

questioned for 2 reasons. First, the contention that cranes normally raise only 1 young is not borne out by the literature; most studies of Sandhill Crane productivity have reported a significant proportion of 2-young broods (e.g., Buller 1979, Drewien 1973, Littlefield 1976, Tebbel and Ankney 1979, Walkinshaw 1973a). Second, as loss of eggs and young from other causes were not taken into account, it is impossible to know the extent to which sibling aggression contributes to brood reduction. Thus, although sibling aggression in the Sandhill Crane may be more frequent in northern parts of its range than in Florida, it may not be as important a mortality factor in these populations as sometimes assumed.

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- JAMES N. LAYNE, *Archbold Biological Station, Route 2, Box 180, Lake Placid, Florida 33852*. Received 18 Jan. 1982; accepted 4 Apr. 1982.

**Egg Retrieval by Clapper Rails.**—Pettingill (1938, *Auk* 55:411-415) reported that a Clapper Rail (*Rallus longirostris*) returned displaced eggs to the nest by picking them up in its bill. The number of rail eggs lost during egg laying and incubation is largely due to tidal inundation and storms (Ferrigno 1967, Some aspects of nesting biology, population dynamics, and habitat associations of the Clapper Rail. M.S. thesis, Rutgers University, New Brunswick, New Jersey). This method of egg retrieval by the rail may be one means of adapting to such threats.

I studied Clapper Rails at Corson's Inlet (near Ocean City), New Jersey from May to July in 1977 and 1980. To approximate the displacement of eggs from the nest due to tidal inundation and storms, I marked one egg and placed it 1 m from the base of each of 18 nests. The average nest height from the ground to the rim of the nest cup was 26.72 cm (range 10-50 cm). Experimental movement of the eggs was done at low tide

and checked 24 h later, thus enabling a full cycle of tidal flow and allowing the tidal water to flood the area beneath each nest. Such manipulations were done during early laying (those nests having 1 to 5 eggs), middle laying-incubation (those nests having 8 to 12 eggs), and late incubation (the first day an egg pipped). Experiments were done at 6 nests for each of the 3 stages of nesting.

Observations were made from a position 3–6 m from the displaced eggs. Typically within 1 h a rail from the nest ran in a crouched position to the egg and picked it up in its bill and returned it to the nest. Observations of birds retrieving eggs were made at 9 nests. A chi-square ( $df = 2$ ,  $\chi^2 = .48$ ,  $P > .05$ ) revealed that the stage of the nesting cycle did not influence egg retrieval more than would be expected by chance. Eighty-three percent (15 out of 18 nests) of the displaced eggs were returned to the nest within 24 h (those not returned included: 1 early, 1 middle, and 1 during late incubation). Of those not returned, one was eaten by a predator and 2 were not found and assumed to be carried off by the tides.

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**Cleaning/Feeding Symbioses of Common Crows with Cattle and Feral Hogs.**—The following observations were made by my wife and I between January and March 1981 and 1982, at the Hendrie Ranch, 24 km south of Lake Placid, Florida, where the owners had been feeding corn and protecting wildlife for many years. This made both the Common Crows (*Corvus brachyrhynchos*) and the feral hogs (*Suis scrofa*) relatively tame, enabling us to watch them, at times, within 7 m, using 8 × 30 binoculars.

*Interactions with feral hogs.*—Cleaning/feeding, hereafter referred to as feeding, was observed on 29 occasions, wherever crows and hogs aggregated to feed on corn. The commonest feedings were on well-grown sucklings. Litters of 4–6 pigs sometimes fell over to rest, seemingly completely relaxed. As many as 3 crows then fed on one pig after another, either while walking around it or perching on an exposed flank. The crows worked over all exposed surfaces from head and ears to the back, belly, and inguinal regions, pecking at rates of up to 60/min with bills slightly opened. The pigs never appeared disturbed, even when the crows stood on their heads or tried to pull a leg aside. The longest I saw crows working in this manner was 15 min on 14 January. The sucklings sometimes solicited the crows by rolling over. I saw crows feeding on sows on 7 mornings and on adult boars, which were comparatively scarce, on a few occasions. One sow appeared to solicit on 2 successive mornings by walking toward a crow, then rolling on her side when the crow alighted on her back.

*Interactions with cattle.*—Pecking at the base of the tail of range cattle was witnessed on 31 occasions in 1981. In nearly all, the cows were lying down when 1–2 crows, flying from a distance, came to visit them in succession, alighting or walking to the rear to peck at the underside or base of the tail and adjacent inguinal regions, first from one side, then the other, making 50–150 or more pecks. The crows appeared to feed more extensively on cattle in a second winter (50 observations) after approximately 400 feral hogs had been removed from the ranch. Although our main interest lay in studying the nesting of crows, we made a special effort to follow crow-cattle interactions on 9 March, when a herd of 55 cattle spent much of a morning close to one of our crow nests. In the course of 70 min, 1 to 3 crows from a total of 5 that were actively foraging in the area (the breeding female was on the nest) fed on the cattle on 8 occasions. On 7 of these the crow stood on the rear end of the cow it was feeding upon, to peck down, and as much as possible under the proximal 20 cm of the tail. A third of the cows cooperated by holding the tail out. Crows also lowered themselves by clinging to the tail as to a rope, to peck at inguinal regions. When cows were especially close (15 m) I could see that the crows were making feeding motions with the tips of their bills. They occasionally leaned down from the back to pick prey from haunches or shoulders, but were usually tossed off when they tried to work on cows' heads. Feeding times on a succession of cows ranged from 1–20 min. One crow flew directly from feeding on the cattle to feed the female crow incubating