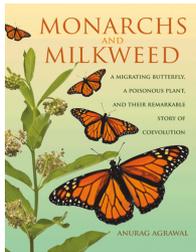




BOOK REVIEWS

Monarchs and Milkweed: A Migrating Butterfly, a Poisonous Plant, and Their Remarkable Story of Coevolution

Anurag Agrawal
2017, 296 pages, 37 color illustrations,
35 line drawings
Princeton University Press, Princeton, NJ
ISBN: 9780691166353
\$29.95 (hardcover)



I rarely encounter a book addressing a scientific topic that is also a pleasure to read. *Monarchs and Milkweed* is not only a good scientific text, but also merits reading for its excel-

lent blending of the monarch and milkweed relationship with history, molecular biology, geography, and social science. It presents thorough and relevant scientific information of interest and use to entomological professionals and to people involved in monarch conservation efforts, in a manner readable and understandable by the lay public.

There is a broad overview of monarch butterfly biology and seasonal history in the eastern United States and Mexico—more complete than I have seen in a number of publications. The author delivers a well-organized discussion of the monarch's interactions with milkweeds, including evolutionary origins, biochemical and physical means of dealing with plant toxins, sequestration of toxins for defense, oviposition preferences, and how this relates to the monarch's natural enemies.

Readers will also learn about the history of human activity and scientific studies in relation to the monarch butterfly. The story of competition between the Urquharts and Lincoln Brower to document monarchs' overwintering sites illustrates the sometimes rocky road of scientific discovery. Conflicting theories of how human influences may account for the

recent decline in monarch populations are fairly presented. Although the author is skeptical that milkweeds limit monarch numbers (instead, he points to population declines during the fall migration after milkweed feeding has ceased) he acknowledges the limits of existing data and the controversy over their interpretation. The author provides the reader with much material for thought about what might be done to protect the monarch in eastern North America.

The text of the book flows well and the delivery is conversational; this was partly achieved by minimizing the use of citations and footnotes in the chapters. Annotated comments on sources and relevant literature in the "Notes" section at the end of the book were very informative and easy to relate back to the text in the chapters.

I have but one issue with this book, and that is the author's use of the term "pest" to describe the status of monarch larvae on milkweed plants. They are simply an herbivore, and a welcomed herbivore at that. In times when the conservation of monarchs is a national concern, the label of "pest" does not help the cause.

Even though I have been an avid lepidopterist for many decades, this book has inspired me to take a much closer look at the monarchs and milkweed in my own backyard.

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DOI: 10.1093/ae/tmx047