CENSUSING SOUTHERN MICHIGAN SANDHILL CRANES

BY LAWRENCE H. WALKINSHAW AND HAROLD F. WING

THE SANDHILL CRANE (*Grus canadensis tabida*) population in southern Michigan reached a low point during the middle 1930's. From that time to the present there has been a gradual increase. We conceived the idea that it was not impossible to census the cranes in southern Michigan, so we organized a group of cooperators during the winter of 1951–52 to carry on this work in the spring of 1952. A few cooperators under the leadership of Walkinshaw followed through during the 1953 and 1954 seasons. With three summers work completed, we have a much better idea of the marshes used.

METHODS OF STUDY

1. A list of all known crane marshes in southern Michigan was made.

2. Aerial photographs of all counties where marshes occurred were studied, and a series covering the known crane-inhabitated areas as well as those areas which appeared as possible nesting areas was purchased.

3. We prepared a concise one-page list of suggestions for cooperators. They were advised to communicate with property owners during the early spring and to determine the best access to their marshes. Most marshes were accessible only with hip-boots and the remainder only by boat. We tried mainly to select cooperators who were young or middle-aged men. We suggested that they condition themselves for the hard marsh work and that they search during the latter part of the nesting season, late April or early May, to prevent desertion of nests.

4. Each cooperator received a copy of the suggestions and, when necessary, an aerial photograph of his area and a county highway map.

5. Where obtained, records of migration were kept, including numbers of birds observed. Location and contents of nests were listed. If it was not possible to locate the nest, observers worked from some high spot near the marsh, if possible, to locate the approximate site of the unfound nest.

6. To prevent nest desertions, we tried to have only one person or one group working on each area so that there would be no chance of two people or groups going to one nest about the same time.

7. Through Dr. Donald Douglass, all of the Game Managers of the Michigan Conservation Department throughout southern Michigan reported their crane observations to us.

8. During August and September, counts were made on all areas to tally family sizes. During mid-October, the larger concentrations were observed and compared with the earlier counts. A few departure dates were recorded.

9. With many farmers, we discussed the rareness of the crane, its nesting and feeding habits, and the necessity for its protection, hoping to gain future benefits as we have in the past.

COOPERATORS AND AREAS COVERED

Thirty-eight people, plus the Rose Lake staff, helped us with this cooperative project as follows:

SANILAC COUNTY: Harold Tubbs, L. H. Walkinshaw, and Dale A. Zimmerman.

CLINTON COUNTY: Dr. and Mrs. C. T. Black and the Rose Lake staff, Arnold Boersma, R. H. Brocke, Marvin Cooley, Alvin Derke, Ed Kelly, Dr. Miles D. Pirnie, L. H. W., and John C. Watling.

BARRY COUNTY: H. Lewis Batts and L. H. W.

EATON COUNTY: Robert Cornell, Merrill Gilfillan, and L. H. W.

INGHAM COUNTY: Marvin Cooley, M. D. Pirnie, L. H. W., and Harold F. Wing.

LIVINGSTON COUNTY: Lawrence Camburn, Marvin Cooley, Dr. and Mrs. W. Powell Cottrille, Philip S. Humphrey, Holton Knisely, Douglas Middleton, Clarence Owens, Ralph O'Reilly, Clyde Van Gorder, L. H. W., and Robert Whiting.

LAPEER COUNTY: Martha Lengemann, L. H. W., Dale A. Zimmerman, and Dr. L. M. Zimmerman.

CALHOUN COUNTY: Robert Cornell and L. H. W.

JACKSON COUNTY: Leon Alger, Ralph Bailey, Robert S. Butsch, Dr. and Mrs. W. Powell Cottrille, Merrill Gilfillan, Ronald Mayer, Jack Mock, Clarence Owens, M. D. Pirnie, Gotlieb Rothman, Charles Shick, Loyal Walker, L. H. W., Eldon Whiteman, Robert Whiting, and H. F. Wing.

WASHTENAW COUNTY: Ralph Bailey, Andrew J. Berger, Dr. and Mrs. W. Powell Cottrille, Philip S. Humphrey, Clarence Owens, L. H. W., and H. F. W.

In addition Walkinshaw and Whiting reported on Cheboygan County; Clarence Owens and Walkinshaw on northern Hillsdale County; Martha Lengemann, Dale A., and Dr. L. M. Zimmerman on St. Clair County; and Oscar M. Bryens on St. Joseph County.

Dr. Donald Douglass and District Game Supervisors, Marvin Cooley, Ralph Bailey, Roy Semeyn, and Harold Tubbs of the Michigan Department of Conservation helped over many areas not covered by others.

The following land-owners also aided us in this study: Wynn Boyce, E. Clark, John Czapla, John Denton, Claire Frinkle, Dan Hall, Clayton Huggett, Louis Schumacher, and Charles Yoakam.

It is possible that some cranes might nest in the northern portion of the Lower Peninsula, but no records, except during migration, have come from this area for many years.

We would have liked to census the cranes of the Upper Peninsula but deemed it an impossible task. However, during 1952 Walkinshaw was in the Upper Peninsula from May 22 to 29, June 21 to 28, and August 29 to September 1. William Dyer was with him on the

second trip; Harold Wing on the third. During the May trip he found five crane's nests:

(1) Chippewa County, T45N, R5W, Section 22. May 22, 1952, two newly hatched young in nest.
(2) Chippewa County, T45N, R5W, Section 15. May 22, 1952, nest with two eggs.
(3) Luce County, T48N, R10W, on an island in Sleeper Lake. May 23, 1952, parent incubating eggs.
(4) Mackinac County, T44N, R9W, Section 3. May 24, 1952, nest with two eggs, one of which was pipped.
(5) Schoolcraft County, T47N, R13W, Section 19. May 28, 1952, remains of broken eggs in nest. In this same marsh William Dyer and Walkinshaw found a newly-hatched downy young June 23, 1952.

SPRING MIGRATION

When the crane concentration at Jasper-Pulaski Game Preserve in northern Indiana reaches its peak in late March and early April, apparently all southern Michigan cranes have been on territory for some time. On March 29, 1952, we counted 862 cranes at Jasper-Pulaski; on March 28, 1953, Mr. and Mrs. John Bunnell, Ida Suttman, and Jim and L. H. Walkinshaw counted 1019 cranes. Yet in 1953, the southern Michigan cranes had arrived on their respective marshes as early as March 2.

SOUTHERN MICHIGAN CENSUS RESULTS

With the exception of one group, all of the Sandhill Cranes were found in a somewhat diamond-shaped area in the south central part of the Lower Peninsula. The approximate distances along the sides of this diamond were 50, 44, 38, and 67 miles. The census of the different marshes is shown in Table 1.

RECENT INCREASE

In Jackson County, the Mud Lake and Portage marshes harbored ten pairs of breeding cranes during 1952 and the surrounding marshes 12 pairs, a total of 44 per cent of the southern Michigan population. During 1953, these areas harbored 18 pairs or 39 per cent of the population, and during 1954, 16 pairs or 37 per cent.

During 1935, covering the entire marsh on two different days, Walkinshaw found only one pair of cranes on the Mud Lake, Leoni Township, Jackson County marsh; on May 2, 1948, we found three nests with eggs; during 1952, five pairs nested there, and during 1953, six pairs; this was apparently down to four pairs in 1954. Twenty to twenty-two non-breeders spent the summer there in 1952; 11 to 12

TABLE 1

MICHIGAN AREAS SURVEYED AND TOTAL NUMBER OF CRANES FOUND

County, Township, and Sections	*1952*			*1953*			*1954*		
	Pairs	*Young*	*Non-breeding birds*	*Pairs*	*Young*	*Non-breeding birds*	*Pairs*	*Young*	*Non-breeding birds*
SANILAC COUNTY,									
(1) Watertown Twp. (T11N, R14E), Sects. 2, 11	1	1	0	0	0	0	0	0	0
CLINTON COUNTY									
(1) Victor Twp. (T6N, R1W), Sects. 32, 33	0	0 5		2	1 5		2	1	0
(2) Bath Twp. (T5N, R1W), Sect. 4	1	1		1	0		1	0	0
(3) Bath Twp. (T5N, R1W), Watling's Marsh, Sect. 14	1 N	0	0	1 N	2	0	1 N	2	1
(4) Bath Twp., Rose Lake, Sect. 26	1	1	0	1	0	0	1 2y	1	0
(5) Bath Twp., Grass Lake, Sects. 21, 28	2 N	3	0	1	2	4	1	2	0
(6) Bath Twp., Park Lake, Sects. 32, 33	1	1*	0	1	0	0	1	1	0
BARRY COUNTY									
(1) Johnstown Twp. (T1N, R8W), Sect. 24	1 N1e	0	0	1	2	0	1	1	0
EATON COUNTY									
(1) Bellevue Twp., Sect. 24 Walton Twp. (T1N, R5, 6W), Sect. 19	1	1	0	1	1	1	0	0	0
INGHAM COUNTY									
(1) Meridian Twp. (T4N, R1W), Lake Lansing, Sect. 2	1	?	0	0	0	0	0	0	0
LIVINGSTON COUNTY									
(1) Deerfield Twp. (T4N, R5E), Hoisington-Bennett Lakes, Sect. 1	1	0	2	1	1	0	1	1	1
(2) Iosco Twp. (T2N, R3E), Sect. 26	1 N2e 1y	1	0	1 N2e 1y	0	1S	1 N2e 1y	1	0

TABLE 1 (Continued)

County, Township, and Sections	*1952*			*1953*			*1954*		
	Pairs	*Young*	*Non-breeding birds*	*Pairs*	*Young*	*Non-breeding birds*	*Pairs*	*Young*	*Non-breeding birds*
LIVINGSTON COUNTY—Continued									
(3) Unadilla Twp. (T1N, R3E), McIntyre Lake, Sect. 31	2	1	0	1	2	0	1	2	6F
(4) Unadilla Twp. (T1N, R3E), Bass Lake, Sect. 25	2	2	5	1	1	2S	1	0	0
CALHOUN COUNTY									
(1) Pennfield Twp. (T1S, R7W), Sect. 12	1	0	0	0	0	0	0	0	0
(2) Convis Twp. (T1S, R6W), Mud Lake, Sect. 5	0	0	0	1	1	0	1	2	7F
(3) Convis Twp., B. W. Baker Sanct., Sects. 10, 11, 14, 15	2 N2e	1	1	2	1	3	2	1	4S 1F
(4) Convis Twp., Kinyon Lake, Sect. 12	1 N2e	0	1	1 N2e	0	0	1	0	0
(5) Marshall Twp. (T2S, R6W), Sect. 6	1	2	0	1 N2e	1	1	1	0	0
JACKSON COUNTY									
(1) Springport Twp. (T1S, R3W), Sects. 3, 10, 11, 15, 22, 23	3	3	5	4	2	5	3 N2e 1y	3	0
(2) Leoni Twp. (T2S, R1E), Mud Lake, Sect. 2	5 N2e N N 1y	3	22S 20F	6 N	4	12S 11F	4 N	5	13S 19F
(3) Waterloo Twp. (T1S, R2E), Big Portage Lake, Sects. 30, 31	1 Ne Ne	1	0	1	2	0	0	0	0
(4) Waterloo Twp., Little Portage L., Sects. 29, 32	0	0	0	0	0	0	1	1	0
(5) Waterloo Twp., 4-Lakes, Sect. 17	2 N2e	1	0	0	0	0	0	0	0

TABLE 1 (Continued)

County, Township, and Sections	*1952*			*1953*			*1954*		
	Pairs	*Young*	*Non-breeding birds*	*Pairs*	*Young*	*Non-breeding birds*	*Pairs*	*Young*	*Non-breeding birds*
JACKSON COUNTY—Continued									
(6) Waterloo Twp., Whitehead L., Sects. 2, 3, 10, 11	2	3	5	1 2y	2	0	2	1	4S
(7) Waterloo Twp., Merkle Lake-Schumacher Marsh, Sects. 14, 23	2	3	0	2	0	0	2	1	0
(8) Waterloo Twp., Portage Marsh Sects. 21, 22, 27, 28, 34	5 N2e	3	0	5 N2e	3	19S 15F	4 N	5	6S
(9) Waterloo Twp., Spring Lake, Sect. 35	1	1	0	1	1	0	1	2	0
(10) Waterloo Twp. (T2S, R2E), Sect. 3	1	0	7	0	0	0	0	0	0
(11) Hanover Twp. (T4S, R2W), Sects. 5, 8	1	1	2	1	1	2	1 N2e	1	0
(12) Grass Lake Twp., Sects. 22, 23; Norvell Twp. (T3S, R2E), Sect. 26, Bessey Lake	1	1	5	2	2	0	1 N1e	1	8
(13) Norvell Twp. (T3S, R2E), Sect. 33	?			?			1	0	0
WASHTENAW COUNTY									
(1) Lyndon Twp. (T1S, R3E), Boyce Lake, Sect. 8	1 1y	1	0	1 1y	1	0	1 N2e	1	0
(2) Lyndon Twp., Joslin Lake, Sect. 3		Unknown		1	2	6F	1	0	0
(3) Lyndon Twp., Sects. 9, 10, 11, 14	0	0	0	1	0	0	1	0	0
(4) Lima Twp., Sect. 4; Dexter Twp., Sect. 33, 4-Mile Lake (T1, 2S, R4E)	1	1	0	1 1y	2	0	1	1	21S
(5) Sylvan Twp. (T2S, R3E), Sect. 31	1	1	0	1	1	0	1	2	5
(6) Sharon Twp. (T3S, R3E), Sect. 8	1	1	2	1 N2e	1	7	1	0	0
SOUTHERN MICHIGAN TOTALS	49	39	62S 60F	47	39	62S 60F	43	39	63S 48F

Non-breeders in groups as found.

N—Nest (N2e—Nest and 2 eggs. These nests are recorded as observed, some we watched from the highway and did not go, preferring not to disturb the birds.)

y—young in or near nest. S—Spring; F—Fall; *—young bird known to have been shot by hunter.

in 1953; 13 to 19 in 1954. During 1952, one of the adults from a nest near the highway joined the non-breeders only 100 meters from the nest, at their roosting spot at night, a divergence from the normal behavior.

TABLE 2

SUMMARY OF SOUTHERN MICHIGAN SANDHILL CRANE COUNTS 1952–1954

	1952		*1953*		*1954*	
	Number	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Total spring count	160		156		149	
Breeding pairs	49*	61.25	47	60.26	43	57.72
Number of pairs producing no young	15	31.25	17	36.17	15	34.88
Number of pairs producing one young	27	56.25	21	44.68	17	39.53
Number of pairs producing two young	6	12.50	9	19.15	11	25.58
Total number of young produced	39		39		39	
Average number of young produced per pair	0.812		0.829		0.907	
Per cent of fall population which were breeders		49.74		48.71		49.71
Spring non-breeders	62		62		63	
Fall non-breeders	60		60		48	
Total fall count	197		193		173	

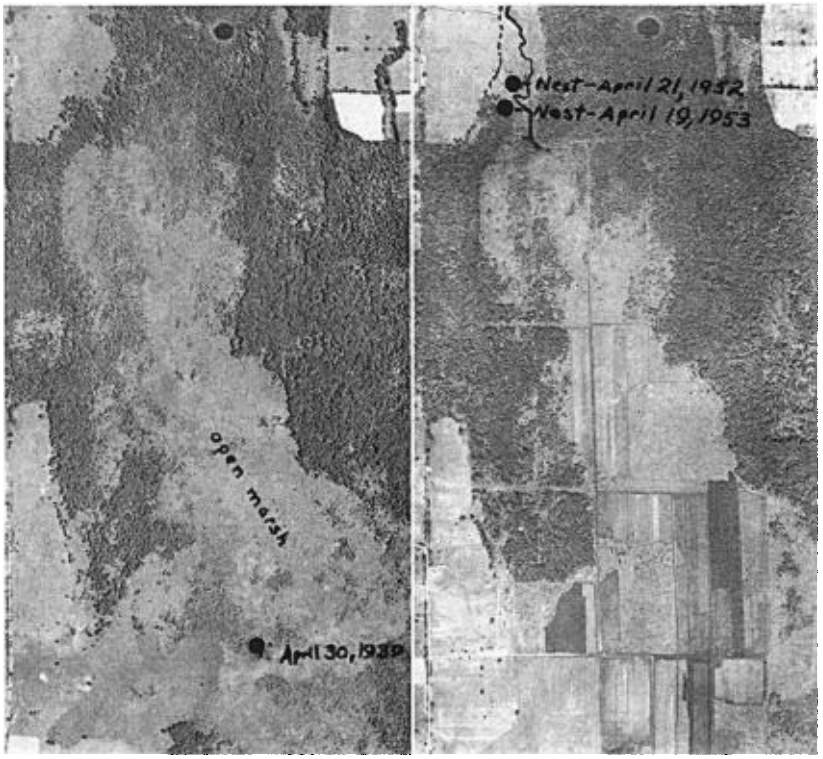
*—One pair in 1952 was not found in the fall so it was not known whether they produced any young or not.

Under breeding pairs the percentage listed was the per cent of total cranes found.

A similar increase has occurred at the Portage Marsh, Jackson County. Cranes have appeared for the first time in many smaller marshes throughout the crane-inhabitated area in the eight counties. In some, like Mud Lake, Convis Township, Calhoun County, they appeared during the 1930's, disappeared during the fall of 1951, then reappeared in 1953. Cranes first appeared at the Hoisington-Bennett Lake area, Livingston County during 1950; Bellevue, Eaton County, marsh during 1935; Kinyon Lake, Calhoun County during the 1940's; Marshall Township, Calhoun County, marsh during 1951; into new areas in Jackson County and Washtenaw County even in small marshy lake borders where people disturbed the birds very little. During the three summers, 38 marshes were used; 32 during 1952, 31 during 1953, and 31 during 1954.

AUTUMN MIGRATION

An indication of the recent increase of cranes in Jackson County has been the larger autumn flocks in the Waterloo-Portage Marsh



SANDHILL CRANE IN MICHIGAN. The two aerial photographs show the same area. The one taken in 1940 (*left*) shows the location of a nest found by Lawrence H. Walkinshaw April 30, 1939. The second aerial photograph (*right*) shows the same area August 14, 1949; it has changed little to date (1953). The greater part of the marsh has been drained and is under cultivation, mostly spearmint. At the north end where the drain was stopped, the overflow crosses a very small marsh. Here during 1952 and 1953, Walkinshaw again found crane nests as marked on the map; the Cottrilles found a nest just a few meters to the north in 1954.

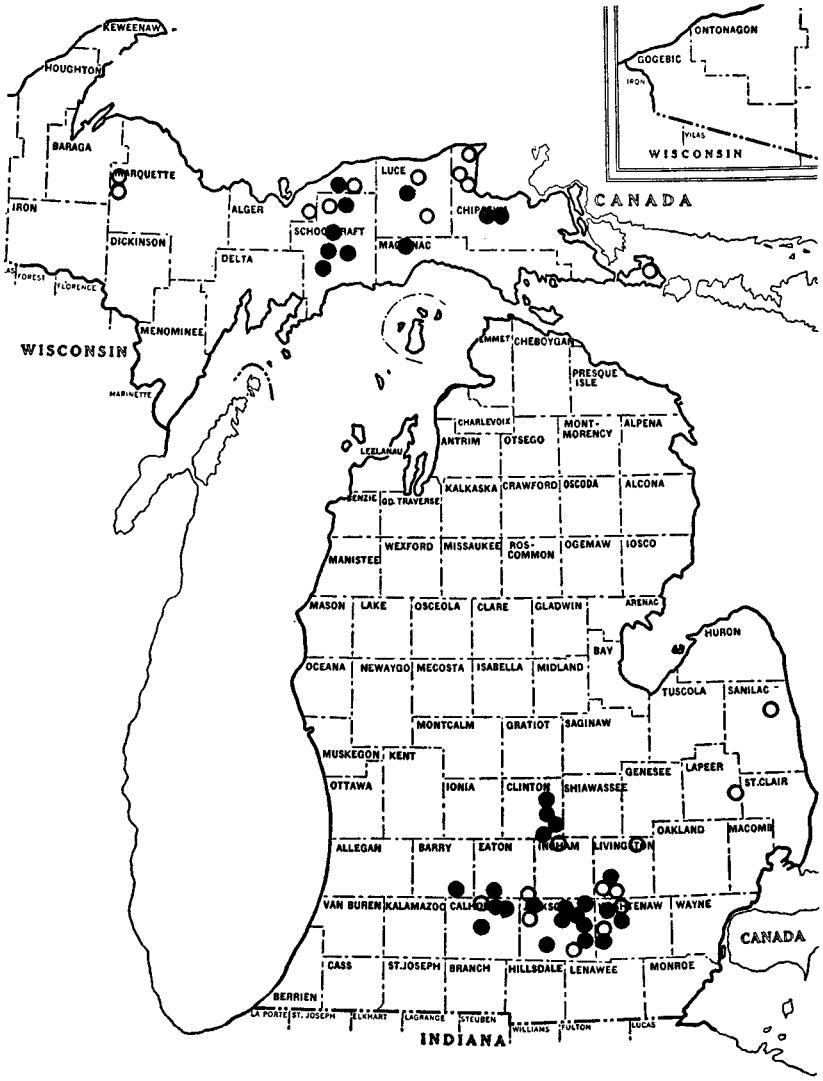


FIGURE 1. Summer distribution of the Sandhill Crane in Michigan, 1930–1954. Closed circles represent actual nesting records; open circles, sight records. Outline map copyrighted by Rand McNally and Co. and reproduced with their permission.

area often going in more recent years, because of hunting pressure in the former marsh, to the Whitehead Lake area. These birds disperse during the mornings into northeastern Jackson, southwestern Livingston, and northwestern Washtenaw counties. On October 6, 1940, Walkinshaw counted 46 cranes in the Portage Marsh; October

9, 1941, 45; Black counted 48, October 17, 1942; Walkinshaw, 36, October 10, 1943; the authors, 40 on October 15, 1944; Wing, 38, October 6, 1945; the authors, 68, October 8, 1949; Wing, 84, October 14, 1951, then 98, October 12, 1952; Bertha Daubendiek, 99, October 7, 1953; and Walkinshaw, 81, October 2, 1954. These counts were made in the evening or early morning at the roost. The largest counts each year were similar to the total census results we made in the immediate areas indicating that the Waterloo flock consists of cranes from that area alone.

A similar concentration has occurred at the Springport Marsh, Jackson County. There were 14 in October, 1952; 15 in the fall of 1953, and 9 in 1954 (the Cottrilles, Van Tyne, Walkinshaw). A similar group has increased at the Baker Sanctuary in the autumn (Auk, **67:** 43, 1950). During 1953, 29 cranes were observed on this area October 28, nine remaining until November 15 (Walkinshaw). In the Bath Township, Clinton County, areas concentrations have occurred in the past. These birds have been holding their own, and 28 were counted here the first week in September, 1953, by Walkinshaw. These fall concentrations together totalled about 180 cranes in 1952; 189 in 1953; 157 in 1954.

On the other hand, larger flocks of low-flying cranes have been noted near Lansing on two occasions: 50–65 by Zorb, October 15, 1952, and 50 by E. Goff, October 1, 1950. These could have been northern Michigan cranes in migration. They have been observed in other parts of northern and western Michigan also.

ADDITIONAL NOTES

Possible errors in this study are many. However, our work does give some idea of the number of cranes in southern Michigan. We do not know how many pairs were so extremely quiet when we worked over their marshes that we missed them. We know that certain areas were not covered sufficiently, a few only by local farmers; and that probably some marshes were overlooked. We know that the dispersal of non-breeders caused some difficulty. However, in the majority of marshes, we were certain of the numbers. With the work we did during the three years as well as in the past, we feel that we are not very far off in our totals. The return of cranes to nesting in marshy lake borders has produced some difficulty, for they return just long enough to nest, then spend the late summer and fall on other areas. Our final totals are somewhat substantiated by the addition of fall concentrations. How many of these we have missed we do not know.

Although we do not have the total of hours spent by cooperators in the crane study, Walkinshaw spent 405 hours in 1952 on 122 field trips, during which he drove 5936 miles and walked an estimated 194 miles. Except for five mornings, he was in the field by 4:00 to 4:30 A.M. daily between April 12 and May 10. During 1953, he spent 190 hours on 81 field trips and drove 4739 miles.

SUMMARY

A census was made of the southern Michigan Sandhill Crane population during 1952, 1953, and 1954 by 38 observers plus several Michigan Conservation Department personnel and a few farmers. This study was made possible by the use of recent aerial photographs, highway maps, and much hard work. Studies in recent years by the authors aided it a great deal. Cranes were found in nine counties in the Lower Peninsula. Although impossible to census the cranes in the Upper Peninsula, nests were found in Chippewa, Luce, Mackinac, and Schoolcraft counties in 1952.

Cranes usually arrive in southern Michigan in March but occasionally in late February. The young of the previous year, driven away by the parents, now congregate in non-breeding flocks, roosting in the marshes at night and feeding during daytime on surrounding higher ground. The breeding pairs nest in the larger marshes, often around marshy lake borders in the central portion of southern Michigan from Bath Township, Clinton County, and Deerfield Township, Livingston County, on the north, to Marshall Township, Calhoun County, and Sharon Township, Washtenaw County, on the south. One pair was found in Sanilac County in 1952. The main area in which the cranes were scattered is somewhat diamond-shaped with the sides 50, 44, 38, and 67 miles long. In this area, plus the one in Sanilac County, were found 38 crane-inhabitated marshes. During 1952, 32 were occupied; during 1953 and 1954, 31.

In 1952, 48 pairs of cranes produced 39 young that could fly. In the spring there were 62 non-breeders; in the fall 60. In 1953, we found 47 breeding pairs which also produced 39 young. Again there were 62 non-breeders in the spring and 60 in the fall. During 1954, only 43 breeding pairs were found, but they also produced 39 young. There were 63 non-breeders in the spring but only 48 were found in the fall. Since birds often roam about, some may have been missed.

In the spring flock of 1953, 94 were breeding cranes and 62 non-breeders indicating that young of at least two years constituted the total. This would indicate that cranes do not breed until at least three years old. In all probability, they become paired during their

third summer and may not nest until four years of age. A crane census in Michigan should give about 60 per cent breeders in the spring and 49 per cent in the fall.

Cranes from several marshes concentrate during the fall at night roosts in isolated marshy spots. The largest of these flocks has occurred in Waterloo Township, Jackson County, where 98 cranes were counted October 12, 1952; 99 on October 7, 1953; 81 on October 2, 1954. These fall concentrations helped verify our summer census results in that the total of different areas was very similar to our census results, about 180 in 1952, 189 in 1953, and 157 in 1954. Last cranes were observed at the Baker Sanctuary in 1952, November 1; in 1953, November 15; at Mud Lake, Calhoun County in 1954, November 7.

Up until 1952 there has been a steady increase in the southern Michigan cranes since the 1930's. The appearance of cranes in new marshes is evidence of this; the increased numbers in the fall concentrations, also.

Chances of error are listed: unfound marshes; presence of non-breeders; movements of pairs between marshes on occasion; insufficient coverage.

1703 Wolverine-Federal Tower, Battle Creek, Michigan, and 7165 Bunker Hill Road, Jackson, Michigan. January 5, 1954.