

and the animals do not leave the protected area, i.e., these Elk are not hunted. Following the reintroduction of the Wolf, however, those predators have annihilated the Elk, with researchers predicting extinction—see Garrott et al. (2008). This is because Bison are available as an alternate prey. In fact, if the easier-to-kill Elk did not have a partial refugium by fleeing into the Madison River when attacked by Wolves, the Elk would already have been exterminated. The habitat is still there—after all, this is a national park—but the Elk are not.

So while this Occasional Paper focuses on the problem of the expansion of the range of the White-tailed Deer in the eastern US and Canada, it also addresses the age-old question of whether ecosystems are structured from the top down (termed “predator-limited”) or from the bottom up (called “food-limited”). According to the author, “if the aim of management is to increase the number of [ungulates]... habitat improvements will necessarily be futile unless predation is stopped from removing the annual increment of [the prey population].”

I would recommend this publication to people with an interest in forest management, ungulate ecology, or predator-prey relationships. Parts of the Occasional

Paper, though, can be difficult to follow because of the unique abbreviations the author uses to explain his graphic models. For instance, *kpd* refers to “predation-devalued carrying-capacity.” The author also refers to what he calls “pre and post-settlement” ranges of Moose, White-tailed Deer, and Caribou, when what he really means is pre- and post-European settlement—the entire continent having been settled by indigenous peoples for at least the last 10 000 years. In addition, I would like to have seen data on archeologically recovered faunal remains to support the author’s Moose, White-tailed Deer, and Caribou “pre-settlement” maps, as well as a discussion of aboriginal hunting. If, as the author concludes, Wolf predation was of overriding importance, surely native hunters would also have had some effect on prey numbers and distribution, especially since others have noted that human hunting and carnivore predation are additive, not compensatory.

Literature Cited

Garrott, R., P. White, and F. Watson. *Editors*. 2008. *The Ecology of Large Mammals in Central Yellowstone*, 3. Sixteen Years of Integrated Field Studies. Academic Press/Elsevier. 712 pages.

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Turtles: The Animal Answer Guide

By Whit Gibbons and Judy Greene. 2009. Johns Hopkins University Press, 2715 North Charles Street, Baltimore, Maryland 21218-4363 USA. xiv + 163 pages, 45.00 USD.

Turtles: The Animal Answer Guide organizes a variety of basic information on turtles into a handy question and answer format. If anyone is qualified to write such a book it is this duo. Whit Gibbons, a professor emeritus at the University of Georgia, is a pre-eminent turtle researcher, with turtle publications dating back to the 1960s, including editing the classic volume *Life History and Ecology of the Slider Turtle*. Judy Greene is the herpetology research coordinator at the Savannah River Ecology Laboratory. Together they have captured or recaptured over 30 000 turtles.

The book is divided into 12 chapters: Introducing Turtles, Form and Function, Turtle Colours, Turtle Behaviour, Turtle Ecology, Reproduction and Development, Foods and Feeding, Turtles and Humans, Turtle Problems (from a human viewpoint), Human Problems (from a turtle’s viewpoint), Turtles in Stories and Literature, and “Turtleology”. So, for example, in the chapter Introducing Turtles, there are questions such as What are turtles? Where do turtles live? When did turtles first evolve? What is the largest fossil turtle? And the chapter entitled “Turtleology” has questions like Who studies turtles? Which species are least known?

All of the 100+ questions are listed in the table of contents, making it is easy to determine if a particular topic is covered. The questions were assembled from the most common questions the authors have been asked over the years. Can turtles see colour? Do turtles

play? Where do turtles sleep? How long do turtles live? One obvious question that is missing is how long turtles can stay under water. The authors only partially tackle this topic, with the question Can turtles breathe underwater?

Overall, the answers are thorough without getting bogged down in excessive detail, although occasionally the answers are too cursory. For example, temperature-dependent sex determination in turtles is discussed, but not the possible reasons it evolved. There is also some overlap among the topics covered under different questions, and this can result in some discrepancies. Fibropapilloma, a tumour-causing disease, is discussed in the answer to two different questions. In one answer the authors correctly state that it affects some species of sea turtles, particularly the Green Sea Turtle (page 53), but in the other answer it states that it affects just Green Sea Turtles and it is unknown whether it will develop as a problem in other species (page 93).

Overall, though, this is a wonderful book. It is built on a solid foundation of the essential biological facts that you would expect in any decently written book on the subject, but it is also infused with wonderful tidbits of personal experience that come from spending a lifetime studying turtles.

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