

seldom change their patterns of resource exploitation appreciably in response to socially subordinate species (Morse, in press).

Comparison of males and females suggests a pattern different from the one seen among species of *Dendroica* in spruce forests, where four or five congeners may occur. There males usually forage considerably higher than their females (Morse, Ecology, 49:779-784, 1968), a difference that is highly correlated with the areas in which other important activities are carried out by them (singing in the treetops by males, nesting at low to medium heights by females). While differences in the foraging heights of male and female Pine Warblers are not significant, females tended to forage slightly higher than males both at Cedarville and Shad Landing. Foraging of females centered near the height at which nests were found in the study areas ( $9 \pm 1.0$  m,  $N = 5$ ). The low density of vegetation in pine forests relative to that of spruce forests should lower the advantage of singing in the tops of pines (vocalizations should not attenuate so rapidly) and hence the advantage to males in frequenting these areas (see Ficken and Ficken, Living Bird, 1:103-122, 1962). Male Pine Warblers in fact do much of their singing in the midst of foraging bouts. Males are usually socially dominant to females (12 out of 15 male-female encounters;  $P = 0.036$  in a two-tailed binomial test); therefore it seems unlikely that females were excluding males from preferred locations. Smaller numbers of data upon Yellow-throated Warblers indicate that the two sexes use virtually identical foraging positions, the foraging profile for this species in Ficken et al. (op. cit.) thus serving as an accurate indicator for both sexes.

I thank M. S. Ficken, R. W. Ficken, and E. S. Morton for their comments on the manuscript. My research on warblers has been supported by the National Science Foundation.—DOUGLASS H. MORSE, *Department of Zoology, University of Maryland, College Park, Maryland 20742. Accepted 7 June 1974.*

**Common Grackle kills a Barn Swallow.**—During a field trip on 13 May 1973 at Joliette, Quebec, I saw a mixed flock of swallows flying over a small pond surrounded by a fence and some coniferous trees. The day was sunny and the wind light. Some Barn Swallows (*Hirundo rustica*) were resting on the ground near the water, for no apparent reason. While I was watching the swallows, a Common Grackle (*Quiscalus quiscula*), searching for food at the water edge, moved up to one of the birds and struck it on the head with its bill. The swallow gave a few wing-flaps, but died immediately. A few moments later the grackle attempted to fly away with its victim in its bill, but it dropped the swallow in the water and did not try to recover it. My examination showed the swallow had been struck just over the orbit.

Among the many reports on Common Grackles attacking small birds, the most frequent victims are House Sparrows (*Passer domesticus*), both young (Gowanlock, Bird-Lore, 16:187-188, 1914; Davis, Auk, 61:139-140, 1944; Mayfield, Wilson Bull., 66:271, 1954) and adults (Hennessey, Ottawa Naturalist, 30:114-115, 1916; Mayfield, op. cit.; Taylor, Auk, 75:222-223, 1958). According to Townsend (in Bent, U.S. Natl. Mus., Bull. 211: 408, 1958) adult American Robins (*Turdus migratorius*) and the Gray-cheeked Thrush (*Catharus minimus*) are also recorded as victims. In addition, an adult Dickcissel (*Spiza americana*) (Baird and Smith, Wilson Bull., 77:195, 1965), a young Cedar Waxwing (*Bombycilla cedrorum*) (Fisk, Wilson Bull., 82:465, 1970), and two benumbed Pine Siskins (*Spinus pinus*) have also been recorded as killed by grackles. Finally, Christofferson (Bird-Lore, 29:119, 1927) reports a grackle killing a young Barn Swallow, but without saying if the latter could fly or not.

According to Baird and Smith (op. cit.), it seems improbable that the Common Grackle attacks and kills a healthy adult bird; however, a Common Grackle may attack healthy birds while they are feeding or resting on the ground. Such attacks appear to be directed only at small birds and to occur on rare occasions.—PIERRE LAPORTE, 6530 Wilderton, Apartment 30, Montreal, Quebec, Canada, H3S 2L5. Accepted 12 June 1974.

**Unusual feeding habits in two species of blackbirds.**—On several occasions in the period 6–10 June 1972, near Grantsburg, Pope County, Illinois, the senior author observed unusual feeding habits in a mixed flock of Red-winged Blackbirds (*Agelaius phoeniceus*) and Brewer's Blackbirds (*Euphagus cyanocephalus*). The flock, numbering approximately 300 individuals, and also including Brown-headed Cowbirds (*Molothrus ater*), was following a tractor during the disking of a 162 ha field. Many food items were unearthed as the fresh soil was exposed, and the birds were making concerted use of this prey source. As the tractor moved forward, birds from the rear of the flock would rise, fly to the front of the flock, and settle again to resume feeding. With these rear-to-front movements, the flock had an appearance similar to that described in Bent (U.S. Nat. Mus. Bull., 211, 1958), i.e., of a rolling black mass, as it followed the tractor about the field.

Mixed flocks of icterids following tractors during plowing operations are not unusual and have also been described previously (Beal, U.S. Dept. Agric. Farmers Bull., 630, 1926; Bent, op. cit.). The uniqueness of the feeding behavior reported here lies in the type of prey items taken by the two species of blackbirds. These included adult Orthoptera and Coleoptera, larval Lepidoptera, a number of forms of Arachnida, Annelida, amphibians, and mammals.

Normal food items of these blackbirds consist of both animal and vegetable matter, but the animal component is almost exclusively comprised of insects. Stomach analysis of 1,372 Red-winged and 654 Brewer's Blackbirds showed no vertebrate material in the diet (Beal, U.S. Dept. Agric. Biol. Surv. Bull., 13, 1900; Bent, op. cit.; Neff and Meanley, Wilson Bull., 69:102–105, 1957; and Soriano, Calif. Fish and Game, 17:361–395, 1931). Bendire (U.S. Nat. Mus. Spec. Bull., 3, 1895) makes brief reference to having found salamander remains in the stomachs of Redwings; however, ours apparently represents the first report of these two blackbird species feeding on frogs and mice.

The field was characterized by three distinct physiographic delineations: floodplain, sloughs, and a ridge. Most of the field was situated in floodplain, an area subject to periodic inundations by backwaters of the nearby Ohio River. Sloughs occurred throughout the floodplain, and their open waters were interspersed with dense stands of cattails (*Typha latifolia*), marsh grass (*Spartina* spp.), and other plants. The ridge area was several ft above the high water level and extended over about two to three percent of the area. A survey of the mammal populations showed the floodplain to be sparsely populated with two species of rodents: the deer mouse (*Peromyscus maniculatus*), which was distributed evenly throughout the area, and the meadow jumping mouse (*Zapus hudsonius*), which was restricted to the dense vegetation around the sloughs. The rodent density of the combined floodplain-slough area was 12.4 mammals per ha. The ridge was densely populated by prairie voles (*Microtus ochrogaster*), occurring at a density in excess of 250 per ha. This unusually high density (the density in nearby fields averaged 35 voles per ha) is thought to be the result of a recent flooding, which forced voles from the slough and floodplain areas to the refuge of the ridge. In addition to mammals, cricket frogs (*Acris crepitans*) and leopard frogs (*Rana pipiens*) inhabited the marsh grass