This important nesting habitat has been proposed for inclusion in the boundaries of the Apalachicola Bay National Estuarine Sanctuary, but as of this writing there has been no indication that the land will be purchased. At the present time, large acreages of adjacent swamps are being drained and converted to pine timber production. This Osprey nesting area is an invaluable asset to Florida's wildlife heritage and should be preserved.—NEAL F. EICHHOLZ, *Office of Environmental Services, Florida Game and Fresh Water Fish Commission, Tallahassee, Florida 32301.*

Fla. Field Nat. 8(1): 19-20, 1980

**Dusting by Sandhill Cranes in Florida.**—The following observations on Sandhill Cranes (*Grus canadensis*) were made in an improved pasture on the Hendrie Ranch, 24 km S of Lake Placid, Highlands County, Florida. The morning of 28 February 1979 was warm and sunny when my wife and I watched the cranes from a car 80 m away using 8x30 binoculars. Five cranes were on a spoil bank along a ditch, jabbing at the ground and then pushing their bills among feathers of the back and under the wings. One crane (Crane A) did this in concentrated fashion, not moving about and always jabbing at one spot. The other four cranes applied soil to their plumages only part of the time. At 0920 the five cranes left to join six more, but four returned in 10 min to apply soil to their plumages again.

The spoil bank was covered with grass cropped by cattle. The cranes had worked in 3 places; one a basin-shaped depression of loose sand, seemingly made by cattle and measuring 2 m across, and another a series of three jab holes, 6-8 cm apart made under sparse grass. This area was covered by cement-hard marl, the jab holes going through it to loose soil beneath. A third place, where Crane A had worked in concentrated fashion, was at the side of a mound occupied by red imported fire ants (*Solenopsis invicta*). Perhaps Crane A had found the loose soil worked up by the ants favorable for dusting rather than this being passive anting.

The behavior we observed on 28 February was similar to that described by Nesbitt (1975) for Florida Sandhill Cranes (*G. c. pratensis*). He noted that the soil was dark, reddish brown and contained 3.2 times as much iron as soil from surrounding high ground. His label for the activity was "feather staining" and, in summarizing theories on the feather staining found in Sandhill Cranes, he stresses this interpretation, although mentioning feather maintenance as an alternate interpretation. The soil used by the cranes we observed had no reddish or other unusual color and our interpretation is that they were "dusting" as defined by Simmons (1964).

Short-legged birds such as Bobwhite (*Colinus virginianus*) (Stoddard 1931) dust by squatting flat and kicking loose soil into their feathers. These maneuvers being impossible for long-legged land birds, Sandhill Cranes, like the Common Rhea (*Rhea americana*) (Simmons 1964), achieve the same ends by picking up soil and placing it on their backs. What these ends are are controversial. Simmons (1964) believes that ectoparasites are thereby discouraged and dislodged. This may be particularly important in the breeding season when mallophagan parasites have life cycles synchronized with those of their hosts, as described by Foster (1969) and discussed by Kilham (1975) in relation to dirt-bathing of a Pileated Woodpecker (*Dryocopus pileatus*). Other explanations for dusting include removal of oil and dandruff (Healey and Thomas 1973).

The way feathers of Sandhill Cranes become stained is little understood. It is a complex subject that needs study by observation and experiment. One hypothesis is that feather staining is caused by the iron that is widely prevalent in bogs and marshes due to the action of iron-fixing bacteria (Wetzel 1975) and is the same as that seen in Trumpeter Swans (*Olor buccinator*), well illustrated in photographs by Truslow (1960), and described for a variety of other waterfowl by Kennard (1918) and recently by Krogman (1978) for White-fronted Geese (*Anser albifrons*). None of these birds dust.

An objection to this hypothesis is that the white cranes, including the Whooping Crane (*Grus americana*) that also feed and nest in bogs, do not become stained. Staining, however, is a chemical process, probably between iron in a reduced or active form and some constituent in feathers. The selective pressures that lead some species of cranes to become white, could also have led to a feather chemistry that would insure that they would stay white

and not become stained. This is only an hypothesis. Further and other ideas on feather staining are given by Walkinshaw (1964) and Nesbitt (1975).

We thank James H. Hendrie for permitting us to study cranes on his ranch, Lawrence A. Walkinshaw and Stephen A. Nesbitt for comments on the manuscript, David de Jong for identifying the ants and James N. Layne for showing us places where cranes could be found in the vicinity of the Archbold Biological Station.

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Lawrence Kilham, *Department of Microbiology, Dartmouth Medical School, Hanover, New Hampshire 03755.*

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**A rare gathering of Red Knots on Casey Key, Florida.**—Casey Key is a barrier island about 7 miles long, located in Sarasota County, Florida, 27°10'N-82°30'W, with the Gulf of Mexico on the west and the Intracoastal Waterway on the east. On 23 January 1979, after several days of extremely high winds from the northwest, we observed large flocks of Red Knots (*Calidris canutus*) along the Gulf beach as far as we could see in both directions. The birds were in tight flocks numbering from 200-500, moving in unison, as is their habit, making it fairly easy to estimate their numbers. These were feeding flocks and with the aid of a spotting-scope we were able to census most of the beach. We estimated the total number of knots for 6 miles of beach was in excess of 6500. The knots foraged in the wash of the waves and not among the great quantities of marine invertebrates and debris cast up by the storm. Here they rested instead.

The next day, the strong northwest winds and seas continued. We stood in one spot and watched a huge flock, numbering in the thousands and much larger than any single flock seen on the previous day, pass by and settle on the beach. We could see other flocks at the same time, though smaller, on the beach to the north. From this, we judged there were as many, if not more, than we estimated on the 23rd. On the 26th we again made a survey from our beach area where we could scan some 2 miles of shoreline and in 20 minutes estimated we had seen more than 2000 knots.

We find it difficult to assign a reason for the large concentration of Red Knots but our conjecture is that it is storm related. If food related, probably other species of shorebirds would have been present in increased numbers, but there was no indication of any significant increase in any other shorebird species during this same period.

In the course of participating in the International Shorebird Survey (ISS) (Manomet Bird Observatory, Manomet, Mass.) for the past 2 years, we have monitored the Gulf beach on