REVIEW

LAND OF EXTREMES: A NATURAL HISTORY OF THE ARCTIC NORTH SLOPE OF ALASKA

Alex Huryn and John Hobbie, 2012. University of Alaska Press, Fairbanks. Paper and ebook, 336 pages, photos, maps, index. ISBN 978-1-60223-181-8; $29.95

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According to the preface, this book was written as a guide for people visiting the North Slope of Alaska. The authors' intent was to cover the entire North Slope, from Barrow to the Brooks Range, providing information on all aspects of the area's natural history in a format suited to the interested layperson. They do this extremely well for the Dalton Highway, but they do not fully address the remainder of the North Slope.

The book's organization is logical and easy to follow. The introductory chapter identifies concepts and provides Arctic-related definitions, leading into the rest of the book, which takes the reader on a North Slope tour from ground level up. The next three chapters cover geology: bedrock and glacial geology and permafrost phenomena. The fifth chapter reviews the three main physiographic provinces on the North Slope and ecological habitats associated with each.

The next four chapters focus on the plant kingdom. The mushrooms, lichens, mosses, and liverworts receive brief coverage, with the chapter on vascular plants being much longer. This makes sense, since most readers are more likely to notice and be interested in vascular plants.

Coverage of the animal kingdom begins with an extensive chapter on invertebrates, which is not surprising given the number of insects that any summer visitor to the North Slope will encounter. The illustrations are excellent, as is the explanation of freeze tolerance versus freeze avoidance. The next chapter covers fish. The authors concentrate on freshwater fish, with a focus on the fourteen species that are most widespread on the North Slope. This is followed by a one-page chapter on reptiles and amphibians. Since the only currently living member of these classes found on the North Slope is the wood frog, which occasionally makes an appearance, half of the chapter deals with prehistoric reptiles. These arctic dinosaurs are quite interesting and their story is still unfolding. Many readers will wish to learn more about them.

Chapter 13 considers birds. The authors begin by stating that over 150 species of birds visit the North Slope annually. While this is technically correct, it seems conservative, since the standard species checklist for Barrow lists 185 species. This chapter shows the Dalton Highway corridor bias. Numerous bird species are pictured, often showing both sexes in multiple color phases and age classes. The eiders, though, are underrepresented, with only a single picture of two species, omitting the Steller's and common eider entirely. The only gulls referred to are those "common in inland habitats of the North Slope" (p. 191). Guillemots, which have been much in the public eye due to George Divoky's decades of study (including a *New York Times* magazine cover story in 2002), are omitted entirely, as are other coastal birds such as puffins.

In chapter 14, the authors discuss mammals. This chapter is especially good, although the choice of caribou and red fox as common megafauna of the North Slope seems odd, given the presence of moose, muskoxen, and wolves and the rather small size of red fox. Huryn and Hobbie do a good job of explaining lemming population cycles, a phenomenon that often confuses the general public. Their coverage of muskoxen is interesting. They speak of the eastern North Slope muskox herd as a true conservation success, while noting that the herd was reduced to less than half its former size by 2007–2008. They describe this as unexplained, although there seems to be considerable evidence that it was due at least in part to hunting by grizzly bears (Reynolds et al. 2002), a few of which had figured out that even in a herd muskoxen can be vulnerable.

The final chapter purports to describe the "prehistory" of humans on the North Slope from arrival through the middle of the twentieth century. Here things fall apart. Under any common definition, "prehistory" cannot be said to extend past the latter part of the nineteenth century on the North Slope. The discussion of dates is confusing. The authors state that all dates are given in calendar years, and then proceed to give all dates but those for Kavik and Neoeskimo as BP dates. I believe that these are calibrated radiocarbon dates, which for some reason they presented as BP rather than the conventional BC/AD for calibrated calendar year dates.

The authors decide to focus only on archaeological sites near the Dalton Highway, in order to "simplify a rich and complex prehistory" (p. 243). This led them to omit the precontact history of almost all current North Slope residents. They cover the Paleoindian tradition in two and a half pages, while the Arctic Small Tool tradition receives only half a page. The Maritime Eskimo (Birnirk, Thule, and Inupiat) are well covered, occupying over three pages. However, the coastal manifestation of this group receives only three sentences, despite far outnumbering inland dwellers at all periods, including the present. The rest of this section is devoted to the Nunamiut. The description of the Nunamuit is a good one, and the work of Simon Paneak is well described, although none of his publications are cited in the chapter bibliography. Had this book covered the Dalton Highway corridor instead of the North Slope, this chapter would have been a reasonable summary for a general book aimed at people traveling the road.

Given that the North Slope of Alaska is the size of the state of Minnesota, producing a natural history for laypersons in a size suitable for travelers is no mean feat. In most respects, this volume achieves its goal. In general the information presented seems accurate, although this reviewer was startled by the statement (p. 44) that the Inaru River only flows during spring snowmelt, since in her experience it sees boat traffic during the entire open water season and is too strong and deep to ford in most places. However, the authors have done the majority of their research on the North Slope in a relatively narrow area on either side of the Dalton Highway, between the Brooks Range and the Beaufort Sea. At times, they write as if the conditions that are typical in this region are typical across the North Slope. For example (p. 31), they state the plant biomass is between 160–370 g/m^3 near the coast. From the map on the next page this is true near Prudhoe Bay, but in most areas where there are currently villages the map shows a higher biomass of 370–850 g/m^3. At times, I felt as if the volume might more appropriately have been titled "The Natural History of the Dalton Highway Corridor."

The highway corridor bias is also apparent in the illustrations. With the exception of a couple of satellite images of Teshekpuk (Tasiqpaq) Lake and some images of lemmings taken near Barrow, almost every image in the book is from Toolik Field Station, Atigun Pass/Gorge, Galbraith Lake, the Ivishak River, the Kuparuk River, Happy Valley, Oksrukuyik Creek, or various locations along the Dalton Highway. Even the picture of a polar bear, a marine mammal who visits land near the coast on a very sporadic basis, is one of a very anomalous individual taken at milepost 297 of the Dalton Highway.

While the authors have an impressive photographic collection, one wishes that they had used more images borrowed from others who have worked in the area. In too many cases, the photographs are not particularly good or representative, and the general reader might have been better served with other images. For example, the winter arctic fox pictured has a number of atypical black patches and is a poor specimen of this beautiful animal. Additionally, the layout of the images is not always logical, with images sometimes separated from the text by several pages. This may be an unavoidable function of limiting the number of printed color pages, but it doesn't make for easy reference while reading.

A more serious problem with the images relates to the maps. The last part of the book is essentially a driving tour of the Dalton Highway from Atigun Pass to Deadhorse, with references to numbers on three accompanying maps. The maps are a bit small, and it might have been better to split the area into five or six maps at a larger scale. More importantly, at least in the review copy, the first of the maps (covering the southern end of the Dalton Highway from Atigun Pass to Galbraith Lake) was replaced by a duplicate of the second map. The driving guide looks like it would be quite useful for anyone planning to drive the Dalton Highway. I would suggest it for that use. If one wants to understand human occupation on the North Slope, there are better sources of information.

REFERENCE

Reynolds, Patricia E., Harry V. Reynolds, and Richard T. Shideler
2002 Predation and Multiple Kills of Muskoxen by Grizzly Bears. *Ursus* 13:79–84.