

MIGRATION OF THE SANDHILL CRANE EAST OF THE MISSISSIPPI RIVER

BY LAWRENCE H. WALKINSHAW

OVER a period of years I have assembled many records of the Sandhill Crane (*Grus canadensis*) from North America. The two subspecies (*G. c. canadensis* and *G. c. tabida*) generally seem to follow three different migration routes. Some cranes wander from these main routes but few migrate east of a line from James Bay to eastern Georgia. Many migration records exist from Wisconsin, Michigan, northeastern Illinois, Indiana, western Ohio, eastern Tennessee, and in recent years from Georgia, and some apparently from northern Florida, indicating a definite migration route from northwest to southeast in fall and vice versa in spring. Apparently there are few records from Alabama and Mississippi except for the resident Florida Sandhill Cranes (*G. c. pratensis*) in the far south. Some cranes are observed migrating across Minnesota, a few in western Iowa and Missouri, but none across Arkansas and Louisiana.

The central migration route seems to extend from Mexican wintering grounds, Texas, and New Mexico, northward east of the Rockies, but mainly through the western parts of Oklahoma, Kansas and Nebraska, and through South and North Dakota into Saskatchewan and Manitoba. It also extends across the eastern parts of Colorado, Wyoming, Montana, and Alberta. Apparently there is a division of this route north of the United States, some flocks going into Manitoba northward while others cross western Saskatchewan and eastern Alberta northward to Alaska and Yukon Territory, even in some cases to northeastern Siberia. Some cranes migrate from Alaska along the Pacific states and British Columbia to southern California, probably also to Baja California, Sonora, and western Chihuahua. The migration route from Alaska to northeastern Siberia crosses the Bering Straits but some cranes appearing on Bering Sea islands suggest a possible long flight at times across water.

Since it is impracticable to use complete data for all three main migration routes in one paper, I have tried to amass the chief data from east of the Mississippi (Fig. 1), hoping to do similarly later with each of the other two routes. The large number of sight records of the Sandhill Crane from Indiana (where the species has not bred for 30 years) and several from eastern Tennessee, central Kentucky, and north and central Georgia show the direction of flight.

We do not know whether cranes fly continuously from northern Indiana and southern Michigan to their wintering grounds or whether they stop in isolated spots for night roosting. They might stop only when weather conditions become unfavorable. It does seem as though cranes would be observed

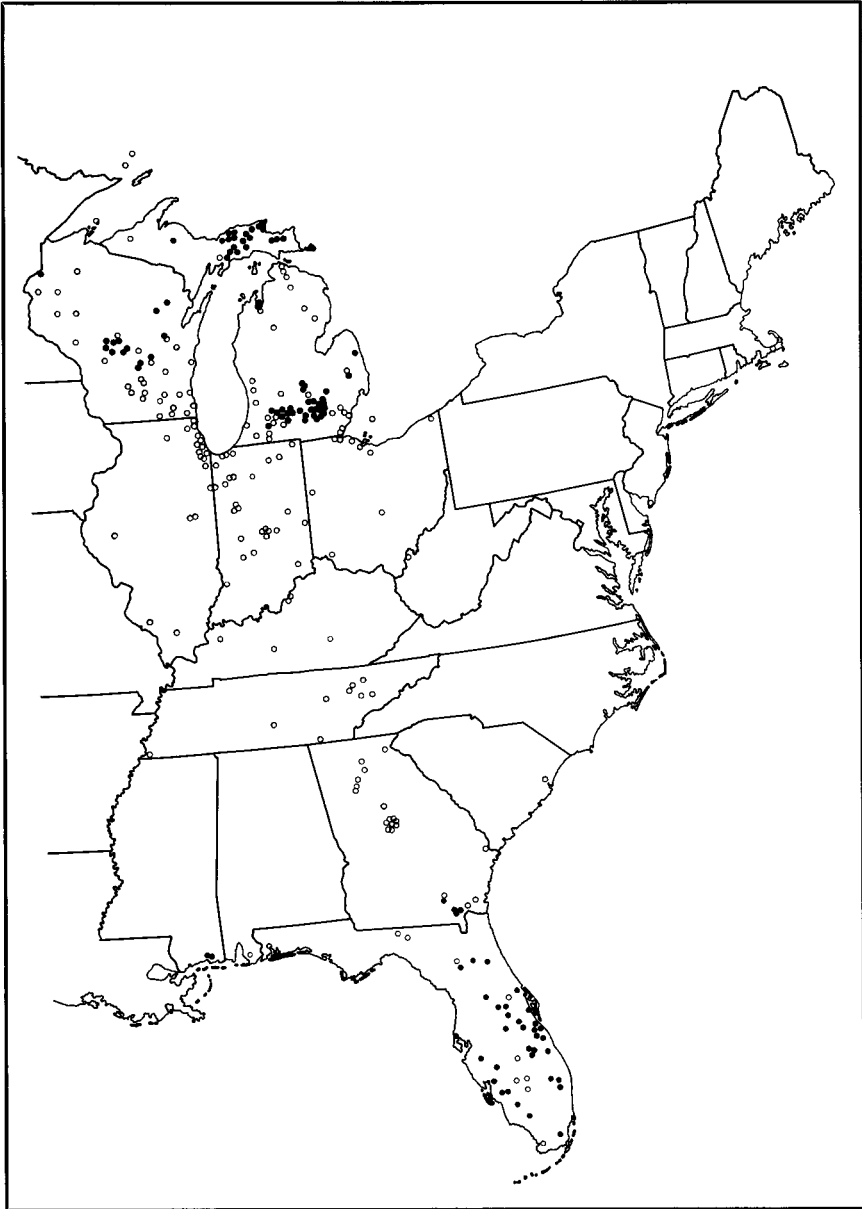


FIG. 1. Map of Sandhill Crane migration east of the Mississippi River. ●—breeding records; ○—areas where cranes have been observed outside normal breeding areas.

on the ground more often if they did stop for the night. Only occasionally are they seen on the ground.

Southern Michigan and northern Indiana are about 900–950 air-miles from the Okefenokee Swamp. Cranes fly about 32 to 35 miles per hour, so it would require 25 to 30 hours of flying time to make the journey, providing all flying conditions were favorable.

Small fall concentrations now occur in Michigan (at times 150 cranes) in both the Upper and Lower Peninsula breeding areas. There has been a gradual increase in recent years in these numbers. Larger concentrations sometimes occur in central Wisconsin (as many as 600) and much larger concentrations at Jasper-Pulaski Game Preserve in northern Indiana. Here cranes have steadily increased during recent migrations so that nearly 2000 gather in spring and in fall at one time. No one knows from where these birds have come nor where they are going. No one knows how long they remain, whether some come early, stay a few days and then move on, being replaced by other groups, or whether some birds remain for many weeks. Possibly some of these cranes may migrate much farther north than central Wisconsin and northern Michigan. Some may go into northwestern Ontario where cranes have been found in summer in recent years.

Concentrations of cranes have occurred in central Florida in both winter and summer on the Kissimmee Prairie. In other Florida areas only a few cranes have been found in winter. An average of six Christmas bird counts per year were made in Florida from 1934 through 1945, yet none listed any Sandhill Cranes. Eleven areas have listed the species between 1946 and 1958, in addition to the Okefenokee Swamp in southern Georgia. During 1957, nine of 23 areas listed a total of 107 cranes in Florida and 190 from the Okefenokee Swamp.

Allan Cruickshank (letter, January 5, 1959) commented on a winter increase of cranes in Florida each year. He wrote:

Whereas no intensive careful survey has been made of Sandhill Cranes in our section of Brevard County, it is very obvious to anyone who does much field work that there is a definite increase during the winter months. The species is represented locally by only a few pairs from mid-March until late October. During the winter small groups, occasionally scores, are found. Our Christmas counts for the last four years are: 1955, 81; 1956, 64; 1957, 55; 1958, 32. On the 1955 count, H. Bennett and I counted 77 in one plowed field. On the other hand, during March, April, May (I am away in June, July, August), September and October, I have covered our best crane territory during a full day and observed from none to three pairs.

The decrease on Christmas counts does not reflect a decrease of the species, but a decrease in the plowing operations on a large ranch within our Christmas count circle.

Dale W. Rice, having considerable interest in the Sandhill Crane from work he had done in Indiana and Texas, spent three springs at the University

of Florida at Gainesville, from February, 1953 to June, 1955 and did considerable work in the field during that time. In a letter from Rice (January 12, 1959) he gave the following information:

Sandhill Cranes are permanent residents on Payne's Prairie, six miles south of Gainesville. This is the "Alachua Savanna" of William Bartram, who found cranes there about 1775. On the basis of several field trips to this area, total populations of resident cranes were as follows: 1953 before nesting, 9 cranes; after nesting, 14 cranes. 1954 before nesting, 13 cranes; after nesting, 19 cranes. I know of no other place in the Gainesville area where cranes breed. It is possible that there are small resident populations elsewhere on the prairies of north Florida.

The following records include all my observations on cranes other than those that were without doubt resident Florida Sandhill Cranes. I believe that they were all migrating Greater Sandhill Cranes, because of (1) the size of the flocks, (2) the season of occurrence, and (3) behavior. The large flocks on Payne's Prairie were always seen out on the open grassland, and never in the sloughs occupied by the resident birds.

Spring 1953

- 13 March—at 1145, I saw three cranes flying high overhead, heading northwest, over the University of Florida Campus.
14 March—Between 1030 and 1050, I saw 41 cranes (three flocks of 6, 12, 23 birds respectively) circling overhead. They seemed to be circling and not going anywhere in particular.
(15 March—I went to Payne's Prairie hoping to find the flocks seen on the 14th, but saw only one pair of cranes.)

Autumn 1953

- 7 November—At 1400, I saw 46 cranes (two flocks of 42 and 4) feeding on the open grassland of Payne's Prairie.
14 November—At 0800, 9 cranes were seen on Payne's Prairie, and at 1300, a flock of 42. (On 19 November, I found only 4.)

Spring 1954

- 11 March—Dr. Archie Carr saw a flock of 13 flying over the campus. I saw a flock of 4 over the campus.
12 March—Edward L. Mockford saw a flock of 13 over the campus and the same the next day.
17 March—I observed a flock of 15 cranes flying over Hogtown Prairie, three miles west of Gainesville. (On 21 March, I saw only two cranes on Payne's Prairie.)

I had no observations for autumn, 1954.

Spring 1955

- 10 March—Between 1000 and 1030, three separate flocks of cranes, containing 9, 19, and 5 (total 33 birds), respectively, passed high over the campus heading NNW.

The cranes that were flying over and apparently "going somewhere" in spring were pointed directly toward Indiana. Dr. Claude Adams, and Mr. Thomas Hicks, at that time both graduate students in ornithology at the University, and both long time residents of Florida, told me that they had seen what they thought were migrating flocks of cranes quite regularly in the spring and/or fall.

Since the great Okefenokee Swamp has become a National Refuge, *G. c. pratensis* has nested there regularly in fairly large numbers at times. However, there are times when concentrations in winter occur there also. This could also be a stopping place during migration.

Cypert (1957) reported an increase in cranes in the Okefenokee Swamp during the 1956–1957 winter. The area, he wrote, consists of 330,000 acres of the swamp's 400,000 acres. During the winters of 1954–1955 and 1955–1956 the population was estimated at 200 cranes; during 1956–1957, 1000 cranes. On an all-day hike, January 29, 1957, 522 cranes were recorded on the Chesser Prairie; flocks were present on all the prairies in lesser numbers. After the middle of March, no large numbers were observed. He wrote: "Several factors may have contributed to this apparent decline (after mid-March) in population: (1) some of the birds evidently migrated to nesting grounds elsewhere; (2) there was a rise in water levels, a fact which might have made the swamp less attractive to cranes and caused part of them to leave; and (3) during the nesting season cranes are more scattered and are less likely to be seen."

Even the deeper water of spring, 1957, however, would not compare with that when I studied the cranes there during late March and April, 1945, when we navigated Chesser Prairie in a duck boat because the water was too deep to wade. Cranes nested then in goodly numbers.

Apparently there has been no increase in numbers of wintering cranes in Jackson County, Mississippi, and only two cranes have been reported at any season from southern Louisiana in recent years. During the winter of 1950–1951, two cranes remained at the Sabine National Wildlife Refuge (Lowery, 1955). Near Elberta, Baldwin County, Alabama, flocks of six and four were found between December 1, 1957 and March 20, 1958, and in early February, 1958, a flock of 12 (Newman, 1958*a*). However, two cranes also remained here into June, 1958, near Romar Beach, indicating a breeding group (Newman, 1958*b*). Other cranes observed in recent years in southeastern Alabama and in western Florida, all of which could have been migrants, are: A flock of 6, Prattville, Alabama, September 24, 1932 (Imhof, MSS); a flock of 14, 27 miles west of Pensacola, Florida, in southern Alabama, November 30, 1947 (Weston, 1948); 94, near Fruitville, Florida, November 27, 1955 (Stevenson, 1956); 3, 20 miles northeast of Pensacola, November 25, 1956 (Newman, 1957).

G. c. pratensis nests through much of Florida, Jackson County, Mississippi, probably Baldwin County, Alabama, and the Okefenokee Swamp of southern Georgia.

The following are some of the more important records of the Sandhill

Crane east of the Mississippi River and north of Florida and southern Georgia during the migration season.

GEORGIA

SPRING MIGRATION

Charlton Co., Chesser Is. March (*ca.* 1916), 100 in flight; March 19, 1933, 19; March 20, 1940, 200 flying high overhead in a northwesterly direction (Walkinshaw, 1953); winter, 1956-1957, large numbers (522 on January 29), disappeared by mid-March (Cypert, 1957).

Bibb Co., Macon. March 20, 1955, 6 in V-formation flying northward at 400 feet, 13 one hour later in late afternoon (Johnston, 1956).

Jones Co., Piedmont National Wildlife Refuge, Round Oak. March 6, 1952, 60 in a flock flying northward (Chamberlain and Chamberlain, 1952); March 11, 14, 15, 1957, 4 flocks flying north (some 525 to 550 cranes) (Chamberlain, 1957).

Jasper Co., Jackson Lake. March 24, 1940, 40 flying in long irregular wedge at 150 feet (Wharton, 1940).

Augusta region. May, 1894, 2 (Burleigh, 1958:212).

Fulton Co., Atlanta. March 7, 1953 (10 a.m.), 2 flocks—80 and 35, each in rough V-formation flying north, some calling (Peters, 1953).

Dawson Co., Dawsonville. March 23, 1958, 34 (Kahl, 1958).

Habersham Co., Clarkesville. April 24, 1944, 3 flying over; April 24-25, 1955, 1 cripple (Chamberlain, 1955).

FALL MIGRATION

Fulton Co., northern portion. Nov. 1, 1951, 3 (2 of which were shot but not saved) (Peters, 1952).

Forsyth Co., Lake Lanier. Nov. 10, 1957, about 35 flying southeast in V-formation at about 600-700 feet (Chamberlain, 1958).

Jones Co., Piedmont National Wildlife Refuge. Nov. 1, 1942, 15 flying silently southward in V-formation at 600 feet (Fleetwood, 1942); Oct. 31, 1949 (9:30 a.m.), 15 flying south at 200 feet (Ambrosen, 1950); Oct. 24, 1957, 20 flying over (Chamberlain, 1958).

Irwin Co., Osierfield. Nov. 18, 1959, 62 flying SSE at 400 ft. (Hopkins, 1959).

Chatham Co., Savannah. Oct. 19, 1956, 5 flying over city (Tomkins, 1956).

Ware Co., Waycross. Oct. 29, 1957, 19 flying over (Chamberlain, 1958).

Charlton and Camden counties, Coleraine. Oct. 27, 1945, and Nov. 27, 1947, cranes flying south (Hebard, 1953).

Camden Co., Kingsland. Dec. 20, 1950 until Jan. 20, 1951, 2 apparently wintered (Witter, 1956).

SOUTH CAROLINA

Georgetown Co., Hasty Point Plantation. Nov. 23, 1928, 1 (Metcalf, 1929).

North Santee River, Rice Hope Plantation. Dec. 19, 1941, specimen of *G. c. tabida* identified by H. C. Oberholser (Sprunt and Chamberlain, 1949:191).

Eston Co., Mt. Pleasant. Oct. 18, 1890, specimen of *G. c. canadensis* taken (Sprunt and Chamberlain, *ibid.*).

NORTH CAROLINA

Robeson Co., Lennon's Marsh. Nov. 21, 1957, 2 specimens of *G. c. tabida* (N. Carolina State Museum) (T. Burleigh, letter).

TENNESSEE

SPRING MIGRATION

Chattanooga. June 1, 1935, specimen taken (Butts, 1936).

Cumberland Co., Crab Orchard. March 13, 1939 (7:30 a.m.), 13 on ground, frightened and flew to north (Adams, 1939).

Anderson Co., Oak Ridge National Laboratory. Feb. 25, 1950, 4 flying over and calling (Howell, 1952).

Knox Co., Knoxville. March 25, 1954, 4 flying over, calling (Brooks, 1954).

Shelby Co., Memphis. Feb. 1, 1953, 2 flying into field, then rose and headed northward (Barbig, 1953).

FALL MIGRATION

Bedford Co., Shelbyville. Aug., 1936, specimen taken from flock of 4 (Edney, 1940).

Anderson Co., Norris Lake, Sequoia Pt. Oct. 21, 1951, 4 calling and circling overhead (Howell, 1952).

Union Co., near Hurricane. Nov. 10, 1956, 4 calling and flying over (Brooks, 1957).

Sevier Co., Seymour. Oct. 22-24, 1942, 50 present on wheat field for 3 days—one was shot (Ijams, 1942).

Shelby-Tipton county line, Third Chickasaw Bluff, Twelve Outlets. Nov. 30, 1820, large flock (Deaderick, 1940).

KENTUCKY

SPRING MIGRATION

Eubank. March 8, 1894 (Bent, 1926:251).

Jefferson Co., Louisville, Goose Is. March 19, 1933, 13 in flight (Carpenter, 1933); April 3, 1938, 1 present from March 31 to April 6 (Monroe, 1938); March 19, 1950, 9 flying in V-formation, then in single line northward (H. B. Lovell in letter).

Edmonson Co., Mammoth Cave area. March 30, 1958 (4 p.m.), 5 flying over (Dilley, 1958).

FALL MIGRATION

Jefferson Co., Louisville. Nov. 8, 1956, 11 flying in southerly direction (Stamm, 1957).

WEST VIRGINIA

Mason Co., Point Pleasant. Sept., 1934, 1 taken (Brooks, 1944).

PENNSYLVANIA

Waynesburg, Wayne Twp., Tom or Hoover's Run. Spring 1900 or 1901, 1 specimen taken; May, 1902, 1 (Todd, 1940).

NEW JERSEY

Cape May Co., Light House Pond. Oct. 6, 1958, 2 (Choate, 1959).

MASSACHUSETTS

Barnstable Co., Orleans, North Beach. Sept. 1, 1955, 1; Barnstable. Until mid-October, 1955, 1—probably same bird (Morgan and Emery, 1956).

OHIO

SPRING MIGRATION

Clermont Co., 18 miles east of Cincinnati. May 9, 1948, 1 (Spencer, 1948).

Montgomery Co., Spring Valley. March 22, 1959, 4 (Edith C. Blincoe, *Journal Herald Staff Writer*, Dayton).

Huron Co., Plymouth. April 1, 1911 (Todd, 1911).

Sandusky Co., 5 miles northeast of Fremont. May 14, 1937, 16 (Dr. and Mrs. T. H. Langlois); May 18, 1937, 3 (L. E. Hicks in letter). Two miles east of mouth of bay. March 23, 1939 (Hicks, *ibid.*).

Ottawa Co. March 18, 1954, 10 (H. Mayfield in letter).

Lucas Co., Grand Rapids, along Maumee River. March 29, 1941, 2 (Mayfield, *ibid.*).

Ashtabula Co., Pymatuning Reservoir, Ohio side. March 20, 1937, 1; March 25, 1938, 1 (L. E. Hicks in letter).

Alliance, March 23, 1886 (Bent, 1926:251).

FALL MIGRATION

Lucas Co., Sylvania. Oct. 23, 1949 (2 p.m.), 28 flying south in single file, not very high and calling (R. Whiting in letter).

Ashtabula Co., Ashtabula. Nov., 1949, 3 (Mayfield, 1950).

Mercer Co., southside Grand Reservoir. Nov. 26, 1943, 7 (L. E. Hicks in letter). Lake St. Marys. Oct. 14, 1945, 1 (Clark, 1946).

Fairfield Co., Buckeye Lake. Oct. 9, 1926, 5 flying (Trautman, 1940).

In addition to the above, Bent (1926:252) gave Ohio dates from Chardon (Geauga Co.), Nov. 7, 1888; Medina (Medina Co.), Nov. 8, 1920; Canton (Stark Co.), Nov. 5, 1911.

INDIANA

(See Fig. 2)

SPRING MIGRATION

Ripley Co., Versailles State Park. Week of March 18-25, 1945, 2 seen and heard (R. E. Mumford in letter).

Knox Co., Bicknell. March 18, 1906 (Cooke, 1914).

Owen Co. March 16, 1956, 1 (Keller, 1958).

Putnam Co., Greencastle. March 9, 1952 (9:50 a.m.), 18 flying due north on warm day; wind south, 10-12 mph (Cope and Snow, 1952) (Mumford, letter).

Marion Co., southern part. March 25, 1956, 1 (Keller, 1958). Indianapolis. March 19, 1953 (1 p.m.), 3 flying northwest (Nolan, 1953). Oaklandon Reservoir. March 2, 1946, 4 (Rice, 1946); March 16, 1946, 6 flying north (Rice in letter).

Hancock Co., Greenfield. April 21-28, 1952, 1 injured (J. D. McCall in letter to Mumford).

Wayne Co., Richmond. March 31, 1956, 2 (J. B. Cope in letter).

Delaware Co., Muncie. April 9 (period from 1923 to 1931) (H. Zimmerman in letter to Mumford).

Tippecanoe Co. March 25, 1950, 3 flying (Marks and Wright, 1950).

Benton Co., Oterbein, 8 miles north. March 14, 1959, 2 flying north at 150 yds. at 1:20 p.m., and flock of 22 at 300-400 yds. at 3:20 p.m. (R. E. Mumford in letter).

Carroll Co. April 7, 1885 (Evermann, 1888).

Fulton Co., Rochester. March 4, 1891 (Bent, 1926).

Kosciusko Co., North Webster. April 21, 1958, 2 flying ENE at 11 a.m. (J. D. McCall in Pittman-Robertson Report). Small groups of two to four have been reported over Kosciusko or Noble counties in the springs of 1955, 1956, and 1958.

Noble Co., Diamond Lake. March 14, 1955, 4; March 27, 1956, 3 in flight (R. Thomas in Indiana Pittman-Robertson Report).

Jasper-Pulaski counties, Jasper-Pulaski Game Preserve. April 10, 1935, 24; April 7, 1939, 40 and 200; spring, 1941, 150 (spring peak 300) (Correll, 1941); March 17 to April 16, 1942, peak of 350 (Waggener, 1943); March 10, 1943, first crane of the year;

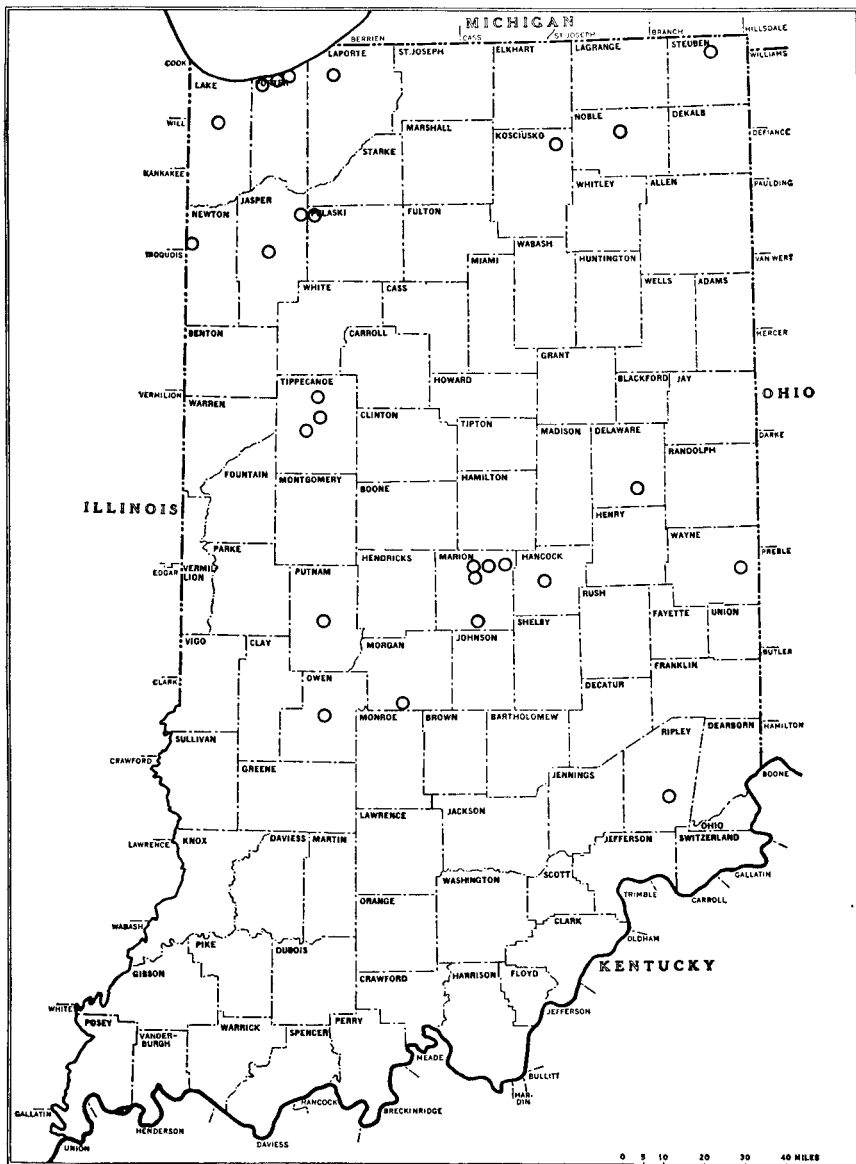


FIG. 2. Recent migration records of the Sandhill Crane in Indiana.
(Map copyrighted by Rand McNally & Co., Chicago)

March 11, 6; March 21-30, 350; May 28, 1—the last crane; March 18, 1944, 100; April 8, peak 695, June 8, the last crane (Walkinshaw, 1949:122); Feb. 26, 1945, 2—the first cranes of the year; March 25-31, 500; April 25, 7—last cranes (Mumford, 1950); March 20, 1946, 350; March 24, 406; April 7, 23—last cranes (Mumford, *ibid.*); March 11,

1947, first cranes; March 16, 39; March 30, 180; April 12-13, 190; last on May 2 (Mumford, *ibid.*); March 27, 1948, 200; March 28, 582 (Walkinshaw, 1950*b*); April 10, 17 (Mumford, *loc. cit.*); March 3, 1949, 6; April 2, 641; April 13, 11 (Mumford, *ibid.*); March 4, 1950, 7; March 25, 548; April 1, 628; May 2, 7; June 15, 2 stayed all summer (Mumford, *ibid.*) Feb. 25, 1951, 43; March 30, 331; March 31, 588; April 4, 63; April 20, 75 (Mumford in letter); Feb. 3, 1952, 1; Feb. 22, 1; March 8, 6 (Mumford, *ibid.*); March 29, 862; April 7, 300; March 28, 1953, 1019; March 29, 1164 (Crow, 1954), and 1214; Feb. 21, 1954, 3 (R. Grow in letter); March 19, 900; April 8, 80 (R. Mumford in letter); April 6, 1955, 144; March 23, 1956, 1560; March 24, 1716; Feb. 24, 1957, 27; March 30, 1524; April 10, 140 (Mumford, *ibid.*); March 27, 1958, 273; March 29, 1375; March 30, 345.

Newton Co., Willow Slough Game Preserve. March 20, 1951, 18; March 24, 1951, 7; March 29, 1951, 29; March 15, 1952, 18; March 22, 1952, 28; March 29, 1952, 12; April 5, 1952, 12; March 13, 1955, 1; Feb. 28, 1956, 5; March 31, 1957, 4 (Burr, 1957); March 18 and 23, 1958 (D. N. Martin in Indiana Pittman-Robertson Report); March 12, 1959 (Madden, verbal).

Marshall Co., Lake Maxinkuckee. April 6, 1885 (Evermann, 1920).

Lake Co., Crown Pt. April 2, 1949, 105 in flight (R. E. Phillips in letter to Mumford).

Porter Co. March 14 to April 20, 1957, 4 records (Burr, 1957); April 5, 1958, 1 (Burr, 1959). Baileytown. April 2, 1945, flocks of 14, 17, and 11 (Lewy, 1945); March 30 to April 22, 1951, 8 flocks—8-60 cranes (Mayfield, 1951*b*); April 1, 1955, 1 (R. Grow in letter).

Indiana Dunes. April 16, 1920, 1 (Sanborn, 1922); April 7, 1917, 3 (H. L. Stoddard in notes to Mumford); April 5, 1942, 5 (Smith, 1942); April 12, 1942, 57 (Smith, *ibid.*); March 31, 1949, 2 (D. H. Boyd in letter to Mumford); April 2, 1949 (Boyd, *ibid.*); April 2, 1950 (Boyd, *ibid.*).

LaPorte Co. March 21, 1953, 5 (M. Sweet in letter to Mumford); April 5, 1958, 44 (Burr, 1959).

Steuben Co., Pokagon State Park. April 9, 1943, 3 flying north.

FALL MIGRATION

Newton Co., Willow Slough Game Preserve. Sept. 20, 1951, 2; Sept. 22, 1952, 3; Oct. 7, 1954, 18; Sept. 18, 1956, 10; Oct. 3, 1956, 51 (Mumford in letter).

Jasper-Pulaski counties, Jasper-Pulaski Game Preserve. Oct. 15, 1941, 50; Nov. 1, 72; Nov. 27, 36; Sept. 17, 1942, 2; Oct. 20-27, 120-135; Nov. 12, 87; Nov. 13, 27; Nov. 25, 23 (Walkinshaw, 1949:112); Oct. 5, 1943, 12; Oct. 23, 160; Oct. 28, 143; Oct. 29, 66; Nov. 12, 9; Oct. 9, 1944, 2; Oct. 10-14, 13; Oct. 15-21, 56; Oct. 22-28, 127; Nov. 5-11, 128; Nov. 12-18, 135; Nov. 26 to Dec. 2, 39 (Mumford, 1950); Oct. 15, 1945, 66; Oct. 17, 90; Oct. 21, 250; Oct. 23, 150; Nov. 8, 65; Nov. 30, 8 (Mumford, *ibid.*); Sept. 30, 1946, 15; Oct. 27, 210 (Mumford, *ibid.*); Oct. 19, 1947, 106 (Mumford, *ibid.*); Oct. 4-10, 1948, 100; Oct. 11-17, 330; Oct. 18-31, 400; Oct. 17, 232; Dec. 15, 4—the last (Mumford, *ibid.*); Sept. 24, 1949, 3; Sept. 25, 7; Sept. 27, 15; Sept. 28, 39; Oct. 21, 190; Oct. 23, 623; Nov. 5-6, 500; Dec. 13, 17; Dec. 15, 1—last bird, had a broken leg (Mumford, *ibid.*); Sept. 13, 1950, 3; Sept. 14, 11; Sept. 27, 54; Oct. 5, 169; Oct. 10, 188; Oct. 17, 205; Oct. 24, 219; Oct. 25, 266; Oct. 27, 328; Oct. 29, 370; Oct. 31, 392; Nov. 3, 429; Nov. 6, 728; Nov. 12, 17, and 27, 811; Nov. 30, 706; Dec. 5, 622; Dec. 8, 310; Dec. 11, 122; Dec. 13-14, 5—the last (Mumford in letter); Oct. 7, 1951, 18; Oct. 14, 250; Oct. 15, 178; Oct. 20, 400; Oct. 28, 500; Nov. 4, 405; Nov. 11, 593; Nov. 24, 350; Dec. 1, 83; Dec. 5 and 8, 25; Oct. 14, 1952, 100; Oct. 27, 1192; Nov. 8, 393; Nov. 9, 317; Oct. 31, 1953, 600; Nov. 1, 1040; Dec. 8, 200; Sept. 22, 1954, 22; Oct., 150 plus; Oct. 23, 304 (Burr, 1955); Oct. 30, 1500 estimated; Oct. 31, 750

plus; Oct. 3, 1955, 75 (D. Martin in Indiana Pittman-Robertson Report); Oct. 18, 275 (D. Martin, *ibid.*); Nov. 12, 850 estimated; Nov. 1, 1958, 1500 estimated; Nov. 2, 1767; Nov. 26, 16.

Pulaski Co., Tippecanoe State Park. Oct. 17-24, 1943, 3 (Mumford in letter).

DeKalb Co., Waterloo. Sept. 7, 1904 (Bent, 1926).

Tippecanoe Co. Oct. 20, 1956, 3 (Burr, 1957). Lafayette. Nov. 18, 1949, 5 (Mayfield, 1950).

Delaware Co., Muncie. Oct. 25, 1955, 7 (Satter, 1956).

Marion Co., Indianapolis. Oct. 26, 1944, specimen; Nov. 24, 1950, 135 flying south at 400 feet in large wedge-shaped flock at 1 p.m. and calling (Rice, 1951). Oaklandon Reservoir. Nov. 7, 1948, one or two flocks heard very high, flying south—unable to see birds (Rice, 1949); Oct. 26, 1950, 32—probable—observed by farmer in cornfield.

Morgan Co., Mooresville. Nov. 24, 1957 (between 11 a.m. and noon), groups of 25, 8, 13, and 16 flew over, and one flock heard only (West, 1957).

Morgan-Monroe counties, Morgan-Monroe State Forest. Nov. 4, 1953, 30 flying south at 2:15 p.m. (Mumford in letter).

Knox Co., Bicknell. Oct. 27, 1894 (Cooke, 1914:13).

Vanderburgh Co., Diamond Is. Nov. 3, 1820 (Perkins, 1936).

ILLINOIS

(See Fig. 3)

SPRING MIGRATION

Wabash Co., Mt. Carmel. March 1, 1863, March 4, 1868 (Cooke, 1914:12).

Marion Co., Odin. Feb. 19, 1890 (Black, MS).

Fayette Co., Vandalia. April 10, 1894 (Black, MS).

Scott Co., Griggsville. March 24, 1884 (Bent, 1926).

Champaign Co., Rantoul. April 17, 1909, March 28, 1914, April 2, 1916 (Black, MS).

Iroquois Co., NE of Beaverville. March 29, 1952, 10 (Walkinshaw, Wing).

Whiteside Co., Tampico. March 8, 1887 (March 25—six-year average) (Cooke, *loc. cit.*).

DeKalb Co., Genoa. April 19, 1953 (Smith and Parmalee, 1955).

Cook Co., Orland. March 23, 1920 (Black, MS). Orland Wildlife Refuge, McGinnis Slough. April 8, 1940. Blue Is. March 31, 1940, 23 (Bartel, 1940). Willow Springs. March 27, 1954, 31 flying NW and calling (Mrs. W. T. Lory in letter). Hinsdale. May 20, 1923 (Black, MS). Chicago region. April 17, 1877 (Black, MS); April 7, 22, 1917, April 22, 1920, April 3, 1928 (Ford *et al.*, 1934; Black, MS); April 28, 1934, March 25, 1948, March 20, 30, 1949 (Ford, 1956).

Lake Co., Waukegan. April 3, 1939 (Boulton and Pitelka, 1939).

Florida (Illinois). March 19, 1888 (Bent, 1926).

FALL MIGRATION

Lake Co., Lake Forest. Aug. 22, 1877 (Black, MS). Barrington, Bakers Lake. Oct. 11, 1958, 35 flying. Lake Bluff. Nov. 7, 1948 (Smith and Parmalee, 1955).

Cook Co., Chicago region. Sept. 16-17, 1929, Sept. 4, 1932, Oct. 24, 1947, Aug. 28, 1949 (Ford, 1956).

Will Co., Crete. Sept. 11, 1915 (Eifrig, 1919).

Bureau Co., Bureau. Oct. 27, 1906 (specimen, U.S. Nat. Mus., 200 965).

Mason Co., Havana. Oct., 1951, 1 (S. C. Kendeigh, letter).

Champaign Co., Rantoul. Oct. 29, 1917 (Black, MS). Urbana. Nov. 13, 1954, 1 wounded (Smith and Parmalee, 1955).

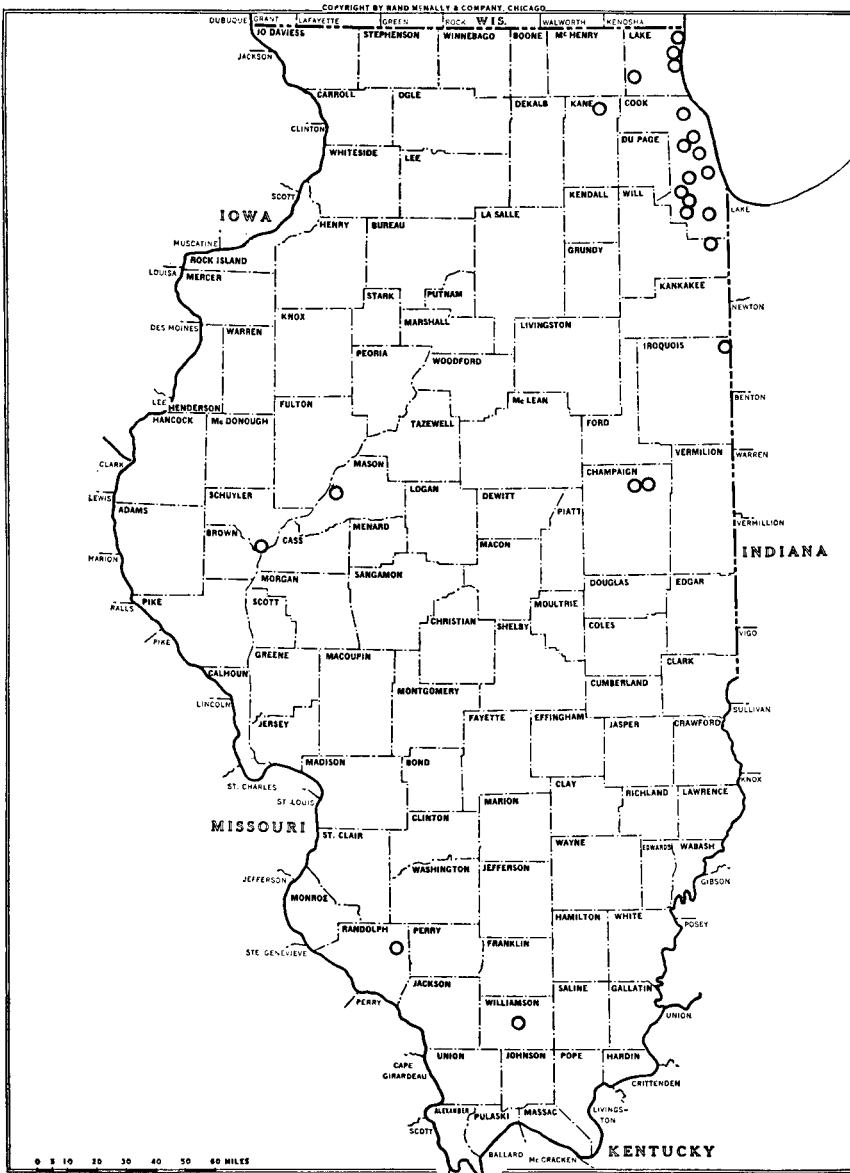


FIG. 3. Recent migration records of the Sandhill Crane in Illinois.

Schuyler Co., 10 mi. north of Beardstown. Nov. 3, 1946, 4 (T. E. Musselman in letter).

Randolph Co., Sparta. Sept. 5, 1950, 1 (Mayfield, 1951a).

Williamson Co., Crab Orchard Wildlife Refuge. Nov. 7, 1952 (Smith and Parmalee, 1955). Crab Orchard Lake. Oct. 7, 1954 (Smith and Parmalee, 1955).

ONTARIO

Below is a summary of records of the Sandhill Crane from Ontario.

- 1772: Mouth of Severn River. Forster (1772) indicated that the species nested here.
 1862: Kent Co. Two adults with 2 young (McIllwraith, 1894).
 1869: Rondeau. Specimen collected by J. Oxford (Nat. Mus. Canada).
 1872: Toronto. A pair was collected in the fall by G. Warren (Roy. Ont. Mus. Zool.).
 1881: Kent Co. Two observed, one collected (Allin, 1943).
 1882: Mitchell Bay, St. Claire Flats. A pair observed (Allin, 1943).
 1890: Leeds Co., Mud Creek. A pair shot (J. Thompson). Escott. Flock flying over (Toner *et al.*, 1942).
 1892: Thunder Bay Dist., Silver Is. One shot from flock of 5 on Sept. 27 (Allin, 1943).
 1893: Mt. Forest. Reported in April (Allin, 1943).
 1935: Gore Bay. Mounted specimen, said to have been taken several years earlier (Williams, 1942).
 1939: Ft. Williams, 50 mi. SW. Sept. 30, 4 flying over (Allin, 1943).
 1941: Port Arthur, 30 mi. NE. Sept. 6, 2 (Allin, 1943).
 1950: Junction of Asheweig and Winisk Rivers (Lat. 54.25°; Long. 87.5°). C. A. Elsey observed cranes as follows: May 9, 2; May 11, 1; May 16, heard; May 17, 2; May 22, 2. The Indians of the region, when they observed a picture of the Sandhill Crane, reported that cranes nested there regularly (Baillie, 1951, and letter from Elsey, March 10, 1952). Nikip Lake, near the headwaters of the Severn River (Lat. 52.5°; Long. 91.5°). A. T. Cringan worked here steadily from June 6 until Sept. 9 in the field and heard cranes on June 30 and Aug. 26, and observed 2 on Aug. 3. Wawa Lakes, between Kapuskasing and Moosonee. A. S. Hawkins observed 2 cranes June 24 (letter, Feb. 14, 1952, and Baillie, 1951).
 1952: Thunder Bay Dist., Lappe. Oct. 9, 1952, specimen of *G. c. canadensis* (Baillie, 1953).
 1955: North shore of Lake Ontario, Oshawa Marsh. May 8, 1 (Baillie, 1955).
 1957: Point Pelee. Oct. 5, 1 (Bennett *et al.*, 1958).
 1958: Moosonee, 9 mi. east. May 23, 2; May 24, 1 (Gunn, 1958).

In addition to the above records there is a specimen (Nat. Mus. Canada) taken at Beaumaris.

MICHIGAN

(See Fig. 4)

SPRING MIGRATION

Monroe Co., Petersburg. Earliest, March 8, 1892 (9-year average, March 15) (Cooke, 1914). Erie Twp., March 24, 1940, 4 in flight (W. Anderson in letter).

St. Joseph Co., Lockport and Fabius Twps. April 11, 1926, 1; March 20, 1947, 2 in flight (O. M. Bryens in letter). Constantine Twp., Three Rivers State Game Area. March 20, 1952, 3 in flight.

Berrien Co., Paw Paw Lake. March 30, 1952, flocks of 5 and 17 in loose circling formation drifting NW at 500 feet (A. Ammann, letter).

Kalamazoo Co., Ross Twp., W. K. Kellogg Bird Sanct. March 21, 1941, 2 in flight; March 22, 1941, 3 in flight (M. D. Pirnie, verbal comm.). Oshtemo, 2 mi. east. April 8, 1951, 1 (J. B. Fleugel, verbal comm.). Gourdneck State Game Area. March 14, 1952, 3 (A. Ammann, State Cons. Dept. notes).

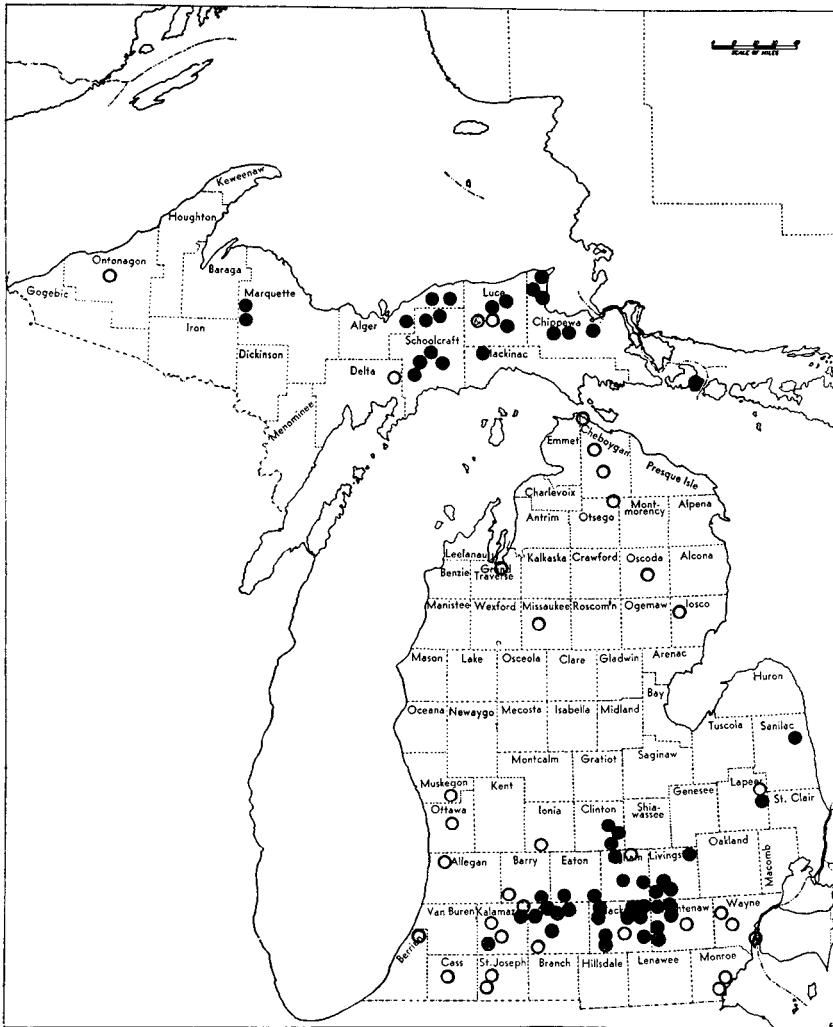


FIG. 4. The Sandhill Crane in Michigan. ○—Migration records outside known breeding areas. ●—Known breeding areas.

Calhoun Co., 6 mi. north of Union City. March 5, 1951 (3-4 p.m.), 6 flying north at 300-400 feet (W. A. Dyer, verbal comm.). Convis Twp., B. W. Baker Sanct. area (including a 3-mi. radius). April 3, 1932, 2; March 26, 1933, 3; March 25, 1934, 3; March 14, 1935, 5; April 9, 1936, 2; March 25, 1937, 2; March 26, 1938; March 22, 1939; March 24, 1940, 2; March 22, 1941, 1; March 15, 1942, 2; March 18, 1943, 6; March 7, 1944; March 13, 1945, 2; March 7, 1946, 2; March 20, 1947, 1; March 20, 1948, 4; Feb. 26, 1949, 1; March 18, 1950, 1; March 6, 1951, several heard in p.m.;

March 8, 1952, 2; March 11, 1953; March 18, 1954, 3; March 10, 1955, 3 and 1; March 3, 1956, 2; March 14, 1957, 1; March 5, 1958, 2; March 11, 1959, 2; March 18, 1960, 3 (Walkinshaw, 1950a).

Jackson Co., Springport Twp., Sects. 2, 10, 21. March 17, 1952; March 21, 1953, 4; Feb. 25, 1955, 2; March 17, 1957, 2. Waterloo Twp. March 5, 1922, 4; March 20, 1923, 2; April 10, 1926, 2; March 25, 1929. Sections 26 and 27. March 24, 1936; March 22, 1937; March 20, 1938; March 15, 1939; March 24, 1940; March 22, 1941; March 19, 1942. Sect. 30. March 4, 1945; March 8, 1946; March 13, 1947; March 10, 1949, 7; March 8, 1952; March 12, 1953, heard; March 12, 1955, 2; March 10, 1956, 1-7, by three different groups; March 16, 1957, 2 at Spring Lake. Sect. 35. March 22, 1958, 6 in 3 areas.

Leoni Twp., Sect. 2 (now the Phyllis Haehnle Mem. Sanct.). March 28, 1937, 3; March 23, 1939, 2; March 31, 1940, 6; March 23, 1941, 7; March 12, 1942, 2; March 3, 1951, 1; March 10, 1952, 8; March 12, 1953, 3; March 17, 1954, 4; March 4, 1955; March, 1956; March, 1957; March 11, 1958, 3; March, 1959. Summitt Twp. March 24, 1954, 2. Norvell-Grass Lake Twps., Bessey Lake. March 28, 1954, 2. Jackson. Feb. 28, 1948 (Wallace and Black, 1948); March 7, 1953, 9 (Wickstrom, 1953). Jackson, 3 mi. SE. March 12, 1953 (11 a.m.), 3 flying NE at 1000 feet.

Washtenaw Co. March 12, 1933, 4 (J. R. Greeley, Univ. Mich. notes); March 3, 1936, 3 in flight (N. A. Wood, verbal comm.). Sharon Twp., Sect. 8. March 27, 1941, 3; March 22, 1953, 2; March 28, 1954, 5. Lyndon Twp., Boyce Lake. March 12, 1955, 3; March 21, 1956, 2; March 27, 1957, 2; March 22, 1958, 8.

Wayne Co., Plymouth. March 14, 1945, 3 flying in westerly direction. Dearborn. March 14, 1949, 14 flying west (O'Reilly, 1951). Grosse Ile. March 21, 1952 (Wickstrom, 1952).

Allegan Co., Fillmore. March 6, 1942, in flight (N. T. Peterson, verbal comm.).

Barry Co., Johnstown Twp., Sect. 24. March 23, 1941, 1; March 20, 1942, 2; March 28, 1947, 1; March 26, 1948, 1; March 15, 1955, 1; March, 1959, 1. Prairieville Twp., Baker Lake. March 3, 1951, 3 in flight (M. D. Pirnie, verbal comm.).

Eaton Co., Bellevue Twp. March 22, 1939 (D. Hall, verbal comm.).

Ingham Co., Meridian Twp., Sect. 2. March 29, 1952, heard (M. D. Pirnie, verbal comm.). Locke. Feb. 19, 1857; March 19, 1858; March 16, 1859; March 8, 1860; April 2, 1861; March 27, 1862; March 31, 1863; April 12, 1864; March 20, 1865; April 3, 1866; March 25, 1867; March 13, 1868; March 28, 1869; March 31, 1870; March 9, 1871; March 28, 1872; March 19, 1873; March 20, 1874; March 27, 1875; April 8, 1876; March 30, 1877; March 15, 1878; April 9, 1879; March 30, 1880; March 29, 1881; March 1, 1882; March 13, 1883 (Atkins, 1884). Stockbridge. March 26, 1929; March 23, 1930. Lansing. March 25, 1950 (Wickstrom, 1950).

Livingston Co., Unadilla. March 24, 1911, flock of about 20 (Wood, 1951:144-145); March 13, 1952, 2; March 10, 1955, 5; March 22, 1958, 2. Iosco Twp., Sects. 24, 35, 36. March 26, 1939, 2; March 27, 1941, 3; March 22, 1952, 2.

Ionia Co., Woodbury. March 27, 1932, calling flock flying north in low clouds in early p.m. (birds not seen).

Clinton Co., Bath Twp., Park Lake. March 24, 1934; March 19, 1935. Corey Marsh, 2½ mi. NE of Park Lake. March 12, 1936; March 8, 1937; March 13, 1938, 3; March 14, 1939, 2; March 27, 1940; March 23, 1941, 4; March 19, 1942, 2; March 14, 1943; March 11, 1944; March 1, 1946; March 18, 1947, 3; March 17, 1948; March 8, 1949 (10:30 a.m.), 3; March 23, 1950; March 6, 1951; March 10, 1952; March 11, 1953, 2; March 12, 1954, 3; March 15, 1955, 2; March 10, 1956, 3; March 14, 1957, 3; March 18, 1958, 3; March, 1959. Rose Lake Expt. Station. March 19, 1939; March 25, 1940,

3; March 24, 1941, 4; March 24, 1942, 4; March 14, 1943, 2; March 17, 1944, 5; March 15, 1945, 2; March 1, 1946, 3; March 20, 1947, 1; March 17, 1948; March 7, 1949; March 13, 1950; March 6, 1951; March 19, 1952, 1; March 11, 1953; March 12, 1954; March 15, 1955; March 10, 1956, 3; March 14, 1957, 3; March 18, 1958, 3; March, 1959. Victor Twp., Sects. 28, 32, 33. March 2, 1953 (Wickstrom, 1953); March 13, 1955, 2 heard; March 11, 1956, 4.

Ottawa Co., Allendale Twp., Sects. 17, 21. April 8, 1951, 15 in flock flying north at 100 feet on bright sunny day (P. Hovingh, J. Ponshair, verbal comm.).

Muskegon Co., T9N, R15W, Sect. 36. May 3, 1954, 5 on ground had been there 10 days (Mich. Dept. Cons. notes).

Lapeer Co., Imlay City. March 15, 1945, 5 (Wallace, 1945).

Lake Co., Luther. April 7, 1955, 4 (Black, 1955).

Iosco Co., Hale. April 26, 1953 (Wickstrom, 1953).

Oscoda Co., Mio. April 7, 1955, 10 in flight (Black, 1955).

Otsego Co., T32N, R1W, Sect. 4. May 5, 1940, 2 (H. Tubbs in letter).

Cheboygan Co., Afton. April 1, 1953, 2 flying at 60 feet northward (E. Shultz, verbal comm.).

Schoolcraft Co., Blaney Park. April 4, 1935; April 10, 1936, 2; April 17, 1940, 2; April 13, 1941, 1; April 11, 1942, 2; March 31, 1943, 2; April 11, 1944, 1; March 25, 1945; March 12, 1946, 1; April 13, 1947, 2; April 5, 1948, 1; April 10, 1949, 1; April 8, 1950, 2; March 29, 1952; April 4, 1953, 2; April 6, 1954; April 16, 1958, 1. Seney National Wildlife Refuge. April 12, 1936; April 8, 1937; March 29, 1938, 2; April 5, 1939, 4; April 13, 1940, 1; April 3, 1941, 1; April 2, 1942, 2; April 8, 1943; April 15, 1944; April 13, 1945; March 28, 1946; April 11, 1947; April 7, 1948; March 29, 1949; April 17, 1950; April 10, 1951; April 9, 1952; April 16, 1953; April 6, 1954; April 3, 1955; April 7, 1956; April 2, 1957; April 9, 1958; April 4, 1959, 4 (U.S. Fish and Wildlife Service Notes).

Luce Co., McMillan. April 15, 1922; April 2, 1925, 2; April 25, 1929, 1; April 10, 1932, 2; April 20, 1934, 1; April 13, 1935, 7; April 16, 1939, 2; April 21, 1940, 1; April 7, 1941, 1; April 15, 1942, 1; April 17, 1943, 1; April 8, 1945, 2 (O. M. Bryens, letter).

Chippewa Co., Rudyard. April 20, 1958, 2 (Kenaga, 1958).

FALL MIGRATION

Ontonagon Co. Nov. 18, 1955, 2 flying south (E. Bacon in letter to M. D. Pirnie).

Delta Co., T43N, R18W, Sect. 32. Oct. 8, 1931, 9. T43N, R19W, Sect. 15. Oct. 8, 1931, 23 (K. Christofferson, letter).

Alger Co., T47N, R17W, Sect. 33. Sept. 12, 1949 (Nelson, 1950).

Schoolcraft Co., Seney. Sept. 25, 1895 (Barrows, 1912:151). Seney National Wildlife Refuge. Sept. 12-24, 1936; Oct. 14, 1939; Oct., 1939, 80 in one flock; Oct. 16, 1940, 25; Oct. 2, 1941, 26; Oct. 19, 1943; Oct. 8, 1944; Oct. 28, 1945; Oct., 1946; Oct. 6-9, 1947; Sept. 27, 1948; Sept. 15, 1949; Oct. 8, 1950; Oct. 1, 1951; Sept. 20, 1952; Oct. 11, 1953; Sept. 14, 1954; Oct. 3, 1955; Sept. 18, 1956; Sept. 25, 1957; Sept. 7-13, 1958 (notes from Seney National Wildlife Refuge). Blaney Park. Oct. 10, 1939, 6; Sept. 13, 1940, 4; Sept. 26, 1946, 1; Sept. 25, 1947, 2; Sept. 19, 1948, 2; Sept. 20, 1949, 2; Sept. 30, 1950, heard; Sept. 23, 1952, 4; Sept. 12, 1953, 3; Oct. 22, 1954, 1. Manistique. Sept. 19, 1935, 18 (K. Christofferson, letter).

Luce Co., T45N, R11W, Sects. 9, 10. Sept. 15, 1929, 2; Sept. 29, 1930, 8; Sept. 8, 1931, 4; Oct. 8, 1931, 14; Sept. 21, 1932, 2; Oct. 18, 1935, 10; Oct. 3, 1936, 3; Oct. 9, 1939, 14; Oct. 15, 1942, 15; Sept. 16, 1945, 1 (O. M. Bryens in letter). Sleeper Lake,

T48N, R10W, Sects. 33, 34. Sept. 4, 1950, flocks totaling 54 at roost; Oct. 7, 1950, only 3 in same roost. Swamp Lakes, T49N, R9W, Oct. 4, 1945, 75 in one flock. Newberry. Sept. 24, 1945, 36 flying low to south and calling.

Chippewa Co., Whitefish Point. Oct. 2, 1929, male collected (Wood, 1951:146). Fibre. Oct. 1, 1936, 9 (Wood, *ibid.*).

Cheboygan Co., Mackinac City. Sept. 30, 1953 (11 a.m.), 28 flying fairly high south-east over straits (A. Ammann in letter).

Otsego Co., Grass Lake, T32N, R1W, Sect. 5. Oct. 1, 1958, 43 flying south (A. Ammann in letter).

Grand Traverse Co., Weather Lake. Sept. 7-8, 1955, 2 (H. Mahan).

Missaukee Co., Lake City, 2 mi. SE. Oct. 6, 1951, 22 flying south and calling at 10 a.m. (M. D. Pirnie in letter).

Ottawa Co. Oct. 23, 1909, specimen in Grand Rapids Museum (Wood, 1951).

Clinton Co., Bath Twp., Rose Lake Expt. Station and Corey Marsh. Nov. 16, 1935; Oct. 9, 1938, 2; Oct. 1, 1939, 23; Oct. 25, 1940, 2 (peak, Oct. 11-16 cranes); Oct. 15, 1941, 2; Oct. 17, 1942, 4; Oct. 3, 1943, 17; Oct. 14, 1944, 20 and 7; Oct. 5, 1946, 12 and 8; Oct. 23, 1947, 1; Oct. 13, 1950, 11; Oct. 16, 1950, 4; Oct. 15, 1951, 14; Oct. 15, 1952, 50-65 flying; Oct. 15, 1953; Oct. 3, 1954, 13; Oct. 21, 1956, 17; Oct. 22, 1958, 4 (C. T. Black in letter). Bath Twp., Park Lake. Oct. 1, 1950, 50 flying (E. Goff in Mich. Dept. Cons. notes).

Barry Co., Johnstown Twp., Sect. 25, and Assyria Twp., Sect. 19. Nov. 9, 1957, 2; Nov. 19, 1958, 5; Nov. 10, 1959, 8.

Ingham Co., east of Lansing. Nov. 9, 1947, 50 flying SE in V-formation at 400 feet and occasionally calling. Stockbridge. Oct. 14, 1929, 4.

Livingston Co., Putnam Twp., T1N, R4E, Sect. 30. Dec. 15, 1946, 2 (F. N. Hamerstrom, Jr., in letter). Iosco Twp. Oct. 17, 1951. Unadilla Twp., Sect. 31. Oct. 8, 1955.

Calhoun Co., Convis Twp., Sects. 3, 6, 10, 11, 14, 15. Oct. 13, 1934, 8; Oct. 6, 1938, 2; Oct. 1, 1939, 16; Nov. 3, 1940, 9; Oct. 24, 1941, 3; Oct. 8, 1942, 3; Nov. 11, 1943, 2; Nov. 12, 1944, 1; Nov. 15, 1945, 2; Nov. 16, 1946, 2; Nov. 9, 1947, 5; Nov. 25, 1948, 7; Nov. 20, 1949, 14; Nov. 10, 1950, 6; Oct. 28, 1951, 10; Nov. 1, 1952, 12; Nov. 15, 1953, 9; Nov. 13, 1954, 4; Nov. 9, 1955, 29; Nov. 10, 1956, 4; Nov. 2, 1957, 11; Nov. 22, 1958, 5; Nov. 15, 1959, 11. From 1943-1959 the last dates are within 2 days or less of actual departure dates.

Jackson Co., Springport Twp., Sects. 10, 11, 15. First week of Nov., 1952, 5 (O. C. McPherson, verbal comm.). Leoni Twp., Sect. 2. Oct. 24, 1935, 2; Oct. 7, 1949, 9; Oct. 22, 1950, 5; Nov. 2, 1957, last; Oct. 14, 1958, 91; Oct. 1, 1959, 66. Waterloo Twp., Portage Marsh, Portage Lake, Whitehead Lake. Oct. 4, 1936, 3; Oct. 24, 1937, 5 (Wood, 1951); Oct., 1938, 56 (W. Moechel, verbal comm.); Oct. 20, 1940, 9 (peak Oct. 6-46 cranes); Oct. 19, 1941, 8 (peak Oct. 9-45 cranes); Nov. 6, 1942, 20 (peak Oct. 17-48 cranes); Oct. 14, 1943, the last (Oct. 10-36 cranes); Oct. 15, 1944, 40; Oct. 15, 1945, 10 (peak Oct. 6-38 cranes); Oct. 16, 1950, 16 (peak Oct. 14-46 cranes); Oct. 14, 1951, 84; Oct. 12, 1952, 98 (last on Oct. 30-2 cranes); Oct. 7, 1953, 99; Oct. 10, 76; Oct. 17, 31; Oct. 2, 1954, 81; Oct. 10, 2; Oct. 8, 1955, 80; Oct. 5, 1957, 127; Oct. 6, 131; Oct. 4, 1958, 107. Norvell Twp., Sect. 33. Oct. 1, 1954, 2 (M. D. Pirnie, verbal comm.). Manchester. Nov. 24, 1896 (Cooke, 1914:13). Hanover Twp., Sect. 8. Oct. 1, 1952 (C. Owens, letter).

Washtenaw Co., Lyndon Twp. Oct. 25, 1900. Sect. 8. Oct. 21, 1951, 30; Oct. 10, 1953, 35; Oct. 17, 1953, 28; Oct. 10, 1954, 47; Oct. 2, 1955, 77; Oct. 8, 1955, 67; Oct. 6, 1957, 65; Oct. 10, 36; Oct. 4, 1958, 53; Oct. 14, 45; Oct. 23, 33. Sect. 19. Oct. 13,

1940, 33. Dexter Twp.—Lima Twp., 4-mile Lake. Sept. 27, 1953, 4. Sharon Twp., Sect. 8. Oct. 19, 1930, 10; Oct. 8, 1955, 9.

Cass Co. Sept. 3, 1950, 1 (Wickstrom, 1951).

Monroe Co., Erie Twp. Oct. 19, 1948, 3 in flight (Wallace and Black, 1949).

WISCONSIN

SPRING MIGRATION

Rock Co., Johnstown. April 4, 1894, specimen of *G. c. canadensis* (Kumlien *et al.*, 1951:29); March 30, 1958, 8 flying (MacBriar, 1958).

Racine Co., Racine. April 13, 17, and 20, 1946 (Barger, 1946*b*).

Dane Co. March 21, 1948, 2 (Robbins, 1948*b*). Madison. May 14, 1943, 2 (Barger, 1943*b*); April 15, 16, 1947, 69 (Robbins, 1947*b*); April 27, 1949, 2 (Robbins, 1949*b*). Mazomanie. March 31, 1950, 2 (Robbins, 1950*b*).

Jefferson Co. April 2, 1950, 2 (Robbins, 1950*b*); March 27, 1952, 1 (Strelitzer, 1952); April 4, 1954 (Besadny, 1954*c*); April 15, 1957 (Lound and Lound, 1957*b*). Busseyville. April 26, 1869, flying north in night (Schorger, 1944).

Waukesha Co. May 13, 1954 (Besadny, 1954*d*); March 30, 1940, 4 (Barger, 1940*b*). Waukesha. April 7, 1950, 16 (Robbins, 1950*b*).

Sauk Co., Sauk City. May 8, 1938, 2 (Grange, MS).

Columbia Co. March 27, 1954 (Besadny, 1954*c*). Poynette. May 7, 1940, 2 (Barger, 1940*c*); March 22, 1941, 24 (Barger, 1941*b*); April 14, 1947 (Robbins, 1947*b*); May 2, 1957 (Lound and Lound, 1957*b*); April 27, 1958 (MacBriar, 1958).

Dodge Co. April 3, 1898, 9; April 5, 1900, 1 shot; April 7, 1900, 1; April 8, 1904, flock; April 22, 1924, flock (notes from W. E. Scott). Horicon. May 5, 1942 (Barger, 1942); March 19, 1945, 25 (Smith and DuMont, 1945); April 1, 1950, 10; April 7, 1950, 34; April 9, 1950, 1 (Robbins, 1950*b*); March 31, 1957, 9 (Lound and Lound, 1957*b*). Kekoskee. April 8, 1944, 75 (Barger, 1944).

Monroe Co. Feb. 28, 1951, 2 (Grange, MS).

Juneau Co., Clearfield. April 20, 1939, 3 (Laboda, 1939).

Adams Co. April 14, 1953 (Besadny, 1953); April 30, 1954 (Besadny, 1954*c*); April 6, 1955 (Foster, 1955); April 8, 1957 (Lound and Lound, 1957*b*); April 3, 1958 (MacBriar, 1958).

Marquette Co. Jan. 8, 1941, 1 dead and 1 alive (Barger, 1941*a*). Endeavor Marsh. March 29, 1943, 2 (Barger, 1943*b*); May 20, 1944, 4 (Barger, 1944); April 10, 1935, 300 (B. Kimball in report to Aldo Leopold).

Green Lake Co. April 20, 1950 (Robbins, 1950*b*); April 15, 1951, 26 flying over (Strelitzer, 1951); March 28, 1952, 12 (Strelitzer, 1952). Town of Seneca, Sect. 16. April 30, 1949, 400 plus (N. A. Damaske, pers. comm.); May 11, 1950, 70 plus. Sect. 17. April 25, 1950, 36; May 11, 1950, 42. Sect. 3. May 11, 1950, 600 in flight. Town of St. Marie. April 30, 1949, 250 plus; April 25, 1950, 10.

Waushara Co. March 30, 1940 (Barger, 1940*a*).

Manitowoc Co. May 17, 1950, 2 (Robbins, 1950*c*); May 12, 1956 (Lound and Lound, 1956).

Calumet Co. March 23, 1949, 25 flying west (Grange, MS).

Jackson Co., Hoffman—Stebbins Range, T20—21N, R1E. Late March, 1936, April 9, 1937 (Hamerstrom, 1938). April 25, 1957, 7 (Lound and Lound, 1957*b*).

Wood Co. March 29, 1942 (Mathiak, 1942); April 4, 1949, 2 (Robbins, 1949*b*); March 29, 1952 (Strelitzer, 1952). Cranmoor. April 1, 1929 (Grange, MS). Babcock, Sandhill Game Farm. April 9, 1937; March 28, 1950; March 21, 1952, 4 (Grange, MS). Wisconsin Rapids. April 1, 1947 (Robbins, 1947*b*).

Outagamie Co. April 28, 1954 (Besadny, 1954c). Shiocton. April 17, 1947, 15 (Robbins, 1947b); March 29, 1958 (MacBriar, 1958).

Shawano Co. June 1, 1950 (Robbins, 1950b).

Polk Co. April 29, 1950 (Robbins, 1950b).

Burnett Co. May 10, 1952 (Strelitzer, 1952); April 9, 1956 (Lound and Lound, 1956); April 2, 1957 (Lound and Lound, 1957b); April 4, 1958 (MacBriar, 1958).

Sawyer Co. May 5, 1941 (Barger, 1941c).

Ashland Co., Outer Is. May 23, 1950, 2 (Robbins, 1950c).

FALL MIGRATION

Vilas Co. Sept. 27, 1958 (Kemper, 1959).

Barron Co. Oct. 8, 1957, 1 (Lound and Lound, 1958).

Burnett Co. Sept. 4, 1956 (Lound and Lound, 1957a).

Dunn Co. Oct. 1, 1953 (Besadny, 1954a).

Chippewa Co. Oct. 1, 1957, 1 (Lound and Lound, 1958).

Oconto Co., Peshtigo Marsh. Sept. 3, 1940, 3 over (Barger, 1940d).

Shawano Co. Aug. 27, 1953, 6 (Besadny, 1954a).

Trempealeau Co. Nov. 2, 1953 (Besadny, 1954b).

Jackson Co., Grimshaw Range. Oct. 20, 1936, most cranes gone; Nov. 8, 1936, last 2 left (Hamerstrom, 1938).

Wood Co. Oct. 10, 1936; Oct. 6, 1957 (Lound and Lound, 1958). Pittsfield. Sept. 20, 1924. Remington. Oct. 3, 1939, 3 (Scott, 1939b). Babcock. Nov. 6, 1950 (Robbins, 1951b). Amundson Cranberry Marsh. Oct. 15, 1940, 14; Oct., 1941, 21; Oct., 1948, 21 (Grange, MS). Babcock, Sandhill Game Farm. Oct. 16, 1949, 31; Oct. 28, 1950, 25 (Oct. 24—55 cranes); Oct. 31, 1951, 30 plus (Oct. 21 and 22—34 cranes); Oct. 15, 1952, 22 (earlier Oct.—46 cranes) (Grange, MS). Babcock, Y-ditch. Oct. 28, 1949, 44 (Grange, MS).

Outagamie Co., Shiocton. Oct. 9, 1882 (Gruntvig, 1894—1895:100); Oct. 11, 1949, 8 (Robbins, 1950a). New London. Oct. 14, 1928; Oct. 20, 1935; Nov. 7, 1938 (supplied by U.S. Fish and Wildlife Service); Oct., 1940, 34 (Barger, 1940f); Oct. 3, 1941, 17 (Dayton, 1941); Oct. 18, 1949, 15 (Robbins, 1950a); Sept. 21, 1955 (Foster, 1956); Sept. 15, 1956 (Lound and Lound, 1957a); Oct. 1, 1957 (Lound and Lound, 1958).

Adams Co. Sept. 21, 1941, 19 (Barger, 1941d); Oct. 4, 1941, 2 flocks—75 and 200 cranes; Sept. 28, 1942, 200 (A. Leopold in notes); Oct. 17, 1947, many (Robbins, 1948a); Oct. 23, 1948, large flock (Robbins, 1949a); Oct. 22, 1953, 2 (Besadny, 1954a); Sept. 14, 1954 (Besadny, 1955); Sept. 26, 1955, last (Foster, 1956). Ship Rock. 100 left before Oct. 20, 1934. Near Hancock. Oct. 8, 1939, 75—100 (Scott, 1939b). Town of Colburn. Oct. 8, 1940, 52 (Barger, 1940e); Oct. 3, 1957 (Lound and Lound, 1958).

Waushara Co. Nov. 5, 1948, 46 (Robbins, 1949a); Sept. 12—Oct. 8, 1950, flocks (Robbins, 1951a). Wild Rose. Sept. 16, 1950, 28; Sept. 17, 1950, 34 (Grange, MS). Wautoma. Sept. 6, 1952 (9:35 a.m.), 2; (4:55 p.m.), 6 (Grange, MS).

Marquette Co., Endeavor Marsh. 1892, 1000 (Grange, MS); Sept. 30, 1939, 8 (Scott, 1939a); Oct. 12, 1939, 36; late Oct., 1940, 150 (Barger, 1940e); Nov. 4, 1941, large flock (Barger, 1941e); Sept. 15, 1946, 14; Sept. 28, 1946, 50 (Robbins, 1947a); Sept. 21, 1948, 29 (Robbins, 1949a); Sept. 12 to Oct. 8, 1950, flocks (Robbins, 1951a); Sept. 21, 1953, 2 (Besadny, 1954a); Oct. 15—22, 1955, peak (Foster, 1956). Nashkoro Twp., T17N, R11E, Sect. 34. Sept. 12, 1950, 6 (N. Damaske in letter). Between Briggsville and Endeavor. Oct. 10—16, 1954, large flock (Besadny, 1955).

Green Lake Co. Sept. 13, 1946, 63; Oct. 7, 1947, 250 (Robbins, 1948a; Grange, MS); Oct. 8, 1948; Oct. 17, 1948 (Robbins, 1949a); early Oct., 1949, 700 (Robbins, 1950a);

Sept. 12 to Oct. 8, 1950, large flocks (Robbins, 1951*a*); Oct. 15, 1952, 1400—in part in Marquette Co. (last on Nov. 15) (Strelitzer, 1953); Oct. 22, 1953, 37 (Besadny, 1954*a*); Sept. 24, 1954, 400 (Besadny, 1955); Oct. 15–22, 1955, peak (Foster, 1956); Sept. 27 to Oct. 18, 1956 (Lound and Lound, 1957*a*); Oct. 5–6, 1957 (Lound and Lound, 1958). Lake Puckaway. Oct. 22, 1933, 20 flying over (Grange, MS). Near Princeton. Sept. 25 to Oct. 3, 1941, 90 (Scott, 1941); Sept. 20, 1953, 175 (Besadny, 1954*a*); Sept. 30, 1958, 300 (Kemper, 1959). Town of Seneca, Sects. 16, 17. Oct. 16, 1949, 600; Sept. 14, 1950, 36; Oct. 12, 23; Oct. 31, groups of 36 and 75 (N. Damaske in letter). Sect. 9. Oct. 31, 1950, 125. Sect. 20. Sept. 2, 1950, 3. Sect. 11, R11E. Sept. 11, 1950, 31 (N. Damaske in letter). Town of St. Marie, Sect. 31. Oct. 16, 1949, 200 plus; Oct. 12, 1950, 20; Oct. 31, 15 (N. Damaske in letter).

Sheboygan Co., West of Cedar Grove. Sept. 24, 1936, 1; Oct. 1, 1937, 7 (notes from W. E. Scott).

Columbia Co., Poynette. Oct. 16, 1940, 31 (Barger, 1940*e*) (Grange gave Oct. 15); Oct. 4, 1957 (Lound and Lound, 1958).

Dodge Co. Oct. 18, 1892, flock; Sept. 20, 1901, flock. Horicon Marsh. 1864 (?), 300—1 shot; Nov. 26, 1945, 1; Nov. 6, 1948, 40 (Barger, 1946*a*; Robbins, 1949*a*). Mud Lake. Oct. 20, 1949 (Robbins, 1950*a*).

Dane Co. Sept. 27, 1953 (Besadny, 1954*a*); Oct. 24, 1955, 6 flying south (Foster, 1956).

Jefferson Co. Oct. 17–18, 1942, few (Barger, 1943*a*); Oct. 4–19, 1950 (Robbins, 1951*a*); Oct. 12, 1956 (Lound and Lound, 1957*a*:37).

Waukesha Co. Sept. 20, 1949, 12 (Robbins, 1950*a*).

Milwaukee Co., a few miles north of Milwaukee. Dec. 10, 1939, 1 (Scott, 1940).

Rock Co. Oct. 28, 1949 (Robbins, 1950*a*).

Walworth Co. Nov. 6, 1940, 18 (Barger, 1940*f*). Delavan. Oct. 23, 1892 (Cooke, 1914:13); Oct. 3, 1897 (spec. Milw. Pub. Mus.). Lake Geneva. Nov. 4, 1937, 4 flying over lake (Grange, MS); Oct. 5, 1954, 50 (Besadny, 1955).

Kenosha Co. Oct. 19, 1947, 25 flying NW at New Munster (Robbins, 1948*a*; Grange, MS).

CONCLUSION

Since 1910 apparently the majority of Sandhill Cranes have migrated from northern Ontario, northern Michigan and central Wisconsin, into northern Indiana; and in more recent years to Jasper–Pulaski Game Preserve. From here and from southern Michigan cranes definitely proceed toward southern Georgia, and apparently on into Florida.

Migration records are shown on Fig. 1. But more significant are the numbers of cranes observed. In western and southern Illinois, there are only five recent records, only three of which indicate the exact numbers, totaling six cranes. From eastern Illinois I have obtained information on 31 groups of cranes, but exact numbers were available in only five records, totaling 100 cranes. Outside of the Willow Slough and Jasper–Pulaski Game Preserve in northern Indiana, where the cranes concentrate for many weeks, I find 57 observations of cranes listing a total of at least 703 birds. Farther east in Ohio there are only 14 records totaling at least 78 cranes, and these mainly from the western part of the state. Records from Massachusetts, Pennsylvania, West Virginia, New Jersey, and South Carolina in recent years give

no more than one or two cranes in a group. In Kentucky there are only five recent records totaling 39 cranes. In western Tennessee only one record of two cranes; while in eastern Tennessee there are eight records totaling 84 cranes. On the other hand, 1294 migrating cranes have been counted in 27 groups going over Georgia. The line of flight appears to be from the northwestern part of the state through the Atlanta region and the Piedmont National Wildlife Refuge area to the Okefenokee Swamp area. Usually there appears to be no winter increase in the cranes in the Okefenokee National Wildlife Refuge, but during the winter of 1956-1957, 522 were counted on January 29. A winter increase in Florida, together with observed flights in March and November in the northern part of the state, indicate the regular wintering area is usually in central or southern Florida.

ACKNOWLEDGMENTS

I would like to thank the many people who helped compile the many Sandhill Crane records, especially C. T. Black, O. M. Bryens, T. D. Burleigh, K. Christofferson, Dr. and Mrs. W. P. Cottrille, W. Grange, C. J. Henry, S. C. Kendeigh, W. Koelz, W. E. Madden, R. E. Mumford, M. D. Pirnie, J. Van Tyne, J. Watling, R. Whiting, and H. F. Wing.

LITERATURE CITED

- ADAMS, P.
1939 Sandhill Crane in Cumberland Co. *Migrant*, 10:16.
- ALLIN, A. E.
1943 Sandhill Cranes (*Grus canadensis*) in the Lake Superior region of western Ontario. *Can. Field Nat.*, 57:13-14.
- AMBROSEN, D. R.
1950 Blue Goose and Sandhill Crane in Jones County, Georgia. *Oriole*, 15:8.
- ATKINS, H. A.
1884 Sandhill Crane (*Grus canadensis*). *Ornithologist and Oologist*, 9:6-7.
- BAILLIE, J. L.
1951 Region report (Ontario-western New York region). *Aud. Field Notes*, 5:12-14.
1953 Region report (Ontario-western New York region). *Aud. Field Notes*, 7:13-15.
1955 Regional Report (Ontario-western New York region). *Aud. Field Notes*, 9:328-329.
- BARBIC, H. T.
1953 Sandhill Crane at Memphis. *Migrant*, 24:11.
- BARGER, N. R. (Editor)
1940a March field notes. *Pass. Pigeon*, 2:49-53.
1940b By the wayside. *Pass. Pigeon*, 2:84-85.
1940c By the wayside. *Pass. Pigeon*, 2:94.
1940d September field notes. *Pass. Pigeon*, 2:116-118.
1940e October field notes. *Pass. Pigeon*, 2:123-126.
1940f By the wayside. *Pass. Pigeon*, 2:137.
1941a January field notes. *Pass. Pigeon*, 3:18-20.
1941b March field notes. *Pass. Pigeon*, 3:37-39.
1941c May field notes. *Pass. Pigeon*, 3:57-60.
1941d September field notes. *Pass. Pigeon*, 3:92-93.
1941e November field notes. *Pass. Pigeon*, 3:107-108.

- 1942 The spring season (southwestern area). *Pass. Pigeon*, 4:57-58.
1943a The autumn season (southwest area). *Pass. Pigeon*, 4:99-100.
1943b The spring season (southwest area). *Pass. Pigeon*, 5:45-47.
1944 The spring season. *Pass. Pigeon*, 6:69-71.
1946a The autumn season. *Pass. Pigeon*, 8:31-33.
1946b The spring season. *Pass. Pigeon*, 8:88-94.
- BARROWS, W. B.
1912 Michigan bird life. Michigan Agricultural College, E. Lansing. xiv + 822 pp.
- BARTEL, K. E.
1940 Some unusual birds seen for 1940 bird list. *Oologist*, 57:42.
- BENNETT, G. M., M. MITCHELL, AND W. W. H. GUNN
1958 Regional report (Ontario-western New York region). *Aud. Field Notes*, 12:26-30.
- BENT, A. C.
1926 Life histories of North American marsh birds. U. S. Natl. Mus. Bull. No. 135, 490 pp.
- BESADNY, C. D.
1953 The early spring season. *Pass. Pigeon*, 15:135-141.
1954a The autumn season. *Pass. Pigeon*, 16:33-41.
1954b The winter season. *Pass. Pigeon*, 16:76-81.
1954c The early spring season. *Pass. Pigeon*, 16:113-120.
1954d Late spring and summer season. *Pass. Pigeon*, 16:151-160.
1955 The autumn season. *Pass. Pigeon*, 17:36-45.
- BLACK, C. T.
MS (Unpublished). Birds of Illinois.
1955 Michigan bird survey, 1955. *Jack-Pine Warbler*, 33:87-94.
- BOULTON, R., AND F. A. PITELKA
1939 The season (Chicago region). *Bird-Lore*, 41:191-192.
- BROOKS, M.
1944 A check-list of West Virginia birds. Agric. Expt. Sta. W. Va. Univ., Bull. 316, 56 pp.
1954 Region report (Appalachian region). *Aud. Field Notes*, 8:311-312.
1957 Regional report (Appalachian region). *Aud. Field Notes*, 11:264-266.
- BURLEIGH, T. D.
1958 Georgia birds. Univ. Oklahoma Press, Norman. xxix + 746 pp.
- BURR, I. W.
1955 Regional report. Northern: Fall, 1954. *Ind. Aud. Quarterly*, 33:34-36.
1957 Regional report. Northern: Spring 1957. *Ind. Aud. Quarterly*, 35:61-64.
1959 Regional report. Northern: Spring 1958. *Ind. Aud. Quarterly*, 37:16-20.
- BUTTS, W. K.
1936 A Florida (Sandhill) Crane at Chattanooga. *Migrant*, 7:24.
- CARPENTER, F. S.
1933 Bald Eagle and Sandhill Crane at Louisville. *Ky. Warbler*, 9:4.
- CHAMBERLAIN, B. R.
1955 Regional report (southern Atlantic coast region). *Aud. Field Notes*, 9:324-326.
1957 Regional report (southern Atlantic coast region). *Aud. Field Notes*, 11:333-337.
1958 Regional report (southern Atlantic coast region). *Aud. Field Notes*, 12:19-21.
- CHAMBERLAIN, B. R., AND E. B. CHAMBERLAIN
1952 Region report (southern Atlantic coast region). *Aud. Field Notes*, 6:190-192.

- CHOATE, E. A.
1959 Reports from regional editors. Region No. 5. *New Jersey Nature News*, 14:19.
- CLARK, C. F.
1946 Rare birds in west-central Ohio. *Auk*, 63:594.
- COOKE, W. W.
1914 Distribution and migration of North American rails and their allies. U. S. Dept. Agric. Bull. No. 128, 50 pp.
- COPE, J. B., AND M. M. SNOW
1952 The 1952 spring migration. *Ind. Aud. Quarterly*, 30:45-48.
- CYPERT, E.
1957 Large winter population of Sandhill Cranes on Okefenokee National Wildlife Refuge. *Oriole*, 22:21-22.
- DAYTON, F. S.
1941 Sandhill Cranes breed at New London. *Pass. Pigeon*, 3:91.
- DEADERICK, W. H.
1940 Audubon in Tennessee. *Migrant*, 11:59-61.
- DILLEY, W. E.
1958 Sandhill Cranes over Mammoth Cave area. *Ky. Warbler*, 34:25.
- EDNEY, J. M.
1940 The Sandhill Crane in middle Tennessee. *Journ. Tenn. Acad. Sci.*, 15:401.
- EIFRIG, C. W. G.
1919 Notes on birds of the Chicago area and its immediate vicinity. *Auk*, 36: 513-524.
- EVERMANN, B. W.
1888 Birds of Carroll County, Indiana. Pt. 1. *Auk*, 5:344-351.
1920 Birds of Vigo, Monroe, and Carroll cos. *Proc. Ind. Acad. Sci.*, 332 pp.
- FLEETWOOD, R. J.
1942 Sandhill Cranes in Jones County, Georgia. *Oriole*, 7:34.
- FORD, E. R.
1956 Birds of the Chicago region. *Chi. Acad. Sci. Spec. Publ.* No. 12, viii + 117 pp.
- FORD, E. R., C. C. SANBORN, AND C. B. COURSEN
1934 Birds of the Chicago region. *Pro. Act. Chi. Academy Sci.*, 5 (Nos. 2-3):18-80.
- FORSTER, J. R.
1772 An account of the birds sent from Hudson's Bay; with observations relative to their Natural History; and Latin descriptions of some of the most uncommon. *Phil. Trans. Roy. Soc.* 62:382-433.
- FOSTER, B.
1955 Field notes. The early spring season. *Pass. Pigeon*, 17:122-133.
1956 Field notes. Autumn season. *Pass. Pigeon*, 18:31-44.
- GORRELL, P. H.
1941 My Audubon Association wildlife tour at Lake Okeechobee. *Yearbook, Ind. Aud. Soc.*, 19:33-38.
- GRANGE, W.
MS (Unpublished) The Sandhill Crane in Wisconsin.
- GROW, R.
1954 Regional reports. Northern: Spring, 1953. *Ind. Aud. Quarterly*, 32:30-33.
- GRUNDTVIG, F. L.
1894-1895 On the birds of Shiocton in Bovina, Outagamie County, Wisconsin. *Wis. Acad. Sci. Arts, Letters*, 10:73-158.

- GUNN, W. W. H.
1958 Regional report (Ontario-western New York). *Aud. Field Notes*, 12:348-352.
- HAMERSTROM, F. N., JR.
1938 Central Wisconsin crane study. *Wilson Bull.*, 50:175-184.
- HEBARD, F. V.
1953 The Sandhill Crane in Georgia. *Oriole*, 18:10-11.
- HOPKINS, M.
1959 From the field. *Oriole*, 24:44.
- HOWELL, J. C.
1952 Additional records of the Sandhill Crane in east Tennessee. *Migrant*, 23:7.
- IJAMS, H. P.
1942 Sandhill Cranes near Knoxville. *Migrant*, 13:56.
- IMHOF, T.
MS (Unpublished). The Birds of Alabama.
- JOHNSTON, D. W.
1956 Observations from Macon and vicinity. *Oriole*, 21:7-8.
- KAHL, P.
1958 From the field. *Oriole*, 23:24.
- KELLER, C. E.
1958 Regional reports. Central: Spring, 1956. *Ind. Aud. Quarterly*, 36:53-55.
- KEMPER, C. A.
1959 Field notes. Autumn season. *Pass. Pigeon*, 21:80-90.
- KENACA, E. E.
1958 Michigan bird survey, Spring, 1958. *Jack-Pine Warbler*, 36:208-213.
- KUMLEIN, L., AND N. HOLLISTER (WITH REVISIONS BY A. W. SCHORGER)
1951 The birds of Wisconsin. Wis. Soc. Ornith., Inc. vi + 122 pp.
- LABODA, L.
1939 April field records. Juneau County. *Pass. Pigeon*, 1:74.
- LEWY, A.
1945 A flight of cranes. *Ill. Aud. Bull.*, 54:7.
- LOUND, M., AND R. LOUND
1956 Spring season March-May 1956. *Pass. Pigeon*, 18:124-140.
1957a Autumn season August 16 through November. *Pass. Pigeon*, 19:32-45.
1957b Spring season March-May 1957. *Pass. Pigeon*, 19:125-141.
1958 Autumn season August 16 through November. *Pass. Pigeon*, 20:29-45.
- LOWERY, G. H., JR.
1955 Louisiana birds. Louisiana State Univ. Press, Baton Rouge. xxix + 556 pp.
- MACBRIAR, W. N., JR.
1958 Field notes, spring season. *Pass. Pigeon*, 20:121-136.
- McILLWRAITH, T.
1894 The birds of Ontario.
- MARKS, C. F., AND H. F. WRIGHT
1950 Spring flight. *Ind. Aud. Quarterly*, 28:64-76.
- MATHIAK, H. A.
1942 The spring season (central area). *Pass. Pigeon*, 4:54-55.
- MAYFIELD, H.
1950 Region report (middlewestern prairie region). *Aud. Field Notes*, 4:17-19.
1951a Region report (middlewestern prairie region). *Aud. Field Notes*, 5:18-19.
1951b Region report (middlewestern prairie region). *Aud. Field Notes*, 5:257-259.

- METCALF, J.
1929 Three interesting records from South Carolina. *Auk*, 46:248.
- MONROE, B. L.
1938 Sandhill Crane in Kentucky. *Auk*, 55:670.
- MORGAN, A., AND R. P. EMERY
1956 Region report (northeastern maritime region). *Aud. Field Notes*, 10:5-8.
- MUMFORD, R. E.
1950 And the sandhills dance. *Ind. Aud. Quarterly*, 28:82-86.
- NELSON, T. C.
1950 Sandhill Cranes in Alger and Schoolcraft counties. *Jack-Pine Warbler*, 28:39.
- NEWMAN, R. J.
1957 Regional report (central southern district). *Aud. Field Notes*, 11:30-34.
1958a Regional report (central southern district). *Aud. Field Notes*, 12:284-287.
1958b Regional report (central southern district). *Aud. Field Notes*, 12:417-421.
- NOLAN, V., JR.
1953 Spring migration report. Central Indiana. *Ind. Aud. Quarterly*, 31:75-80.
- O'REILLY, R. A.
1951 March-April-May, 1949 summary of spring observations. Bird-Survey of the Detroit region, May 1, 1951:12-27.
- PERKINS, S. E., III
1936 Episodes in the life of Audubon in Indiana. *Wilson Bull.*, 48:17-22.
- PETERS, H. S.
1952 Sandhill Crane taken in Fulton County (Georgia). *Oriole*, 17:31.
1953 Sandhill Cranes over Atlanta. *Oriole*, 18:45.
- RICE, D. W.
1946 Notes on the birds of Marion County. *Ind. Aud. Yearbook*, 24:40-41.
1949 Sandhill Crane. *Ind. Aud. Yearbook*, 27:29.
1951 Sandhill Cranes over Indianapolis. *Ind. Aud. Quarterly*, 29:10-11.
- ROBBINS, S. D., JR.
1947a The autumn season. *Pass. Pigeon*, 9:29-34.
1947b The spring season. *Pass. Pigeon*, 9:112-118.
1948a The autumn season. *Pass. Pigeon*, 10:33-39.
1948b The spring season. *Pass. Pigeon*, 10:116-123.
1949a The fall and early winter season. *Pass. Pigeon*, 11:80-91.
1949b The late winter and early spring season. *Pass. Pigeon*, 11:133-139.
1950a The autumn season. *Pass. Pigeon*, 12:42-50.
1950b The early spring season. *Pass. Pigeon*, 12:136-143.
1950c The late spring and summer season. *Pass. Pigeon*, 12:171-183.
1951a The autumn season. *Pass. Pigeon*, 13:37-46.
1951b The winter season. *Pass. Pigeon*, 13:75-81.
- SANBORN, C. C.
1922 Recent notes from an old collecting ground in northeastern Illinois. *Auk*, 39:367-373.
- SATTER, J. M.
1956 Regional reports. Central: Fall, 1955. *Ind. Aud. Quarterly*, 34:72-74.
- SCHORGER, A. W.
1944 A list of migrating birds prepared by A. L. Kumlien in 1869. *Pass. Pigeon*, 6:13-16.
- SCOTT, W. E. (EDITOR)
1939a September field notes. *Pass. Pigeon*, 1:144-150.

- 1939^b October field notes. *Pass. Pigeon*, 1:159.
1940 December field notes. *Pass. Pigeon*, 2:13.
1941 By the wayside. *Pass. Pigeon*, 3:84-85.
- SMITH, E. T.
1942 The season (Chicago region). *Aud. Magazine*, 44 (No. 4, Supl.): 8-9.
- SMITH, E. T., AND P. A. DUMONT
1945 Spring migration. Middlewestern region. *Aud. Magazine*, 47 (No. 4, Supl.): 34-37.
- SMITH, H. R., AND P. W. PARMALEE
1955 A distributional check list of the birds of Illinois. III. State Mus. Pop. Sci. Ser. 4:1-62.
- SPENCER, H. H.
1948 Sandhill Crane observed in southwestern Ohio. *Wilson Bull.*, 60:187.
- SPRUNT, A., JR., AND E. B. CHAMBERLAIN
1949 South Carolina bird life. Cont. Chas. Mus. XI, xx + 585 pp.
- STAMM, A. L.
1957 A fall record of the Sandhill Crane. *Ky. Warbler*, 33:15.
- STEVENSON, H. M.
1956 Regional report (Florida region). *Aud. Field Notes*, 10:18-22.
- STRELITZER, C. L.
1951 The spring season. *Pass. Pigeon*, 13:109-112.
1952 The spring season. *Pass. Pigeon*, 14:113-121.
1953 Field notes. The autumn season. *Pass. Pigeon*, 15:41-45.
- TODD, W. E. C.
1911 The Sandhill Crane (*Grus mexicana*) in Ohio. *Auk*, 28:368.
1940 Birds of western Pennsylvania. xv + 710 pp.
- TOMKINS, I. R.
1956 From the field. *Oriole*, 21:47.
- TONER, G. C., W. E. EDWARDS, AND M. W. CURTIS
1942 Birds of Leeds County, Ontario, Pt. 3, *Can. Field Nat.*, 56:34-44.
- TRAUTMAN, M. B.
1940 The birds of Buckeye Lake, Ohio. Misc. Publ. Mus. Zool. Univ. Mich., No. 44:1-466.
- WAGGENER, M. G. (EDITOR)
1943 Spring migration brings Sandhill Cranes to Jasper-Pulaski State Game Preserve. *Outdoor Indiana*, 10 (No. 2):1, 12.
- WALKINSHAW, L. H.
1949 The Sandhill Cranes. Bull. 29 Cranbrook Inst. of Science. 202 pp.
1950^a The Sandhill Crane in the Bernard W. Baker Sanctuary, Michigan. *Auk*, 67:38-51.
1950^b Sizes of spring flocks of the Sandhill Crane at Jasper-Pulaski Game Preserve, Indiana. *Ind. Aud. Quarterly*, 28:78-82.
1953 The Greater Sandhill Crane in Georgia. *Oriole*, 18:13-15.
- WALLACE, G.
1945 Seasonal records of Michigan birds—spring. *Jack-Pine Warbler*, 23:106-122.
- WALLACE, G., AND C. T. BLACK
1948 Seasonal records of Michigan birds—spring, 1948. *Jack-Pine Warbler*, 26: 161-176.
1949 Seasonal records of Michigan birds—summer and fall, 1948. *Jack-Pine Warbler*, 27:13-31.

WEST, H.

1957 Field notes. *Audubon News*, 9 (No. 4):3-4.

WESTON, F. M.

1948 The changing seasons, fall migration. Pensacola (Fla.) region. *Aud. Field Notes*, 2:9-11.

WHARTON, C. H.

1940 Sandhill Cranes at Jackson Lake. *Oriole*, 5:18-19.

WICKSTROM, G.

1950 Seasonal records: Spring migration, 1950. *Jack-Pine Warbler*, 28:114-126.

1951 Seasonal records of Michigan birds—summer and fall, 1950. *Jack-Pine Warbler*, 29:143-153 (11-21).

1952 Seasonal records of Michigan birds—spring 1952. *Jack-Pine Warbler*, 30:79-92.

1953 Seasonal records of Michigan birds—spring 1953. *Jack-Pine Warbler*, 31:79-95.

WILLIAMS, M. Y.

1942 Notes on the fauna of Bruce Peninsula, Manitoulin, and adjacent islands. Pt. 2. *Can. Field Nat.*, 56:70-81.

WITTER, S. C.

1956 The Sandhill Crane near Kingsland. *Oriole*, 21:32.

WOOD, N. A.

1951 The birds of Michigan. Misc. Publ. Mus. Zool. Univ. Mich., No. 75, 559 pp.

819 NORTH AVE., BATTLE CREEK, MICHIGAN, MARCH 17, 1959