

saw no attacks. Perhaps other birds tend to fly away, rather than remain in place as did the Pileated Woodpecker. Bent (U.S. Nat. Mus. Bull., 174:13-115) and Hoyt (Ecology, 38:246-256, 1957) report that Pileated Woodpeckers will feed on fruit and nuts on or near the ground, but they mention no conflicts over food. Other reported cases of interspecific aggression involving Pileated Woodpeckers have occurred when the birds were defending their nests against predators or nest-hole competitors (Bent, *ibid*; Hoyt, *ibid*; Kilham, *ibid*; Nolan, Wilson Bull., 71:381-382, 1959).

We would like to thank Peter Feinsinger and Lawrence Kilham for reviewing this note.—B. J. RATHCKE, *Department of Entomology, Cornell University, Ithaca, New York 14850* and R. W. POOLE, *Biometrics Unit, Cornell University, Ithaca, New York 14850*. (*Present address of BJR: Section of Population Biology and Genetics, Brown University, Providence, Rhode Island 02912.*) Accepted 3 June 1974.

Eastern Kingbird in Paraguay.—No specific record seems to exist of the occurrence of the Eastern Kingbird (*Tyrannus tyrannus*) in Paraguay. Hence, a specimen (DMNH 30,959) taken there on 26 October 1972 is of interest. The bird, an unsexed adult (skull ossified), was taken in the Department of Boquerón, at Teniente Ochoa (21° 42' S, 61° 02' W), at km 557 on the Trans-Chaco Highway. The senior author was the collector and the preparator Juan Guggiari. The presence of this kingbird in northwestern Paraguay is to be expected, as the species is known to range southward to southern Bolivia and northwestern Argentina (Tucumán) (de Schaunsee, *The species of birds of South America and their distribution*. Livingston Publishing Co., Narbeth, Pa. 1966).—GREGORY SCHMITT, *P.O. Box 97, Kirtland, New Mexico 87417* and JOHN P. HUBBARD, *2097 Camino Lado, Santa Fe, New Mexico 87501*. Accepted 17 May 1974.

Behavioral interactions and the dispersal of the family in Black-capped Chickadees.—Most studies of the family life of young birds after they leave the nest have been descriptive, with little quantitative behavioral data. My objectives were to study how parent and young Black-capped Chickadees (*Parus atricapillus*) interact and to gain insight into the causes of dispersal. Special attention was focused on aggressive behavior.

The study took place at The University of Wisconsin-Milwaukee Field Station, Saukville, Wisconsin, from 2 June to 14 August 1972. Every adult bird had its own color band combination. Forty-four nestlings were banded using the same color band combination for all young in a family. Six families were studied.

Becoming independent and finally dispersing from the family group is a gradual process, which begins a week or so after the young leave the nest. As the young began to find food on their own, they begged less frequently from their parents (Fig. 1); also, parents at about 8-10 days after fledging began ignoring the begging of young birds that were following them.

As measures of aggression I use the Bill-up Display (Smith, *Publ. Nuttall Ornithol. Club*, No. 11, 1972)—a common threat display, Supplanting Call (Dixon, Stefanski and Folks, *Auk*, 87:322-328, 1970)—a vocalization commonly associated with attacks, and lunges at or chases of one bird by another. These aggressive acts were counted and averaged over five min periods, based on approximately 10 hr of observation for each two-day period (Fig. 2). Very little aggression was noted among family members in the first ten days after fledging, with the exception of some chasing. Aggression between members of the family increased in the latter half of the fledging period. The young became more aggressive toward each other. The parents, particularly the male, became

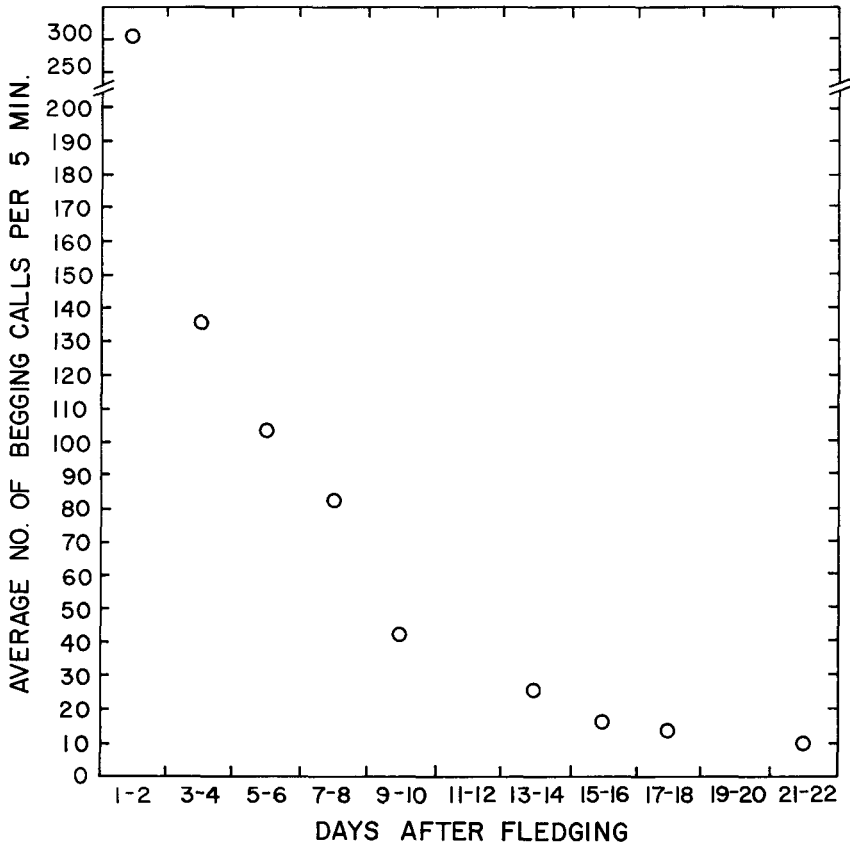


FIG. 1. Number of begging calls by young Black-capped Chickadees at various times after fledging. The observations per day were 3-6 hr.

more aggressive toward the young during the period in which the young have decreased begging and are beginning to feed independently. This change in parental behavior may be at least partially because of a change in stimulation received from the young, i.e., less begging. Begging postures in many songbirds function as submissive signals and reduce attacks. Perhaps as a result of this increasing aggressiveness, the average distance between young and their siblings and between young and their parents increased from a few ft, immediately after fledging (12 hr of observation), to as far apart as 100 ft, near the time of dispersal (30 hr of observation). Initially there are attachments among family members, as reflected in the tendency of the family to stay together. These attachments are replaced by intolerance. The final breakup of the family group is probably brought about by the increasing aggression of the parents toward the young and of the young toward each other.

Dispersal occurred about 20 days after fledging. After breakup of the family, the young became members of a group consisting of at least one adult pair (whose territory the

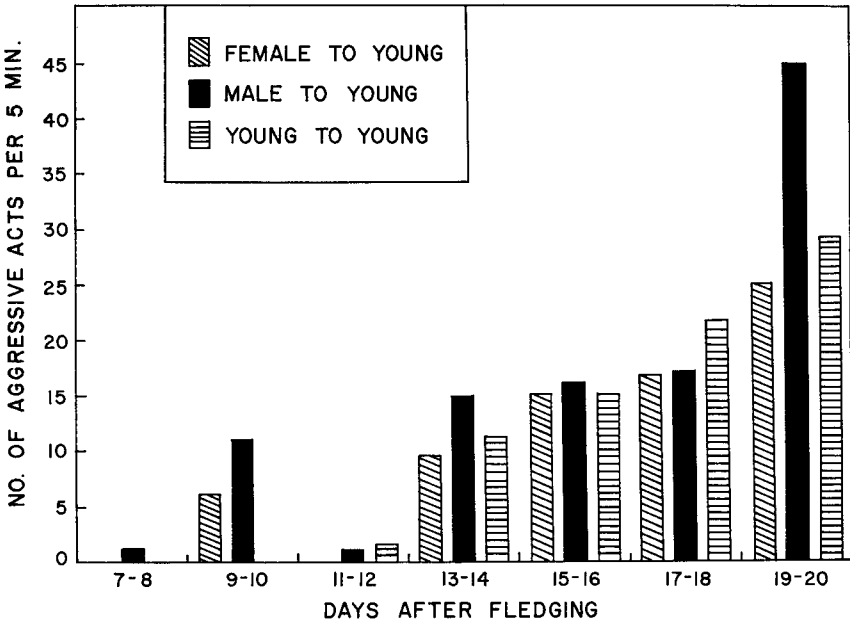


FIG. 2. Number of aggressive acts among family members of Black-capped Chickadees at various times after fledging. Observations per day were 3-6 hr.

group lives in) and young of a variety of different families. Similar flock formation has been suggested to occur in this species by Wallace (Bird-Banding, 12:49-67, 1941) and in the Carolina Chickadee (*P. carolinensis*) by Dixon (Proc. XIII Internat. Ornithol. Congress: 240-258).

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Is the Golden-winged Warbler a social mimic of the Black-capped Chickadee?

—The Golden-winged Warbler (*Vermivora chrysoptera*) and the Black-capped Chickadee (*Parus atricapillus*) exhibit similarities in plumage and vocalizations, and we have also found that they engage in behavioral interactions. We suggest that the similarities and interactions are, in the case of the warbler, the result of direct selection. In arriving at this conclusion, we rely in part on our studies of the two species at Lake Itasca (Clearwater Co.), Minnesota, during June and July 1968-1970 and at the University of Wisconsin-Milwaukee Field Station (Ozaukee Co.), Wisconsin, in May and August 1971-1973.