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A Guide to North America's Bees: The Bees in Your Backyard *by Joseph S. Wilson and Olivia Messinger Carril*

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BOOK REVIEW

A Guide to North America's Bees: The Bees in Your Backyard. Joseph S. Wilson and Olivia Messinger Carril. 2016. Princeton University Press, Princeton, NJ. 288 pages; \$29.95, softbound. ISBN: 978-0691160771.

More than 4000 species of bees occur in the United States and Canada, but people know very little about them. Typically the word “bee” brings to mind the brown European honey bee (*Apis mellifera*). However, there is tremendous variety in bee shape, size, and especially color—ranging from blue and green to red and zebra-striped. Other insects, such as flies and wasps, are commonly mistaken for bees. The authors have produced a valuable and easy-to-read book that covers these and many more topics. The book is also well timed, as media stories and scientific literature about colony collapse and general decline of bees are constantly present (e.g., Kessler et al. 2015, Perry et al. 2015). Bees' relationships with plants are very important for the landscape, and a major ecological catastrophe is predicted to occur if the decline in bee populations continues. The more we learn about bees and their ecological role on the landscape, the more we can do to aid in their conservation.

The book is divided into 9 chapters—an introduction, a chapter on promoting bees in your neighborhood, 6 chapters covering key families, and a final chapter about pollen thieves. Reading the introduction is essential to fully understand and appreciate the book. A variety of topics are covered that answer many of the frequent questions readers may have about bees. Included are sections on bee identification (telling bees apart from other insects), the bee life cycle, where bees live, bee predators, study of bees, appreciation of bees, and a dichotomous key.

The second chapter, Promoting Bees in Your Neighborhood, emphasizes the importance of bees as pollinators. Bee populations can be encouraged if neighborhoods establish a variety of flowering plants, leave open space

for ground nesters, provide habitat for twig nesters, and build bee blocks and bumblebee nests. This chapter is key in boosting bee population numbers and educating the public on the importance of bee conservation. A useful feature in the chapter is a multipage layout showing which regions can support bee-friendly plants with additional information on the flower color and flowering period of these plants. The chart is a helpful tool in planning bee gardens, which aids in the overall food support for these important species.

Six families are covered in the book: Andrenidae, Apidae, Colletidae, Halictidae, Megachilidae, and Melittidae. Each family chapter discusses 1–12 genera. Individual species are mentioned, but not all species are covered—keep in mind that there are more than 4000 bee species in the United States and Canada and describing them all is beyond the scope of the book. Each chapter begins with a general overview of the family and provides common characteristics found in the genera within the family, including ecological information, behavior, and identification tips. The chapter continues with each targeted genus further divided into informative sections, including the origin of the genus name (Latin meaning, etc.), description, diet, and pollination services. The chapters are richly illustrated with sharp photos of bees in their habitats (bees pollinating flowers, bees in their nests, etc.), as well as photos with white backgrounds so the reader can study the bee without distraction (926 photos book-wide). Helpful diagrams are included that provide size ranges, activity periods, and distribution maps (99 maps book-wide). Scattered throughout the chapters are information boxes that highlight a natural history fact about bees. On page 132 there is a text box about why some bees are called “sweat bees,” and on page 161 there is discussion on the concept of bees as keystone species. The identification tip sections are welcome additions to the chapters and cover key features which aid in identifying bee species.

The final chapter is about pollen thieves—bees that sneak into the nests of a host bee and lay their egg in the nest. When the “cuckoo bee” egg hatches, the cleptoparasite will kill the host offspring and consume the pollen resources. Cleptoparasite bees only parasitize other bees (cleptoparasitism has evolved 27 times), and each victim is in a different bee lineage. Cleptoparasites typically parasitize bees that are closely related, usually in the same family (Emry’s rule; see page 254). Like the other chapters, there is a section with identification tips, a size range scale, distribution map, and colorful, crisp photos. At the end of the book is a pronunciation guide of bee names, an index, and photographic acknowledgments.

Overall the book is arranged in a highly useful format that is suitable for the beginner as well as the seasoned entomologist. The book is highly recommended as a vehicle for bee awareness and an introduction to the most

common families in the United States and Canada. Understanding how our environment works is a daunting task, but if everyone starts with an appreciation of our insect friends, especially the bees, we will be one step closer to a global conservation movement that may be the most important action we will ever take.

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ERRATUM: “ACOUSTIC DETECTION REVEALS FINE-SCALE DISTRIBUTIONS OF *MYOTIS LUCIFUGUS*, *MYOTIS SEPTENTRIONALIS*, AND *PERIMYOTIS SUBFLAVUS* IN EASTERN NEBRASKA” (2016)

The publisher would like to draw attention to a minor error in the following print article:

WHITE, J.A., C.A. LEMEN, AND P.W. FREEMAN. 2016. Acoustic detection reveals fine-scale distributions of *Myotis lucifugus*, *Myotis septentrionalis*, and *Perimyotis subflavus* in eastern Nebraska. *Western North American Naturalist* 76:27–35.

During PDF export, the fill of the circles in Fig. 3 was reversed, making the legends of the panels correct but inconsistent with similarly formatted maps in Figs. 1 and 2. We apologize for the confusion and have reprinted the figure here. All online versions have been corrected.

Fig. 3. Distribution of the tri-colored bat (*Perimyotis subflavus*): a, distribution based on publications (Jones 1964, Czaplewski et al. 1979, Benedict et al. 2000, and Benedict 2004) and museum specimens (University of Nebraska State Museum); b, distribution based on expert analysis of acoustic recordings for a single night at each site from June to August 2012 and 2014; c, distribution based on Kaleidoscope probabilities for these same data. Gray circles show areas with known underground mines. Counties identified in Fig. 1.

