proved the manuscript. T. Cade and L. Oring offered additional helpful suggestions on the manuscript.—JONATHAN BART, *New York Cooperative Wildlife Research Unit, Dept. of Natural Resources, Cornell Univ., Ithaca, NY 14853.* *Accepted 14 Sept. 1976.*

Osprey catches vole.—On 3 October 1975 at Lighthouse Point Park, New Haven Co., Connecticut, I observed an Osprey (*Pandion haliaetus*) circle low over a salt marsh, rise slightly, hover in the same pattern it would in catching a fish and then plunge to the ground. It sat motionless for a moment in the short *Spartina patens* grass looking at its feet then took flight clutching a small rodent. It flew to the ridgepole of a nearby cottage and through a 20× spotting scope I watched it tear its prey apart. When it had finished and left, I retrieved all that remained: the skin from the sides, feet and some entrails of a meadow vole (*Microtus pennsylvanicus*).

Brown and Amadon (1968. Eagles, Hawks, and Falcons of the World. McGraw Hill, New York) list numerous vertebrates as acceptable Osprey prey including birds, frogs, and crustaceans in addition to its normal diet of fish. Wiley and Loher (Wilson Bull. 85:468-470, 1973) give detailed lists of Osprey prey including 12 species of birds, several reptiles and amphibians, and 8 species of mammals, but not *M. pennsylvannicus.* Spitzer (pers. comm.) found what he believed to be *M. pennsylvannicus* remains in at least 1 Osprey nest. The literature is lacking in actual sightings of how these mammals are taken.—NOBLE S. PROCTOR, *Biology Dept., Southern Connecticut State College, 501 Crescent St., New Haven 06515.* *Accepted 6 Aug. 1976.*

Patterns of feeding Field Sparrow young.—As part of a study of Field Sparrow (*Spizella pusilla*) breeding ecology (Best, Ph.D. thesis, Univ. of Illinois, Urbana, 1974), I recorded the activities of parents feeding nestlings on the 6th day after the first young hatched. Observations were made from a blind and covered the periods: dawn–08:00, 09:00–12:00, 13:00–16:00, and 17:00–dusk. A mirror positioned above the nest permitted observation of its contents. Airplane paint was applied to each nestling's bill for individual recognition (this had no noticeable effect on parental feeding behavior) and adults were marked with colored leg bands. Besides documenting the frequency and temporal distribution of feeding visits (Best, Auk, 94:308–319, 1977), the pattern of food delivery to individual nestlings was also recorded for 6 broods. The pattern of food delivery, which is rarely reported, is the subject of this note.

To determine if the sequence of feeding nestlings was random, an interval-distribution test (Ghent and Hanna, Am. Midl. Nat. 85:188–195, 1971) was employed. In only 2 of the 16 nestlings tested (representing 2 of 6 broods), were the intervals between feedings significantly different from a random sequence ($P < 0.05$). Although this implies no sequential pattern in feeding most nestlings, certain nonsignificant trends were evident. In all 16 nestlings the "observed" frequency of consecutive feedings (the same nestling being fed twice in immediate succession) was less than the "expected" frequency, while the observed frequency of alternate feedings (another nestling being fed between successive feedings of the nestling in question) was greater than the expected frequency in all but 3 nestlings (representing 2 broods). These trends indicate that on the basis of

TABLE 1

THE DISTRIBUTION OF FEEDING TRIPS (MALE/FEMALE/BOTH) AMONG NESTLINGS WITHIN EACH BROOD

Brood[a]	Individual nestlings			
20 June	15/11/26 (7.8/1.8)[b]	6/13/19 (8.3/1.8)	9/17/26 (6.0/1.6)	10/14/24 (7.9/1.8)
24 June[c]	8/15/23 (8.0/1.8)	17/ 7/24 (8.7/1.9)	9/15/24 (9.1/1.8)	
5 August	20/28/48 (7.0/1.6)	25/21/46 (6.8/1.7)	30/26/56 (8.4/1.8)	
7 August[c]	44/22/66 (8.3/1.8)	32/26/58 (8.0/1.8)	33/12/45 (6.7/1.7)	3/10/13[d] (3.5/1.3)
28 August	15/28/43 (8.5/1.8)	12/27/39 (7.9/1.8)		
1 September	17/21/38 (7.4/1.8)	13/25/38 (6.8/1.8)		

[a] Date when brood was observed being fed.
[b] Nestling weight (g) and tarsal length (cm) measured the day before the feedings were recorded.
[c] Significant differences in the proportion of feedings by the male and female to each brood member.
[d] This nestling had a broken leg.

chance alone, nestlings are fed less often than expected on consecutive feedings but more often than expected on alternate feedings. There were no consistent departures from expected feeding frequencies for intervals greater than 1.

The distribution of the total feeding trips among nestlings of a given brood was not significantly different from uniformity in 5 of the 6 broods observed (Chi-square goodness of fit test) (Table 1). In the brood fed differentially, 1 nestling had a broken leg. This nestling was fed much less frequently than the others and could not reach as high when begging for food. When the analysis was restricted to the remaining nestlings, the difference was not significant. The above results suggest that size differences among nestlings did not significantly influence the number of feedings each received, although there was a tendency in most cases for the larger nestlings to be fed more frequently (Table 1). Brood reduction resulting from starvation was not observed during the entire study and the only nestling exhibiting abnormally slow growth was the one with a broken leg. Availability of nestling food did not appear to limit breeding success on the study area (Best, Auk, op. cit.).

The proportion of feeding trips by the male and female to each nestling of a brood generally differed (Table 1), although in only 2 of 6 instances (both broods of the same pair) was the difference statistically significant (Chi-square contingency analysis). In most cases differences were complementary, tending to balance the frequency of feeding each nestling.

The influence of spatial arrangement in the nest on how frequently each nestling received food was determined for 4 broods by comparing the positions of all nestlings during each visit with the position(s) of the nestling(s) receiving food (occasionally 2 nestlings were fed during a visit, but usually only 1). Twelve positions were selected reflecting the hours on a clock face (e.g. during a visit the 3 brood members were at 01:00, 05:00, and 10:00 with the nestling at 05:00 receiving food). The adult's position on the nest rim was also recorded during each visit. A Chi-square test for goodness of fit was used to determine if the frequency of feeding nestlings at various positions departed significantly from the frequency nestlings occupied those positions during feedings. Adult male and female feedings were considered separately as well as combined. In only one instance were the results statistically significant (Fig. 1) and then only for the spatial feeding pattern of the male ($P < 0.005$). Apparently the frequency of feeding nestlings in various regions of the nest is usually determined by how frequently those positions are occupied by young, and not by the adults' preference to feed in particular areas. All adults did, however, show strong preferences to feed from specific areas on the nest rim (see Fig. 1 for example). In some instances both members of the pair used the same feeding position while in other cases they did not.

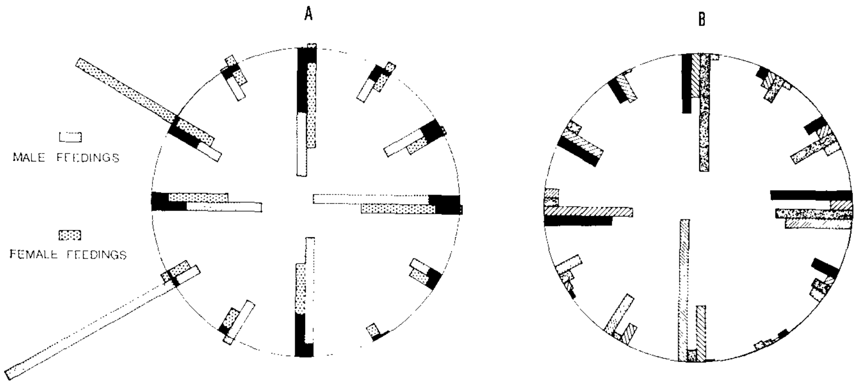

FIG. 1. The positions of adults and nestlings during feedings of the 7 August brood. Bar lengths indicate frequencies. Diagram A shows the feeding positions of the adults from the nest rim (bars outside circle), the positions of all nestlings during feeding visits (bars inside circle), and the positions of the nestlings actually receiving food (black portion of bars). Diagram B illustrates the positions of the 4 individual nestlings during feedings.

Although the young rearranged their positions in the nest frequently throughout the day, brood members showed a strong propensity to occupy different regions of the nest in all 4 broods considered ($P < 0.005$, Chi-square contingency analysis) (see Fig. 1 for example). When parents feed the young preferentially in different regions of the nest (which generally appeared not to be the case in this study), the nestlings' spatial arrangement in the nest could result in differential feeding.

The referees' suggestions for revising the manuscript were appreciated.—LOUIS B. BEST, *Dept. of Animal Ecology, Iowa State Univ., Ames 50011.* *Accepted 3 Nov. 1976.*