

SPRING DIET OF THE BARN OWL IN NORTH MISSISSIPPI

James L. Key

Department of Biological Sciences
Mississippi State University
Mississippi State, Mississippi 39762

Aspects of the diet of the Barn Owl (*Tyto alba*) have been described by many authors in studies throughout North America. However, most of these studies have been based on remains at a single nest-site or roost. This is especially true of studies done in the southeastern U.S. Notable exceptions include Jemison and Chabreck (1962) on winter Barn Owl prey in coastal Louisiana and several studies in Texas (e.g., Otteni et al. 1972 on year-round Barn Owl diets). In Mississippi, Burchfield (1984) examined the prey at one Oktibbeha County nest.

As part of an investigation on spring habitat and prey use by Barn Owls, I monitored and collected prey remains from 93 sites in Mississippi from March-June 1992. These sites were located in Leflore, Sunflower, and Bolivar counties in the Mississippi Delta and Noxubee, Clay, and Oktibbeha counties in the Black Prairie. Of these 93 sites, prey remains from 13 Delta and 20 Black Prairie sites were included in the following assessment of Barn Owl diets. Prey from the remaining sites were excluded due to small sample sizes or situations that might cause a bias toward the collection of only large prey remains. These scenarios included sites where pellets and other debris accumulated in tall grass, water, or on grating.

Mammalian prey remains were identified to Genus using identified skulls and skull keys by Glass (1973) and Hall and Kelson (1959). Avian remains were identified to species when possible by comparing remains to skeletons and study skins in the ornithological collections at Mississippi State University. Invertebrates were identified to Order.

Sites were cleared of old debris prior to the study, and all of these pellets represented prey captured from March to early June 1992.

RESULTS

Prey from the 13 Delta sites totalled 1223 items and prey from the 20 Black Prairie sites totalled 1611 items for a combined total of 2834 identified prey items (Table 1). Unusual prey items found outside of the March to June 1992 study period or at excluded sites are also listed in Table 1 and are designated by "b."

All of the rabbits identified as prey were juveniles.

DISCUSSION

Suggested dietary differences between the study regions are negligible with respect to the roles of prey groups (rodents, insectivores, birds). However, there seem to be significant differences between regions in the nature of the rodent prey. In the Black Prairie, cotton rats (*Sigmodon hispidus*) accounted for 52% of the individual prey items and about 75% of the biomass. This may reflect relative availability of cotton rats, or it could represent a selection by Barn Owls on this large (120-150 g), prey in a region where many species are abundant.

Delta Barn Owls showed more diversity in their rodent consumption with no single prey species standing out as either crucial or preferred. This situation may represent an abundance of prey where many species are common, or it may represent a prey shortage which requires the capture of anything available. Habitat conditions suggest the latter.

The Black Prairie has a lesser abundance of crop lands that support small rodent prey. However, the interspersed pastures, fallow fields, and moderate timber stands may provide a buffer to sustain winter rodent populations when crop lands are bare. The Delta is a region of abundant food for Barn Owl prey from late spring to fall, but the harvests leave only bare fields and levees to

support winter and early spring rodent populations. This cycle of abundant food to barren fields probably plays a major role in keeping most rodent populations in check. This is especially true for the cotton rat.

Cotton rats are almost exclusively herbivorous and require a year-round supply of seed and other plant materials that are not available in the Delta. The only large prey animal consistently found in Delta samples was the rice rat (*Oryzomys palustris*). This species is nearly omnivorous, feeding on grains, snails, insects, and crustaceans. This diet flexibility would allow for larger rice rat populations to survive the Delta winter.

The burrowing habits of the pine vole (*Microtus pinetorum*) help top explain the presence of this species which contributed the most biomass (about 33%) to Delta Barn Owl diets.

Unusual prey items were all avian and included three Common Flickers (*Colaptes auratus*), two American Kestrels (*Falco sparverius*), one Sora (*Porzana carolina*), one Common Snipe (*Gallinago gallinago*), one chicken poul (*Gallus domesticus*), and one unidentified galliform. From examination of thousands of Barn Owl pellets from Mississippi, Alabama, and Tennessee, the poul and Common Snipe included here are the only domestic or game species that I have found.

ACKNOWLEDGMENTS

I appreciate having had access to the vertebrate collections in the Department of Biological Sciences at Mississippi State University. I give special thanks to all of the land owners who have allowed me to conduct my investigations on their properties for three years and counting. After getting over the idea that I wanted to pick up the "hair-balls" that those "white owls" produce, they have all shown nothing but kindness and hospitality.

Table 1. Minimum number of individuals of Barn Owl prey from 13 Delta and 20 Black Prairie sites in Mississippi from March to June 1992. (a = item constituted less than 0.51% of prey; b = items found outside of the study period March to June 1992)

| PREY TYPE | % Prey | | |
|--|---------------------|-----------------------------|------------------------|
| | Delta (N = 1223) | Black Prairie (N = 1611) | Combined (N = 2834) |
| RODENTS | | | |
| Cotton Rat <i>Sigmodon hispidus</i> | 2 | 52 | 30 |
| Rice Rat <i>Oryzomys palustris</i> | 18 | 11 | 14 |
| Old World Rats <i>Rattus</i> spp. | a | a | a |
| Pine Vole <i>Microtus pinetorum</i> | 24 | a | 11 |
| House Mouse <i>Mus musculus</i> | 32 | 10 | 20 |
| Harvest Mouse <i>Reithrodontomys</i> sp. | 1 | 6 | 4 |
| White-footed Mouse <i>Peromyscus</i> spp. | a | a | a |
| Total Rodents | 78 | 80 | 79 |

Table 1 (continued)

 INSECTIVORES

Eastern Mole

| | | | |
|---------------------------|---|---|---|
| <i>Scalopus aquaticus</i> | a | a | a |
|---------------------------|---|---|---|

Shrews

| | | | |
|--|----|----|----|
| <i>Blarina, Cryptotis,</i> <i>and Sorex</i> | 17 | 17 | 17 |
|--|----|----|----|

| | | | |
|--------------------|----|----|----|
| Total Insectivores | 17 | 17 | 17 |
|--------------------|----|----|----|

LAGOMORPHS

Cottontail Rabbit

| | | | |
|-------------------|---|---|---|
| <i>Sylvilagus</i> | 1 | 1 | 1 |
|-------------------|---|---|---|

| | | | |
|---------------|----|----|----|
| Total Mammals | 96 | 97 | 97 |
|---------------|----|----|----|

BIRDS

Red-winged Blackbird

| | | | |
|----------------------------|---|---|---|
| <i>Agelaius phoeniceus</i> | 3 | 2 | 2 |
|----------------------------|---|---|---|

Eastern Meadowlark

| | | | |
|------------------------|---|---|---|
| <i>Sturnella magna</i> | a | a | a |
|------------------------|---|---|---|

Brown-headed Cowbird

| | | | |
|-----------------------|---|---|---|
| <i>Molothrus ater</i> | a | a | a |
|-----------------------|---|---|---|

Table 1 (continued)

| | | | |
|---|---|---|---|
| Unknown Sparrow Emberizinae | a | a | a |
| Common Flicker <i>Colaptes auratus</i> | b | b | b |
| American Kestrel <i>Falco sparverius</i> | b | b | b |
| Sora <i>Porzana carolina</i> | | b | b |
| Common Snipe <i>Gallinago gallinago</i> | | b | b |
| Chicken (poult) <i>Gallus domesticus</i> | b | | b |
| Exotic galliform | b | | b |
| <hr/> | | | |
| Total Birds | 4 | 3 | 3 |
| INVERTEBRATES | | | |
| Crayfish (Decapoda) | a | a | a |
| Beetles (Coleoptera) | a | a | a |
| Grasshoppers (Orthoptera) | a | a | a |
| <hr/> | | | |

Table 1 (continued)

| | | | |
|---------------------|---|---|---|
| Total Invertebrates | a | a | a |
|---------------------|---|---|---|

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