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## LANDSCAPE AND PATCHWORK

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The land as the Europeans found it differed in key ways from the one they had left behind, but their understanding of *how* it differed only emerged gradually. Their image of the area that came to be called New England was shaped by a variety of circumstances that had little to do with the ecology of the region itself. The first European visitors, for instance, saw only areas within easy reach of the coast. For the entirety of the sixteenth century, maps of New England consisted of a single line separating ocean from land, accompanied by a string of place-names to indicate landmarks along the shore; the interior remained blank. Verbal descriptions were not even this thorough. At a handful of coastal points, explorers like Verrazzano, Gosnold, Pring, and Champlain made landfalls that were eventually written up in a paragraph or two, but such accounts were few and far between. Only when settlement began in the 1620s did fuller descriptions start to appear, and even then they were limited to areas within a few miles of the coast or along a few major rivers. For many years, the only New England known to Europe was near salt water.<sup>1</sup>

Once European visitors had arrived, their preconceptions and expectations led them to emphasize some elements of the landscape and to filter out certain others. Most of the early explorers sought to discover what Richard Hakluyt had called “merchantable commodities” in his classic *Discourse Concerning Western Planting* in 1584. These were the natural products which could be shipped to Europe and sold at a profit in order to provide a steady income for colonial settlements. Theoreticians of colonialism like Hakluyt had furnished a ready list of such commodities by the time Europeans began to visit New England regularly: fish for salting, furs for clothing, timber for ships, sassafras for curing syphilis, and so on. Visitors inevitably observed and recorded greater numbers of “commodities” than other things which had not been labeled in this way. It was no accident that James Rosier referred to the coastal vegetation of Maine as “the profits and fruits which are naturally on these Ilands.” His word “profits” may not have connoted the marginal gain from a mercantile transaction, but it did identify those natural products which were of potential use to a European way of life. Descriptions framed on such a basis were bound to say as much about the markets of Europe as they did about the ecology of New England.<sup>2</sup>

Distorting as this emphasis on commodities might be to an accurate understanding of the New England environment, it helps explain one reason why Europeans found the American landscape so different from the one they had left behind. What was a “merchantable commodity” in America was what was scarce in Europe. Only if this was true would it make sense to pay the cost of transporting it across the ocean. Beaver, cod, and sassafras all satisfied this economic requirement and so were often the chief goals of an exploring expedition. But even something like firewood, which was too bulky to justify trans-Atlantic shipment and could thus only be used by settlers in America itself, might be perceived as a commodity because of its scarcity value in England. England had been experiencing a near crisis in its wood supply since at least the time of Columbus, with the result that this single most important source of heating and building materials became increasingly costly throughout the century preceding the English revolution. Parliament began to restrict the cutting of English timber as early as 1543. By the time

settlement began in New England, coal production had started to rise in the fields of Durham and Northumberland, and London was beginning its dependence on the fuel that would soon make it renowned for its terrible fogs. Even if explorers and settlers could not initially ship American timber back home, their awareness of the English wood scarcity colored the way they reacted to New England forests. As often as not, their descriptions of New England contained implicit comparisons with England.<sup>3</sup>

Seeing landscapes in terms of commodities meant something else as well: it treated members of an ecosystem as isolated and extractable units. Explorers describing a new countryside with an eye to its mercantile possibilities all too easily fell into this way of looking at things, so that their descriptions often degenerated into little more than lists. Martin Pring's account of the trees of Martha's Vineyard illustrates this tendency:

As for Trees the Country yeeldeth Sassafras a plant of soveraigne vertue for the French Poxe, and as some of late have learnedly written good against the Plague and many other Maladies; Vines, Cedars, Okes, Ashes, Beeches, Birch trees, Cherie trees bearing fruit whereof wee did eate, Hasels, Wichhasels, the best wood of all other to make Sope-ashes withall, walnut-trees, Maples, holy to make Bird lime with, and a kinde of tree bearing a fruit like a small red Peare-plum.

Little sense of ecological relationships emerges from such a list. One could not use it to describe what the forest actually looked like or how these trees interacted with one another. Instead, its purpose was to detail resources for the interest of future undertakings.<sup>4</sup>

How these resources were perceived depended a great deal on whether one contemplated an expedition that would simply gather the “profits” of a countryside or one that would settle a new plantation. Settlers who had actually to live in a New World environment were less likely than their merchant companions to view it as a linear list of commodities. Their very survival required that they manipulate the environment, and so it is from their writings that a sense of ecological relationships begins to emerge. Settlers had first to survive and prosper before they

could sell commodities across the sea, and that meant understanding the land they lived in. By the time they did this, however, the land was already changing in response to that new understanding, creating a landscape different from the one that had been there before.<sup>5</sup>

All these things—the limited areas visited by Europeans, their tendency to view the landscape in terms of their own cultural concepts, their selective emphasis on commodities, the ecological changes they themselves wrought—meant that their record of precolonial New England ecosystems was inevitably incomplete. The fragments they have left us testify as much to their own cultural preconceptions as to the actual environments they encountered. But there was one European perception that was undoubtedly accurate, and about it all visitors were agreed—the incredible abundance of New England plant and animal life, an abundance which, when compared with Europe, left more than one visitor dumbfounded. Many found themselves protesting to correspondents on the other side of the Atlantic that, however hard it was to believe, they were not exaggerating their reports of what they had discovered there.

The experience of New England's plenty began with the fish of the coastal waters, which had been the original reason that Breton, Portuguese, and Bristol fishermen had started visiting the area in the fifteenth century. "The abundance of Sea-Fish," wrote the Reverend Francis Higginson in 1630, "are almost beyond beleiving, and sure I should scarce have beleived it except I had seene it with mine owne eyes." John Brereton described how, in a few hours of fishing, he and his companions "had pestered our ship so with Cod fish, that we threw numbers of them over-boord againe." Cape Cod came to be named as a result of such experiences, which nearly all of the early explorers mention. But the real statements of wonder came from visitors to the settlements, who saw the spring spawning runs of smelt, alewives, sturgeon, and other ocean fish which migrated to fresh water to deposit their eggs. William Wood described the arrival of the alewives "in such multitudes as is almost incredible, pressing up such shallow waters as will scarce permit them to swim." So thick did the fish become in some streams that at least one inhabitant fancied he might have walked on their backs without getting his feet wet. John Josselyn had no illusions about crossing

streams on the backs of fish, but he was sure that he could have walked knee-deep through stranded herring across a quarter mile of beach. Nothing in their English experience prepared these men for the sight of such prodigious quantities of fish.<sup>6</sup>

The same was true of the region's birds. Wood hesitated to describe how easy it was to hunt waterfowl in New England. "If I should tell you," he wrote, "how some have killed a hundred geese in a week, fifty ducks at a shot, forty teals at another, it may be counted impossible though nothing more certain." Such birds were present in greatest numbers during the spring and fall migrations, but others, like the turkey, could be hunted year-round. Not only did the wild turkeys seem fatter and sweeter than the domesticated turkeys of Europe—which few colonists even remembered had once been imported from the New World—but their behavior could hardly have been better suited to those who sought to hunt them. As Thomas Morton described it, they were easily shot "because, the one being killed, the other sit fast neverthesse; and this is no bad commodity." A man could kill a dozen turkeys in half a day.<sup>7</sup>

For sheer abundance, though, only one bird could match the alewives. Nothing so astonished Europeans about New England as the semiannual flights of the passenger pigeons. John Josselyn measured their numbers in the "millions of millions," and spoke of flocks "that to my thinking had neither beginning nor ending, length nor breadth, and so thick that I could see no Sun." Thomas Dudley told of a March day in 1631 when "there flew over all the towns in our plantations . . . many flocks of doves, each flock containing many thousands and some so many that they obscured the light." Again settlers felt the need to protest their honesty as they wrote descriptions of this kind. "Those that did not see them," said one, "might think it was not true, but it is very true."<sup>8</sup>

None of the mammals reproduced themselves in such concentrated numbers, but they too impressed English visitors accustomed to a landscape in which much of the available hunting was reserved to large landowners and the Crown. "For Beasts," wrote Higginson, "there are some Beares . . . Also here are severall sorts of Deere . . . Also Wolves, Foxes, Beavers, Otters, Martins, great wild Cats, and a great Beast called a Molke [moose] as bigge as an Oxe." Thomas Morton found New England's deer—among

which he included elk—to be larger than English fallow deer, and regarded them as “the most usefull and most beneficiall beast” of the region. In spring, one could see as many as a hundred of them in the space of a mile, and they were numerous enough at other times to supply meat year-round. Still, one of the earliest ecological relationships of which the colonists were aware led them to believe that the numbers of deer might be increased if only wolves could be eliminated. “Here is good store of deer,” wrote William Hammond; “were it not for the wolves here would be abound, for the does have most two fawns at once, and some have three, but the wolves destroy them.”<sup>9</sup>

Visitors and colonists were as impressed by the animals that were absent from New England as by those that were present. Some were familiar wild species, many closely associated with human settlements, whose ranges did not reach to the New World: magpies, cuckoos, nightingales, larks, and sparrows were all missed by the colonists. More striking was the absence of the domesticated animals—horses, sheep, goats, swine, cats, and cattle—which arrived only after 1620. The only indigenous dogs were near kin of the wolf, and although mice were common, there were no rats. “But for Rats,” wrote Morton, “the Country by Nature is troubled with none.” A number of microscopic organisms were absent as well, but these were commented on mainly in terms of the colonists’ remarkable healthiness. Several inhabitants agreed with the observation: “For the common diseases of England, they be strangers to the English now in that strange land. To my knowledge I never knew any that had the pox, measles, green-sickness, headaches, stone, or consumptions, etc.” Disease was by no means absent from New England, as deaths from “seasoning” and epidemics both showed, but the colonial population nevertheless remained for a while relatively isolated from the European disease environment. Large numbers of deaths in the occasional epidemics which did occur should not obscure the fact that New England mortality rates—for Europeans—were on average much lower than comparable rates in Europe.<sup>10</sup>

New England’s abundance was not confined to its animal inhabitants. Indeed, English settlers accustomed to scarcities of wood were perhaps most delighted by the forests they found there. Here, wrote one visitor to Plymouth, was “good ground

in abundance, with excellent good timber.” William Wood, whose description of the woods around Boston would later so intrigue Thoreau, furnished a more precise picture of the Massachusetts forest. “The timber of the country,” he wrote, “grows straight and tall, some trees being twenty, some thirty foot high, before they spread forth their branches.” The most common species in southern New England were oaks, hickories, chestnuts, and pines. If anyone doubted what such trees meant to an Englishman, Francis Higginson made the matter clear: they meant being warm in winter, warmer even than the nobility of England could hope to be.

Though it bee here somewhat cold in the winter, yet here we have plenty of Fire to warme us, and that a great deale cheaper then they sel Billets and Faggots in *London*: nay, all *Europe* is not able to afford so great Fires as *New-England*. A poor servant here that is to possesse but 50 Acres of land, may afford to give more wood for Timber and Fire as good as the world yeelds, then many Noble men in *England* can afford to do.

Higginson’s conclusion said as much about the English fuel crisis as it did about New England’s forests: “Here is good living for those that love good Fires.”<sup>11</sup>

One must not visualize the New England forest at the time of settlement as a dense tangle of huge trees and nearly impenetrable underbrush covering the entire landscape. Along the southern coast, from the Saco River in Maine all the way to the Hudson, the woods were remarkably open, almost parklike at times. When Verrazzano visited Narragansett Bay in 1524, he found extensive open areas and forests that could be traversed easily “even by a large army.” A century later, William Wood made similar observations about Massachusetts Bay. “Whereas it is generally conceived that the woods grow so thick that there is no more clear ground than is hewed out by labor of man,” he wrote, “it is nothing so, in many places diverse acres being clear so that one may ride ahunting in most places of the land if he will venture himself for being lost.” At a number of sites, trees were entirely absent. Higginson spoke of a hill near Boston from which one could see “thousands of acres” with “not a Tree in the

same." Boston itself was in fact nearly barren, and colonists were forced to seek wood from nearby islands.<sup>12</sup>

In coastal areas north of the Saco, and in the mountainous interior of present-day New Hampshire and Vermont, the forest became less open and its composition changed. When Verrazano made landfall in Maine, he found "high country full of very dense forests, composed of pines, cypresses, and similar trees which grow in cold regions." Later visitors concurred that the forests of northern New England were denser, often more coniferous, and, for all of their magnificence, generally less hospitable than those of the south. Thomas Morton described spruce trees in these cold northern woods that measured as much as twenty feet around, and Josselyn mentioned some that were so big that no ship could carry them. The farther north one traveled in New England, the colder the climate became: snow stayed on the ground a month or two longer in the interior of Maine than it did in Massachusetts, and the frost-free growing season fell from about 200 days in southern Connecticut to just over 150 days on the coast of Maine. The failure of the Popham colony at Sagadahoc in 1608 helped create an unfavorable image for much of northern New England. By 1624, John Smith could describe the coast north of the Penobscot River as "a Countrey rather to affright then delight one, and how to describe a more plaine spectacle of desolation, or more barren, I know not." By way of contrast, Smith regarded Massachusetts Bay as "the Paradyce of all those parts," suggesting that, however fragmentary their knowledge, he and other colonial observers were well aware of the diversity of New England environments.<sup>13</sup>

Ecologists have traditionally divided New England into several vegetational zones which reflect these broad differences between northern and southern forests. Thus, the south, including all of Connecticut, Rhode Island, and the eastern fourth of Massachusetts, was known as the "oak-chestnut" region before the chestnut was destroyed by blight in the early part of the twentieth century. In colonial times, the area was dominated by a variety of "central hardwoods"—black, red, and white oaks, chestnut, and the hickories—in addition to hemlock and scattered stands of white pine. In much of the north, on the other hand, including most of Vermont, the northern two-thirds of New Hampshire, and almost all of Maine, "northern hard-

woods" such as beech, yellow birch, and the maples predominated, with red spruce and balsam fir occurring at higher elevations and in swamps. Between the north and the south—in western Massachusetts, southeastern New Hampshire, and along the Connecticut River north of Springfield—there was a zone of transition that contained significant mixtures of both northern and southern New England species, where the full range of hardwoods joined with white pine and hemlock to create a dense, moist forest.<sup>14</sup>

The trouble with such zones is that although they demarcate large-scale regions, they obscure as much as they reveal. The precolonial forest was a mosaic of tree stands with widely varying compositions. Each individual tree species had its own unique range and ecological characteristics, so that many different combinations of species could be found within a single vegetational zone or even within a few square miles. In 1605, James Rosier told of walking up a river in Maine—in the "northern hardwood zone"—and finding a forest which nevertheless consisted of great old oaks growing widely scattered in open fields, with occasional birches, hazels, and strawberries mixed in. From time to time, his company passed through "lowe Thicks" of dense young shrubs and saplings, made up of still other species. On the three hills they climbed, they found "high timber trees," presumably spruce or pine, which were fit to serve as "masts for ships of 400 tun." As Rosier described the place, "It did all resemble a stately Parke, wherein appeare some old trees with high withered tops, and other flourishing with living green boughs." In the space of a mere four miles, Rosier and his men had encountered several very different forests arranged in a complex patchwork upon the landscape.<sup>15</sup>

This kind of diversity was typical of the New England landscape, and is at least as important as larger vegetational zones to the way we should understand the ecology of that landscape. Drainage patterns, the hilliness of the ground, the range of soils, the nature of the bedrock, the location of Indian settlements—all played important roles in determining what vegetation and animal life existed where. These influences applied to more than just the precolonial forest: Francis Higginson's interest was not merely academic when he described the different soils of Massachusetts Bay. "It is a land," he wrote, "of divers and sundry sorts

all about *Masatbulets* Bay, and at *Charles River* is as fat blacke Earth as can be seene anywhere: and in other places you have a clay soyle, in other gravell, in other sandy, as it is all about our Plantation at *Salem*." The nature and diversity of an area's soils might be crucial to the future prosperity of a new settlement, determining the success or failure of its agriculture. As we shall see, colonists studied the native trees carefully for indications of soil fertility.<sup>16</sup>

Even in a relatively small area like eastern Massachusetts, it was possible to find a remarkable range of different habitats. Although colonists generally described the forest as an open oak woodland, there were many poorly drained sites in lowland places, whether along streams or in swamps, where red maple, swamp white oak, alders, and willows were the principal vegetation. William Wood described some of these areas as being twenty or thirty miles in extent. He noted that their watercourses often preserved large areas from the fires—many of them set by Indians—that cleared the underbrush elsewhere, leaving thickets through which it was nearly impossible for a traveler to pass. The thickets offered excellent refuge for deer, and surrounding areas were often prime hunting places. The Indians referred to such lowlands as "abodes of owls," and used them as hiding places during times of war.<sup>17</sup>

An entirely different wetland habitat occasionally occurred where a dense mat of sphagnum moss, leatherleaf, and various sedges grew out from the edges of a pond. Usually the mat was underlaid by water, so that people jumping up and down on it could feel the earth move beneath them like a giant waterbed. Indians referred to such areas as places "where the earth shakes and trembles"; the English called them "quaking bogs." Plants that could grow in these highly acidic environments had to be adapted to a water world of few nutrients and little oxygen. Many such plants grew nowhere else: cranberries, which the colonists eventually came to appreciate, the parasitic orchids, and the insect-consuming sundews and pitcher plants. From the colonists' initial point of view, the most attractive feature of the bogs was the Atlantic white cedars that grew around their edges. As Morton wrote, "If any man be desirous to finde out in what part of the Country the best Cedars are, he must get into the bottom grounds, and in vallies that are wet at the spring of the year."

When a bog was finally overgrown by vegetation, a dense stand of white cedar and red maple might be the only visible sign of its passing. Many of the places Morton described were probably of this sort, a particularly ephemeral habitat that was easily subject to human influence.<sup>18</sup>

At the opposite end of the spectrum were soils which were so well drained that they created very dry conditions for the trees living on them. The sandy soils and glacial tills of Cape Cod were the most extensive examples of this, but smaller ones occurred on the sandy outwash plains of some rivers and in rare sand barrens like those of North Haven, Connecticut. Although Cape Cod possesses the mildest and most temperate climate in New England, with 44 inches of rain and over 210 frost-free days annually, its typical forest is made up of scrubby trees adapted to extreme dryness. Chief among these are the pitch pines, deeply rooted trees which serve as ecological indicators of the sand plain community, along with bear and post oaks, the holly, bearberry, and, occasionally, New England's only cactus, the prickly pear. It was not a forest upon which many colonists looked with favor. John Smith described the Cape as "onely a headland of high hills, over-growne with shrubby Pines, hurts and such trash." The Pilgrims spoke more favorably of both the Cape's forest and its soil—"excellent black earth" a spade's depth in thickness—but they eventually chose not to settle there. Those colonists who finally did establish settlements on the Cape encountered special problems.<sup>19</sup>

The pitch pine's most important adaptation to Cape Cod's dryness has to do with a phenomenon that might seem the scourge of a dry forest: fire. Natural and humanly induced forest fires have long been typical of the area. Driven by the Cape's strong southwestern summer winds, they have regularly destroyed species not adapted to their heat, and eliminated the humus layer of the soil so as to make the ground even drier than it already was. Although pitch pine is a highly flammable wood—the colonists used it for turpentine and preferred it for firewood—the tree possesses a dormant bud at the base of its trunk that allows it to sprout from its roots after the trunk has been destroyed, something few other conifers can do. Regular burning has thus guaranteed the maintenance of the pitch pine forest. In areas of the Cape protected from fire—lowland swamps, ponds,

and the sheltered forests which the Pilgrims saw on the Provincetown tip—the pitch pine could be replaced by moister forests containing large white oaks, white pine, an occasional hemlock, and the fire-sensitive beech.<sup>20</sup>

The effects of fire were by no means limited to Cape Cod; as we shall see, Indians made sure that they were very wide indeed. Throughout New England, fires which destroyed substantial portions of a hardwood forest created the conditions of full sunlight which species such as birch, white pine, and various shrubs needed in order to flourish. When Thomas Morton wrote of riding for ten miles through a forest in which there was “little or no other wood growing” but pine, he was probably describing ✓ the site of an old forest fire. Few forests so impressed the colonists as these old-burn stands of white pine, which contained what were easily the tallest trees in New England. The average height of a mature grove might be well over a hundred feet, with a few ✓ trees as much as five feet in diameter and 250 feet in height. The importance of the white pine to ship construction, especially for masts, made it one of the most sought after of colonial trees. “Of these,” wrote Morton, “may be made rosin, pitch and tarre, which are such usefull commodities that if wee had them not from other Countries in Amity with England, our Navigation would decline.” The effects of the English wood shortage led colonists to overemphasize the significance of pine in New England forests, thus obscuring the fact that the tree’s chief habitats, other than old burned-over areas, were limited to dry ridge tops and sandy flood plains where it did not need to compete with other species for light. There was never the “infinite store” of it that Morton asserted.<sup>21</sup>

Not all the habitats of precolonial New England were forests. Some of the most important to both Indians and Europeans had no trees at all: whether rocky or sandy, the seashore was a zone of abundance from which both groups obtained food. Morton spoke of seeing oyster banks on Massachusetts Bay that were a mile in length. Wood declared that individual oysters could be as much as a foot long: once the animal was removed from its shell, it was so large “that it must admit of a division before you can well get it into your mouth.” The movement of the tides brought thousands of lobsters into the shallow waters offshore, and exposed an “infinite store” of mussels and other shellfish. One

observer described how a person running over exposed clam banks was soon “made all wet by their spouting of water,” and said he had seen clams “as big as a penny white loaf” of English bread.<sup>22</sup>

As important as the shore itself were the salt marshes. Here the ✓ tides regularly flooded extensive inland areas with salt water, so that only two grasses—*Spartina patens* and *Spartina alterniflora*—were able to grow there. Because the grasses helped accumulate soil and so created a series of microenvironments from dry land to marsh to protected pools of water, they furnished a home for a wide variety of insects, fish, and birds. It was often in the salt marshes that the huge flocks of migratory waterfowl made their brief stops in Massachusetts Bay, creating those opportunities Wood spoke of to kill fifty “at a shot.” But for the colonists the most striking thing about the marshes were the grasses themselves, which created the most extensive meadows to be found near the early settlements. All agreed with John Smith that the marshes contained “grasse plenty, though very long and thicke stalked, which being neither mowne nor eaten, is very ranke.” The *Spartinas* had little of the sweetness of English grasses, and many colonists were dubious about their adequacy for hay—but they were often the only grass available. Wood warned prospective settlers that “hay ground is not in all places in New England,” and suggested that those planning to keep cattle “choose the grassy valleys before the woody mountains.” Inland, along the banks of rivers, colonists occasionally found rich grassy areas—called “intervals”—which served them well for hay, but all coastal settlements had to make sure of their access to the salt marshes.<sup>23</sup>

The precolonial landscape of New England was thus a patchwork. Even if one avoided exceptional areas like salt marshes or sand plains, one encountered tremendous variety even within the compass of a few square miles. The descent of a single hillside in southern New England, for instance, could easily carry one from a dry sunny forest of white and black oaks, white pine, and an occasional huckleberry or lowbush blueberry to a shaded valley buzzing with mosquitoes and containing red oak, tulip poplar, hemlock, and beech. In between might be chestnut and black birch, with the ubiquitous red maple appearing up and down the entire hillside.

Why a tree of a given species grew where it did was the result not only of ecological factors, such as climate, soil, and slope, but of history as well. A fire might shift a forest's composition from one group of species to another. A windstorm might blow over the mature trees of an entire tract of forest and allow the saplings growing beneath them to form a new canopy. Even a minor catastrophe, like the toppling of a single large tree, might create a microenvironment in the shadow of its uprooted base or in the sunlight of the newly broken canopy into which new species might move. Which species grew where in any particular place was thus the result of a cumulative sequence of ecological processes and historical events. The complexity of the precolonial ecosystem was one not merely of space but of time.<sup>24</sup>

The depth of that time was very great. The period during which Indians had inhabited the area had seen climatic warming transform southern New England from the glacial tundra of 12,500 years ago to a series of forests composed in turn of spruce, white pine, and finally, by about 7,000 years ago, the oaks and other hardwoods typical of the forest today. Because climatic trends involved such important overall shifts in forest composition, we tend to think of past forests in terms of the same generalized "vegetation zones" which supposedly existed at the coming of the Europeans. But such generalizations obscure too many details. In fact, the shifting composition of postglacial forests involved the complicated migrations not of homogeneous forest communities but of many individual species, each arriving by different routes and at different rates. At the same time that the supposed "spruce forest" dominated Connecticut, *Spartina* grasses were colonizing salt marshes. When "hardwood forests" burned several thousand years ago, they were replaced as they are today with stands of white pine, and these were replaced in turn when they aged and experienced windfall by a still different hardwood forest. Catastrophes—whether of fire, wind, or disease—continued to create drastic alterations of specific habitats even as general climatic trends were continuing. Just under 5,000 years ago, the region's hemlocks experienced an attack by some pathogenic organism that nearly destroyed them; it took over half a millennium for the population to recover. Events of this kind were not merely cyclical or self-equilibrating. They constitute a history of the ecosystem in which a unique linear sequence was

imposed on the regularly recurring processes which ecology as a science seeks to describe.<sup>25</sup>

When human beings, Indian or European, inhabited and altered New England environments, they were a part of that linear history. Their activities often mimicked certain ecological processes that occurred in nature, but with a crucial difference. Whereas the natural ecosystem tended toward a patchwork of diverse communities arranged almost randomly on the landscape—its very continuity depending on that disorder—the human tendency was to systematize the patchwork and impose a more regular pattern on it. People sought to give their landscape a new purposefulness, often by simplifying its seemingly chaotic tangle.

Different peoples of course did this in different ways. Moreover, they chose different sets of habitats, different parts of the patchwork, to live in and reorder. When the Europeans first came to New England, they found a world which had been home to Indian peoples for over 10,000 years. But the way Indians had chosen to inhabit that world posed a paradox almost from the start for Europeans accustomed to other ways of interacting with the environment. Many European visitors were struck by what seemed to them the poverty of Indians who lived in the midst of a landscape endowed so astonishingly with abundance. As Thomas Morton wrote, "If this Land be not rich, then is the whole world poore." Here was a riddle: how could a land be so rich and its people so poor? At least in the eyes of many colonists, the Indians, blessed with such great natural wealth, nevertheless lived "like to our Beggars in England." To explain why this was so—or, alternatively, why the colonists perceived New England's earlier inhabitants in this way—we must turn to the Indians and their reasons for living as they did.<sup>26</sup>