

1979

Unusual Results from Pellet Analysis of the American Barn Owl, *Tyto alba pratincola* (Bonaparte)

Kenneth N. Paige
Arkansas State University

Chris T. McAllister
Arkansas State University

C. Renn Tumlison
Arkansas State University

Follow this and additional works at: <http://scholarworks.uark.edu/jaas>

 Part of the [Zoology Commons](#)

Recommended Citation

Paige, Kenneth N.; McAllister, Chris T.; and Tumlison, C. Renn (1979) "Unusual Results from Pellet Analysis of the American Barn Owl, *Tyto alba pratincola* (Bonaparte)," *Journal of the Arkansas Academy of Science*: Vol. 33 , Article 38.
Available at: <http://scholarworks.uark.edu/jaas/vol33/iss1/38>

This article is available for use under the Creative Commons license: Attribution-NoDerivatives 4.0 International (CC BY-ND 4.0). Users are able to read, download, copy, print, distribute, search, link to the full texts of these articles, or use them for any other lawful purpose, without asking prior permission from the publisher or the author.

This General Note is brought to you for free and open access by ScholarWorks@UARK. It has been accepted for inclusion in Journal of the Arkansas Academy of Science by an authorized editor of ScholarWorks@UARK. For more information, please contact scholar@uark.edu, ccmiddle@uark.edu.

Arkansas Academy of Science

Table 2. Teacher evaluations of college courses.

Teachers who had course		Name of course	Rating of course
No.	\$		
15	83	General Biology	1.53
17	94	General Botany	1.24
15	83	General Zoology	1.00
6	33	Cell Biology	1.33
14	78	Genetics	1.29
9	50	General Ecology	1.56
13	72	General Physiology	1.15
13	72	Human Anatomy	1.07
11	61	Human Physiology	1.16
1	5	Human Sexuality	1.00
6	33	Invertebrate Zoology	1.00
8	44	Plant Morphology	1.63
6	33	Plant Taxonomy	1.33
12	67	Microbiology	1.50
6	33	Vertebrate Zoology	1.00
11	61	Inorganic Chemistry	1.27
13	72	Organic Chemistry	1.54
11	61	General Physics	1.55
1	5	Applied Physics	1.00
2	11	Conservation	1.00
6	33	Biology Teaching	2.00

Scale: 1=Course has been very useful. 2=Course has been of some use. 3=Course has been of little use.

JEWEL E. MOORE and ROBERT T. KIRKWOOD, University of Central Arkansas, Conway, Arkansas 72032.

UNUSUAL RESULTS FROM PELLET ANALYSIS OF THE AMERICAN BARN OWL *Tyto alba pratincola* (Bonaparte)

A great deal of information concerning the food habits of the Barn Owl, *Tyto alba*, has been gathered through pellet analysis (Bent, 1938; Wallace, 1948; Boyd and Shriner, 1954; Banks, 1965). A comparative literature search and the results of this study both indicate that availability determines the kind and numbers of prey consumed by owls. Barn Owls feed on various species of mammals such as: mice, rats, shrews, moles, pocket gophers, bats, weasels, skunks, and rabbits, although birds, amphibians, and even an occasional insect are preyed upon. Most authorities agree that the Barn Owl is one of our most useful birds of prey, especially in farming communities, since its food consists almost entirely of rodents (Bent, 1938).

The Barn Owl usually swallows its prey headfirst, and later the nutritious portions (i.e.: soft anatomy) are digested and absorbed, while the indigestible matter (i.e.: bones, hair, feathers) are formed into oval, black, shiny-looking pellets, which are passed forward to remain in the proventriculus until the sight of new food triggers ejection (Wallace, 1948; Smith and Richmond, 1972) disgorging the pellet through the mouth. Therefore, by examining owl pellets, one should gain a fairly good knowledge of the local small mammal population through identification of skeletal material (primarily skulls) and hair contained in the pellets.

The primary purpose of our study was to determine the prey items consumed by a Barn Owl from pellet analysis at a winter roost and to associate this with availability of prey items.

Forty-five Barn Owl pellets were retrieved from the floor of the press box at Indian Stadium on the campus of Arkansas State University, Craighead County. Prey species were obtained through careful dissection of each pellet in the laboratory, and identification was based primarily upon skeletal material (i.e.: skulls and mandibles), but also included hair and feather remains as secondary sources. An analysis was made to determine the species preyed upon, the number of species preyed upon, and the frequency with which each species occurred.

A total of 93 skulls were removed from 45 pellets, an average of 2.07 skulls per pellet. One species of rodent, the southern bog lemming, *Synaptomys cooperi*, represented the dominant prey item consumed by the Barn Owl and was of particular interest since it represented 54% of the total prey species taken (Table 1). Although *Synaptomys* is found in low damp bogs and meadows throughout the northeastern portion of the U.S., the results are unusual since *Synaptomys* rarely forms dense local populations and therefore rarely represents a significant prey item in the diet of the Barn Owl. Bent (1938) states that the diet of the Barn Owl in the South consists almost exclusively of the cotton rat, *Sigmodon hispidus*, whereas in our study *Sigmodon* represented 17% of the content of the pellets. *Sigmodon* is normally a common rodent in open pastures and semi-brushy areas, and often forms an important constituent in the diet of raptorial birds (Parmalee, 1954). The winter roost utilized by the Barn Owl in our study was in close proximity (300 meters) to habitat which should support a population of *Sigmodon*. Other species taken by the Barn Owl were voles (*Microtus spp.*) 15%, Passerines (primarily *Sturnus vulgaris* and *Junco hyemalis*) 7%, shorttail shrews (*Blarina carolinensis*) 4%, marsh rats (*Oryzomys palustris*), least shrews (*Cryptotis parva*), and house mice (*Mus musculus*), each of which made up 1% of pellet contents.

Similar investigations fail to report *Synaptomys* as a food item in the South, possibly due to its scant distribution (Burt and Grossenheider, 1964) in most of its range, or due to misidentification as a species of *Microtus*. Nevertheless, availability probably determines the kind and numbers of prey consumed by owls (Boyd and Shriner, 1954). In the remainder of the Barn Owl's range in the Northeast, Midwest, and South

General Notes

Sigmodon, *Microtus* spp., and *Oryzomys* appear to be the major sources of food in the owls diet (Phillips, 1947; Parmalee, 1954; Jemison and Chabreck, 1962; Marti, 1974). Wilson (1938) reports *Synaptomys cooperi* as a food item in Michigan, but it represented less than 1% of the total prey consumed by the owl. In the west, Barn Owls feed primarily on pocket gophers (*Thomomys* spp.) and have fed almost exclusively on pelagic birds (mainly petrels) on islands around Baja, California (Banks, 1965).

We gratefully acknowledge the help of Dr. Earl L. Hanebrink, who provided data and technical materials. We also would like to thank the Athletic Department of Arkansas State University for allowing entrance to the winter roost in the press box at Indian Stadium. We are grateful to Dr. V. Rick McDaniel for commenting on the manuscript.

Table 1. Food of a Barn Owl in Craighead County, Arkansas, expressed as the number of individuals taken and the percent occurrence.

Prey Species	Species Occurrence (93) total	Percent Occurrence
<i>Synaptomys cooperi</i>	50	54
<i>Sigmodon hispidus</i>	16	17
<i>Microtus</i> spp.	14	15
Passerines	6	7
<i>Blarina carolinensis</i>	4	4
<i>Oryzomys palustris</i>	1	1
<i>Cryptotis parva</i>	1	1
<i>Mus musculus</i>	1	1

LITERATURE CITED

- BANKS, R. C. 1965. Some information from barn owl pellets. Auk 82:506.
- BENT, A. C. 1938. Life histories of North American birds of prey: Part Two. Dover Publications, Inc. New York, N. Y. 140-153.
- BOYD, E. M. and J. SHRINER. 1954. Nesting and food of the Barn Owl in Hampshire Co., Mass. Auk 71:199-201.
- BURT, W. H., and R. P. GROSSENHEIDER. 1964. A field guide to the mammals. Houghton Mifflin Co., Boston. 3rd ed. 184-186.
- GRIMM, R. J., and W. M. WHITEHOUSE. 1963. Pellet formation in a Great Horned Owl: a roentgenographic study. Auk 80:301-306.
- JEMISON, E. S., and R. S. CHABRECK. 1962. Winter Barn Owl foods in a Louisiana coastal marsh. Wilson Bull., 74 (1):95-96.
- KENNETH N. PAIGE, CHRIS T. McALLISTER, and C. RENN TURLISON. Department of Biological Science, Arkansas State University, State University, Arkansas 72467.
- MARTI, C. D. 1973. 10 Years of Barn Owl prey data from a Colorado nest site. Wilson Bull., 85 (1):85-86.
- PARMALEE, P. W. 1954. Food of the Great Horned Owl and Barn Owl in East Texas. Auk 71:469-470.
- PHILLIPS, R. C. 1947. Notes on some mammals of Hancock Co., Ohio. J. Mamm. 28(2):189-190.
- SMITH, C. R., and M. E. RICHMOND. 1972. Factors influencing pellet egestion and gastric pH in the Barn Owl. Wilson Bull., 179-186.
- WALLACE, G. J. 1948. The Barn Owl in Michigan. Mich. State Coll. Agr. Exp. Sta. Tech. Bull., 208:1-61.
- WILSON, K. A. 1938. Owl studies at Ann Arbor, Michigan. Auk 55 (2):187-197.

ADDITIONS TO THE STRAWBERRY RIVER ICHTHYOFAUNA

In their initial list of the fishes of the Strawberry River, Robison and Beadles (1974, Fishes of the Strawberry River system of northcentral Arkansas, Proc. Ark. Acad. Sci. 28:65-70) reported 95 species of fishes inhabiting the system. Favorable climatic conditions during the past four years have allowed collections of fishes to be made in the lower wide stream sections of the Strawberry River where steep banks, mud substrates and normally deep pools make collecting especially difficult during most of the year. Collections in these areas during the interim have documented 12 species not previously reported by Robison and Beadles (1974) including the least brook lamprey, *Lampetra aepyptera* (Abbott), chestnut lamprey, *Ichthyomyzon castaneus* Girard, shovelnose sturgeon, *Scaphirhynchus platyrhynchus* (Rafinesque), paddlefish, *Polyodon spathula* (Walbaum), gravel chub, *Hybopsis x-punctata* Hubbs and Crowe, fathead minnow, *Pimephales promelas* Rafinesque, crystal darter, *Crystallaria* (= *Ammocrypta*) *asprella* (Jordan), western sand darter, *Ammocrypta clara* Jordan and Meek, harlequin darter, *Etheostoma histrio* Jordan and Gilbert, Ouachita darter, *Percina ouachitae* (Jordan and Gilbert), stargazing darter, *Percina uranidea* (Jordan and Gilbert), and river darter, *Percina shumardi* (Girard).

Robison and Beadles (1974) originally suggested that the two lamprey specimens reported from the system were *Lampetra lamottei* (Lesueur) based on geographic proximity of other known localities to the Strawberry River; however, subsequent collections confirm the presence of two additional species of lampreys. *L. lamottei* remains unknown from the Strawberry River system. Seven specimens of mature, breeding *L. aepyptera* taken on 4-6 April 1975 substantiate the presence of the least brook lamprey in the system. Collections were taken from the following locations: IZARD Co.: McJunkins Branch SE of Franklin (Sec. 3 and 4, R7W, T17N) (one specimen); unnamed tributary of Little Strawberry