

Preface to the First Edition

When I started studying ecology, I hoped to be able to explain the composition of plant communities by understanding the interactions of species' physiology and population dynamics with microenvironments. Reading and research, however, have convinced me that while these interactions are important for determining what species *can* grow somewhere, the history of a site and region plays a major role in determining what species actually *do* grow there. This idea is not new, even within the discipline of ecology, but until recently ecologists have downplayed it in their efforts to discover general laws that govern species distributions, ecosystem properties, and other ecological processes, regardless of time or space. On the other hand, historians are realizing that the environment in which people live has influenced human history, so that they too must be sensitive to changing environmental conditions.

Concern about a deteriorating environment caused by human activities pervades our current view of the world. Many people are of the opinion that unless we mend our ways, we risk disaster. Many also see scientific research, especially ecological research, as the potential source of solutions to environmental problems. In dealing with scientific research related to the environment as altered by people, however, scientists are faced with an overlay of causation that has varied over time and space with changing human culture.

I have written this book to help point to different aspects of current environments that bear the imprint of various past human activities, which must be considered in order to understand the current processes. The emphasis is on remnant effects on current communities, ecosystems, and landscapes and on how factoring these effects into ecological studies can help elucidate processes. Along the way, it should become clear how differently people have viewed, understood, and used the nonhuman environment and how these differences contribute to impacts as well as, in complex webs of feedback, to changing activities and attitudes.

In conducting historical ecological research, I have been convinced of the importance of distinguishing between time as a measurable dimension of duration, such as one day or one year, and historical time as a specific duration, such as 6 June 1952 or 1735. The partitioning of the processes that we observe between those that are based on the nonspecific unit of time and those that are historically constrained will help us tremendously in relating theoretical studies to actual responses of real ecosystems.

I have two main goals in this book, one related to research and the other to environmental management. I hope to stimulate further research on the role that history, specifically human history, has played in shaping communities, ecosystems, and landscapes and conversely, the role that changing environments have played in human history. I have tried to do this by pointing to the ubiquity of residual as well as current human interactions with the environment and by demonstrating that these impacts have changed over time, up to and continuing in the present. Second, those who plan and manage natural areas should learn that their systems are never static and that the present conditions are merely stages in a continually changing mosaic. They cannot be frozen in time.

My examples are drawn from all over the world, from a wide variety of biomes, though emphasis is placed on temperate systems, especially in the eastern United States and in western Europe, as these are the ones with which I am most familiar. They are discussed as illustrations; references are given for readers who would like more definitive discussions of the individual examples. The concepts apply, however, anywhere.

I expect this approach to be useful both as an introduction to historical ecology for professional ecologists, environmental historians, historical geographers, and historical anthropologists and as an advanced undergraduate and graduate textbook for such courses as historical ecology and environmental issues. I start with an exposition of the importance of considering the past of ecosystems and then introduce techniques that can be used for reconstructing this past. I then discuss a variety of ways in which people have

affected the environment over time, from using fire to laying out property boundaries. I conclude by discussing how a historical ecological approach contributes to an understanding of some issues of current concern: changes to lakes, biodiversity, and sustainability.

I hope that readers will carry away an excitement for including human history in ecological studies and ecology in historical studies. This integration of the disciplines has great potential for both and presents challenges that must be met if we are to deal responsibly with our role in the biosphere.

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