



## Beetles of Eastern North America

Author: Buss, Lyle J.

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EVANS, ARTHUR V. 2014. *Beetles of Eastern North America*. Princeton University Press, Princeton and Oxford. 560 pp., paperback. ISBN 9780691133041, \$35.00 (US).

Beetles account for about 40% of the insect species that have been described in the world, so it is great to see another book that addresses this diverse group. The author previously has written several insect books, including "National Wildlife Federation Field Guide to Insects and Spiders & Related Species of North America" and "Field Guide to Beetles of California". In this book he uses his expertise in beetles and photography to produce a massive field guide showcasing the diversity of beetles of the eastern United States and Canada.

The book has two major parts, with the first section a 50-page introduction. The introduction is well illustrated with color photos throughout, beginning with lengthy discussions on beetle morphology, behavior, and natural history. Several pages describe how to find beetles in a variety of habitats, and discuss various equipment and traps used for collecting. Dr. Evans also describes how to prepare and preserve beetles in a collection, and how to rear larval beetles. A simple, five-page illustrated key is provided to help identify the most common families.

The largest portion of the book is devoted to family and species treatments, which cover all 115 families of beetles that are found in eastern North America (the U.S. and Canada, east of the Mississippi River). Each family is treated in its own section, the size of which depends on the number of species included. Small families with one or a few species may be covered in one full page or less, while the larger families get 30 to 40 pages. Each family treatment starts with general information about their biology and habits, followed by a list of morphological characters for the family. I like that the author includes a section called "Similar Families". Here he lists other families that have similar-looking species, along with a brief list of characters used to distinguish the families. This is a feature that I first saw in the beetle field guide by White (1983), and it really helped me learn to identify beetle families. Evans also includes a paragraph on how to collect members of the family (habitats, most effective traps, etc.). A summary line indicates how many genera and species in the family are found in North America, followed by how many are found in the area covered by this book (eastern North America).

The next part of each family section is the species accounts. For each species covered, there is an image of the beetle, and a paragraph describing its physical features, biology, and geographic distribution. The beetle pictures and associated text are next to each other (4 images per page), so there is no flipping between color plates and text pages as is found in many field guides. Dr. Evans

attempts to cover the most common genera and species in each family. It appears to me that for most families, 50 to 75% of the genera are represented. For example, I counted 124 of the 167 genera of the Cerambycidae as being pictured. Multiple species are shown for some of the more photogenic genera. The families are presented in phylogenetic order, as are the species within each family, using a recent (2011) classification. An appendix lists all of the species shown in the book, along with the subfamily and tribe in which they occur.

Dr. Evans brings together the work of over 90 photographers in this book. Nearly all of the images depict live beetles, usually in a natural setting such as on a leaf, flower, or bark. Some of the beetles were photographed on a plain white background or a blacklight sheet, but I didn't find that to be detracting. I noticed a few pictures that were too dark to show much diagnostic detail, but overall I was impressed with the collection of high quality images. The book measures 8 x 10 inches, so most folks won't be carrying it around in the field. This larger format is great because the pictures are presented at a size of three inches wide, a noticeable upgrade over the 2-2.5 inch images found in standard field guides. This review actually took me much longer to write than it should have, in part because every time I picked up the book, I couldn't help but page through it and admire the beetle images!

A concern that I have with books like this is the danger of the reader falling into the 'field guide trap'. It is tempting, even for entomologists, to try and identify specimens to species by simply matching them to pictures using general characters like shape and color. And while many beetle species are distinctive enough for this to work, many other species can only be identified by careful examination under high magnification. Even though over 1400 species are shown in the book, this still represents less than 10% of the beetle fauna in the geographic area covered. Each species account does indicate how many species in that genus occur east of the Mississippi River. Hopefully, this will help the readers to avoid making premature, inaccurate identifications.

The book is a great stand-alone guide for a wide audience ranging from nature enthusiasts to professional entomologists. The entomological terms used in the family and species descriptions are not unwieldy. Even non-entomologists, with the occasional help of the anatomy section in the introductory chapter and the glossary in the back of the book, shouldn't have much trouble understanding the descriptions. The book is extensive enough that a beetle novice will have to use the family identification key, or otherwise spend a

good amount of time paging through the book to identify a specimen. For serious beetle identification, there's no substitute for the two-volume set, *American Beetles*, with its keys to all the genera in North America (Arnett & Thomas 2000, Arnett et al. 2002). But, I see this book as a great companion to *American Beetles*, and anyone with an interest in Coleoptera will want to have it on their bookshelf.

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Lyle J. Buss  
Insect Identification Lab  
Entomology and Nematology Department  
University of Florida  
Gainesville, Florida