

GENERAL NOTES

Vocalizations by Female American Crows Early in the Nesting Period.—The shudder call (Fig. 1A) and the nest call (Fig. 1B) are far-reaching vocalizations associated with early phases of nesting of American Crows (*Corvus brachyrhynchos*) in Florida. They are not included in recordings published by Chamberlain and Cornwell (1971), by Kilham (1985a) nor are they mentioned by Bent (1946) or Good (1952). The recordings presented below were made at the Hendrie ranch, 24 km south of Lake Placid, Highlands County, Florida, where I watched crows (observation time 2000 h) from January to May 1981-1985. The crows observed were unusually tame due to years of protection and provisioning with corn. Males and females of breeding pairs were identified by their behavior and sometimes by broken or missing rectrices (Kilham 1985b). I used a Sony WM D6 "Professional Walkman" with a Realistic, 33-1062, Ultra-Directional Electret microphone. Copies of my recordings (available to other workers) have been deposited in the Florida State Museum Bioacoustic Archives, Gainesville, Florida.

The males and females of 16 breeding pairs often flew to early nests together, the female or less often, both sexes carrying sticks. In either case the male left after a few minutes to guard from a distance. His mate then started giving low growly notes as she pushed new or other sticks into place. Many of the sticks were long (ca. 30 cm) and crooked. When a female seized one in her bill and tried to force it into place by shaking her head, while still making the low growly notes, the result was a shudder call (Fig. 1A) audible at a considerable distance.

Also special to breeding females and heard in 75 percent of them were flat, monotonous sounding *caa*, *caas* (Fig. 1B) that began at or near the time of egg-laying and reached a peak when a female began to sit on a nest and give them continuously, either on the nest or, at times, away from it. The *caas* came at intervals of 3-12 s at 10 nests, with the female partly extending and elevating her wings with each call. *Caas* continued for 20-30 min or longer when at their height. Once incubation began, the calls dwindled for a few days, then ceased, except for a few associated with feedings. One female, an exception, made nest calls for 10-14 d of the incubation period in 2 successive yrs. Nest calls were loud enough to be audible at 400 m. Three of 7 nests that I located in Maryland in the 1950s were located by means of them, as were 3 in Florida.

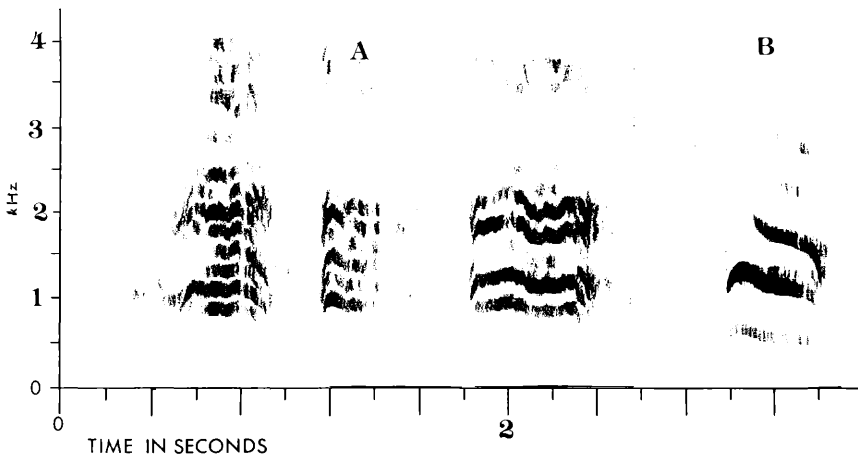


FIGURE 1. A. Shudder call. B. Nest call. The wide (300 Hz) band filter on Kay Elementric sona-graph model 7029A was used in making these sonagrams.

A number of *Corvus* species, including the Carrion Crow (*C. corone*) (Wittenberg 1968) and the Rook (*C. frugilegus*) (Goodwin 1976) make shudder calls, Goodwin stating that when a Rook gets a stick jammed, it "often utters a long drawn out hoarse call with an almost human tone of exasperation and complaint," a characterization that fits the shudder call of the American Crow. Shudder calls, being loud and far-reaching, keep other crows of a cooperatively breeding group (Kilham 1984) away at a critical time of nest building. Pushing crooked sticks so that they will form a tight foundation locked into the branches of a tree is difficult and, perhaps, best done by a breeding female working alone. Nest calls coming at the beginning of egg-laying have been described for other corvids including Common Ravens (*C. corax*) (Warncke 1958), the Rook (Roskraft and Espmark 1982) and the Carrion Crow (Wittenberg 1968). The function of these calls is unclear. In American Crows nest calls may announce that a breeding female which is laying eggs and becoming broody is ready to be fed by her mate and helpers of her cooperative group (Kilham 1984). Lawton and Lawton (1985) have recently described a whine call of the cooperatively breeding Brown Jay (*Cyanocorax morio*). The whine resembles the nest call of American Crows in carrying well, but differs in being sustained over a much longer period.

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A New Technique for Individually Marking Gull Chicks.—This paper outlines a new marking technique used to identify gull chicks in the field. The method was used in 1983 during studies of Ring-billed Gulls (*Larus delawarensis*) (Fetterolf 1984) on the Eastern Headland, Toronto Outer Harbor, Ontario.

In studies involving gull chick identification, various marking techniques have been used; each has experienced limited success. Cuthbert and Southern (1975) glued numbered tags to the chicks' natal down but these tags often required replacement 7-14 d after hatching when the growth of juvenile plumage caused them to fall off. Harris and Plumb (1965) used dye in conjunction with colored leg bands; Parsons (1975) numbered soft plastic