

translates appropriately as elephant fish while the pike, *Esox lucius* is ordak mahi, duck fish from its duck-like snout.

The author is eminently qualified to write on this topic having been the Director of the Department of the Environment and vice-president of IUCN. He is regarded as the father of Iran’s environmental movement. The Farsi version of this book won the Iranian Publisher’s Association top award.

This book is highly recommended as a well-written overview of a fascinating fauna.

Fishes of the World

By Joseph S. Nelson. 2006. John Wiley & Sons, Hoboken, New Jersey. Fourth Edition. xvii + 601 pages. U.S. \$125.

This book covers all the 515 families of fishes in the world in 62 orders and 5 extant classes. Fossil families are more briefly treated. Each class, subclass, order, suborder, family and subfamily receives a brief description. In this way the reader is treated to a tour of the world’s fishes through their higher classification and relationships. This being the fourth edition, 30 years after the first, proves the need, and success, of such a work. Scientists and students look to this work for an overview of fish classification and, with an estimated 28 400 species at the end of 2006 compared to about 26 730 tetrapods (mammals, birds, reptiles and amphibians), the fishes need this structure. At the individual species level, constantly changing as new ones are described or old ones revised, the online “Catalog of Fishes” from the California Academy of Sciences is the update source ([www.calacademy.org/research/ichthyology/catalog/index.htm](http://www.calacademy.org/research/ichthyology/catalog/index.htm)).

A website, <http://members.shaw.ca/fishesoftheworld/index.htm> contains errata, a list of new families post-1958, student exercises and links to relevant websites. Changes in the numbers of taxa between the four editions of the book are listed in the table below.

Variation in the number of families is mostly due to lumping and splitting as Nelson points out at the website mentioned above. Discovery of new families is a rarity in fishes. However, the estimated number of known fish species for the end of 2006 cited above is almost 10 000 more than in 1976, showing that this field of endeavour has been most active.

The text has continued to be expanded over the earliest editions, with families once without a description now provided with one. Much necessarily remains the same from the last edition as relationships, anatomy and species content remain unchanged in certain families.

**Literature Cited**

**Assadi, H., and R. Dehqani Posterudi.** 1997. Atlas-e Mahian-e Khalij-e Fars o Dary-ye Oman/Atlas of the Persian Gulf & the Sea of Oman Fishes. Iranian Fisheries Research and Training Organization, Tehran. 10 + 226 + 23 pages. In Farsi and English.

**Coad, Brian W., and Yazdan Keivany.** 2002. Review of “A Guide to the Fauna of Iran.” E. Firouz. 2000. Iran University Press (University Publication Centre), Tehran. ISBN: 964-01-0956-8. vi + 491 pages. 45,000 Rls (\$5.63) (hardbound)”. Copeia 2002(4): 1164-1166.

BRIAN W. COAD

Canadian Museum of Nature, Ottawa, Ontario K1P 6P4  
Canada

Not all genera are listed within each family, although a couple listing would be a great convenience, and not all families have a line drawing (about 74% do). Some families have undergone significant changes, with new information on species numbers, ecology and fossil members added, including the new coelacanth found in a fish market. Several groups (e.g., Characiformes, Osphronemidae) have been rearranged based on new systematic studies, and Nelson makes a concerted effort to follow a cladistic framework. However, as Nelson notes in his preface, it is naïve to accept the latest proposals as being the best. Nelson has used his own considerable judgment in determining which groups are sufficiently systematically stable to include. This has also resulted in some families (e.g. Cichlidae) losing some structure, as new studies have shown past taxonomic groupings to be non-monophyletic.

The literature on fish classification is extensive, sometimes arcane in its arguments, and scattered in journals worldwide. Having an author mull over this literature and provide an interpretation and digest for consideration is a great service to students and to those professionals who need to dip into these waters at intervals.

In this new edition, Nelson has included many more references, providing the most recent literature. The Bibliography is comprehensive and covers 54 pages. Some authors may be disappointed that not all their papers are cited, but Nelson has generally included good summary papers that will provide, within their own references, many titles of more specific articles.

The Index at 63 pages is also most useful in locating particular taxa but certain genera will not be found (as noted above) and the reader will have to resort to *Catalog of Fishes*. Additionally, the previous edition used the names of orders as the running header throughout the text. The use of the more inclusive class level as the running header in the new edition is less helpful in flipping through to find the desired pages.

Year	Species	Freshwater	Marine and Diadromous*	Families	Orders	Classes
1976	18,818	6851	11,967	450	46	4
1984	21,450	8411	13,312	445	50	4
1994	24,618	9966	14,652	482	57	5
2005	27,977	11,952	16,025	515	62	5

The single disappointment of the new edition is the loss of the chart of categories and relationships of fishes from the inside front cover. It is now buried on (un-numbered) pages xvi-xvii, between the Acknowledgments and the Introduction, making it much harder to find. Owners of the book may want to place a permanent bookmark in the chart for quick reference. The new chart, while showing better resolution of groups in this edition, has also lost all the names between Class and Order. While some of these names were for non-cladistic grades, their presence on the previous edition's chart was of great benefit, particularly for students, to determine exactly what is a "teleost" or "actinopterygian", or any of the other names that are commonly used by ichthyologists.

At the end of the list of errata on the website given above, and on page 9 of the new edition, Nelson draws

attention to the need for ichthyologists, and the work that still remains for future generations. He urges us to support the replacement of retiring ichthyologists to continue the work. The Introduction of *Fishes of the World* provides a sampling of all the rich areas of ichthyology to be studied and highlights the importance of fishes to all of us. Perhaps if the Introduction were required reading for everyone, Nelson's enthusiasm for fishes would be passed on to all, and the worth of ichthyological research would be clearly visible to governments and society. This book continues to be a seminal work, finding an essential place in libraries and on the bookshelves of anyone interested in fishes.

BRIAN W. COAD and ALISON M. MURRAY

Canadian Museum of Nature, Ottawa, Ontario K1P 6P4  
Canada

### **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. Can \$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 axiom 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 color 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 makes it 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 centers 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 color 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.

GINA PENNY

Department of Biology, St. Francis Xavier University, Antigonish, Nova Scotia B2G 2W5 Canada