

difference was significant (χ^2 , $P < 0.01$). Adults delivered a given amount of energy to the young in fewer trips by taking large prey, which may make it more difficult for predators to find the nest.

Robins (1971) argues that if the sexes rely on the same food but play different roles in caring for the young they should use the territory differently. The individual that expends more energy in care of young should hunt closer to the nest; some birds behave this way (Williamson 1971). The bluebirds I studied did not differ in use of the territory when feeding the young, perhaps because both parents played about the same role; nor did they differ during the incubation period when the female was investing more energy towards hatching the clutch.

LITERATURE CITED

- BENT, A. C. 1949. Life histories of North American thrushes, kinglets, and their allies. U.S. Natl. Mus. Bull. 196.
- MACARTHUR, R. H. 1972. Geographical ecology. New York, Harper and Row.
- RECHER, H. F., AND J. A. RECHER. 1969. Comparative foraging efficiency of adult and immature Little Blue Herons (*Florida caerula*). Anim. Behav. 17: 320-322.
- RICKLEFS, R. E. 1971. Foraging behavior of Mangrove Swallows at Barro Colorado Island. Auk 88: 635-651.
- ROBINS, J. D. 1971. Differential niche utilization in a grassland sparrow. Ecology 52: 1065-1070.
- SELANDER, R. K. 1966. Sexual dimorphism and differential niche utilization in birds. Condor 68: 113-151.
- WILLIAMSON, P. 1971. Feeding ecology of the Red-eyed Vireo (*Vireo olivaceus*) and associated foliage-gleaning birds. Ecol. Monogr. 41: 129-152.

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Yearling male Eastern Bluebird assists parents in feeding young.—The Eastern Bluebird (*Sialia sialis*) is normally monogamous in its mating system (Verner and Willson 1969, Ornithol. Monogr. 9: 16), although Laskey (1947, Auk 64: 314) reported a case of two males of that species defending the same nest box and apparently paired with the same female. During 1974 I observed a case of two adult male Eastern Bluebirds taking part in the feeding of young in a nest box near Washington, Macomb County, Michigan. All of the birds were color-banded and their histories well known.

A family group of two adults and one young male they had reared during July 1973 overwintered in the nesting area. In April 1974 the adults started nesting in the site used previously. The young male obtained a mate and occupied a territory 1.5 km away and began nesting there. Both nests were successful, and each resulted in two young fledged. On 11 July the young male returned to the area of his birthplace along with his two fledglings but not with his former mate. At the time of his arrival the two adults had a second nest in the same site and were caring for a brood of five young hatched on 10 July. On 24 July I found that both males, together with the two fledglings reared by the two older birds (but not those of

the younger male, which were also in the area), were helping the older female feed these young.

The yearling male fed the nestlings and removed excreta during 9 h of observations made 24–28 July. During that period the number of feedings registered by each of these birds was: adult female, 72 (34.4%); older male, 56 (26.8%); yearling male, 59 (28.2%); and two fledglings, 22 (10.5%). Thus both adult males fed about equally. Few agonistic encounters occurred between any of the birds; but when both males arrived simultaneously near the nest with foodstuffs, the older male typically went to the nest first, doing so on 6 of 9 occasions. On 29 July the young left the nest, and both males continued to feed them.

During three previous nestings over the 2-year period at the same site by this same pair of adults, only two young (twice) or three young (once) were reared. Five young fledged in this instance, possibly because of the increase in food contributed by the yearling male. Evidence for this is seen in the fact that a mean of only 3.30 young were fledged from 46 successful summer nests in the study area. Broods of five or more young were uncommon, and occurred in only 6 of 45 other nestings during summer.

This case of cooperative breeding with an adult helper at the nest is unusual compared to reports of similar behavior in other species (see Skutch 1961, *Condor* 63: 198) in that the yearling male left his natal territory, raised a brood, and then returned to assist his parents in feeding their offspring. Woolfenden (1975, *Auk* 92: 13) related cooperative breeding in the Florida Scrub Jay (*Aphelocoma c. coerulescens*) to the fact that habitat acceptable to that species is scarce and often exists in isolated patches. This is also true for *S. sialis*. During summer bluebirds inhabit regions characterized by a short, sparse ground cover, an ample supply of foraging perches, and tree cavities used for nesting. All of these features may be generally scarce and not homogeneously distributed. A similar situation exists in the habitat requirements of the Red-cockaded Woodpecker (*Dendrocopos borealis*), for which helpers have also been reported (Ligon 1970, *Auk* 87: 255).—BENEDICT C. PINKOWSKI, 60510 Campground, Washington, Michigan 48094. Accepted 20 Sep. 74.

Regurgitative feeding of young Black Vultures in December.—On 30 December 1973 near the headquarters of Noxubee National Wildlife Refuge, Noxubee County, Mississippi, I watched six Black Vultures (*Coragyps atratus*) feed on a road-killed rabbit. Four of the vultures were adult and two were still distinguishable as birds of the year by their feathered throats. As a truck approached at 1315 the birds flew to a pine 30 m away where, on a horizontal limb, an adult fed the two young by regurgitation. I saw no begging by the young; each young vulture stuck its head, in turn, nearly completely into the throat of the adult. The other adult vultures were perched in the same tree within 3 m, but the young never solicited nor were offered food by them.

Nestling Black Vultures are normally fed by regurgitation (Thomas 1928, *Ohio State Mus. Sci. Bull.* 1: 29; Stewart 1974, *Auk* 91: 595), but I know of no record of their being fed by adults this late in the season. Indeed, Brown and Amadon (1968, *Eagles, hawks and falcons of the world*, New York, McGraw-Hill Book Co., p. 123) speculated that because of the relative ease of obtaining carrion, "the period of dependence after the first flight may be short" in vultures. In Mississippi, Black Vultures normally have eggs in the nest by late March and most young have fledged by early July (Stockard 1904, *Auk* 21: 463; pers. observ.).