE NON-GAME SUPERVISOR, SECTION OF WILDLIFE, DEPARTMENT OF NATURAL RESOURCES, 390 CENTENNIAL BUILDING, ST. PAUL, MINNESOTA 55155.

STATE ANIMAL RECORDS REQUESTED BY THE
DEPARTMENT OF NATURAL RESOURCES

One of the goals of the Department of Natural Resources nongame program is to learn more about the distribution and abundance of a variety of uncommon wildlife species. Minnesota Ornithologists' Union members can help by sending in their observations of the following species: cougar, lynx, bobcat, wolverine, pine marten, opossum, least weasel, long-tailed weasel, mule deer, pronghorn, Franklin's ground squirrel, Richardson's ground squirrel (flickertail), spotted skunk (civet cat), blue-tailed skink (known only from Redwood and Yellow Medicine Counties), massasauga (known only from Wabasha County), Blanding's turtle, false map turtle, wood turtle, common (redspotted) newt, red-backed salamander, six-lined racerunner, blue-spotted salamander, smooth green snake, and ring-necked snake. Observations should include the date, general location and habitat, species, number of individuals, section number (if known), township, range, county, and observer's name and address. Key identifying marks should also be described to help verify the record.