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SPECIES CONTENTS IN PELLETS OF THE BARN OWL FROM A CENTRAL FLORIDA WETLAND

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Abstract.—Barn Owl (*Tyto alba pratincola*) pellets, collected near an artificial wetland, revealed that prey items consisted mostly of rodents, especially *Sigmodon hispidus*. Insectivores and birds also made up a large percentage of the Barn Owl's diet.

Analysis of regurgitated owl pellets provides valuable information on feeding habits of the owls and distributions of the prey species. Pellets of the Barn Owl (*Tyto alba*) are commonly used in such studies (Trost and Hutchinson 1963, Banks 1965, Hamilton and Neill 1981, and Fritzell and Thorne 1984) because these owls tend to return near buildings to regurgitate the pellets, making collection easy.

Trost and Hutchinson (1963) published the first account of Barn Owl diets for the central Florida area based on a study from Marion County. Our study appears to be only the second such work done in Florida. In this study we examine the prey items of pellets from a wetland in central Florida.

METHODS

The pellets were collected from the Orlando Wilderness Park, located near Christmas, Orange County, Florida between March and October 1987. The "artificial wetland" serves as a filtration system for treated wastewater from the city of Orlando. Forty pellets were collected from the concrete floor beneath the rafters of a picnic pavillion that was used as a roosting site for a Barn Owl. The roost was bordered by an oak hammock and by a marsh. Trost and Hutchinson (1963) had similar habitat ("marshy and bushy fields") near their collection site. Measurements of size (longest length along each axis) and dry weight were taken before each pellet was opened. Species were determined from pellets through identification of crania and occasionally from other skeletal material, and were confirmed by comparison with a key (Glass 1973) and with specimens from the University of Central Florida collections.

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RESULTS

The number of prey items per pellet did not always correlate with pellet size. For example, the largest pellet (95 cm in length, 19.0 g) contained one prey item, whereas one average-sized pellet (51 cm in length, 4.4 g) contained four items. The difference in the size of the prey species probably accounts for this. Eighty percent of the pellets contained only one prey item, and this item was frequently a larger prey species, such as a rat. We found a shrew, a small prey species, by itself in only one pellet. The highest number of prey species in one pellet was four, while the mean number of prey species per pellet was 1.4.

Fifty-five prey items representing nine species were identified (Fig. 1). These species (n = total numbers of individuals) were: cotton rat, *Sigmodon hispidus* (17); southeastern short-tailed shrew, *Blarina carolinensis* (13); round-tailed muskrat, *Neofiber alleni* (8); marsh rice rat, *Oryzomys palustris* (8); Savannah Sparrow, *Passerculus sandwichensis* (3); least shrew, *Cryptotis parva* (2); eastern harvest mouse, *Reithrodontomys humilis* (2); opossum, *Didelphis virginiana* (1); and Eastern Meadowlark, *Sturnella magna* (1). The opossum was a partially consumed juvenile with the cranium absent.

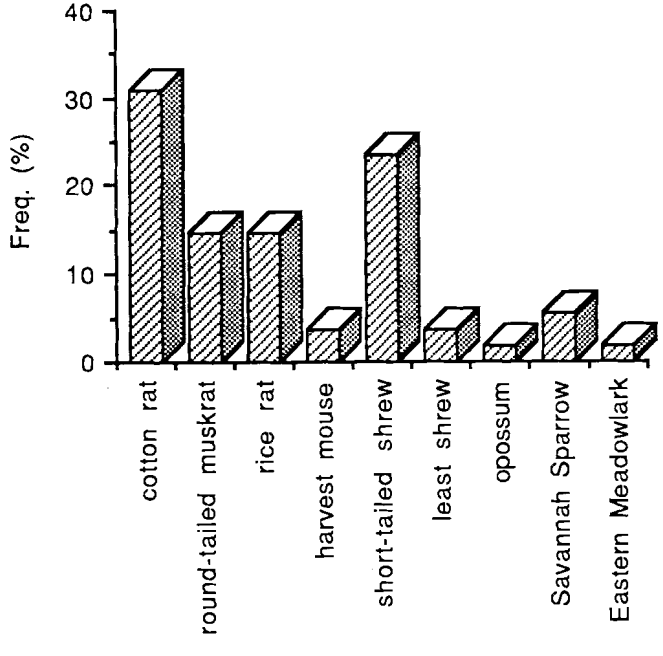

Figure 1. Percent composition of Barn Owl pellets by prey species.

Percent composition by species of prey items found in the pellets is shown in Fig. 1. Out of the 55 items found, cotton rats were the most numerous species (30.9%), followed closely by *B. carolinensis* (23.6%). Round-tailed muskrats and rice rats each comprised 14.6% of the total. The remaining 16.4% consisted of the five other species.

Percent composition of prey items by order is given in Fig. 2. Rodents accounted for 63.6% of the total. The two shrews (Order Insectivora), comprised 27.3%. Birds contributed 7.3% of the total diet, and the marsupial accounted for 1.8%.

Various insect parts, primarily orthopteran, were found in several pellets. Some tarsals came from mole crickets (Gryllotalpidae), and several femurs were large and well-developed, which would indicate grasshopper species. A head fragment was clearly from a cone-headed grasshopper (Tettigoniidae). These insect-containing pellets were mostly comprised of either avian or insectivoran species.

DISCUSSION

Rodents generally comprise the largest percentage of prey items in Barn Owl diets. Several factors may account for this, such as the relative abundance of rodents, their high food value, and the nocturnal habits of both owls and rodents. Also included in their diet may be smaller numbers of birds, reptiles, amphibians, and insects (Bent 1938, Phillips 1951, Boyd and Shriner 1954, Cunningham 1959, Tedards 1963, Earhart and Johnson 1970, Bealer 1980, and Adams et al. 1986). Banks (1965) found remains of unidentified bats, as well as several seabirds, in pellets collected from Islas Los Coronados, Baja California. Fritzell and Thorne

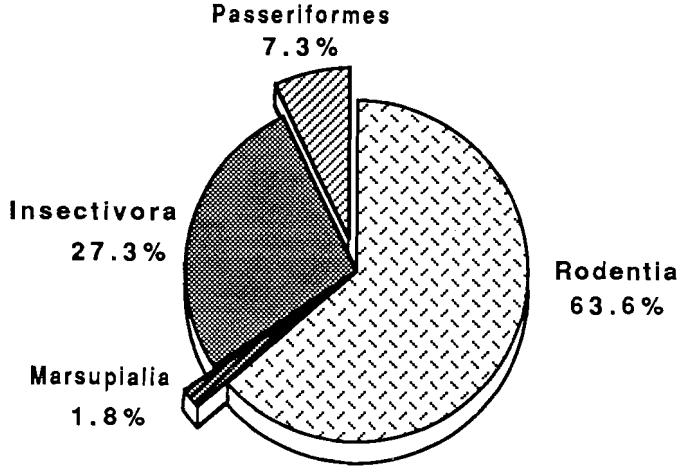

Figure 2. Percent composition of Barn Owl prey items by order.

(1984) describe an instance where a Barn Owl preyed mostly on "blackbirds" (Red-winged Blackbirds, Rusty Blackbirds, Starlings, and a Grackle). This, they explain, was due either in response to low mammal density or to exploitation of an abundant supply of birds.

Cotton rats appear to be the main prey species of Barn Owls in the southeastern United States. Hamilton and Neill (1981) found *S. hispidus* the most common species preyed upon in Texas, comprising 56.6% of Barn Owls' diet, and Tedards (1963) gave a total of 43.0% in South Carolina. Adams et al. (1986) found that *Sigmodon* accounted for a mean percentage of 13.8% in North Carolina. A large percentage of the diet of Barn Owls living in the northeastern United States is comprised of the meadow vole, *Microtus pennsylvanicus* (Bent 1938, Stearns 1950, Phillips 1951, Boyd and Shriner 1954, and Adams et al. 1986), an ecologically equivalent species to the cotton rat. Coincidental habitat preference of both may also explain the large percentage of rodents accounted for in Barn Owl diets, as well as the species of rodents consumed. Thus, field-dwelling and semi-aquatic species predominate over forest species, such as the common cotton mouse (*Peromyscus gossypinus*).

Bealer (1980) states that insects may play a significant part in the diet of Barn Owls at certain times of the year, and other authors include insects as prey items (Bent 1938, Earhart and Johnson 1970). We feel, however, that the insects are not consumed directly. Our pellets which contained insect parts always held the bones of insectivorous prey items (shrews and birds). The presence of mole crickets would seem to indicate that this species was consumed underground by the shrews that were also found in those particular pellets. Further, the small amounts of exoskeleton material would indicate partial digestion of the insects prior to pellet formation. The cone-headed grasshopper, a common grassland species, was found in pellets containing only skeletal material of the two bird species that are common in grassland habitat. Given the apparent abundance of the vertebrate species, it hardly seems likely that the owls would pursue and consume these insects.

We have also noted that size of each pellet is related to the prey species and not the number of items consumed. Larger prey species (e.g., cotton rats and round-tailed muskrats) are usually found singly in the larger pellets.

Barn Owls living in central Florida appear to be opportunistic; rodents are preferred, however, other mammals and some birds are also taken.

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