THE AUK

A QUARTERLY JOURNAL OF

ORNITHOLOGY

VOL. 70 JANUARY, 1953 NO. 1

NESTING AND ABUNDANCE OF THE CUBAN SANDHILL CRANE ON THE ISLE OF PINES

BY LAWRENCE H. WALKINSHAW

GUNDLACH first recorded the Cuban Sandhill Crane (*Grus canadensis nesiotes*) from the Isle of Pines, where he found it at Nueva Gerona (Poey, 1854: 427). Bangs and Zappey (1905: 193–194) first differentiated it from the cranes of North America, calling it *Grus nesiotes*, the type specimen having been collected at La Vega, Isle of Pines, Cuba, May 8, 1904.

Even though it has been a hundred years since Gundlach studied the crane in Cuba and the Isle of Pines, few nests have been reported. There are few actual egg or nesting dates. On eggs collected by early ornithologists, there is usually only the year and no locality except Cuba or Isle of Pines. On May 20, 1904, on the Isle of Pines, Zappey collected a downy Cuban Sandhill Crane only a few days old. Gustav A. Link (Todd, 1916: 208) observed a number of captive young on the Isle of Pines and judged that the eggs were laid early in May. When Bernard Baker and I were there during March, 1945, cranes behaved as though they were nearly ready to nest. Peter Smellie, who lives near Sierra de la Cañada, reported to me that he had found a crane's nest during the last week in April about 1932. We observed a crane about a year and ten months old taken when downy during May of 1943 near Westport.

With only this information, Walter Tholen and I reached the Isle of Pines on April 22, 1951, hoping to locate one or more nests of the Cuban Sandhill Crane. We arranged to stay with Mr. and Mrs. Lewis Feeger about four miles northeast of Los Indios and within one mile of where I had observed cranes on March 20 and 22, 1945. Shortly after we arrived we were able to hire Albert Vincent who knows the island well. In his 1929 Chevrolet we covered many square miles which otherwise we would have been unable to visit. We also had help from

CUBAN SANDHILL CRANES (*Grus canadensis nesiotes*) ON THE ISLE OF PINES, CUBA. (*Top*) ADULTS AT NEST FOUR MILES SOUTHEAST OF LOS INDIOS, MAY 4, 1951. (*Bottom*) DOWNY YOUNG, TWO AND ONE-HALF MILES NORTH OF THE SIERRA DE LA CAÑADA, APRIL 28, 1951. PHOTOGRAPHS BY L. H. WALKINSHAW.

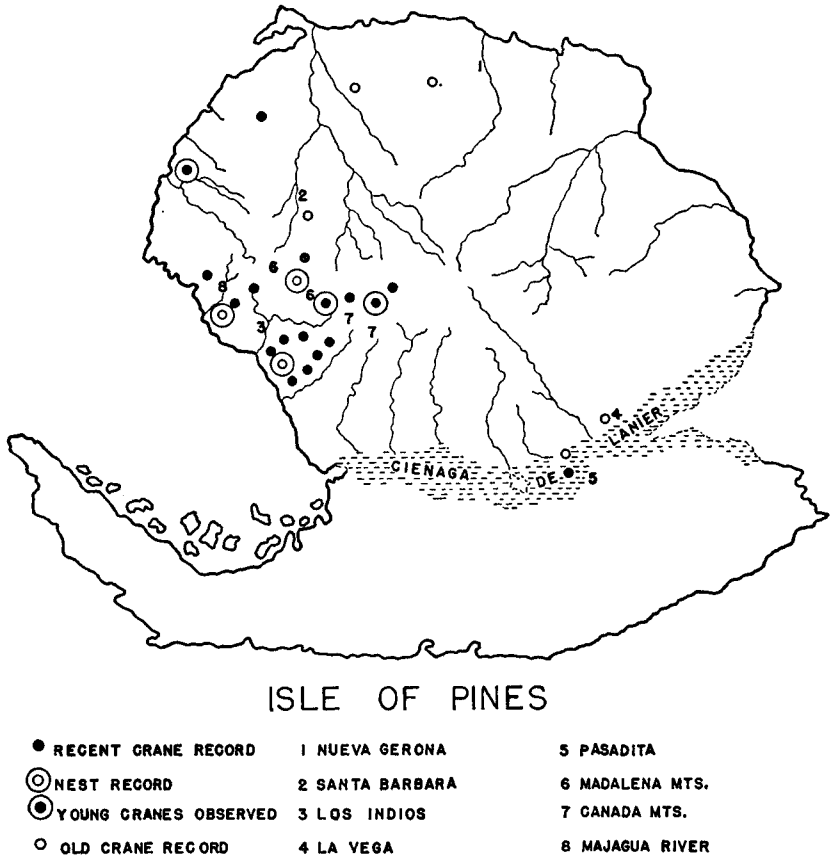

FIGURE 1. Map showing localities from which cranes have been reported on the Isle of Pines, Cuba.

Peter Smellie and Lawrence Hedin of Los Indios and many Cubans who lived in that area. Juan Arenciba, at Nueva Gerona, had three captive cranes in his collection. One of these was taken by two small boys from a nest on a mountain side near Los Indios during the first week in July, 1950. The Herman Nurse family rescued the young crane from the boys and gave it to the Tom Nurse family who finally gave it to Arenciba. When we saw it April 24, 1951, it still had the feathered forehead and the *peeep* call of a baby crane.

SUMMARY OF GENERAL DISTRIBUTION

A summary of the distribution of the Cuban Sandhill Crane is given in my book on the Sandhill Cranes (1949: 184–185). There are few recent records. Dr. Abelardo Moreno observed a single crane in

Pinar del Rio Province, Cuba, flying over the Viñales Valley, January 7, 1951. Dr. Moreno, Walter Tholen, and I drove to the Viñales area May 14, 1951. Natives reported cranes very rare. Two had been seen periodically a few weeks earlier, but we did not see these birds when we were there. Two birds shot by a farmer in Habana Province, near Ariguanabo, Cuba, during the winter of 1944 constitute our latest record from that province. The female specimen was sent to Dr. Moreno at the University of Habana. A specimen taken at Santa Tomas, March 11, 1933, now in the Museum of Comparative Zoology, is the latest specimen from Las Villas (Santa Clara) Province. We were in Zapata Swamp on May 10 and 11, 1951, but saw no cranes. We talked with natives in different parts of the swamp, and they said cranes were very rare except on two islands, Cayo del Masio and Cayo de Diego Perez, both immediately south of the mainland of the Zapata Peninsula. We were unable to visit these islands, but several natives reported cranes from them. Apparently there are no recent crane records from Matanzas and Camaguey.

In earlier times cranes occurred on the Isle of Pines from Nueva Gerona south to Pasadita and La Vega and west to Siguanae and Sabana Grande. Now the species is restricted almost entirely to an area from Westport east to Sierra de la Cañada and south to Pasadita where now it is rare. Almost all of the cranes are found from Rio Majagua to Sierra de la Cañada south probably to the Cienaga.

ABUNDANCE

There were five pairs in the ten miles between the Feegers' home and Sierra de la Cañada. We estimated four pairs along the Rio Majagua region, about four miles northwest of Los Indios, and we heard eight pairs calling one morning about four or five miles southeast of Los Indios. A flock of five was seen at Rio Majagua during April, 1951, by Lawrence Hedin and Albert Vincent. At Pasadita natives stated cranes were very rare, coming into the Cienaga de Lanier only occasionally. They said the cranes never bred in the Cienaga but nested on dry land; this was also stated by the residents in the Cienaga de Zapata, Cuba.

Gundlach (1875: 293) stated that the Cuban Sandhill Crane was common on some of the larger savannas of Cuba. He had observed it in the Cienaga de Zapata, as well as in the larger areas which were overgrown with conifers and oaks, but otherwise only in little-wooded places in the westerly parts of the island of Cuba and on the savannas of the Isle of Pines and of Central Cuba. In Cuba the crane has almost disappeared. Probably only a few birds survive, unless the

population on the two islands south of the Zapata Peninsula is greater than we believe. Albert Vincent has worked over the western end of the Isle of Pines for many years, collecting dead portions of the palms for burning ore in the gold mine. He probably knows better than anyone the whereabouts of the cranes, and he estimated a population of 100 cranes on the Isle of Pines, as did Goya, the owner of Sabana Grande where cranes occur in small flocks of three to seven during the winter but seldom are found in summer. He reported that a hunting party had shot six during the winter of 1950–51 on Sabana Grande.

NESTING RECORDS

Nest one.—Mr. Hedin reported to us the evening of April 22 that each morning about daylight cranes called on top of the mountain peak directly west of Mt. Hatillo in the Sierra de Madalena. We reached there before daylight April 23, 1951, and watched from this peak. Sunrise came at 6:16 a. m., and Walter Tholen, trying to photograph the sunrise, moved a short distance along the peak. At 6:19 a. m., not 60 meters from us, two cranes, previously motionless, started running and giving the loud alarm note, *groooa-groooa-groooa-groooa* over and over. Neither bird flew for some time. I started toward them, and both flew about us calling loudly. The larger crane had a lower pitched call; the smaller, a much shriller call. They landed about 100 meters from us along the less wooded portion of the mountain, and one crane, with outspread wings and lowered neck tried to distract us. The nest was almost on top of the mountain and surrounded by scattered tropical pines (*Pinus tropicalis*) and one lone bush (*Tabebuia lepidophylla*). Large rocks jutted through the thin soil, and on a flat rock amongst these was the nest, perfectly level except for a slightly hollowed center. It was made entirely of pine needles and appeared as though the birds had whirled around and around on it, as I have observed cranes do. On one side was a built-up runway, 9 cm. wide and 56 cm. long, of pine needles between the sharp rocks. The nest proper measured 96 by 134 cm. across and was 8 cm. thick. Inside were many small irregular pieces of egg shells about 5 to 18 mm. in width, evidence that the young had hatched. We did not find the young who must have scampered over the steep northwest side of the mountain only three meters west of the nest. Both adult cranes appeared to have spent the night on top of the mountain, one on the nest and the other five meters away. The nearest arroyo with water was about 300 meters from the nest.

Nest two.—About a mile east of the first nest we heard a crane call on April 23, 1951, at 7:00 a. m. On April 26 at sunrise (6:14 o'clock)

from the Feegers' house, I heard two cranes calling to the south in the Madalena range. One called, *toya-toya-toya* and the other, *tucka-tucka-tucka-tucka-tuck*. I started out in their direction at 8:30 a. m. From the mountain top I heard two cranes call at 9:30 a. m.; they were below me and to the east. I could not find anything, so I criss-crossed back and forth many times over the range. Suddenly a crane appeared on the south slope and uttered a sharp alarm call. I could find no nest, but the bird did not fly. A larger crane appeared on foot, and the two paced back and forth about 45 to 50 meters from me. One bird picked up objects from the ground and threw them about or dropped them back on the ground. Because of their behavior, I felt certain they had young; I gave the *purrrr* call given by the adults when calling young to them. Almost immediately, even with the adults bugling their disapproval, a downy crane rose from the gravelly ridge only 15 meters from me and ran in my direction, *peeping* as it came. Another was heard at the same time, but I could not locate it. The first one was rather wobbly on its legs, which were swollen and puffed like those of newly-hatched cranes. It had lost its egg tooth, could stand full height without falling, and must have been about three or four days old. It stood 23 cm. tall and the wing measured 36 mm.; the exposed culmen, 26 mm.; the middle toe, 35 mm.; and the tarsus, 51 mm. The call was a sharp *peeep;* and when captured, while resting in my warm hand, it uttered a *peeer* call. I searched the region for water, finally finding a small water hole about one meter across. It was only a few meters from where the cranes first appeared and the only water for miles, all arroyos being dry. I crossed this region the next day, but no signs of the cranes were found.

Nest three.—On April 28, 1951, Peter Smellie, his son Billy, Lawrence Hedin, and I hiked north of a low rolling brushy plain north of Sierra de la Cañada. In this region Peter Smellie had found two crane nests during the early part of the dry season, both in bottle palm (*Colpothrinax Wrightii*) flats along grass-bordered arroyos but on dry ground. The one found in late April, 1948, had two newly-hatched young. About 2.4 kilometers north of Sierra de la Cañada we observed two adult cranes walking about on a flat area. As we went in their direction they became very excited, running about but keeping some distance away. They were very wild. Soon they left the ground, calling as they flew. They landed on the other side of a palm-bordered arroyo some distance from us. We searched the area and soon captured two downy young. The stronger one could stand upright and could run very fast. The weaker one often fell, and his feet and legs were swollen, much like those of the downy crane I had

captured a few days earlier. Neither bird had an egg tooth. The following measurements were taken:

Height	*Wing*	*Exposed culmen*	*Tarsus*	*Middle toe with claw*
22 cm.	42.5 mm.	37.5 mm.	60.5 mm.	41.5 mm.
20.5 cm.	37 mm.	33 mm.	51.5 mm.	37 mm.

Before we left the vicinity, another pair of cranes flew over, joining the parent pair, and all four circled about together for a few minutes. Seldom have I seen two pairs of cranes together like this during the breeding season.

Nest four.—On April 25, 1951, Albert Vincent took Walter Tholen and me to a region, called Majagua, northwest of Los Indios. A small stream flowed into the Ensenada de la Siguanea only a short distance away. Five cranes had been seen two weeks earlier on a sandy area poorly covered with vegetation. We arrived before daylight and, as daylight came, heard two cranes calling only a short distance from the trail along a bottle-palm-bordered arroyo. Near a similar arroyo, less than a mile to the west, we flushed two more cranes; thus during the morning we counted six cranes. Thinking there might be a nest in this region, Tholen and I camped there the night of April 29–30. At 6:30 o'clock the night of April 29 two cranes called only a short distance from our tent. Sunset came at 6:57 o'clock. On April 30 at 5:35 a. m. two cranes called again in unison from the same spot. At the same time two pairs and a lone crane called to the south and east. After a short time Tholen and I went in the direction of the pair near the tent and in only a few minutes flushed a screaming crane from a nest, again in a perfectly dry location. The crane flew about 23 meters and landed. It ran crazily about us with outspread wings and bent legs. It did not fly again during our stay. The mate did not appear, having perhaps left at daylight for a feeding area. The nest was 75 meters west of an arroyo which had had water in it all spring.

The nest was on perfectly flat dry ground. One meter to the east was a small tropical pine four meters tall. In this same region were scattered pines including a few *Pinus caribaea*. Bottle palms grew along the arroyo, and up nearer the nest were palmettos (*Acoelorraphe Wrightii*) and scattered low bushes, including *Hypericum styphelioides*, rompe ropa (*Tabebuia lepidophylla*), peralejo (*Byrsonima verbascifolia*), *Ouratea elliptica*, *Kalmiella aggregata*, and some unidentified plants. The mangroves along the bay were only about 300 meters to the southwest.

The nest, poorly constructed, was made almost entirely of needles of the tropical pine (*Pinus tropicalis*). It measured 98 by 56 cm.

across and was slightly hollowed. The eggs lay in the nest about 7.5 cm. apart and were pale buff in color with small, fine spots of darker olive buff, dark brown, and lavender. These spots were scattered sparingly over the entire egg, but mainly around the larger end. The eggs measured 89 by 57.4 mm. and 82.6 by 53 mm. and weighed 158.2 and 108.1 grams, respectively.

Although we remained near the nest until 6:30 a. m., the adult crane did not fly. Wishing to photograph the nest and vicinity, we returned at 10:30 a. m., finding what was apparently the female sitting on the eggs. I had seen a lone crane flying east from the vicinity of the nest about 9:30 a. m. When the incubating crane left the nest, she flew around and around calling with a high-pitched voice. We did not return to this nest and so do not know its outcome.

Nest five.—When we returned to the Feegers April 30, word came that a Cuban, Avello Garcia, had found a crane's nest a few miles southeast of Los Indios on April 26. On May 1, 1951, Garcia rode by the nest at 7 a. m. The incubating crane rose and walked away. Garcia took us there at 8 a. m. The female was 150 meters southeast, walking about in the open pine-, palm-, and palmetto-dotted savanna. The nest was in the open, shaded a portion of the day by a tropical pine which stood three meters to the east. Scattered grasses grew about it. The palms (*Sabal*) were smaller than the bottle palm, much like the cabbage palm of Florida, and a few palmettos grew near by. The vegetation was quite similar to that in the region we had observed the previous day northwest of Los Indios, but the soil was not quite as sandy or as damp. The nest measured 62 by 48 cm. across and 5.2 cm. deep, was made entirely of needles of the tropical pine, and was on dry ground about 300 meters from the nearest water.

The eggs were much like the set observed on the previous day, being lighter colored and having fewer spots than eggs of *Grus canadensis tabida*. They measured 89.5 by 58 mm. and 85.5 by 53 mm. and weighed 129.8 and 97.0 grams, respectively.

That morning Garcia had observed another pair of cranes only a short distance west of this nest. The second pair behaved as though they had young. We did not observe them, but during the day we heard two cranes call at 12:30 p. m. and again at 5:45 and 6:21 p. m. (Sunset was at 7:03 o'clock.)

On May 3, Tholen, Vincent, and I built a blind at the above-mentioned nest, using palm and palmetto leaves and pine branches. The crane left the nest and paced back and forth about 200–300 meters from us. When we left at 9:50 a. m. the other crane came flying in, and both birds paced back and forth, bugling periodically; the lone bird had made no noise at all.

On May 4, Tholen and I went into the blind at 4:50 a. m. Even though it was dark, the female crane left the nest and did not return until 10:26 a. m. As she left, she uttered one shrill call.

The following notes were taken May 4 from the blind:

5:25 a. m.—Female called and was answered by the male (lower call) about 150 meters north of nest. At the same time another pair called less shrilly and less anxiously than the nest pair. One of these called *toya-toya-toya-toya* and the other at the same time *tuk-tuk-tuk-tuk.*

5:25–5:34 a. m.—Cranes called repeatedly from three places.

5:58 a. m.—Cranes again called from three places.

6:07 a. m.—Sun rising. 6:09–7:10 a. m.—Cranes called throughout area so that we could differentiate eight pairs. Nearby the nest pair called occasionally.

8:15 a. m.—The smaller bird, the female, came on foot to within 15 meters of the nest, examined it, then turned back just as swiftly, and both called at 8:20, 150 meters northwest.

10:26 a. m.—Nesting cranes called and flew from northeast to within 50 meters of nest. The female walked right to the nest, turned the eggs and then sat down on them. The male started slowly around the blind, head erect, and watching for motion from the blind. Both birds were very alert. After completely circling the blind the male stopped in a spot shaded by the trunk of the tropical pine near the nest but still watched the blind. While he was inspecting the blind he uttered a low *purrr* call to the female who answered with a similar call. The nest was in shade, but the female had her bill open because it was hot.

10:55 a. m.—Male alert at times, preening at others.

11:02 a. m.—Male began another circle around the blind, uttering a low *purrr* and was again answered by the female.

12:00 noon.—Female rose one-half minute, then settled down again.

12:20 p. m.—Male approached. Female uttered a low *purrr* as he approached and pecked gently at the side of the nest. She was sitting in the hot sun. The male walked past her into the shade five meters east of nest.

12:35 p. m.—Male stretched right wing and leg, leaving the leg out for nearly two minutes as he preened.

12:47 p. m.—Male left his shady spot and wandered to the west.

12:58 p. m.—Female pecking at her back.

1:39 p. m.—Female began pecking at edge of nest. Male was approaching from west. She rose and both called in unison, the male with his bill at an angle of about 45°, *put-tuck—put-tuck—put-tuck;* the female, with her bill straight up, called *grooa-grooa-grooa.* The male then went to a shady spot four meters from nest. Female sat down on the nest facing south. She had been facing east. When the nest pair called, another pair called to the west.

1:56 p. m.—Female began to utter a low *purrr,* repeating it several times. Male walked toward the nest. Female rose and turned the eggs. The male came up back of her and to her right. She left the nest going rapidly to north on foot until she was out of sight. Male stayed up one minute and then sat facing south. He had a much redder bald spot on his head and his plumage was brighter.

2:20 p. m.—Male rose one minute and then sat facing west.

4:42 p. m.—Male had not moved his body for over two hours, now he rose and walked one meter from nest then returned and resumed incubating, facing west.

5:11 p. m.—Male again rose, walked one meter from nest, and then came back and sat down. Each time he was up about one-half minute and each time he turned the eggs.

CUBAN SANDHILL CRANES ON THE ISLE OF PINES. (*Top*) DOWNY YOUNG, TWO AND ONE-HALF MILES NORTH OF THE SIERRA DE LA CAÑADA, APRIL 28, 1951. (*Bottom*) NEST AND EGGS, FOUR MILES SOUTHEAST OF LOS INDIOS, MAY 1, 1951.

NESTING SITES OF THE CUBAN SANDHILL CRANE ON THE ISLE OF PINES. (*Top*) FOUR MILES SOUTHEAST OF LOS INDIOS, MAY 1, 1951. (*Bottom*) IN THE SIERRA DE MADALENA, FOUR MILES NORTHEAST OF LOS INDIOS, APRIL 27, 1951.

5:50 p. m.—Male left the nest in search of food and apparently was afraid of movie camera in blind. He had paid no attention to two still cameras. He walked to the female who was about 150 meters southeast of nest and both called—the male, *tuk-tuk-tuk-tuk* and the female, *grooa-grooa-grooa.*

6:30 p. m.—We left the blind and the cranes flew up not far from nest.

6:35–6:50 p. m.—Cranes called in many places, usually pairs calling in unison.

6:55 p. m.—Sun setting.

6:57 p. m.—One pair of cranes called in unison.

7:18 p. m.—Cranes near by again called in unison, as we left the area.

SUMMARY AND CONCLUSIONS

In Cuba the Sandhill Crane continues to decrease and is becoming exceedingly scarce. A few are still to be found in Pinar del Rio, and natives reported them from Cayo del Masio and Cayo de Diego Perez south of the Zapata Peninsula, Las Villas Province.

On the Isle of Pines between April 22 and May 7, 1951, I observed 48 adult and 4 downy Sandhill Cranes. An average of 0.30 cranes was observed per field hour for 176 hours, 3.25 cranes per day in the field for 16 days, and on 56.25 per cent of the 16 days (observed on 9 days). When I was on the Isle of Pines during March, 1945, I observed 7 cranes during 63 field hours, an average of 0.11 cranes per hour, only 0.59 per day in the field and on 16.66 per cent of days in the field, *i. e.* 2 of 12 days.

Although the increase during the six years was not that great, probably, cranes have increased on the Isle of Pines. Two natives with much field experience said the cranes had increased considerably, and both estimated, independently, that there were at least 100 cranes on the island.

Cranes are found north of the Cienaga de Lanier from near Siguanea north to Sierra de la Cañada and west to Westport (directly west of Santa Barbara), less often east to Pasadita and in winter to Sabana Grande.

The author observed three nests of the Cuban Sandhill Crane within five miles of Los Indios, Isle of Pines, and two pairs with downy young near Sierra de la Cañada. Two eggs were laid in nests on dry land, once even on a mountain peak. Three nests were made almost entirely of needles from the tropical pine (*Pinus tropicalis*). Egg laying apparently occurs between late March and late April. Three hatching dates in 1951 were about April 20; another nest had eggs on April 30. Native boys found a nest with hatching eggs the first week of July, 1950; as evidence the captive young, still with feathered head, gave the juvenal call in April, 1951.

Downy young resemble those of the other Sandhill Cranes in color. They leave the nest within 48 hours after hatching. One of the re-

quirements on crane territories is a spring or arroyo with some water. Isolation, as usual, is absolutely necessary; but whereas other Sandhill Cranes nest in open marshes, the Cuban subspecies prefers dry land. Eggs resemble those of other Sandhill Cranes but are lighter buff in color, have smaller spots, and are smaller in size.

LITERATURE CITED

BANGS, OUTRAM, AND W. R. ZAPPEY. 1905. Birds of the Isle of Pines. Amer. Nat., 39: 179–215, 8 figs.

GUNDLACH, JEAN. 1875. Neue Beiträge zur Ornithologie Cubas. Journ. für Ornith., 23: 293–340.

POEY, FELIPE. 1854. Apuntes sobre la Fauna de la Isla de Pinos. Mem. sobre la Hist. Nat. de la Isla de Cuba, 1: 424–431.

TODD, W. E. CLYDE. 1916. The birds of the Isle of Pines. Ann. Carnegie Mus., 10: 146–296, pls. 22–27, map.

WALKINSHAW, LAWRENCE H. 1949. The Sandhill Cranes. Cranbrook Inst. Sci., Bull. 29: x + 202 pp., 17 pls., 5 maps.

1703 Wolverine Tower, Battle Creek, Michigan, July 3, 1951.