

Barred Owl Pellet Contents in Michigan

¹Dennis A. Meritt Jr. and ²Rikki Eul

¹Department of Biological Science, ²School for New Learning
DePaul University, 2325 N. Clifton Ave., Chicago IL 60614

ABSTRACT

Owl pellets from the Barred Owl were collected and analyzed for prey remains. Twelve small mammals and one invertebrate were identified.

INTRODUCTION

Among the larger owl species in the Midwest the Barred Owl (*Strix varia*) is perhaps the best known because of its easily identifiable vocalizations. Presence of the owl can be determined by these unique vocalizations especially during the breeding season and again at the time of dispersal of young from a nest site. In some locations Barred owls live in close association with human activity, especially in locations where activity is centered on summer recreation, and the balance of the year is with decreased human presence (Pers. Obser.). In Michigan this species has been characterized as widespread and locally common (Postupalsky et al. 1995).

MATERIALS AND METHODS

One such location is north of Pentwater, MI (43.7817 N, 86.4331 W) in a mixed evergreen and deciduous forest consisting of a variety of oak species, maple, pine, hemlock, and spruce in a barrier dune formation adjacent to Lake Michigan. Through 2005, Barred owls regularly were heard and seen in a several hundred acre protected area. Nesting and rearing of young occurred on a regular basis. On rare occasions recently fledged young were observed at close range as they begged for food. Adults not infrequently came to a forest water source and sometimes foraged near it. Adult owls were sometimes observed in the early morning perched over the water. Small fish and woodland amphibians including wood frogs (*Rana sylvatica*) and American toads (*Bufo americanus*) were present there. Smith et al. (1983) has reported similar observations about foraging and perching.

During the early spring of 2005 pellets were collected from an Eastern Hemlock (*Tsuga canadensis*) roost site in this area. A total of fourteen intact pellets were collected. Addi-

tional pellet remains were present but were not collected due to deterioration. Pellets were dried at 40 degrees C. for seven to ten days without washing, then weighed and measured prior to dissection. Pellet contents, including hair samples, skeletal parts and invertebrate remains were separated and preserved as dry specimens and cataloged after identification. Identification was made with the aid of a dissecting binocular microscope using available reference skeletal material as well as field guides (Burt, 1948; Burt, 1972; Elbroch, 2006; Knox-Jones and Manning, 1992; Roest, 1986; Tekiela, 2005).

RESULTS AND DISCUSSION

Fourteen intact pellets weighed on average 4 gms (X = 4.01; SD = 2.07). The castings ranged from 40 to 60 mm in length (X = 43.69; SD = 13.56) and between 20 and 50 mm in width (X = 25.61; SD = 10.83). The number of individual animals per pellet averaged 3 with a range of 1 - 4 (N =13; X =

2.69; SD = 1.54). The number of species per pellet averaged 3 with a range of 1 - 4 (N = 13; X = 2.30; SD = 1.37). A total of one invertebrate and eleven small mammal species were present in the pellets. There was a small amount of unidentifiable plant material in one casting. Prey items are listed in Table 1.

Blakemore (1940) in describing thirty six winter collected Barred owl pellets from Minnesota described these as oval in shape; ranging in size from 37-70 mm in length and from 20-27 mm in width. The average length was 54 mm; width 24.5. The average number of food items per pellet was 2.04. The pellets described here were shorter; about the same width and the average number of food items per pellet was higher.

Wilson (1938) in collections made in coniferous stands at a central Michigan site determined that owl pellets remain whole for eight to ten weeks and then deteriorate.

Table 1. Species used as food by Barred owls (*Strix varia*) in Michigan.

Common Name	Scientific Name	Number of Individuals
Masked Shrew	<i>Sorex cinereus</i>	8
Northern Short-tailed Shrew	<i>Blarina brevicaudata</i>	2
Eastern Mole	<i>Scalopus aquaticus</i>	2
Short-tailed Weasel	<i>Mustela ermine</i>	1
Eastern Chipmunk	<i>Tamias striatus</i>	3
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	2
Southern Flying Squirrel	<i>Glaucomys volans</i>	2
White-footed Mouse	<i>Peromyscus leucopus</i>	7
Southern Red-backed Vole	<i>Clethrionomys gapperi</i>	1
Meadow Vole	<i>Microtus pennsylvanicus</i>	1
House Mouse	<i>Mus musculus</i>	2
North American Porcupine	<i>Erethizon dorsatum</i>	1
Unidentified Crayfish	<i>Cambarus</i> sp.	2

[Mammal Taxonomy according to Burt and Grossenheider 1976]

Further he reported winter regurgitated pellets remain whole for 3 to 5 months. Given the collection site and date of the pellets reported here it is reasonable to assume that the sampled pellets fell within the 8 – 10 week range and that the site had been in use for some time.

The diet of Barred Owls is composed largely of small mammals as reported in a range of studies across North America and reviewed by Snyder and Wiley (1976) as cited in Mazur and James (2000). A total of 2,234 prey items were represented by 76% mammals, 15.8% invertebrates, 5.8% birds and 2.5% lower vertebrates. Most recently, Livezey (2007) has reviewed and summarized the literature including identification of prey items using six different methodologies. A total of 7,077 samples by composition 71.9% mammals, 10.1% invertebrates, 9.5% birds, reptiles 0.6%, and amphibians 6.0 %. Elderkin (1987) reported winter diets consisted primarily of small mammals.

In this report, mammals represented 92.3% and invertebrates 6.7%. One pellet contained only the quills of a young North American porcupine as judged by quill size and structure. We found no other published reports identifying this species as food.

While the number of pellets in this sample is small the results provide insight to the diet of the Barred Owl at this Michigan location.

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