

Chilton reveals that all nine of the supposed Labrador Duck eggs in the world have been misidentified. DNA analysis shows that eight were Mallard or domestic duck eggs and one was that of a Red-breasted Merganser! The finest Labrador Duck specimen extant is a male in the Royal Ontario Museum in Toronto; the other two Canadian specimens are in the Canadian Museum of Nature in Ottawa and the Redpath Museum at McGill University. Chilton visited all 26 specimens in the United States, and in Europe he visited specimens in nine countries: six each in England and Germany, three in France, two each in the Netherlands, Austria and the Czech Republic, and one each in Belgium, Ireland and Russia.

What are the weaknesses of this book? It is too subjective, sometimes too detailed, occasionally salacious, and at times repetitive, with overly long digressions away from Labrador Ducks. Chilton consistently refers to “stuffed” specimens whereas an ornithologist should speak of “mounted” specimens. The book also lacks an index and a bibliography.

Chilton has chosen to deal only with the extinction of this single species, passing up an opportunity to use it as a wake-up call to help prevent additional extinctions. The other issue that might well have been empha-

sized is the parlous state of finances of some of the major museums he visited; environmentalists need to know that inadequate operating budgets threaten the function, and sometimes the long-term existence, of these centres of knowledge and culture in many parts of the world.

Time will prove whether Chilton’s confidence in having visited every Labrador Duck specimen in the world is justified. It is a measure of his obsession and his dedication that if someone unearths a specimen new to him, he will pay from his pocket a \$10,000 reward!

Chilton has saved his best chapter for the end—the exciting detective episode involving the final (55th) Labrador Duck specimen. Except for a brief note in *The Auk* in 1952, the carefully hidden details of this mysterious specimen have long remained a secret. Chilton reveals many of the devious twists and turns relating to the eight people who had possession of the specimen after it had resided for 100 years in an unnamed country house in Kent, England. I won’t spoil his climax; I suggest you read this story for yourself.

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### **What Originally Prevented, and What Later Permitted, the Great Northern Expansion of White-tailed Deer?**

By D. Strickland. 2009. Occasional Papers from Oxtongue Lake Number 1. The Friends of Algonquin Park, Whitney, Ontario. 40 pages, 4.95 CAD Paper.

During the late 1800s and early 1900s, White-tailed Deer spread north throughout the eastern United States to Quebec’s Anticosti Island and have maintained exceedingly high numbers for more than 70 years. Those deer, in fact, have had a drastic impact on the island’s vegetation, eliminating most browse species in addition to converting former Balsam Fir forests to White Spruce. Over-browsing by deer on Anticosti has been so severe that both Black Bear and Rock Ptarmigan have been eliminated through competitive exclusion. Thus, Anticosti is much poorer deer habitat than either northern Minnesota or Algonquin Park in Ontario, yet the island is still overrun with White-tailed Deer while the other areas are not. In addition, winter weather is more severe on Anticosti than in either the rest of Quebec or in Minnesota. Anticosti, though, is predator-free, while Wolves and other carnivores are common on the mainland. This and other evidence led the author to conclude that predation, not habitat, controls the distribution and abundance of White-tailed Deer.

The author then develops what he calls the suitable alternative prey hypothesis to explain the past and present distribution of White-tailed Deer. In the scientific literature, this is more commonly known as predator-mediated or apparent competition, though the author uses neither term. According to the author, the range

of the Moose historically extended further south than it does today. By subsisting on Moose, Wolves took the smaller and more vulnerable deer to very low levels or local extinction. As European settlement eliminated Moose from the southern part of that animal’s range and at the same time the settlers controlled Wolves, White-tailed Deer expanded northward. Similarly, the reason White-tailed Deer have now just about been eliminated from Algonquin Park and northern Minnesota is that Wolves survive by preying on Moose, and this allows the predator to keep the more vulnerable deer from recovering.

While this might be a new idea to some, predator-mediated competition or exclusion is not that rare. According to Dr. Tom Bergerud and others, Moose-fuelled Wolves today are in the process of exterminating Woodland and Mountain caribou across the length and breadth of Canada, while Elk-fuelled Wolves have recently been instrumental in eliminating Caribou from Banff National Park and are doing the same in Jasper National Park. Similarly, Wolves are in the process of wiping out Elk from parts of Yellowstone National Park. Since at least the 1950s, 600 to 700 food-limited Elk have wintered in thermal areas along the Firehole, Gibbon, and Madison rivers in the west-central portion of Yellowstone. This herd is isolated during winter

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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