

Migratory behavior of Whooping Cranes.—Probably less than a dozen persons in the past 50 years have actually witnessed the northward departure of whooping cranes (*Grus americana*) from their wintering grounds on and adjacent to the Aransas National Wildlife Refuge on the Gulf Coast of Texas. Few, if any, have observed a more spectacular exodus than the junior author watched on the morning of 6 April 1966.

On this clear, sunlit day he was conducting a combination routine and spring whooping crane departure date patrol through traditional crane habitat along the east shore road of the refuge. While traveling southwesterly one-half mile north of the northeast corner of whooper feed plot No. 1, he counted 32 of the giant birds within this managed crane feeding area. When he was about 1,000 yards from the cranes, 12 of them arose and flew eastward about one mile and lit along the northwest edge of Sundown (Mullet) Bay. While watching the 12 birds alight, he heard the obstreperous calling of most or all of the remaining cranes and turned to see that these birds had taken to the air. It became apparent later that they were en route to their remote northern nesting area.

Shortly after taking to the air, the flock quickly divided into groups of 3, 3, 2, 7, and 5 birds and circled clockwise, upward, and northward in a spiraling motion. The groups of 7 and 5 birds were thought to be yearlings and nonbreeders. The remaining groups were family units. The horizontal and vertical separation of the individual groups varied and was estimated to range from 400 to 1,200 feet. The diameter of the circle was judged to be one-fourth mile.

The 20 cranes left the ground at 9:00 AM; 12 minutes later they were only visible as tiny airborne specks, and in a few more moments they were no longer discernible through a 7 × 50 binocular.

Winds at the time of departure were from the southeast at about 18–20 mph. Each turn of a group of cranes into the wind resulted in a gain in altitude. As the birds spiraled upward, they maintained their respective positions with no noticeable change in the size or shape of the spiral. They “whooped” continuously as they moved upward and away from the observer. At no time were the 12 birds remaining on the ground heard calling.

Earlier that morning Benham had observed one immature and two adult whooping cranes feeding inside whooper feeding plot No. 2, approximately one mile north of the main body of birds. They had not flown as he passed about 1,500 feet from them. On his return past this spot he noted the three cranes about 500 feet off the ground, spiraling and calling loudly in a manner similar to the previously departed birds. The time was 9:14 AM. At 9:19 AM, Benham lowered the binoculars to rest his eyes. When the three cranes were last seen, they appeared larger than the 20 birds at last glimpse, so it is possible constant surveillance with the binoculars would have rendered the trio visible for longer than five minutes.

It is reasonable to assume calls of the first departing cranes were heard by the later migrating family because of wind direction, audibility of the cranes' piercing whoops, and the close distance between the two groups when the airborne flock flew over or within one-half mile or less of the family unit. We hypothesize that the exodus of the 20 birds precipitated the departure of the lone family group.

It is interesting that the first contingent of migrating cranes displayed some aerial territorialism, although they were all observed feeding side by side within the food plot a few minutes before departure.—ROBERT H. SHIELDS, *Bureau of Sport Fisheries and Wildlife, Portland, Oregon*, and EARL L. BENHAM, *Bureau of Sport Fisheries and Wildlife, Austwell, Texas*.