

**American Robin
(*Turdus migratorius*)
Feeds a Nestling
Carcass to Nestlings in
an Urban Environment**

Dustin E. Brewer and Adam M. Fudickar



The *Urban Naturalist* . . .

- ◆ A peer-reviewed and edited interdisciplinary natural history science journal with a global focus on urban areas (ISSN 2328-8965 [online]).
- ◆ Featuring research articles, notes, and research summaries on terrestrial, fresh-water, and marine organisms, and their habitats. The journal's versatility also extends to publishing symposium proceedings or other collections of related papers as special issues.
- ◆ Focusing on field ecology, biology, behavior, biogeography, taxonomy, evolution, anatomy, physiology, geology, and related fields. Manuscripts on genetics, molecular biology, anthropology, etc., are welcome, especially if they provide natural history insights that are of interest to field scientists.
- ◆ Offers authors the option of publishing large maps, data tables, audio and video clips, and even powerpoint presentations as online supplemental files.
- ◆ Proposals for Special Issues are welcome.
- ◆ Arrangements for indexing through a wide range of services, including Web of Knowledge (includes Web of Science, Current Contents Connect, Biological Abstracts, BIOSIS Citation Index, BIOSIS Previews, CAB Abstracts), PROQUEST, SCOPUS, BIOBASE, EMBiology, Current Awareness in Biological Sciences (CABS), EBSCOhost, VINITI (All-Russian Institute of Scientific and Technical Information), FFAB (Fish, Fisheries, and Aquatic Biodiversity Worldwide), WOW (Waters and Oceans Worldwide), and Zoological Record, are being pursued.
- ◆ The journal staff is pleased to discuss ideas for manuscripts and to assist during all stages of manuscript preparation. The journal has a mandatory page charge to help defray a portion of the costs of publishing the manuscript. Instructions for Authors are available online on the journal's website (www.eaglehill.us/urna).
- ◆ Co-published with the *Northeastern Naturalist* (Print ISSN # 1092-6194, Online ISSN # 1938-5307), the *Southeastern Naturalist* (Print ISSN # 1528-7092, Online ISSN # 1938-5412), and *Caribbean Naturalist* (ISSN # 2326-7119 [online]). Together these journals provide an integrated publishing and research resource for all of eastern mainland North America and the offshore waters and islands from Canada south to the Caribbean region, as well as urban areas worldwide.
- ◆ Available online in full-text version on the journal's website (www.eaglehill.us/urna). Arrangements for inclusion in the BioOne database (www.bioone.org, a collaborative effort of Allen Press, AIBS, et al.), EBSCOhost product line, and the Proquest Information and Learning databases (www.il.proquest.com) are being pursued.
- ◆ May be ordered through any major subscription service.

Cover Photograph: American Robin (*Turdus migratorius*) adult with two nestlings that are ingesting the carcass of a nestling bird provided by the adult. Photograph © Adam Fudickar.

URBAN NATURALIST

Board of Editors

Myla Aronson, Rutgers University, New Brunswick, NJ, USA
Joscha Beninde, University of Trier, Trier, Germany
Andrea Larissa Boesing, Universidade Estadual de Londrina, Parana, Brazil
Sabina Caula, Universidad de Carabobo, Naguanagua, Venezuela
Sylvio Codella, Kean University, Union New Jersey, USA
Julie Craves, University of Michigan-Dearborn, Dearborn, MI, USA
Ana Faggi, Universidad de Flores/CONICET, Buenos Aires, Argentina
Leonie Fischer, Technical University of Berlin, Berlin, Germany
Keith Goldfarb, GoldRush Science Services, Steuben, ME, USA ... Editor-in-Chief
Chad Johnson, Arizona State University, Glendale, AZ, USA
Kirsten Jung, University of Ulm, Ulm, Germany
Madhusudan Katti, North Carolina State University, Raliegh, NC, USA
Erik Kiviat, Hudsonia, Bard College, Annandale-on-Hudson, NY, USA
Sonja Knapp, Helmholtz Centre for Environmental Research–UFZ, Halle (Saale), Germany ...
Managing Editor
David Krauss, City University of New York, New York, NY, USA
Mark Laska, Great Ecology, San Diego, CA, USA
Zdenka Lososova, Masaryk University, Brno, Czechia
Joerg-Henner Lotze, Eagle Hill Institute, Steuben, ME, USA ... Publisher
Kristi MacDonald, Hudsonia, Bard College, Annandale-on-Hudson, NY, USA
Ian MacGregor-Fors, Instituto de Ecología Mexico, Veracruz, Mexico
Tibor Magura, University of Debrecen, Debrecen, Hungary
Brooke Maslo, Rutgers University, New Brunswick, NJ, USA
Mark McDonnell, Royal Botanic Gardens Victoria and University of Melbourne, Melbourne, Australia
Mike McKinney, University of Tennessee, Knoxville, TN, USA
Desirée Narango, City University of New York, New York, NY, USA
Mitchell Pavao-Zuckerman, University of Arizona, Tucson, Arizona, USA
Joseph Rachlin, Lehman College, City University of New York, New York, NY, USA
Travis Ryan, Center for Urban Ecology, Butler University, Indianapolis, IN, USA
Michael Strohbach, Technische Universität Braunschweig, Institute of Geocology, Braunschweig, Germany
Katalin Szlavecz, Johns Hopkins University, Baltimore, MD, USA
Paige Warren, University of Massachusetts, Amherst, MA, USA
Jill Weber, Eagle Hill Institute, Steuben, ME, USA ... Production Editor
Alan Yeakley, Portland State University, Portland, OR, USA
Iriana Zuria, Universidad Autónoma del Estado de Hidalgo, Hidalgo, Mexico

The *Urban Naturalist* (ISSN # 2328-8965) is published by the Eagle Hill Institute, PO Box 9, 59 Eagle Hill Road, Steuben, ME 04680-0009. Phone 207-546-2821, FAX 207-546-3042. E-mail: office@eaglehill.us. Webpage: www.eaglehill.us/urna. Copyright © 2019, all rights reserved. Periodical postage paid in Steuben, ME and additional mailing offices. **Special issue proposals are welcome.** On-line secure subscription ordering: rate per year - \$20 regular, \$15 students, \$80 organizations. **Authors:** submission guidelines are available at www.eaglehill.us/urna. **Co-published journals:** The *Northeastern Naturalist* (ISSN 1092-6194 [print], ISSN 1938-5307 [online]), the *Southeastern Naturalist* (ISSN 1528-7092 [print], ISSN 1938-5412 [online]), and the *Caribbean Naturalist* (ISSN 2326-7119), journals with separate Boards of Editors. The Eagle Hill Institute is a tax exempt 501(c)(3) nonprofit corporation of the State of Maine (Federal ID # 010379899).

American Robin (*Turdus migratorius*) Feeds a Nestling Carcass to Nestlings in an Urban Environment

Dustin E. Brewer^{1,*} and Adam M. Fudickar¹

Abstract - *Turdus migratorius* (American Robin) is a songbird that commonly eats fruit and invertebrates as an adult and invertebrates as a nestling. This species has only rarely been observed eating vertebrates, or feeding them to nestlings. We observed the first known occurrence of an American Robin feeding a nestling carcass to nestlings. It is unclear if the bird we observed depredated a nest or scavenged a nestling. The observation occurred on the campus of Indiana University in Bloomington, IN, USA. It is currently unknown if urbanization affects the prevalence of this behavior.

Studies of the diet and/or foraging ecology of an organism can provide insight into life-history traits and environmental pressures for many taxa (e.g., in birds [Robinson and Holmes 1982], fish [Labropoulou and Eleftheriou 1997], and mammals [Novack et al. 2005]). *Turdus migratorius* L. (American Robin) is a songbird that occurs in both urban and rural areas throughout much of North America. Here, we report the first known observation of an American Robin feeding a nestling carcass to its nestlings. This event occurred in an urban environment.

Gut contents of over 6000 American Robins indicate that adults of this species primarily eat fruit in fall and winter months, a mix of fruit and invertebrates in summer months, and primarily invertebrates in the spring (Wheelwright 1986). Post-fledging American Robins may on rare occasions eat vertebrates, as indicated by several reports, including predatory interactions with fish (Bayer 1980), reptiles (Davis 1969, Netting 1969, Vanderhoff 2007), amphibians (Leighton 2006, Thompson and Waterstrat 2016), and mammals (Penny and Knapton 1977). Several of the above reports occurred during the American Robin breeding season (April to August), and so could be correlated with the presence of nestlings. American Robins generally feed nestlings invertebrates such as Lepidoptera larvae, earthworms, and beetles (Howell 1942). Reports have confirmed that vertebrates, including a *Thamnophis elegans vagrans* (Baird and Girard) (Wandering Garter Snake; Richmond 1975) and a *Sorex* sp. (shrew; Powers 1973), have been fed by American Robins to nestlings. However, there are no reports of which we are aware describing an American Robin feeding a bird to nestlings, nor of any species in the family Turdidae attempting to consume another bird.

On 30 April 2018, at approximately 2:40 PM EDT, a female American Robin (based on light head, drab breast) was observed feeding 2 feathered nestlings that were no more than 6 days old (both fledged 10 days later, on 10 May; nestlings

¹Environmental Resilience Institute, Indiana University, Bloomington, IN 47405. *Corresponding author - dustinbrewer92@yahoo.com.

fledge after 9 to 16 days [Howell 1942]). The nest was ~1.1 m above the ground in an ornamental *Crataegus* sp. (hawthorn) on the campus of Indiana University in Bloomington, IN, USA (Fig. 1). After the presumed female departed, a male



Figure 1. American Robin adult with two nestlings that are ingesting the carcass of a nestling bird provided by the adult.

(based on dark head, solid-orange breast) arrived and began to feed the nestlings the carcass of another nestling bird (Fig. 1). At least 10 seconds elapsed before the adult successfully transferred the carcass. One nestling attempted to ingest the head of the carcass while the other simultaneously attempted to ingest a leg. We retrieved the carcass from the mouths of the nestlings. The carcass (Fig. 2), which we were not able to identify to species, was mostly featherless and appeared to be recently deceased as substantial necrosis had not begun. We recorded the following

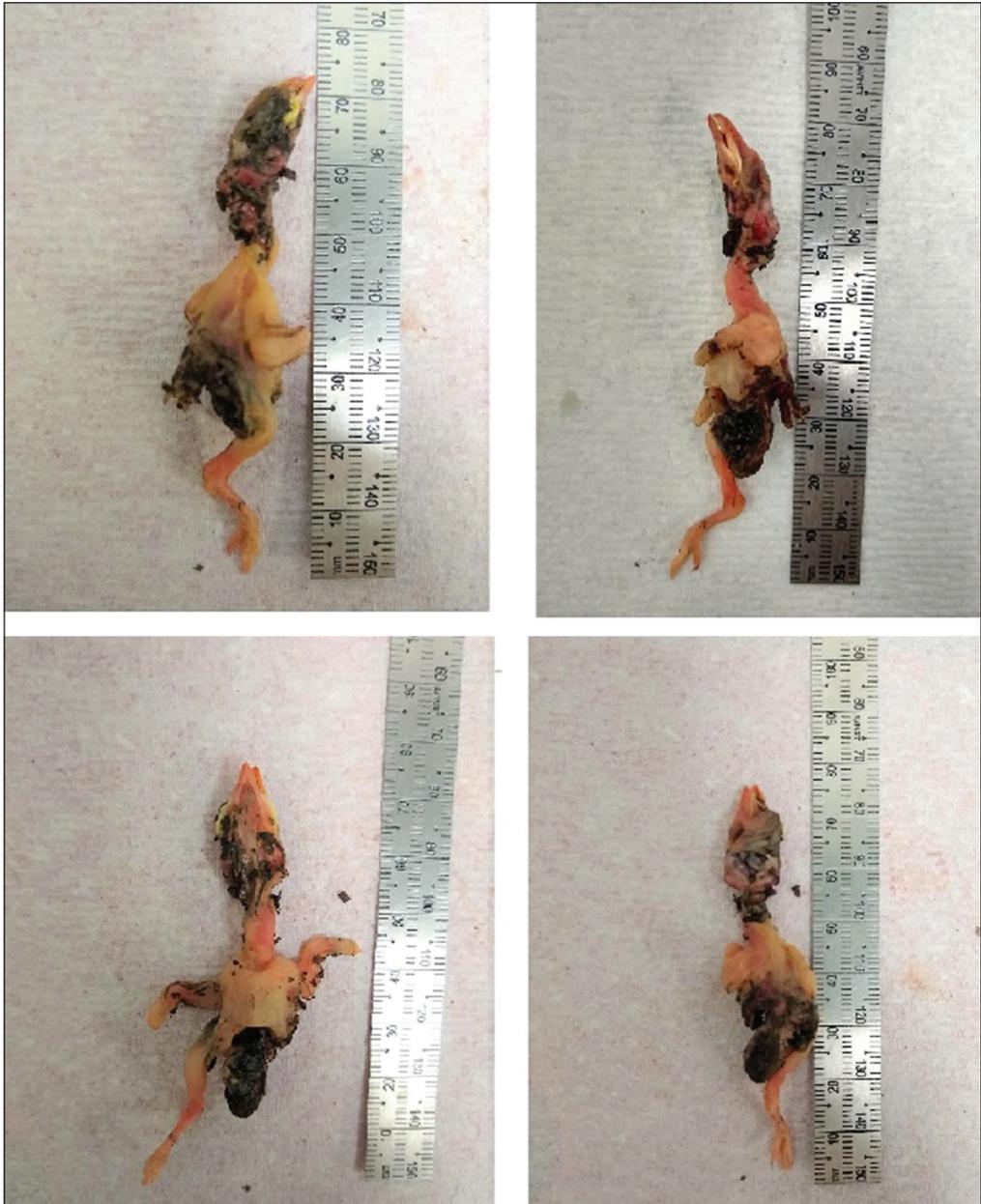


Figure 2. Four views of the nestling carcass fed to the American Robin chicks.

measurements of the carcass: tarsus length = 9.5 mm, mass = 3.2 g, and culmen length = 6.1 mm. Some abdominal and hindquarter tissues and the left leg were missing so the recorded weight was an underestimate of the bird's true size.

We do not know if the American Robin that brought in the nestling carcass depredated or scavenged it. Nor do we know if our observation was an isolated incident, as we did not observe other feeding events at this nest. The species and age of the carcass are also unknown, though the lack of any visible feathers (Fig. 2) indicates an age of less than 5 days. A coarse, visual estimate that 20% of the carcass is missing (Fig. 2) would suggest that the nestling when alive had a mass of ~4.0 g, which is nearly within the range of masses (4.1–7.7) that Howell (1942) reported for American Robin hatchlings. Desiccation can result in a decrease in mass of more than 5% one hour after death (Clark 1979), meaning that the mass of the carcass could have been within the documented range for day-old American Robins. *Melospiza melodia* (Wilson) (Song Sparrow) is another species that we observed near the nest which may, as a day-old nestling, possess a mass and tarsus length similar to that of the carcass (Sogge et al. 1991). Species similar to the size of Song Sparrows that were also seen within 500 m of the nest include *Haemorhous mexicanus* (Statius Müller) (House Finch) and *Passer domesticus* (L.) (House Sparrow).

Regardless of the species of the carcass, it is still of interest to speculate on how the provisioning American Robin may have collected it. We doubt that the carcass was from the same nest as the one to which it was brought, because the nestlings being fed were feathered and the carcass was not (Fig. 1). The American Robin may have found the nestling, alive or dead, on the ground under/near a nest from which it fell, or in a nest. Since American Robins forage both on the ground and in vegetation (Paszkowski 1982), all of these possibilities are plausible. Previous observations (see above) demonstrate that American Robins are capable of killing small prey.

Infanticide is a phenomenon that occurs in many taxonomic groups (Hrdy 1979). Our observation could be consistent with any or all of the following hypotheses reviewed by Hrdy (1979): the resource competition hypothesis (e.g., infanticide decreases competition for food), the sexual selection hypothesis (e.g., infanticide induces fertility in a potential mate), and the exploitation hypothesis (infanticide provides a direct food source). There are reports of infanticide in many bird species, including *Troglodytes aedon musculus* Naumann (Southern House Wren), which depredate conspecific and heterospecific nests (Kattan 2016). Given that infanticidal behavior has not yet been reported in the family Turdidae, the most plausible explanation for our observation is that the provisioning bird found an already dead nestling and foraged opportunistically.

Wildlife, including mammals, birds, and herpetofauna, encounter unique selection pressures in urban environments, and sometimes consequently exhibit abnormal behavior (Ditchkoff et al. 2006). At the very least, our observation provides further evidence that American Robins forage opportunistically, especially when feeding nestlings. It is currently unknown if American Robins in urban environments

are more likely to engage in the provisioning behavior that we observed than are conspecifics in non-urban environments. Future studies could determine if our observation is a rare occurrence, or just a rarely observed occurrence, in urban and/or non-urban environments.

Acknowledgments

This work was supported by the Environmental Resilience Institute, funded by Indiana University's Prepared for Environmental Change Grand Challenge initiative. We would like to thank the editor of this manuscript, as well as 2 anonymous reviewers, who provided useful comments.

Literature Cited

- Bayer, R.D. 1980. Novel use of an unusual food: American Robins eating parts of fish. *Journal of Field Ornithology* 51:74–75.
- Clark, G.A. 1979. Body weights of birds: A review. *Condor* 81:193–202.
- Davis, W.F. 1969. Robin kills snake. *The Wilson Bulletin* 81:470–471.
- Ditchkoff, S.S., S.T. Saalfeld, and C.J. Gibson 2006. Animal behavior in urban ecosystems: Modifications due to human-induced stress. *Urban Ecosystems* 9:5–12.
- Howell, J.C. 1942. Notes on the nesting habits of the American Robin (*Turdus migratorius* L.). *American Midland Naturalist* 28:529–603.
- Hrdy, S.B. 1979. Infanticide among animals: A review, classification, and examination of the implications for the reproductive strategies of females. *Ethology and Sociobiology* 1:13–40.
- Kattan, G.H. 2016. Heterospecific infanticidal behavior by Southern House Wrens (*Troglodytes aedon musculus*) suggests nest-site competition. *The Wilson Journal of Ornithology* 128:899–903.
- Labropoulou, M., and A. Eleftheriou 1997. The foraging ecology of two pairs of congeneric demersal fish species: Importance of morphological characteristics in prey selection. *Journal of Fish Biology* 50:324–340.
- Leighton, D. 2006. Predation of a Columbia Spotted Frog by an American Robin. *Wildlife Afield* 3:134–135.
- Netting, M.G. 1969. Does the Robin eat DeKay's Snake? *The Wilson Bulletin* 81:471.
- Novack, A.J., M.B. Main, M.E. Sunquist, and R.F. Labisky. 2005. Foraging ecology of Jaguar (*Panthera onca*) and Puma (*Puma concolor*) in hunted and non-hunted sites within the Maya Biosphere Reserve, Guatemala. *Journal of Zoology* 267:167–178.
- Paszkowski, C.A. 1982. Vegetation, ground, and frugivorous foraging of the American Robin. *The Auk* 99:701–709.
- Penny, C., and R.W. Knapton. Record of an American Robin killing a shrew. *Canadian Field-Naturalist* 91:393.
- Powers, L.R. 1973. Record of a Robin feeding shrews to its nestlings. *The Condor* 75:248–248.
- Richmond, M. 1975. American Robin feeds Garter Snake to its nestlings. *The Wilson Bulletin* 87:552.
- Robinson, S.K., and R.T. Holmes. 1982. Foraging behavior of forest birds: The relationships among search tactics, diet, and habitat structure. *Ecology* 63:1918–1931.
- Sogge, M.K., M.D. Kern, R. Kern, and C. van Riper III. 1991. Growth and development of thermoregulation in nestling San Miguel Island Song Sparrows. *The Condor* 93:773–776.

- Thompson, C.E., and F.T. Waterstrat. 2016. American Robin (*Turdus migratorius*) predation of a Plethodontid salamander on the Olympic Peninsula, Washington. *Northwestern Naturalist* 97:257–259.
- Vanderhoff, E.N. 2007. Predator–prey interaction between an American Robin, *Turdus migratorius*, and a Five-lined Skink, *Eumeces fasciatus*. *The Canadian Field-Naturalist* 121:216.
- Wheelwright, N.T. 1986. The diet of American Robins: An analysis of US Biological Survey records. *The Auk* 103:710–725.