

widely accepted. It is also stated that some turtles can hibernate for 2-3 months, a gross understatement of the 6+ months that some turtles spend in hibernation.

The species accounts are also fraught with errors or misleading information. For some North American species, the author lists individual U.S. states where the species is present, yet the list is rarely complete. The Blanding's Turtle (*Emydoidea blandingii*) account omits any mention in the text or the map of the Nova Scotia population. The author accepts the Mississippi Map Turtle (*Graptemys pseudogeographica kohni*) as a species (*G. kohni*), even though the species account

suggests it is a subspecies. There are also some curious omissions. There are six species accounts for members of the genus *Graptemys* yet the most wide-ranging species, the Northern Map Turtle (*G. geographica*) is not included. Overall, one has the sense that the text was assembled quickly, or by using outdated reference materials, and that it was not reviewed by a scientific expert. Enjoy the photos but don't believe everything you read.

DAVID SEBURN

Seburn Ecological Services, 920 Mussell Road, RR 1, Oxford Mills, Ontario K0G 1S0 Canada

What Good are Bugs? Insects in the Web of Life

By Gilbert Waldbauer. 2003. Harvard University Press, 79 Garden Street, Cambridge, Massachusetts, USA. 384 pages. U.S.\$29.95

Waldbauer has written several other popular books about insects, and these have been met with high acclaim; I have not read those tomes, and so see his most recent work with unbiased eyes.

What good are bugs? focuses on the interactions insects have with other animals and plants, both living and dead. Several chapters in each category illustrate the myriad ways in which insects, wittingly or unwittingly, are key to earth's ecosystems as we know them today. Topics range from seed dispersal to recycling dead animals and the control of animal and plant populations. Truly, the scope of this book is close to all-encompassing, and is written in a style that will not be condescending to the informed naturalist or biologist, but will be readily consumable by the budding naturalist, too.

There are a few factual problems, as well as some opinions that are more typical of the entomophobic

component of the public, that were surprising and disappointing to see in a book which promotes insects. Several times Waldbauer has insects "attacking" plants, when he really means "feeding on" plants. No one would ever say that deer or rabbit attack plants, it's no different with insects; they are just feeding on the plants, a point that naturalists, biologists, and surely this author should understand. "Attacking plants" is an expression used by certain people or industries to incite action, to justify eradication, to gain sympathy from the uninformed, and should itself be eradicated from our vocabulary.

The book ends with a chapter-by-chapter listing of selected readings. I like this method of listing references since the reader can readily choose among works only in the topic of interest. Overall, this is a book well worth having.

RANDY F. LAUFF

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

Belugas in the North Atlantic and the Russian Arctic

Edited by M.P. Heide-Jørgensen, Ø.Wiig, and D. G. Pike. 2002. NAMMCO Science Publication 4, The North Atlantic Marine Mammal Commission, Polar Continental Centre, N-9296, Tromsø, Norway NOK 150. 270 pages.

The greater part of this symposium is devoted to those beluga whales that migrate through Baffin Bay and Davis Strait between the eastern part of the Canadian Arctic and West Greenland, and are difficult to follow across the deep water (and impossible in the dark season). Moreover, it is a difficult publication to review because it represents "work in progress", the results of which are not yet fully understood by the authors themselves. Three main techniques of study were (1) mitochondrial molecular genetics from tissue sampling of restrained or dead animals; (2) aerial photographic surveys; (3) tracking individuals by means of satellite radio tags attached to implants in the dorsal ridge of temporarily trapped belugas. The results are

too tentative to summarize easily. Many groups of belugas observed in summer in arctic estuaries are essentially matrilineal, that is, adult females with young animals of both sexes, while most adult males may move independently in different ways. There is also the practical concern that catches of belugas at southwest Greenland, where there is most open water and the largest catching boats, appear to exceed recruitment. The exact area from which these animals come is unknown.

After this it is a pleasure to move on to simpler studies! An overall survey of Russian and Siberian arctic waters from the mainland was carried out in the course of ice studies for belugas, narwhals and Greenland or Bowhead whales, plus the few Grey whales that enter the Arctic Ocean. There is now little hunting for them in this half of the Arctic.

Lastly, a summary is given of up-to-date knowledge of the numerical status of belugas that inhabit, year-round, the less than 200 linear km of the St. Lawrence

estuary in Quebec. This is the most biologically productive part because of year-round vertical water mixing. Aerial photographic surveys of numbers are therefore simple to carry out, but it is necessary to measure the percent of animals diving too deeply to be registered visually or by camera from the air. M. C. S. Kingsley and team did this using a helicopter hovering at an altitude that did not disturb the animals. The correction factor turned out to be more than two, so that estimates of numbers needed to be more than doubled, giving a total of more than 1200. Moreover, a series of estimates made since even casual hunting ended, ca. 1979, up to the last recorded survey in 1998, showed that the population has been growing slowly.

I add to this review some more recent information that several belugas, including one radio-tracked animal, moved in autumn 2002 from SE Hudson Bay to off

Nain, Labrador (D. W. Doidge, personal communication), showing that therefore some animals "bleed" from the Arctic into the Labrador Current. These must be the source of infrequent but not rare animals which reach the east coast of Newfoundland (Curren and Lien. 1998. *Canadian Field-Naturalist* 112(1): 28-31). These were noted by Kingsley in this book, but have not been tracked further. Animals coming from the St. Lawrence estuary are also known to "bleed" into waters around the Maritime Provinces as far as the Bay of Fundy and even to New Jersey (various references). It therefore seems very unlikely that the St. Lawrence population is isolated genetically from the main Arctic population of belugas.

D. E. SERGEANT

Box 745, Hudson Heights, Quebec J0P 1J0 Canada

The Firefly Encyclopedia of Insects and Spiders

Edited by Christopher O'Toole. 2002. Firefly Books Ltd., Willowdale, Ontario

I will first state my biases and say that I'm not a big fan of encyclopaedias. Having got that out of the way, I must say this book was engaging, excellently laid out, and an absolute joy to read. The photographs ranged from very good to excellent to amazing. The full-frame images of even small insects startled me with their clarity. Diagrams were liberally used, effective, and also of exceedingly high quality. Each chapter was written by one or more experts, and I enjoyed reading them all. The majority of insect orders are covered, as are most of the arachnids (not just the spiders as the title alludes).

Although this book could not serve as a university text in entomology, if I were to offer a bug course at the high school level, I would use this book. I have seen many entomology texts, and none are as visually appealing as this book. This book would not substitute for a field guide because of its size, but the quality of the text, illustrations and photos far exceeds any of the field guides I've used.

Interspersed with the taxonomic accounts which dominate the book were photo stories, fact files and special features. These articles ranged from less than a page to two pages and provided a different tangent on insect and arachnid life. As with the rest of this book, these articles were well done.

The weaknesses were very few. My underlying feeling was that I couldn't be certain as to the intended audience. The wording is usually so straightforward that children from eight or nine years old should be able to read it; however, technical terminology creeps in now and again, and would likely give those same early readers quite a pause. For the most part, the technical lingo is kept to a minimum, and is often isolated from the main text in sidebars. This book is billed as an encyclopaedia, and the publishers I think were striving to market the book to a wide audience.

My only quibble about the actual content was that the minor taxa were mentioned only in a list alongside the more dominant taxa, and not given their own words or photographs to describe them. I realize that no book that features the ricinuleids more than the beetles will ever sell, especially to the general public, but a photograph and a quarter page or so of text for each of these minor taxa would have been appropriate. Overall though, a great reference book, with wonderful visual appeal.

RANDY F. LAUFF

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