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## Annotated Bibliography of Quaternary Vertebrates of Northern North America With Radiocarbon Dates

Edited by C. R. Harington. 2005. University of Toronto Press, 10 St. Mary Street Suite 700, Toronto, Ontario M5T 1R5 Canada. 539 pages. \$150.00 CDN.

Bibliographies have proven an essential tool in any historical based research, yet are often underrated. In paleontology, specifically vertebrate paleontology, many have relied upon *Bibliography of Fossil Vertebrates Exclusive of North America 1509-1927* (Romer et al., 1962), and *Bibliography of Fossil Vertebrates (BFV)* (produced by the Society of Vertebrate Paleontology), and their earlier versions. The BFV, however, is no longer updated. Taxon-oriented bibliographies are also produced, like Crossman and Casselman's (1987) annotated bibliography of *Esox lucius*; and theme oriented bibliographies like Tokaryk et al. (1992) annotated bibliography of the Cretaceous-Tertiary extinction event. Without continued maintenance, these, however, are quickly dated.

Harington's *Annotated Bibliography of Quaternary Vertebrates of Northern North America – with Radiocarbon Dates* is a recent contribution to the stacks of paleontological resources. This volume contains 1347 citations (in 328 pages) from 1748 to 2000, containing descriptions or notices of fauna from 2 million to 5000 years ago. The region is inclusive of Alaska, Greenland, and Canada.

The annotation is of sufficient depth when warranted and the reader will note the brevity given to many of the pre-20<sup>th</sup> century articles as these themselves lack sufficient depth. The indexing, always a vital tool in

### White as a Ghost: Winter Ticks and Moose

By Bill Samuel. 2004. Federation of Alberta Naturalists, 11759 – Groat Road, Edmonton, Alberta, T5M 3K6 Canada. 100 pages. \$ 24.95.

Parasites are a fascinating study. They are able to adapt and evolve in order to survive in or on their hosts, but usually will not kill their hosts. Books about parasites are not often found in a public library, but *White as a Ghost* would be a good addition. It has a large format, 28 cm × 23 cm, with excellent photographs illus-

trating the text, but is not a coffee table book. It is intended to give trappers, Fish and Wildlife officers, hunters, farmers and biologists the knowledge they need to understand and recognize the life cycle of the tick which causes Ghost Moose: *Dermacentor albipictus*. Wilderness campers, more than the general public, are most likely to come across Ghost Moose.

Dr. Samuel is a parasitologist who studies parasites of deer, Elk and Moose and in particular the tick which causes Ghost Moose. The tick is widespread bibliographic construction, is subdivided into five sections: scientific names; common names; localities and stratigraphic terms; personal names and institutions; and of a general index. This latter section, always constrained by the subjective nature of its composer, can be relied upon for consistency simply for the fact of Harington's long time standing in Quaternary paleontological research, which is beyond reproach.

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trating the text, but is not a coffee table book. It is intended to give trappers, Fish and Wildlife officers, hunters, farmers and biologists the knowledge they need to understand and recognize the life cycle of the tick which causes Ghost Moose: *Dermacentor albipictus*. Wilderness campers, more than the general public, are most likely to come across Ghost Moose.

Dr. Samuel is a parasitologist who studies parasites of deer, Elk and Moose and in particular the tick which causes Ghost Moose. The tick is widespread

and is found throughout the North American ranges of deer, Elk and Moose except the far north. Deer and Elk seem able to co-exist with this parasite, and they remove most of the ticks by efficient grooming before they can do much harm. But Moose are less capable of combating an infestation. The eggs of *D. albipictus* are laid on vegetation in the spring, and from September to November the hatched larvae climb up the vegetation and attach themselves to a passing animal. After November the larvae left on the ground die. Once attached to Moose, larvae feed on Moose blood before becoming nymphs; the nymphs are dormant until February, then moult and become adult ticks. All three stages depend on blood to survive, but it is in March and April that their feeding causes the Moose to become so weakened by loss of blood that some can die. The tick bites can also introduce other pathogens into the host so that there may be multiple causes for death. After May, the female ticks drop off the host, lay their eggs in sheltered places and the cycle starts again. The irritation of the bites make the Moose groom incessantly, mostly with its tongue, which breaks off the ends of the coat hair leaving only the short undercoat exposed. This is grey-white and gives the Moose the typical "ghost" appearance. Licking can also break the skin, allowing easier access for the ticks. A serious infestation will create large open areas of bleeding skin and consequent debilitation.

Moose populations in Canada are stable, but when a local population increases, the young in particular start the winter under-nourished and more susceptible to disease. Then there can be a serious die-off in

March and April due to tick infestation. There were major die-offs of up to 50% of the population in some areas in 1991 (Minnesota), 1999 (six provinces, British Columbia the worst), and 2002 (eastern provinces and the prairies). Some dead Moose have carried more than 500 000 ticks. Effective prevention is difficult but Dr. Samuel suggests that a possible solution would be to cull Moose where there is a population build up, thus reducing the demand on the available food sources. Experiments have shown that Moose can detect and avoid tick-infested vegetation but if food is scarce, they will eat it.

There are chapters on the life cycle of the tick, how they are adapted to attack Moose, their invasive characteristics and behavioural strategies used by Moose to evade the ticks. The book is attractively illustrated and for light relief, there are good puns on the word "tick": e.g., characteris-ticks, and a poem or two. Knowing more about the life cycle of the tick and its serious effects on Moose populations should be of value to anyone travelling or working in the areas where moose are found.

The Federation of Alberta Naturalists has published several natural history books, and their Atlas of Breeding Birds of Alberta is a best seller. They commissioned Dr. Samuel to write Ghost Moose which is an interesting and serious book about a wildlife disease. It makes absorbing reading and describes an aspect of wildlife we seldom hear about.

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### Lewis and Clark on the Great Plains: A Natural History

By Paul A. Johnsgard. Bison Books, University of Nebraska Press, 1111 Lincoln Mall, Lincoln, Nebraska 68588-0630 USA. 143 pages, \$18.28.

One of the most profound expeditions in American history and culture was of the Lewis and Clark adventures, 1803-1806. Led by Meriwether Lewis (1774-1809) and William Clark (1770-1838), the expedition was one of the first systematic surveys of the natural resources and natural history of the American west. And as such, the published record since the early 19<sup>th</sup> century pertaining to these treks is voluminous. From narratives and journals (e.g., Moulton 1983-2002), their place in history, and their experiences with natural history (Cutright 1969), all raise Lewis and Clark to American cultural icons.

Johnsgard's *Lewis and Clark on the Great Plains* adds to this list but should not be considered a significant contribution to the histrionics of the expedition and what it meant. The author's contribution is more in line with a combination field guide / history lesson of the wildlife encountered by Lewis and Clark's group. Following a brief introduction, the book is chaptered by contemporary States with regional maps outlining expeditionary routes. This template is essential in un-

derstanding the chronology as the expedition at times retraced their steps in a single season, if not over the course of the expedition's history.

The bulk of the content is a listing of the flora and fauna (complimented with scientific and common names). In user friendly manner Johnsgard provides a concise synopsis of the taxa followed by shorter notations as to the encounters with the expeditionary force. The Western Hognose Snake (*Heterodon nasicus*) for example, was likely found and described on July 23, 1805 near Townsend, Montana, prior to the formal erection of the species in 1852 (Baird and Girard 1852). Based on his description, "Lewis should be credited" Johnsgard contends, "with the discovery of the species" (page 97).

Visual support for the descriptions come from the authors own line drawings, 39 in all. Simple in vision yet detailed, collectively with the body of text, make this little volume an added historical perspective to viewing nature as it once was, 200 years ago.

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