The Lovely and the Wild: Considering Naumkeag

THE LOVELY AND THE WILD
CONSIDERING NAUMKEAG

A Thesis Presented

by

CAROL WAAG

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DEDICATION

To the Memory of my Mother

Josephine Emery Waag

ACKNOWLEDGMENTS

Many people have made this work possible. Without the thoughtful and patient guidance of Archivist Miriam Spectre at The Trustees' Archive and Research Center, who gamely, and repeatedly, gathered rooms full of material for me to peruse, this project would have never gotten off the ground. Stephen Weiter, Director of the Libraries at SUNY College of Environmental Science and Forestry, skillfully guided me through the complexities of the Moon Library's Steele Collection, despite the fact that it was not even his job. At The Trustees, I would particularly like to thank Mark Wilson for generously offering me his valuable time and deep knowledge of Naumkeag, Steele and the Choates, and for allowing me such unlimited access to the grounds and to the restoration materials. Anne Masury's excellent research supplied the organizational clarity and thoroughness that my own efforts lacked. Lucinda Brockway's expertise in the field of landscape architecture and historic garden design expanded my range of focus. Conversations with her clarified my understanding of the profound dynamics of gardens and their management. Julie Richburg's insightful suggestions for particular avenues of research early in my project led in rewarding directions. She generously shared her extensive understanding of Naumkeag's natural resources, its place in the Berkshires and among The Trustees' numerous properties in the western region.

Robin Karson, whose understanding of Fletcher Steele's work and philosophy is unequalled, tirelessly answered my questions, corrected my misconceptions and guided me towards fruitful inquiry. Without the inspiration of her excellent writing and scholarship, I would have never considered this topic, and my research would have had no foundation on

which to rest. The longer I worked on this paper, the greater my awe for her work became. Any errors I have nonetheless committed here are entirely my own.

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ABSTRACT

THE LOVELY AND THE WILD

CONSIDERING NAUMKEAG

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This paper investigates Fletcher Steele's ideas about nature, and the fitness of gardens, in order to guide and support a reinvigoration of Naumkeag. Its aim is to highlight the protection of ecological resources while preserving aesthetic and historic integrity. This topic is particularly timely as The Trustees of Reservations are in the process of completing an extensive and unprecedented restoration plan, which will be carried out over the next five years. The Trustees have a long history of historic preservation and ecological conservation. This paper explores how these two aspects of their work can be integrated at Naumkeag, with particular attention to the undesigned portions of the site, such as the grasslands' fen community. It illuminates how Steele's original conception of the site, his environmental ethic, and his inspired design, can inform the adoption of original sustainable practices in the gardens, guide sensitive plant replacements, and enhance the visitor's experience and knowledge.

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PART I

CHAPTER 1

INTRODUCTION

The Massachusetts non-profit conservation organization, The Trustees of Reservations, has exhibited a high level of stewardship and integrity and devoted considerable resources to the gardens at Naumkeag over the fifty-three years of their ownership. If the highly articulated gardens as designed by Fletcher Steele, Mabel Choate and Nathan Barrett between 1895 and 1958 have slipped gradually out of view, obscured by the overgrowth and dilution of original plant material and the vicissitudes of age and climate, there is little doubt that the unprecedented allocation of resources, expertise, archival research and focused efforts represented by the current 2013 restoration will bring the gardens back into sharp, even startling relief. It is the goal of this study to address the aspects of the garden that reside at the periphery of the design intent, where the garden blends into the ecologically varied and largely uncontrolled plant communities of the fringes of the property: the upper woodlands, the ravine, and the distinctive ecological community of the grassland. An additional goal is an examination of how design choices made by the designer and client for the garden continue to impact the broader ecological setting, particularly the choice of invasive plants. Finally, this paper presents recommendations for plant choices and ongoing management regimes that will benefit ecological diversity and improve sustainable practices on the property. Such improvements can not only enhance the overall health of the ecological network, but broaden the visitor's understanding of how the garden impacts its setting.

Cultural landscapes frequently present a complex synthesis of historical elements within a shifting environmental setting, and their preservation requires continual

modification. The National Park Service definition for cultural landscapes recognizes both natural and cultural resources as integral to the cultural landscape concept.[1] Naumkeag is an historic designed landscape. Located as it is in the Berkshire region, noted as much for cultural as for environmental richness, the garden provides an opportunity for examining how to maintain historical, aesthetic and ecological integrity, all of which are central to The Trustees' mission.[2] The juxtaposition of a garden whose design achieves high art with a rare ecological community whose existence depends on human intervention frames the context for my thesis. Since their founding, The Trustees have recognized the ecological aspects inherent in managing natural resources. At historic house museums the emphasis is necessarily weighted in favor of cultural resources. The broad demands of properties with both cultural and natural value create management challenges, and suggest that we need to develop more holistic approaches. It is the intent of this study to address the nature-culture dichotomy, by looking at the places where natural and cultural concerns overlap. An examination of how Fletcher Steele fit his gardens in their environment reveals clues about how best to manage peripheral places, and points toward a more comprehensive model of resource management. This research should provide an example for other designed gardens in sensitive environments.

Key to sources consulted:
ARC: The Trustees of Reservations Archives and Research Center, Fletcher Steele Papers and Mabel Choate Papers, Sharon, MA
LC: Library of Congress, Papers of Fletcher Steele
ML: Moon Library, Fletcher Steele Collection, State University of New York College of Environmental Science and Forestry, Syracuse, NY
Images ascribed to Steele: photo was taken by Fletcher Steele or by someone in the Steele office. Some of the originals are lantern slides used by Steele for his lectures.

[1] "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values." *(Cultural Resource Management Guidelines, NPS-28)*

[2] "The Trustees of Reservations preserve, for public use and enjoyment, properties of exceptional scenic, historic, and ecological value in Massachusetts." http://www.thetrustees.org/about-us/our-mission/ (Site last visited April 8, 2013.)

Naumkeag is particularly suited to this study for a number of reasons. The garden's design spans the transition between Beaux Arts and Modernism, and Fletcher Steele's intentions have been well preserved. Steele's original plans included many exotic plants, including some that are listed as aggressive invasives prohibited for sale in Massachusetts. The Trustees, founded in 1891 by Charles Eliot and others[3], the mentor of Steele's mentor Warren Manning,[4] are dedicated to preserving land "possessing natural beauty or historical interest."[5] The Naumkeag grounds include adjacent woodlands and calcareous grasslands, which have been perpetuated by long-standing cultural practices, and are home to several endangered and a number of invasive plant species.[6] Finally, Fletcher Steele wrote extensively in letters, books and journals, and often addressed cultural uses of nature, the fitness of plants and design for specific sites, the relationship between a garden and the surrounding landscape, traditional sustainable garden practices, and natives vs. exotics. In addition Steele insisted on strict office procedures yielding copious records and plans. We are fortunate that The Trustees, as well as a number of libraries and archives, possess an extensive collection of original drawings, plans, photographs, nursery orders and correspondence related to the gardens at Naumkeag.

Naumkeag Gardens

Joseph Choate, a prominent New York City lawyer, bought nearly 50 acres in 1884 on the aptly named Prospect Hill Road in Stockbridge Massachusetts. He and his painter wife, Caroline Sterling Choate, had picnicked there with their children when on vacation.

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[3] Charles W. Eliot, *Charles Eliot: Landscape Architect* (Cambridge: Harvard University Press, 1924), Chapter XVIII.

[4] Robin Karson, 2007. *A Genius for Place: American Landscapes of the Country Place Era*, (Amherst: University of Massachusetts Press, 2007).

[5] Charles Eliot, in Charles W. Eliot, *Charles Eliot: Landscape Architect* (Cambridge: Harvard University Press, 1924), 327.
[6] Naumkeag Management Plan, The Trustees of Reservations, 2007.

They now planned to build a large and comfortable country house. Choate named it "Naumkeag," thought to mean "haven of peace," and the original name for his birthplace of Salem, Massachusetts. According to contemporary sources Naumkeag actually meant "fishing place" to the native 17th century Algonquins, and it more broadly referred to the harbor and river now known as the Bass River, much of the coastal shore north of Massachusetts Bay—an area of abundant resources—and to the people who resided there before the arrival of the Europeans.[7] These Naumkeag, however, saw a vast depletion in their numbers to the point of near disintegration, with the first of many European invasives: the pandemic of 1616-1619, and subsequent small pox epidemics of the 1730's.

Frederick Law Olmsted was first engaged to site the house and gardens, but was fired when he insisted on siting the house where a favorite oak stood. Nathan Barrett approved of the family's choice for the house site and subsequently grounded the Stanford White-designed shingle style mansion on the hill with two formal terraced gardens. (images 1, 2)[8] Clipped arborvitae formed the formal connecting spine between these gardens and the house. Graveled paths interlaced them all, rectilinear in the more formal lower garden (later called the Evergreen Garden) and curving in the garden closest to the road. (images 3, 4) The magnificent view of the grassland below and hills beyond dominated all. (image 5). Following a family trip to Germany Caroline Choate had a straight path lined with lindens stretched out into the existing woods to the south of the house (image 6). A summer house was built between the two north gardens. Ice stored in its basement made for a cool, shady spot in the heat of summer. (image 7) A tennis court was graded below the house (plan 8) and eventually the grounds included a greenhouse to supply flowers and vegetables all year, a

[7] Morrison, Dane and Schultz, Nancy, *Salem, Place, Myth and Memory*, Lebanon, NH: University Press of New England, 2004.
[8] All numbered images can be found in Appendix 5.

barn to house livestock and hay, an orchard and a large kitchen garden. (image 9) Other structures included a Carriage House, Garage and Superintendent's House and Tennis Pavilion. From 1918-1921 Marian Cruger Coffin designed the perennial beds for Caroline Choate. (image 10). The remainder of the grounds were eventually devoted to turf and specimen trees and shrubs as shown in this image of a 1914 garden party. (image 11)

Mabel Choate met the prominent landscape architect Fletcher Steele when he gave a lecture to the Lenox Garden Club in July 1926. They were to become life-long friends and collaborators on the gardens at Naumkeag, over a span of thirty years. (image 12) Naumkeag would come to be considered one of Steele's finest designs, and under The Trustees' stewardship, one of the very few of his gardens to survive. Choate first engaged Steele to design an outdoor room along the lines of what she had recently seen in California. By 1929, the year that Mabel inherited Naumkeag, the Afternoon Garden had been completed off the library to the south of the house.[9] (image 13) A major forest pruning operation to enhance the view from the garden to Bear Mountain followed. Two years later a large terrace off the western face of the house was constructed, and a seating wall called the Great Seat (image 14) from which to view the sunset. A vista was framed to the southwest of the terrace in a manner reminiscent of the 15th century painter, and named the Perugino View. (images 15, 16) This was followed in 1932 by the pivotal Ronde Pointe, inspired by a trip to Paris, linking the lawn to the Linden Allée and clarifying this performing space. In 1934 the ambitious sweeping curve of the South Lawn was created, lined with a row of globe locusts, and punctuated four years later by the Pagoda. (image 17) The Chinese Garden, inspired by trips to Asia, occupied Steele and Choate from 1937 to 1939, although the west wall and

[9] For a complete description of the making of the gardens see Robin Karson's *Fletcher Steele, Landscape Architect: An Account of the Gardenmaker's Life* (New York: Harry Abrams), 1989.

Moon Gate were not to be completed until 1947 and 1955, respectively. (images 18, 19) Steele undertook his masterful Blue Steps in 1938. (image 20) The Rose Garden was not begun until 1952. (image 21) Over the years the Steele office developed a system of Cantons to describe the various areas of the garden. This plan depicts them as annotated in 1933. (image 22)

Beyond the Garden

The Periphery

The designed garden at Naumkeag occupies the slopes and terraces. There are natural features at the verges of the terraces and at the foot of the slope, including woodlands, banks, streams, wetlands and fields, which are less maintained. The Ravine, as Steele and Choate called it, is the most minimally managed, but by its proximity to the designed garden is very influenced by it. It consists of a stream or brook in a small gully that comes from across Prospect Hill Road to the north of the house, shaded by trees, shrubs and herbaceous plants. (image 23) On the southern side of the house is the woodland through which the Linden and Woodland Walks pass. Other than the lindens and occasional pruning and thinning in order to manage the view, the trees have been left to their own succession. Some understory species and many woodland herbaceous plants were introduced by Choate over the years. But the Woodland did not receive the same design attention as elsewhere and there are few plans.

The lower grasslands in the flood plain of the Housatonic River contain fields historically ditched, grazed, and hayed, containing patches of calcareous fen communities. (image 24) A calcareous fen is a rare wetland with upwelling calcium-rich groundwater that supports distinctive plant communities and a disproportionately large number of rare plant and animal species. This calcareous fen at Naumkeag contains a number of rare plant

species[10], but is most valuable because there are so few occurrences of this type of natural community in Massachusetts and in the country. The Naumkeag fen is a half mile from the 173 acre wetland, or lake-basin fen, called the Kampoosa Bog, which is being threatened by the salting of nearby roads and invasive species, chiefly *Phragmites australis.*[11] (images 25, 26) The Kampoosa Bog is habitat for a number of native plant and animal species, such as the bog turtle. The Naumkeag fields, which appear "natural," are essential to the broader design for the landscape to provide context and frames for the scenic view. Of particular interest for this paper is the fact that the fen continues to exist at Naumkeag because of the long-standing practice—from before the Choates owned the land—of haying and grazing these fields.[12] Without this action these grasslands would have long since reverted to forest.

The Setting

Naumkeag is situated at 900 feet above sea level on the western flank of a hill situated in the broad valley between the Berkshire hills, which continue north into the Green Mountains of Vermont, and the parallel Taconic Range which follows Massachusetts's border with New York. (image 27) Both of these ranges are part of the longer Appalachian Mountain range. Naumkeag is therefore graced with low mountains all around, in the midst of the valley formed by the southward flow of the Housatonic River, with remarkable vistas. Berkshire County has continuously served as a summer retreat for the well-to-do, since before the Choates' arrival, and the prominent industry of the region remains tourism. Much of the more prominent landscape, agricultural lands, river edges, forests and ridgelines, including the views from Naumkeag, has been preserved. Chapter Five presents this setting in more detail, including the ecological threats to its continued conservation.

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[10] *Naumkeag Management Plan,* The Trustees of Reservations, 2007.
[11] Richburg, Patterson, Lowenstein, 2001 One of the authors is the current ecologist of the western properties at the Trustees.
[12] *Naumkeag Management Plan,* TTOR, 2007

CHAPTER 2

LITERATURE REVIEW

> Mine was, as it were, the connecting link between wild and cultivated fields;
> as some states are civilized, and others half-civilized, and others savage or barbarous,
> so my field was, though not in a bad sense, a half-cultivated field.
> Thoreau[13]

Definitions and ideas about nature and culture

In my attempt to bridge the differences between nature and culture at Naumkeag, I have found it useful to explore American ideas about the relationship between the natural, unmade world and human beings, particularly among those who influenced Fletcher Steele, and as it relates to contemporary landscape management. An examination of the evolution of these ideas over the last two centuries will, I believe, further an understanding of the current ethic that guides management decisions and suggest future paths for The Trustees to consider.

These vast concepts necessitate definitions, which will at the very least provide a touchstone for the historical consideration of Steele and his predecessor's use of the terms. For the purpose of this thesis I will define nature as that which is not made by humans, but includes humans: our bodies and all their capacities.[14] Although many share this definition, I believe the major recent source is Emerson, whom I discuss in the next paragraph. It is crucial in my view to insist on the inclusion of our species in nature, lest the divide between ourselves and the rest of nature become an unbridgeable gulf. Culture consists of human actions and interactions and the effect of those actions on the world. This is a living culture

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[13] Thoreau, *Walden,* HM1964, 115

[14] Gary Snyder takes comfort from having a body that is part of nature—wild nature even: "Our bodies are wild. The involuntary quick turn of the head at a shout, the vertigo at looking off a precipice, the heart-in-the-throat in a moment of danger, the catch of the breath, the quiet moments relaxing, staring, reflecting—, all universal responses of this mammal body." The Practice of the Wild, 1990 (San Francisco: North Point Press) 16.

that is a fitting and healthy medium for humans.[15] The word "cultivation" distills that activity of human impact on nature, which has defined civilization's use of natural resources since the first agrarian age. While the farm is the site of human cultivation of nature for physical sustenance, the garden is uniquely the setting for exploring an aesthetic relationship with nature for the purposes of pleasure, restoration and contemplation.

Historical Context

American concepts of wilderness

The first European settlers in the New World held strong antipathy for wilderness, as many writers have suggested. Roderick Frazier Nash gives an accounting of the Colonists' relationship to this new wild continent.[16] The Mayflower arrivals encountered a "hideous and desolate wilderness."[17] Far from the Edenic paradise that the Old World had projected onto the New, the North American wilderness had to be conquered if the settlers were to survive at all. The goal remained always the taming of the wild, the advancement of the Christian good, and the recreation of an idealized European landscape, epitomized in the well-tended and abundant garden. Early Americans were too consumed with beating back the wilderness to appreciate its aesthetic value. It took a visiting European to first recognize this. As Alexis de Toqueville writes in 1835:

> In Europe people talk a great deal about the wilds of America, but the Americans themselves never think about them; they are insensible to the wonders of inanimate nature and they may be said to not perceive the mighty forests that surround them till they fall beneath the hatchet. Their eyes are fixed upon another sight, …the march across these wilds, draining swamps, turning

[15] Again, Snyder provides a rich metaphor, "The term culture, in its meaning of 'a deliberately maintained aesthetic and intellectual life' and in its other meaning of 'the totality of socially transmitted behavior patterns,' is never far from a biological root meaning as in 'yogurt culture'—a nourishing habitat" ibid, 15

[16] Nash, Roderick, *Wilderness and the American Mind,* (1967), (New Haven: Yale University Press, 2001), "A Wilderness Condition," 23-43. This book is one of the first to address the changing conception of Wilderness in America.

[17] Bradford, William, *Of Plymouth Plantation* 1620-1647 quoted in Nash, ibid.

the course of rivers, peopling solitudes, and subduing nature.[18] Early New Englanders encountered an inhospitable land in the New World, which seemed to them to have been untouched by man (the native "wild Indians" seemed a part of nature herself, so they didn't count).[19] As long as there were pioneers, nature still retained its raw and threatening power over man. But as the land was tamed over the next 200 years, nature came to hold less terror for Americans, and could be appreciated for the abundance of fertile land and game it provided for man's healthy sustenance, as well as for it's scenic qualities. The Old World again provided the underpinnings for this alternate perspective on nature.

European Enlightenment and Romantic Contributions

During the European Enlightenment discoveries in the sciences revealed the complex order to be found in natural phenomenon. It became increasingly possible to see divine intent in nature. The wonders of God could be appreciated, then, for their beauty. The eighteenth century concept of the sublime and the picturesque found beauty in wild nature, it's awesome, chaotic even fearful aspects. A sublime place offered an encounter with God, where one might be frightened by the power that particular landscape evoked.[20] The deists emphasized the application of reason to nature, and saw the purest evidence of the spiritual truths in the uninhabited landscape.

As a reaction against Enlightenment ideals, the Romantics turned to an observation of nature for what it could reveal about human nature.[21] Rousseau idealized man's primitive nature. The Romantic poets found the solitude that remote wilderness offered to be the

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[18] de Tocqueville, Alexis, *Democracy in America*, ed. Phillips Bradley (2 vols. New York 1945) in Nash, 23.

[19] William Denevan's 1992 essay "The Pristine Myth: The Landscape of the Americas in 1492" explores the extent to which pre-European Americans had a significant impact on their environment. *Annals of the Association of American Geographers*, 83(3) 1992, 369-385.

[20] William Cronon identifies particular settings as sublime. "God was on the mountaintop, in the chasm, in the waterfall, in the thundercloud, in the rainbow, in the sunset." He cites Immanuel Kant's Observations on the Feeling of the Beautiful and Sublime (1764) and William Gilpin's Three Essays: On Picturesque Beauty; on Picturesque Travel; and on Sketching Landscapes (London, 1803), among others, as classic works on the sublime. *Uncommon Ground, Rethinking the Human Place in Nature* (New York: W.W. Norton and Company, 1996), 73.

[21] Nash contrasts the Enlightenment appreciation for the precise order of the gardens at Versailles, with the Romantics penchant for sublime wilderness.

perfect setting for contemplating their own soul.[22] It is understandable then that the New World drew so many European Romantics, such as de Tocqueville, to experience that wildness first hand. These two divergent traditions encouraged a greater appreciation for American wild land, at least among the urban educated elite who didn't confront it as an obstacle to daily living. Enthusiasm for the wilderness in the colonies was on the whole still tempered by fear and distrust. It took the establishment of the new nation, before pride in the continent's unique attributes, such as its wilderness (and the ability to subdue it) engendered a love of wild nature.

The poetry of William Cullen Bryant epitomized early home-grown romanticism. He wrote a poem to Monument Mountain, the same mountain that still provides a focal point for one of Steele's most memorable Naumkeag views, extolling America's natural endowment, "Thou who wouldst see the lovely and the wild / Mingled in harmony on Nature's face, / Ascend our rocky mountains."[23]

The Nineteenth Century

Any examination of the relationship of man and nature in the United States, cannot ignore the profound influence of a number of historically significant thinkers, primarily Ralph Waldo Emerson and Henry David Thoreau. They were New Englanders, as were the landscape architects they came to influence: the Olmsteds, Eliot and Fletcher Steele. Emerson and Thoreau, and later Aldo Leopold and George Perkins Marsh, are seen as the forefathers of the ecology and environmental movements, and as such are also relevant to this paper.

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[22] Lord Byron, "Manfred, A Dramatic Poem:" "there is pleasure in the pathless woods, / There is rapture on the lonely shore. / There is society where none intrudes… / I love not man the less, but nature more."
[23] Bryant, William Cullen, "Monument Mountain," date unknown. Bryant was the editor in 1872 of the two volume Picturesque America, which described and displayed scenic views in North America and became extremely popular.

Emerson laid the foundation for the subsequent Transcendentalist movement with the publication of his 1836 essay, *Nature*[24] in which he formulates a definition of Nature that has come to influence much of American thought. Although the essay is highly emblematic, he does offer a practical definition:

"The Universe is composed of Nature and Soul. Strictly speaking, therefore, all that is separate from us, all which Philosophy distinguishes as the NOT ME, that is, both nature and art, all other men and my own body, must be ranked under this name, NATURE."

By art, Emerson explains, is meant all that results from man's application of his will to Nature. Nature is that which is unchanged by man, Art is the result of the operations of man on Nature. Art, in Emerson's use, is what we now call culture. From his perspective man's effect on nature was insignificant, a concept that today seems utterly reversed.[25] However, this distinction between what has been acted upon by man and what has not, persisted in American thought and comes to inform contemporary notions of wilderness and its preservation, and Fletcher Steele's ideas about nature. Emerson's essay Nature, his address the following year, *The American Scholar*, and his 1841 essay *Self-Reliance* constituted a call for men to rely on their own powers of thought, rather than look to others, or the European past, for examples. This non-conforming, self-reliant stance found its inspiration as much in Emerson's conception of Nature as embodied in the vast American landscape where all seemed possible and new, as in a spiritual belief in the supremacy of Nature and man's direct access to it. The Transcendentalists believed in the parallel realms of transcendent spiritual truths, and the material world below. The natural material world reflected, for them, the

[24] Emerson, Ralph Waldo, *Nature,*1836.

[25] "Nature, in the common sense, refers to essences unchanged by man; space, the air, the river, the leaf. Art is applied to the mixture of his will with the same things, as in a house, a canal, a statue, a picture. But his operations taken together are so insignificant, a little chipping, baking, patching, and washing, that in an impression as grand as that of the world on the human mind, they do not vary the result." *Ibid.,* 1936.

universal spirit. What was good could be found in nature and in man, so long as man was not corrupted by civilization.

In contrast with centuries of human activity on the European continent, to the 19th century American, the new continent presented Nature in all it's wild and beautiful grandeur, for his use,[26] the prior existence of native Americans notwithstanding. Emerson recognized transcendent nature in the sights and smells of familiar surroundings, even on cultivated land:

> The charming landscape which I saw this morning, is indubitably made up of some twenty or thirty farms. Miller owns this field, Locke that, and Manning the woodland beyond. But none of them owns the landscape. There is a property in the horizon which no man has but he whose eye can integrate all the parts, that is, the poet. This is the best part of these men's farms, yet to this their land-deeds give them no title.[27]

Emerson's use of the word "charming" to describe nature as cultivated by man, no doubt influences Fletcher Steele's use of the word a century later.[28] Written when an agricultural landscape was the common result of man's use of nature, this passage nonetheless foreshadows issues related to the control of landscape views in an age where agricultural uses have become seemingly obsolete.

Henry Thoreau's ideal nature also existed in the hills and ponds within a day's walk from his Concord home and inspired his earliest writings, especially his most famous book, *Walden; or, Life in the Woods.*[29] A disciple of Emerson, he may have been most comfortable in an environment that had man and nature in equal measure.[30] In Thoreau's account of

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[26] "Nature, in its ministry to man, is not only the material, but is also the process and the result. All the parts incessantly work into each other's hands for the profit of man." Emerson, *Nature,* 1836, page 16.

[27] Ibid., page 13.
[28] See Chapter 3.
[29] Thoreau, Henry David, *Walden,*1854 (Boston: Houghton Mifflin, 1964).
[30] see Roderick Nash's, *Wilderness and the American Mind:* "Henry David Thoreau: Philosopher": "Thoreau left Concord in 1846 for the first of three trips to northern Maine. His expectations were high because he hoped to

climbing Mount Katahdin in 1846, he describes the terrible Maine wilderness that shows no tenderness towards man:

> Vast Titanic, inhuman Nature has got him at a disadvantage, caught him alone, and pilfers him of his divine faculty. She does not smile on him as in the plains. She seems to say sternly, why came ye here before your time? This ground is not prepared for you."[31]

The inhospitable landscape that he encounters in Maine represents the sublime, which, although it still held fascination, has lost its allure for Thoreau. In theory at least he professed to be comfortable living anywhere—his appreciation for the out-of-doors was unending: "Wherever I sat, there I might live, and the landscape radiated from me accordingly."[32] (Walden)

Thoreau worked intermittently at his family's pencil factory, which depended on locally mined graphite and clay, and witnessed first hand a burgeoning American industry that depended on natural resources for its growth. He did not reject the world of men, but he developed a distrust of man's attempts to harness nature,[33] although he retained respect for familiar technology such as the railroads and axes that appealed to his pragmatism.

As is widely known, Thoreau advocated the preservation of wild nature and the conservation of natural resources.[34] In his essay "Walking," Thoreau describes man as a part of nature:

> I wish to speak a word for Nature, for absolute freedom and wildness, as contrasted with a freedom and culture merely civil—to regard man as an inhabitant, or a part and parcel of Nature, rather than a member of society.[35]

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find genuine, primeval America. But contact with real wilderness in Maine affected him far differently than had the idea of wilderness in Concord. Instead of coming out of the woods with a deepened appreciation of the wilds, Thoreau felt a greater respect for civilization and realized the necessity of balance."

[31] Thoreau, *The Maine Woods (*1864).

[32] Thoreau, *Walden,* 1854.

[33] Thoreau, *Paradise (to be) Regained,* 1843

[34] Thoreau, *A Week on the Concord and Merrimack Rivers,* 1849, and "Walking," 1862 (written 1851).

[35] Thoreau, "Walking."

He sees a pantheistic divine in Nature and exhorts his readers to become more sensible of her, advocating a contemplative walk or "saunter" like an informal pilgrimage to this sacred place.[36] Like Emerson, he praises American wild nature in particular:

> Where on the globe can there be found an area of equal extent with that occupied by the bulk of our States, so fertile and so rich and varied in its productions, and at the same time so habitable by the European, as this is? [37]

His famous claim, "In Wildness is the preservation of the World," (and later, "…all good things are wild and free") from this same essay, refers not only to the wild of nature, but to the wildness in our own original natures.[38] Nature is restorative, and wildness will only give us health:

> …all Nature is doing her best each moment to make us well. She exists for no other end.
> Do not resist her. …Why, "nature" is but another name for health, and the seasons are but different states of health.[39]

Thoreau repeatedly expresses a definite preference for natural settings, particularly swamps over cultivated land, such as gardens:

> Hope and the future for me are not in lawns and cultivated fields, not in towns and cities, but in the impervious and quaking swamps.[40]

> I derive more of my subsistence from the swamps which surround my native town than from the cultivated gardens in the village. There are no richer parterres to my eyes than the dense beds of dwarf andromeda… Why not put my house, my parlor, behind this [swamp], instead of behind that meager assemblage of curiosities, that poor apology for a Nature and Art, which I call my front yard?

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[36] Thoreau speaks of Nature as a God in his journal, as well. Here Nature is Bacchus or Christ, he resides in a serpentless Eden: "Wines of all kinds and qualities, of noblest vintage, are bottled up in skins of countless berries, for the taste of men and animals. To men they seem offered not so much for food as for sociality, that they may picnic with Nature, --diet drinks, cordials, wines. We pluck and eat in remembrance of Her. It is a sacrament, a communion. The not-forbidden fruits, which no serpent tempts us to taste." Journal, July 24, 1853.
[37] Thoreau, "Walking"
[38] "Our ancestors were savages. The story of Romulus and Remus being suckled by a wolf is not a meaningless fable. The founders of every state which has risen to eminence have drawn their nourishment and vigor from a similar wild source," "Walking."
[39] Thoreau, *Journal,* August 23, 1853
[40] "Walking"

But he remained ambivalent. He feels quite at home in the garden he created at Walden Pond, precisely because it occupies that middle ground between domesticated and wild land. Thoreau felt it essential for man to maintain contact with both civilized and wilderness realms, "a sort of border life."[41] Here he speaks of his field:

> Mine was, as it were, the connecting link between wild and cultivated fields; as some states are civilized, and others half-civilized, and others savage or barbarous, so my field was, though not in a bad sense, a half-cultivated field.[42]

Many of our concepts have been inherited from the Transcendentalists. Emerson's and Thoreau's belief in the divinity of nature has been shown above. They were convinced of the salutary effect that nature, especially "wild" nature had on humans. Thoreau, in particular advocated experiencing the natural world first-hand, immersing oneself in it even, in order to tap into one's own "wild" nature. We may have inherited the idea of nature as moral imperative primarily from the European Enlightenment, but Protestant New England seems to have provided ripe ground for the seed of this idea to flourish in. The Puritans believed in the authority of God's word in the Bible and the innate ability of every man to interpret it for himself, without the intermediary of a priest or ritual. The Transcendentalists combined the belief in man's self-reliance, and a distrust in authority, with the Enlightenment belief in the immutability of nature's laws. The authority of the Church slowly gives way in American thought to the authority of a divine nature governed by observable, scientific laws, and the right of man to interpret the nature found outside of him and within him[43].

With the industrial revolution, the vast natural resources that the continent offered to man assumed even more importance. Yet the ideal of a pristine wilderness persisted, and

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[41] *Ibid.*
[42] Thoreau, *Walden,* HM1964, 115
[43] William Cronon sees this as a precursor of contemporary environmentalists' reliance on Nature as "a secular deity in this post-romantic age." Intro, p.36, *Uncommon Ground,*1996

gained importance as the railroads' reach to the west made the full exploitation of the continents' resources possible. William Cronon investigates origins of the wilderness myth in his controversial chapter "The Trouble with Wilderness; or, Getting back to the Wrong Nature,"[44] which I will discuss more fully later in this chapter, Cronon identifies the new nation's formation of a cultural identity based on a vigorous and independent frontier spirit, tested and proved in wilderness. There was a growing nostalgia for the seemingly vast untouched natural resources, which nonetheless were rapidly diminishing. Celebrating wilderness became a bourgeois activity, according to Cronon, a fantasy not shared by those who worked the land for a living. He considers American's illusion of wilderness to be an attempt to escape the history of our past relationship with the land.

Charles Eliot

In a letter to his mother at the very start of his career, Fletcher Steele wrote admiringly of Charles Eliot, comparing him favorably with Olmsted. One can detect his regret at having never met him:

> Mr. Charles Eliot who entered [Olmsted's] firm, & died a young man when I was eleven years old, did still more to crystallize the idea of the functions of the profession. From his has come the modern accepted standard of our duties – the designing of the landscape, including cities, parks, institutions & private grounds etc, but to fulfill the requirements of convenience, economy & beauty. My whole interest, heart and soul is in such general conceptions and their refinements.[45]

Steele was to adopt and expand on the precedent of "convenience, economy and beauty" throughout his career. [46] Given Eliot's double legacy at Naumkeag, through Steele and

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[44] *Ibid.,* 1996.

[45] Steele, Letter to his mother, January 27, 1912. LC. According to Robin Karson, Eliot was much revered at Harvard when Steele was there. Conversation, June 28, 2012.

[46] Eliot's father wrote, "Charles defines landscape architecture to be the art of arranging land and landscape for human use, convenience and enjoyment," 274. This passage was highlighted in Steele's copy of Eliot's father's book.

through The Trustees, which he helped to found, a consideration of his philosophy and design principles will be useful.

Charles' father compiled and wrote an annotated collection of his son's writings, entitled Charles Eliot, Landscape Architect, A Lover of Nature and of his Kind, Who Trained Himself for a New Profession, Practised it Happily, and Through it Wrought Much Good.[47] The book, although somewhat hagiographic, is nonetheless a valuable resource for an understanding of the younger man's ideas, as well as of the early years of the profession. Fletcher Steele inscribed his two volume copy of the first 1902 edition with his name and the date, November 8, 1906, the year before he entered Harvard. This copy is held at the Fletcher Steele Collection at the F. Franklin Moon Library, SUNY, Syracuse. The first volume contains numerous annotations, vertical pencil lines in the margin, highlighting text that the inscriber chose to single out. This volume provides some interesting, although speculative, insight into what Steele may have been drawn to at the age of twenty-one. It is likely that this book influenced him to enter the profession. Highlighted portions in the early sections of the volume concern Eliot's temperament, suitability for the profession, career advice from his father, Olmsted's and Eliot's design principles, and Eliot's observations about planting. This adds an additional dimension to my consideration of how Eliot's ideas affected Steele's thought.

Charles W. Eliot describes his son's love for indigenous scenery and native plants throughout his book. This affection was nurtured by European travel and many nature outings as a child and young man, often promoted as a means of counteracting what his father considered his innate melancholy. He delighted in contemplating views of nature, and organized and conducted scientific investigations in Mount Desert Isle during his Harvard

[47] Eliot, Charles W., *Charles Eliot, Landscape Architect,* (Cambridge: Harvard University Press, 1924).

summers.[48] Eliot was sympathetic to the Transcendentalists' conflation of Nature and the divine, and many Emerson quotations were chosen by his father from his son's papers to introduce biography chapters.

After study at Harvard's Bussey Institute, Eliot became an apprentice to Frederick Law Olmsted, from whom he imbibed both theory and practice.[49] In the Olmsted office Eliot learned

> the kind of plants which could be advantageously used on the different soils and in the different climates of the United States, and to the best mode of dispensing plants in groups. He was taught to distrust specimen planting…. preference should always be given to such trees and shrubs as will certainly thrive and come to perfection under the climactic and soil conditions of the places where they are to be put, and the planting should be in masses.[50]

One of Eliot's first independent projects was to design a new drive with plantings for his father's house at Mt. Desert, "using only plants native to the place, such as Birches, Spruces, Ashes, Oaks, Pines, Golden-rod, Blueberry, Huckleberry, wild Roses, wild Asters, Brakes, and Ferns, and carefully avoiding the introduction of grass."[51] The father describes Eliot's sensitivity to natural landscapes on his European trip at age twenty-five, "Any unnatural treatment of the banks of a brook, or of the shores of a pond or lake, always distressed him."[52] Yet even then he appreciated the beauty that could be achieved by improving on nature. Passing by an ancient manor house and grounds in the English countryside he exclaims,

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[48] Richard Brewer considers this to be the first ecological study ever undertaken, *Conservancy: The Land Trust Movement in America* (Lebanon, NH: University Press of New England, 2003) 17,18.
[49] Eliot was later to join the firm, renamed Olmsted, Olmsted and Eliot, as a partner, where he worked alongside Warren Manning.
[50] Eliot, Charles W., *Charles Eliot,* 37. A portion of this passage was highlighted in Steele's copy.
[51] *Ibid.,* 44.
[52] *Ibid.,* 54.

> "All in all, this is a spot which art of man has made more beautiful, and much more characteristically expressive, then ever it could have been in its natural condition. Is not this the true object of real landscape gardening?"[53]

A theme he would return to again and again in his writings was the beauty that resulted from bending nature to the service of men.

> Likeness or unlikeness to wild nature is no criterion of merit. Farmsteads, country roads, villages, city streets, and the world's fairs are all more or less removed from nature and naturalness, yet even the last-named may be beautiful, as we have lately seen.[54]

Eliot well knew that "wild nature" no longer existed in Massachusetts at the end of the nineteenth century. In his 1896 report to the Metropolitan Park Commission, published posthumously in 1898 and the last report of his brief life, Eliot wrote:

> Perhaps the most interesting fact established by the inquiry is just this – that the woods of these reservations, which are commonly thought of and spoken of as "wild," are really artificial in a high degree.… all the intervening slopes and plains of the reservations have been chopped over, or completely cleared, or pastured, or burnt over, time and time again since the settlement of Massachusetts. Much of the resulting vegetation and, consequently, much of the scenery of the reservations is monotonous, insipid, and unlovely; but it must be added that those parts in which men have lived the longest, or worked hardest, are often beautiful in a high degree.[55]

Despite the damage that humans can wreak on the natural world, Eliot saw beauty in the way man shaped nature to his own ends and made it useful to him, a recurrent theme for Eliot, and later, for Steele. "Fitness for purpose is the safe foundation of the art of arranging

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[53] *Ibid,* 65. Steele's copy has a similar passage highlighted. It praises the landscape at Hyde Park: "[The] scenery is artificial in the sense that Nature, working alone, would never have produced it; but the art which has here 'mended nature,' to use Shakespeare's phrase, has worked with Nature and not against her. …and so, while it has adapted Nature's landscape to human use, it has also, as it were, concentrated and intensified the expression of each scene." 259.

[54] Eliot, Charles, "Italian Gardens," review of book by Charles Platt, Nation, 1893, reprinted in Charles Eliot, 548.

[55] Eliot, Charles, V*egetation and Scenery in the Metropolitan Reservations of Boston* (Boston: Lamson, Wolffe and Company), p.9-10. In an undated Letter to the Editor of the Transcript regarding the Park Commission's work at Franklin Park, Eliot insists that the natural areas of his study, previously altered by the Indians, welcome mastery, "Nature long since and gladly surrendered to man the spaces now known as Jamaica and Franklin parks." He discusses the absurdity of suggestions that the Commission "ought to have restored primitive forests (which was Nature in these parts)….To suggest that the Commissioners should have preserved the man-made groves, fields, gardens, and pond shores precisely as they found them would be equally, though perhaps not so obviously, irrational. The areas in question had been laboriously worked over in times past by numerous owners guided solely by regard for their individual profit and pleasure; and let it be noted that much beauty resulted." Eliot, Charles W., *Charles Eliot*, 554.

land and landscape for the use and enjoyment of men,"[56] Eliot explores this theme in his article for *Garden and Forest*, "What Would be Fair must First be Fit" of April 1, 1896:

> The scenery of the earth was made for man, not man for scenery. …The landscape of civilization is an artificial landscape, and as such it may be either beautiful or ugly—beautiful when it is the blossom of use, convenience or necessity; ugly when it is the fruit of pompous pride or common carelessness.[57]

Beauty comes from necessity, in nature, as a result of the laws that Darwin had revealed less than 40 years prior,

> the form which every vital product takes has been shaped for it by natural selection through a million ages, with a view to its use, advantage, or convenience, and that beauty has resulted from that evolution.[58]

This idea is remarkably aligned with Louis Sullivan's tenet "form ever follows function," which the architect articulated at nearly the same time.[59] In this essay Eliot guides the hapless American who wants to improve his surroundings but is bewildered by conflicting messages. The nurserymen promote rare plants, the "pretentious landscape gardeners" preach naturalism, some insisting on exotic, others native plants.[60] Lastly there are the Beaux Arts-trained architects who recommend straight axis and garden accoutrements. Eliot's rational solution is to look to the necessities of use, following the laws of nature. He admits, "beauty does not consist in fitness, nevertheless all that would be fair must first be fit."[61] He would resolve all differences and look to Humphry Repton as the final arbiter of "good sense."

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[56] Eliot, Charles W., *Charles Eliot*, 548.
[57] *Ibid.,* 547-548.
[58] *Ibid.,* 1896, 551.
[59] Louis Sullivan's article, "The Tall Office Building Artistically Considered," in which he coined this phrase, was published a month after Eliot's article. "Form follows Function" would eventually become the motto of modernist architecture. I am indebted to Keith Morgan who makes this connection in his introduction to the 1999 reprint of *Charles Eliot, Landscape Architect.*
[60] "They are of many schools, for some will urge the planting of purple Beeches, blue Spruces, and all manner of exotics, while others say, "You will do well to use few but wild native shrubs." Ibid., 550.
[61] *Ibid.,* 553.

> Success in achieving the beautiful is to be hoped for only when we bow to the law of nature, and follow in the appointed way. Special purpose is the root, and fitness for purpose the main stem, of the plant of which beauty is the flower.[62]

For all his love of "natural scenery," Eliot feels compelled in the report for the Metropolitan Reservations to insist on extensive cultivation and restoration of "natural" areas, as well as those areas destroyed by man's use and subsequent neglect. The only areas that don't require attention, according to him, are the woodland swamps: "It is evident that these places ought not to be meddled with, save for good reasons." That being said, he can at once find a good reason, "Their peculiar beauty can be long preserved if the natural drainage is not altered, and if such incongruous species as may from time to time appear are promptly removed."[63] Elsewhere Eliot recommends removing trees such as maples "intruding" on preferred shrub species such as high-bush blueberry and *Clethra*.

> On this account trees ought eventually to be kept out of many of these places for the encouragement of the bushy groundcover; and particularly is this the case where the removal or suppression of maples will disclose above the bushes and between the framing woods glimpses or vistas of far blue distances."

The preservation of scenic views and the enhancement of existing vistas is a major goal of this report and for Eliot's preservation work in general. The preference for and selection and maintenance of particular vegetation serve primarily to achieve this goal. The report as published after his death is illustrated quite convincingly, in true Reptonian fashion, with overlaid "diagrammatical sketches" showing scenes before and after interventions, drawn by Arthur Shurcliff. The pre-existing densely wooded scenes, monotonous in form and texture, are relieved when selective cutting and thinning reveal distant sunlit vistas, topographic and textural variety, and linear and planar elements such as rivers and large

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[62] *Ibid.,* 553.
[63] Eliot, Charles, *Vegetation and Scenery in the Metropolitan Reservations of Boston*, 12.

water bodies.[64] (images 28) This book is most remarkable, however, for it's attention to techniques of maintaining such vistas over time, with the least labor possible. In addition to thinning and cutting, techniques include controlled fires, killing of stumps, encouraging selective succession, transplanting choice groundcovers and shrubs, and systematic mowing and pasturing.

Finally, this last report reiterates Eliot's position that man must seize the mandate to restore and enhance nature's beauty, and not succumb to the erroneous view that the land is better left to natural processes. In fact, the then deplorable state of the land surveyed was a result of past interventions.

> It follows that the notion that it would be wrong and even sacrilegious to suggest that this vegetation ought to be controlled and modified must be mistaken. The very opposite is found to be the truth; namely, that as the beauty and ugliness, and scenic appropriateness or inappropriateness of the present vegetation is due to the work of men, so also will the vegetation of the future be beautiful in itself, and helpful or hurtful to the general scenery, according as it may or may not be skillfully restrained, encouraged, or modified during the next few years.[65]

On February 22nd 1890, Eliot wrote a letter to the Editor of "Garden and Forest" outlining his idea for preserving "the finest bits of natural scenery near Boston…to delight many future generations,"[66] which led to the founding of The Trustees of Reservations. His proposal was intended to supply the growing populace with the "refreshing power" of beautiful natural scenery. Such scenery must be "something very different from the public garden," and must be protected from encroaching development. He conceived of small parcels, distributed around the city and representative of native land: "characteristic of the

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[64] Steele did not share Eliot's seeming fondness for this technique. When his editor suggested that Steele use such illustrations for his upcoming Gardens and People, he responded, somewhat fascetiously, "I dug out my own copy of Nolen's Repton, in which there are the "before" and "after" tricks that you spoke of…Sadly enough I have always had the impression that the 'before' effect was in almost every case better than the 'after.'" FS to Mrs. S.D. Santillana, April 10, 1962, LC.

[65] *Ibid.,* 22.

[66] Eliot, Charles W., *Charles Eliot,* 316.

primitive wilderness of New England, of which, indeed, they are surviving fragments."[67] It is unclear what Eliot means by "primitive" here, but judging from his understanding of the considerable effects of native Americans on the land, I believe he refers to the land's pre-*Homo sapiens* condition. Yet his use of "primitive wilderness" could also be calculated to appeal to his fellow Bostonians who were susceptible to this myth (as Cronon has suggested we still are today) and would be inclined to preserve it at all cost. They would be sympathetic to the Transcendentalist view of a restorative nature.[68] At this incipient stage, Eliot has already formulated the means: "an incorporated association, composed of citizens of all the Boston towns, and empowered by the State to hold small and well-distributed parcels of land free of taxes." By the following week he had articulated more details: a Board of Trustees who would have the power to accept or to refuse land, which would by necessity have a small endowment attached to it for maintenance. He refers his readers to the precedents of the Public Library or Boston's art museum (the Museum of Fine Arts had been founded twenty years prior):

> As Boston's lovers of art united to found the Art Museum, so her lovers of Nature should now rally to preserve for themselves and all the people as many as possible of these scenes of natural beauty which, by great good fortune, still exist near their doors.[69]

Eliot's considerable critical and persuasive powers,[70] in print and through lectures, successfully attracted like-minded men with whom he eventually achieved the goal of the first state preservation organization in the United States. I will return to a discussion of The Trustees in chapter four.

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[67] *Ibid.,* 317

[68] Thoreau had advocated early for wilderness preservation in a 1858 Atlantic Monthly article, "Chesuncook," the second chapter of *The Maine Woods* , published in 1864.

[69] *Ibid.,* 318

[70] These were first identified by F.L.Olmsted, in a letter to Eliot while he was abroad, "I have seen no such justly critical notes as yours on landscape architecture matters from any traveler for a generation past. You ought to make it a part of your scheme to write for the public….It is part of your professional duty to do so." Eliot, Charles W., *Charles Eliot.*

Contemporary Views and Uses of Nature

Contemporary approaches to the nature/culture question tend to center on the effect of man's actions on nature, the ideal of a pristine wilderness, and the potential for living sustainably with the environment. The urgency of correcting what is seen as man's errant abuse of nature, given the portent of global climate change, has focused many 20th and 21st century writers and thinkers, from Aldo Leopold to Bill McKibben, producing some agreement and much controversy.

Many authors have addressed the wilderness myth, but Cronon's essay "The Trouble with Wilderness" is a thorough treatment of the subject. The book is the product of a multidisciplinary seminar convened in 1994 at the University of California at Irvine, by environmental historian William Cronon, to "rethink the meaning of nature in the modern world." This volume addresses a number of contemporary issues relating to nature, and is valuable for it's multiplicity of perspectives on the subject. The common ground between these scholars, which the title refers to, is the shared position that there is a lot of nature in humans, and humans in nature, and this points to an ethic. As Cronon states in the concluding chapter:

> If there is a moral to this book, it is that we need to think much harder than we usually do about what we mean when we use the word, "nature," and about how we should and should not draw boundaries between the things we call "human" and the things we call "natural."

Cronon's contribution to the dialog, the first chapter mentioned above, considers wilderness to be a human construct. He looks at wilderness from a historical perspective, contrasting the terrible wilderness of Milton's *Paradise Lost*, a barren and desolate waste, with the wilderness of the 19th century, a sublime frontier. He identifies the particular myth of the vanishing frontier that the American landscape inspired, which, combined with the rugged

masculine individualism that was so appealing to Americans, formed a potent incentive for an idealization of American wilderness. The wilderness ideal provided an antidote for the contamination of urban industrial civilization. As many writers have suggested, this myth of the vanishing frontier inspired the formation of our first national parks and wilderness areas, once the Indians were removed to make it a truly "uninhabited," pristine landscape.

A fundamental thesis of Cronon's chapter, alluded to earlier in this chapter, is that the concept of wilderness is an erasure of history, into which we can escape, with the illusion that we are escaping responsibility. He sees a profound paradox in a belief that nature can only exist wild, beyond our human presence:

> The place where we are is the place where nature is not. If this is so…then also by definition it can offer no solution to the environmental and other problems that confront us. To the extent that we celebrate wilderness as the measure with which we judge civilization, we reproduce the dualism that sets humanity and nature at opposite poles.

Bill McKibben's 1989 book, *The End of Nature* comes under heavy criticism from Cronon for perpetuating the wilderness myth in his declaration that we have killed nature. In Cronon's opinion:

> To think ourselves capable of causing "the end of nature" is an act of great hubris, for it means forgetting *the wildness* that dwells everywhere within and around us.[71]

As an alternative to the dualism of the wilderness myth, he proposes that we see the continuum of life from the city to wilder nature. He dismisses what he sees as a contemptuous view of cultivated nature. His alternative entails an acceptance of the fact that humans have a very long history of manipulating nature. He advocates an acceptance of the "wild" nature that exists in our own backyards. We are responsible for both the tree that is in

[71] Cronon, *Uncommon Ground,* p. 89

our garden and the tree in the middle of the forest. "Both trees in some ultimate sense are wild; both in a practical sense now depend on our management and care."[72] Certainly the idea of wilderness is a human construct. There has been no wilderness without humans for over 200,000 years, and it is unlikely that there exists a square foot of earth below 10,000 feet that man has not trod upon. Especially in New England, we can rest assured that we are not the first to be there.73 Even in those remote high places we do not reach, or reach only rarely, our earthly presence touches every biotic or abiotic thing, since we have altered the very atmosphere and it's insulating and filtering properties.

Yet I believe the concept of wilderness is essential to us, perhaps now more than ever, as a way to describe, consider, and make crucial decisions about how we humans will continue to exist with the planet's remaining biotic community, and the habitats that still manage to support them. In the 2001 edition to *Wilderness and the American Mind*, Nash counters Cronon's assertions: "The rejoinder should begin with the thought that it is technological power and human greed, and not the idea of wilderness and wilderness preservation, that separate people and nature."[74] With the reality of global climate change and massive, unprecedented species extinction, both of which have been shown to be caused by humans, there is no denying that we have not tended nature well. Nash calls for an ecocentric approach, "in light of our present capacity for modifying nature, we must understand that the existence of wild country reflects self-imposed ethical restrictions on our capacity to control, exploit, destroy, and grow."[75] However, Nash's advocacy for human

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[72] *Ibid.,* p. 89

[73] Even Thoreau was well aware of his late arrival, as he cultivated his bean field, "…in the course of the summer it appeared by the arrowheads which I turned up in hoeing that an extinct nation had anciently dwelt here and planted corn and beans ere white men came to clear the land, and so, to some extent, had exhausted the soil for this very crop." *Walden,* "The Bean-Field," HM,1964, 114.

[74] Nash, 386

[75] *Ibid.* 388.

restraint, confinining human living area to clusters of "Island Civilizations" and leaving the rest to reassume it's natural state,[76] seems naïve at best, and at worst, unachievable.

When we separate wildness from wilderness, things get more hopeful, and it this distinction that I believe is useful in making management decisions. Snyder insists, "Wilderness may temporarily dwindle, but wildness won't go away. …Where do we start to resolve the dichotomy of the civilized and the wild?"[77] I believe the best place to start is right at that place between the civilized and the wild, where humans cultivate land and tend gardens. The decisions that we make for managing these places are crucial ones. What does this have to do with Naumkeag, Fletcher Steele or The Trustees? This literature review moves from this point onto somewhat more practical ground, with a look at exactly how humans can or should effect their natural environment in order to insure the best present and future for our species, as well as for others.

The Preservation, Restoration and Management of Cultural Landscapes

In contrast to the idea that we adopt a hands-off attitude towards nature,[78] Fred Turner, in a 1985 article titled "Cultivating the American Garden," proposed that gardening provides a valid model for a mutually beneficial interaction between humans and nature. [79] In his essay "Sunflower Forest" William Jordan expands this idea to encompass ecosystem reconstruction, " that form of gardening concerned specifically with the gardening, maintenance, and reconstitution of wild nature, and is the key to a healthy relationship with

[76] This is Nash's solution for a sustainable future: "The beauty of Island Civilisation is that it permits humans to fulfill their evolutionary potential while not compromising or eliminating the chances of other species fulfilling theirs." Nash 382.
[77] Gary Snyder, *The Practice of the Wild*, 1990 (San Francisco: North Point Press) 16. When considered in the light of the aggressive invasive seed this passage's meaning is amplified. Invasive species have shown themselves to be well suited to survival in tough urban places as the first pioneer species.
[78] What the 1964 Wilderness Act defines as "untrammeled by man."
[79] Turner, Fred, "Cultivating the American Garden," Harper's Magazine, 1985. Michael Pollan's book Second Nature also explores similar terrain, "…the idea of a garden—as a place, both real and metaphorical, where nature and culture can be wedded in a way that can benefit both—may be as useful today as the idea of wilderness has been in the past." (New York: Atlantic Monthly Press, 1991) 5.

it."[80] He insists that in restoring nature, we develop a better understanding of its intricate systems and have an opportunity to question and test out ideas. Imitating nature, it seems, brings us closer to understanding it. Restoration makes it possible to conserve a natural system, unlike preservation, which would attempt to stop natural processes from their inevitable change. Jordan claims that since complete protection from human influence is impossible, restoration acknowledges the influence of humans and tries to compensate for it. In this way we can approach natural systems that most closely resemble their historical counterparts. In contrast to Nash's "Island Civilizations" Jordan insists that we not restrict human participation, but channel it constructively. He even suggests that ecosystem restoration offers the potential of "a new ritual tradition for mediating the relationship between nature and culture."[81] Jordan sees only a false distinction between restoration and management, activities which he believes range across a broad continuum. He prefers the term restoration because it "explicitly acknowledges the role of the human in the process."[82] There are growing numbers of ecosystem restorations that prove his point that humans are becoming capable of recreating natural systems, and managing them for outcomes that approach their historical precedents.

Ecosystem restoration has its origin in Aldo Leopold's recreation of a tall-grass prairie in the 1930's at the University of Wisconsin Arboretum.[83] His pioneering work underscored his belief that it is possible and desirable for man to establish a mutually beneficial relationship with nature. Conservation is essential, but sometimes we have to work to

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[80] Jordan, William, "The Sunflower Forest," in *Beyond Preservation: Restoring and Inventing Landscapes*, Baldwin, de Luce, Pletsch, eds., (Minneapolis: University of Minnesota Press, 1994) 18
[81] Jordan, "The Sunflower Forest," 29
[82] *Ibid.,* 33
[83] Jordan is the current Director of the Arboretum.

improve the natural system—it is our responsibility even.[84] Restoration raises a bevy of questions. If restoration is desired, the question becomes to what point in time does one restore a particular place? Many would have us seek a point in time before humans began to alter the scene. Charles Roe discusses this question in his essay "The Natural Environment":

> Even if the often ubiquitous invasion of exotic species of plants and animals that were imported by humans could somehow be contained, how can dynamic natural ecosystems be "managed" back to some prehuman natural condition? What would be the "proper" vegetative composition? What would be the appropriate "natural" community type? What would be the truly "natural" condition and appearance if unaffected by human use and climate changes?[85]

Once one makes the decision as to what ideal condition one wishes to restore to, one has the additional question of how to treat the dynamism that exists in any natural system.

Michael Pollan's book *Second Nature* presents an interesting case related to this question. Pollan advocates a middle ground "between lawn and forest," between those, like Nash, who would have us withdraw from natural areas, and the total alteration of natural systems that we are heading towards. Pollan cultivates his garden with the end product in mind—food for humans--moving beyond Thoreau's bean field, which offered produce to the entire biotic community. But it is his chapter "The Idea of a Garden" which is of interest here for its exploration of how we might best manage so-called natural systems for the benefit of all. The chapter concerns his rural Connecticut town's 42-acre forest of old-growth white pines, called fittingly Cathedral Pines, that had been designated a "national natural landmark" in 1985, only to be toppled by a tornado four years later. Pollan takes issue with subsequent management decisions by the Nature Conservancy who owns the forest. A controversy ensued after the destruction, over what to do with what both sides

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[84] Leopold*, A Sand County Almanac*, 1949.
[85] Roe, Charles "The Natural Environment" in *A Richer Heritage,* Robert Stipe, ed. (Chapel Hill: The University of North Carolina Press, 2003) 236.

considered a "wilderness forest." As Pollan points out, this was hardly a wilderness, but a remnant site containing trees planted after 1780 and holding much local history and lore. In this respect it is similar to the forests, including old-growth stands, in the Berkshire hills surrounding Naumkeag. The townspeople wanted to restore (clear and replant) the pines so it could one day attain a form similar to their fond memories of what many considered a sacred place. The Nature Conservancy viewed the tornado as a natural event in a long history of natural occurrences, and wanted to leave the trunks strewn about where they lay, with no human intervention whatsoever. The ecocentric view held the day and Pollan expresses his dismay with the decision. He finds the "wilderness ethic," the view that the natural course is the best course, to be mythical, but useful nonetheless: "The test of the wilderness ethic is not how truthful it is, but how useful it is in doing what we want to do—in protecting and improving the environment."[86] The decision to leave the pines in a tangled pile and to let the natural forest succession take over did not sit well with many residents, for both aesthetic and historic reasons.

Ecologists now know that natural succession does not lead predictably to a mature and climactic state. All we can be certain of is dynamic change and chance events. If we want to have a natural environment that represents a particular idea to us, such as old growth forest, we will need to do a fair amount of "gardening" to keep it that way: "creating a landscape that bears no marks of human intervention will require a certain amount of human intervention."[87] The issue of Cathedral Pines preceded from an "act of nature"—the tornado. What if the issue relates directly to human involvement in the first place? If a natural environment with only native species is altered by humans and aggressive non-native

[86] Pollan, 185
[87] *Ibid,* 186

species enter the system (as a result of that alteration) and start to out-compete indigenous species, we need to decide how and whether to intervene to re-establish the original ecosystem.

How are management decisions affected by the existence of both cultural and natural resources, as at Naumkeag? When the National Park Service began developing a list of characteristics and a working vocabulary for the preservation of cultural landscapes in the early 1980's, according to architectural historian and landscape architect Genevieve and Timothy Keller, they recognized "a fundamental interrelationship between the natural environment and cultural resources… ."[88] The groundwork was thus laid early, but preservation institutions continue to encounter challenges related to this paradox. There can be conflicting interests even within the same organization due to unyielding value differences between those seeking to preserve the natural environment and those concerned with the built environment.[89] In terms of natural resources, Charles Roe identifies a major difference between the nature of these resources as related to management: "The methods and purposes of natural resource conservation organizations are based on science rather than culture."[90] On the other hand, in the management of an historic property, the emphasis will be on integrity based on decisions made in a static past.

The definition of cultural landscapes, which UNESCO designates as "combined works of nature and man" throws the nature/culture dichotomy into sharp relief.[91] The Trustees have a long and continuous history as stewards of cultural landscapes integrating culture and nature, as "through their cultural and natural history, these landscapes tell the

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[88] Keller and Keller, "Preserving Important Landscapes" in *A Richer Heritage,* Stipe, ed. (Chapel Hill: The University of North Carolina Press, 2003) 196 and footnote 11.
[89] *Ibid.,* Stipe, Robert E., "Where do we go from here?" 489
[90] *Ibid.,* Roe, "The Natural Environment," 225.
[91] UNESCO. *World Heritage Convention. Operational Guidelines for the Implementation of the World Heritage Convention.* Paris: UNESCO, 2012. See http://whc.unesco.org/en/guidelines/ (Last visited March 3, 2013)

story of the interaction of people and landscape in what we today call Massachusetts."[92] As will be discussed in the fourth chapter, the multidisciplinary nature of cultural landscapes management can be an impediment to addressing natural and cultural resources equally. The nature/culture discipline divide may well account for the broad range of perspectives of management staff at such institutions as The Trustees. Yet The Trustees provide a valuable example of cross-disciplinary dialogue because staff includes both cultural resource specialists and ecologists who routinely talk to each other. Roe identifies the problem and the opportunity presented by landscapes with both historical and environmental value:

> With increasing frequency, land trusts arrange and accept conservation easements on environmentally important properties that also possess, by the accepted norms, "historical" significance. By the same token, nonprofit or government historic preservation organizations often accept preservation easements on historic properties that also contain important natural resources and open space or scenic landscapes. Typically these are highly valued by the local community as a whole, but by separate constituencies within it. To the extent that a kind of separatist approach still exists—and it is improving here and there—the problem is a critical one, especially in rural areas where both important historical and environmental attributes overlap on the same tract of land.[93]

It is important to strike a balance. Yet Robert Stipe emphasizes that while preservation will no doubt benefit from the promotion of environmental sustainability, the preservation field risks "losing our identity as the keepers of cultural tradition."[94]

In the Kellers' essay, "Preserving Important Landscapes," they discuss the lack of consensus within the preservation community as to the difference between a cultural landscape and a scenic landscape. At Naumkeag, as at all designed gardens that utilize a borrowed view, the scenic landscape becomes an extension of the designed landscape. Preserving the viewshed becomes important in such a situation, and can lead to mutual goals

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[92] TTOR, 1999 Annual Report.
[93] *Ibid.,* 240. Interviews with Trustees staff expand on this issue later in this paper.
[94] *Ibid.,* Stipe, "Where do we go from Here," 493

for cultural and environmental institutions. The Kellers point out that in landscapes that are prized for their natural features, such as national or state parks, there can often be a disregard for designed elements. On the other hand, they identify the potential for conflicts between natural and cultural resource preservation where the original intent was to preserve natural, or even "wilderness values."[95] They see a danger in placing too much emphasis on aesthetic quality when evaluating integrity in areas adjacent to cultural landscapes, particularly working landscapes. The greatest danger to integrity may lie in altering an historic landscape to make it more attractive than it originally was. Finally, the Kellers advocate substitutions for original vegetation at some historic sites, when appropriate, such as when the health or safety of landscape users are at risk. They also recognize the difficulty for landscape managers who must balance authenticity and integrity in deciding what to do about invasive exotics with historic precedence, exactly the situation confronting managers of Naumkeag today.[96]

Fletcher Steele

Robin Karson has written the definitive work on Fletcher Steele. Her 1989 *Fletcher Steele, Landscape Architect: An Account of the Gardenmaker's Life, 1885-1971*[97], is an authoritative biography, the first and to this day the only one. In it she supports her belief that Steele created "great works of art"[98] in his gardens, elevating landscape architecture to "a fine art."[99] Her book describes Steele's creation of distinctive gardens for his clients using often bold experimentation to express their dreams, with their pleasure and preferences in mind. Karson also identifies Steele's pioneering use of bulldozers at Naumkeag to sculpt

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[95] *Ibid.,* Kellers, "Preserving Important Landscapes," 210
[96] *Ibid.,* 218-219
[97] Robin Karson, *Fletcher Steele, Landscape Architect: An Account of the Gardenmaker's Life,* 1885-1971 (Amherst, Library of American Landscape History, 1989).
[98] *Ibid., xx*
[99] *Ibid., xix*

the South Lawn as the first earthwork to truly anticipate the art movement of the 1960's and 70's.

Karson's more recent *A Genius for Place: American Landscapes of the Country Place Era*[100] places Steele in the context of other designers and country designs of his era. The author considers Naumkeag to be Steele's finest garden, and culminates this comprehensive history with a chapter devoted to him, followed by a final chapter about Naumkeag. Steele occupied a pivotal position in the transition from design dictated by the traditional canon, to a more experimental approach that relied on personal artistic judgment for creative inspiration. This change is particularly in evidence in comparing the work and methods of Steele with his mentor Walter Manning. Steele's career also marked a transition in the scope of projects undertaken. The large estates of Manning's day slowly gave way to projects of a more modest scale, such as Naumkeag, and the clients were professionals such as Joseph Choate, who's wealth grew in service to the new industrial aristocracy. With the diminishing size of estates, the scenery and views afforded from these gardens were increasingly of the surrounding countryside beyond the estate, and required deft handling by the designer. In order to understand Steele's ideas, I have relied on Robin Karson's books, on Steele's voluminous writings and correspondence, and on the writings of Mabel Choate that exist in various collections.[101]

Scientific Studies

Calcareous Fen

The complex natural systems represented in the calcareous fens of the grasslands of Naumkeag require effective management. These ecosystems are not widely studied, due to

[100] Karson, *A Genius for Place: American Landscapes of the Country Place Era* (Amherst: University of Massachusetts Press, 2007).
[101] The Archives and Resource Center (ARC) of the Trustees in Sharon Massachusetts, and the Moon Library at the State University of New York at Syracuse (ML).

their rarity, but there are a number of ecological studies by soil scientists, ecologists and conservation associations that will help to clarify the direction that The Trustees might take if they are interested in enhancing the fens to encourage the establishment and preservation of rare species.

Calcareous fen communities depend on limestone-rich bedrock and unique hydrologic conditions. In 2005 The Trustees surveyed the Naumkeag grasslands for key fens species distribution and delineated the calcareous fen community areas.[102] (**Appendix 1**) This will be useful for determining future management regimes. A 2002 dissertation by my advisor Deborah Pickings examined the relationship between hydrology, soils, geochemistry and vegetation in a calcareous sloping fen in Berkshire County across three growing seasons.[103] This research identified requirements for particular species and communities, and elucidated the complex hydrological conditions and seasonal variability so critical to such ecosystems. This study explored vegetation patterns across environmental gradients. Species distribution correlated with the variability of soil moisture and saturation. The numerous gradients in soil chemistry detected in one portion of this study rivaled those for soil-water calcium and pH in their explanatory value for vegetation patterns. One finding particularly relevant to this present study is that the establishment of vegetated buffers upslope of fens extremely rich in species can protect them from potentially damaging fertilizers and salt. In addition, the trampling of grazing cattle hooves may have contributed to high species richness of vegetation.

[102] These species are *Scirpus pendulous,* Pendulous bullsedge, (image 86) and *Gentianopsis crinita*, fringed gentian (image 85).
[103] Picking, Deborah J., "Vegetation patterns and associated hydrogeochemical cycles in a calcareous sloping fen of southwestern Massachusetts," Dissertation, University of Massachusetts, Amherst, 2002.

A German study that is relevant for management decisions examined the relationship of grazing and mowing regimes and vegetation distribution.[104] They found that although species richness was significantly reduced by grazing, typical fens species were not impacted by land use. Although mowing and grazing had different effects on species richness, composition and traits, the vegetation of pasture and of meadow was nonetheless similar. The study found that some slow-spreading upright herbs without defense mechanisms were often harmed by grazing (e.g. *Gentiana asclpediadea*). Also grass species with below-ground storage organs (e.g. *Phragmites australis*) or bulk forming grass species were damaged by trampling and were better supported by mowing. The study recommended moderate grazing on fens as an alternative superior to abandonment and an acceptable alternative to mowing. The study concluded that when particular endangered species were concerned, the particular requirements should be considered before grazing is introduced.

A third study considered the impacts of road salt and increasing *Phragmites australis* colonies on the native vegetation of the Kampoosa lake-basin fen across the road from Naumkeag.[105] One of the authors of this study, Julie Richburg, is currently the ecologist at The Trustees for the western region. The species we are concerned with at Naumkeag are not found in this lake fen community, however, both fens depend on calcium-rich water. The study found that although the wetland vegetation is not effected interactively by high salt concentrations and Phragmites abundance, the graminoid fen is impacted adversely by both factors separately.

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[104] Stammell, Hiehl, Pfadenhauer, "Alternative management on fens: Response of vegetation to grazing and mowing," *Applied Vegetation Science*, 6(2):245-254. 2003.
[105] Richburg, Patterson, Lowenstein, "Effects of road salt and Phragmites australis invasion on the vegetation of a western Massachusetts calcareous lake-basin fen," *Wetlands,* 21 (2), June 2110, 247-255.

Invasive non-native plants

The designers and owners of Naumkeag introduced many non-native species over their tenure, from 1886-1958. Many of the traits that they might have found desirable in a garden plant are true of invasive plants: they are adaptable to a broad range of cultural conditions, they form dense stands, they flower for a long period, produce abundant fruit, and can spread by seed or vegetatively.[106] So it is not surprising that they, and that ornamental horticulture in general, have been responsible for the introduction of invasive species. In fact, the majority of woody invasives in the United States were introduced for horticulture.[107] Herbaceous invasives most likely arrived as weed seeds in contaminated crop seeds, or as ships' ballast.

An invasive plant can be defined as one which is likely to spread into natural areas, causing significant reduction in native species populations, severe disruption of native plant communities or significant changes in ecosystem processes[108] and likely to develop a self-sustaining community that is dominant or disruptive.[109] (In fact, 57% of endangered species were shown to have been negatively effected by non-native invasives.[110]) This is the definition that I will use in this paper. Authors vary widely in their definitions, from any non-native plant that becomes established beyond cultivation,[111] to those non-natives that

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106 Knight, Havens, and Vitt, "Will the use of less fecund cultivars reduce the invasiveness of perennial plants?" *BioScience,* 61(10) (2011):816-822.
107 Sarah H. Reichard and Peter White, "Horticulture as a Pathway of Invasive Plant Introductions in the US," *BioScience,* 51 (2) (2011):103-113.
108 John M. Randall, et al., "The Invasive Species Assessment Protocol: A Tool for Creating Regional and National Lists of Invasive Nonnative Plants That Negatively Impact Biodiversity." *Invasive Plant Science and Management,* 1 (1) (2008): 36-49.
109 Sarah H. Reichard and Peter White, "Horticulture as a Pathway of Invasive Plant Introductions in the US," *BioScience,* 51 (2) (2011):103-113.
110 Wilcove et al., "Quantifying threats to imperiled species in the United States."
BioScience, 48 (1998): 607–615. Other impacts of invasives include altered hydrology, increased sedimentation, increased nitrogen fixation, competition for resources, increased disturbance cycles, according to Reichard and White, 2001.
111 A. Ricciardi, and J. Cohen, "The invasiveness of an introduced species does not predict its impact."
Biol. Invasions 9 (2007): 309–315.

spread into natural areas causing significant negative impact to biodiversity.[112] This makes assessment difficult.

Invasive species were considered for many years to be second only to habitat loss as a leading cause of biodiversity loss.[113] However, a recent survey of invasion biologists reveals a ranking of fourth, following habitat loss/degradation/fragmentation, human population increase, and global climate change.[114] The authors of this paper insist that while invasive species remain a clear threat to biodiversity that cannot be ignored, there are other larger causes to consider, lest

> we be hampered by a problematic logic of 'main effects' conservation management, where managers select and focus only on the dominant causal factor among many and thus develop partial solutions that attempt to deal with invasive species as a unitary force rather than with the other anthropogenic drivers that facilitate their invasiveness.[115]

This survey also explored the extent to which invasion biologists felt they should advocate for native species. This perspective suggests that in considering the allocation of scarce management funds at a site, control of invasives may be less important than encouraging a more sustainable relationship of humans to the environment through education or by example.

Nonetheless, estimates of the economic costs of invasive species are alarming. According to a paper by Cornell ecologist David Pimentel and others, invasive non-native species cause major environmental damage and losses amounting to almost $120 billion per year.[116] They identify 25,000 plant species that cause a wide array of damages to managed

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112 Quentin C.B. Cronk and Janice L.Fuller, *Plant Invaders: the Threat to Natural Ecosystems, World Wide Fund for Nature,*1995.
113 Wilcove et al.. "Quantifying threats to imperiled species in the United States." *BioScience*, 48, no. 8 (1998): 607–615.
114 Ashley M. Young, Ashley M. and Brendon M.H. Larson, "Clarifying debates in invasion biology: A survey of invasion biologists." *Environmental Research,* 111(2011): 893-898.
115 *Ibid.* The authors are here referring to an article by R.K. Didham et al, "Interactive effects of habitat modification and species invasion on native species decline." *Trends Ecol. Evol.* 22 (2007), 489–496.
116 Pimentel, Zuniga, Morrison, "Update on the environmental and economic costs associated with alien-invasive species in the United States," *Ecological Economics*, 52, 3 (2005): 273-288.

and natural ecosystems. Among other negative effects, about 42 percent of the species on the U.S. List of Endangered and Threatened Species are now considered at risk primarily because of non-native invasives. The paper concludes that resources devoted to the problem are inadequate considering the risks and insists "investments made now to prevent future introductions will be returned many times over in the preservation of natural ecosystems, diminished losses to agriculture and forestry, and lessened threats to public health."

The effects of proliferating aggressive non-native plant species is not confined to their ability to out-compete indigenous plants. In his book "Bringing Nature Home," entomologist David Tallamy emphasizes the clear link between native plant species and native wildlife, making the case that most native insects cannot or choose not to eat alien plants.[117] As our native insects disappear, so does the food source for birds and other animals. Tallamy advocates favoring native plants in the garden over exotic species in order to support the wildlife that depends on them, bringing the issue of biodiversity loss into the garden.

Global climate change and the resulting disruptions are likely to favor the spread of invasive plant species, as invasives seem to be superior adaptors. A recent study utilizing Thoreau's records at Walden pond demonstrates that non-native species, and particularly invasive non-natives, have been far better than natives at adapting to climate change in the last 150 years at that location, by adjusting their flowering times in response to temperature rise.[118] It seems likely that climate change will thus facilitate the spread of invasive non-natives into natural communities.

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[117] Tallamy, David W. *Bringing Nature Home, How Native Plants Sustain Wildlife in our Gardens* (London: Timber Press) 2007.
[118] Wilcove *et al.*

The majority of non-native plants are not invasive. In addition to horticulture, agriculture and forestry have benefited from the introduction of exotic plant species. Most of the species imported for these uses have not proven to be invasive. Even so, non-natives account for the vast majority of invasive plants in the United States and in a number of other studied countries (Baskin 2002).[119]

[119] Yvonne Baskin, "The Greening of Horticulture: New Codes of Conduct Aim to Curb Plant Invasions." *BioScience,* 52(6) (2002): 464-471.

CHAPTER 3

FLETCHER STEELE'S DESIGN PHILOSOPHY AND PRACTICE

The inspiration and remonstrance offered by the land itself amount to more than guidance;
they are so strong that their pull cannot be ignored
Steele[120]

Fletcher Steele lectured widely and wrote frequently for popular and professional magazines such as *Garden Magazine, House Beautiful, House and Garden, Horticulture, Country Life* and *Landscape Architecture* among others. Most of these articles dispensed practical wisdom and techniques for the homeowner who aspired to have an appropriate and charming garden. The rest, which touched on the aesthetics and history of his field, he wrote for other professionals in their journals. His advice is trenchant and candid, his writing style entertaining and sometimes very funny. He was not above scathing criticism of styles and trends he found wasteful or pretentious. In this way his articles reflect the lectures that he gave widely. According to Sidney Shurcliff, he "was more than pleased to shock his garden club lecture audiences by damning nearly all of the concepts which they had long held dear. This technique greatly increased his lecture bookings."[121] The publications likewise made good marketing sense for his business, but Steele seems also to have earnestly wanted to improve the taste and sensibilities of the average American homeowner. As if this rich source of Steele's writing was not enough, he was a prolific and devoted letter writer. He dispensed amusing anecdotes and insightful comments to friends and family, to clients, nurserymen and to colleagues. He saved their letters to him and in many cases made copies of his own letters. This correspondence has been carefully guarded in several collections relatively near-at-hand, and has made for interesting and in some cases revelatory reading. In

[120] Steele, *Gardens and People* (Boston: Houghton Mifflin, 1964), 12.
[121] Sidney N. Shurcliff, document entitled "Memories of Fletcher Steele," ML.

this chapter I will explore what can be learned from primary source material about Steele's design philosophy, and how he put it into practice, with particular focus on the garden in relation to its setting, and on environmental issues. His philosophy helps to elucidate Steele's work at Naumkeag—the manipulation of the earth, fitting it for human use, and making use of and reference to the landscape beyond. An understanding of Steele's philosophy is also essential for guiding the management of the garden into the future.

Nature and Man

Fletcher Steele's writing and correspondence provides a rich source for his ideas about nature and culture. The Transcendentalists influence has already been noted. Steele imbibed the notion of a Nature that could be a balm physically and spiritually, and might even be divine. For Steele, however, man is his principle concern. "The power of nature's story has been a strong influence in our past, and always will be. But it is by no means the only story we know, nor even the chief tale. We are human and the story of man must always come first."[122] He believed that man makes order out of the chaos of the natural world, and in creating that order man creates art.[123] In a 1944 article Steele claims divine inspiration for humans, and nature is at their mercy, "For Man's chief claim to credit is his God-given ability to improve on all that Nature has to offer."[124] However I believe he is overstating his belief in man's dominance here, as he later tempers this view with some historical perspective.

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122 Steele, "Landscape Design of the Future," *Landscape Architecture*, 22, 4, July 1932, 299-302.

123 *"The natural world is chaos. Man pulls a sort of order out of it by discarding all that he considers superfluous and selecting what he wants. Then he sorts the few things out and puts them in recognizable order. In other words, he practices an art."* "The Effective Use of Planting in Landscape Architecture and Gardening, Part I," 18.

124 Steele, "Prejudice in Rock Garden Design," *Bulletin of the American Rock Garden Society*, 2, 3, May-June, 1933, 67-72.

Steele condenses his view of the historical origins of gardens in his brief 1936 entry for *The Garden Dictionary*.[125] Early man fears and hates nature, and gardening is man's attempt to discipline nature, by ordering it's chaos into symmetry, axis and cross axis. Then, "When dread evaporated, it was discovered that nature was beautiful," and the "landscape-gardening school" developed in 18th century England, abhorring rigidity and ornamentation, prizing asymmetry and naturalistic designs. And so became fixed the formal/informal dichotomy, a theme that Steele returns to throughout his writing: "Informal arrangement is intended to suggest the irregular picturesqueness of natural conditions. It is the intent of formal work to show the domination of nature of man."[126] However he sees this dichotomy to have been somewhat bridged of late, "The two schools quarreled, and until recently the only compromise was to formalize the ground immediately about the dwelling and thence to modulate, as well as might be, into irregular natural scenes in the distance."[127] In an undated lecture entitled "The History of Gardening" Steele frames the formal/informal feud as a cultural divide with, on one hand, Solomon's Old Testament garden, and on the other, Homer's presentation of the Greeks in the Odyssey. In the former, "a love of nature for nature's sake….The littleness of man and the bigness of nature, and through nature, of God, was the burden of the old Hebrew writers.[128] …With the Greeks it was otherwise. Nature to them was either an accommodating friend or a hateful enemy. …Greek thought is a glorification of man."[129] But Steele belongs to the tribe of the modern designer which

> sweeps aside both schools and their compromise as unnecessary limitations. He fuses the two and goes beyond either. He is more abstract in his conceptions.

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[125] Steele, "Modern Garden Design," entry in The Garden Dictionary; an encyclopedia of practical horticulture, garden management and landscape design, Norman Taylor, ed., (Boston: Houghton Mifflin Company, 1936), 505-6.
[126] Steele, "How Wide is a Walk," *Country Life in America*, September 1915, 28(5), 42, 1915.
[127] Steele, "Modern Gardening Design."
[128] This "burden" is akin to the weight of nostalgia and love that designers struggle with, "The average landscape architect is handicapped in this direction by his instinctive devotion to nature and plants." Review of M.E. Bottomley's *New Design of Small Properties* for *Landscape Architecture*, August 31, 1948.
[129] Steele, "History of Gardening," undated lecture notes, LC, Box 18.

> He designs in volumes rather than surfaces. He studies with far more care than was used in the past not only sizes and proportions of his foliage and architectural masses, but also the shape of the air spaces between them."[130]

The modern designer has evolved beyond concerns of formal or informal, of man or nature, he is creating art out of thin air. Steele realized the sculptural possibilities of landscape design, and influenced by the abstraction of contemporary arts, as well as Asian principles of negative space,[131] he experimented boldly with form and space in his gardens. Naumkeag captures time-lapse evidence of this experimentation.

Yet every artist finds inspiration in the limitations of his medium, and so it is with Steele. In an early exchange of letters with his father, Steele lays out his distinction between the natural and the artistic, and by artistic he means what has been shaped by man: "Regarding my statement that 'untouched nature is often beautiful but never artistic'… To be artistic a landscape must have been designed, to some extent at least, by man."[132] We can hear an echo of Charles Eliot's sentiments from his report for the Metropolitan Reservations, as he goes on to elucidate "two of the principles of landscape art": "The first is to preserve the existing beauty; the second to create new beauty in connection with increased usefulness." Steele's practice of the art of the landscape creates beauty from nature, within the bounds of what is useful for man.

This does not mean a mere imitation of nature, but a sort of collaboration, with friction: "The artist tries to understand nature in all her ways. He even tries to follow some of her methods. Yet about most things they do not agree. Indeed, nature thwarts and irritates him. She holds him down. His dream has to be limited by what nature will let him

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130 Steele, "Modern Gardening Design."
131 "…at Ryoan-ji [the Japanese] have proved that pure sculptural effects without planting are among the resources of the landscape architect," Steele, "Review of M.E. Bottomley's New Designs of Small Properties," for *Landscape Architecture*, manuscript dated August 8, 1948.
132 Steele, letter to John Steele, 20 November, 1914, LC Box 24.

do…"[133] Nature presents requirements of climate and soil and plant that man would do well to consult, as we shall see soon. These very exigencies Steele and Choate exploited to the fullest at Naumkeag.

Steele traveled to China in 1934, where he was struck by the profound determination of the Chinese to control nature, a nature no longer divinely benevolent. This visit inspired his designs the subsequent year for the Chinese Garden at Naumkeag, where artificiality held sway. "The natural growth and foliage of vegetation affects the Chinese apparently like original and uncorrected sin." And, "As though unrestrained nature were possessed of too many devils which must be exorcised or disciplined by art, everything they touch has been manifestly edited."[134] Ten years later, Steele's understanding of the Chinese garden art is more nuanced and informed. He comes to see the garden as a balance of Yin and Yang, the passive, feminine and the active, masculine principles: "The Earth, its inertia, its resistance to change, its hunger for life and disregard of life's meaning wedded to eternal willingness to help, is *Yin*. Man's will to use the Earth, to cultivate it, build on it, mine into it, subject it to his need and convenience, is *Yang*."[135] Here is a model for Steele's true goal of a mutually beneficial collaboration.

The Genius Loci

Steele's final book, *Gardens and People,* was compiled from hundreds of short essays that he wrote over the course of a decade and finally published in 1964[136]. Although it was

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[133] Ibid.
[134] Steele, "For Listening to the Sighing Pines," *Country Life in America*, 67, 5, March 1935, 26-30, 62.
[135] Steele, "China Teaches: Ideas and Moods from Landscape of the Celestial Empire," *Landscape Architecture*, 37, 3, April 1947, 88-93. Steele seems to have had a lifelong interest in Asian philosophy and design that grew deeper after this visit, extending beyond an aesthetic appreciation. In his copy of the Eliot biography he (or someone) highlighted Eliot's reference to Sir W. Chamber's "Essay on Oriental Gardening." There is an undated receipt from the Harvard Coop for Coomaraswamy's *Hinduism and Buddhism* at the Library of Congress (he also bought Forster's A *Passage to India* that day). This interest extended to culinary and spiritual matters. In 1940 Steele sent to England for two books about Indian cuisine. (LC Box 66) Four years before he died he inquired about sessions at the Zen Meditation Center in Rochester. Letter from W. Stephens Thomas, Director Rochester Museum of Arts and Sciences, January 16, 1967. LOC, Box 66.
[136] Steele, *Gardens and People* (Boston: Houghton Mifflin Company, 1964).

not popular with general readers, the reviewer in L*andscape Architecture*, who had been an early draftsman of Steele's, called it a "treasure house of knowledge"[137] In the book Steele speaks authoritatively and humorously about the design fundamentals that his long career and travel to foreign gardens had yielded. He returns throughout the book to the "*Genius Loci*," "who cares but little for man's ideas of what is appropriate. …When [the designer] has had respect for the qualities of the site, then nothing in style or decoration has gone far wrong."[138] A site visit is required if one wishes to learn from this guiding spirit, and Steele complains that Americans aren't so good at accepting her any more since we tend to design off-site.[139] Elsewhere he insists that beauty depends "on the designer's willing acceptance of Nature's harness, which buckles him down to earth."[140] As here, Steele sometimes uses "Nature" and the "*Genius Loci*" interchangeably, yet he insists that she is to be distinguished from wilderness, which is altogether different.[141]

Alexander Pope advised the artist to "Consult the genius of the place in all,"[142] and there are few designers who keep this as much in mind as Fletcher Steele. Throughout his writings Steele placed great emphasis on the ability of the designer to discover the spirit of a particular location, and to design appropriately for that site, if he would create a lasting garden.

> The true gardener has abiding faith and must express it, if only by planting an acorn where the "Genius Loci" calls for an oak.[143]

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137 Stanley White, review of *Gardens and People*, Landscape Architecture 55 (October 1964), 71.
138 Steele, *Gardens and People*, 9.
139 *Ibid.,* 12.
140 *Ibid.,* 13.
141 *Ibid.,* 9.
142 Consult the genius of the place in all; / That tells the waters or to rise, or fall; / Or helps th' ambitious hill the heav'ns to scale, / Or scoops in circling theatres the vale; / Calls in the country, catches opening glades, / Joins willing woods, and varies shades from shades, / Now breaks, or now directs, th' intending lines;
Paints as you plant, and, as you work, designs." Alexander Pope, *Epistle IV, to Richard Boyle, Earl of Burlington.* Charles Eliot was also fond of this poem and it was chosen by his father as a chapter opening.
143 Steele, "The Appeal to the Intelligence," Steele Papers, Rochester Historical Society, from Robin Karson's *Genius of Place,* p.353

> Every spot in this world has its own individual character, topography and climate—its Genius Loci. The landscape architect learns early to consult her because she is pitiless in branding unfit all that goes against her grain, and will complacently acclimatize whatever suits her face and figure…[144]

I will return to this capricious mistress for a discussion of native and exotic plants. Here I wish to focus on the impact the *genius loci* has on the designer. In the triumvirate of factors that determined the process and product of garden design for Steele, it occupied the first and grounding position. "The inspiration and remonstrance offered by the land itself amount to more than guidance; they are so strong that their pull cannot be ignored."[145] There are other factors that together create:

> the gardener's eternal triangle – namely, the pull of the land itself and plants and climate at one corner, the pull of the client and owner and what he wants in another corner and the pull of the designer and his sense of fine art at the third corner trying to pull everything together.[146]

To the pairing of Yin and Yang, the Earth and Man-Artist, Steele adds the client who will inhabit the garden. In the case of Mabel Choate, he found her to be"a very imaginative person"[147] who also held strong views about the fitness of plants. She devoted decades to conducting plant trials, in the Experimental Garden, in her cutting gardens, and in her greenhouses, with the goal of discovering what was fit for the bitterly cold, windy winters, humid hot summers, and the limestone and clay of her exposed site. "She wants to make and try things."[148] Steele is speaking here of Mabel's horticultural experience—with flowers in particular: "She enjoyed flowers and used them as models for her watercolor sketches. But they had very little horticultural interest for her. She stated that if they would not flourish

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144 Steele, *Gardens and People* (Boston: Houghton Mifflin, 1964), 8.
145 Ibid., 12.
146 Letter to Mrs. Roy A Hunt, (Editor, *Garden Literature*), February 27, 1947, Papers of Fletcher Steele, Library of Congress.

147 Steele, letter to George Yarwood, January 17, 1963. LC box 26.
148 Steele, "Naumkeag – Notes on Horticultural Undertakings," November 3, 1940, ARC.

without her she did not want them."[149] Steele may be understating her interest in flowers for effect here. In the case of her beloved fuchsia, clematis, and peony, Mabel Choate was very much taken with plants that blossomed: "She had thirty or forty varieties of fuchsia around her Afternoon Garden and used to sit for hours picking off the dead flowers."[150] (image 29)

Fitness

The Genius Loci principle is closely related to the notion of fitness, a word that has broad connotations in horticulture and in the history of garden making. Plants are said to be "fit," when they have what it takes to survive under certain climatic or cultural conditions. A plant may be "fit" for one location but fail disastrously on the far side of the same garden, as was experienced time and again at Naumkeag. At a larger scale, the notion of fitness relates more to the *genius loci* than to growing conditions, but both senses may be implied. Fitness is often invoked when Steele is discussing natives vs. exotic species. In this early passage, written in the third year of his practice, he invokes all connotations of "fitness":

> …it is to be noted that one cannot always import the tree setting with a foreign architectural style. This is the chief reason why exotic buildings rarely look at home in our countryside. A millionaire can build an Italian villa, but he cannot grow the cypress; he can have a Spanish patio and red roof tiles, but he cannot have gray olive orchards and a bougainvillea vine over his gate. He must be satisfied with the trees that nature smiles on in his soil and climate.
>
> And how finely unified are house and frame of trees where each becomes the neighborhood!"[151]

He has imbibed a sensitivity, nostalgia even, for the regional traditions of Pittsford, New York where he was born and spent his formative years. His attraction to European styles, as well as the tradition of birthplace is strong, but Nature's limitations are stronger

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[149] Steele, letter to Charles D. Webster, President of the Horticultural Society of New York, June 25, 1968. Other examples he uses to illustrate Choate's attraction to plants that worked, "In her garden she had fifty year old tree peonies, both red and white, and we never could get enough of them because she was sure they liked it. Canoe birches were moved in around the "Blue Steps" because 'They are at home and like it here.'" As usual, Steele downplays both the actual difficulty of maintaining some of these species, and his own part in plant choice for aesthetic rather than functional reasons.
[150] Letter to Charles Webster, June 25, 1968, LC.
[151] Steele, "The Use of Trees," *The New Country Life*, 32, 4, August 1917.

still. Twenty-three years after he wrote the above, Steele is still guided by fitness, here discussing how difficult it is to define "modernistic" garden design:

> We gardeners have always been behind other artists in adopting new ideas. At heart we are a conservative lot, sure that the perfect garden does not depend on new and strange things, but on the perfecting of what we already know. We do believe, however, in fitness.[152]

Although Steele's gardens, Naumkeag particularly, were prized for their idiosyncratic style, at Naumkeag and others he strove to create places which "fit" their owners, "One of the least known yet precious experiences is to be in a place to which one is perfectly adjusted and attuned."[153] He was offended equally by design that failed to take suitability of design or plant into consideration, a subject that will be discussed in the final section of this chapter, as he was by design that lacked inspiration.

Functionality

There is yet a third aspect to the term "fitness," related to this last, which equates with usefulness, and Steele sometimes used both terms interchangeably. He writes, "The design of good gardens is forced by the requirements of site, of climate and of use. …"[154] Steele is obviously influenced by Charles Eliot's use of the term "fit," as in the essay "What Would be Fair Must First be Fit." The modernist credo, "Form Follows Function" is no less an influence. He lays out his functionalist approach in his introductory chapter to The House Beautiful Gardening Manual, intended for homeowners of small parcels:

> The secret of good design in the small garden is very like that of good design in the small house. It depends on fitness and good taste….Fitness, first of all, is adaptation to function and is based upon common sense coupled with painstaking thought. The first decision will concern actual needs. What are the

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[152] Steele, "New Pioneering in Garden Design," *Landscape Architecture*, 20,3, April, 1930. For all his apology for being conservative, I sense Steele is planting the flag proclaiming that long before architects took up "Form follows function" gardeners utilized the concept.
[153] Steele, "Landscape Designs of the Future," *Landscape Architecture*, 22,4, July, 1932.
[154] Steele, "Modern Landscape Architecture," in catalog for exhibition, *Contemporary Landscape Architecture and its Sources,* San Francisco Museum of Art, February12-March 22, 1937.

> things we cannot get along without?….Beyond that the necessities will differ according to individual tastes.[155]
>
> As in matters of dress, good taste depends on common sense and knowledge of the right thing in the right place.[156]

There is an added benefit to fitness and functionality in gardens: they will be easier to keep. "When a place is orderly and practical in arrangement it is economical to maintain. Lastly, there should be no meaningless, useless places." Steele is here speaking of colonial American gardens, which he presents as admirable models for present day gardens. His abhorrence of waste is in evidence here, a tendency that influenced actions that simultaneously look back to an idealized colonial period, and anticipate our age of environmental limitations.

Steele designed gardens for his clients' comfort and pleasure. He required that his design first address the client's needs. What does the client want to do in the garden? Where is the garden in relation to the interior of the house? Are there similar functions that can extend from inside to outside? He insisted on enclosures, "Gardens should have strong, high enclosures."[157] Enclosures serve to segregate various, potentially conflicting functions, but how do the enclosed areas relate to one another?

> Definitely enclosed areas, each performing its own function and charming in itself, will be joined together like the parts of a picture puzzle. Such should be the procedure when working out any plan.[158]
>
> When the plans are completed it will be found that every square foot of land has been devoted to some special purpose. There will be no waste spaces. There will be rooms in the grounds for different uses, as there are in the house. Each compartment—garage, driveway, laundry yard, lawn, garden—will be separated

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155 *The House Beautiful Gardening Manual,* Boston: The Atlantic Monthly Press, 1926, 1-12.
156 Steele, *Design in the Little Garden*, 34.
157 *Ibid.*
158 *Ibid.*

> from the others by its enclosures, which in turn become screens. …Fitness will be the keynote of everything.[159]

These principles are very much in evidence at Naumkeag. Steele's first two projects there, the Service Court and the Afternoon Garden, each began with the erection of high walls, "never less than eye-height."[160] And each project, or garden, at Naumkeag, defines a different function. The Service Court served to shield the utility entrance from view; the Afternoon Garden provided a shaded and protected place to sit outdoors, an extension of the library; the Blue Steps, an easier way to get down to the Cutting Garden, and so on. Although far from the first designer to organize a garden into rooms, Steele's version underscores the eclecticism of the project: the client's broad interests and collections, and the designer's idiosyncratic vision. Separate garden rooms worked well on Naumkeag's steeply sloping site, indeed, anything else would have been difficult to pull off. In addition, the thirty-year design process necessitated a staged design and installation schedule, with only one garden completed at a time. Steele also seemed to devote a good deal of time and resources to the way each of these garden rooms related to one another. These thresholds were not mere gates or entrances but integral "parts of the picture puzzle:" the Pyramid Steps link the Afternoon Garden to the South lawn; the Ronde Pointe pivots the South Lawn and Pagoda into the Linden Walk; the Runnel connects the flow of water from the fountains of the Afternoon garden down the Blue Steps, technically a "threshold" in itself leading to the Cutting Garden; the Devil's Screen and finally the Moon Gate, relate the exotic Chinese Garden to the domesticity of drive and house.

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[159] *Ibid.*
[160] *Ibid.*

Garden projects separated by a decade required this attention to connectivity in order to achieve a seamless whole. These connections serve also to orient the visitor, to announce a new realm or a different vantage point, to explicate the terrain.

> Gardens of all history have been functional in every sense, or they have not been worth the name. They must 'work' and it must be evident, to the initiated at least, just how and why they work.[161]

Not only did Steele want the rooms to function, but he strove to clarify that function for the visitor. The clarity of intent and function of the maturing Naumkeag gardens has been muddled in recent years, predominantly by plants that have overgrown their function, and the current restoration will bring the distinct garden rooms back into clear and striking focus, as they were intended to be.

Functionality is essential, according to Steele, for beauty. This may have been a reaction to the excesses of the gardens of the preceding age, as well as to the Beaux Arts style that favored aesthetic principles over function.[162] In an early article about garden bridges, Steele concedes that while many picturesque bridges are built primarily for looks:

> …the appearance of a bridge must be related to service of some sort in order to make it seem fit. And unless it is fitting, a bridge, like anything else that is inappropriate, will not be beautiful, even though it is constructed on lines of beauty.[163]

Yet as to function, he would go so far as to exaggerate a barrier or alter a route in order to make a bridge a necessity, "to make it *seem* fit."[164] The visitor will appreciate all the more a bridge that can carry him to the other side of a stream. Likewise, when a garden is arranged appropriately, when the designer has discerned the *genius loci,* it feels inevitable, and

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[161] Steele, "Modern Landscape Architecture," in *Contemporary Landscape Architecture and its Sources, (*exhibition catalog) San Francisco Museum of Art, February 12-March 22, 1937.
[162] Steele never exhibited the tendency of full-blown modernists to strictly adhere to abstract aesthetic principles, such as form follows function. His credo might have been more cyclical: beauty, follows function, follows beauty.
[163] Fletcher Steele, "Better Bridges on the Country Place," *The New Country Life*, April 1917.
[164] *Ibid.*

we feel at ease. Steele exploited the beauty-use pairing to inspire much of his work at Naumkeag.

Steele captures the practical mood of post-World War I America in his 1922 article on this subject which echoes the Eliot's article that inspires it, "Use and Beauty Go Hand in Hand":

> America has faith in what is useful to reinforce its ideals. It is beginning to learn that what is useful may also be beautiful and that is the lesson, which, more than any other, the gardeners of our land can teach.[165]

In fact, this passage could just as easily be describing Steele at the beginning of his career. In his apprenticeship to Manning, Steele learned many practical means for analyzing a site and designing appropriately[166]. But when he chose to leave Manning's office and start his own firm, it was with the feeling that Manning's functional designs were lacking in beauty:

> Designing, with him, is best to fulfill convenience & economy & natural conditions, whence he believes beauty will follow. Well. It usually will, but to my mind all the better for being always consciously considered. But where Mr. Olmsted had unusual refinement of feeling for every thing he touched, refinement (meaning feeling for exquisite finish and considerations for the more intimate if generally unexpressed needs of people) is almost entirely lacking in Mr. Manning.[167]In this letter Steele is presenting an argument to his mother, and therefore in his youthful and perhaps defensive exuberance may have exaggerated his opinions. In fact, he continued to work for Manning for another year. However Steele did value aesthetics, I would argue, above the other two considerations of his profession, the client and the land. The ultimate goal, after all, is beauty; his calling, as he repeatedly insisted, was an art form.

Charm

Steele believed that "gardeners of our land" were better suited than, say, Europeans, to understand the beauty of usefulness, because Americans have by necessity lived off the

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165 Steele, "Use and Beauty Go Hand in Hand," *The House Beautiful,* February 1922, 126.
166 Robin Karson generously shared her ideas about what Steele learned from Manning: how to walk the land and be attuned to its character—to the plants or to the water under the surface. All informs the design. In conversation, June 28, 2012, and in her books.
167 Steele to his mother, January 27, 1912, LC. This is far harsher than Steele's generous consideration of Manning elsewhere.

land in more recent memory, and the pioneering ethic was still very much in evidence in Steele's New England: "The grounds and gardens of every American home should be useful."[168] Steele valued highly the order and rightness of a working landscape, where all was arranged in the service of man's use of nature. He appreciated the orderliness of small spaces designed to function efficiently, a subject he returned to repeatedly in his articles and books, in an extended eulogy to his conception of the New England farm-yard.

> "…Colonists had a real sense of the comely and appropriate. They liked precision and orderliness, probably all the more in contrast with their enveloping enemy, the wilderness, which must have seemed unkempt and disorderly to them.…Instead of unsightliness, the result is fairly sure of having unexpected charm. For it shows common sense and ability to make the most of what we have—both agreeable qualities."[169]

This value guided his design for the Mission House colonial revival gardens and homestead, which he worked on for Mabel Choate concurrently with his design for her Naumkeag gardens up the hill.[170] Such a place has charm, a concept that we are not well familiar with today, but which Steele used often. For him, charm implied familiarity and comfort, the out-of-doors arranged to be a pleasing and appropriate domain for working and for resting. "No garden is more charming than the small garden where everything is arranged to take a definite place for a definite reason, resulting in an orderly and organic design."[171] Not ostentatious or out of scale with its surroundings, but fitting just right, the yard and the garden a result of ingeniously making do with what is at hand. In some cases achieving suitability results from making idiosyncratic decisions about unique places. Conventional

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168 Steele, "The Colonial Garden Today," *Colonial Gardens*, 1932, 60-68.
169 Ibid., 66. Yet this is no mere Yankee notion on his part, as he makes the claim for "both Northern and Southern Colonists."
170 "Wood-chopping in one corner, sun-cooking preserves in another, linen-bleaching in the middle, churning under a grape arbor at one side,—a hundred forms of industry were carried on here. …there were hives for the ever-interesting honey bees, deep arched wood sheds, and the well-sweep with cool refreshment near at hand." Ibid., 60, 64. Robin Karson provided essential clarification about Steele's notion of charm in conversation, June 28, 2012 and in *Fletcher Steele, Landscape Architect* (New York: Harry Abrams), 1989, 122-126, 288.
171 Steele, "Use and Beauty go Hand in Hand"

design standards did not necessary apply to places with charm.[172] The creative mix of the client and the designer's personality can bring charm to the result: "I do agree that the charm of our houses, particularly Naumkeag and The Mission House, is the result of individual knowledge, interest and concern which results in so much more character than the often bland middle-of-the-road approach arrived at by group deliberation."[173]

Steele closes his last book with the theme, "What makes Charm in Gardens?" As he preferred to design gardens for private homes, he spent most of his career creating charming places for his clients to inhabit. Perhaps he was drawn to such work in pursuit of charm. In either case, he places great stock in charm, and it is telling that "charming" is one of the more common adjectives used by critics, historians and other designers to describe the garden at Naumkeag. Steele seems to be speaking directly of that garden when he writes at the close of the book, once again invoking the *genius loci*:

> [The student of design] is always pleased where the gardener has made the most of a site. It requires alert sympathy to adjust topography to human needs; correctly to borrow a distant view or just to cherish an old tree. …Here and everywhere, now and always, charm in the garden grows out of love of the land so deep that it hurts to leave home for the day.[174]

Borrowed Views

Steele cites a childhood event as signaling his future career:

> "It was a sunny summer afternoon that seemed good to his touch, but his mood was shattered when his mother spoke: 'How beautiful Turk's Hill is today!' The long steady incline lay stretched across the eastern landscape, and then suddenly broke off so sharply as to make one wonder why. The boy's eyes were glued to the break and, to the merriment of his elders, he replied: 'Not 'specially.' He resented the way the hill was cut off, and thought that it would have been better if it had gone straight on to Lake Ontario."[175]

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[172] "When he meets charm in the garden…his faculties weaken and his standards of design, space, composition, and common sense wobble hopelessly. Though sometimes the garden with charm is built according to rule, quite as often it flies in the face of every precept." *Gardens and People*, 220.
[173] Steele, letter to George Abbott, October 19, 1970, LC, Box 22.
[174] Steele, *Gardens and People*., 220-221.
[175]Ibid., ix

Even at this young age Steele's critical judgment would already rearrange the landscape. His discovery of the bulldozer[176] allowed him to literally indulge this inclination, but he also became highly skilled at framing and enhancing good views, while obscuring others. The majority of his commissions were for sites that gave him ample opportunity to refine their relationship with the surrounding landscape. From his first job, laying out the driveway to his friend Grahame Wood's new house site to highlight the view, Steele manipulated the borrowed landscape. The larger estates, from Ethan Allen's Rolling Ridge in North Andover to Lisburne Grange in Garrison New York to his largest for Angelica Gerry in the Catskills, all entailed views out to impressive landscapes, prior to his work at Naumkeag. On smaller sites, Steele displayed equal skill at balancing and highlighting the view, often employing a broken axis to do so. At Harry Stoddard's place in Gloucester, with a compelling view of the ocean, Steele worked hard to provide competing interest, "I soon decided, that my only hope on the small lot was to create a visual interest within strong enough so that one was satisfied to get an impression of the sea without peering at it."[177] At the Library in Camden, Maine, Steele again breaks the axis to direct the amphitheatre audience's gaze to the picturesque town harbor, leapfrogging Olmsted's public park across the street in the process. The Naumkeag garden that Mabel Choate inherited was Barrett's stately grounding of the house perched on its steep slope. The allées flung out from the house in either direction ran perpendicular to the slope. To the north of the house, one was afforded fairly uninterrupted views of the hills to the west. In some of the remaining photographs from the 1890's the houses on Church Street and beyond were only partially obscured. (image 30) Over Steele's long tenure making gardens at Naumkeag, he not only

[176] "…now my favorite garden tool" he writes in 1952, letter to Edward P. Alexander, August 18. 1952, LC.
[177] Steele, letter to Betty Blossom, October 9, 1952, LC.

makes multiple levels of the slope habitable, but he dramatically manipulates and refines one's access to the view.

There are numerous examples of views revealed and obscured, as well as of distant vistas brought closer by on-site references. The hills to the west offer a splendid panorama from the house and the Great Seat of the top lawn, anchored by the stone Korean figures on either side and, originally, *Pinus montana* and magnolias. (images 31, 32) The hayed meadow and pasture with grazing cows provided an agricultural context reminiscent of the English estate and the picturesque tradition. Still today that monochromatic swath of fields is an essential middle ground to the entire composition that Steele so artfully revealed. Cut grass was no longer the unifying theme from the head to the toe of the slope as it had been in Mabel's childhood. As Steele had done with his garden rooms, there was now a clear differentiation between the designed garden, the working landscape, and the wild mountains. Fortunately for Naumkeag, the view of the hills towards the west has changed little over the years, however, overgrown plants obscure the view of the grasslands from the Top Lawn. (image 33)

The Afternoon Garden was designed as a cool and restful room, with the continuous light entertainment of the sparkling fountains and pool and the gurgling fish-head spout on the wall. The distant views lent the proscribed room a grand serenity. The unexpected gaiety of the brilliant gondola poles, festooned with ivy garlands and the utilitarian stockade pilings below framed the distant hills to the west. (images 34-36) Looking to the south one could at one time see the distant profile of Bear Mountain, (Mount Wilcox), 3 1/2 miles away in Beartown State Forest. (image 37) When the forest surrounding the Linden and Woodland Walks grew up and obscured this sight, Steele resolved to trim the forest as if it were a mere

hedge.[178] The resulting profile echoed the distant landscape, bringing it into view and underscoring how essential it was to complete the restorative powers of the Afternoon Garden. The sculpted South Lawn further accentuated Bear Mountain by providing a graceful counterpointing swirl in the opposite direction (image 17), the base of the pagoda tilting down to reveal the Ronde Points and Linden Walk, as in this photo taken by Steele. (image 38) One could argue that the major view at Naumkeag—the view the Choates bought the land for and Barrett designed for—was to the west. Yet Steele was enamored of the southern vista enough to don smock and beret one afternoon in 1934 and paint it. (image 39)

Much has already been written about the Perugino View. (images 15,16) Depending on your vantage point, this aspect might include the clipped foreground of the top lawn, the middle ground of the southern meadow dominated by a white oak, cemetery hedges establishing a horizontal base for the mixed Stockbridge woods beyond and ranges of Taconic hills above that, all framed to the right by the Italianate arborvitae spires and to the left by the beloved oak. As one ventured closer to the edge of the lawn one might see the white marble of the Crag, the rocky assemblage which Steele had made to bring the distant white prominence of Monument Mountain closer. (images 40-43) Someone of Mabel's parents' generation, and perhaps Mabel herself, might have been reminded by this close-up version of the limestone cliffs of Monument Mountain, of Bryant's poem of the same name. Where garden meets meadow grass the apple trees lend their agricultural charm to the scene. Once again Steele employs swooping curves in the foreground to complement the distant slopes of the mountains. The brick runnel slopes down to the west at an angle, the brick cart

[178] Steele, "Naumkeag Gardens Develop," essay, May 1947, LC.

ramp curves off towards the oak lawn, and the piling edge articulates a graceful curve culminating in the crag. (image 44)

Whatever the view, Steele found a way to enhance it by limiting, framing, and bringing it closer. The Devil's Screen purported to keep the devil out of the Chinese Garden, but it served effectively to screen the spectacular view off for a quiet, contemplative enclosure highlighted by a limited palette of plants, by ancient marble statuary, and by the temple. Only when one made the effort to ascend the marble steps of the temple, entered its cool shade, and turned to face the view, was one rewarded, once again, with the sight of forested hills. (images 18, 45) For Steele's final act at Naumkeag, near the end of Mabel's life, the Moon Gate encircled the final view of the house, as in a homecoming.

Steele and Environmentalism

> As we relish the past, so we should prepare for the future and other coming lovers of gardens yet unborn. [179]

It is tempting to look to the past for evidence that some foresaw the environmental predicaments of our own day: global climate change, the spread of aggressive non-indigenous organisms, diminishing resources and the contamination of what remains, in short, the recognition of a finite planet. But in truth it is impossible to know, "What would Fletcher Steele have done?" One can merely look at the record of his writings and his garden design to see the extent of his abhorrence of waste and uselessness, and his belief in beauty as the solution. From as early as 1912, Steele identified with conservation, praising Frederick Law Olmsted in a letter to his mother, "He exhorted against the exploitation and waste of natural resources, and was a herald of the modern conservation movement."[180] Nowhere are these sentiments more in evidence than in his persuasive exhortations for how to make the

[179] Steele, "The Appeal to the Intelligence," Steele Papers RHS in Karson's *A Genius for Place*, p.353
[180] January 27, 1912, LC.

most of a small plot of land. It is pertinent to our discussion here to investigate how he tried out these ideas at Naumkeag. This property offered a much larger area than the average suburban lot, to be sure, but given the happy coincidence of a challenging climate and site, a long and consistent history of engagement, and an adventurous and dogged collaborator, Naumkeag was the perfect proving ground.

In his 1924 book, *Design in the Little Garden*[181] Steele addressed the gardens of the suburbs, which was making an initial expansion out from the cities. He presented some ideas in this book that were progressive for their day, and remain so in some communities, but which have recently been espoused with unprecedented ubiquitous enthusiasm as techniques that will save us from car and mower domination, and allow us to use diminishing land more efficiently. Steele advocated foregoing the traditional front lawn and siting one's house closer to the road, with most living areas facing the back, so as to take advantage of a larger private garden.[182] Had house builders and developers heeded his (and Eliot's advice), we might have avoided the continual and useless front lawn of American suburbs, which seems devoted primarily to the car.

Ground covers and the Ground Plane

Steele encourages the use of ground covers and woody plants in place of turf in articles and in lectures throughout his life, but he is most emphatic about their use in *Design in the Little Garden*. He insists that good sites for lawn are few and that we would do better to grow more appropriate plants:

> …grass is used far more than necessary. A curious notion prevails that sowing grass is the only way to cover the ground except where there are beds of shrubs or flowers. …Close examination usually shows that grass is only one and sometimes a scarce plant in lawns. It is rather silly to keep up the old delusion,

[181] Fletcher Steele, *Design in the Little Garden* (Library of American Landscape History, 2011 (1924)).
[182] *Ibid.,* 17-18

> under the circumstances. ...Unless one likes to run a lawn-mower, it is far better and often prettier to cover the ground with other plants.[183]

Steele divides the plants he recommends for ground covers in the book into those that are suitable for walking on, and those that are not. The former include "small-leaved thyme,"[184] *Veronica* species and *Arneria* for sun, and mosses and *Lysimachia nummularia* in shade. The groundcover plants that do not tolerate being walked on "are legion," but include: *Vinca minor, Pachysandra terminalis, Ajuga reptans, Mitchella repens, Arneria montana, Viola spp., Gypsophila repens, Lycopodium species, Phlox sublata,* and *Sedum species.*[185]

Steele corresponded often with Donald Wyman, the director of the Arnold Arboretum from 1935 to 1970, and the topic of one exchange is ground covers,

> Enclosed is a list of groundcover which I have tried. I find that the divisions I make in my use are first between evergreen and non-evergreen sorts and for practical reasons those that are easy to walk on and difficult to walk through. I have never found any plants yet that are really hurt very much to walk over occasionally and the real point is whether or not they are pleasant underfoot.[186]

Two years later they are exchanging plants suitable for groundcover. Steele sends "The box of *Cotula squalida*[187] that I promised you…It spreads to beat the band, especially in the grass of half-shade."[188] In an article about a rock garden he had created he praises stonecrop: "…one of the most convenient of all ground covers in sun and shade (where there is not

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[183] *Ibid.,* 31-32. Eliot is equally reproachful, and sees the lawn as the antithesis of native beauty: "On the rocky coast of Maine each summer sees money worse than wasted in endeavoring to make Newport lawns on ground which naturally bears countless lichen-covered rocks, dwarf Pines and Spruce, and thickets of Sweet Fern, Bayberry, and wild Rose. The owners of this particular type of country spend thousands in destroying its natural beauty, with the intention of attaining to a foreign beauty, which, in point of fact, is unattainable in anything like perfection by reason of the shallow soil and frequent droughts.

I know too many of these unhappy "lawns." Ledges too large to be buried or blasted protrude her and there. They are bare and bleached now, though they were once smothered in all manner of mixed shrubbery; the grass is brown and poor whenever the underlying rock is near the surface,–all is ugliness where once was only beauty. Eliot, *Charles Eliot, Landscape Architect,* p216

[185] *Ibid.,* 32

[186] Steele, letter to Donald Wyman, February 9, 1951, LC.

[187] New Zealand Brass Buttons, *Leptinella squalida*, can be invasive, but not in the northeast.

[188] Steele, Letter to Donald Wyman, Arnold Arboretum Field Station, Oct 5, 1953, LC.

much walking) is *Sedum stoloniferum*. It spreads like a weed once it gets started."[189] Such plants were not only prized for their ground-hugging textural interest, but for their tenacity and reliability, a subject we will return to in the next section.

Fifteen years after *Design in the Little Garden*, Mabel Choate was suitably inspired by the use of ground covers at Naumkeag to write an article recommending them to others, which was published in the *Journal of the New York Botanical Garden* in April of 1940.[190] In a typescript manuscript for the article which she titled, "A Few Ground Covers," Choate reveals how revelatory and useful the use of ground covers became at Naumkeag. Not the least of the advantages was the savings gained from not having to mow.

> The idea of having ground covers in order to gain effects of space, distance, design or contrast of color, had never occurred to anyone; nor had the idea penetrated, that their use might do away with the expense of having two men mowing lawns for two days a week, as had been customary in the good old Victorian Days.
>
> Now after ten years, almost all the difficult places are filled with something other than grass, and the variety of plants used, is a constant source of delight to myself, and of surprise and interest to visitors.[191]

There are a number of photographs illustrating the ubiquitous turf of the garden prior to Steele's and Choate's interventions. (images 46, 47, 51) As noted earlier, Choate was always seeking plants that would thrive on her difficult site, and the challenge of finding and testing appropriate ground covers for various locations would have strongly appealed to her. However, although she does not say so, Steele's influence is understood. Her testing ground is Naumkeag, and the article provides a good deal of information about the ground covers in use in 1940.

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[189] Steele, "A Connecticut Rock Garden," *The House Beautiful*, 55, Jan-June 1924, 250-251, 298. Stolon stonecrop
[190] Choate,"Ground-Covers for Difficult Places," *Journal of the New York Botanical Garden*, 41, 484, April 1940. This was the same month that saw the planting of the Blue Steps.
[191] Choate, Mabel, "A Few Ground covers," typescript manuscript, ARC.

In the woodland garden she planted ferns, jack-in-the-pulpit, wood lilies, lady's slipper, and geraniums. Along the entrance drive the pachysandra is relieved every eight feet by spots of hosta—"a green polka-dotted carpet seems to be spread beneath the tall trees."––interspersed by wave forms of *Ajuga reptans* (bugleweed) edged by brick paths. "Looked down upon from the windows of the house they make a charming pattern, and their economic value is enormous." (image 48, 49) Choate is especially fond of Ajuga and describes a sure-fire three year plan to create a permanent, maintenance-free "thick solid mass." All that is required is a mowing once a year to cut the spent flower stalks. Choate's dedication to discovering low-maintenance plants for her garden dove-tailed with Steele's interest in functionality and to the pull of site and client. This connection is illustrated by their shared interest in ground covers.

Steele paid close attention to the ground plane in his garden designs. He has an unusual sensitivity to what one experiences under foot as one walks about a garden. In several writings he condenses all that had previously been of importance in garden design into the vertical and the horizontal, what lies flat, and what stands up, the Chinese Yin and Yang: "'Floor of earth or water. Walls of marble or of Verdure. Roof of Sky.' This infers three-dimensional composition. Yet until recent times, the classic gardens of the world have been two-dimensional in effect."[192] The modern designer transcends this dichotomy in the same manner that he gave up strict formality or informality. Three dimensions may be obvious when one is in doors, but once out-of-doors, it takes a skillful designer to engage the viewer's exteroceptive sense.[193] For Steele, "space composition" or "space shape" is everything, and by this he means the designer's shaping of the three-dimensional space

[192] Steele, "Modern Landscape Architecture," 1937. Elsewhere he writes, "Whatever you put in [a garden] will either lie flat or stand up in the air." Introduction to *House Beautiful Gardening Manual*, (Boston: The Atlantic Monthly Press), 1926.
[193] Steele discusses the way that humans can intuit the space around them, with a sense beyond sight, in notes for a lecture to be given at Colonial Williamsburg dated February 16, 1953: "Solid stuff outside themselves has a physical effect on them, guiding their moves by some sixth radar sense of which humanity is not commonly aware." LC.

between objects: "…it is in the development of understanding of space shape and dimensions that I believe will be one step in advance for future gardening. This will be tied in with ground form carved and decorated in the manner of modern sculpture."[194] This skill is in brilliant evidence at Naumkeag in Steele's carving of the South Lawn. For all Steele's deft handling of scale and proportions in the garden rooms he created at Naumkeag, I believe the ground plane held a special fascination for him. The vertical walls and hedges that he established throughout the garden, over his many years there, created the perimeters for Steele's inventive exploration of different ground treatments. He became particularly adept at designing the ground plane, here where the steep slope demanded the reassurance that only multiple terraces could provide. The Afternoon Garden introduces the theme with the parterre of water and glass, coral crushed marble[195] edged with box, blue lobelia and, ultimately, coal, in the words of Mabel Choate, "suggesting an oriental rug thrown over a stone floor."[196] Steele describes how he arrived at the idea to subtly sink the central parterre, "Without thinking we planned these beds of necessary dirt to be level with our flagstone. In fancy, sub-consciously almost, I felt myself stumbling over them as over a rug that is wrinkled. What more natural than to continue the analogy: Why not have a rug that is flat? Why not sink the beds so that the top of the flowers is level with the flagging?"[197] The curling wave of the end of the South Lawn is, as has been mentioned, legendary. There was a great deal of correspondence devoted to the surface treatment for the Linden Allée, in order to achieve a "springy surface,"[198] from cocoa shells to buckwheat hulls to earth and moss.[199]

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[194] Steele, letter to Edward P. Alexander, head of interpretation at Colonial Williamsburg of August 18, 1952, in which he declines using photographs for the upcoming lecture, "In fact, photography in both black and white, is a miserable failure in getting clear space perception."
[195] Two tons were ordered in 1929 alone.
[196] Choate, notes prepared for a talk for the Garden Club of America, 1930's, ARC.
[197] Steele, undated manuscript about Naumkeag, LC.
[198] Correspondence with Mabel Choate, 1949, LC, Box 59.
[199] The massive amounts of cocoa shells that were bought for the Linden Allée are testament to his persistence: 600 pounds in 1933, 600 pounds in 1934, 200 pounds in 1935, 200 pounds in 1938, 200 pounds in 1939, 1000 pounds in 1940 and 1941,

For the Top Lawn and House Terrace Steele tries various patterned combinations of stone and grass. The curved walk around the Top Lawn terrace, next to the Perugino View offered the crunchy experience of 1" thick crushed brick over a layer of brick laid flat. The Blue Steps transport one effortlessly down and up a very steep slope, with precise and textural variation under foot from brick to concrete to ridged brick to earth. By the 50's Choate's age had confined her mostly to the house level. The strong ground plane patterns of the sunken Rose Garden with it's curving iron bands delineating the impossible-to-traverse gravel "paths," and the cloud-form rose-beds that punctuate them with gaily colored blossoms, these elements abstract the textural experience of walking on the ground for Mabel's pleasure, from her terrace and porch high above. For the Chinese Garden Steele resorts to the ancient simplicity and restraint of hard-beaten, well-swept, sun-baked earth itself.[200] Finally, one of the first surfaces a visitor to Naumkeag will set foot on is Steele's relief "Winds of the World" in the front entrance. (images 50) A flat sandstone disk with a inlet brass north arrow, is surrounded by a bronze relief depicting images and names of sixteen winds, marked by eight diamond-shaped insets of marble providing points of a compass. The piece is set in brick, and as you walk over it into the house your foot registers the varying textures.[201] Given his predilection for the ground plane, it is not surprising that Steele favored ground covers. Their textural variety added detail to the ground surface, and

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and 2000 pounds in 1942, "one maximum truckload" in 1945, and 1 ton cocoa shells "with bean in them" in 1949, according to the Research Binders prepared for the Trustees by Anne Masury, December 2012. Cocoa shells were also used to mulch clematis in 1940, and perhaps other plants as well. Eventually buckwheat hulls were brought in for the Linden Allée because, "The cost of cocoa shells has gone way out of sight." Correspondance with Choate, ARC Box 59.

[200] Imagining Steele's elegantly shod foot traversing his gardens at Naumkeag recalls Dan Kiley's anecdote about his first encounter with Steele, as told to Karson, "Steele arrived in his chauffeur-driven Rolls Royce. Just as the door was opened for him, the door fell off. Steele rescued the moment by pretending that nothing had happened, and simply walked over it, a show of sangfroid that impressed the young man." *A Genius for Place, American Landscapes of the Country Place Era* (Amherst: University of Massachusetts Press, 2007) 348.

[201] There is a nearly identical piece surrounding an old millstone flanked by granite and inset in grass at the Camden Library Theatre that Steele designed in 1930. Visitors progress from the library down the curving granite steps, to fieldstone steps in grass leading to the compass rose, on their way to the amphitheatre, for a carefully choreographed succession of ground texture experiences in entering this dramatic space.

in some cases emphasized grading and slope manipulation. Where Steele sought to emphasize a smooth continuous curve, as in the South Lawn, he relied on turf, to be sure. But turf at Naumkeag was far from his default choice. If anything, Steele's landscape design offered a respite from the continuous lawn that had existed in all areas outside of Barrett's design when Steele first began designing at Naumkeag (images 51), which was consistent with the Victorian preference for green lawn punctuated by seemingly random specimen trees. Steele offered a creative alternative, and in Mabel Choate he found an eager collaborator:

> Ground cover plants to take the place of lawn grass are of great interest to her for two reasons. First for the variety and richness of effect which can be gained. Second to reduce the continual labor of grass-cutting. For places which are scarcely ever walked on she has tried 42 things and now has large areas covered with convallaria (4 vars.),[202] Vinca (3 vars.),[203] Yucca (6 vars. plus 31 unknown kinds from a friend)[204], Helianthemum (5 vars.), fragrant violets (7 vars.),[205] Hosta (5 vars.), Asarum europeum,[206] Teucrium chaemedrys[207], Fragaria indica.[208] When others are found to succeed, their number will be increased.
>
> 24 different kinds of ground cover plants have been tried for color effects of which thirteen are now used in quantity including five Ajugas.[209] 36 kinds of sempervivums[210] have done remarkably well on a planted wall and will be allowed to push out a couple of dozen kinds of taller alpines on a rock bank.[211] …Experiments for alpine lawns which will stand being walked upon are beginning. Mazus [*reptans*] and cotula [*Leptinella squalida*] are doing well. 54 other things are being tried for future years.[212]

This represents a massive experimentation in ground covers. The Perugino View in particular inspired multiple trials, in an attempt to ground the framing of the view with a

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[202] "entrance of Long Wild Garden path," 1933, Masury.
[203] Twenty-four 'alba' ordered for cuttings in February and again in May 1934, possibly destined for the Perugino View; 100 'Bowles' in 1935, and a whopping 700 'Bowles' ordered for the Rose Bank in 1938, Masury.
[204] Six of three different varieties ordered, Experimental Garden, 1940, Masury.
[205] Two hundred *Viola odorata* ordered for under the kitchen window in 1937, and another thirty various violas for the entrance drive in 1939, Masury.
[206] One hundred European wild ginger ordered for the entrance drive in 1937 and 200 in 1940, Masury.
[207] Germander was ordered for the Evergreen Garden, 1933.
[208] Wild strawberry, bank east of Evergreen Garden, 1937.
[209] One hundred and ten Ajuga 'bronze leaf' ordered for the entrance drive in 1936; more of the green variety were transplanted from the Experimental Garden in 1936, Masury.
[210] Hens and chickens, 700 of ten different varieties acquired in 1933 alone, Masury.
[211] This bank was eventually replaced with the Peony Terrace.
[212] Steele, "Naumkeag – Notes on Horticultural Undertakings," typescript manuscript, ARC.

light-filled texture. A topographic drawing from the Steele office of April, 1936 indicates "No Grass" in this area. (image 52) Bishop's weed, *Aegopodium podagraria,* was attempted first, but it grew three feet tall, flowered, and then was burnt out in the summer of 1936. It was replaced with 300 *Ajuga* [*reptans*]*'variegata'* in July and August. Bishop's weed was retained for the lower area to the west of the oak lawn and crag. The abundant and pernicious stands of Bishop's weed in the Linden Wood today, where it enjoys the cooler shade it prefers, remains from the first planting there that inspired Choate to try it elsewhere.[213]

The Trustees' Archive contains an album of beautiful photographs of the Naumkeag gardens commissioned by Choate from the photographer Emily Henry Bush in 1940. The summer gardens as presented in this album attain a high degree of well-manicured perfection and restful serenity. One is led to the conclusion that Choate, and perhaps Steele as well, had been moved to have Bush capture this climactic moment in the dynamic life of the garden. This is the same year of Choate's publication for the New York Botanical Garden, so the ground covers she writes about there are very much in evidence. Bush captures the curve of the entrance drive, accelerated by the wave form of pachysandra and ajuga, and echoing the distant hills. The most striking groundcover in the album is the nearly white *Ajuga reptans variegata* sweeping down the hill around the germander-edged rose bank and the oak lawn. (image 53)[214] This "white river" could hold it's own next to the dramatic curl of the green South Lawn, and highlighted the Perugino View. Sadly, this area has now been reduced to lawn, but The Trustees seem enthusiastic about resurrecting groundcover substitutions for turf.

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[213] "In my woods, there is a thick undergrowth of bishops-weed (Aegopodium Podagraria variegatum), so low and white and pretty that we thought it would look well in the open" *Journal of the New York Botanical Garden*, 88.
[214] "Planted on a steep bank that runs down from the house terrace it starts in two strips fifteen feet wide. These soon unite and flow together down the hill in a broad white river until it reaches the orchard a couple of hundred feet below." *Ibid.*, 87.

Choate appreciated the economy of ground covers, whose use could "do away with the expense of having two men mowing lawns for two days a week, as had been customary in the good old Victorian days."[215] Choate was especially fond of English ivy, and had an extensive collection of different varieties and "had a stand made to show them on her house verandah."[216](image 54) Steele may have been less fond of it than she, perhaps because it was so ubiquitous on brick houses of the period, and covered a good portion of the eastern face of the Choates' house already.[217] In 1940 he ordered 200 "European wild ginger" in the hope that it would eventually replace the ivy on the ground.[218] Choate appreciated the ginger as well, and it continues to grow well along the Linden Allée. She found it rather slow to establish, but "well worth the time it takes to start." Perhaps it didn't do as well as she had hoped as in 1944 orders were placed for 25 of the native *Asarum canadensis*, as well as 53 more plants of four new ginger species.[219]

The same traits that make a fast growing ground cover so reliable can lead to that plant's tendency to create monocultures, displacing the diversity of indigenous plants. I will consider this link when I discuss exotic species at the end of this chapter.

Water

As a thrifty Yankee, Steele was not unlike other contemporaries in his abhorrence of waste, be it industrial by-product or neglected leaf piles:

> Modern civilization is more wasteful of organic matter—for which there is urgent need in our land—than any other thing. Careless farmers exhaust their soils of their humus-content. Cities waste their sewage. Mills pour their wool-

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215 *Ibid*., 86.
216 Letter to Charles D. Webster, June 25, 1968. LC
217 Choate writes, "Around the house a thick carpet of *Hedera helix baltica* seems to give a sense of solidity, and its dark green color is very becoming to the architecture of the house." *Journal of the New York Botanical Garden*, 41, 484, April 1940, 89.
218 Steele to Choate, May 27, 1940.
219 8 *Asarum caudatum*, 10 *A. hartwigi,* 10 *A. lemmoni* ordered 3/16/44, 25 *A. canadensis,* 25 *A. shuttleworthi* ordered 3/25/44, Masury.

scouring water into the rivers. Individuals give away garbage and burn their dried leaves. [220]

His office files have numerous folders devoted to composting, natural soil amendments and alternatives to insecticides, among other garden-related topics that would today be seen as ecologically responsible, but in his early days would be fairly standard practice. There are numerous references to organic matter of great variety: chestnut tannin, spent hops, oak leaf mould, tan bark. It is Steele's prudent use of water, most noticeably in evidence at Naumkeag, that I will discuss here.

Steele explored the possibility of harnessing water power at a property in Peterborough NH, perhaps on the banks of a Mill Pond for his client Mary Schofield. [221]In *Gardens and People* Steele advocates a more judicious, visible and playful use of water than was the custom, and disparages the American tendency to use underground conveyance and storm water pipes.[222] At Naumkeag we see compelling evidence of various techniques to conserve this resource, as it had historically been limited at this site. The Choate family actively conserved water from the initial construction of the house, and Steele and Mabel Choate improved on the system, implementing modifications over the years, extending irrigation, improving drainage and preventing erosion. The visible product is an inspired celebration of water.[223]

The Hill Water Company was begun to collect spring water from Rattlesnake Mountain to the northeast of Prospect Hill Road and convey it via gravity flow in pipes to

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[220] Steele, *Design in the Little Garden*, 5.
[221] Memo from R.W. Sargent on Steele's stationary dated November 1, 1930, LC
[222] "…gardeners have accustomed themselves to the notion that water is a commodity which arrives in pipes and when they are through with it must depart the same way it came. It is taken for granted that it must be ready to respond to their whims." He states that Americans consider naked pipe to be "offensive." *Gardens and People*.
[223] The Mellon Foundation funded an assistanceship for archival research and field work related to water use and conservation at Naumkeag, Hancock Shaker Village and Sturbridge Village in the summer of 2011. I am also indebted to the professors Reid Bertone-Johnson and Nan Wolverton of Smith College, and Peter Kumble and Elizabeth Brabec of UMass who guided our work. My fellow students contributed much to my understanding of water treatment: Matthew Gallagher, Leah Grossman, Lara Hamsher, David McCormic, and Sage Sluter.

the residents (image 55). Mable Choate hosted annual meetings of the Hill Water Company at her house, beginning in 1933, as her father had done before her. The last known correspondence in Mable Choate's assiduously collected files for the group is a letter from Henry W. Ford dated 1958.[224] This correspondence highlights the difficulties encountered over twenty-five years of increased demand and sometime erratic supplies of water. It chronicles both cooperation and antagonism within the group, with Mabel sometimes providing necessary impartiality.

In 1931 a Boston engineer prepared detailed plans of the network of springs, reservoirs, pumps, outflows and piping showing a distance of nearly 1 1/2 miles from the highest spring to the Choate house. (image 56) The Choate's occupied the next to the last position on the line, followed by the Marian Fathers across the street. Overlaying a satellite image on the Hill water blueprint reveals the location of the springs and reservoirs on Rattlesnake Hill. (image 57) This and the preceding topographic show the close proximity of the water source to the Kampoosa Bog. The Hill Water consortium was not unaccustomed to experiencing low water flow in the dryer months, and letters sometimes flew back and forth with accusations of profligate waste on the part of neighbors, tempered by the sage reply that perhaps someone had inadvertently left a hose to run. At some point, it is unclear just when, the Choates made a decision to build a tank at the highest point on the Naumkeag property. The reservoir, really just a concrete tank, was called, with characteristic flair, the Deposito. (image 58) It was large enough to be a modest collector of rainwater, and provided added head pressure. The well that was ultimately drilled in the northeast corner of the Chinese Garden filled the Deposito, and was supplemented with rainwater.

[224] Choate Papers, ARC. Other members included, in 1953: de Kay, Henry Ford, Herstoff(?), Walter Hoving, Marian Fathers, Priscilla Luke, Nelson Foote, Mordecai Bauman, Baroness Von Echt, Nat Sisselman.

In his article "Water for the Country House" Steele seems to be writing about Naumkeag, so close are his ideas to his future water design there. Yet it was written two years before he even met Mabel Choate. He begins by acknowledging the huge water demands of the modern homeowner.[225] Gravity systems are to be favored wherever possible, "In hilly country, where springs abound and streams fall down the hillsides, home-made gravity systems could be used more than they are for supply." He suggests that in order to capitalize on spring-fed systems that offer steady but limited flow, one should consider building a reservoir. And he acknowledges the premier example offered by Italy:

> The country, par excellence, where water was used to the greatest advantage in gardening. Inasmuch as piping was even more expensive in Renaissance days than it is now, excessively complicated plumbing systems were avoided as much as possible. To simplify, the gardens were laid out on the slopes of hills, and the water from one fountain ran down by gravity into and through another. In this way the same water was used over and over again, in jet, runway, wall fountain and pool.

Steele was to apply this principle at Naumkeag. Mabel Choate would also have been familiar with the magnificent use of water in Italian gardens.[226] Given Naumkeag's hillside site and the fortuitous water supply Steele had a prime opportunity to design with water which, he writes, "is capable of as many uses as the imagination can suggest."

A utility plan prepared by Steele's office in 1938, and annotated in subsequent years, shows all piped water lines, above ground spigots, and fountains (image 59). The original Hill Water spring line is shown going directly to the house, with lines leading to the Experimental Garden, the stable, garage, Superintendent's house, vegetable gardens,

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[225] "…a daily supply is now considered necessary which would have served our ancestors, who drew water in buckets from wells, for an entire season." Steele, "Water for the Country House, For Both Practical and Ornamental Purposes," *The House Beautiful,* April 1924, 371, 417-418.

[226] She also praised the use of water in Asian gardens, "Water is greatly used and almost every garden has its waterfall and stream or lake, and happy is the man who has a mill wheel to gaze at in contemplation." "Impressions of the East" ARC.

greenhouse and original cutting gardens, and a spigot in the cow field and possibly a line to the center of the pasture. The later well and pump house in the northeast corner of the Chinese Garden reflects, in darker line, more recent use. Lines seem to bypass the house altogether, leading to the Deposito, the marble runnel in the Chinese Garden, as well as spigots there, overflow into the ravine, the original Summer House and the Fountain in the Evergreen Garden, the entrance court, the Top Lawn, the Afternoon Garden fountains, the rose bank west of the house, ending just south of the future Blue Steps, with a final line extending south from the ramp to the terminus of the Linden Allée, with a branch to the summer pavilion next to the tennis courts. A large water tank was built in the attic in order to increase water pressure within the house. (image 60) It was also connected to fire hoses placed in key locations in the house for fire suppression. (image 61)

In addition to the underground piping, linked drainage tiles (terra cotta half-round pipe) on the surface provided irrigation to plants on an as-needed basis, and prevented erosion. Steele did not like spray irrigation: "It is wasteful, because of appreciable loss through evaporation: and it is silly to assume that the supply of water is inexhaustible."[227] The gardener could irrigate various gardens in a successional or rotational manner, depending on specific water needs and supply levels. Steele provided precise instructions as to how the irrigation tiles were to be fitted at grade across a slope, especially at the top of the highly visible Perugino View area, at the edge of the path. (image 62) He also employed this system at the top curve of the rose bank/ knotweed bed, just down from the globe locusts. (image 63) Steele was convinced that surface watering was best for a rose bed, "no other method of soaking the roots can compare with it."[228] Perhaps this early instinct about watering roses influenced his design of the rose garden, with deep gravel paths leading from

[227] *Gardens and People,* 101.
[228] Steele, "Irrigation, Watering, Sprinkling," *The Garden Magazine*, June 1916, 297-299.

one rose bed to the next. The particular run that irrigated the original rose bank (now Japanese knotweed) was ingeniously fed by a brass diverter at the top source of the runnel to the Blue Steps. When the rose bank needed irrigation, a flip of the brass device could deliver the needed amount. The device disappeared recently, but The Trustees intend to replace it. In fact, all surface irrigation tiles are now in disrepair, many broken and missing, and will need to be restored. In addition, drainage tiles were laid under at least the northeast pasture, directing water flow from the slope's ledge west to the drainage ditch, drying the field to make better pasture. It is believed that most of these tiles have been broken or collapsed, due to heavy equipment on the field. Contemporary flooding of some Church Street residences may be due to the loss of this drainage system, but most likely flooding from the Housatonic has contributed.

It was a complex system, but it relied for the most part on gravity. Subject to change and tinkering over the years, it is not unlike similar gravity-fed water systems in large gardens of the day. In fact, The Trustees are in the process of renovating and repurposing an original underground cistern and rainwater harvesting system at the Crane Estate in Beverly designed by Arthur Shurcliff, which Steele would have been familiar with.[229] Steele capitalized on the existing system at Naumkeag, and the nature of the water flow determined the nature and style of his water use in the gardens. From the three bubbling Generalife-inspired low jets of the Afternoon Garden, to the rippling brick runnel, to the cooling sound of dripping water in the caverns of the Blue Steps, he celebrated the downward steady but modest flow. When this water reached the cutting garden, it would be put to use there as well. The Trustees only

[229] Lucinda Brockway, in conversation February 16, 2013 and "The Trustees of Reservations Begin Castle Hill Grand Allée Restoration Project," TTOR website: http://www.thetrustees.org/about-us/press-room/press-releases/allee-restoration-10.html (Last visited April 15, 2013).

hooked up to the municipal water source from down on Church Road in about 1997.[230] At present, Stockbridge town water supplies the potable water on site, as well as a spigot in the rose garden and the Arborvitae Allée.

Use of Chemicals and Organic Matter in the Garden

Early in his professional career, Steele had no qualms about using chemicals to combat outbreaks of pests and disease in his gardens. In notes for a lecture given to the Rye Garden Club in the 40's, Steele recommends an insecticide that will kill anything undesireable:

1 Gal Palustrex Sulphonate B
1 Pt Black Leaf #40
6 lbs Linco Colloidal sulphur
5 lbs Arsenate of lead
1 lb. Filmfast

The globe locust were mentioned most often among particular species needing chemical intervention for one reason or another.[231] The Linden Allé also suffered from some "fungus similar to Cedar Apple Rust." The apple trees were routinely sprayed. A list of "Spray Material" includes those listed above, plus Rotonone, sulphur and something called "Red Arrow."

Somewhere along his career his thinking changed, and his dislike of DDT reflects that shift. Perhaps Choate had influenced him. Steele indicates in a letter to her that the gardener had returned to his former (pre-1953) practice of using DDT, against Choate's wishes. "DDT is a nasty poison and more and more people are avoiding it on their own and dogs etc. account."[232] Steele passes along a replacement recommended by the Waltham

[230] Mark Wilson in conversation, August 14, 2012.
[231] Yellow and black borer beetles attacked the locusts, for which they were painted with Palustrex, and an unspecified disease was treated with formaldehyde.
[232] Letter to Mabel Choate, April 2, 1958, ARC.

Experiment Station that frankly doesn't sound a whole lot safer.[233] By 1959 he is avidly seeking information about alternatives to DDT for tree spray, "I am particularly interested in this as I am telling people generally not to use DDT as the cumulative effect may well be most undesirable."[234]

At just the same time that Steele was guiding The Trustees in the maintenance of Naumkeag, a number of unprecedented events marked the renaissance of a conservation movement in America. Rachel Carson's *Silent Spring* was published in 1962, exposing the dangers of DDT to the general public, and Congress passed a bevy of environmental laws designed to protect natural resources.[235] Steele would have been well aware of these changes. and his correspondence, particularly as it relates to The Trustees, suggests that he was in support of conservationist goals. Although the environmental threat of chemical use in the landscape was not perhaps at the forefront of his consciousness, he nonetheless held strong views. In 1963 Steele, who was on the Advisory Committee at The Trustees, wrote a strong letter to Loring Conant, Executive Secretary, objecting to the use of aerial spraying of DDT:

> …I strongly protest against helping in any way shape or manner the Cohasset spray program proposed for this spring. We shall run into serious criticism if we do and it will begin with myself. Many of us are persuaded that the use of D.D.T. indiscriminately as from a helicopter is a serious menace to bird life and other wild animals. Moreover it has a deleterious affect in the long run on human beings because it has a cumulative poisonous effect on the soil.
>
> I have not permitted it to be used on places where I control the spraying and frankly I should be the first to damn any who tolerated spreading D.D.T. in the air.[236]

I have not been able to determine what The Trustees response was.

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[233] 2# 25% wettable Malathion Powder, 1# 50% wettable Methoxichlor, 100 gals. water. Malathion is of low toxicity but it a potential poison for humans. US EPA Pub. No. 738-R-06-030 July 2006. Methoxychlor was banned as a pesticide in 2003. US EPA Pub. No. 738-R-04-010 June 2004

[234] Letter to Professor W.D. Whitcomb, April 24, 1959.

[235] These include the Wilderness Act of 1964, the Water Quality Act of 1965, the National Environmental Policy Act of 1969, and the Endangered Species Act of 1973.

[236] Letter to Loring Conant, December 30, 1963.

In terms of soil amendments, Steele's professional files indicate that he preferred adding organic matter, manure (stable and hen), compost and earthworms. Mulching at Naumkeag routinely involved massive amounts of organic matter. Chestnut tannin was used in 1936, and "cranberry mulch" in 1950. In 1940 Steele ordered 20 100 lbs. bags of "Hyper Humus" and 400 lbs. of "Fine Powder Charcoal" for a mixture of equal parts by volume to be spread on the Top Lawn terrace. Five years later the order for Hyper Humus was for a carload: 27.15 tons, and four years after that 43 tons were ordered.[237] But Steele also writes of using a green manure crop to "manufacture new loam" in constructing the Blue Steps.[238] He used synthetic fertilizers for particular requirements. The lawn routinely received a chemical fertilizer.

But he had particular difficulty with the limey soil at Naumkeag. In 1940 Steele wrote to Professor G.E. Haskins at Massachusetts State College Amherst about "poor chlorophyll action" particularly in the hemlock hedges, all varieties of ilex, "they die in comparatively short time," and *Zenobia,*[239] "planted this spring in fine condition have already turned sickly and yellow." He asks for assistance but hazards, "of course the place is a strong limestone region, and perhaps excess lime is the trouble." In 1941 Steele had a soil analysis conducted, as a result of continued poor plant performance, which indicated a high state of fertility but an alkaline soil. The soil scientist responded, "Difficulty in growing many of these plants is due no doubt to free lime which was found in all of these soil samples...This is a condition which apparently has been built up over a long period by intensive cultivation and cannot be immediately counteracted."[240] Ammonium sulphate was recommended, particularly for the old hemlock hedge, and Steele realized that what fertilizer he had applied would have had

[237] Masury, ARC.
[238] Letter to Mabel Choate, April 10, 1939.
[239] Probably *Zenobia pulverulenta*, honeycup, an ericaceous shrub native to the Southeast, with blue green leaves and white bell-shaped flowers..
[240] A.M. Davis of Massachusetts State College to Steele.

little effect until the alkalinity was reduced, particularly with the acid-loving plants. Yet as early as 1937, Steele had already written a fertilization schedule that included acid amendments for the laurels.[241] Given the predominant dolomitic limestone shelf that the garden sat on, and the calcareous grassland below, it is not surprising that the soil had a high pH.[242] But the schedule also recommends liming the tree peonies "lime when new shoots," and applying ground limestone to the clematis. In 1943 Steele was communicating with another nurseryman about a peony that was declining. The nurseryman responded, "We think that the limestone soil is responsible for it although this is only the second case which we can remember. …there are certain conditions when the pH is too high." He recommends working in "sedge peat," leaf mold, a handful of aluminum phosphate, and superphosphate rather than ground bone.[243] Tree peonies tolerate slightly acidic soil, and only if the pH is found to be lower than 6 is the application of limestone recommended.[244] Perhaps too much lime had been applied without adequate testing for soil pH. The point is, Steele was very closely involved with soil management of the gardens at Naumkeag, and kept close track of what Mr. Crighton was doing. He preferred naturally sourced amendments when possible, but frequently consulted nurserymen and occasionally soil scientists to get answers. Soil sampling, if not routine, was sought when there was a major problem. Synthetic fertilizer was used routinely, but organic matter predominated.

New England soils tend to be naturally acidic, due to climate and geology. It is interesting given Steele's sensitivity to the genius loci that those plants that one might

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241 "Laurels: Broadcast Covilles's formula fertilizer at rate of 30 lbs/ per 100 ft." (Coville's formula is given as: 10 lbs. cottonseed meal, 4 # superphosphate, 2# sulfate of potash.) The schedule also includes 1 lb. tannic acid per laurel and a "heavy mulch of acid peat moss 2 parts, sand 1 part by bulk." ARC.

242 In fact, this had been a longstanding issue at Naumkeag. In her "Report for Mrs. Joseph H. Choate" of August 1920, Marian Cruger Coffin notes, "Japanese Iris very poor in this bed. Asked Mr. Breed if there was lime in this soil and he says there is a great deal so there would be no point in replacing these." Box 5, ARC.

243 Letter from Cherry Hill Nurseries (name unintelligible), West Newbury, MA, October 13, 1943, ARC. In the prior month, records indicate that the Steele office ordered 100 lbs. of the "brand Fertilizer 4-12-2" and 500 lbs. of the same in 5-7-8. A subsequent order for 2 tons of fertilizer in April of 1950 was composed of "5-10-10-2," Masury, ARC

244 Cornell University Cooperative Extension

associate with being native to the broader New England region are the very acidic plants that needed help in order to do well in Naumkeag's limey soil. The local limestone bedrock presented rather different conditions for Steele and Choate to exploit.

Natives versus Exotics

As discussed in the Literature Review, Mabel Choate, Fletcher Steele and the designers who came before him at Naumkeag used both native and exotic species. As might be expected from someone who loved the New England landscape, Steele was quite fond of the robust natives of the region of his birth. When used in the garden, native plants could contribute to the overall fitness of that garden within the landscape. A naturalistic clump of native plants can also set off more modernist designs, as Steele achieved with the paper birch that clothe the Blue Steps, picking up beautifully the white of the steamship moderne[245] railings. When he ordered these birch he specified a variety of ages, by height and caliper, immediately creating the appearance of a native stand.[246] In a chapter titled, "Rock, Wild, and Wall Gardens" in *Design in the Little Garden*, Steele expresses his love for the plants native to the New England rocky ledges. He praises the "fitness" of native plants for rock gardens over foreign alpine introductions, which natives, being more "fit" tend to crowd out:

> In a couple of years the strong native plants begin to crowd out the more delicate imported things. …In a comparatively short time the rock garden has only a few of the strongest and hardiest of the foreign plants left. Meantime, the gardener has brought in native moss, trillium, hepatica, mayflowers, and other choice wild plants which are given every opportunity to grow. The rock garden that started as an alpine garden has become a wild place of native rock, evergreens, and plants, which are far lovelier and more contented than the fussy mountain-plants ever could be.[247]

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[245] Vincent Scully's subgenre to Arte Moderne which mimicked the design of ocean-going vessels. Here as elsewhere at Naumkeag, one is reminded of sea voyage. One could stand at the top of the steps holding the railing, as if at sea, looking out to the rolling hills suggestive of waves.
[246] Steele employed the same technique for the hemlock hedge along the entrance drive, his time in service of modern design to create a wave form.
[247] Steele, *Design in the Little Garden*, 55.

Steele is perhaps drawing on lessons learned at Naumkeag in the Afternoon Garden and the Alpine Lawn. Yet nine years prior to writing this, Steele, addressing tree professionals, suggested the opposite:

> …it is a curious fact that exotic, imported varieties are often more valuable than native material. European lindens do better than the native variety. European Planes have been said to succeed better than our American kind, though lately their usefulness has been debated. The English Elm certainly is more hearty in [downtown] Boston than the American Elm. The Ginko tree comes from asia, as does the Ailantus, treasure of the slums. It would appear that trees introduced from other continents have a far higher value for city use than any of our native flora. In the country, most people would prefer indigenous material.[248]

He draws a distinction then, between what would be appropriate for the city, and do well there, and what is more suited to a rural setting. Like Olmsted and Eliot before him, he always advised landowners to retain as much of the native, or existing, vegetation as possible before building. "The use of native trees already present as background for the picture is most important."[249] "And how finely unified are house and frame of trees where each becomes the neighborhood!" But this sentiment is short-lived, as he goes on, "Picture the hooded cottage of New England under its high canopy of elms. At each corner the severe architectural simplicity is softened by an overgrown thicket of lilacs…."[250] Despite their non-native status, lilacs completed the picture suitably for him. The fact is, Steele didn't care whether a plant was native or not, just that it was appropriate and practical. In some settings native plants were important to lend a naturalistic feel, which could connect with the genius loci. Certainly that is what's at play when Steele chooses to frame the highly refined Afternoon Garden with a softening corner of natives, ferns and lilies, and garlands of

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[248] Steele, "Tree Values Shift," manuscript lecture given at Shade Tree Conference, August 28, 1946. However he cautions against overconfidence in natives, citing recent diseases such as Apple Cedar Rust, to which exotics, he claims, are immune. In fact, no apples are native and resistant varieties are cultivars.
[249] Steele, "Planning the Small Place," *Horticulture*, April 15, 1930, 201.
[250] Steele, "The Use of Trees," in *The New Country Life*, 32, 4, August 1917, 19-28.

Virginia Creeper and grapevine: "…the use of native plants which are encouraged to go their own way within reasonable bounds, gives the impression that nature is content."[251]

Steele was not a "native plant pedant," his somewhat pejorative term for those who must have native plants alone.[252] He even skirted the racial controversy that sometimes comes up in such discussions, especially in times of war:

> "All is fair in love and gardening, to be sure, and dahlias from Mexico are as decent to use as coffee from Brazil. No sensible gardener would want to stop a good looking girl at Ellis Island or let Nature forbid his foreign trade. On the other hand, he [the youth creating a color chart] could not base American rules on lipstick as to the ways of foreigners, no matter how much he liked them. Nature in America could not be swerved by aliens. [253]

Steele's prejudice was that, all things considered (color, form, habit, adaptability), native plants might just do better in the garden. Here he is speaking of the Lombardy poplar, which was for a time all the rage, "It was originally imported to this country, and like so many that are not native, it is less dependable than indigenous stock."[254] When he refers to natives as "weeds" Steele usually means that they are common and unspectacular, but serviceable, "Coarse, weedy things will thrive at the expense of more delicate 'temperamental' varieties,"[255] he writes in an article that equates garden design with continual experimentation to see what works. And in reply to a letter from a fan he writes, "Yes, I am enormously interested in plants, though as an artist rather than a botanist. I would rather have a good stout weed that fitted properly into a scheme than the rarest plant on earth that was feeble and wanted to die." As we have already seen, Mabel Choate was even more inclined than he to prefer plants that flourished over all other attributes. Steele joked about her impulsive response to an argument over what to plant in sixteen metal pots for the

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[251] Steele, "Four Scenes from the Work of Fletcher Steele," *National Horticultural Magazine*, January 1945, 40.
[252] Steele, "The Effective Use of Planting in Landscape, Architecture and Gardening, Part II," *The Garden*, 1, 4, 1949, 8-12.
[253] Steele, "A Leaf from Nature's Notebook," *Horticulture*, 21, 15, August 1943.
[254] Steele, "The Use of Trees."
[255] Steele, "Landscaping a Continual Task," *The Boston Herald Book of Gardening,* May 20, 1929*, 5*

Chinese Garden, "'I know exactly what I am going to do,' and [she] would say no more. When I went up again in a few weeks, all was finished. In each shining pot was a stalwart weed! She had spent her afternoons motoring about to find them."[256]

Like other designers and gardeners of the early twentieth century, he was drawn to the increasing numbers of improved varieties that were available at nurseries, be they imports or products of "the hybridizer's art." It would be foolish not to take advantage of all that is at hand:

> By its very definition, gardening means growing some plants and excluding others with determination to improve on what nature would do if left alone. So when we find pleasure in nature's groves and decide to make one at home, we are not bound to use only the plants found in the wild. Quite the contrary, we open our catalogs to find what the world has to offer.[257]

Native wild plants offered much variety of color and texture.[258] Yet if the ambitious and impatient artist "wants his pieris to shine he brings one from Japan to replace the dull leaves of its American relative. If the texture of the white oak is a bit heavy, he sends for an English oak. Nature is unable to act so fast, if ever."[259] Steele admires the effect that Nature could make of a landscape, but it just took much too long. "Give nature time and she will practice a selectivity of her own with noble results. But her tempo is not ours."[260] He was not ignorant of the fact that some exotic plants could outcompete natives, such as *Ailanthus*, "A weed among trees, but deserves mention for one great service—it prospers in the slums and tiny back yards of great cities."[261] Sometimes this was advantageous, yet in a refined garden, it was not always welcome. In such a context Steele does express disdain for

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256 Steele, letter to Charles D. Webster, June 4, 1968.
257 Typed manuscript of lecture to Rye Garden Club, probably late 40's, LC.
258 "Colors from brown, red, sage and other greens are to be found in wild plants, together with textures from smooth and shiny to dull and rough." in "The Effective Use of Planting in Landscape, Architecture and Gardening, Part II."
259 Steele, "The Effective Use of Planting in Landscape, Architecture and Gardening, Part I."
260 Steele, *Ibid.*, 21
261 Steele, "The Use of Trees," in *The New Country Life*, 32, 4, August 1917, 19-28.

aggressive plants, like any gardener who "will soon see that Boston ivy smothers a sundial or the carved posts of an entrance porch, when a delicate ivy that can be pruned easily, such as *Ampelopsis aconitifolia* could be made to festoon, but never hide its support."[262]

Although it is impossible to know for sure, I believe that had Steele witnessed the extent to which aggressive exotic species have jumped the garden wall, to outcompete our native plants in the broader, uncultivated landscape, he would have been appalled. In his day it was already beginning to happen in New England and other heavily settled land. The extensive pasturing of livestock in the region had already favored the growth of prickly plants such as Japanese barberry, which the birds liked to eat, as Steele approvingly notes:

> The frequent appearance recently of Japanese barberry in remote New England wild land is the work of birds. Japanese barberry, which is too smug and well behaved on the lawn, improves in character by struggling for pioneer existence. At the edge of country woods and hedgerows its straggling, graceful stems and brilliant bits of color are an increasing asset in the September picture.[263]

He even suggests the use of Japanese barberry (and privet) as a substitute for box in northern climates.[264] Yet had Steele seen a pasture grown into a forest with Japanese barberry as the only understory species as far as the eye can see, as one can find in many places in western Massachusetts, he might have reconsidered. (image 64) Steele certainly loved the look of a monoculture, and it's ability to order nature. As was shown in Chapter 3, Steele believed that bringing order to nature resulted in beauty. It has also already been noted how he appreciated the effect of ground covers hugging the topography. He liked the ability of *Petasites*'[265] to spread into large stands near water to such a degree that he encouraged his clients to share plants with one another.[266] He watched approvingly as it

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[262] Ibid., *Design in the Little Garden*, 34
[263] Steele, *Gardens and People*, 51.
[264] Steele, "Edging for Paths and Garden Beds," *Garden and Homebuilder*, April 1927, 192.
[265] *Petasites japonicus*, Japanese butterbur, *Fuki.*
[266] He used *Petasites* in the early thirties at Mary Kenly's Hyghe Content in Manchester, Massachusetts and Robert and Helen Stoddard's Worcester garden. Karson, *Fletcher Steele, Landscape Architect*, p. 182.

thrived in the Chinese Garden and anticipated moving it to a wilder portion of the garden. "The Petasetes [sic] will continue to spread fast. Next Spring I want to take out the extra plants and put them in between the logs in the ravine where they will make a handsome show."[267] And again in 1950 in a letter to Choate, "Seven more Petasites have sprung up around the original three plants and should be moved out to the ravine to keep the group in the Chinese Garden from getting too big."[268] Little did he imagine, however, that in the ravine they would eventually become the entire show. (image 65)

[267] Steele to Mabel Choate, October 4, 1949.
[268] Steele to Mabel Choate, October 25, 1950.

CHAPTER 4

THE TRUSTEES OF RESERVATIONS

"Just how Naumkeag should be preserved will depend in spite of us, on prejudice and fashion of the future. But we may be able to guide them somewhat."

—Fletcher Steele, 1969[269]

Relevant History

The year following Eliot's 1890 letter to *Garden and Forest* the Massachusetts legislature authorized the creation of The Trustees of Public Reservations.[270] The Trustees have maintained the essential structure put forth by Eliot and his colleagues to this day: a non-profit land conservation organization, supported by its members. Guided by a board of volunteer Trustees, the organization holds land "of uncommon beauty and more than usual refreshing power" as stewards for future generations. As was shown in the first chapter, Eliot, like Olmsted before him, and inspired by the Transcendentalists, believed there were spiritual and mental health benefits to be gained by preserving scenic and natural landscapes, "as an antidote to the poisonous struggling and excitement of city life." Such preservation was intended to provide city dwellers with a respite from the rapidly developing cites, to keep "surviving fragments of New England's wilderness."[271] The original Trustees witnessed large losses of land around Boston to development, and this motivated them to protect the best for public use. The Trustees of Public Reservations became the model for other land trusts throughout the developing country, which increased in number slowly through the first three-quarters of the twentieth century. By the time Naumkeag was added to The Trustees properties, there were 132 land trusts nationwide. Private land trusts experienced a

[269] Letter to George Abbott, November 5, 1969, LC.
[270] The use of "Public" in the name was dropped in 1954 to eliminate confusion with public entities.
[271] Eliot, Charles W., *Charles Eliot,* 341.

rapid boom begun in the 1980's, concurrently with the growth of conservation easements as a technique for preserving land from development. Today there are over 1500 land trusts in the United States.

The Trustees Archive and Research Center holds a peculiar plan in colored pencil dated 1889, about which little is known, but which illustrates a potential housing subdivision over much of the Naumkeag land. It is a topographic plan, at 80 feet to the inch, drawn in an almost childlike hand, depicting the new house with its flower and kitchen gardens, tennis court, greenhouse and stable. The surprising feature is a series of drives dividing the land and providing access to seventeen houses with delineated plots, most of which are only slightly smaller than the main house, except for those on top of the hill with a view–these are larger than the Naumkeag house. The drives circle a patch of common land devoted to a "Terrace," and listing lacrosse, cricket, baseball, tennis, archery and croquet, which presumably might be played there. The plan is titled, "Study of Property of Joseph H. Choate – Esq. / N.F. Barrett Landscape Engineer." One can only conjecture that at one point Choate was considering developing his land into such a community of houses. There is a modest wall between the Naumkeag kitchen gardens and the community's drive, but most of the houses would have been in full view from the Choate's house. Given this proximity to the house, and the addition of common land for pleasurable group athletic pursuits, Joseph Choate's idea might have been to create a resort society of like-minded friends and peers. This was not an uncommon notion at that time.[272] The drawing realistically depicts the ravine, emptying onto the grasslands below, as well as the "present ditches." Perhaps further investigation of the wet lands by Barrett revealed that it was unsuitable for building, due to

[272] One well-known example is Tuxedo Park, which was developed in 1886 on the family land of tobacco magnate Pierre Lorillard IV as a private resort where his wealthy friends, among them J.P. Morgan and William Waldorf Astor, would spend their summers.

the water seeping from the hill and flowing across the proposed site, despite the ditches. Or perhaps Choate regretted the loss of the view of his meadows. Whatever the case, such a development would have meant a major loss for Steele's composition of the view, with the middle ground of the open grasslands as foil to the distant hills. It is ironic that one of the most highly valued properties held today by The Trustees–who have devoted so much effort to preventing the loss of open space to development–was once proposed as a development by the owners themselves.

Contemporary Goals

Today The Trustees of Reservations hold over one hundred properties. They manage twenty-two historic house museums, such as Naumkeag, and nine of these have gardens as well. The Trustees protect these properties and the cultural resources they represent through research, preservation, restoration, exhibitions and interpretation of historic structures, the fine and decorative arts, and landscape features. Five reservations are National Historic Landmarks, including Naumkeag, eight are on the National Register of Historic Places, and one, Bartholomew's Cobble in southern Berkshire county, is on the National Registry of Natural Landmarks. The Trustees own a much broader range of properties than historic houses and gardens. Many properties contain historic buildings, but the majority of the reservations are devoted to the preservation of natural or agricultural resources. These they protect through research, inventory, monitoring, habitat conservation, restoration and management, and rare species protection. They include diverse undesigned landscapes and habitats: "hills, mountains, and ridges; forests and woodlands; lakes, ponds, and bogs; river gorges, waterfalls, and floodplains; islands, rocky coastline, beaches, and sand dunes; marshes, grasslands, heath, and swamp; farms and agricultural land; prehistoric and

relic industrial sites."[273] Such varied sites provide an abundance of potential activities, and The Trustees name quite a few: "bird-watching, nature study, canoeing and kayaking, boating and sailing, cross-country skiing, snow shoeing, fishing, hiking, horseback riding, picnicking, swimming, pond skating… ."[274] The fact that The Trustees are stewards of both natural and historical sites, makes them an interesting model of how to integrate human history and use with the protection of natural resources. Eliot was conscious of the interaction of man and nature over time, yet from my readings of the early history of the organization, the emphasis always remained on natural scenic areas, and not historic sites. Today The Trustees may have a greater reputation, particularly in the eastern part of the state, as stewards of historic estates, than they do as protectors of nature. But they clearly do protect natural areas in a major way.

The Trustees hold 365 Conservation Restrictions under a program begun in 1971, making up more than 20,000 acres. As such they are the largest private holder of conservation restrictions in the state. Only the Massachusetts Department of Agricultural Resources and the Department of Fish and Game hold more acreage. A Strategic Plan was written in 2007 in order to guide the organization through 2017. It was produced under Andrew Kendall's presidency and advocated, in an urgent tone, a redoubling of efforts to meet the challenge of rapid land development and fragmentation, with an accelerated pace of land protection through creative alliances with conservation partners, particularly in areas already experiencing development. Poised to take advantage of a change of administration in Boston with the election of Deval Patrick, the Plan proposed: joining other conservation organizations to preserve hundreds of thousands of new acreage; continuing excellent

[273] The Trustees of Reservations*, Land of the Commonwealth, A Portrait of the Conserved Landscapes of Massachusetts,* (Amherst: University of Massachusetts Press), 158.
[274] *Ibid.*, 158.

stewardship; influencing more Commonwealth residents to recognize the importance of conservation for quality of life; working with the public and business to promote sustainable practices to address climate change.[275]

Under Kendall's twelve year presidency, the organization doubled its membership to 100,000, and dramatically increased the number of protected acreage they own from 34,000 acres to 61,000 acres, increasing total holdings to 106 properties[276] and, according to a Trustees press release, "established volunteerism, sustainability and engagement as core priorities for the organization, and was responsible for embracing increased urban conservation, local food access and farming, and cultural resource protection."[277] Kendall established sustainability, as well as education, as core priorities for The Trustees. Conversations with Trustees staff confirm the impression that the organization concentrated a lot of its resources on land acquisition and conservation during Kendall's tenure, while continuing to maintain its reputation for exceptional management and stewardship. Kendall was particularly known for speaking out early about the connections between land conservation and climate change. In addition, as a result of his strong interest in the sustainable production of locally sourced food, he led the development of a network of community farms and gardens across Massachusetts. The Trustees added the first CSA[278] at Appleton Farms, and now have four CSAs and seven farms. They built their first "green" building with the Leed-certified Doyle Conservation Center in Leominster. Most notably in the history of the organization, education was added to the charter, and it is now termed "Engagement" to reflect an interactive and self-motivational model.

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[275] Trustees of Reservations, *2017 Strategic Plan, 2006*, http://www.thetrustees.org/assets/documents/about-us/Trustees-Strategic-Plan.pdf (last visited March 1, 2013).
[276] Kandarian, Paul, "Barbara Erickson New Head of Trustees of Reservations," *Boston Globe,* July 12, 2012.
[277] Andrew Kendall to Step Down as Trustees of Reservations President, http://www.thetrustees.org/about-us/press-room/press-releases/andrew-kendall-to-step-down.html (last visited March 1, 2013).

[278] Community Supported Agriculture, whereby a farmer sells "shares" of farm produce to the public.

Organizational Issues

In 2009, an internal organizational change caused the department of historic resources to be renamed "cultural landscapes," and the historic resources staff became the "cultural resources staff." This change is consistent with a broadening of the definition of historical legacy throughout the preservation field to include landscapes and to recognize the effect of human history on the landscape. Kate Preissler, Engagement Manager of the Western region at The Trustees writes,

> The idea behind the change was consistent with what I had come to hold close to my heart: there is no firm line dividing human history and the natural history of the earth we live on. Landscapes that we view as "natural" or "ecological" are just as rich with a legacy of human intervention, meaning, and memory as those for which the buildings and artifacts remain as a more tangible reminder. Our "historical" properties often have ecological or environmental stories to share along with the human ones. [279]

This change signals an attempt to have more integration between staff who pay attention to history and those who pay attention to landscape or ecology. It could mean more integration of history into programming at natural sites, and more attention to ecological issues at historical sites. Preissler believes this is the case and states that, among other initiatives, they are "looking into programming that would use our designed landscapes to highlight how some of the choices made by individuals in the past have impacted our ecosystems. She cites, "for instance, the introduction of decorative plants that turned out to be invasive species, like Japanese knotweed which is still cultivated at Naumkeag." The audio tour at Naumkeag does in fact already mention the ecological damage in the landscape caused by knotweed, which was nonetheless an approved aesthetic choice of the past. The audio hastens to add that at Naumkeag the knotweed is carefully controlled so that it does

[279] Preissler, Kate, "Would you like a side of history with that? Toward a more holistic public history practice," on the website of the History @ Work a project of the National Council on Public History: http://publichistorycommons.org/would-you-like-a-side-of-history-with-that-toward-a-more-holistic-public-history-practice/#comments (Last visited March 1, 2013.)

not escape into the broader environment. The knotweed will be considered in depth in Chapter 5.

The emphasis on sustainability at The Trustees led to a reorganization of staff, such that program specialists, as late as this January on the website, were listed under the umbrella of "Sustainability," even if that had little to do with their job description. Lucinda Brockway, Program Director for Cultural Resources, and a landscape architect, believes that the point of that heading was to emphasize that no matter what work one did, "always we would be looking at that work with the eye of sustainability."[280] She credits the emphasis on sustainability and global warming impacts in the Strategic Plan as guiding this change. The restoration of the Crane estate, which she led, reflected this emphasis. In restoring the allée, the sustainability theme guided all decisions, from choice of tree species, to the carbon footprint of the project, to recycling, to conservative water planning. However, she admits that it was "a struggle" to implement a sustainability focus in the engagement program. Those visiting Castle Hill or Crane Beach are more intent on a pleasurable excursion than on learning, or worrying, about the warming climate. She believes that those in the organization who were hoping for more of a sustainability push were disappointed. It led to a lot of internal discussion, and, according to Brockway, it had a large impact on how the staff thought about their projects. But Brockway states plainly, "we were never founded as an advocacy organization. We were founded as a stewardship organization."

This past fall there was a re-envisioning of the goals for The Trustees and they are now in the midst of refreshing the Strategic Plan, probably to reflect the perspective of the new president. Programming staff are now grouped under the "Program Department" rather than under "Sustainability." Projects will be undertaken with sustainability always in mind.

[280] Lucinda Brockway, in conversation, February 13, 2013.

But rather than having sustainability at the forefront of publicity and programming "we're looking to lead by example more than by advocacy."[281]

In July of 2011, Barbara Erickson succeeded Andrew Kendall as only the fourth president in the organization's history. Although it is too soon to assess what her tenure holds, she has stated that she would like The Trustees to be more well-known than they are, and intends to increase membership six-fold.[282] She also seems particularly interested in introducing children to the out-of-doors at a young age, to counteract what she calls "the nature deficit disorder." At Naumkeag, to that end of raising awareness of the organization, The Trustees are planning a major fund and profile-raising garden party this coming July, unveiling the restoration of the Blue Steps in its 75th year, with an eye towards attracting those unfamiliar with the organization, such as summering New Yorkers. The organization is poised to grab a lot of attention for the Naumkeag restoration, as they did with the renovations at Castle Hill.[283] The restoration process itself will be well-documented, with photographs and video.

Mark Wilson is currently the Western Region Historic Resources Specialist and Statewide Curator of Collections, but he began his career with The Trustees twenty years ago as site administrator for Naumkeag. Prior to this September Wilson was responsible for creating the Archives and Research Center, a state-of-the-art archival center in Sharon, out of a former house. He is now based in Stockbridge and will oversee the restorations at Naumkeag. According to Wilson, Naumkeag has the highest priority for the organization,

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[281] Brockway. As an example of sustainability, the Trustees have reduced mowing on their properties statewide by 50%, according to Mark Wilson. In conversation, August 14, 2012.
[282] Feinberg, Jody, "New president of Trustees of Reservations wants to increase awareness of group's sites and work," Patriot Ledger: http://www.patriotledger.com/news/x326768508/New-president-of-Trustees-of-Reservations-on-a-Mission-to-Raise-Awareness?img=3 (last visited March 1, 2013). When he stepped down Kendall also identified this as the next course for the Trustees.
[283] *See* Speckhardt, Lisa, "The Hundred Year Haircut," *Landscape Architecture Magazine*, 22, 12, December 2012, 68-73, and Austin, April, "A Grand Finale," *Special Places*, 20, 3, Fall 2012, 6-9.

along with Castle Hill, in terms of stewardship and resource allocation. Wilson praises the commitment that The Trustees have to interdisciplinary work. He credits "really long, hard discussions" about how to move forward on projects. Staff from the buildings, the cultural resources and the ecology departments will come together to talk and solve issues. That's what happened during the year-long discussion about what to do to replace the failing roof on Naumkeag. The discussion involved balancing issues of historic integrity, economy, aesthetics and ecological concerns. The resulting roof, half of which was recently constructed, returns to the original 1886 decorative patterning designed by McKim, Mead & White using sustainably harvested Alaskan white cedar shingles to match the original cypress.

Julie Richburg, Regional Ecologist for all properties west of I-495, a total of 10,000 acres, concurs that regional staff members make most all decisions regarding natural resources, generally by coming to consensus. The Master Plans help to highlight important resources and to guide the direction taken.[284] My observation is that staff ecologists' focus on the ecological health of the properties means that, by necessity, they might have perspectives that are opposite to that of staff concerned with historic or cultural resources. Yet every staff member I spoke with had great respect for their colleagues' opinions, knowledge and expertise, and there seemed to be a genuine willingness to listen to, and learn from, each other. I will return to a discussion of this collaboration across disciplines to address culture-nature issues when, in the next chapter, I address actual decisions at Naumkeag.

It has become clear in the course of researching this historic designed landscape that there are considerable challenges facing the integration of natural and cultural resources on a single property. As stated in Chapter 1, the cultural landscape concept brings the dichotomy

[284] Julie Richburg, in conversation, July 20th, 2012.

between nature and culture into sharp relief. In their "Handbook for Managers of Cultural Landscapes with Natural Resource Values,"[285] Barbara Slaiby and Nora Mitchell address the interface of nature and culture in cultural landscapes and identify our discipline-oriented approach to management as being at the origin of such challenges. Their recommendations are based on the recognition that "managing cultural landscapes relies on a holistic approach—one that encompasses all significant aspects of a historic property—as these are integrated places of natural, cultural, scenic, and sometimes recreational values that have evolved and been layered over time." Naumkeag is unquestionably a landscape prized for its aesthetics and history above all else. However, not unlike other country estate gardens relying on the borrowed landscape as a primary design principle, the impact of the garden on the natural resources close at hand, and the inverse, cannot be ignored. The successful management of such a place requires a great deal of open communication between all parties and a decision-making process that allows everyone to participate. Limited staffing and funding for ongoing maintenance and monitoring need to be considered when decisions about the landscape are made. For example, given the planned restoration of the cutting gardens and orchard, consideration should be given to requirements for chemical fertilizers and pest management upslope of the grasslands and contiguous with the fen community.

Steele and the Trustees

Fletcher Steele maintained a long and close relationship with The Trustees. Among the earliest Trustees documents in his business papers at the Library of Congress is a draft of the 1949 Annual Report. In it is written, "We are trustees to preserve places of natural beauty and therefore want to preserve reservations under our care in as natural a state as possible. Yet there is always forest weeding and clearing of paths that can be done to make

[285] Slaiby, Barbara E., and Nora J. Mitchell. *A Handbook for Managers of Cultural Landscapes with Natural Resource Values.* Woodstock, Vermont: Conservation Study Institute, 2003.

the Reservations more attractive." Even then, there was a give and take between preservation and restoration, as Eliot had anticipated.

Steele had enjoyed a long and fulfilling commitment to The Trustees. He served, nearly continuously towards the end of his life, as advisor and as standing committee member. His last re-election to the Advisory Council, the year before his death, was announced in a letter this way: "Silence is tantamount to acceptance. You were again elected to the Advisory Council for 1970. You can't get away from us! / Best regards, George"[286] Steele spoke at length with Mabel Choate about bequeathing Naumkeag to The Trustees, so that their shared vision would be preserved for future generations. In a letter to another client he praises The Trustees for their valuable work:

> This society has been active for more than a half a century in acquiring and preserving places of natural beauty and historic interest. It has been influential in the establishment of state and city parks, forests and reservations. It has materially assisted many public and private agencies in acquiring their own lands for conservation. It undertakes the education of our people in the use and importance of the conservation of land, flora and wild life.[287]

With Mabel, three years before her death, he got down to brass tacks about an endowment for expenses:

> And they think they can run it on half a million (which is the sum that Charlie Bird gave us) and I saw no reason to change as you told me over the phone that you were going to see about changing your will.…In all cases the acceptance of large bequests and running properties as people want them run takes a lot of anticipating and making of details. Don't you agree? As you know we could not accept Mrs. Brandegee's place because it was not enough. And a bad loss is it to the future.[288]

His persuasive tactics apparently paid off. In a subsequent letter to Trustees staff this figure had been increased to $500,000 plus 20% to cover "the central office of The Trustees,

[286] Letter from George Abbott, February 2, 1970, LOC.
[287] Letter to Mrs. Livermore, March 27, 1948, LC.
[288] Letter to Mabel Choate, December 12, 1956, ARC.

as was done at The Mission House."[289] According to The Trustees, she closely guarded her decision to donate the estate as a "house museum" until near the end of her life, and it did not initially go over well with her younger brother Joseph.[290]

Mabel Choate died in October 1958, and the following year a bequest by her gave the property to The Trustees. At the time of her death there were only two year-round employees at Naumkeag, Mr. Crighton, Superintendent from 1922 to 1970, and Charles Barnes, who had been responsible for the cows and haying. In her parents' day there may have been as many as ten staff people to run the farm and gardens, so it is unlikely that the gardens continued to receive the requisite maintenance when she was no longer around to oversee the hiring of temporary workers. As early as 1960, Steele is concerned that the garden was not being kept in the tip-top shape to which he, and Mabel, had been accustomed, "the garden is falling off rather fast for lack of the funds which Mabel kept pouring into the construction and maintenance."[291] While Choate was alive there were a number of times over the course of keeping the gardens, when difficulty of maintenance led to a simplification of the design.[292] However, now that Choate was gone and the garden intent was fixed in time, changes would probably not have been consciously considered. At an Executive Committee meeting of The Trustees in August of 1969 committee members discussed management and personnel at Naumkeag, with special emphasis on the possibility of hiring a manager for the Western Region.[293] A few months later, Steele proposed a

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[289] Letter to Frank H. Detweiler, February 20, 1957, ARC.
[290] TTOR, Naumkeag Management Plan 2007.
[291] Letter to Mrs. Peter Malevsky-Malevitch, December 7, 1960, LC.
[292] "While all this was going on, the problem of maintenance was obvious, as it seems impossible to keep up with all the Victorian tasks of raking graveled paths and mowing so much lawn. The lawn terraces were turned into a lovely Rock Garden of flat irregular stone, with three horizontal beds on the Western side where now grow tree peonies, and this attractive bank reaches down to the level of lawn below." Choate, Mabel, *Naumkeag Garden, Stockbridge Massachusetts*, printed booklet, 1956, ARC.
[293] Trustees of Reservations, Minutes of Meeting of Executive Committee, August 5, 1969, LC.

meeting to George Abbott for the purpose of guiding the future of Naumkeag, while there was still time:

> Just how Naumkeag should be preserved will depend in spite of us, on prejudices and fashion of the future. But we may be able to guide them somewhat.
>
> Your telephoned idea of having a small symposium on the grounds might help. Crighton and I are the ones who knew most what Miss Choate had in mind and we can't be counted on for long. My opinion is that it would be a bright idea to have a leisurely talk on all sorts of relevant subjects at Naumkeag in warm weather. …I could go over all Hornbeck's points just as well in Boston or here if it is cold. I would like to have Betty Corning, Gus Loring (a good nut-cracker for me), yourself and Hornbeck and nobody else for the kind of talk I am thinking about. You four would well represent the charm, thoughtfulness and decent regard for people and money and landscape that she had. All together we could gather some of her thoughts for the preservation of Naumkeag.[294]

It would be valuable to have an account of that day's discussions but I was unable to find one. A search through The Trustees own files might elucidate this crucial period in the management of the garden.

It appears that, for the most part, the intention was always to manage the garden in a way that stayed as true as possible to the condition of the garden at Choate's death. In 1957, apparently satisfied, upon completion of the Moon Gate, that the garden had reached its apogee, she commissioned an aerial photo of the estate. It shows the grounds in a state of fertile perfection. The breadth and complexity of the vision that Steele and Choate shared is revealed in this photograph as in no other, before or since. It is has served as a valuable guide for The Trustees over the years (image 66)

[294] Letter to George Abbott, November 5, 1969, LC.

Current Management Plans for Naumkeag

There are a number of documents that shed light on The Trustees' stewardship of Naumkeag. In 1998, John Copley & Associates and Lynn Wolff Associates conducted a cultural landscape assessment for Naumkeag. In 2006 The Trustees prepared a comprehensive management plan for Naumkeag. The year 2009 was to mark the property's fiftieth year under The Trustees' management. This plan reflects some of the previously stated goals that guided decisions in the first decade of this century, namely, resource protection, education and interpretation, increased diversity of membership base, and strengthening partnerships. The Overview of the Planning Process states,

> While management at Naumkeag is well established, The Trustees felt it was important to affirm the outstanding characteristics of the property and to review current management practices with a focus on applying newly understood resource protection principles to ensure the continued preservation of these special qualities.

The plan was intended to support such initiatives as the expansion of programs for education and interpretation and the elimination of deferred maintenance. There is the stated goal to preserve the property in such a way as to honor "Miss Choate's vision." It pledges to maintain Naumkeag "to her high standards of stewardship." The work at Naumkeag was to be guided by eight clearly stated principles, including: resource protection; best management practices; sound financial management; engaging diverse constituencies; good communication and collaboration with local partners; "green practices"; evaluating and addressing management issues beyond the property's boundary.

The management plan identifies a number of issues and challenges that are relevant to this study. They include deterioration of much of the sewer system and associated utility corridor. In addition, despite high visitation, very few visitors had been converted into members and stewards, and there was no volunteer recruitment. The five primary goals

identified as high priorities for this plan have little to do with the garden, except the last: "re-establish an agricultural operation at the property." Increasing programming and the utilization of volunteers are among the top priorities. The complete plan offers 82 specific actions to be undertaken over the ten year period from fiscal year 2008 to 2016 for a cost of approximately $1,131,192. This figure includes the annual operating costs for operating a CSA, planned for implementation in 2010. This figure is less than half of the gift for the current restoration.

Restoration was undertaken at the Evergreen Garden and its Summer House/Ice House from 2002-2005. This restoration received a Landscape Preservation Award from the Massachusetts Historical Commission in 2005. The Afternoon Garden, Top Lawn, Peony Terrace and Chinese Garden were fully or partially restored in the ten years prior to 2007. Additional land, a 1.7 acre parcel, was given to The Trustees in 1985. It is an open field off Prospect Hill Road and adjoining the Naumkeag property. This gift preserves the view towards Naumkeag as it is approached from the north by the road.

The management plan states, "With few exceptions, all aspects of Naumkeag that were a part of the estate in 1958 still remain." It is candid, however, about the toll that the years have taken: "Vegetation growth and decay, hot summers, cold winters, and budget constraints are just four factors that have affected Naumkeag's landscapes over the past 45 years." The cutting gardens and vegetable gardens were discontinued. In the early 1970's a severe snowstorm collapsed the greenhouses and they were removed. Farm outbuildings also had to be demolished after they fell into "severe disrepair." However, The Trustees insist, staff and volunteers have "worked diligently to preserve the vision of Mable Choate and Fletcher Steele" and the organization has devoted much resources and attention to preserving the gardens. They identify a number of significant threats to the landscapes:

alteration to the viewshed; design changes to the gardens; lack of accurate record keeping; deterioration of landscape structures; deleterious impacts of 11,000 visitors annually; exotic invasive species. There are three significant opportunities for the landscape singled out by the management plan: viewshed analysis; increase in interpretive programming; establishment of an agricultural operation. These three are consistent with the goals stated in The Trustees Strategic Plan of the same year, discussed earlier in this chapter.

A review of the 82 recommended actions listed at the end of the management plan reveals the priorities for action at that time. It is useful in providing a basis from which to view the current restoration plan. Deteriorating sewer and utility infrastructure replacement is a critical need slated for Phase 1: FY2008-2010. This will be accomplished with the current restoration. The conversion of the basement into a museum shop and creation of a new entrance for visitors was only desired and slated for phase 3: FY2014-2017, yet this has already been accomplished. The museum shop had formerly occupied the porte cochere, was subject to the weather and had to be assembled every morning. Now one enters the shop in the basement to buy entrance tickets or to shop, via a door in the terrace above the Rose Garden. This is a major change to the visitor's experience. In terms of the designed gardens, needed restoration in the Afternoon Garden was recognized variously as "critical" (poles), and "needed" (glass for pool and replacement of latticework). Restoration of the Pyramid Steps was seen as "critical," no doubt due to potential hazards to visitors, and has been accomplished. Restoration of the Linden Walk was deemed "needed," and slated for phase 2: FY2011-2013. A plan to replace the various trees that have been removed recently was seen as a need, and the birch trees by the Blue Steps were singled out as an ongoing need. Initial cutting of both the Linden Walk and the Blue Steps commenced this winter. A viewshed analysis from the Perugino View to assess lands needing protection was

recommended for phase 1. Rehabilitation of the cutting gardens was being considered at that time, as well as restoration of the orchard. These are included in the current restoration plan.

As far as the farm operations are concerned, the master plan sought to hire a farm manager to prepare the fields for cultivation and to launch a CSA by 2013. It is not clear which fields are being referred to here but it is presumed to be the fields where the former kitchen gardens were located between the greenhouses and the drive. Prior to beginning an agricultural program the plan recommends conducting surveys and research on the calcareous fen community and rare plant populations to determine if altering the hydrology and field management would impact the ecology. There were a number of reasons why a CSA made good sense to The Trustees at the time. As has been mentioned, the organization was expanding agricultural projects throughout the state and had an interest in local food production. The revitalization of an underutilized portion of the Naumkeag estate was attractive, and an original historical use could be revived. There was potential with a CSA to engage the local community in new ways and diversify the experience of the visitor. According to Mark Wilson there is not much likelihood at the moment for a CSA. The Trustees have many CSAs already, including the largest in the state at Appleton Farms. They require a lot of management and are break-even at best. It remains to be seen what direction the new president will want to take concerning CSAs. However there is a lot of enthusiasm for reviving the kitchen gardens, as they existed when the aerial photo was taken in 1957, as well as the greenhouses.

In terms of natural resources, the management plan recognizes the need to evaluate the pasture-grazing regime and create a grazing plan to encourage species reproduction and diversity. It was recommended that mowing of the hayfield be delayed once every three years to allow the pendulous bullsedge to ripen seed. Naumkeag had been without a

superintendent, and the farmers have been left to their own devices, which has meant early haying and mowing. As was proposed for the farming operations, it was recommended that the fen community populations be monitored for impacts related to mowing and grazing regime changes. Monitoring of rare plants was also recommended once every three years. The above suggestions were ranked as needed or desired. However the plan deemed it critical, property-wide, to: 1) conduct an extensive survey of existing exotic invasive plant species; 2) develop a monitoring and control program for any invasives that were not intentionally planted; 3) develop a long-term plan for removing any species intentionally planted in the gardens or designed landscapes that occur on the Massachusetts prohibited plant list.[295] This has not yet been done in any systematic way due to staffing limitations.

In 2008 Julie Richburg wrote the 22 page "Invasive Plant Management Guidelines" to aid managers statewide in making decisions about invasive plant management. This document is a practical and thorough guide on the management of invasive plants that does not minimize the threat that invasives pose to Trustees reservations and acknowledges the dynamics involved. It includes a key to prioritization of invasives on minimally managed habitats, lists of species, steps and techniques for control, and a list of resources. It advocates sharing knowledge with colleagues, other land managers and researchers, and emphasizes the need to reevaluate and keep invasive species plans up to date with current methods and research.

There is one final document about Naumkeag that was created prior to the current restoration that is relevant to this study. The site was designated a National Historic Landmark in 2007. The registration document for National Historic Landmark Nomination presents a thorough overview of the history of the house and gardens. It was prepared by

[295] In fact the Massachusetts Prohibited Plant List is prominently included as Appendix A of the management plan. See the following chapter for a discussion of the plants on the list that remain in the garden.

Susan Edwards, then Director of Historic Resources at The Trustees. It does not shed any light on the actual state of the gardens, but instead concentrates extensively on the design history during the Choate ownership. Nonetheless it is remarkable for the complexity and subtlety of its analysis of the designed landscape.

Restoration Plan 2013

In August 2012, an anonymous donor agreed to give $1 million for a major renovation and restoration of the gardens at Naumkeag. The donor agreed to a match challenge grant bringing the total to $2.6 million. The stipulation is that the work be completed within a 30-month period. The project encompasses sixteen projects to be conducted in five phases. (image 67) The work will be guided by detailed surveys of existing conditions and planting plans based on archived documents and historical photographs of the original gardens. According to Lucinda Brockway, "By the end of the project, few landscapes in the country will have seen such detailed restoration."

In preparation for the restoration, a horticulturalist, Anne Masury, worked with The Trustees for three months, consulting planting plans, memos, correspondence and invoices at the ARC. The end product were two research binders including all plans, photographs and spreadsheets of plant material, arranged by garden canton and chronologically, including sources and quoted references from the archives related to plant orders or installations. This work provides a single source for all information related to plant material. The expectation is that all future queries can be answered by consulting this single document.

The restoration got under way in February 2013 with the cutting of all the remaining lindens of the Linden Allée and other overgrown trees and shrubs in the surrounding woodlands, most of the birch and all yew hedges surrounding the Blue Steps, the hedge lining the drive just below the greenhouse site which was obscuring the view, and all the

overgrown woody and herbaceous plants and trees occupying the former shrub cutting garden and the herbaceous cutting garden. (images 112, 113, 115, 116) The removal of roughly 200 trees was necessary, as they had grown beyond the size appropriate for the original design, some having been planted 80 years ago, obscuring views and design intent. Most of the lindens of the allée had died, and those that remained were crowded and shaded by the towering trees of the woods. A wide swath, 10 foot at minimum, was cut on either side of the original line of the allée. (images 68) Selective thinning of the woods took out poorly positioned, over mature trees as well as undesirable species such as Norway maple and ash.

Water and electrical infrastructure, as initially proposed in the management plan of 2007, will be first rebuilt throughout the gardens this spring, replacing in some cases 80 year old pipe. The goal will be to eliminate waste of water and to insure optimal pressure for the water in the five fountains. Then Phase 1 will begin with the Blue Steps, which should be completed before the July Garden Party. The Blue Steps plant material was completely overgrown and obscuring the lines of the steps and site lines, or struggling in shade. New Taxus hedge will no longer obscure the railing. Paper birches will be replanted in original clumps of various sizes massed according to original planting plans. The fountains will be repaired, masonry repointed and brick details restored.

Other elements of the restoration to follow include the following, in the order they will be undertaken: recreation of the cutting garden at the base of the Blue Steps modeled on the Trustees successful "pick-your-own" flower fields at Long Hill in Beverly and Stevens-Coolidge Place in North Andover; restoration of hedges, globe locusts, and cedar retaining posts of the South and Oak Lawns; replanting of the arborvitae defining Ronde Ponte; recreation of the lattice-work pavilion above the former tennis court including water and

electric;[296] complete restoration of the structural elements of the Afternoon Garden including walls, grape arbor, new water systems, wall fountains, Venetian poles, glass pool, planters and original seating; restoration of the orchard; the Chinese Garden walls will be restored, water elements and planting renovated including moss groundcover; new roses and perennial plantings and masonry repair in the Rose garden; replacement of over-mature vegetation surrounding the Peony Terraces; restoration of the Perugino View including extensive woody, perennial and annual plant material; restoration of the shrub cutting garden or Experimental Garden; restoration of vegetable fields, and, ultimately it is hoped, the greenhouses, which can be used to supply plants for the gardens and food and flowers for visitors.

Because they did not feature in the designs or archived plans of the garden, the Ravine, most of the woods around the Linden and Woodland Walks, and the grasslands are not a part of the restoration plan. The next chapter will present a discussion of ecological issues in these peripheral areas, as well as recommendations for replacing invasives within the designed portions.

[296] As the restoration brochure states the expectation is that this area "will support a growing private event enterprise to bolster Naumkeag's operations." In *Help Us Restore Naumkeag*, 2013.

PART II

CHAPTER 5

ECOLOGICAL CONSIDERATIONS: MANAGEMENT AND RESTORATION WITHIN THE GARDEN AND CONDITIONS IN THE SURROUNDING LANDSCAPE

In this chapter I will consider effects that the designed garden and its management has had on ecological processes, look at the implications of the proposed restoration, and conditions beyond the property. The discussion moves out from the garden to the edges of the property, to the surrounding landscape. First I will consider the role that horticultural choices have played, with a discussion of Steele's and Choate's selection of Japanese knotweed, one of the poster children for exotic invasive plants in western Massachusetts. I will then turn to the garden periphery, and look at some ecological aspects and management consequences in The Ravine and the Linden Wood. This is followed by a discussion of the pasture, meadow and calcareous fen, and the soil sampling I conducted there. Finally, I consider environmental and topographic features of the Stockbridge vicinity.

Invasives in the designed garden

Mabel Choate's trips to Asia and Europe yielded ideas, furnishings and plants for the evolving garden. Exotic plants were in keeping with the recurring theme of the sea and sea voyage found throughout the grounds, and were particularly appropriate in the Chinese Garden. But how many of these exotic plants proved to be invasive? By the Trustee's count, there are currently seven invasive species at Naumkeag that were deliberately introduced. Invasive species that have self-sown naturally number eight. The Management Plan allotted eight hours in the spring for the control of invasive species, which they deemed "Inadequate." Ironically, a full twenty-four hours were devoted to weeding the Japanese

knotweed bed, a task that one would hardly think necessary for a known invasive prohibited in Massachusetts, and this performance level was considered "Adequate."[297]

In the era during which Mabel Choate and Fletcher Steele were choosing plants for the Naumkeag garden, there was not much understanding about the extent to which aggressive invasive plants could alter ecosystems. As was discussed in Chapter 3, they were certainly aware, and wished to capitalize on, the tendency of some plants to spread "to beat the band," regardless of their origin. But sometimes they proved too aggressive. Here is Choate: "But beware of Sedum Dasyphyllum which grows like mad and is fool proof."[298] Nothing represents this more than the history of trying to find suitable plants for the steep bank between the South Lawn and the Oak Lawn, known in correspondence as the "Rose Bank." An examination of the history of this area of the garden illustrates the use of plants to highlight topography and views, and to maintain the bank against erosion. The Japanese knotweed that was eventually chosen for this spot provides a particularly high-profile and interesting case study of current invasives intentionally planted in the garden. In Chapter 6 I will suggest potential alternatives that would not be in violation of the Massachusetts Prohibited List.

Much has already been written about how this Rose Bank came to be. Suffice it to say here that this slope represents the edge of the grading of the swirling South Lawn, made from fill deposited in 1933. (image 69, 70) From 1932 to 1936, Steele and Choate refined the relationship of these two areas and features at their edges: grading of the South Lawn fill (1932-3); construction of the Pyramid Steps (1933); edging of oak lawn (1934); relocation of hemlock hedge (May 1934), planting of globe locust (1934-6). The topographic plan of April

[297] By "adequate" it is unclear if by "weeding" the bed they actually meant controlling spread or thinning to rejuvenate.
[298] Typescript manuscript, "A Few Groundcovers," December 1939, ARC. This passage was altered for the printed publication.

8, 1937 best illustrates the bank and Steele's intentions at the time. (image 71) They chose *Vinca alba* cuttings to make a groundcover planting in the strip at the top of the bank underneath the globe locust, the curve culminating in spruce (*Picea abies nidiformis*) that Choate called the "pincushion." (images 72, 73). These may have been replaced a year later with *Vinca minor* Bowles, the common blue-green variety which probably proved more vigorous. The articulation of this perimeter of the Rose Bank under the "Lollypops" has been lost over the years. The majority of the bank was originally devoted to shrub roses (R*osa Alberic Barbier, R. Evergreen Gem, R. wichuriana*) in 1934 and 1935. Cardinal vine, *Ipomoea quamoclit*, was sown in the bank in April 1935 to twine with the roses. In 1936 two each of eighteen different varieties of clematis were ordered for the Rose Bank, among other places. The intention was that "a number of them could be planted in pockets here and there on the bank"[299] In a few photographs from the period, there is a graceful curving strip at the north end of the Rose Bank, that appears to be germander, (image 74) and there is a reference to *Teucrium* in a letter from Steele to Choate: "I staked out the exact division between the rose bank and the Bishop's weed and increased the size of the *Teucrium* bed."[300] In the topographic Plan (image 71) this bed is labeled "Low Plants," and continues the entire length of the bed alongside the *Vinca,* however this does not appear to be the case in the photograph. In Choate's manuscript "A Few Ground Covers" she describes this bed, "The dark green of the Teucrium looks like a ribbon between these other textures, and beautifully outlines the sculptured grace of the hillside and the curves of the descent."[301]

The Bishop's weed Steele refers to, in the quotation above, occupied the slope south and southwest of the Perugino View and the Pyramid Steps, before it was burnt in the

[299] Masury binder, ARC
[300] Steele to Choate, April 27, 1935.
[301] Choate, Mabel, "A Few Ground Covers," 1940, ARC.

summer of 1936 and replaced with bugleweed, as was discussed in Chapter 3. (image 53) In 1936 clematis was inter-planted with the roses on the bank, and crimson *nicotiana* was sown in April 1937. *Dolichos lignosus* purple Australian pea vine[302] seeds were sown amidst the roses in May of 1939. Although it is hard to see in the black and white images that remain, the overall look of the bank would have been a coarse textured swath of 2 ½'-3' plants, with seasonal brilliant pink and red blossoms, punctuated here and there with other gaily colored blossoms of clematis, *nicotiana* and pea vine. It would have been very tedious, not to mention painful, to weed. The roses also required the application of fertilizers and mulch, and probably treatment for diseases and pests, although these would have been more resistant than other roses. As the oak grew ever larger, more of the bank became shaded, the roses stretched for the sun, bloom presumably decreased, and the plants became more susceptible to disease. However, this is how Choate described the failed experiment,

> "what happened was that the roses enjoyed themselves so thoroughly that they went completely haywire. Thick canes stood straight up in the air, hiding the lovely curve of the bank; or where they did decide to lie down, they reached out for ten or twenty feet, and yet were so far apart that weeds grew between them like magic. No one who has not tried to weed such a bed can imagine the torture of walking among thorns."[303]

The predominance of roses and the annuals in the bank thus came to an end in 1948 and 1949, replaced with Japanese knotweed, *Polygonum reynoutria*. Fifty plants were bought in March of that year, presumably to grow up in the greenhouse, followed by 200 in October of 1950, a number suggesting that the roses were abandoned altogether. This species of knotweed is described variously as being smaller than *P. cuspidatum*, and its flower is pink. In a printed booklet devoted to Naumkeag published in 1956, Choate says of the slope, "this

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[302] This vine is native to South Africa, but has become naturalized throughout much of Australia where it is recognized as a significant disruptor of native ecosystems. See Weeds of Australia: http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Dipogon_lignosus.htm (Last visited March 6, 2013).

[303] Choate, Mabel, *Journal of the New York Botanical Garden*, 41, 484, April 1940, 87-88.

bank to be covered with ivy and clematis."[304] This intriguing statement suggests two possibilities. Either Choate intended to again interplant the knotweed with more clematis and ivy (*Hedera helix*?), or she found the knotweed unsatisfactory and planned to replace it altogether. If the latter, had Choate been ready, seven years after planting the knotweed, to move on to the next experiment?

According to the U.S. Department of Agriculture *P. reynoutri* and its synonym *Reynoutria japonica*, is an "illegitimate superfluous name for *P. cuspidatum*."[305] Another name used for the "pink fleece flower" in the landscape trade is *Fallopia japonica* 'Reynoutria.' (image 75).[306] Other cultivars in this country include 'Compacta,' 'Crimson Beauty,' 'Devon Cream' and 'Milk Boy.' It is an herbaceous perennial which nonetheless, at from 3-10 feet high, appears to be woody. In Japanese it is known as *itadori* and is harvested as a wild vegetable, prepared variously in different parts of the country. Such use has kept it under control there. In both China and Japan it has been used as a medicinal. It was introduced in the late 1800's, at first distributed, from Japan, by the Royal Botanical gardens at Kew. It eventually lost favor as an ornamental due to its rampant growth, but was distributed widely there and in the U.S. due to its use as a landscape screen and for erosion control, even though, as will be shown, it turned out to facilitate erosion at river's edge. It was naturalized in the U.S. by 1894.[307] By 1910, it could be found in garden catalogs. Needless to say it can tolerate a broad range of conditions including full shade, full sun, low temperatures, high temperatures, salinity, edges of water bodies and drought.[308] Its rhizomes can easily spread wide and deep, and the plant resprouts energetically when cut. It is most disruptive in

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[304] Choate, Mabel, "Naumkeag Garden, Stockbridge, Massachusetts," Summer 1956. ARC.
[305] http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?29269 (Last visited March 6, 2013).
[306] This plant, however, is described as groundcover, 12"-24" tall, and is for sale at a nursery in Virginia: http://www.sandysplants.com/index.cfm?fuseaction=plants.plantDetail&plant_id=812 (last visited April 6, 12013).
[307] Invasive Plant Atlas of New England: http://www.eddmaps.org/ipane/ipanespecies/herbs/Polygonum_cuspidatum.htm (Last visited March 6, 2013).
[308] The rhizome is said to withstand temperatures as low as -31° F, according to the National Park Service.

riparian areas and wetlands where it forms dense monocultures, outcompeting native plants, altering wildlife habitat, causing erosion and increasing downstream flooding and sedimentation. As vigorous as the roots are, they do not hold onto the soil, but merely form impenetrable networks of rhizomes along the water's edge. With increased erosion, flooding and scouring, portions of the rhizomes break off, and quickly become established downstream. Other habitats favored are roadsides and disturbed areas. It reproduces vegetatively, but there are a few viable seeds, and birds can distribute the fruit.[309]

The World Conservation Union lists Japanese knotweed as one of the top 100 worst invasive species. It can be found in 42 states.[310] It is banned in Connecticut and Nebraska, quarantined in Oregon and Washington, and prohibited in New Hampshire and Massachusetts.[311] It is one of 34 species listed as invasive by the Massachusetts Invasive Plants Advisory Group (MIPAG) and is the number eighth most reported invasive plant in the state. Despite the fact that the knotweed was originally intended to be on the Rose Bank, a concerted effort should be made to eliminate all knotweed. Countless organizations, volunteers, and governments have spent untold hours attempting to eradicate knotweed from the landscape, The Trustees among them. The Trustees are committed to removing invasive plants from their properties and educating homeowners about how they can help to eradicate the species. They cite the preservation of biodiversity as the primary reason to manage invasives, followed by the preservation of cultural resources, such as designed gardens and agricultural or forestry productivity.[312] Japanese knotweed even makes The Trustees' "Most Wanted" list. (image 76) The 2007 Management Plan for Naumkeag

[309] Massachusetts Invasive Plants Advisory Group: http://www.massnrc.org/mipag/invasive.htm (Last visited March 6, 2013).
[310] USDA: http://plants.usda.gov/java/profile?symbol=POCU6&mapType=large&photoID=pocu6_001_ahp.tif (Last visited March 6, 2013)
[311] The Massachusetts Prohibited Plant List can be found at: http://www.mass.gov/eea/agencies/agr/farm-products/plants/massachusetts-prohibited-plant-list.html (Last visited March 6, 2013).
[312] TTOR: http://www.thetrustees.org/what-we-care-about/the-natural-world/least-wanted.html

recognized the presence in the garden of state-listed prohibited invasives and had this to say: "These species should also be removed from the gardens. Though their loss may alter the historical accuracy of the original garden composition, proper protocols should be followed in regard to any species at Naumkeag now classified as an invasive in order to assure that both historical and ecological resources are amply protected."[313]

The Trustees have decided to continue to maintain the knotweed bed at Naumkeag beyond the current restoration for a number of reasons. They believe that the intention of the planting was to provide seasonal color and to use the drama of a single swath of plant material to emphasize the curve of the steep bank around the prized oak tree. The prevention of erosion also was, and continues to be, a consideration. If the knotweed were to die, then The Trustees would most likely replace it with something else, but since it is there and, they believe, hasn't escaped from cultivation in all these years, they will maintain it. They have kept it from spreading by diligent mowing around the perimeter of the bed, which thy will continue. The Trustees intend to manage it better than in the past, getting rid of the asters and goldenrod and vining weeds that are currently degrading the stand.[314] (images 77, 78) Nonetheless it still spreads alarmingly at its edges. (image 79)

Lucinda Brockway emphasizes the dynamic nature of invasive species lists. She points out that the list is of relatively recent origin, and that it doesn't necessarily take into account the particular conditions that cause a plant—she is not necessarily speaking of knotweed here—to be invasive:

> ".. in some cases, species can be very invasive. And in other cases not invasive at all. So we haven't had the horticultural side of the argument. We've looked at key places where plants …invade the native community. …But we haven't looked at cases where that might not happen. So it may be that 10 years from

[313] TTOR *Naumkeag Management Plan 2007*. One of six "Significant Threats to Naumkeag's Landscape."
[314] In conversation with Lucinda Brockway, February 13, 2013.

> now they would come off the invasive species list because, given these factors, they would not be invasive. There's always this dynamic back and forth."

Her opinion is that the knotweed is not behaving invasively in this particular situation, and the historical and aesthetic integrity of the selection of this particular species is, in this case, more important than the fact that it is listed as being a problem elsewhere in the state. As long as there is no evidence of the knotweed escaping into the grasslands, The Trustees intend to maintain it.

There are a number of other plants considered to be invasive in Massachusetts that were chosen for the original garden, but will not receive such extensive treatment here. The Trustees seem to be aware of most of these species. They are listed in total in **Appendix 4**, but include *Lonicera* species, *Euonymus fortunei*, *Berberis japonica*, buckthorn, the globe locust (*Robinia pseudoacacia* var. umbraculifera), and Bishop's weed *(Aegopodium podagraria)*. The rest of the chapter will be devoted to three peripheral areas of the designed garden: the Ravine; the Linden Wood; and the grasslands. Further discussion of other invasive species, introduced and otherwise, will be found in their respective locations.

The Ravine

There is a small ravine and streambed at the northern edge of the Naumkeag property, between the northern entrance drive and the Iverson field. The water in the ravine can be followed upstream across Prospect Hill, towards the Kampoosa Bog, and downstream to the Housatonic River. (image 23 and 25) It has been peripheral to the designed garden since Nathan Barrett first laid out the original gardens. As such, it represents the interface between the ecology of the garden and the ecology of the broader environment. The first mention of the ravine in Steele's correspondence is in reference to transplanting the *Petasites* there from the Chinese Garden in 1949 and 1950, as was discussed

in Chapter 3. As of last summer, the *Petasites*, known as Japanese butterbur or sweet coltsfoot, had all but filled the shaded ravine with a raised mosaic of the huge elephant ear-like leaves. This 360º photo was taken from the place where the end of the Arborvitae Allée enters the shade of the ravine hemlocks. (image 80) The stand runs from the bottom of the hill to where the ravine reaches the road. Visitors to the garden are invariably drawn to the beauty of the big butterbur leaves and always want to know what it is, and how they can grow some at home. Many Berkshire county residents, particularly those with second homes, reside at the edge of the forest, and are always looking for a groundcover that will help to make the woods look more tidy.

Butterbur is a rhizomatous perennial native to China, Korea and Japan, and found there along woodland streams. It spreads aggressively by rhizomes here, but is listed neither on the Invasive Atlas of New England[315] nor by the Massachusetts Invasive Plant Advisory Group.[316] In the sixty-four years since butterbur was first introduced to the ravine it has grown to dominate it, shading or outcompeting any former species, save a few. Where it begins to encroach on the Evergreen garden it is kept in check, but the plants at the edge that do receive full sun tend in any case to wilt on hot summer days. A large stand of butterbur has even shown up behind the barn, most likely of it's own accord, as it is downstream of the ravine. (image 81) Other aggressive colonizers observed on the ravine floor include myrtle (*Vinca minor*), lily of the valley (*Convallaria majalis*), Japanese barberry (*Berberis thunbergii*), and honeysuckle (*Lonicera spp.*). The upper story is dominated, in turn, by Norway maples and hemlock.

Precisely one mile north of Naumkeag, a small wetland just off and in view of Prospect Hill Road is dominated by a species of *Petasites* that seems identical to the one at

[315] See: http://www.eddmaps.org/ipane/ipanespecies/ipanespecies.htm (Last visited March 9, 2013).
[316] See: http://www.massnrc.org/mipag/index.htm (Last visited March 9, 2013).

Naumkeag. As at Naumkeag, this butterbur has become established as the dominant species in this shaded wetland. It is possible that the now defunct garden center that once existed across the road from the wetland is the origin. But it is just as likely that a root of a plant growing near the edge of the road at Naumkeag was broken off by a plow and carried down to the wetland.[317]

The presence of *Petasites* and Norway maple in the ravine has raised a discussion at the Trustees that is pertinent to our inquiry here. It is an example of how some decisions require a compartmentalization of the ecology of garden and of the environment. For the purposes of the present restoration, The Trustees have decided to let the butterbur remain. As Lucinda Brockway puts it, "…that is not a native stream anymore. It's really a horticultural feature now rather than ecological."[318] In order to manage a garden as precisely designed as Naumkeag it is necessary to honor the clear boundaries between designed and undesigned garden. The many iterations of the garden plan delineating separate cantons is an indication not only of the extended process of design, but also a necessary division for purposes of cultivation and management. (image 22) The garden is a horticulturist's purview, from The Trustees' perspective. Ecologists are included in the discussion, it seems, only when an invasive plant is present. In the case of Naumkeag, the ecologists have their hands full just managing the invasive species in the calcareous fen and grazing and haying strategies. Management and eradication efforts are better spent, they believe, addressing these sensitive areas.

In the case of the ravine's Norway maples, there is a blurring of the line between horticulture and ecology, between inside of the garden and the periphery. The Norway

[317] There is another intentionally planted monocultural stand of *Petasites* at a residence on Route 183 next to the Berkshire Botanical Garden, 1mile from Naumkeag as the crow flies, but 21/2 miles by road.
[318] In conversation, February 13, 2013.

maples were slated for eradication during preparation of the restoration plan. The ecologist's position was, however, that they need not be removed for ecological reasons. Julie Richburg's argument was that even if they were removed the seedlings would still emerge. From the horticultural perspective, the maples are quite damaging, as they are seeding themselves quite prolifically across the garden, causing an enormous problem for maintenance. So The Trustees are seeking permission from the local Conservation Commission to remove the Norway maples. Subsequently they will encourage more of the native deciduous trees to come up along the bank. In this case, the maple is not being removed because it's on the state prohibited list, but because the proliferation of seedlings are making garden maintenance more difficult.

The Linden Wood

Inspired by a trip to Germany, Mabel Choate's mother, Caroline Choate, created the Linden Walk in 1890, a straight, shaded allée of *Tilia cordata* providing a leisurely level promenade from the lawn south into the woods, terminating at a seating area and a statue of Diana. (image 82, 83) This allée follows a level grade through the woods at the southeastern edge of the property. As is readily seen in these photographs, the allée was set apart from the woods by a 10 foot deep ramped border, cleared of all trees and shrubs. This was necessary to distinguish the line of lindens from the surrounding woods dominated by a tall canopy, to allow enough light for the Linden's to thrive, and to create the desired dappled shade (image 84). Over the years Mabel Choate chose various plants to serve as groundcovers along the allée and in the surrounding woods to underscore the native woodland theme:

> Maidenhair and other ferns of various kinds, jack-in-the-pulpits, wood-lilies, wild geraniums, and cypripediums all love to grow there; and among these we have planted *Lilium auratum*, which had disdained the garden, and the pink *L.*

speciosum, and they grow magnificently. Where there is some sun we have the native yew, *Taxus Canadensis.*[319]

Plant orders include Lilies of the Valley (1933), 50 *Nepeta hederacea variagata* planted 20" O.C. (1936), *Cotula squalida, C. australis, C. cornopifolia* and *C. haastii,*(1939) and in 1949, 200 *Pteretis nodulosa* or Ostrich Fern were planted in "extra large clumps" in the "path above Linden Walk," presumably the cleared area. As of 1935, the cocoa shell under foot gave way to moss-covered gravel–or at least that was the plan at the time. As we have noted, Bishop's weed or *Aegopodium podagraria*[320] and myrtle or *Vinca minor*[321] were introduced and in time came to dominate the ground. Observation of a 10 foot swath on either side of the allée in May of 2012 revealed a number of plants originally introduced by Choate which were still holding their own against the bishop's weed and myrtle: Canadian and European ginger, maidenhair fern, wood geraniums, Solomon seal, goats beard, jack-in-the-pulpit, hosta and lily-of-the-valley. Two other woody aggressors that were probably planted are taking advantage of sun provided by slight openings in the canopy: honeysuckle and winged euonymus (*Euonymus alatus*), the latter having been spared in the recent tree cutting.

The Grasslands

The grasslands at Naumkeag are significant for their aesthetic and historic value and for their natural resource potential. Therefore, although usually overlooked by visitors, the integrity of this area is essential to the integrity of the entire property, and the proper management of this vital resource is critical to The Trustees stewardship of Naumkeag. As discussed in Chapter 1, the historical ditching of these wet fields, which receive abundant calcium-rich water seepage from the hill above, has enabled agricultural use in the form of grazing and haying, and, in the higher elevations, has supported crops. In 2005 The Trustees

[319] Choate, Mabel, *Journal of the New York Botanical Garden*, 41, 484, April 1940, 87.
[320] Other common names include, Bishop's goutweed or just goutweed. In Massachusetts it is a State-listed Noxious Weed.
[321] Also known as periwinkle.

conducted vegetation analysis that produced a distribution map of fen community species *Gentianopsis crinita* (fringed gentian) and *Scirpus pudulus* (pendulous bullsedge).[322] (images 85, 86, **Appendix 1**) The management regime then and now is to graze cattle on the fields to the west of the north-south drive that passes through the center, and to hay the fields to the east. The eastern field has been identified as entirely a fen community. This might lead to the supposition that either grazing discourages these species or haying encourages them. However the eastern field is also situated at the toe of the slope so as to receive abundance calcium-rich inundation, particularly in the spring when it is crucial for plant growth. In addition, the Housatonic River is less than 500' west of the property line and seasonal flooding of the river water may have a considerable effect on grassland hydrology and nutrients, particularly in the pasture.

My objective in the portions of this paper concerning the fen is to provide data analysis that might help guide management. I chose to conduct soil sampling in the grazed and hayed portions of the grasslands. I selected those areas for study that might supply information useful for understanding the distribution of particular fens vegetation. I wanted to understand if soil chemistry correlated in any way with the location of those communities as determined by The Trustees. I also wanted to determine if soil chemistry might indicate areas with potential for encouraging an increase in population or diversity of this vegetation.

Method

On October 6 th and and November 4th of 2012, I collected soil samples at eight locations. I sampled each area that had been delineated by The Trustees as fens communities in 2005. I also took samples from locations outside of the delineated areas, 100' from the

[322] The pendulous bullsedge is no longer state-listed, but on a watch list. It occurs in 5 of the 12 Massachusetts counties. It is considered rare in MA, threatened in Maine, and endangered in New Hampshire.

original sample. Please see **Appendix 2** for a map of the soil locations. For example, location 2 outside of the delineated fen community, is 100' from location 1, within the delineated fen, location 4 is 100'outside of the area of location 3, and the same with locations 5 and 6. Locations 7 and 8 are both within a delineated area, and location 7 has the unique distinction of being within the areas colonized by both fringed gentian and pendulous bullsedge. Location 8 is 100' from 7, outside of the range of gentian and sedge. For the composite spreadsheet I created of the results, the locations that occur within the calcareous fen species community have CFC after the number, for calcareous fen community i.e. 5CFC. Location 7, being within the gentian and sedge areas is labeled 7CSG, for Community, *Scirpus* and *Gentianopsis*.

Samples were taken from the root zone 4-10 cm below soil surface. I sampled every location on each day, for a total at each location of 2 samples, taken a month apart, which I combined. Please see **Appendix 3** for results.

Grasslands Soil Analysis

Although without replicates it cannot be said for sure that there is a statistically significant difference between inside the fen community designated area and outside of it, I can make some generalities. In all pair cases the pH within the areas are higher than that outside of the area, by .3 of a unit for the smallest difference (3CFC to 4) and .8 of a unit for the largest difference (5CFC to 6). High calcium and magnesium confirms that the groundwater is influenced by dolomitic limestone. Location 3CFC exhibits the highest calcium—it seems the calcium rich ground water is discharging at this point. Without a precise survey one can only conjecture elevations from the USGS topographic map, which I have overlaid on the soil sample map. (image 89) However, 3CFC is located at the toe of the slope, and from that point the ground levels off from roughly 12% to roughly 2-3% as it

approaches Church Street and the River beyond. Between 3CFC and 4 there is a significant change in organic matter, with 3CFC being 50% higher for the highest amount of organic matter of all the samples at 15.4%. Location 4 might exhibit similar community supporting properties if one were to shave off the top of the soil down to the elevation of 3, bringing the root zone in contact with up-welling water. One could judge the appropriate level of mottling in the soil horizon through visual analysis, which would indicate the extent of the seasonal water table. Phosphorus is high in 3CFC and 4, which may be because it receives the most cattle traffic (the cattle seem to prefer this area, at least in the fall) and cow manure is rich in phosphorus and potassium.

Location 6 seems to be the outlier. It exhibits the greatest divergence in nutrients, micronutrients and pH. It is in the acidic range at 5.9, has the highest aluminum, potassium, iron and lead, the lowest phosphorus, calcium, magnesium, boron, copper and sulfur, and the lowest cation exchange capacity. 6 is disconnected hydrologically. It is not getting the calcium seepage that other locations are. 5CFC is circum-neutral and has higher calcium. Unless it is being limed (it is close to the drive, on the other side of which is the cemetery) it is somehow receiving calcium-rich materials. The high aluminum at 6 can be explained by it's pH. Aluminum solubility is pH dependent: the more acid, the more aluminum, if present, is released to the soil. 5CFC and 6 are behaving as a pair in terms of iron alone—their levels are substantially higher than elsewhere. At 6, this makes sense because it is slightly acidic (iron dissolves better in acid soils), but 5 is nearly neutral and still high in iron and sulfur. The cation exchange capacity,[323] appears correlated with organic matter. Location 3 is highest in organic matter at 15.4 %, with cation exchange capacity of 29.9 MEQ/100g, also the highest of all the samples. Location 6 is the lowest in both respects. In all other samples,

[323] Cations are positively charged ions. Cation exchange capacity is a measure of the ability of soils to retain and supply nutrients, expressing the size of the warehouse of nutrients.

the system is highly buffered against much of a pH change occurring. This is due to the high base saturation of the cation exchange complex. Location 6 is different with <50% base saturation (K + Mg + Ca=47.2 %). Again this is reflected in the high aluminum and lower overall pH. Location 6 is not receiving the same groundwater discharge—it may get it in the spring, but late in the season it has not received replenishment.

An examination of location 7CSG, which is located in the area found to be richest in diverse community species, shows that in terms of soil chemistry, it is not that dissimilar from location 8. In fact the pairs 1/2 and 7/8 are not that far off from each other. Locations 7CSG and 8CFC, both within the fen community, are close in pH (7 and 7.2), are similar in nutrients, have the lowest lead levels, and the highest manganese. These two pairs are similar topographically as well. In chapter 6, I will return to a discussion of these results: what can be concluded, and what further steps can be taken.

Surrounding Ecosystems

The Naumkeag property experiences a 128 foot drop from the highest elevation at the entrance on Prospect Hill Road (955 feet) to the lowest point where the drive exits the property onto Church Street (827 feet). (image 87, 88) From Naumkeag the slope rises to the northeast to the Marion Fathers Monastery (984 feet). This prominence contains the lake-basin fen of Kampoosa Bog, north of which rises Rattlesnake Mountain (1557 feet). Kampoosa Bog is considered an Area of Critical Environmental Concern, and one of the Commonwealth's most significant rare species habitats. There are 19 state-listed rare species within its 1350 acres. The Kampoosa Bog drainage District stops just short of the Naumkeag property, but comprises a portion of its historical water source. (image 89)

The steepest point of the Naumkeag property occurs below the majority of the gardens and in the woodland. The slope tapers off in the upper grasslands to achieve a 2-3%

slope in the lower fields. From here there is only roughly a 4' drop to the Housatonic river, which takes its most luxuriant meander just west of Naumkeag around the Stockbridge Golf Course. This ortho photo shows the high water conditions of the pasture ditches in the spring. (image 90)

Turning to the wealth of MassGIS data available in the vicinity of Naumkeag, wetlands data reveal the property's relative isolation from the major water basins of both the Kampoosa Bog and the Housatonic River. (image 91) As a result of long-maintained ditches and the grade of Church Street (Route 102), there is only a small deciduous swamp designated on the property. Church Street creates a barrier between Naumkeag and a Priority Habitat designated PH 543. Other priority habitats are designated on a larger map, for a total of 6 different species habitat on all sides of the property. (image 92)

Naumkeag occupies a fortunate aspect in relation to land designated as Distinctive or Noteworthy Scenic Landscapes in the Massachusetts Landscape Inventory Project of 1982. (image 93) Distinctive Scenic Landscapes are "of the highest visual quality." Typically consisting of "openness, low population density, high relative relief, historical structures and land uses, agriculture, surface water, significant vegetation, important geologic features, and lack of contemporary development."[324] Another significant element of this map is the extent of open space that is protected in perpetuity, which includes Naumkeag. In terms of land use of the immediate Stockbridge vicinity, there is a fragmented patchwork of private, land trust, non-profit and municipal land with more distant DCR managed lands at Kampoosa Bog and Beartown State Forest. (image 94) The scenic landscape inventory is the only apparent connecting element, but topography and flood zones prohibiting development and large

[324] Massachusetts Department of Conservation and Recreation, MassGIS Data: The Scenic landscape Inventory: http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/sceninv.html (Site last visited, March 22, 2013.

private land holdings also play a part in preserving the land and the Naumkeag view. Nearly every town in Berkshire County currently has a land trust devoted to preserving scenic lands.

Maps prepared by the Berkshire Natural Resource Council (BNRC), a non-profit land conservation organization protecting threatened lands in the county, depict the topographic variety that supplies Naumkeag with its abundance of vistas.[325] (image 95) To the southeast Ice Glen provides a foil for views of Laurel Hill (1688 feet) and Mount Wilcox (1800 feet). To the southwest Monument Mountain (1739 feet) rises up to reveal white marble cliffs. Due west of Naumkeag and moving north are Dunbar Hill at 1220 feet in West Stockbridge, Maple Hill and its ridgeline topping out at 1766 feet, and to the northeast the West Stockbridge Mountain ridge to 1800 feet which becomes the Yokun Ridge wrapping around Stockbridge Bowl and culminating in Mass Audubon's Pleasant Valley Sanctuary and Bakers Mountain, due north of Naumkeag, at 2124 feet (not visible on map). Most of these mountain and hilltops are, or once were, visible from the gardens at Naumkeag. Many are protected. It is in the lower elevations, closer to Naumkeag, where house sites have become visible, and will only increase.

According to Doug Bruce, Stewardship Manager at BNRC, the biggest threat to land in Berkshire County is development. On land already under BNRC stewardship, invasive plants are the number one threat. There are areas where invasives are just ineradicable, and there is no hope of ever controlling them. The organization takes a pragmatic approach: where they can make a difference, they try to remove invasives. But they cannot afford to manage it all. Because they are a non-profit and lack money and staff time, they concentrate on species that 1) are a threat to a specific native plant species and 2) most directly effect people who benefit from the BNRC lands. Japanese barberry is considered the greatest

[325] See http://www.bnrc.net/zoom_map/berkshirecounty.htm for interactive map of entire Berkshire County. (Last visited March 22, 2013.)

threat to the ecological soundness of BNRC lands. The thorns on barberry make it painful to walk through and it detracts in a major way from the use of trails. Volunteers can be motivated to eradicate it, by cutting it back and uprooting it. Alternatively, BNRC will hire professionals who will pull up roots, use foliar spray, or, when the location is adjacent to wetlands, apply herbicide to the cut stump. Other invasives that are a problem on BNRC lands include multiflora rose (*Rosa multiflora*), the bush honeysuckles (possibly *Lonicera morrowii, L. maackii,* and *L. tartarica*), oriental bittersweet (*Celastrus orbiculata*), garlic mustard (*Alliaria petiolata*),[326] glossy buckthorn (*Rhamnus frangula, Frangula alnus*), and *Phragmites australis*.

[326] Garlic mustard is a particularly good poster-child for eradicable invasives. It is easy to pull up even without gloves, it impacts spring ephemerals, and eradication programs educate people to remove it on their own lands. Doug Bruce, in conversation, May 8, 2012.

CHAPTER 6

RECOMMENDATIONS

This chapter presents recommendations for a number of actions that can bring the restored garden at Naumkeag into more sensitive alignment with the outlying environment. I begin within the gardens, with recommendations for re-establishing groundcovers, and the reduction of grass. Next I will return to the issue of the Japanese knotweed in depth, due to its highly invasive nature and to its prominence in the garden, with recommendations for its replacement. Other invasives deliberately planted in the garden are listed in **Appendix 4** with suitable replacements recommended. The chapter then turns to individual treatment of the Ravine and the Linden Wood and the grasslands. The chapter closes with a consideration of the gardens' broader setting.

Recommendations for the Garden

Ground Covers

In Chapter 3, I explored Mabel Choate's and Fletcher Steele's mutual interest in ground covers. The current restoration is an opportune time for reintroducing the species referred to by Choate in her article for the New York Botanical Garden, as well as those in Steele's planting plans. Wherever The Trustees can replace the existing turf they should make an effort to do so. In those cases where high foot traffic prohibits some species, paths may need to be designed that alter the spirit of the design as little as possible. Ground cover is not fool proof, and requires long-term commitment, but in most cases, the savings gained by a reduction in mowing and weed management makes the effort worthwhile. In the case of Naumkeag, the benefit of restoring an historic feature that is sustainable, and being able to

interpret it for visitors as an example of what they might try at home—that's integrity at work.

The white river of *Ajuga reptans variegata* that was captured so beautifully by Emily Henry Bush in 1940, is the most obvious example of what might be achieved. Choate even describes what is required to get it established (see Chapter 3). (image 53, 96-98) In 1940, the bugleweed extended not only up to the runnel, but it continued up through the Perugino View beds, ending at the path below the Top Lawn. (image 99) This photograph suggests that there was still a lawn below the Peony Terrace, which probably continued north to the drive. Steele's 1937 topographic plan (image 52) has stepping stones for the cart track, which is now brick, and at this time before the Runnel, the ground cover clearly stops at the edge of the area marked "no grass," suggesting that there was a different treatment, probably grass, beyond. If this scheme were restored, the slope between the Perugino View and the Afternoon Garden where there is a wheelbarrow ramp, could also be grass. Visitors could therefore walk from the Great Seat, around the path below the Top Lawn in the Perugino View, down the grassy slope to the Runnel at the base of the Pyramid Steps, and then take the brick cart tracks down to the Oak Lawn. If the latter proved too narrow, a grassy path could be created between the two cart tracks.

The area between the Oak Lawn and Ronde Pointe is suitable for a combination of *Mazus reptans* and *Leptinella squalida* (brass buttons), as in the former alpine lawn. Due to heavier foot traffic, it may be necessary to mimic the cart tracks on this side as well, in brick or stone for those passing directly to the Ronde Pointe and the Linden Wood. The edges of the Oak Lawn are currently defined by an inset row of bricks, and the South Lawn is edged with the "pole curb", serving to separate the this Crag area and suggesting a different ground treatment. The top of the crag is currently very weedy, and there are any number of ground

covers for rock gardens, including the two listed above, that would be suitable for colonizing here, or the columbine could be encouraged. The restoration plan calls for planting *Euonymus fortunei colorata* in a narrow crescent at the southern end of the oak lawn by the Crag. It may have been considered necessary to plant something other than grass here to keep people from tripping over the edge: in the same 1937 topographic plan mentioned above, there is a one foot drop at the "pole curb" edge. (image 100) *E. fortunei* is not listed as invasive in Massachusetts, but it is in Connecticut, and its aggressive habit in our region should be reason enough to not introduce any more at Naumkeag, particularly so close to the woods.[327] Any number of plants that Steele and Choate have used elsewhere could work here, germander, thyme, evergreen candy tuft (*Iberis sempervirens*) or European ginger.[328]

The pachysandra wave forms along the entrance drive are in need of rejuvenation. The bugleweed should be restored here as well, where grass is now, as Choate describes in her manuscript. (images 101, 102)) The brick edging paths will need some attention, and the "polka-dotted" hosta in the pachysandra at 8' O.C. will make a striking welcome for visitors. (image 103) Other ground covers that could be restored are the European ginger (*Asarum europeum*) for the entrance area, germander (*Teucrium chaemedrys*) and wild strawberry (*Fragaria indica*) for the Evergreen Garden, and *Helianthemum* on the banks by the former gardens next to the green house.

Japanese Knotweed

There are a number of reasons why I am recommending replacements for the Japanese knotweed. First is the risk of spreading this species beyond the property. It is true

[327] *Euonymus* is already in residence climbing over the wall between the South Lawn and the entrance drive, as well as below the Great Seat, but it appears to be kept in check.

[328] As can be seen by the images 40-42, the limestone outcrop that was designed to imitate a similar outcropping on Monument Mountain, no longer matches it in color. This can be remedied, now before planting, by sandblasting or power washing the stone back to its original pristine white.

that no Japanese knotweed has ever been found elsewhere on the property, which is a strong indication of its limited dispersal. However, even with attentive mowing around the bed, there is the possibility that a piece of the rhizome may be carried off the premises, in mowing equipment or lodged in a boot. Birds can carry the fruit. Even cultivars developed as ornamentals can contribute to the spread of the plant by providing the pollen required by Japanese knotweed to produce viable seed. The second reason for eliminating the knotweed is for the example that it sets for visitors. Lucinda Brockway spoke of modeling sustainability rather than talking about it. Here is a golden opportunity to do just that at a very high profile garden undergoing a restoration that is sure to be widely publicized. Already the bed is mentioned in the garden audio tour, as an illustration of how choice ornamentals can become a problem in time. The audio gives the explanation that the knotweed is original and that it is well maintained so it won't escape. It might also say, "Don't try this at home." I believe it would send a far more powerful lesson if The Trustees led the way by showing how to choose replacements for plants which would otherwise cause damage outside of the garden.

Mabel Choate speaks of the challenges presented by this slope, "a long curved high bank that is hard to cover, both because we are anxious not to disguise its shape, and also because it is so difficult of access that we want to avoid any growth of weeds."[329] To her mind, one failure of the roses to work here was that their upright habit obscured "the lovely curve of the bank." The roses had "sounded perfect–foliage green and shiny, flowers beautiful, and growth thick enough to discourage weeds." The ideal replacement should provide the best attributes of the knotweed with the qualities of the desired rose: seasonal color in a rosy-pink hue; uniform height; coarse texture; ability to hold the bank; low

[329] Choate, Mabel, *Journal of the New York Botanical Garden*, 41, 484, April 1940, 87.

maintenance; drought tolerance; partial shade tolerance; insect resistance, tolerant of alkaline soils. The plant should be non-invasive, but have the ability to naturalize, if not a true suckering habit. In addition, the rose and the knotweed have red tinged stems or leaves, and fleshy stems, which Mabel Choate seemed to favor in leaves and stems (fuchsias, agave, sedums). A red-purple-burgundy tone is important in this area due to the repetition in the pagoda, the *Alternanthera* around it, and the spiral of the burgundy Japanese maples *(Acer palmatum atropurpurea*) underplanted with *Oxalis* 'Maroon Gold'. Whatever species were chosen, the practice of interplanting with clematis, annual vines, or *Nicotiana*, as was done with the roses, could be considered for increased color variety. I would recommend restoring the bed of germander wrapping the Rose Bank that is shown in several of Bush and Steele's photos and plans. (image 74, 104)

The plant presenting the majority of these requirements is *Sedum telephium* 'Matrona,' autumn stonecrop (image 105). It is hardy to zone 3, has domed clusters of pale pink flowers with dark-tipped stamens born at uniform height, with an upright habit. The foliage is a medium gray-green edged with a rose overlaid with burgundy. Rich maroon stems reach 2-3 feet tall. It prefers moderately fertile moist soil, of pH 6.6-7.8, in full sun, but will tolerate less moisture and less sun. It is considered drought tolerant. This sedum can be propagated by taking softwood cuttings or by rooting leaves in early summer, or one can start seeds in the fall. It is considered deer resistant and is attractive to butterflies. Potential problems with this plant are a reported susceptibility to mealybugs or scale. Another *Sedum* to consider that is not susceptible to pests is 'Postman's Pride,' which grows 1-3 feet tall with masses of red to purple flowers late summer through fall. It has dark purple-tinged foliage, even darker in full sun, perhaps too dark for this bank, which is sometimes in shade. It prefers drier soil

than *S.* 'Matrona' and has an upright bushy habit as long as the soil is not too rich or moist. *S.* 'Postman's Pride' is easy to propagate in the same manner.

Two other non-native possibilities are *Salvia* 'Pink delight' and *Centranthus ruber.* (images 106, 107) The *salvia*, meadow clary or clary sage, is listed variously as *S. x sylvestris* 'Pink Delight,' *Salvia nemorosa* 'Pink delight' or *S. pratensis* 'Pink Delight.' It is a 2 foot tall herbaceous perennial with an upright spreading habit with relatively fine texture. Lavender-pink flower spikes will rebloom if cut back. It is most effective planted in masses and will attract butterflies and hummingbirds, but not deer. Hardy to zone 4, not particular about soil, it is drought tolerant, fast growing and floriferous. Mabel Choate planted nine *Centranthus ruber* in the cutting garden in 1942–three red and six white (*C. ruber alba*)–so we know, at the very least, she appreciated the flower. Commonly known as Jupiter's beard or red valerian, it can be a well-branched, bushy, clump-forming woody perennial growing 1.5 to 3 feet tall, as in one case, bred by Piet Oudolf from a variety not originating in the United States. Its magenta to rose-red showy and fragrant flowers bloom sporadically from spring to frost. It prefers full to partial sun, is drought tolerant and prefers alkaline soils, which Naumkeag has. It works well on banks and attracts butterflies. No serious insect or disease problems are expected. Negative aspects of *Centranthus ruber* are that it tends to flop if not grown in full sun, and has a tendency to self-seed prolifically. If not deadheaded the dense panicles produce dandelion-like seed heads that are dispersed by the wind, and should thus be very carefully considered. Native to Europe and parts of Asia, it is considered invasive in some western states, but is not invasive in the east.[330]

Native plants appropriate for this bank in varieties Choate and Steele would not have known are *Rhus aromatica* 'Grow-Low' and *Clethra alnifolia* 'Hummingbird.' (images 108-110)

[330] Cornell University: http://www.gardening.cornell.edu/homegardening/scene2d02.html (Site last visited March 7, 2013).

This aromatic sumac is a low, dense, spreading woody plant (18-30" tall, 4-8' wide) that performs very well in masses and on slopes creating a cascading effect, which would accentuate the curve of this bank. It is grown for its glossy green foliage which would complement the oak, but has a pale yellow flower in May, small clusters of red berries in late summer, and brilliant gold, red, orange foliage in fall. It is vigorous and low maintenance. Like knotweed, it spreads by root suckers. Hardy to zone 4, 'Grow-Low' tolerates full sun or partial shade, and is resistant to deer with no serious insect or disease problems. Its cascading nature is unlike Choate and Steele's choices, but I think it is nonetheless a strong candidate, that would serve to accentuate the curving slope, fulfilling Choate's desire "not to disguise its shape." *Clethra alnifolia* 'Hummingbird,' or dwarf sweet pepperbush or summersweet, has flower panicle growth similar to knotweed. It is a deciduous woody compact upright plant growing 3 feet high that masses well. It spreads vigorously in sun or shade, tolerating a wide range of soil conditions, in zones 4 to 9. The fragrant white full-size flowers bloom July to August over dark green leaves, even in shade. Steele chose 3 of the species for the Perugino View in April of 1935, so we know it was preferred. The 'Hummingbird's' fall foliage is yellow, and it is deer resistant and low maintenance. Individual plants would stand out in a manner reminiscent of the rose plants.

Globe Locust

The top curve of the bank is punctuated by what Mabel Choate called "the lolly pops"— the globe locust. In plant orders this is specified as "Robinia globosa," but is otherwise known as *Robinia pseudoacacia* var. *Umbraculifera.* This thornless variety has a dense spherical crown and is sometimes grafted onto regular globe locust stock. Emily Hunt Bush's photographs reveal that in their heyday, these plants did indeed resemble lollipops, their spindly trunks rising to whimsical round tufts looking like something out of a Dr. Suess

book. (image 99) The shade they cast across the south lawn as the sun set emphasized the curve of the slope. They are an essential element of the design of the South Lawn.

Black locust*, Robinia pseudoacaia* is a prohibited invasive species in Massachusetts.[331] It is a fast growing tree that can form islands of dense clones that shade out lower vegetation. The fragrant flowers compete with native plants for pollinating bees. Black locust has been naturalized throughout 48 states and in some places threatens native ecosystems. I have observed stands of clonal locusts that exclude all other woody species in Berkshire and Hampshire counties in Massachusetts and Columbia and Albany counties in New York.

The Trustees would prefer to replace the existing aging trees at Naumkeag with the same variety.[332] They recognize the difficulty of doing so, however, given the tree's prohibited status. If it is not possible to replace them, the originals will be kept and cut back hard, or they will be replaced with a similar species such as thornless honey locust (*Gleditsia triacanthos 'inermis'*). Given the invasive nature of this locust, however, I recommend moving on to a species that does not do ecological damage, such as the honey locust, which could be pruned to resemble the globe locusts.

The Ravine

The previous chapter discussed the serious potential for the *Petasites,* or butterburr, in the Ravine to spread to other land via plows and other truck tires. Recommended action would be to remove all *Petasites* at Naumkeag from within 15 feet of Prospect Hill Road and of the driveways. This would effectively eliminate most potential for spreading it beyond the property. It seems unlikely that Steele or Choate chose to introduce the plant behind the barn where there is a large stand, and removal of this should be considered as well.

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[331] MIPAG: http://www.massnrc.org/mipag/invasive.htm (Last visited April 14, 2013.)
[332] Lucinda Brockway, in conversation, February 13, 2013.

As the Norway maples in the ravine are cut, consideration should be given to managing successive tree growth, or to replacing them with red maples. Japanese barberry and honeysuckle, which are starting to establish at the edge of the *Petasites* should be removed, lest they take advantage of the increased sunlight, which the *Petasites* will not tolerate well. The aggressiveness of *Petasites* reduces the need for much maintenance in the ravine. However, as it is no longer a native ecosystem, some time will need to be devoted to monitoring the balance of the plants here—guiding succession and eliminating unwanted aggressors.

The Linden Wood

The current restoration of Naumkeag commenced with the cutting of trees and woody plants at the Blue Steps and the Linden Walk. The linden (*Tilia cordata*) that remained had to be removed, as they were either unhealthy, or overgrown beyond the original design conception.[333] Many of the birch of the Blue Steps and all of the yew also had to go. The change is radical, as befits a radical recreation of Steele's and Choate's original vision, which The Trustees will unquestionably provide. (images 111-116). The *Tilia cordata* will be replanted at 10' O.C. and, according to the planting plans, a swath will be kept clear of woody species 20' to the west of the lindens and half that to the east. At the road edge, the Planting Plan calls for locating on site a "regenerative woodland tree species" among the existing trees, with sugar maple, white pine, hemlock, and American beech of mixed size (3-10 feet).[334] All this raises issues for the understory and herbaceous perennials residing in the

[333] The lindens were originally planted 10' O.C. to establish the axis. It is unclear who, if anyone, guided Caroline Choate in this choice. According to Michael Dirr, lindens grow at a rate of 10' to 15' over a 5 to 10 year period, and in optimal field-grown conditions can reach 80' to 90' in height, and ½ to 2/3 that in spread, although they can be effectively pruned, as had been done over the years. Dirr, *Manual of Woody Landscape Plants*, (Champaign, Illinois: Stipes Publishing, 1975) 1020.

[334] Three of these species are currently experiencing threats. Hemlock are being killed by wooly adelgid which is present in Berkshire County and, it is thought with climate change, spreading to higher elevations. Sugar maples are declining in the region due to a greater susceptibility acid rain. Beeches in the northeast are prey to birch bark disease.

woodlands, as the increased sunlight due to the recent cutting will discourage some desirable species and encourage the spread of invasives. The Linden Wood remain the single area in the periphery of the designed gardens where natives can be encouraged, on the ground, and in interpretive materials. The Trustees' choice of regionally appropriate trees reflects their interest in maintaining the native woodland environment. As has been shown, both Steele and Choate had a clear preference for native plants and the exotics that behaved similarly in a woodland setting. This area, given the strong architecture of the Allée and the towering pines and hemlock, is also prime for exhibiting Choate's love of woodland groundcovers.

A concerted effort should be made to eliminate all Bishop's weed. Although originally planted by Mabel Choate, I do not believe that she would have appreciated the way it has crowded out every other woodland plant for a vast area at the entrance to the Linden Walk (image 117). Julie Richburg, has been surprised by how some mesic natives have held their own despite the Bishop's weed. As in the Ravine, increased sunlight will certainly cause the Bishop's weed stand to increase by leaps and bounds. Given the current disruption to the area and the pending purchase of expensive plant material, now is the time to get rid of it.[335] Nor does it achieve any design purpose in the orchard, where it has displaced the former meadow grasses. (image 118) It is impractical to think that it will ever stay put, nor does it set a good precedent for visitors. The plant is a suitable candidate in the woodlands for a campaign of removal by a team of volunteers. Preventing it from photosynthesizing in early spring will deplete the plants' carbohydrate reserves. This can be accomplished by weed-whacking the entire stand after it leafs out, then having volunteers cover it with plastic. The area will be under construction in any case, so its unsightliness will not be so glaring.

[335] The Restoration Planting Plan calls for restoring the lungwort near the Japanese Maples, which had been "choked out by Bishop's Weed."

Application of glyphosate may be necessary at the perimeter of the stand in order to ensure that it does not spread from there and to minimize overspray to other plants. This will have to be followed by monitoring and selective spraying in subsequent years. In the orchard it should be contained by frequent short mowings, until such time as it has been reduced enough to consider targeted glyphosate applications. Two other introduced groundcovers—*Pachysandra japonica* and *Vinca minor* should be considered for transplanting into former Bishop's weed areas, at least for the time being, where there is no alternative plan. From my observations there, these two appear to coexist better with native species. The myrtle monoculture at the terminus of the Linden Allée does not achieve the woodland setting that Choate and Steele seemed to prefer. Portions of this stand could be moved to the Bishop's weed area, as the planned dense planting of pine and hemlock will add much shade to the allée's end. These trees will serve to seclude the circle of seats and sculpture from the neighboring house, but consideration should be given for what will occupy the ground around them. The restoration Planting Plan calls for large plantings of three types of *Pulmonaria* (lungwort) to the west of the other end of the allée and by the Japanese maple curve next to the maroon *Oxalis*. Another historically appropriate groundcover treatment specifies Lilies of the Valley, *Convallaria majalis* and *C. majalis 'Fortin's Giant'* at the entrance to the Woodland Walk off the Ronde Pointe which are indicated on the restoration Planting Plan Phase 1. *Convallaria* does escape its bounds but it is not aggressively invasive.

There were a series of very large orders for ferns, and some spleenwort in 1944, 1945, 1946, 1947 and 1949 all from the same nursery: Exeter Wild Flower Garden. The location of the plantings is unspecified in all but one of the orders,[336] and the woods of the Linden and Woodland Walks seems to be the most likely area to suitably support such large

[336] See Anne Masury's binders for "Unspecified locations."

numbers. Emily Henry Bush took an evocative photograph of a marble cupid amid ferns in 1940. (image 119) The one order that does specify the Linden Wood, placed on March 1, 1949 for 200 *Pteritis nodulosa*, indicates that they were intended for the path above the Linden Walk. Orders for which no location was indicated include *Pteritis nodulosa,* or *Matteuccia pensylvanica*, Ostrich fern (200 in '45, and 200 again 4 years later), *Dryopteris goldiana*, Goldie's woodfern (100 in '45), *Osmunda cinnamonea*, cinnamon fern (100 in '44, 50 in '45, 100 in '46), *Polystichum braunii*, Braun's hollyfern (75 in '45), *Osmunda claytonia*, interrupted fern (100 in '46), *Asplenium platyneuron*, ebony spleenwort (10 in '46), and *Asplenium trichomanes*, maidenhair spleenwort (10 in '46). I believe the restoration of similar numbers of these larger ferns to be essential to establishing the woodland as Steele and Choate intended. The ferns will require moist conditions in shade, so their restoration may have to wait planting of the trees and the resumption of shady conditions. The restoration Planting Plan Phase 1 calls for 200 Ostrich fern along the path to the pet cemetery, which may have been what was meant in 1949 by the path above the Linden Walk. Perhaps more ferns are planned for subsequent phases. In any case, planting more fern above, or east of the Linden Walk would place them near eye level for those strolling down the allée and would serve to establish the native woodland character and help to shade out invasives. The spleenwort, representing just a fraction of the numbers of fern, will tolerate dryer areas, particularly limestone outcroppings. For the area under the lindens, the restoration plan states "Maintain Pachysandra, ferns and other groundcover species." I have observed a number of species in this location that would be suitable: the two gingers (*Asarum europaeum* and the native *Asarum canadense*), jack-in-the-pulpit (*Arisaema triphyllum*), maidenhair fern (Adiantum pedatum), woodland cranesbill (*Geranium sylvaticum*), goatsbeard (*Aruncus doicus*) and Solomon's seal (*Polygonatum biflorum*) (images 120-126) These should be retained and increased within the minimum 10' buffer on

either side of the paths. Original plans called for pachysandra and the variegated ground ivy (*Nepeta hederacea variagata*, now *Glechoma*), 50 of which were originally planted in 1936. I have also observed a large colony of *Hostas* around the fountain, and spreading down the hill into the meadows, and would recommend restoring these to the area around the restored fountain, and maintaining them so they do not spread beyond. These three plants, the pachysandra, ground ivy and *Hostas* will perhaps keep other aggressors from colonizing, but the natives in this area should be monitored to assure that they continue to thrive. There is great future interpretive value in emphasizing Mable Choate's interest in native species for this area. Locating these plants will require much extrapolation unsupported by any historical plans, but there is evidence to support a naturalistic treatment here, and it is not much different from the current plan for siting the woodland trees. The integrity to be sought is an ecological one, for without this effort invasives will again take over.

The *Euonymus alatus*, winged euonymus or burning bush, that remains near the Japanese Maple curve should be removed, as otherwise birds will spread the seed elsewhere at Naumkeag (as has already happened in the meadow) and beyond. The variegated dogwood and the rhododendron varieties listed in the Planting Plan will do well to screen this area from the drive, but for autumn red the Euonymus could be replaced with black chokeberry, *Aronia melanocarpa.* Although honeysuckle appears to have been eliminated in the recent tree cutting it should be monitored for resprouting. There are a number of older Catawba rhododendrons in the woods that in their current exposed condition may need to be protected from deer. The plan indicates that these be augmented around the pet cemetery. Rhododendrons should be a top consideration to increase the understory elsewhere, in the eastern woodland and especially near the fence, as a buffer from the road. Other native species that would work well for spots with increased sunlight are the pagoda

dogwood and serviceberry. Of course tree and understory species will not be allowed to develop close to the allée, but the record does not appear to give any indication that Steele preferred no understory in these woods. Steele ordered 12 *Elaeagnus angustifolia* (Russian olive) in 1940 for the woods west of the lindens "Positions to be located by the landscape architect." This indicates that their placement had to be personally determined on-site, in order to best replicate a naturalistic scattering. Perhaps they were meant as a backdrop to segregate the shady Woodland and Linden Walks from the sunlit Summer Pavilion, orchard and meadows beyond. The fact that 10 more of this plant were ordered for the contiguous orchard 7 years later, suggests that Steele may have been continuing the planting at the woodland's edge out into the orchard as a sort of buffer around the Summer Pavilion and Tennis Court. (image 127) Although some books list this as invasive in New York, Connecticut and Vermont, Russian olive does not meet invasive criteria at this time according to the Massachusetts Invasive Plants Advisory Group. Its relative, *Elaeagnus umbellata* or autumn olive, does reach MIPAG's 34 species list. Russian olive is considered invasive and a noxious weed in many western states and is being watched closely in the northeast. It is present in nearby Rensselaer County in New York State, and Litchfield County in Connecticut. There is a healthy stand of sumac behind the tennis court bench. (image 128). This species should be considered for increasing around this area. If a plant similar to the Russian olive is preferred, I suggest the hardy native *Elaeagnus commutata*, silverberry, a suckering, open-crowned mounding shrub 2'-7' by 4'-8', which also has silver leaves and produces yellow flowers. Its red berries are eaten by birds and others, it thrives in meadows and the edges of woods, and is reportedly shunned by deer. In 1935-34 the Masury binders indicate that 12 *Eleagnus argentea* were purchased in April 1942 for the Perugino View. *E. commutata* is the same plant. Curiously, a plan dated 1934 and revised the following

year called for 4 *E. angustifolia* in the Perugino View. Perhaps Steele replaced the Russian olive with the silverberry in 1942, and the same could be considered for the edge of the Linden Wood. Another silver-leaved alternative that Steele chose for the Perugino View appropriate here is *Shepherdia argentea,* silver buffaloberry, which is said to do well in alkaline soil. However it does have thorns.

The Grasslands and Calcareous Fen Community

The meadow and pasture provide the garden with a context that is not within the garden, but not wholly beyond it either. These grasslands may well be the only portion of the property that exists in a similar state as when the Choates bought it, save for the invasive plants. For them, overseeing and participating in a working farm was an important aspect of their identity as city people living for part of the year in the country. The produce of the farm that sustained them while in residence was also shipped to New York to maintain that connection throughout the year. When in residence, the dairy cows grazing in the fields, the haying of the meadow, the large vegetable gardens and the greenhouses provided the context of a working landscape. As has been shown, Barrett and Steele both capitalized on the grassland for providing a middle ground for the view of distant hills.

As The Trustees have come to appreciate, the grasslands also support a rare community dependent on a unique amalgam of hydrologic, topographic and nutrient resources. Naumkeag is remarkable for being the site of both a renowned garden, and a rare and ecologically rich community. Since the historical grazing and mowing of these fields may in themselves be responsible for the continued productivity of these plants, any major change in regime needs to be carefully studied before enacting. Having both cultural and environmental value presents potential for attracting a broader visitor base and for expanding the interpretive value in a direction more in keeping with the organization's

founders. The challenge, of course, is how to manage in order to support and encourage both. I have already discussed the difficulty posed by the compartmentalization of expertise in conservation. Particular aspects of conserved properties are usually relegated to either a horticulturist or an ecologist—never both. Yet The Trustees exhibit an ability to communicate effectively across disciplines, and to come to consensus. This management style should be recognized, the inherent difficulties identified, and the practice encouraged.

The 2007 Management Plan recommended reestablishing an agricultural operation at Naumkeag, which would entail conducting research to determine if this would disturb the fens community and rare plant populations, hiring a farm manager, cultivating the fields, launching a Community Supported Agriculture (CSA) operation.[337] Mark Wilson and Lucinda Brockway have both suggested that establishing a CSA is not likely at this time. The Trustees already run the largest CSA in the state at Appleton Farms, and many others throughout the state. It is certainly not a revenue-producing prospect. The restoration does plan, however, to revive the herbaceous and woody cutting gardens at the base of the Blue Steps, and to establish a cut-your-own operation. Mark Wilson would also like to see the re-establishment of the large vegetable gardens and greenhouses. Overflow parking which currently occupies the former kitchen gardens would have to be relocated. The gardens had been kept out of view behind a hedge in the Choate's day, being considered a work area not appropriate to the view. That hedge had grown quite tall, but was removed in February of 2013. It is assumed that the hedge will eventually be replaced so that the future cultivated fields are shielded from view, as intended.

Managing the hydrology of these proposed operations will be key for maintaining the health of the fen community and the rare species. The Trustees considered a plan to collect

[337] Naumkeag Management Plan 2007, TTOR.

rainwater and overflow water from the Blue Steps in an underground cistern for recycling to the runnel at the top of the hill. This was rejected since it was not cost-effective due to the extreme topography. Instead, a cistern will capture the water from the step fountains, and some of that water will be used to water the cutting garden. The future greenhouses will be watered with town water. It is unlikely that the hydrology of the grasslands will be adversely affected by the restoration of the cutting gardens, although without hydrologic studies it is impossible to say for sure. However, before a large vegetable garden is restored it would be prudent to conduct hydrologic studies and soil sampling in the fields below, which are currently grazed by beef cattle. There are various methods that could be considered for isolating the cultivated land from the lower grassland to prevent the introduction of damaging fertilizers. Establishing vegetative buffers at the down-slope perimeter of the gardens is highly recommended.

The soil sampling that I conducted points to a number of conclusions, and suggests a number of future steps. The location of soil sample 6 is distinct in a number of ways and indicates that this area has little potential for encouraging fen community species. Location #5CFC is able to support the community. This could be due to any number of factors, but it seems significant that it does not seem to receive much grazing, as the ditch separating it from location #6 creates a barrier for much of the year. As has been noted, however, grazing does have the potential to allow more seeds to become established, due to disturbance and soil removal. The results of sampling at location #3 suggest that it is well situated to receive the calcium rich water that the community requires to thrive. An overlay of 3 meter contours on the grasslands (image 87) suggests that the areas at the toe of the slope are more favorable for the fen community. It is possible that the areas up-slope of #3 and #1CFC have potential. Without more precise topographic data no further conclusions can be made.

Shooting grades at 6" intervals would provide essential data for further analysis. As relative wetness is topographically controlled, it is recommended that this topographic survey be conducted across the entire grassland. More hydrologic information needs to be gathered and it is recommended that shallow monitoring wells also be placed in the northeastern edges of the grassland on both sides of the drive. Detailed soil profile descriptions are also recommended, since soil morphology would indicate the elevation of seasonal water fluctuations.

The eastern side of the drive where the gentian and the bullsedge are growing may be more favorable to them because it is hayed, and not mown, however without additional data it is not known for sure. As indicated in the 2007 Management Plan, the timing of mowing in the orchard and haying in the lower fields may be crucial for the survival of the rare plants. That plan proposed delaying mowing until the seeds of the pendulous bullsedge have ripened (near the end of July), every three years. This should be adopted. What I observed on July 11th of 2012, was that all but the northern corner of the eastern field had been mowed, some time in the prior 2 weeks.[338] This northern corner had presumably been left so that the Pendulous bullsedge could ripen seed, and the Fringed gentian allowed to flower. (images 129, 130) This corner was abundant with bullsedge plants with ripening seed that could then be wind-dispersed to the rest of the field. (image 86) This seems like a reasonable compromise, especially considering the number of encroaching invasives that can only be kept in check with timely mowing. Swallowwort in particular was in evidence in the non-mown areas. (image 131) But in the absence of surveys to monitor populations of target species and the impacts of particular practices, any management regime will entail a lot of guess work. Other recommendations of the 2007 plan that should be followed include an

[338] The timing of this mowing was possibly too early to be favorable for bobolinks.

annual survey of grassland birds and butterflies and monitoring rare plants every 3 to 5 years. There are many birders in the area who might be interested in committing to seasonal bird counts or collecting data of informal sightings online. Similarly, an informal survey of targeted fen plant species could be created with data submitted online by visitors. It is certainly easy enough to spot the Pendulous bullsedge from the drive once it sets fruit, and the Gentian flowers in September and October when that upland portion of the field is fairly dry and not damaged by foot traffic.

The invasive plants that exist in the grasslands constitute a very real threat to the health of this ecosystem. (images 131-137) They also need to be monitored annually, prioritized, eradicated or controlled on an on-going basis. The 2007 Management Plan makes this clear, although a regime was not formulated in that document. See **Appendix 4** for a listing of invasives I observed in and at the edges of the fields in the spring and summer of 2012.

According to Julie Richburg, there has been an informal arrangement with the farmer who grazes his cattle, mows and hays on site, and she would like to have a written agreement in place. Without a Trustees superintendent in place the farmer may have been left to his own devices. Nesting bobolinks require delaying mowing until after they fledge in mid-July.[339] Richburg finds it essential, however, that any management plan for grasslands be realistic and flexible. It has to be easy enough to insure that it will be implemented. Complicated instructions for staff or contractors and equipment, with haying and mowing rotations in different locations, are not advisable. One has to be willing to make trade-offs, she recommends, such as cutting late to accommodate nesting grassland birds for 4 years,

[339] The fields are not large enough to support meadowlarks. The presence of other ground nesting birds such as grassland sparrows, is dependent on a number of factors: the abundance of food and water and the presence of predators, including domestic cats.

then cutting early to maintain the field and limit invasive plant encroachment. This seems to be a sensible perspective towards management, based on years of experience. The issue at Naumkeag may be that current human resources have, understandably, not been allocated to an ecological focus. Richburg devotes much of her time in Berkshire County to Bartholomew's Cobble, where the grassland is greater and there are more rare plant species, such as great blue lobelia, not to mention the many other grassland properties she monitors.

Informed by the increased understanding of the ecology of the grasslands provided by the actions recommended above, small scale and isolated experiments in various management practices could be undertaken, with the understanding that they take into account the allotted resources. With The Trustees' renewed focus on Naumkeag and this unprecedented restoration, it is hoped that its ecological resources in the grasslands will no longer be taken for granted.

The Setting

I have tried to show how Steele's preoccupation with the garden's setting can guide future management at Naumkeag. The elimination of invasive plants and the reintroduction of natives where possible has implications for the land next-door, and the health of the entire Housatonic region. Sustainable management of water resources will, over time, have a considerable effect on the watershed. The reduction in turf mowing will reduce pollutants in the air as well as noise. The education of the tens of thousands of visitors in sustainable practices is another potential benefit. And what of the view itself? The setting that inspired the Choates to first purchase this land, that influenced all the designers and architects and artisans who worked here, and continues to motivate those who work to preserve it for the future—will the powerful view of forested hills and mountains be preserved for the future as

well?[340] It is imperative that The Trustees conduct a viewshed analysis as was recommended in the Management Plan, and take steps to assure its continuance. This might mean joining with a coalition of other land managers and land trusts in the region, which could also be useful for coordinating other sustainable efforts of mutual benefit.

[340] It is worth recalling Emerson's observation as quoted on page 13 of this paper: "There is a property in the horizon which no man has but he whose eye can integrate all the parts, that is, the poet. This is the best part of these men's farms, yet to this their land-deeds give them no title." Emerson, *Nature*, 1836, 13.

CHAPTER 7

CONCLUSION

This paper has explored in depth Fletcher Steele's respect for, and attention to, how a garden fits within its setting. At Naumkeag, a garden that could have easily been dominated by both a spectacular view and an extreme slope, he was inspired by both, and transcended them. The historic and aesthetic integrity that has guided The Trustees of Reservations in their admirable stewardship of this garden for over fifty years will be enhanced by acknowledging this key aspect of Steele's garden-making. How does the garden fit into its setting? Existing within the setting in an appropriate way is an important component of the integrity of a garden—in fact it can, in Steele's case, be a major guide to his intentions. Particularly for The Trustees, whose care for the health and aesthetics of the environment has its source in Charles Eliot, sensitivity to the environment of the garden, and beyond the garden, is imperative. The unprecedented alteration of the environment that occurred from the original creation of the garden in the late nineteenth century until the 2013 restoration demands a shift in focus to encompass the broader effects of a designed place on the undesigned landscape. If we are to preserve the beauty of the past for the future, it is imperative.

My research has convinced me that replacing plant material originally specified for the Naumkeag gardens but potentially damaging to the gardens' setting is desirable. I have shown that with careful study and consideration, appropriate replacements can be found that are true to the designer's original intent, to the desires of the client, and to the long-term goals of The Trustees, without diminishing historic or aesthetic integrity. Through a close examination of the dynamics of the peripheral Ravine and Linden Wood, I have found that combining the aesthetics and requirements of horticulture within shifting ecological systems,

while challenging, will provide an apt proving ground for experimentation in restorative practices and naturalization. Due to the presence of the unique ecosystem within the grasslands that are essential to Steele's design, a redoubled effort to examine existing conditions and ecological processes at work is essential for their protection, to enhance and augment the rare species that are already found there and to guide effective and efficient management. All of these actions provide excellent opportunities for engaging the public in a dialogue about our place in the garden, and the garden's place in the environment.

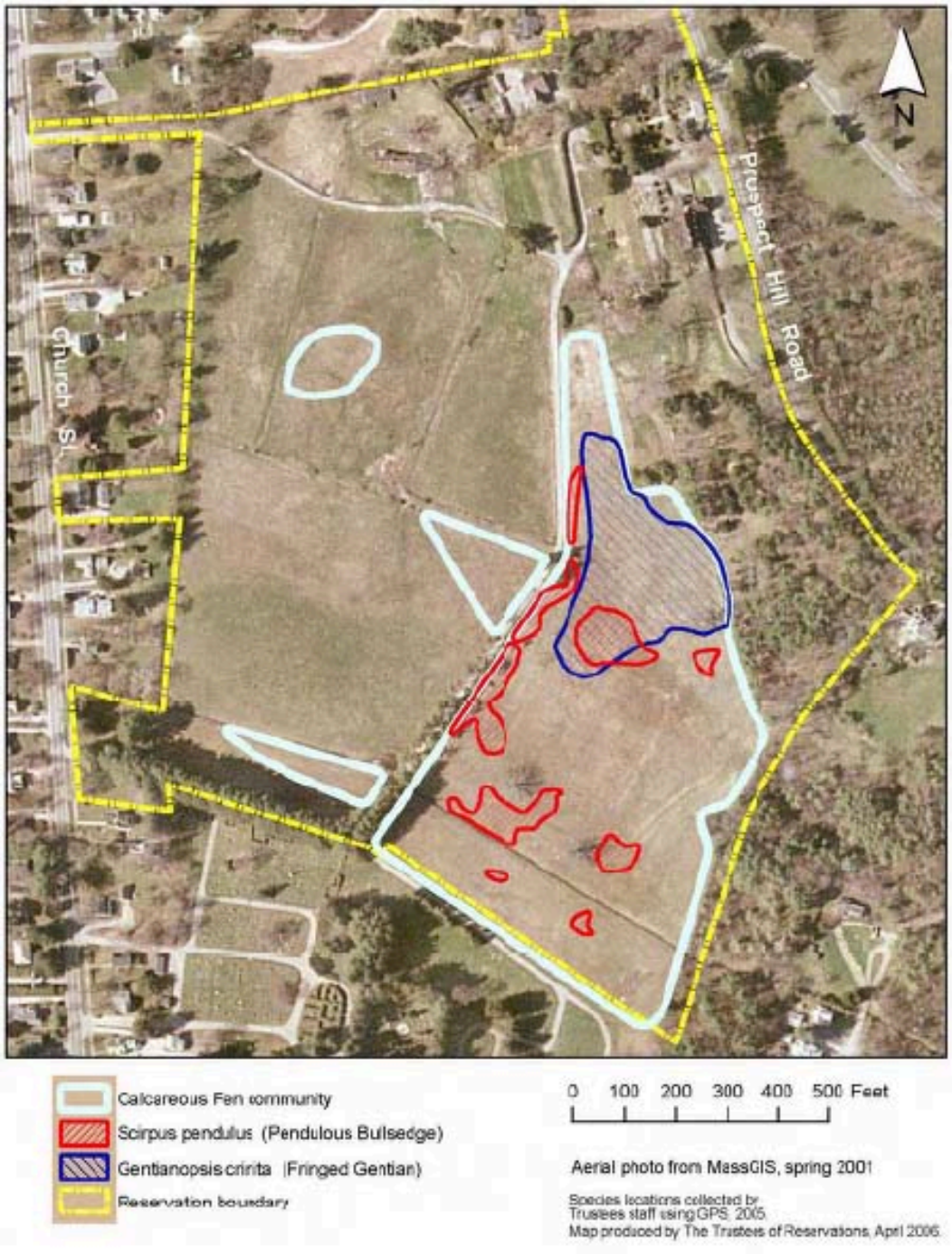
I have given an example, in this paper, of how a careful consideration and close reading of a designer's philosophy, ethic and design intentions, a client's horticultural preferences and practices, combined with a thorough understanding of the culture of the stewarding organization, can guide change within a garden and at its edges, leading to a closer connection to the landscape beyond the property's boundary. My recommendations, grounded as they are in the particularities of this place and these people, are unique to Naumkeag. However, the methods and the process that I have demonstrated can be widely adapted to other gardens, designers, climates and organizations. It is possible, and in some cases desirable, to step outside the bounds of historical replication when stewarding a living garden into the future, without compromising integrity.

It is my hope that the stewardship of Naumkeag can truly embrace not just the house and gardens, but all that the eye can see—tapping the genius loci to bring together the lovely and the wild.

APPENDIX 1

CALCAREOUS FEN COMMUNITY

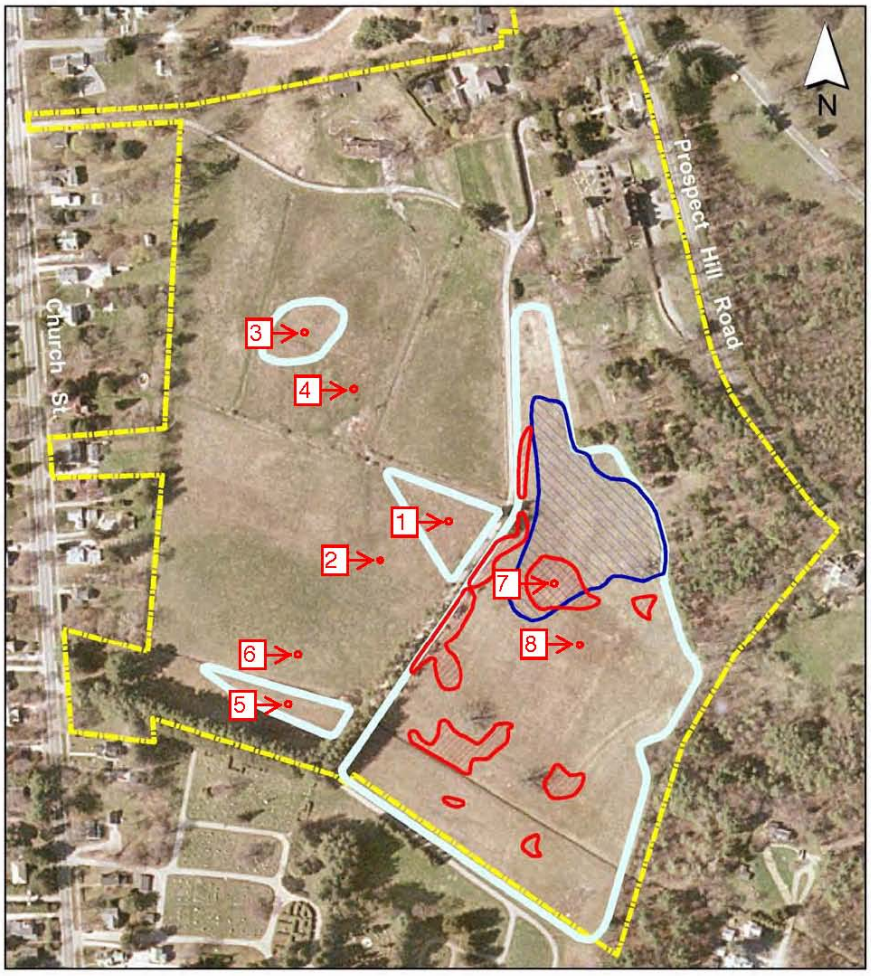
Map 4-1 Rare Species and Communities



APPENDIX 2

SOIL SAMPLE LOCATIONS

Map 4-1 Rare Species and Communities



APPENDIX 3

SOIL ANALYSIS

Sample ID	Soil pH	Aluminum	Org.Matter	Phosphorus	Potassium	Calcium	Magnesium	CEC*
1CFC	7.5	5	7.0	5	27	2806	537	18.5
2	7.1	11	7.3	5	22	2077	337	13.3
3CFC	7.1	7	15.4	12	65	4536	851	29.9
4	6.8	6	10.3	11	68	3541	633	23.1
5CFC	6.7	9	11.1	6	23	3232	667	21.7
6	5.9	66	5.6	4	71	706	147	10.5
7CSG	7	5	8.3	4	26	2452	628	17.5
8CFC	7.2	6	10.8	5	33	3437	690	23
highest in col.					*Cation Exchange Capacity: units are MEQ/100g			
lowest in col.					All other units are PPM			

Boron	Manganese	Zinc	Copper	Iron	Sulfur	Extracted Lead	est'd Total Lead	Sample ID
0.5	9.9	3.2	0.5	0.5	42.4	1	39	1CFC
0.2	3.5	2	0.4	2.5	30.6	2	55	2
1.1	9	11.2	0.5	4	69.1	1	40	3CFC
0.6	8.3	3.3	0.6	1.2	51.4	1	43	4
0.6	7	5.2	0.5	7.6	76.2	2	51	5CFC
0	6.6	2.3	0.3	8.7	13.4	3	60	6
0.3	10.4	5.8	0.4	1	33.8	0	31	7CSG
0.4	12.9	3.8	0.4	0.6	47.3	0	32	8CFC

APPENDIX 4

INVASIVES IN THE DESIGNED GARDEN

Invasives in the Designed Garden

See Bibliography for list of sources

Botanical name	Common name	Criteria	Location	Date	Recommended replacement
Acer platanoides	Norway maple	Mass. prohibited	various		*Acer rubrum:* red maple
Acer pseudoplatanus	sycamore maple	Mass. prohibited			*Nyssa sylvatica*: Black gum
Aegopodium podagraria	Bishop's weed	Mass. prohibited	Linden Woods KE KF, Orchard S		*Actaea pachypoda*: baneberry
Akebia quinata	five-leaf Akebia	I-Rank: Med/Low; I-Rank for impact on Ecological Community Structure: High; Invasive in 6 states.	Arborvitae Allée E	11/28/33, 36, 53	*Parthenocissus quinquefolia*: Virginia creeper; Clematis
Ampelopsis heterophylla/brevipedunculata	porcelain berry	Mass. prohibited	Arborvitae Allée E/Rose Garden D		*Lonicera sempervirens*: scarlet honeysuckle; *Vitis labrusca*: fox grape
Eleagnus angustifolia	Russian olive	Not currently considered invasive in MA; banned in CT; I-Rank: High; invasive in 31 states	various	10/6/47	*Elaeagnus commutata:* silverberry
Eleagnus umbellata	autumn olive	Mass. prohibited	various		*Amelanchier spp.: serviceberry Myrica pensylvanica:* Northern bayberry
Euonymous alatus	winged euonymous	Mass. prohibited	various		*Aronia melanocarpa:* black chokeberry
Euonymus fortunei 'kewensis'	wintercreeper	Not currently considered invasive in MA or NE; I-Rank: High; invasive in 12 states	Afternoon Garden T	6/14/29	*Arctostaphylos uva-ursi*: bearberry; *Hydrangea petiolaris*: climbing hyd.
Euonymus fortunei* var. *radicans	wintercreeper	Not currently state listed; I-Rank: High/Med	Forecourt, Ent. Drive, Perugino View F, S	4/11/29, 34, 47	*Arctostaphylos uva-ursi*: bearberry; *Hydrangea petiolaris*: climbing hyd.
Hedera helix	English ivy	Not currently state listed; I-Rank: High/Med; invasive in 14 states	Forecourt , Entrance Drive F	10/14/32,33, 39	*Parthenocissus quinquefolia*: VA creeper; *Parthenocissus tricuspidata*: Boston ivy
Hesperis matonalis alba	white dames rocket	Mass. prohibited	Arborvitae Allée E	4/15/37	*Phlox Stolonifera:* creeping phlox
Ligustrum obtusifolium	border privet	Mass. prohibited	various		*Viburnum prunifolium*: black haw
Lonicera japonica 'Halliana'	Hall's honeysuckle	Mass. prohibited	Perugino View S	9/27/33, 34, 35	*Lonicera sempervirens*: scarlet honeysuckle
***Lonicera*, various species**	honeysuckles	Mass. prohibited	various		*Ilex verticillata*: winterberry; *Lindera benzoin:* spicebush
Lysimachia nummularia	creeping jenny	Mass. prohibited	various		*Mitchella repens*: wintergreen
Miscanthus sacchariflorus	plume grass	Mass. prohibited			*Spartina pectinata*: prairie cordgrass
Mysotis scorpioides	forget-me-not	Mass. prohibited	various		*Borago officinalis*: borage
Petasites japonica	butter bur	Not currently considered invasive in MA or NE; I-Rank: High	Chinese Garden R, Ravine, XC	(10/25/56)	*Darmera peltata:* umbrella plant
Phellodendron amurense	Amur cork tree	Mass. prohibited	XC		*Liriodendron tulipifera:* tulip tree;*Liquidambar styraciflua*: sweet gum
Polygonum cuspidatum, 'Reynoutria'	Japanese knotweed	Mass. prohibited	Rose Bank	3/3/48, 50	*Sedum telephium 'Matrona':* autumn stonecrop
Robinia pseudoacacia* var. *Umbraculifera	globe locust	Mass. prohibited	South Lawn	10/23/34,35,37,39	*Gleditsia triacanthos 'Inermis': thornless honey locust*

APPENDIX 5

IMAGES

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1. and 2. House from road soon after completion. 3. Evergreen Garden, 1906. 4. Upper perennial garden, 1937. 5. Barrett lower perennial garden, 1890's. 6. Linden Allée 1947. 7. Looking northeast toward Summer House 1890's. All photos ARC. 8. Tennis court in Topographical Plan, Steele, #251-17, Nov.1, 1926, ARC.

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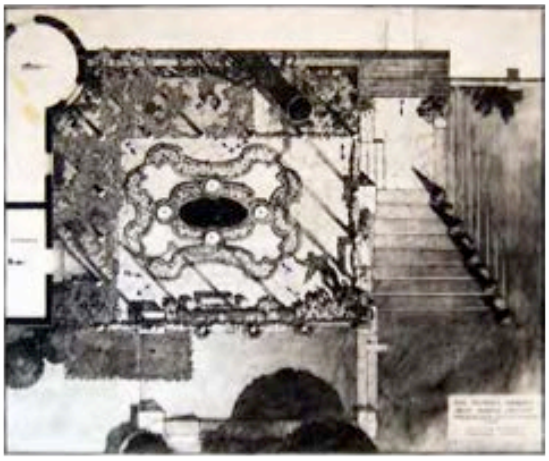
13. 

14. 

9. Greenhouse, 1927-28. 10. Joseph and Caroline Choate in upper perennial garden. 11. Naumkeag Garden Party, 4, July, 1914? 12. Mabel Choate and Fletcher Steele in the Experimental Garden in the 1930's. 13. Plan of Afternoon Garden as completed, 1929. 14. Corner of the Great Seat, March 1932. All images ARC.

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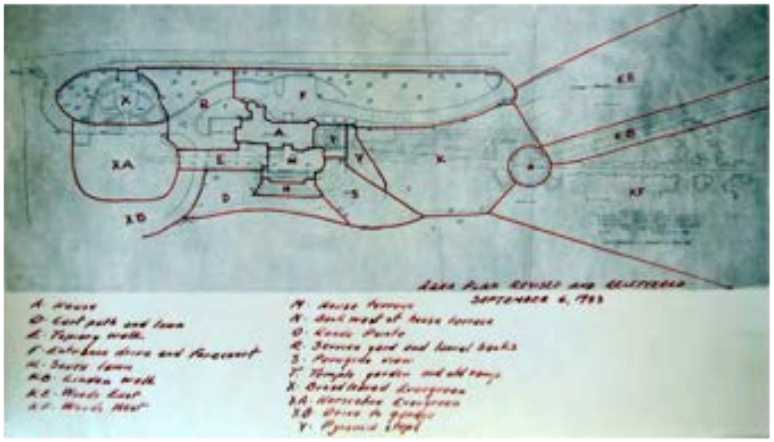
15. Perugino View May 1937, ML. 16. Steele office drawing November 1931, ML. 17. South Lawn and Pagoda October 1940, Lantern Slides, ML. 18. View from Chinese Garden 1947, Lantern Slides, ML. 19. Moon Gate painting with Fletcher Steele, 1955? ARC. 20. Blue Steps, February 193, Steele, ML.

21. 

22. 

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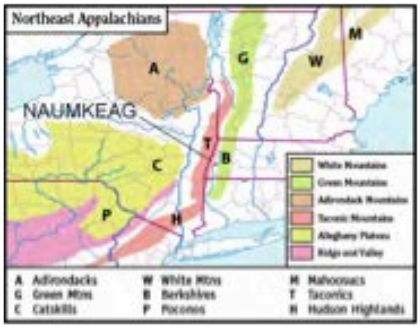
21. Rose Garden, 1952, Mabel Choate, ML. 22. Cantons, 9/6/1933, ARC. 23. Topographic detail of ravine at northern edge of property. 24.Meadow, 1942, ML. 25. USGS map showing Bog to northeast of Naumkeag. 26. Kampoosa bog, photographer unknown.

27. 

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27. Appalachians, T: Taconic Range and B: Berkshires. Source: http://en.wikipedia.org/wiki/Taconic_Mountains 28. Arthur Shurcliff drawings in Eliot's book showing before and after scenery improvements. 29. Mabel Choate in the Afternoon Garden August 1948, ARC. 30. View west, 1890's. 31. View from Top Lawn, November 1935, lantern slides, MC. 32. View to Southwest, ARC.

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33. View west from Top Lawn, July 2012, CW. 34. View northwest from Afternoon Garden, Emily Bush, 1940, ARC. 35. Same view 2012, CW. 36. Southwest from Afternoon Garden, lantern slide, ML. 37. View of Bear Mt. before grading of South Lawn, 1933, Steele, ML. 38. Curve around pagoda with Linden Walk, Steele, ML. 39. Steele painting in Afternoon Garden, 1934.

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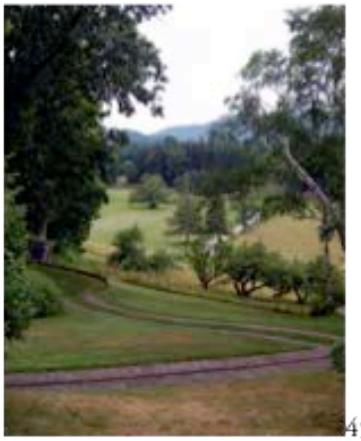
44. 

45. 

40. Crag with Monument Mountain in the distance, 2012 CW. 41. Monument Mountain, TTOR website.
42. Crag, Steele, ML. 43. May 37, Steele, ML. 44. Crag with framed Perugino View, 2012 CW.
45. View west from Chinese garden temple, 2012, CW.

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46. Oak and house from south ca. 1912 ARC. 47. West side of house before Top Lawn and Great Seat, 1920's, ARC. 48. Wave form by entrance drive, October, 1947, ARC. 49. Wave form in 2011, CW. 50. Winds of the World compass rose at entrance, by Fletcher Steele, in 2011 photo Peter Kumble 51. Grass covered slope to meadows, 1890's. ARC. 52. Detail of Topographical Plan, Steele, April 8, 1937, #251-17b, ARC.

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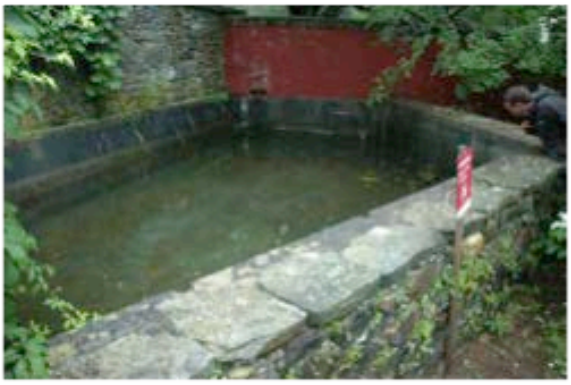
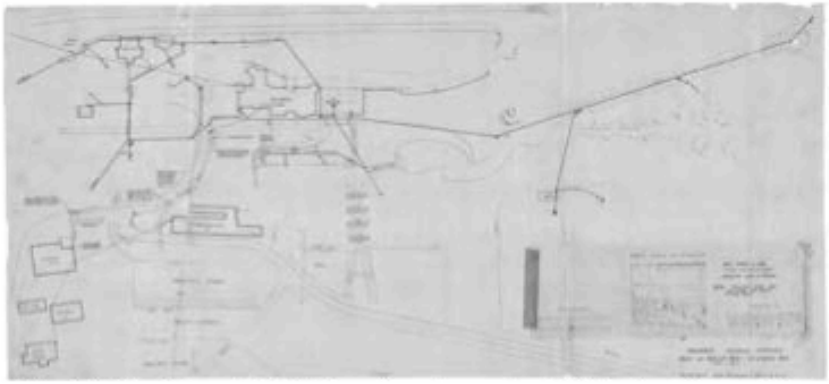
53. Bugleweed ground cover, Emily Henry Bush, 1940, ARC. 54. Mabel Choate's ivy collection on front porch, 1937, ARC. 55. USGS topo: Naumkeag lower left in green, water source Rattlesnake Mt. upper right. 56. Hill Water Co. Present Works and Possible Conditions, September 1931. Choate House lower right, springs upper left.

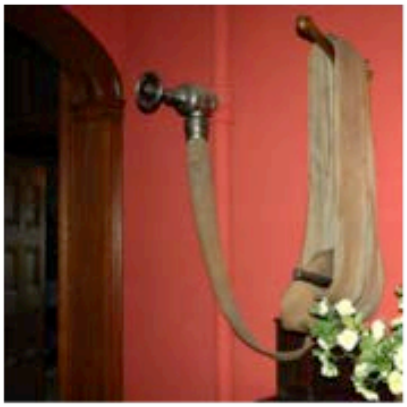
57. 

58. 

59. 

57. Overlay: Hill Water Plan and ortho photo, orientation: north to left, Choate house in green, lower right.
58. The Deposito, 2011, CW. 59. Water Supply and Irrigation, Steele, #251-163, Dec. 1938, ARC.

60. 

61. 

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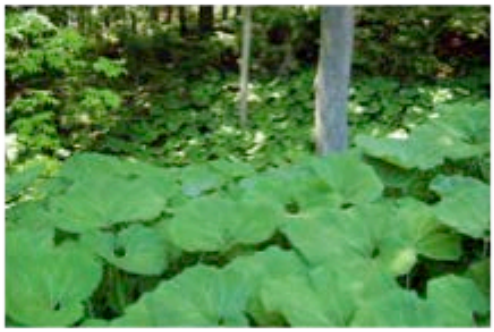
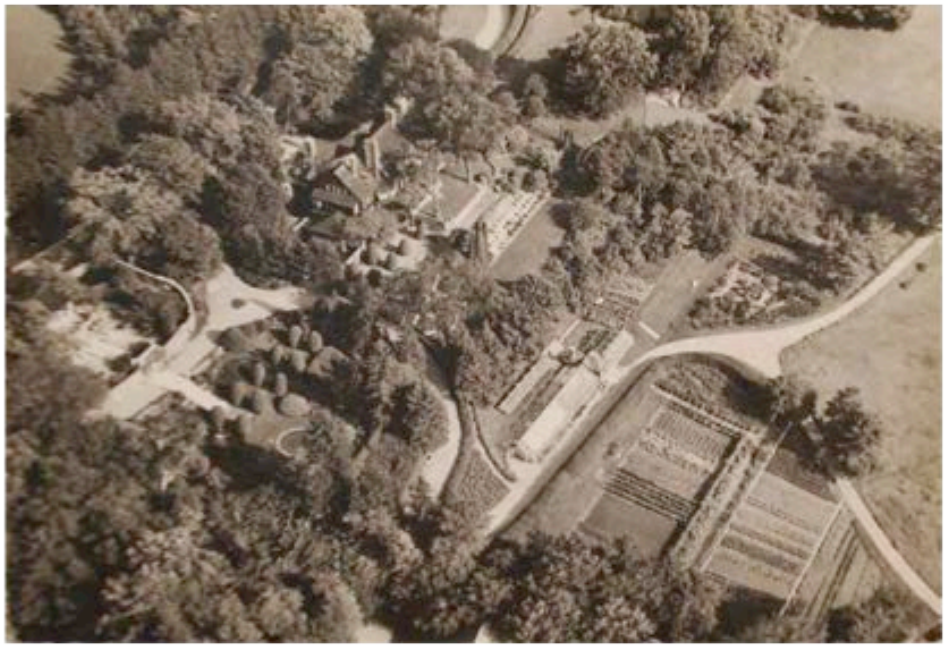
65. 

60. Water tank in attic at Naumkeag, 2011, photo Peter Kumble. 61. Fire hose, second floor, photo Peter Kumble. 62. Irrigation tiles, Perugino View, 1995, CW. *63. Irrigation tiles, knotweed bank, 2013,* CW. *64. Barberry in Berkshire County, March, 2011 ©The Nature Conservancy. 65. Petasites in the Ravine, July 2012,* CW.

66.



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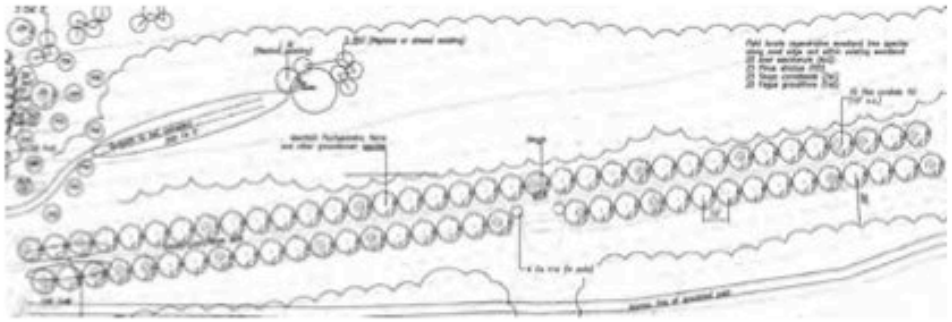
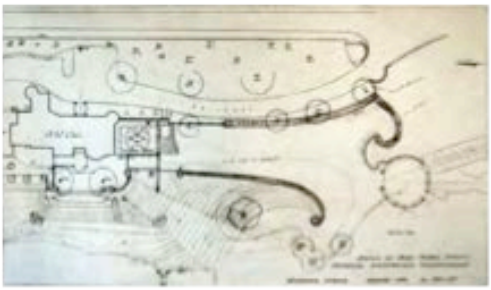
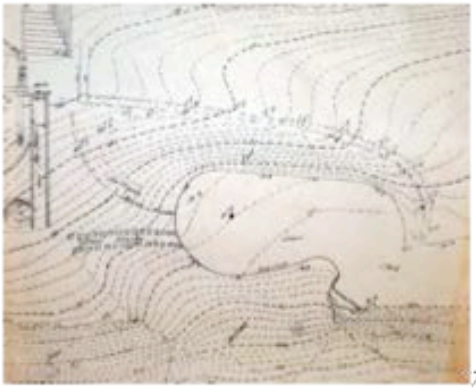


66. 1957 aerial view of Naumkeag, Bill McTeague, ARC. 67. Restoration Plan with phases, TTOR, 2013.
68. Linden Allée, Planting Plan Phase 1 2/6/13, TTOR.

69. 

70. 

71. 

72. 

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69. Dirt piles in preparation for South Lawn grading, September,1933, ML .70. Estate Plan August 1934, Steele, ARC. 71. Detail of Topographical Plan, Steele, April 8, 1937, #251-17b, ARC. 72. South Lawn, Steele, 38?, ML. 73. Rose Bank with edge of Vinca, May 1937, Steele, ML. 74. Germander edge, Rose Bank, ARC

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75. Image of Fallopia japonica 'Reynoutria" for sale at Sandy's Nursery 76. Trustees' knotweed info: http://www.thetrustees.org/assets/documents/highland-communities-initiative/Least-Wanted-Flyer-Knotweed.pdf (last visited March 30, 2013. 77,78, Knotweed bed, July, 2012, CW. 79. Spreading knotweed, May 2012, CW. 80. 360º view of Petasites in Ravine, May, 2012, CW.

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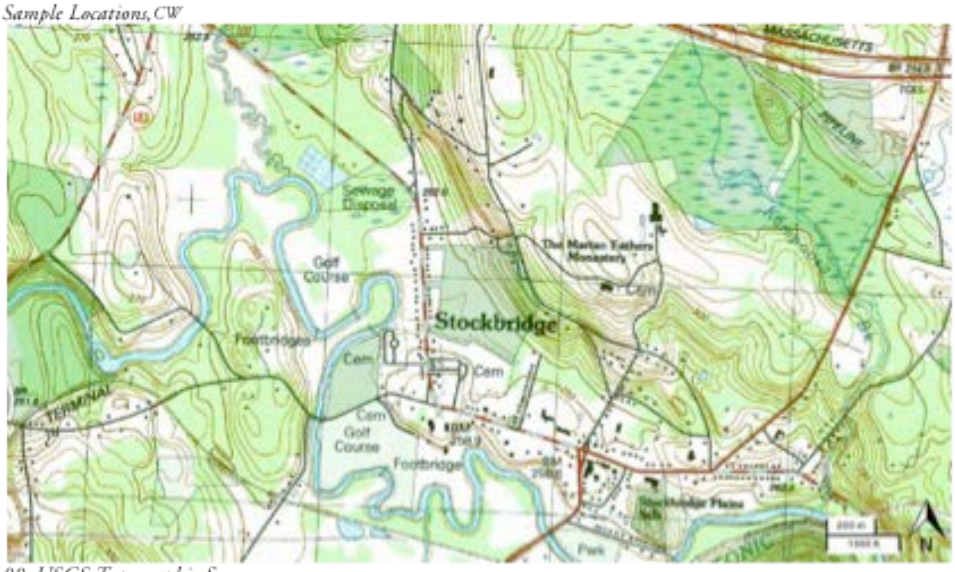
81. Petasites behind barn, July 2012, CW 82.Linden Allée from Ronde Pointe, Dec. 1926, Steele, ML. 83. Statue of Diana at end of Linden Walk, ML. 84. Linden Allée looking south, 1940's, ARC. 85. Fringed gentian at Naumkeag, October 6, 2012, CW. 86. Pendulous bullsedge at Naumkeag, July 11, 2012, CW.

87. Overlay of USGS Topographic Survey (3 meter contours) and TTOR Calcareous Fen Communities and Soil

Sample Locations, CW



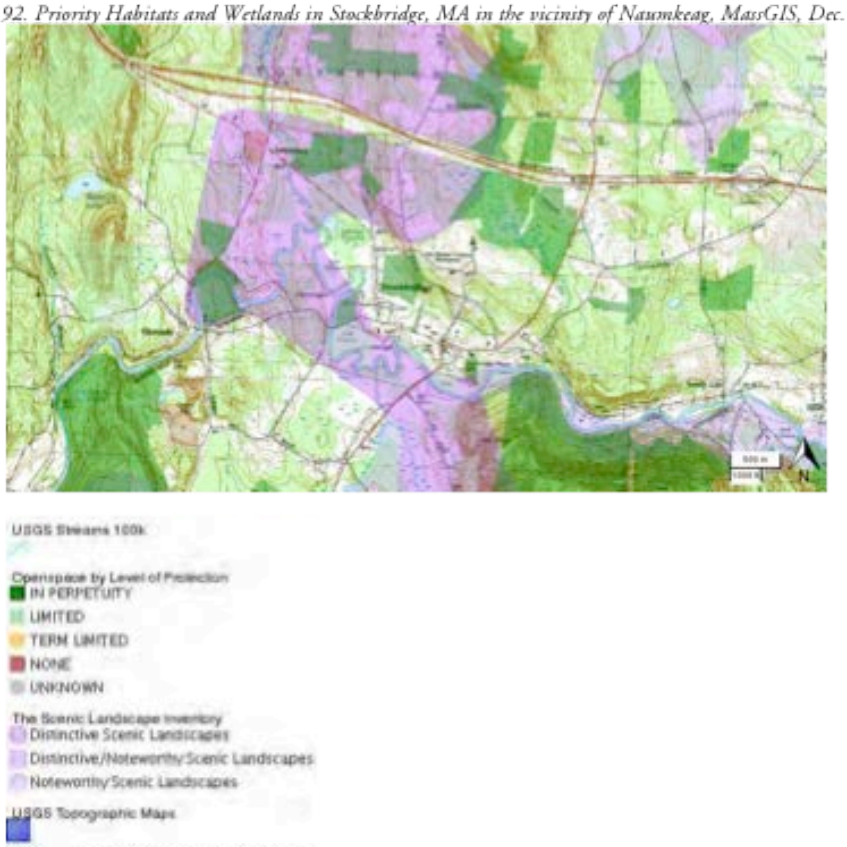
88. USGS Topographic Survey

89. Kampoosa Bog Drainage Basis Area of Critical Environmental Concern (ACEC), Massachusetts Department of Conservation Resources, n.d.

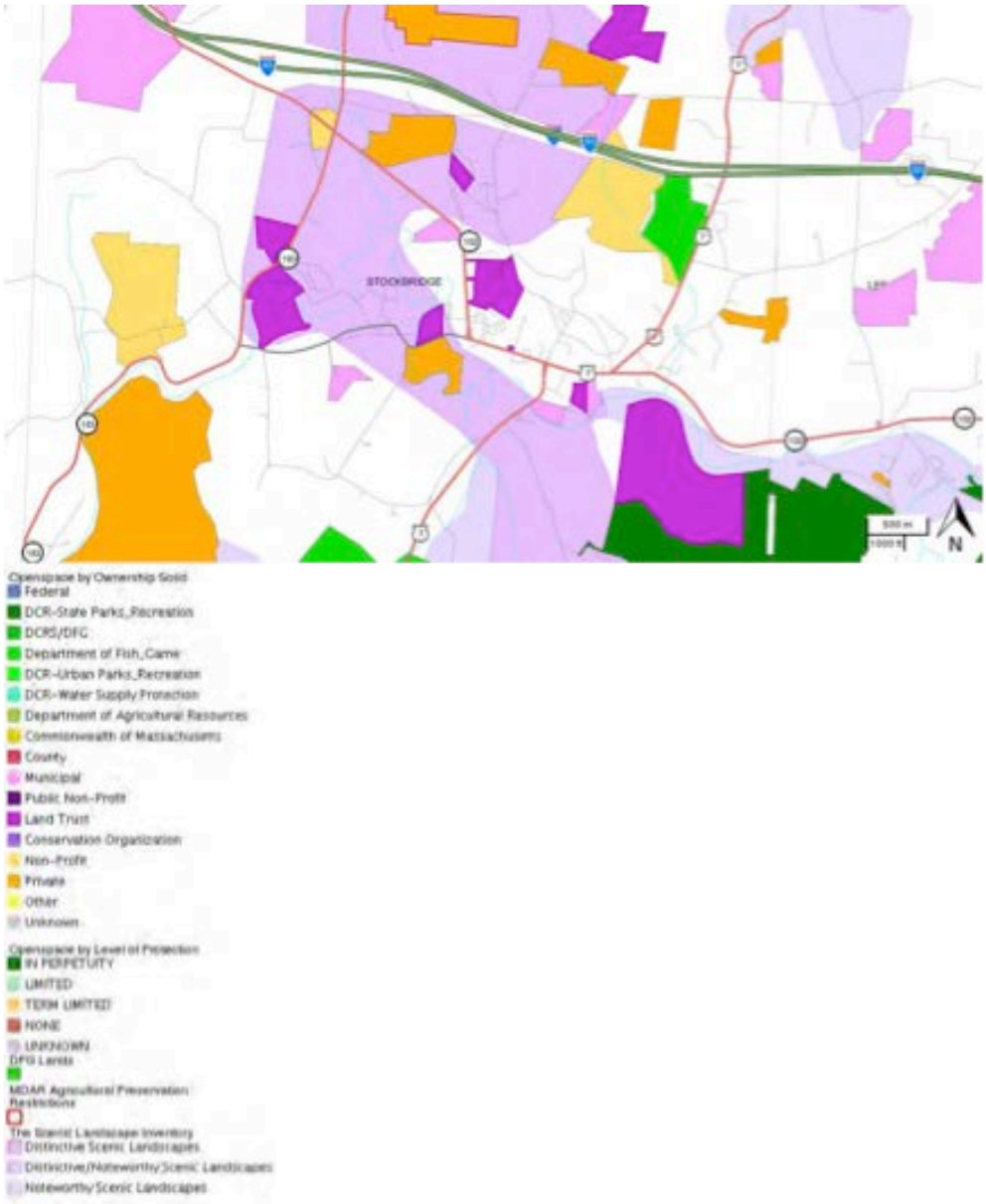
90. Ortho photo in spring, showing high hater in ditches and river. Bing Maps, n.d.

91. Wetland Habitats in the vicinity of Naumkeag. Housatonic River to west, Kampoosa Bog to Northeast. MassGIS, Dec. 2012.

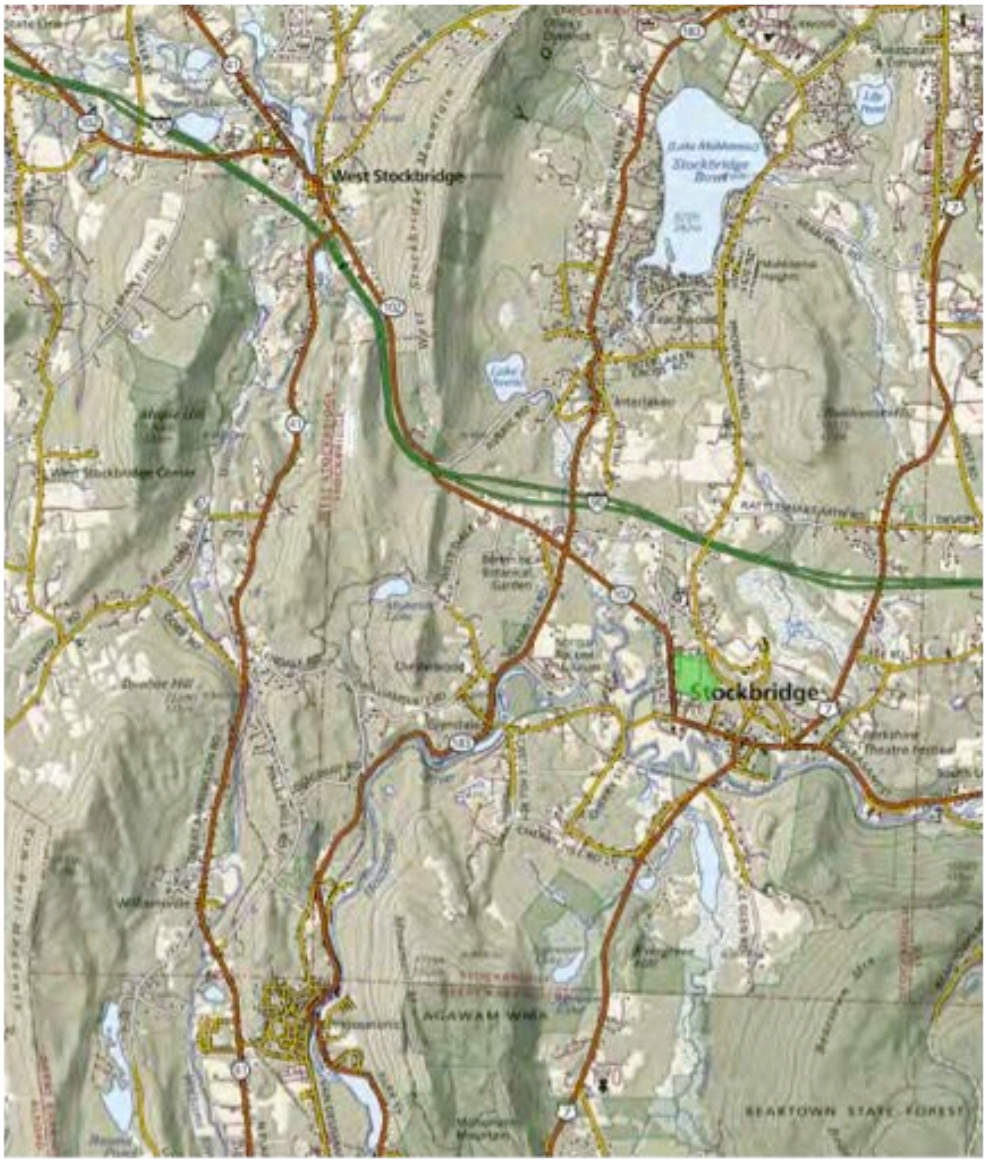
92. Priority Habitats and Wetlands in Stockbridge, MA in the vicinity of Naumkeag, MassGIS, Dec. 2012.



93. Scenic Landscapes, Stock bridge MA, MassGIS, January, 2013.



94. Open Space, Stockbridge, MA, MassGIS, Jan. 2013.



95. Berkshire Natural Resources Council (BNRC) map showing Naumkeag property in bright green, with, proceeding clockwise, Beartown Mountain to the southeast, Monument Mountain to the south, Tom Ball Mountain and Dunbar Hill to the west, Maple Hill and the West Stockbridge ridge to the northwest and Rattlesnake Mountain to the northeast. The Housatonic River flows briefly east to west through Stockbridge, before resuming its southern flow.

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96. View from South Lawn of globe locusts, Oak Lawn and white swath of Ajuga, EmilyHenry Bush, 1940, ARC . 97. View south from Perugino View showing Ajuga below Oak Lawn, ARC. 98. View south towards Ronde Pointe with Ajuga in foreground, showing Oak Lawn, Pagoda and Crag, ARC. 99. View west form South Lawn, showing extension of ground cover to the Top Lawn path. Emily Henry Bush, 1940, ARC. 100. Detail of Topographical Plan, Steele, April 8, 1937, #251-17b, ARC. 101. Entrance Drive looking north with wave form of ajuga to right, Bush, 1940, ARC. 102. Wave form with grass and myrtle, July 11, 2012, CW.

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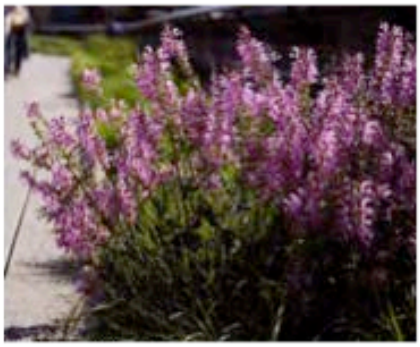
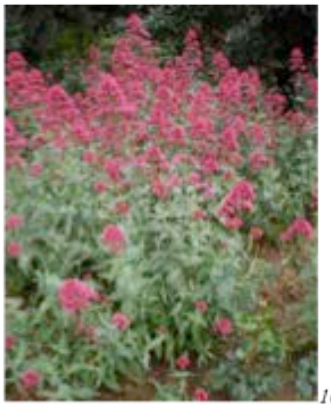


106.

103. Entrance drive looking south, with hosta planted in pachysandra, and bugleweed where grass is now. ARC. 104. Detail showing "Low Plants" wrapping around Rose Bank, Topographical Plan, Steele, April 8, 1937, #251-17b, ARC. 105. Sedum telephium 'Matrona,' photo Matt Anker. 106. Salvia nemorosa 'Pink delight,' photo Joan Garvin.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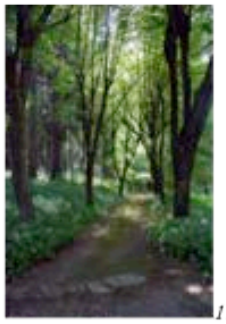
107. Centranthus ruber, photo Wochozsky. 108. Rhus aromatica 'Grow-Low' in summer, and 109. in autumn. 110. Clethra alnifolia 'Hummingbird.' 111. Blue Steps, May 113, 2012 CW. 112. After cutting February, 2013, CW.

113.



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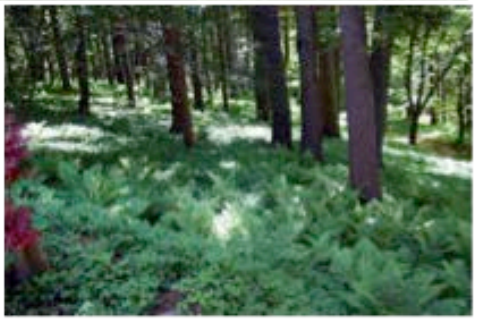

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113. Blue Steps after cutting, February 2013, CW. 114. Linden Allée May 2011, CW.
115, 116. After cutting, February 2013, CW. 117. Bishop's weed at entrance to Linden Woods, May 19, 2012, CW.
118. Bishop's weed in orchard, May 19, 2012, CW. 119. Marble statue and ferns, Linden Wood, Emily Bush, 1940.
120. Mixed ferns near pet cemetery, Linden Woods, May 19, 2012, CW.

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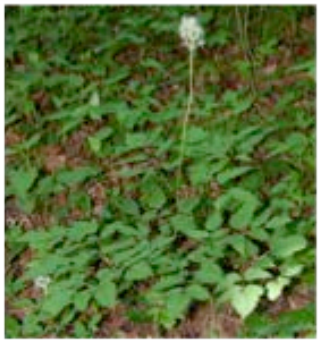
126. 

127. 

128. 

121. Native ginger (Asarum canadense). 122. Maidenhair fern (Adiantum pedatum). 123. Woodland cranesbill (Geranium sylvaticum). 124. European ginger (Asarum europaeum) with Jack-in-the-pulpit ((Arisaema triphyllum). 125. Solomon's seal (Polygonatum biflorum). 126. Goatsbeard (Aruncus doicus). All photos May 19, 2012, cw. 127. Pavilion overlooking tennis court, with shrub, possibly Russian olive, 1920's, ARC. 128. Sumac behind bench at edge of woods. July 11, 2012, CW.

129. 
130. 
131. 
132. 
133. 
134. 

129. Unmown corner of fen, looking southwest. Note purple loosestrife in mid-right. 130. Detail of unmown corner of field with many pendulous bullsedge plants. 131. Swallowwort in unmown portion of fen field. 132. Edge of fen with purple loosestrife and Winged euonymous (Euonymous alatus). 133. Japanese barberry (Berberis thunbergii) in western meadow. 134. Reed canary grass (Phalaris arundinacea) with purple loosestrife in upper left. All photos, July 11, 2012, CW.

135. 

136. 

137. 

135. Purple loosestrife (Lythrum salicaria), Joe pye-weed (Eupatorium purpurea), Reed canary grass (Phalaris arundinacea), in fen. 136-137. Two of the many bush honeysuckle (Lonicera morrowiiand L.tartarica?) in fen and meadows. All photos July 11, 2012, CW.

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