

Wetland, Woodland, Wildland

*A Guide to the
Natural Communities
of Vermont*



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To our parents

*Bill and Claire Thompson
Allan and Edith Sorenson*

*who first showed us the beauty
and intricacy
of the natural world*



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Foreword

W*etland, Woodland, Wildland: A Guide to the Natural Communities of Vermont* is part of the Middlebury College Bicentennial Series in Environmental Studies, co-sponsored by Middlebury College and the University Press of New England. Each of the books in this series adopts a bioregional approach to environmental topics. Such an approach emphasizes the continuity between natural history and human history, and often seeks to illuminate such connections by focusing closely on the history and characteristics of particular landscapes. The inclusiveness of bioregionalism is a natural outgrowth of the complex environmental history of New England and the Adirondack Mountains. Wild nature and human cultures are intricately interwoven in this region, which although long-settled by humans has recently experienced a dramatic resurgence of forests and wildlife. The editors of the Middlebury Series believe that a healthy irony can enter into environmental discourse through study of this region's turbulent history and surprising present, and can perhaps illuminate a possible pathway for environmental recovery in other regions of the world. *Wetland, Woodland, Wildland* emphasizes an important component of our understanding of New England: a detailed accounting of the diversity of its natural communities. Traditional natural histories tend to emphasize only the species level of biological diversity, particularly the common species likely to be seen, such as birds, butterflies, or flowers. By this approach, however, important interactions and commonalities among species and the ways in which individuals are woven together into a diverse tapestry of life are missed. Part of this tapestry is the aggregation of species into natural communities, yet except for broad characterizations about communities, such as "evergreen forests" or "wetlands," they have rarely been described in much detail or in a way to allow a non-specialist to understand where they can be found or identified. Without this, meaningful connections between people and the places they live are difficult to achieve.

With *Wetland, Woodland, Wildland*, Thompson and Sorenson correct this deficiency and provide a rich understanding not only of what natural communities are, but their geographical diversity in this region both in space and time. This is important for more than just a detailed understanding of the natural history of Vermont or of what is at stake in efforts to conserve the region's biodiversity; the natural communities of this region have provided the foundation upon which its human cultures, from the time of first human settlement more than 10,000 years ago to the present, have been based. The forests, fields, and wetlands of Vermont have always been the bases for the resources used by the people here, and a true appreciation of this region's cultural history can only come from an appreciation of its natural communities.

From detailed descriptions of the eight biophysical regions of Vermont to descriptions of each upland and wetland community's characteristics and how they can be identified, this book seeks to make practical familiarity of the Vermont landscape available to everyone. It is such a familiarity with the landscape that allows a meaningful understanding of not only the region's past, but its possible futures.

Steve Trombulak
Middlebury College

Acknowledgements

This book is truly the result of a collaborative effort, involving many more people and agencies than just the two authors, The Nature Conservancy, and the Vermont Department of Fish and Wildlife.

We start by acknowledging the individuals at The Nature Conservancy and the Vermont Department of Fish and Wildlife who supported us in this effort. Chris Fichtel, at different times working for both the Department of Fish and Wildlife and The Nature Conservancy, stood staunchly behind the idea when it seemed impossible. At The Nature Conservancy, John Roe adopted the project and promoted its importance, both within The Nature Conservancy and outside it. Other Conservancy staff, including Maryke Gillis, Bob Klein, Susan Baker, Nancy Light, and Shannon Brady, contributed ideas and enthusiasm. At the Vermont Department of Fish and Wildlife, Bob Popp tirelessly supported the completion of the project. He and Everett Marshall shared their extensive personal knowledge of Vermont natural communities. Other Department staff have helped in many ways, including Linda Henzel, Steve Parren, Mark Ferguson, and John Hall. Commissioner Ron Regan's support of the project was critical to its final completion. Stephan Syz, Carl Pagel, and Alan Quackebush, all with the Water Quality Division of the Department of Environmental Conservation have provided substantial support to the wetlands portion of the project. Brian Stone of the Department of Forest, Parks, and Recreation has also been a consistent supporter of the project.

Many ecologists and naturalists have contributed to this work over the years by generously sharing their knowledge of the natural history, ecology, and botany of Vermont. Many of these people also contributed field data to the files of the Nongame and Natural Heritage Program, which formed the basis for our work. Among these ecologists are Brett Engstrom, Marc Lapin, Charlie Cogbill, Bob Popp, Everett Marshall, Chris Fichtel, Jerry Jenkins, Peter Zika, Kerry Woods, Diane Burbank, Ian Worley, Charles Johnson, Marc DesMeules, Hub Vogelmann, David Barrington, Cathy Paris, Jeff Parsons, and Bob Zarembo.

The classification presented here is part of a larger region-wide and national classification system developed by The Nature Conservancy. As part of this effort, we trade ideas regularly with our colleagues in the northeast, and we shamelessly present here the results of that trade, recognizing that specific ideas may have originated with someone else. Particularly influential to us have been ecologists working at the regional level, including Mark Anderson, Lesley Sneddon, Ken Metzler, and Tom Rawinski. Ecologists in closely adjacent states have also been influential, including Dan Sperduto, Carol Reshke, David Hunt, Greg Edinger, Sue Gawler, Andy Cutko, and Pat Swain.

The information presented in the Upland Forests section of the book represents, in part, the combined knowledge of the Vermont Natural Communities Working Group, an extraordinary group of foresters and ecologists who spent ten days together in the field in 1998, visiting forests in various stages of succession discussing what these forests might look like over time and how this might influence management. Staff from the Vermont Department of Forests, Parks, and Recreation and USDA Forest Service contributed large amounts of time in this effort. Bill Moulton of the Vermont Department of Forests, Parks,

and Recreation was especially instrumental in getting this effort off the ground, and Bill Leak of the USDA Forest Service provided many wise insights throughout the process. The group, and this book, are part of a bigger effort, the Vermont Land Classification Project, which aims over time to gather the data needed to understand habitat-vegetation relationships more fully. The collaborators on this project include The Nature Conservancy, Vermont Department of Fish and Wildlife, Vermont Department of Forests, Parks, and Recreation, USDA Forest Service, USDA Natural Resources Conservation Service, and the National Wildlife Federation.

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Liz Thompson and Eric Sorenson,
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