



## Preface

IT HAS BEEN LESS THAN A CENTURY SINCE SCIENTISTS first set foot on Isle Royale, then a remote and wild island in Lake Superior, now, in addition, a U.S. national park. The immensity of Lake Superior, more than anything else, has defined for human observers the character of Isle Royale.

It is the lake that has influenced its climate and restricted the flow of life from the mainland to the island, including visits by scientists. If Louis Aggasiz, the most celebrated American scientist of his generation, had been able to travel to Isle Royale in the 1850s as planned, the scientific payoff might have been handsome. Aggasiz's trip to the island by small boat, powered by wind and oar, was canceled by a storm. Science, like life itself, is a contingent affair, always building on the past and extending unpredictably into the future.

The past at Isle Royale now includes a rich legacy of scientific discoveries about the natural world. In the half century that gray wolves have inhabited Isle Royale, the monitoring of their numbers and interpretation of their ecology have become annual quests. Public attitudes about this great carnivore have been transformed and to this end Isle Royale has played a role that has been of worldwide significance.

I have tried to portray for general readers what we know about a chronic decline in Isle Royale wolves that began in the 1980s. Our current understanding of the problem is woven into chapters that take the reader through the seasons on this island, for the changing seasons are the most important context for

life on Isle Royale. Seasons also define what scientists actually do on the ground to understand the dynamics of wolves and moose.

This book provides what science generally has little room for in the straitjacket format of its formal literature—those “single, startling incidents of animal behavior” mentioned by Barry Lopez. These were memorable incidents, all of them, direct observations that have left me humored, perplexed, gratified, or in wonder. This is the raw material of direct observation. For me, there could be no greater source of inspiration than nature itself.

Today no one questions the immense value of wolves on Isle Royale, where this predator enjoys more security from human avarice than do wolves anywhere else on the planet. Much has been learned simply by long-term observations at Isle Royale. Will this approach suffice in the future, or should humans actively chart a course for this wilderness island? These are questions pondered in this book.

—Rolf O. Peterson

# Acknowledgments

I AM DEEPLY INDEBTED TO MANY PEOPLE FOR MAKING this book a reality. My wife, Candy, patiently and thoroughly worked on the text time and time again, in what must have been a labor of love. For playing instrumental roles in the actual work, I will gratefully highlight the contributions of Durward Allen, Don Murray, and Don Glaser. Literally hundreds of people contributed directly to the field work, and I thank each of them for their personal contribution.

Prominent long-term funding for the research was provided by the following: Isle Royale National Park, National Science Foundation, Earthwatch, National Geographic Society, Boone and Crockett Club, and Robert Bateman/Mill Pond Press. Many other organizations and individuals have also assisted and tax-deductible donations are gladly accepted by “Wolf-moose fund,” Michigan Tech Fund, Alumni House, Michigan Technological University, Houghton, MI 49931.

The following individuals offered helpful comments on portions of the book: Durward Allen, Elizabeth Amberg, Peter Armington, Douglas Barnard, Tim and Jean Cochrane, William Fink, David Harmon, Robert Krumenaker, Terry Lindsay, Robert Linn, L. David Mech, Jack Oelfke, and Ami Walsh. At the University of Michigan Press, Mary Erwin provided vital help in regenerating this book.



# Foreword

THE WOLF IS IN THE PUBLIC EYE. RED WOLVES HAVE been reintroduced into the southeastern U.S. and gray wolves into Yellowstone and Idaho. Natural wolf packs have repopulated Wisconsin, Michigan, and Montana. Some 2,000 wolves now inhabit Minnesota and are overflowing into North and South Dakota. A direct beneficiary of the Endangered Species Act, the wolf is making a comeback.

Before any of this took place, however, wolves found their way some 15–20 miles across the Lake Superior ice from Ontario to Isle Royale National Park. In 1949 that 210-square-mile gem of an island was ideal for wolves. It supported a moose herd that for half a century had never felt the fang of a wolf. The right combination of wandering mainland wolves and a solid ice bridge to the island apparently only happened once.

The Isle Royale wolves flourished, and so did the moose. And so did scientists who followed both populations. The island was an ideal natural laboratory in which to count the wolves and the moose and to study their interactions over time. Durward Allen of Purdue University spawned the idea and gathered the funds. He charged me with getting the project started, and I spent four years doing so in pursuit of my Ph.D.

Several other graduate students and post-doctoral fellows followed, entranced by the island's pristine nature, intrigued by the mysteries of its moose-wolf system, and rewarded by the troves of data they added to the unique story.

One of those students was Rolf Peterson, who

showed up in the early 1970s. Rolf came to earn his Ph.D. like several of his predecessors. But by then Durward Allen, the dean of the project, was retiring and looking for someone well suited to whom to hand off the study for good. Rolf Peterson fit the bill.

Not only did Rolf conduct his Ph.D. work, but he also summarized and synthesized the data from all the previous workers. He then went on to continue the project in the same vein. A whole new series of graduate students under Rolf's direction carry the torch to this day.

Meanwhile, the wolves and moose of Isle Royale continued doing what they damn well pleased. For some periods, their interactions became predictable. But conditions changed, and new predictions emerged. Some have stood long tests of time, others shorter. And some events on Isle Royale have defied explanation. From 1980 when the wolves peaked at 50, they plummeted to 14 in 1982. After a decade and a half more, their numbers have not recovered to even half their former peak.

As scientists around the world eagerly await the annual reports of Isle Royale's current wolf and moose numbers, Peterson and his team work assiduously to try both to get them and to explain them. The quest continues.

Did canine parvovirus cause the steep decline in the early 1980s? Does inbreeding depression explain the population's recent stagnation? Or are these population behaviors the results merely of random influences on a tiny population lacking the usual buffering mechanisms of larger ones?

After all, who could argue that 30 years of close inbreeding hurt the population when wolf numbers rose from the basic pair that must have settled the island about 1949 to 50 animals in 1980? If 30 years of inbreeding did not hurt the wolf population, did 31? Perhaps. But not necessarily. The truth is, we really do not know.

Rolf Peterson aims to find out, however, whatever it takes. And he should. This longest-studied wolf-moose system is, to my knowledge, the longest-studied population of vertebrates, possibly of any organism, ever. Science has a major stake in the findings.

Of course, this grand experiment may be over any year. If inbreeding depression is affecting the population, things will not improve as time goes on. Or if wolf numbers remain low (16 in 1995), various chance events might bring their demise.

Rolf agonizes over all of this. After tracing the wolf-moose story on Isle Royale and describing his most interesting personal adventures ferreting out the details in a very readable fashion, he turns philosophic. Isle Royale is a national park. One of the mandates of national parks is to preserve their natural ecosystems. What if the Isle Royale wolves become extinct? Should the National Park Service replace them?

This is not an easy question to answer, and Rolf explores the dilemmas involved. Much of the issue turns on the degree to which the wolf-moose system and any causes of its disruption are construed as “natural.” But Rolf maintains that “naturalness” is an elusive, relative term and that there may be higher values involved than merely adhering rigidly to what might be considered an arbitrary, vague standard of “naturalness.” His discussion of the subject is enough to make you think.

Meanwhile, I am betting on the wolves to get us out of all this. The Isle Royale population has come through thick and thin, and some deleterious genes may have been cleansed from it in the process. It has recently produced a spate of young, probably poised soon for reproduction.

The island’s moose and beavers, squirrels and hares, and all the rest of its mammals are also isolated and must also be highly inbred. They have been doing fine for decades or even centuries. Admittedly, the wolves’ naturally lower numbers place them in greater jeopardy. Thus I will not really be surprised if they fall first. But neither will I be surprised if they hang on for decades more.

In any case, Rolf Peterson’s treatise here will serve us well either by laying out the thinking behind any wolf reintroduction that may take place or by colorfully documenting the history of a population that almost needed one. Only time will tell.

—L. David Mech