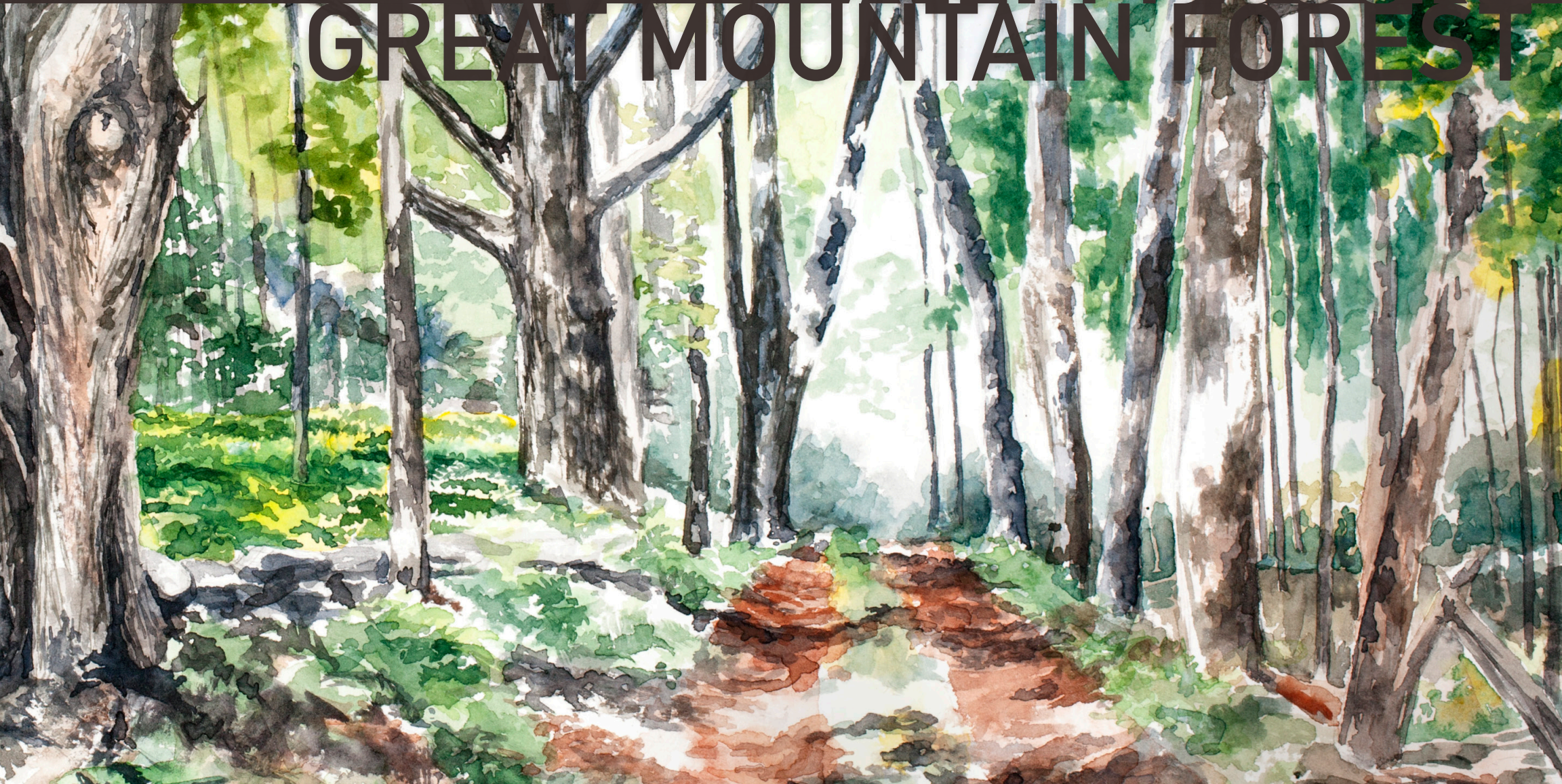# A FIELDBOOK
GREAT MOUNTAIN FOREST

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Brushing through thick mountain laurel and coppiced oaks in Great Mountain Forest, it is hard, at times, to remember you're in Connecticut. The forest is dense. And when you're on foot, it's vast. From atop Blackberry Hill, you see no houses, nor malls, nor roads. Lower down you frequently pass the stony anachronistic remains of a past culture, really no different than passing an overgrown Mayan temple.

Great Mountain Forest offers the world a host of services and opportunities. It offers a place for moose to mix, oddly, with tulip poplar trees. It offers a southern extent for boreal black spruce bogs in New England. It offers some of the finest vestigial old growth hemlock stands in the northeast. Great Mountain Forest's landscape unfolds like a storybook of American history. And for the past century or so, as a result of that history, it has provided the world a success story of conservation, a protected area reserve for biodiversity, and a small but important carbon sink in an age of rapid carbon release.

It also offers a textbook in forest ecology and forest management. It showcases the complexity that results from natural ecosystems at the intersection of cultural landscapes and the intentions people have imposed on millions of years of evolution and adaptation in North America's temperate deciduous forest. Getting on the ground and reading the landscape at Great Mountain Forest means keeping one eye on Earth's natural history – its deep time history, fundamentals of biology, and principles of ecology – and the other eye on the ways humans have made habitat for themselves among this complexity.

This field resource book is intended to enable the reader to approach this vast forest with some direction on what is out there, where

to go, and to provide details on what it is they are observing. The goal is to open the great textbook that is GMF to Yale FES students and faculty who may find the expanse of the place intimidating, or overwhelming, as a launching point for study. It is our hope that the project will be mutually beneficial for Great Mountain Forest staff and their programming and management.

This project has its roots in a similar project by Daniel H. Jones (Yale FES, MF, 2006) titled *The Quiet Heart of the Quiet Corner: A Guide to the Natural History of the Yale Myers Forest, Tolland and Windham Counties, Connecticut*. In that project, Jones took a slice of Yale Myers Forest centered on the Blue Trail and introduced readers to the process of reading the landscape by, perhaps most importantly, bringing them to the places on the ground that tell the stories of the Yale Myers forest. As the great Japanese poet Matsuo Bashō (1644-1694) said, "If you want to learn about the pine, go to the pine."

Jones and co-author of this book (MHG) later carried out a similar but much larger special places project in the rich deciduous forests and abandoned farmlands around Floyds Fork of the Salt River in Louisville, Kentucky – Jones' hometown. There, Jones' organization, 21st Century Parks Inc., had been acquiring properties to build a systemic new addition to Louisville's celebrated Olmsted park system. Called The Parklands of Floyds Fork, that land today is nearly 4000 acres of interconnected, permanently protected parkland open to the public with hiking, biking, and paddling trails, and quiet patches of forest and meadows. The special places approach fed directly into the planning and design elements of The Parklands and set a foundation for educational programs. Today, when interpretive staff in The Parklands of Floyds Fork lead a group to a successional stand of eastern red cedar, or a hiker walks a trail and enters a forest of rich spring ephemerals, passes a 400-year old chinkapin oak, or a stone wall, they experience the intentionality behind the special places idea and its roots in Yale Meyers and FES.

The process used to uncover the sites is referred to as "reading the landscape." As Jones (2007) notes in The Quiet Heart of the Quiet Corner, "Reading a landscape requires knowledge of both the vocabulary and the grammar of a place. The vocabulary includes things such as the names of plants and animals, rock formations and soils types. The grammar consists of the major processes that shape a landscape such as geologic events that have influenced its topography and soil formation, its natural and human disturbance history, and the interrelationships between the different life

forms and the surrounding environment." It is this reading the landscape process that is at the heart of this GMF field resource guide.

This guide is designed to make exploration and learning at GMF easily approachable. We tried to focus much of the content around areas easily accessible from Yale Camp, however, some excellent features are distant from there. The first three sections describe the background story. The Geological Underpinnings describes how the bedrock, topography, and glacial geology happened and how those aspects played a role in the contemporary forest. The History of the Eastern Forest, describes with some detail the deep time origins of the eastern forest, the most diverse temperate deciduous forest on Earth. And the Human History describes the way people have inhabited Northwest Connecticut and Great Mountain Forest in particular since the end of the last glacial period to the present.

The second section outlines some of the significant species found at GMF and specific information on their presence here. The history and presence of moose, for example, or eastern hemlock, is described with regard to this particular landscape.

A section on Landscape Field Marks follows. Designed to be a stand-alone document, this section shows, through photographs with brief narrations, many of the common features found at GMF that, when observed and interpreted, reveal something deeper about the processes taking place. Just as we use field marks of a bird (e.g. wing bars, bill shape) to aid in identifying the species of bird, we can use landscape field marks to aid in identifying pattern and process of a site's history and ecology.

The next sections detail the special places where one can observe, learn, and research some of these themes. The Geological Places, for example, describes locations to observe GMF's glacial lakes, various substrate types and more. The Natural Communities section describes 8 exemplary community types found within GMF's matrix forest (also described). These span from lowland spruce bogs, old growth forests, and dry rocky outcrop communities. The Cultural Landscape details 10 sites of previous land use. Old farms, sawmills, and miles of stone walls are described with detailed maps, GPS coordinates, and more. Forest Management, done with intention since the days of Ted Childs, is given its own section where we described several of GMF's harvest areas and plantations with detailed harvest dates, species, regeneration, and more.

A final section lists all the known environmental research that has been done at Great Mountain Forest. This substantial list amounts to over 100 published studies. GMF has always promoted a variety of research

projects on its land, and this section seeks to illustrate that dimension of their outreach efforts. GMF has worked with and allowed not only Yale FES projects, but also researchers from many academic institutions and non-governmental organizations. The intention behind all of these sections is to document and share the best places on the ground to observe, learn and study GMF ecology and history and the intersection of the two.

As substantial as this project turned out to be, we believe we have only scratched the surface, literally and figuratively. Each site or species or field mark could be described in much greater detail. The trove of historical information could be explored more thoroughly. The landscape could be scoured with a finer lens, looking for both the subtle and at times dramatic ways these ecosystems function, and the ways humans have added to the complexity of Great Mountain Forest's landscape. By viewing this landscape through a lens to observe natural processes (species interactions, evolution, plate tectonics) and a lens to view human driven processes (forest cutting, settlement, land protection), we find at Great Mountain Forest the two lenses inseparable.