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FOOD OF THE BARN OWL AT GAINESVILLE, FLORIDA

James Horner, Robert Wallace, and David W. Johnston

Food habits of the Barn Owl (*Tyto alba*) in the United States are generally well known, especially from the analysis of regurgitated pellets collected at roosting and nest sites. In most studies of continental populations, rodents and other small mammals comprise 95% (or more) of prey items; birds are taken less commonly (Wallace, 1948). The percentages usually reflect local abundance of specific prey species. Especially on islands where rats and mice are either scarce or less available, Barn Owls prey heavily upon birds (Howell, 1920; Bonnot, 1928; Johnston, 1972).

Through the kindness of Tom Carr, we were alerted to a Barn Owl roost adjacent to U.S. 441, four miles south of Gainesville, Alachua County, Florida, in the winter of 1972-73. The roost, located in a partially modified mesic hammock with Live Oaks (*Quercus virginiana*) and Cabbage Palm (*Sabal palmetto*), was at the edge of Paynes Prairie. During the daytime, owls were sometimes found spread over an area of at least five acres, but they were usually clumped in a dozen or so trees. Although five or six owls were sometimes heard calling simultaneously at night, no more than two roosting owls were seen at one time. Tom Carr and other residents of the area reported that in the late winter of 1972-73, Barn Owls nested in a hollow, dead tree approximately one-fourth of a mile from the roosting sites. Barred Owls (*Strix varia*) and Great Horned Owls (*Bubo virginianus*) also inhabit this same hammock, the latter species nesting there in March-April 1974. Immediately adjacent to the roosting sites in this hammock are the broad expanses of Paynes Prairie over which Barn Owls were seen flying many times at dusk and after dark.

Despite the widespread breeding distribution of the Barn Owl throughout Florida, little has been published on its specific foods in the state or, more importantly, on its ecological impact upon prey populations. To the best of our knowledge specific foods of feral Barn Owls in Florida are limited to the published accounts of Howell (1932), Wible and Parkes (1955), and Trost and Hutchison (1963). The account by Trost and Hutchison (1963) is the most thorough because these authors identified 865 vertebrate animals in ten pounds of nest debris. In that study, conducted some 12 miles south of our Gainesville site, the owls were feeding chiefly over a "wet habitat", took mostly *Sigmodon hispidus* and *Oryzomys palustris*, and preyed on relatively few birds (3.4% of the prey items).

The 59 pellets that we examined (Table 1) contained relatively few surprises because (1) approximately 88% of the prey items were mammals, (2) the majority of these were rodents, and (3) only nine bird remains were recovered. It is of interest to direct attention to the moderately high

percentage (31%) of *Neofiber alleni* (Round-tailed Muskrat) in the pellets, indicating the impact of Barn Owls on this localized rodent. Birkenholz (1962), in his intensive investigations of *Neofiber* on Paynes Prairie, noted (p. 124) that "Barn Owls also preyed on *Neofiber*," although he located no roosts of the owls. Both Howell (1932) and Schwartz (1952) reported *Neofiber* in pellets of Barn Owls. Interestingly, *Neofiber* was recorded from the Okefinokee Swamp, Georgia, by the recovery of three skulls in Barn Owl pellets (Schantz and Jenkins, 1950). These rodents (average weight of ten specimens equals 264 g) are certainly contrastingly large as compared with smaller prey mammals of Barn Owls, such as the Short-tailed Shrew (*Cryptotis parva*; wt. equals 5 g). Most studies of Barn Owl foods (Wallace, 1948; Trost and Hutchison, 1963; and others) have shown that Barn Owls at a given site prey heavily on one species (70-90%), with lesser amounts of other prey species being consumed. Presumably this is because that particular species is either more abundant locally or the owls can better capture that species. In our Gainesville sample (Table 1) *Neofiber*, *Sigmodon*, and *Oryzomys* occurred in similar percentages as prey items, even though *Neofiber* is by far the heaviest of the three. Although we have no specific figures on local mammal populations on Paynes Prairie at this time of year, we are inclined to believe that these three mammals were all readily accessible to the owls.

As ornithologists, we were not surprised, either, at the bird species taken by the owls--Sora, Long-billed Marsh Wren, American Robin, Red-winged Blackbird, and two unidentified forms (probably small parulids). All these birds would be expected on Paynes Prairie in winter.

In virtually every instance, both *Sigmodon* and *Oryzomys* were represented in individual pellets by both skull and body skeleton. The larger *Neofiber*, however, appeared to require two pellets for a single prey animal; one pellet usually contained either a skull or the bulk of the body skeleton. In fact, in only one instance did we find for *Neofiber* both skull and the majority of the body skeleton in one pellet. According to Wallace (1948), 254 pellets contained from one to 8 prey animals per pellet, with an average of 2.7, meaning, of course, that in Wallace's analyses smaller-sized mammals were being eaten. Our over-all average was 1.5 mammals per pellet.

Although Barn Owls can and do feed to some extent in the daytime or at dusk, they use only the sense of hearing in locating prey in total darkness (Payne, 1971). It is interesting to note in Table 1 those species presumably located by the owls' hearing the prey--perhaps the birds and certainly the katydids. It seems probable to us that the birds were flushed by the owls' flight or simply were moving at dusk. The katydids are of special interest because, according to Dr. Thomas J. Walker, these katydids were of the species *Neoconocephalus triops*, and all were males. At

the time of pellet-collection (Feb.-Mar.) these male katydids were calling, their calls probably attracting the Barn Owls.

For the identification of certain prey items we appreciate the personal assistance of Pierce Brodkorb (birds), Stephen Humphrey (mammals), and Thomas J. Walker (insects). Reference collections of Pierce Brodkorb and the Florida State Museum were most helpful for identification.

Table 1. Food items identified in Barn Owl pellets
from Gainesville, Florida.

	12 Mar.	28 Mar.	25 Dec.	Total	Percent of all prey items ¹	Percent of bio- mass
Number of pellets examined	24	24	11	59		
Contents:						
Mammals					88.2	96.9
<u>Neofiber alleni</u> (264 g) ²	9	11	4	24	31.2	59.3
<u>Sigmodon hispidus</u> (123 g)	8	8	2	18	23.7	20.7
<u>Oryzomys palustris</u> (85 g)	11	3	7	21	27.6	16.7
<u>Cryptotis parva</u> (5 g)	3	1		4	5.3	0.2
Birds					11.8	3.1
<u>Porzana carolina</u> (50 g)	1		1	2	2.6	0.9
<u>Telmatodytes palustris</u> (10 g)	1			1	1.3	0.1
<u>Turdus migratorius</u> (71 g)		2		2	2.6	1.2
<u>Phoeniceus agelaius</u> (42 g)	1		1	2	2.6	0.8
Unidentified (Parulidae?)	1		1	2	2.6	0.1
Invertebrates						
Tettigoniidae (katydids)		5		5		<0.1
Percent mammals	88.5	76.7	86.6			
Percent birds	11.5	6.7	13.4			
Percent invertebrates	0	16.7	0			

¹Less the few, relatively unimportant insect remains.

²Mean body weights: mammals, from Florida State Museum specimens; birds, personal records of DWJ.

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