

that required in many other birds. Our observations show that the hummingbird has relatively the largest heart of all birds examined.

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Food of the Great Horned Owl and Barn Owl in East Texas.—During a two year ecological study (1950–1951) of the Bob-white Quail in east-central Texas, specimens of several species of raptorial birds were collected and their stomach contents examined for remains of quail. Stomach analyses were supplemented with information obtained from 44 pellets, collected between February 22 and March 15, 1951, from three nestling and two adult Great Horned Owls (*Bubo virginianus*). The owl nest was located four miles east of Benchley, Robertson County, Texas, and was situated in the rotted crown of a large elm, the nest (the hollow crown) being approximately 35 feet from the ground.

The nest tree was one of many such elms forming a savanna in a low section of pasture. A small, permanent stream flowed between this low area and a high and drier pasture of bluestem grasses (*Andropogon* spp.). Because of the diversity of cover found in this area and the relatively high population of quail, a 640-acre section had been designated in January, 1950, as a research area for the study of quail activity and movement.

TABLE 1
ANALYSES OF 44 GREAT HORNED OWL PELLETS

<i>Species of prey</i>	<i>Number of Individuals</i>
<i>Sylvilagus</i> sp. (rabbit)	10
<i>Sigmodon hispidus</i> (Cotton Rat)	17
<i>Reithrodontomys</i> sp. (Harvest Mouse)	1
<i>Glaucomys volans</i> (Flying Squirrel)	1
<i>Rattus norvegicus</i> (Norway Rat)	1
<i>Colinus virginianus</i> (Bobwhite Quail)	1
<i>Colaptes auratus</i> (Flicker)	1
Fringillidae (sparrows)	2

Although the severe drought of the previous summer and fall had seriously affected pastureland and reduced much of the natural ground cover, cotton rats and cottontail rabbits remained plentiful. The cottontail was especially numerous in the brush, tall grass, and weeds that bordered the stream. Based primarily on skull identification, a qualitative analysis of each pellet was made to determine the species preyed upon and the frequency with which each occurred (table 1). Although cotton rats were taken in the greatest number, *Sylvilagus* sp. constituted the main bulk in the diet. Three other species of mammals and three species of birds were also consumed, but they were apparently taken incidentally rather than forming a major food item. The Bob-white was identified by the presence of leg band No. 45125 in one of the pellets; the quail had been banded on December 2, 1950, at the edge of a stretchberry thicket (*Smilax bona-nox*), approximately 100 yards from the nest tree. Prey species taken by this family of owls appeared to show a close correlation between consumption and availability.

On December 5, 1952, 375 complete pellets and portions of 80 other pellets of the

Barn Owl (*Tyto alba*) were removed from the attic of the courthouse building at Carthage, Panola County, Texas. The owls gained entrance to the attic through two circular windows at either end of the building, and from the available information, they had roosted and nested there for several years.

Analyses of these pellets (table 2) were of particular interest since the species of rodents consumed in the greatest number must have been obtained some distance from the city. *Sigmodon* is normally found in rather open, grassy pastures or in semibrushy areas, as is the pine vole. Rodents that might be expected to be taken in considerable numbers by city-dwelling owls, especially members of the Muridae, were numerically few.

TABLE 2
ANALYSES OF APPROXIMATELY 455 BARN OWL PELLETS

<i>Species of prey</i>	<i>Total Number of Individuals</i>
<i>Scalopus aquaticus</i> (Eastern Mole)	2
<i>Cryptotis parva</i> (Least Shrew)	48
<i>Blarina brevicauda</i> (Shorttail Shrew)	6
<i>Geomys breviceps</i> (Plains Pocket Gopher)	11
<i>Perognathus hispidus</i> (Hispid Pocket Mouse)	17
<i>Reithrodontomys</i> sp. (Harvest Mouse)	18
<i>Sigmodon hispidus</i> (Cotton Rat)	205
<i>Microtus (Pitymys) pinetorum</i> (Pine Vole)	172
<i>Rattus norvegicus</i> (Norway Rat)	2
<i>Mus musculus</i> (House Mouse)	4
<i>Sylvilagus</i> sp. (rabbit)	4
Caprimulgidae (goatsuckers)	3
Icteridae (blackbirds)	2
<i>Sturnella neglecta</i> (Western Meadowlark)	2
Fringillidae (sparrows)	14

The least shrew was taken in considerable numbers, with the shorttail shrew and common mole also represented. The occurrence of insectivores, particularly shrews, in the diet of Barn Owls is not uncommon as reported by Latham (Penna. Game Comm., P-R Proj. 36-R: 30-33, 1950) and others. At least five species of birds were noted, sparrows being the most numerous.

As indicated by the majority of prey species encountered in the Barn Owl pellets, a considerable distance must have been covered while foraging for food. Of particular significance is the large number of *Microtus pinetorum* taken by this owl, since records of this rodent in Texas are relatively few.

For several years Barn Owls had roosted in the attics of various campus buildings of the Rice Institute, Houston, Harris County, Texas. However, recent construction of additional buildings and the football stadium parking lot eliminated large open fields that had served as hunting grounds for these owls. With the source of food supply gone, the owls have almost completely disappeared from the Rice Campus. On December 23, 1952, 92 rodent skulls (from remains of old pellets) were collected from the attic of the chemistry building, of which 88 (95 per cent) were cotton rats and four (5 per cent) were Norway rats. The cotton rat is normally a common rodent in open pastures and semi-brushy areas and often forms an important constituent in the diet of raptorial birds, as noted in the case of the Great Horned and Barn owls in East Texas.—PAUL W. PARMALEE, *Illinois State Museum, Springfield, Illinois.*