

observations were made, both males spent much time at or near the nest, and I could not determine which male was paired with the female. At all three nests, one male appeared to be unpaired either before or after the nesting. I suspect that these males had temporarily joined in the activities of an established pair. The genetic relationships among individuals were unknown.

*Acknowledgments.*—Observations were made during research supported by the Dayton Natural History Fund, the Buzzard Club Natural History Fund, the Wilkie Fund for Behavior and Evolution, and the James W. Wilkie Fund (all of the Bell Museum of Natural History); the Frank M. Chapman Fund of the American Museum of Natural History; Sigma Xi; a Paul A. Stewart Award from the Wilson Ornithological Society; the Alexander and Lydia Anderson Fund; and the Department of Ecology and Behavioral Biology of the University of Minnesota. I thank J. M. Skiff, S. L. Cohn, J. I. Smith, S. Minkoff, and M. L. Person for their help in making observations. F. Singer, D. Bruggers, B. Eliason, H. B. Tordoff, and two anonymous reviewers made helpful comments on this manuscript.—DAVID E. BLOCKSTEIN, *Dept. Ecology and Behavioral Biology, Bell Museum of Natural History, Univ. Minnesota, Minneapolis, Minnesota 55455. Received 12 Mar. 1985, accepted 20 Sept. 1985.*

*Wilson Bull.*, 98(2), 1986, pp. 311–312

**Supernumerary adults feeding Willow Flycatcher fledglings.**—The Willow Flycatcher (*Empidonax traillii*) maintains a monogamous mating system in which the female builds the nest and broods the young (Verner and Willson, *Ornithol. Monogr.*, 9:1–76, 1969). The male defends the territory and is the primary provider of food at the nest (King, *Auk* 72: 148–173, 1955). During an intensive ecological study of the Willow Flycatcher in the central Sierra Nevada mountains, Fresno County, California, I observed the previously unreported occurrence of supernumerary adults feeding fledglings.

Individual Willow Flycatchers were captured in mist nets and banded with a unique sequence of four color bands. Each color was assigned a number, resulting in a unique numerical designation for each individual. Early in June 1984, male 0133 paired and mated with female 4110. The relationship between these birds was substantiated by weekly, and at times biweekly, observations throughout the season. Observations during the first week of July suggested nesting, although no nest was found. At 09:40 on 24 July 1984, I observed female 4110 feeding four fledglings. The fledglings were not able to fly more than 15 m, an indication that they had fledged recently.

During subsequent observations, 4110 continued to feed the fledglings. Male 0133 was calling and patrolling territory boundaries and was not observed feeding young. Between 10:40 and 11:00 additional adult Willow Flycatchers and one Dusky Flycatcher (*E. oberholseri*) were observed feeding the fledglings. Dusky Flycatcher 0128 had been banded early in the breeding season and had been noted occasionally at various locations on the study site. Flycatchers 0134 and 0135 had been banded earlier this same day and were believed to be new to the site, and possibly migrants. Flycatchers 0134 and 0135 were considered to be adults based upon complete ossification of the skull and adult wing and culmen length. Furthermore, 0135 exhibited a regressing brood patch indicating that she had recently nested. No aggression was observed between the extra adults and the territory holders.

Two mist nets were subsequently set, one on each side of a large willow (*Salix* sp.), to catch the fledglings. During the 2-h period the nets were open, six adult flycatchers were captured, as well as the four fledglings. The captured included: the female parent 4110;

0128, 0134, 0135, previously noted feeding the fledglings; and two previously unbanded adults now designated 0136 and 0142.

Explanations of supernumerary birds in the vicinity of a nest commonly fall into three categories. Siblings, often from earlier broods or previous years, have been observed feeding young from subsequent broods. Another explanation is that adults that have lost their broods are stimulated to feed gaping young. A third possibility is that adults that are unable to establish breeding territories may comprise a "floater" population in the vicinity of breeding conspecifics. These birds are likewise stimulated to feed gaping young.

The genetic relationships of the birds I observed is unknown except in the case of the obviously unrelated Dusky Flycatcher. As all of the captured birds were adults, it is unlikely that they were siblings or fledglings.

Data collected over two years at two sites in the area suggest that either or both of the remaining explanations may apply. First, not all adults present bred. Some males held territories and never acquired a mate, and adult flycatchers of unknown sex were often observed in the vicinity, suggesting a substantial "floater" population. My observation of a female moving into a territory and nesting late in the season after another female had lost her nest is further evidence of a floater population. At my two sites, only three of eight nests (38%) successfully fledged young; therefore, late in the breeding season, the floater population may include unsuccessful nesters. This is further evidenced by the brood patch of flycatcher 0135.

*Acknowledgments.*—I thank B. Valentine for his input as co-worker on the project and criticism of the manuscript. L. Benjamin, S. Boland, and J. Halstead aided with field work. The Kings River Conservation District funded the project.—MICHAEL D. STAFFORD, *Kings River Conservation District, 4886 E. Jensen Ave., Fresno, California 93725. Received 19 Feb. 1985, accepted 23 Sept. 1985.*

*Wilson Bull.*, 98(2), 1986, pp. 312–313

**Brood adoption by a male Black-capped Chickadee.**—In species such as the Black-capped Chickadee (*Parus atricapillus*), where males provide extensive parental care, mechanisms that decrease the likelihood of a male raising unrelated young should be selected for. A male that helps raise unrelated young may, however, actually be increasing his expected lifetime reproduction. Odum (Auk 58:314–333, 1941) reported a case where a male Black-capped Chickadee that lost his mate helped raise the nestlings and fledglings of a female that had lost her mate. These two birds then raised a second brood, which he fathered. In this instance, caring for a brood fathered by another male enabled the male to obtain a mate and to father a brood that season. I report here another case in which a male Black-capped Chickadee "adopted" nestlings that he did not father, and increased his own expected reproductive output.

Observations were made during the ninth year of a population study of color-banded Black-capped Chickadees at the Cedar Creek Natural History Area in northern Anoka County, Minnesota. In early April 1985 one chickadee flock consisted of four males and two females. On 21 April, 1985 a third year male, M1, was paired with a first year female, F1, and a second year male, M2, was unmated. On 25 and 28 April M2 was paired with an unbanded female, F2, that almost certainly had arrived on the study area that week. On 5 May M1 and F1 were together and F1 was soliciting food from him, indicating that she had probably begun laying a clutch. M2 and F2 were also together, and F2 was trapped and color banded. On 25 May I found a nest with six 4-day-old nestlings tended by M2 and F1. M1 was not seen again and almost certainly had died. F2 also was not seen again and probably also had died.