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PREY CONSUMED BY BARN OWLS, *TYTO ALBA*, IN CLAIBORNE COUNTY, TENNESSEE

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ABSTRACT

One hundred twenty-six barn owl *(Tyto alba)* pellets were collected from two roosts in Claiborne County, Tennessee. A total of 291 prey animals were identified from skeletal remains. Mammals accounted for 97.6% of the prey consumed. *Synaptomys cooperi, Blarina brevicauda,* and *Sigmodon hispidus* were the most frequently occurring taxa. *Cryptotis parva* was a prominent prey at one roost. The finding of a least weasel *(Mustela nivalis)* skull and the subsequent capture of two specimens suggest a viable population of this species.

INTRODUCTION

In recent years, concern has developed over the decline of barn owl *(Tyto alba)* populations. Changes in land management and farming practices which reduce grassland or meadow habitat adversely affect barn owl populations (Colvin 1985, 1986). The barn owl is considered a rare to uncommon resident within Tennessee (Alsop 1980). Concern for this species has prompted the Tennessee Wildlife Resources Agency to request that citizens report roost sites.

Information concerning prey taken by barn owls in Tennessee is limited. Smith *et al.* (1974) reported finding hairy-tailed mole *(Parascalops breweri),* star-nosed mole *(Condylura cristata),* and eastern harvest mouse *(Reithrodontomys humulis),* remains in the pellets of barn owls found in Johnson and Washington counties. In the Nashville area, Simpson and Jamison (1942) found the skulls of "small rodents" and a "freshly killed cotton rat" in a barn owl nest and at Franklin they found a "meadow mouse and a rat" on the ground below a nest. Jamison and Simpson (1940) after sampling nests and "lots of pellets" state that "barn owls only ate birds very much when the ground was covered with snow ... food at other times consisted almost entirely of small mammals, mostly moles." However, these investigators did not report on species of birds and mammals taken.

Because of the limited information on prey taken by barn owls in Tennessee, we analyzed skeletal remains found in regurgitated pellets. Animals remains identified from these pellets provide a record of barn owl prey taken in East Tennessee.

METHODS

Regurgitated pellets were collected from two roosts in Claiborne County. One was in the community of Harrogate and the second in the community of Speedwell. Roosts were located in barns approximately eight miles apart. Eyewitness accounts and feathers at the two sites confirmed the pellets were deposited by barn owls. Pellets were collected monthly from February 1988 through May 1988 and May and June 1989 at the Speedwell roost. At the Harrogate roost pellets were collected only in February and May of 1988 as this roost had either been abandoned or the single owl known to roost at this site had died. One hundred twenty-six pellets (eighty-six complete and forty partial) were gathered from the roosts. Complete pellets were weighed to the nearest tenth gram and the length and width was recorded. Pellets were picked apart with forceps. Animal remains were identified using the criteria of Glass (1951), Whitaker (1968), and Caldwell and Bryan (1982) and by comparison with museum specimens.

RESULTS AND DISCUSSION

The majority of pellets, n=92, were collected during February 1988 and are believed to have been deposited during the spring and summer 1987 because they were dry, gray in color, and loosely held together. In the wild, barn owl pellets are badly weathered after two months and usually after ten months no whole pellets are left (Marti 1974). However, because these pellets were deposited in barns they were not exposed to precipitation and thus may have remained intact longer. Carpet and cloth moth larvae (Lepidoptera: Tineidae) are known to destroy owl pellets (Moon 1940), and in fact, *Tinea* larvae, cases and feces were found in 61%, n=56, of these pellets. Fresh pellets, those left between collections, were dark in color, compact, and several had a glistening mucus coating.

Pellets averaged 46.3 mm in length, 30.8 mm in width and 5.5 g in weight. Moon (1940) reported barn owl pellets to average 7.1 g in western Kansas. The Claiborne County pellets may have averaged less because of the destruction of hair by *Tinea* larvae.

A total of 291 prey items were identified from the 126 pellets. Ten and fifteen taxa were represented in the Harrogate and Speedwell roosts respectively (Table 1). Mammalian prey accounted

Table 1. Numbers and Percentages of Prey Consumed by Barn Owls from Two Roosts in Claiborne County, Tennessee

Species	Harrogate Roost		Speedwell Roost		Combined	
	number	% diet	number	% diet	number	% diet
Synaptomys cooperi	60	32.8	47	43.5	107	36.8
Blarina brevicauda	34	18.6	22	20.4	56	19.2
Sigmodon hispidus	32	17.5	12	11.0	44	15.1
Cryptotis parva	32	17.5	1	0.9	33	11.3
Reithrodontomys humulis	8	4.4	2	1.9	10	3.4
Mus musculus	7	3.8	2	1.9	9	3.1
Sorex longirostris	4	2.2	3	2.8	7	2.4
Rattus norvegicus	3	1.6	2	1.9	5	1.7
Microtus sp.	2	1.1	5	4.6	7	2.4
Aves sp.	1	0.5	5	4.6	6	2.1
Peromyscus sp.		0	2	1.9	2	0.7
Sorex fumeus		0	2	1.9	2	0.7
Sorex cinereus		0	1	0.9	1	0.3
Mustela nivalis		0	1	0.9	1	0.3
Coleoptera sp.		0	1	0.9	1	0.3
	183	100.0	108	100.0	291	99.8

for 97.6% of the combined diets with *Synaptomys cooperi, Blarina brevicauda,* and *Sigmodon hispidus* occurring most frequently. *Cryptotis parva* was a prominent prey item at the Harrogate roost making up 17.5% of the prey taken but was not an important taxon in the Speedwell diet. Each other taxon alone represented less than 5% of either diet and collectively less than 18% of the combined diets. Avian and insect prey accounted for less than 3% of the combined diet. Of the six avian remains only those of a cardinal *(Richmondena cardinalis)* were positively identified.

The occurrence of the skull of a least weasel *(Mustela nivalis)* in the Speedwell collection represents an exciting find as this species is rare in Tennessee (Kennedy and Harvey 1980). Two live specimens, a male and a female, were later captured at this site. The male died in captivity and the female was released (Cushing pers. comm. 1989). Possibly this site contains a viable population of least weasels.

Due to the lack of general information concerning barn owls in Tennessee, additional work concerning diet, population dynamics, and habitat requirements is warranted.

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