

tats. The reader is advised to adjust the nest site image presented in this book at the following website by the Center for Wildlife Ecology <http://www.sfu.ca/biology/wildberg/mamuweb/welcome.htm> where over 120 nests are presented to the public.

Unfortunately, this book does not document that "low elevations" alone does not sufficiently describe the nesting habitat. It does not deal with how the myth of low elevation old-growth forest evolved in the first place, and why this myth remains active within the conservation community to this very day. The book reports an uncommented figure for 10s of millions of Marbled Murrelets in Alaska alone; this must be way too high by the factor 10.

No doubt, the peculiar efforts by the current U.S. government administration trying to de-list this species from the ESA and against all efforts of most biologists will keep this well written and very readable book in high demand. It's the first of its kind for the Marbled Murrelet, and a great description for the state-of-the-art of the environment and conservation in arguably one of the most powerful countries in the world.

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BOTANY

Canada's Forests: A History

By Ken Drushka. 2003. Forest History Society Issues Series.
McGill-Queen's University Press, Montreal and Kingston.
97 pages. Paperback. \$12.95 Can.

This treatise was written by a journalist, now deceased, who had considerable practical experience in the forest industry, having worked as a logger in British Columbia. It is highly readable, being targeted at the nonspecialist, with few references or supporting data. Even so, it provides considerable food for thought in a compact format. The treatise presents a generally positive picture of Canadian forests and the forest industry. Ken Drushka states his premises boldly: "Canadian forests still exist virtually intact. Since European colonization ... only about 6 percent of Canada's forest land has been converted to other uses" (page vii). Moreover, "it is inaccurate and misleading to claim that the country's forests are in the process of being destroyed, devastated, decimated, or damaged beyond recovery" (page 82). On the contrary, Drushka considers that, by and large, "they are whole and healthy" (page 82). This is certainly a view markedly at variance with that usually presented through the popular media.

Drushka develops his views in five chapters, focusing on "The Canadian Forest", "Early Forest Use", "Industrialization of the Forests", "The Rise of Forest Conservation", and "Sustainable Forest Management", which includes a brief survey of the state of Canada's forests as of year 2000. The survey covers a lot of ground (pun intended!) and, as might be expected, the treatment of topics is somewhat uneven and often cursory. I found the summary of the postglacial assembly of "The Canadian Forest" especially unsatisfactory. Also in this opening chapter, Drushka sets the scene by identifying and describing eleven modern forest regions across Canada, although only ten are shown on the accompanying map. Following this introduction, his historical survey in the next four chapters is basically chronological and sequential.

Drushka notes that the Canadian landscape has been home to people throughout postglacial time and that

Aboriginal people "had an often-significant impact on the forests" (page 17). He points out that Aboriginal people used fire as a land management tool. I found it refreshing to see an environmental history which acknowledges that Canada had a human history before European settlement. Drushka identifies the first major impetus for sustained forest use as the establishment of the fishing industry in Newfoundland in the 1500s. Interestingly, he does not highlight the fur trade as a major reason for forest clearance, pointing out that permanent settlement by Europeans was actively discouraged by the trading companies. He sees the main phase of European settlement, beginning in the seventeenth century, being associated with "serious and mostly negative impacts on the forests" (page 23), as land was cleared for agriculture and wood was used as the principal fuel for winter heating. Commercial exploitation of the forests began in the late seventeenth century, propelled by warfare and conflicts that stimulated Britain particularly to turn to Canada as a source of supply for timber. The exploitation front moved westward and inland from the east coast to interior Canada, primarily along the major waterways, following a similar pattern to settlement. Drushka traces the establishment of administrative policies that made the forestry industry a major source of government revenue, especially later at the provincial level.

In the third chapter, Drushka examines more closely the industrialization of the forest industry through the latter part of the nineteenth century. He considers that the spread of transportation networks, especially the railway, had a triple effect on the forest industry. First, railway construction consumed large amounts of timber. Second, better transport networks encouraged the spread of lumbering to previously economically inaccessible regions. Third, the wood-burning steam locomotives themselves demanded large quantities of timber as fuel. Clear-cutting became common. Drushka points out that the spread of lumbering went hand-in-hand with devastating wildfires that spread through the remaining slash on clear-cuts, often start-

ed by sparks from various industrial machinery. Drushka notes a prevailing lack of concern with the reduction in area of forest: "Well into the twentieth century the sentiment was still widespread that forests were an impediment to development and settlement, and their eradication was acceptable, if not desirable" (page 37). Nevertheless, by turn of the twentieth century, the reduction in forest land had become so marked that it was starting to raise alarm in some quarters, especially in government circles. This awareness marks the beginning of the rise of the forest conservation movement.

This movement sprang from "a desire to maintain forests in perpetuity" (page 61) and was part of a broader conservationist movement, driven by social and ideological trends. Drushka traces the practical application of forest conservation to the establishment of forestry schools at universities and founding of various forest societies. The overall result was the "professionalisation" of forestry and the development of a cadre of scientifically-trained foresters. Canadian forest conservation policies therefore were rooted in a belief that management had to be science-based and, as far as possible, separate from the political process. Drushka points out that in Canada forest conservation was essentially utilitarian and not preservationist, underpinned by the belief that the forests were there to be used, albeit within limits. Hence, throughout various legislative and regulatory initiatives has run the idea of "sustainable yield". However, Drushka argues that all these policy approaches since the Second World War have focussed on sustainable yield of timber only, while other valuable and sustainable aspects of forest lands, such as water quality and biodiversity, have not been included. The conclusion is that an overall comprehensive approach was lacking, which set the stage for the conflicts of the last few decades.

In the last chapter, Drushka examines forest management in the closing decades of the twentieth century. This was a time of considerable conflict and rethinking. It had become apparent that previous estimates of "sustainable yield" were not in fact sustainable, partly because replanting was not keeping up with extraction, partly because of variations in growth, and partly because forest inventories were not in place to allow for a realistic assessment of what was "sustainable". Yet the forest industry was trying to respond to increasing demand for forest-based products, such as

pulp and paper. At the same time, there were increasing demands being placed on forests from other users, including recreationalists and environmentalists, who placed different values on the land. As Drushka notes, clashes between various groups of users were becoming more common. In this context, I think many readers from western Canada will remember the blockades of logging roads and protesters being removed by police. Although Drushka mentions competing uses, he does not examine any in detail, and this superficial treatment might leave some readers wondering why these conflicts were so bitter. Drushka does indicate, however, that these clashes were highlighting incompatibilities between uses and leading to greater polarisation. Increasingly powerful, vocal, and articulate interest groups were lobbying for a preservationist approach to forest lands, partly through advocacy for the establishment of parks and other types of protected areas where the forest industry would be excluded.

The result, concludes Drushka, was that forest management and planning could no longer be the purview just of provincial forest services. The process had to be opened up. Drushka identifies a new approach to management, especially through the 1990s, called "holistic" forestry or "sustainable forest management", which involves "a broadening of the concept of sustained yield to include all components of a forest" (page 69). He sees this change in philosophy as an impetus for the development of the Canada Forest Accord (1998), which acknowledges that forest ecosystems should be managed to benefit a broad spectrum of users. One of the more interesting outcomes of this shift in perspective has been the development of various certification programs. Drushka observes that such programs provide an incentive for forest companies to practice good management. Nevertheless, as Drushka's survey shows, sustainable forest management is clearly more demanding than the old style "cut and move on" approach, requiring greater flexibility and adaptability on the part of the forest industry and a recognition that, no matter how vast they may seem, the forest lands are a finite resource.

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ENVIRONMENT

The Natural History of Bermuda

By Martin L. H. Thomas, First Edition, 2004. Bermuda Zoological Society, P.O. Box FL145, Flatts, FL BX, Bermuda.

Islands are the Rosetta stones of evolution. They also contain some of the most vulnerable natural habitats on the planet and many species at risk. These two fac-

tors make them of great interest to naturalists and ecologists. These themes are explored in intimate detail in *The Natural History of Bermuda*.

Bermuda is an archipelago of over 100 islands in the mid-Atlantic due south of Nova Scotia and 965 kilometers east of Cape Hatteras. Having a surface area