

of black flies is also offered, along with an exhaustive summary of blood feeding host records, and records of black fly diseases and parasites.

For most readers, it is likely that the third part of the book, which treats the management of black fly pests, will be the most interesting. I can see this part of the book providing fodder for any number of term papers, research paper introductions, and consulting and government reports. I was surprised, however, to find that the chapter on management (Chapter 8) was largely historical in nature, without a summary of control recommendations. On careful reading, however, I could see the reason for this approach. Oil-based pesticides, DDT, and other chemical controls for black flies have not stood the test of time. The authors summarize the use of the bacterial toxin *Bti*, but give it only a qualified nod, with the caution that it too might lose its effectiveness over time. The chapter ends in an interesting discussion of repellants, and repellent clothing.

The fourth and final part of the book is clearly the section closest to the authors' own interests. It treats the 254 species of "North American" black flies, thoroughly. The focus is not simply on identification, it is also deeply phylogenetic, and includes a very careful evolutionary justification for each and every level of the classification. This is followed by a superb species by species treatment of the entire fauna. Significantly, there is additional information on the economic significance (if any) of each and every species, adding greatly to the summary in part three of the book.

As a non-specialist, I have to admit that the most impressive aspects of the book to me were the illus-

trations. They begin on page 436 (well before the halfway mark) and they are so masterfully executed that I couldn't help but come away thinking that there was something deeply beautiful and elegant about black flies, their larvae and pupae, and the fine details of their anatomy. More full-body illustrations of the adults would have been nice, but the overall sameness of the other life stages illustrated convinced me that side-by-side comparisons of the adults might not be all that useful. Maps follow the illustrations, and treat the United States and Canada on a county level, but they do not show Greenland. And, as one might expect in a book of this nature, the reference section and the indices are exhaustive.

This is a *magnum opus*, and a tremendous labour of love. It ranks, in my opinion, right up there with Holldobler and Wilson's *The Ants*. Having said that, it seems to me a shame that the book appears to have been presented as a somewhat impenetrable scholarly tome, without a showy slip cover, and with little or no fanfare for the "general readership" to which it was addressed. Don't be scared off by the size, or the complexity of this book. It is a masterwork, and if any aspect of your interests overlaps with the subject of black fly biology, do consider adding this fine volume to your library.

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#### Literature Cited:

Hölldobler, Bert, and E. O. Wilson. 1990. *The ants*. Belknap Press (Harvard University Press), Cambridge, Massachusetts. 732 pages.

### Insects: Their Natural History and Diversity: With a Photographic Guide to Insects of Eastern North America

By Stephen A. Marshall. 2006. Firefly Books Ltd., 66 Leek Crescent, Richmond Hill, Ontario L4B 1H1 Canada. 720 pages. CDN \$95. Hardcover

It has always been said that you can't judge a book by its cover, but after reading *Insects: Their Natural History and Diversity* I've learned that this well-worn idiom isn't always true. When this book first crossed my desk, to say that I was instantly enamoured would be an understatement. It was so beautiful, the cover adorned with a stunning jewel-toned dogbane beetle (*Chrysochus auratus*). I almost didn't want to crack the binding. However, my curiosity finally got the better of me and I'm glad it did because once I started reading I couldn't put the book down.

Visually stunning, with over 4000 colour photographs of insects in their natural habitats, *Insects: Their Natural History and Diversity* has the look and feel of a glossy coffee table book while still being full of accurate, well researched information.

As its title implies, *Insects: Their Natural History and Diversity* focuses on the diversity and natural history of common families of northeastern North American insects. The book opens with a brief synopsis of basic insect anatomy and morphology. This is followed by chapters covering the diversity of all insect orders, including all the major families, along with two chapters on non-insect arthropods and methods for observing, collecting and photographing insects. The book's last 50 pages are dedicated to illustrated keys to order and family as well as a key to the most commonly encountered insect larvae. These keys are designed to facilitate ease of use and therefore emphasize morphological characters visible to the naked eye or easily seen with a hand lens. Also peppered throughout the book are helpful suggestions on where to look for and find various insect orders/families. For example, "Depending on your inclination and the weather, a good place to start looking for assassin bugs would be in your kitchen light fixture. Unless you are much more

fastidious than most, the odds are that among the crispy critters accumulated there you will find a large black assassin bug called the Masked Bed Bug Hunter (*Reduvius personatus*)."

Considering that *Insects: Their Natural History and Diversity* is priced so as not to be cost prohibitive and is clearly written in plain language, it will be highly accessible to a broad audience, including naturalists, amateur entomologists as well as seasoned professionals. The author has also included a dollop of humour and wit throughout the text. For example, this passage describing the appearance of springtails: "Some are covered with scales, like those of a butterfly, many are brilliantly colored and all are morphologically bizarre, starting from the long, forked tail used to make Herculean leaps, and ending with the deeply pocketed mouth that makes springtails look like they have lost their dentures and then sucked on a bunch of lemons."

This book would make a great textbook for a natural history or general entomology course. Especially when you consider that the impetus for this book centres on materials originally gathered in support of the author's third-year course "The Natural History of Insects" at the University of Guelph. With its depth of scope and true to life colour photographs *Insects: Their Natural History and Diversity* would be indispensable in the field; however due to its size, it would be a bit unruly to have to lug around.

I thoroughly enjoyed this book and would recommend it whole-heartedly to anyone who has an interest in entomology, natural history or a simple curiosity about the six-legged world that surrounds us.

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### The Northern Goshawk: A Technical Assessment of its Status, Ecology and Management

By Micheal L. Morrison. 2006. Cooper Ornithological Society, Pennsylvania.

*The Northern Goshawk: A Technical Assessment of Its Status, Ecology and Management*, is just as the title suggests, a highly technical assessment of the goshawk. I do not recommend it to those looking for a light read. Micheal L. Morris, editor, has compiled 22 recent journal articles that study the Northern Goshawk, focussing on ecology and population. Morris outlines two objectives for the assessment; the first is to summarize existing knowledge of the goshawk into one book, and the other is try to provide a framework for the development of future regional conservation and management strategies for the species.

Due to the legal issues surrounding the Northern Goshawk and its proposed listing as a *Species at Risk*, particularly in the United States, this book is a useful step for establishing what we do and what we do not know about this Accipiter. Unfortunately, it appears that the latter predominates.

Morris structures this assessment in an appropriate way, starting with an article that extensively covers the ecology of the goshawk, which helps provide the reader with a general knowledge of the bird. After this first article, the volume is divided into three distinct sections: Regional, Ecology, and Management, each of which contains a number of independent studies that Morris has gathered from several sources. Each of these studies take a highly regionally specific look at

certain aspects of the Northern Goshawk. The goshawk has an extensive range over North America, Europe and Asia. As a result of this huge regional coverage there is extensive continental/regional variation amongst populations of these birds. This makes it difficult as a reader to distil any major trends between the articles. I found it hard to link many of the articles together because of the different styles by which the studies were carried out, as well as some differences of opinion. For example, Squires and Kennedy suggest that "[impacts from forest management] can either enhance or degrade goshawk habitat depending on type and extent of habitat alterations" (page 61). This is not so much a weakness of the assessment but rather the reality of goshawk management, and emphasizes the need for regional management strategies instead of an all encompassing global strategy, which is one of Morris's initial goals for the assessment.

Overall, this publication is a building block. It establishes where we have been in terms of goshawk management and conservation and makes clear where we need to head in the future. Morris has done a good job of selecting appropriate articles that clearly depict the challenges faced by researchers and the Northern Goshawk. I would recommend this book only to those who want to critically study goshawk ecology.

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