

BARRED OWL PREDATION ON HERMIT THRUSH AND OVENBIRD FLEDGLINGS

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Barred Owls (*Strix varia*) are opportunistic generalist predators, with diets containing both nocturnal and diurnal prey and dominated by terrestrial species (Hamer et al. 2001). Small mammals make up the largest portion of the diet, but Barred Owls also consume birds, fish, amphibians, and invertebrates (Elderkin 1987). A review of 43 studies indicated that birds compose 9.5% of Barred Owl diets (Livezey 2007). Although winter diet determined from pellets contained only 2.7% bird remains (in Montana; Marks et al. 1984), the proportion of bird prey in Barred Owl diets increases substantially in the spring and summer to 7–25% of the diet (Bosakowski and Smith 1992, Takats 1998, Hamer et al. 2001).

Barred Owl home ranges estimated with radiotelemetry in Minnesota averaged 229 ha (Nicholls and Warner 1972), but Barred Owls tend to forage near the nest during the breeding season (Mazur and James 2000). Barred Owls likely do not take birds on the wing, and therefore rarely prey on adult songbirds (Bent 1938). However, Bent (1938) listed several species of passerines as prey of Barred Owls. Although larger avian prey items such as Ruffed Grouse (*Bonasa umbellus*) are often identified, 19 of 29 avian prey items recovered from Barred Owl pellets in Washington were described as “unidentified small bird” (Hamer et al. 2001). Because most data describing Barred Owl diets are from pellets and prey remains, small songbird prey are rarely identified to species.

Increased abundance and relative vulnerability of juvenile songbirds during spring and summer may contribute to the proportional increase of bird prey in Barred Owl diets during these seasons. Here we report observations made while radiotracking fledglings of two ground-nesting songbirds, Hermit Thrushes (*Catharus guttatus*) and Ovenbirds (*Seiurus aurocapilla*) in the Chippewa National Forest in northern Minnesota.

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METHODS

In 2007, we monitored Hermit Thrush nests and Ovenbird nests located in an extensive mature forest stand dominated by red pine (*Pinus resinosa*) in the Chippewa National Forest, Itasca County, Minnesota (47°29'N, 93°59'W). Five Hermit Thrush nests and 22 Ovenbird nests were located <850 m from an active Barred Owl nest in a cavity of a sugar maple (*Acer saccharum*) snag located 360 m east of the Little Cutfoot Sioux River. Barred Owl nestlings fledged successfully on approximately 1 June, and one adult and two owlets were frequently heard and seen within 100 m of the nest throughout the remainder of June; a second adult Barred Owl was occasionally heard calling from >100 m from the nest.

We systematically monitored songbird nests, banded nestlings, and attached radiotransmitters to one or more nestlings per nest 1–2 d prior to expected fledging dates. Between 16 June and 3 July, we banded and attached transmitters to four Hermit Thrush nestlings in one nest, and banded nine Ovenbird nestlings in two nests, attaching one transmitter to one nestling from each Ovenbird nest. Those three songbird nests were located ≤50 m from the Barred Owl nest. We banded an additional 32 Ovenbird nestlings and attached transmitters to one nestling from each of eight nests located 51–850 m from the Barred Owl nest.

RESULTS

Each of the 13 radio-tagged nestlings successfully fledged within 2 d of marking, and we subsequently relocated the fledglings daily for 1–31 d (\bar{x} = 12.9 d). All four radiotracked Hermit Thrush fledglings were depredated within 1 d of fledging. Of the nine radiotracked Ovenbird fledglings, four were depredated.

On 18 June, while tracking fledglings, we found three Barred Owl pellets containing transmitters and bands from Hermit Thrush and Ovenbird fledglings. One pellet contained a transmitter from one Hermit Thrush and a leg band from an Ovenbird (Fig. 1). The second pellet contained a transmitter and leg band from one Hermit Thrush, a transmitter and leg band from one Ovenbird, and a leg band from a second Ovenbird. The third pellet

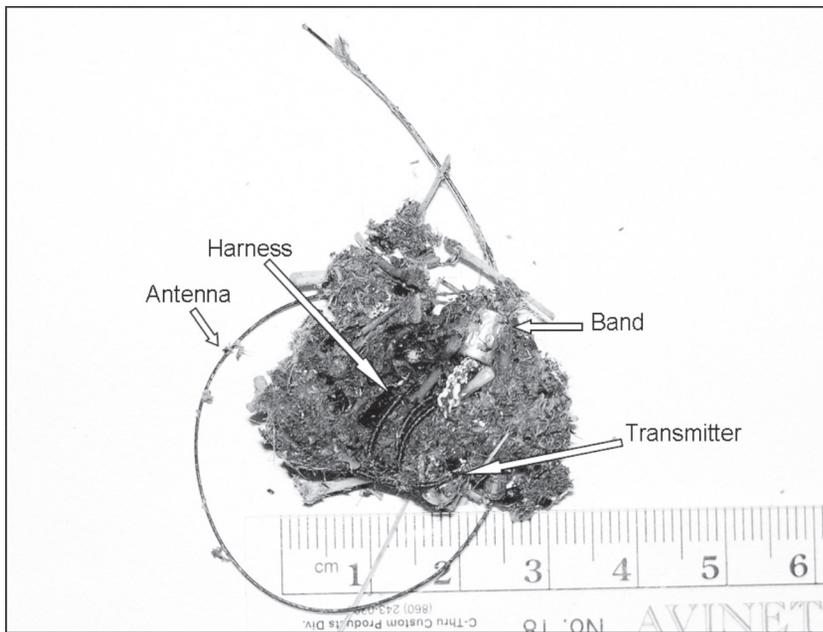


Figure 1. Barred Owl (*Strix varia*) pellet containing a radiotransmitter from a Hermit Thrush (*Catharus guttatus*) fledgling and a leg band from an Ovenbird (*Seiurus aurocapilla*) fledgling, recovered 18 June 2007 in northern Minnesota.

was found broken on the ground next to a twisted transmitter from a Hermit Thrush. Overall, we found evidence of Barred Owl predation on six (four radio-tagged and two only banded) of the thirteen fledglings from nests ≤ 50 m from the Barred Owl nest. However, we found no indication of Barred Owl predation on any of 32 fledglings from nests 51–850 m from the Barred Owl nest.

DISCUSSION

Our identification of Hermit Thrush and Ovenbird fledglings as Barred Owl prey is one of few reports to identify species of songbirds consumed by Barred Owls. Compared to adult songbirds, fledgling ground-nesting songbirds are likely relatively vulnerable to predation by Barred Owls, as they are incapable of sustained flight and spend their time on or near the ground (H. Streby unpubl. data). Barred Owls are generalist predators that forage primarily on prey that inhabit the ground (Mazur and James 2000). Our limited observations indicated that Barred Owls do prey on recently fledged ground-nesting songbirds near the owl nest.

Understanding the specific composition of Barred Owl diet may be important because of concern about competition between Barred Owls and the federally threatened Northern Spotted Owl (*Strix occidentalis caurina*) in the Pacific Northwest. Because Barred Owl and Northern Spotted Owl diets overlap substantially (Hamer et al. 2001), documenting avian species consumed could be an important contribution to assessing competition between Barred Owls and Northern Spotted Owls.

DEPREDACIÓN POR PARTE DE *STRIX VARIA* SOBRE PICHONES DE *CATHARUS GUTTATUS* Y *SEIURUS AUR-OCAPILLA*

RESUMEN.—Identificamos los pichones de dos especies de aves canoras que anidan en el suelo, *Catharus guttatus* y *Seiurus aurocapilla*, como presas de *Strix varia* en el norte de Minnesota. Mediante el uso de radio telemetría, encontramos transmisores y anillos de tres pichones de *C. guttatus* y tres de *S. aurocapilla* en tres egagrópilas de *S. varia*. Aunque se sabe que las aves constituyen una pequeña fracción de la dieta de primavera y verano de *S. varia*, hay pocos registros publicados que documentan cuales especies de aves canoras son consumidas. Nuestras observaciones confirmaron que los pichones recién salidos del nido de aves canoras que anidan en el suelo contribuyen a la dieta de *S. varia* durante la primavera y el verano.

[Traducción del equipo editorial]

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LITERATURE CITED

- BENT, A.C. 1938. Life histories of North American birds of prey, Part 2. Smithsonian Institution. *U.S. Natl. Mus. Bull.* 170.
- BOSAKOWSKI, T. AND D.G. SMITH. 1992. Comparative diets of sympatric nesting raptors in the eastern deciduous forest biome. *Can. J. Zool.* 70:984–992.
- ELDERKIN, M.F. 1987. The breeding and feeding ecology of a Barred Owl *Strix varia* Barton population in Kings County, Nova Scotia. M.S. thesis, Acadia Univ., Wolfville, Nova Scotia, Canada.
- HAMER, T.E., D.L. HAYES, C.M. SENGER, AND E.D. FORSMAN. 2001. Diets of northern Barred Owls and northern Spotted Owls in an area of sympatry. *J. Raptor Res.* 35:221–227.
- LIVEZEY, K.B. 2007. Barred Owl habitat and prey: a review and synthesis of the literature. *J. Raptor Res.* 41:177–201.
- MARKS, J.S., D.P. HENDRICKS, AND V.S. MARKS. 1984. Winter food habits of Barred Owls in western Montana. *Murrelet* 65:28–29.
- MAZUR, K.M. AND P.C. JAMES. 2000. Barred Owl (*Strix varia*). In A. Poole [Ed.]. The birds of North America online, No. 508. Cornell Lab of Ornithology, Ithaca, NY U.S.A. <http://bna.birds.cornell.edu/bna/species/508> (last accessed 31 January 2008).
- NICHOLLS, T.H. AND D.W. WARNER. 1972. Barred Owl habitat use as determined by radiotelemetry. *J. Wildl. Manage.* 36:213–224.
- TAKATS, D.L. 1998. Barred Owl habitat use and distribution in the Foothills Model Forest. M.S. thesis Univ. of Alberta, Edmonton, Alberta, Canada.

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