# NORTH FLORIDA SANDHILL CRANE POPULATIONS

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SANDHILL CRANES (*Grus canadensis*) occur regularly on several prairies, lake margins, and marshes in northern Florida, but to our knowledge no previous attempt has been made to determine the size, source, and subspecies of these populations. This paper reports recent data on migration time and routes and the nesting and wintering grounds of the Sandhill Crane populations in northern Florida.

## METHODS AND MATERIALS

Between 1963 and 1971 we visited all localities in Florida north of Marion County and east of the Aucilla River (Figure 1) where Sandhill Cranes were known or believed to occur. From 1968 through 1971 these places were rechecked by airplane, surface vehicle, or on foot. We visited Pinhook Swamp (a part of the Okefenokee Swamp) only during 1963 and 1964 in connection with another study.

We did not census west of the Aucilla River because cranes are rare there (Howell, 1932; Weston, 1965), nor did we survey the Florida peninsula south of Alachua County because the species nests so widely there that the land area to be searched would necessitate a study of greater scope than we were able to undertake. We obtained some unpublished information (H. M. Stevenson and R. L. Thompson, pers. comm.) on a small population in Liberty County near Sumatra.

*Capturing and marking.*—In the winter of 1967–68, 24 cranes captured on Orange Grove Lake Prairie and 26 captured on Paynes Prairie were tagged with light green patagial tags (Knowlton et al., 1964), banded with size 8 or 9 standard U. S. Fish and Wildlife Service bands above the distal joint of the tibia, and released at the capture sites. In the winters of 1968–69 and 1969–70, 119 more cranes were banded and color-marked on Paynes Prairie, for a total of 169 wing-marked and banded for this study.

Cranes were caught by a technique similar to that used to take wild Turkeys (*Meleagris gallopavo*) (Williams, 1966). On prebaited sites they were fed whole yellow corn (maize) dampened and dusted with powdered alpha-chloralose at dosage rates between 0.35 and 1.50 g per standard cup of bait. The most effective dosage was 0.40 to 0.45 g of the drug per cup of corn. Narcotized cranes were held in large cardboard boxes or in burlap feed sacks with their legs securely taped together at the distal end of the tarsometatarsus. They were released at the capture sites after they recovered, usually the day after capture, but a few heavily drugged birds slept for 2 days.

*Sightings and recoveries of marked cranes.*—We alerted potential observers to watch for color-marked cranes and sent letters explaining the study to state and federal conservation agencies and private individuals in the eastern and midwestern United States and Canadian provinces where Sandhill Cranes were known (Walkinshaw, 1949) to nest or occur in migration.

Reports of 160 sightings of marked cranes north of Florida have been received and four bands have been recovered as this is being written (April 1971). About 60 other cranes wearing bands on the lower tibia were reported in the same areas that color-marked birds were seen and probably also refer to our birds, but only reports of green color-marked cranes are used in this report (Tables 1 and 2). Four bands were recovered through the facilities of the Bird Banding Office, Bureau of Sport Fisheries and Wildlife.

TABLE 1

BAND RECOVERIES AND REPORTED SIGHTINGS OF COLOR-MARKED SANDHILL CRANES MARKED DURING WINTER IN NORTHEASTERN FLORIDA

| Location | | Date and number of records |
|---|---|---|
| State | County | |
| Georgia | Cobb | 1969: 6 Apr. |
| Kentucky | Rockcastle | 1968: 19 Nov. |
| Michigan | Calhoun | 1968: 11 Oct. 1970: 1 Oct. |
| Michigan | Chippewa | 1969: 2 Apr. (2), 12 Apr. (2). 1970: 31 Aug. |
| Michigan | Jackson | 1969: 4 Apr. (2); 1–5 Jul. (3), 6–20 Jul. (2); 21–28 (2); 5 Oct. 1970: 27, 29 Mar.; 1, 4, 5, 11, 28 Apr.; 2 May; 28 Jun. (3); 18 Jul., 27 Jul. (2); 31 Jul.; 1 Aug., 9 Aug. (2), 10 Aug., 11 Aug. (2), 13 Aug. (3), 17–22 Aug., 23 Aug. (2), 24 Aug., 25 Aug. (2), 27 Aug. (2), 28, 30 Aug.; 4 Sep., 5 Sep. (2), 13 Sep. (4), 19 Sep., 27 Sep. (2); 1 Nov. |
| Michigan | Livingston | 1969: 29 Mar. |
| Michigan | Van Buren | 1968: 10 Apr. (2). 1969: 1 Apr. |
| Michigan | Washtenaw | 1968: 11 Apr., 16 Apr. (2); 11 Aug. (2). 1969: 23, 31 Mar.; 25–28 Aug., 29 Aug. (2); 1–14 Sep. (2), 21–28 Sep. (2); 15 Oct. (3). 1970: 3, 27 Mar., 31 Mar. (2); 1–2 Apr. (2), 3, 5, 10 Apr., 11 Apr. (3), 12, 16 Apr., 18 Apr. (3), 24 Apr. (2), 30 Apr.; 1 May, 2 May (4), 3, 7, 10 May, 11 May (2), 12, 13 May, 16 May (2), 19 May (2), 25 May (4), 29 May (2), 31 May (2); 7 Jun. (2), 13 Jun., 23 Jun. (2); 25 Aug. (3); 3 Sep. (2), 6 Sep. (2), 12, 19 Sep., 27 Sep. (2); 3 Oct. (2) |
| Tennessee | Cumberland | 1968: 4 Mar. |
| Wisconsin | Green Lake | 1968: 9 Apr. 1969: 10 May |
| Wisconsin | Jefferson | 1970: 20 Sep. |

TABLE 2

MIGRATION[1] OBSERVATIONS AND PEAK SUMMER AND WINTER POPULATIONS OF SANDHILL CRANES ON PAYNES PRAIRIE

| | 1967–68 | | 1968–69 | | 1969–70 | | 1970–71 | |
|---|---|---|---|---|---|---|---|---|
| | Date | Number | Date | Number | Date | Number | Date | Number |
| Highest summer count (*G. c. pratensis*) | 6 Aug. | 38 | 26 Sep. | 29 | 2 Jun. | 29 | —— | — |
| First arriving migratory flocks (*G. c. tabida*) | No observation | | 28 Oct. | 100 | 21 Oct. | 56 | 27 Oct. | 350 |
| First departing migratory flocks | 1 Mar. | 250 | 28 Feb. | 80 | 2 Mar. | 38 | 26 Feb. | 94 |
| Highest direct winter count | | 600 | | 950 | | 1,450 | | 675 |
| Estimated peak winter population | Jan. | 600 | Jan. | 1,000 | Jan. | 1,800 | Feb. | 800 |

[1] The first flock seen in the fall that exceeded in size the observed summer population was considered a fall arrival. The first flock seen flying steadily northward at high altitude (1,000 feet or higher) 5 miles from Paynes Prairie in the spring was considered departing.

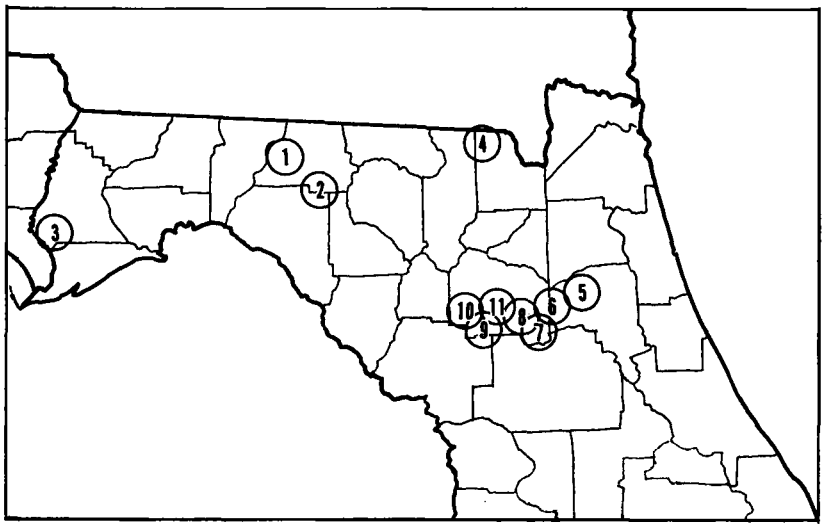


Figure 1. Approximate locations of major Sandhill Crane populations in northern Florida. 1, Hickstown Swamp (Madison County); 2, San Pedro Bay (Madison and Taylor Counties); 3, Sumatra (Liberty County); 4, Pinhook Swamp (Union and Baker Counties); 5, Orange Grove Lake Prairie (Putnam County); 6, Levy Prairie (Putnam County); 7, Lochloosa Lake Marsh (Alachua County); 8, Watson Prairie (Alachua County); 9, Levy Lake (Alachua County); 10, Kanapaha Prairie (Alachua County); and 11, Paynes Prairie (Alachua County).

*Subspecies.*—We find that the ostensible morphological differences between *G. c. tabida* and *G. c. pratensis* are not sharp enough to permit identifying all individuals to subspecies on morphological characters alone. Hence it seems preferable to deal with the various populations on the basis of their known breeding ranges. Based on the ranges assigned by the A.O.U. Check-list (1957), Sandhill Cranes breeding in Florida are assumed to be *G. c. pratensis*; the northern migrants that mingle with the resident population in Florida during winter are considered to be *G. c. tabida* because, as shown below, banded and color-marked birds from this group were seen in the *tabida* breeding range during summer.

## Results and Discussion

*Breeding populations.*—Sandhill Cranes were found during summer in Alachua and Putnam Counties on Paynes Prairie, Orange Grove Lake Prairie, Levy Prairie, Kanapaha Prairie, Levy Lake, Lochloosa Lake Marsh, and Watson Prairie (Figure 1). Baynard (1913) reported breeding populations in "Alachua County" and Walkinshaw (1950: 47) mentioned a breeding population in Putnam County near Grandin, which probably refers to Orange Grove Lake Prairie. Of the nesting sites found in the present survey, only Levy Prairie (Putnam County) was previously unknown, but it is possible that one or more of the five wintering localities we surveyed

in Alachua County (Figure 1) were not known to Baynard (1913) who merely referred to "Alachua County."

Nests or flightless young were seen on Paynes Prairie, Orange Grove Lake Prairie, Lochloosa Lake Marsh, and Levy Prairie. Pairs, presumably mated, were seen and heard calling frequently during the nesting season on Watson Prairie, Levy Lake, and Kanapaha Prairie, but neither nests nor young were found. No evidence of breeding was obtained at San Pedro Bay, Hickstown Swamp, or Pinhook Swamp, but very little observation time was spent in the latter three places during the nesting season. Howell (1932) mentions a colony in Madison County that was probably in Hickstown Swamp.

Mrs. F. H. Stoutamire saw one Sandhill Crane on 29 June 1970 on the Ochlockonee River about 20 miles east of Sumatra (Figure 1) and local residents say that a small number of cranes have been seen there at other times during the summer (H. M. Stevenson, pers. comm.). R. L. Thompson (pers. comm.) has seen or heard Sandhill Cranes during spring, summer, and early fall near Sumatra and believes that a small population breeds there, but was unable to find a nest during a recent search. If a nesting population exists there, it is very small. We did not visit the area in our field survey.

Wayne (1895) reported cranes breeding near Waukeenah (Jefferson County) but none have been reported there recently. One of us visited that region frequently between 1953 and 1959 without hearing or seeing a Sandhill Crane. That nesting population evidently no longer exists.

*Nonmigratory residents.*—Three cranes color-marked on Paynes Prairie during January 1970 were seen there during the following summer, suggesting that at least some of the population are year-round residents.

*Departure of* Grus c. tabida.—Each year during the middle of February large flocks were seen circling widely at high altitude over Paynes Prairie and returning to ground as though they had made a false start on migration. We saw the earliest definitely migratory flocks leaving Paynes Prairie on springlike days in late February (Table 2) and early March (Walkinshaw, 1960; Williams, 1970). We were unable to determine the exact dates each spring when all *G. c. tabida* had left northern Florida, but the cranes on Paynes Prairie declined to approximately summer resident numbers by mid-April of 1971, suggesting that few, if any, northern migrants remained after that. Departure behavior and some other departure dates were reported earlier (Williams, 1970). The earliest of our color-marked cranes reported on the northern nesting ground was seen in Washtenaw County, Michigan on 23 March (Table 1).

The numbers in Table 2 probably are not the total number of cranes present on Paynes Prairie at the time of each survey because of the difficulty

of spotting them from fast-moving airplanes. Fewer cranes were seen from the airplane than from the ground when simultaneous counts were made. Valentine and Noble (1970) also found conventional (fixed-wing) airplanes unsatisfactory for counting cranes. Regular counts from the ground in all locations in Table 1 or the use of helicopters were beyond the capabilities of this study.

*Northern breeding grounds.*—The numerous midsummer records in Michigan (Table 1) suggest that at least part of the winter population in northeastern Florida nests there. Some of the reports were of pairs with young in known nesting places in Washtenaw County, Michigan, but most color-marked individuals were sighted in spring and fall flocks. Possibly some of the spring and fall sightings were of cranes en route to nest farther north, but none of our color-marked cranes have yet been reported from Canada. F. G. Cooch (pers. comm.) mentioned this possibility and said that large cranes were known to nest in sparsely populated parts of southeastern Manitoba.[1] Obviously the reporting rate of color-marked cranes is greatly influenced by human population density and interest in the regions in question. A different method of study, such as radio-tracking, may be needed to trace accurately the entire nesting range of the Sandhill Cranes that winter in Florida.

*Fall arrival.*—Table 2 shows the approximate time that the first large flocks arrive on Paynes Prairie from the north. Five migration records (3 fall and 2 spring) between Florida and the southernmost nesting grounds appear in Figure 2.

In 1968, 1969, and 1970 the numbers of cranes on Paynes Prairie continued to increase during November but did not increase substantially after the first part of December. November records (Walkinshaw, 1950, 1960) in the eastern United States indicate that the northern populations do not all arrive on the wintering grounds before December.

*Winter populations.*—Table 2 also shows estimated winter populations on Paynes Prairie. Winter population size increased during the first 3 years of this study, but declined during the 4th.

Walkinshaw (1949) estimated the number of *Grus c. tabida* in 1944 to be no more than 1,836, but he believes (1970, pers. comm.) that the populations of *G. c. tabida* in the eastern United States have increased greatly since then. The Committee on Rare and Endangered Wildlife Species (1966) more recently estimated the total population of the subspecies to be about 6,000 with no more than 2,000 in the eastern United States.

These estimates suggest that most of the *G. c. tabida* population in the eastern United States and a significant portion of the world population now

[1] Several cranes color-marked in 1971 were reported from Canada after this paper was accepted. These were marked distinctively in connection with another phase of this study and will be reported separately.

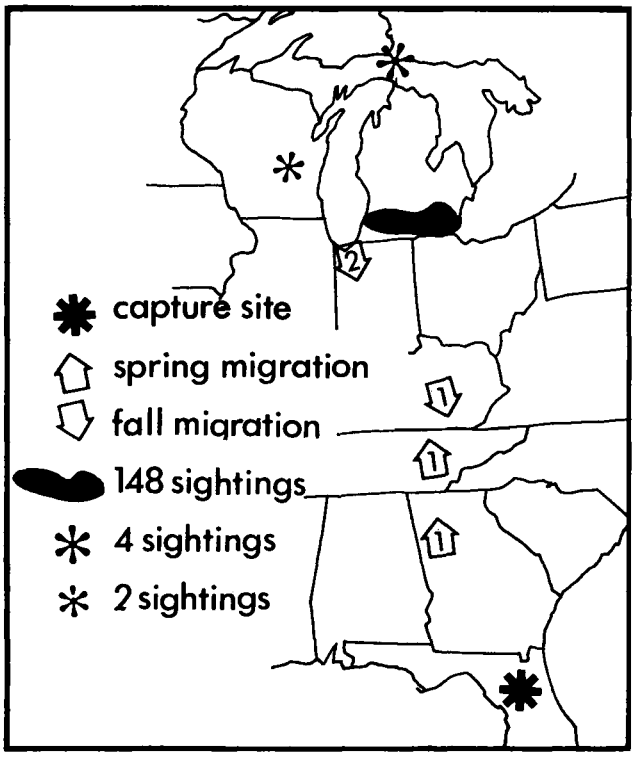


Figure 2. Approximate locations of sightings and band recoveries of Sandhill Cranes marked and banded in northeastern Florida. Arrows pointing southward are definite fall migration records; arrows pointing northward are definite spring migration records; numerals within the arrows indicate the number of birds sighted or bands recovered.

winters in northeastern Florida. Paynes Prairie is evidently the single most important wintering area for *G. c. tabida* in the eastern United States.

Walkinshaw (1965) found that annual productivity in a sample of cranes in Michigan was less than one juvenile per pair of adults between 1952 and 1958 and less than one-half juvenile per pair of adults during 1963 and 1964. The increase in the size of wintering populations on Paynes Prairie from 600 to 1,800 between 1968 and 1970 exceeds the expected annual increment. Likewise the decrease in population size on Paynes Prairie between the winters of 1968–70 and 1970–71 from 1,800 to 800 probably does not represent an actual population decline for the subspecies. These fluctuations suggest that cranes readily change wintering grounds, perhaps to take advantage of better habitat conditions.

The recent acquisition of Paynes Prairie by the State of Florida as a

wilderness area and park presents an opportunity for the preservation and management of this important wintering ground of the species. The Sandhill Crane should receive high priority consideration in any plans for development and use of this property by the State of Florida.

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## SUMMARY

Populations of Sandhill Cranes occur regularly in 10 or 11 locations in northern Florida. The most important of these is Paynes Prairie where about 40 individuals now occur in summer and the peak winter population has varied between 600 and 1,800 since the winter of 1967–68.

Color-marking and banding studies revealed that some of the large numbers of cranes wintering in northern Florida migrate through Georgia, Tennessee, Kentucky, and Indiana to nest in Michigan and Wisconsin. Paynes Prairie is the most important single wintering ground for the eastern segment of *Grus c. tabida*.

Fall migrants arrive in northeastern Florida during October and November. Spring migration begins in late February. Only the summer resident population (presumably *Grus c. pratensis*) remains after the beginning of May. At least some of the nesting population spends the winter on Paynes Prairie.

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