

ADULT FEMALE BARRED OWL (*STRIX VARIA*) EATING SMALL CATERPILLARS (FAMILY GEOMETRIDAE) WHILE GUARDING A RECENTLY FLEDGED CHICK IN WINNIPEG, MANITOBA

James R. Duncan

Discover Owls
P.O. Box 253
Balmoral, MB ROC OH0
jduncan@discoverowls.ca

Aaron Janzen

WildFire AP
785 Garwood Ave.
Winnipeg, MB R3M 1M5

On 21 June 2022, in a riparian flood-plain hardwood forest along the Red River in Winnipeg, Manitoba (Figure 1) we, along with Ken Stewart and Patricia Duncan, observed and photographed an adult Barred Owl (*Strix varia*) feeding on small prey from tree trunks, branches, and leaves. Barred Owls have successfully nested in this river bottom forest dominated by green ash (*Fraxinus pennsylvanica*), black ash (*F. nigra*), Manitoba maple (*Acer negundo*), and American elm (*Ulmus americana*) since at least 2019 (Henry Fast, pers. comm.).

On closer inspection using binoculars and telephoto camera lenses, and later of images taken on this day and on earlier visits (2020), it was noted that the owl was eating small caterpillars (Figure 2). One live caterpillar was collected, photographed, and tentatively identified as an Elm Spanworm caterpillar (*Ennomos subsignaria*) (Figure 3). Other similar-sized

green and brown caterpillars, also in the family Geometridae, occur in the area including the Spring Cankerworm (*Paleacrita vernata*) and Fall Cankerworm (*Alsophila pometaria*).^{1,2}

James and Patricia Duncan had captured and banded an adult female and male Barred Owl and their two fledglings at and near their nest tree in summer 2021. We confirmed that the adult consuming the caterpillars on 21 June 2022 was the same adult female by reading the band number from photographs taken by Aaron Janzen and Ken Stewart. The adult female was observed and photographed perching and hunting from 19:20-22:00 h while remaining close enough to guard a fledged chick within 50 m west-



FIGURE 3: Elm Spanworm collected near a hunting Barred Owl on 21 June 2022. Photo credit: James Duncan.



FIGURE 1: Riparian flood-plain hardwood forest along the Red River in a Barred Owl breeding home range in Winnipeg, Manitoba (21 June 2022). Photo credit: James Duncan.



FIGURE 2: Adult female Barred Owl eating a moth caterpillar (22 June 2020). Photo credit: Aaron Janzen.

southwest of the nest tree; the adult male was perched at least 50 m east of the nest tree and out of sight.

The adult female appeared to capture moving caterpillars including those suspended by silk threads within the tree canopy and those crawling on tree trunks and small trees that were awkward to land on, fallen trees and upturned tree roots, and from the forest floor (Figures 4-5). The leaves on these trees were heavily chewed on and some were defoliated by caterpillars

(Figure 5). Afterwards, the female flew up into the canopy near the fledged juvenile. In 2020, at this same location, an adult Barred Owl was observed feeding small caterpillars to its fledged chick (Figure 6).

The Barred Owl is a generalist predator with a diverse diet, including prey up to the size of rabbits but also invertebrate species, across its North American range.³ In Manitoba its previously known diet included 37 prey taxa, including adult sphinx moths

(Family Sphingidae) and adult June bug beetles (*Phyllophaga* spp.) identified from exoskeleton remains recovered from the stomachs of Barred Owl specimens or from nest substrate and regurgitated pellet materials.^{4,5}

This account is the first record of Barred Owls actively stalking and eating small moth caterpillars. It is noteworthy because the remains of soft-bodied boneless prey items are either difficult to locate or absent from Barred Owl prey remains obtained from regurgitated



FIGURE 4: Adult female Barred Owl hunting moth caterpillars from the side of a tree trunk (21 June 2022). Photo credit: Ken Stewart.



FIGURE 5: Adult female Barred Owl hunting moth caterpillars from an awkward perch in a small tree (21 June 2022). Photo credit: Aaron Janzen.



FIGURE 6: Adult female Barred Owl feeding a fledged chick a small moth caterpillar (22 June 2020). Photo credit: Aaron Janzen.

pellets or nest cavity substrates⁶ and their importance to this adaptable owl species is likely underestimated. This behaviour and prey source were likely previously overlooked due to the small size of these soft-bodied moth larvae.

At times the female Barred Owl appeared to be catching a caterpillar every few minutes (Ken Stewart, pers. comm.). The energetic and nutritional importance of small caterpillars to breeding passerines is well known.⁷ It is questionable if there is a significant net energy benefit to adult Barred Owls or their young, given their size, except perhaps when small caterpillars are very abundant during outbreaks. Foraging opportunities for a female Barred Owl may be limited during the period when it has to remain close to its nestlings or recently fledged chicks to protect them.³ At this time the female is largely dependant on the male that forages over a greater area.³ A female Barred Owl with fledglings may partially meet its energy needs by opportunistically foraging on abundant caterpillars, especially in river bottom forests where spring flooding initially covered the forest floor with water and later left a mud substrate

(Figure 1). The use of local caterpillar prey by the female would enable more prey delivered by the male to be consumed by the fledglings, maximizing their growth and condition which in turn increases their likelihood of surviving to independence.⁸

The Barred Owl must overcome biophysical challenges to capture such small prey. Owls have lower visual spatial resolution and a limited visual accommodation range resulting in an inability to focus on close objects.⁹ Barred Owls therefore rely on prominent rictal bristles, which are sensitive to touch¹⁰, around their bills to locate and nimbly grasp small caterpillars when they are too close to see them (Figures 7-8).

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FIGURE 7: Adult female Barred Owl bending down to grasp a small moth caterpillar in its bill (21 June 2022). Photo credit: Aaron Janzen.



FIGURE 8: A close-up of an adult female Barred Owl attempting to catch a small moth caterpillar in its bill (21 June 2022). Photo credit: Aaron Janzen.