*What are cultural landscapes? What should be our target in restoration efforts? This article challenges the powerful images of the forest primeval and suggests that a better understanding of our historical relationship to the land can help focus our stewardship efforts.*

# WHEN IS A LANDSCAPE NATURAL?

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What did North America look like before Europeans arrived? One of our most popular, strongly held images is that of the "forest primeval." We imagine a blanket of ancient forest, which nature maintained in equilibrium with the environment.

We also imagine native people who lived in the forests and on the plains without changing either ecosystem. Thus, another popular image is that of the ecologically invisible American Indian.

In fact, enormous areas of the continent's forests and grasslands were very much cultural landscapes, shaped profoundly by human action.

At the time of European contact, many Indians were farmers. In the East and Southwest they raised maize, beans, pumpkins, and squash to provide at least half their subsistence. Agriculture in the Americas originated more than 5,000 years ago. By 1500, indigenous people had cleared millions of acres for crops. Everywhere in the Americas they also regularly set fires to hundreds of millions of acres to improve game habitat, facilitate travel, reduce insect pests, remove cover for potential enemies, enhance conditions for berries, and drive game.

Vast areas of the forest landscape in both the West and East were open, parklike stands shaped by frequent, low-intensity fires. In New England, Indians burned the woods twice a year. Roger Williams wrote that "this burning of the Wood to them they count a Benefit, both for destroying of vermin, and keeping downe the Weeds and thickets." John Smith commented that in the forest around Jamestown, Va., "a man may gallop a horse amongst these woods any waie, but where the creeks and Rivers shall hinder."

In many cases frequent forest burning created grasslands where forests otherwise would have existed. Prairies extended into Ohio, western Pennsylvania, and western New York. In Virginia the vast prairie of the Shenandoah Valley covered more than 1,000 square miles. Ecologist R. C. Anderson writes that the eastern prairies and grasslands "would mostly have disappeared if it had not been for the nearly annual burning of these grasslands by the North American Indians."

## VEGETATION MOSAICS

Because of their frequency and timing, the burns often created vegetation mosaics that otherwise would not have existed. Most Indian fires were set in the spring and fall when soil moisture was high and conditions were favorable for light underburning of the forest. This seasonal burning tended to create plant communities adapted to low-intensity fires and to reduce the number of high-intensity fires caused by lightning.

The abundance of white-tailed deer, wild turkeys, ruffed grouse, and other species common to forest edges and openings indicated frequent natural or human-induced disturbances. In the early 1600s, bison roamed in the South and as far east as Massachusetts—indicating numerous openings and prairies that, in this humid forest region, could only have been created by human activities.

American Indians' use of fire as a management tool changed the entire ecology of the forest. Burning increased the range of pines, oaks, and other forest types that flourish under a frequent fire regime. Much of the vast southern longleaf pine forest that greeted European settlers in the South was created over hundreds, perhaps thousands, of years of fires set by Indians. The same can be said for the pre-European forests of the Midwest and Great Lakes states, where fires created and maintained oak and pine savannas and open woodlands on tens of millions of acres.

The communities that characterized these cultural landscapes—such as the red-cockaded woodpecker and the gopher tortoise community of the southern longleaf pine forests and the oak savanna communities of the Midwest—certainly existed as components of the landscape before Indian intervention. But Indians' actions greatly expanded the extent of such habitats. And it will take continued human intervention to maintain these fire-adapted habitats.

The importance of fire became evident when immigrants moved out onto the prairies and cut off prairie fires: Millions of acres of open oak savannas and even treeless land to the east of these farms became dense woodlands or forests within two decades. Across North America as Indian burning stopped, ecosystems changed rapidly—prairies became woodlands, savannas became dense forests, and dense undergrowth invaded open forests.

## NATURAL PARADOX

What is the "natural" condition of American forests? Public land managers are wrestling with that question under ecosystem management. Are the dense

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*American Indians' use of fire as a management tool affected the entire ecology of the North American forest.*

forests from a century of fire prevention less natural than the more open forests maintained by American Indians? Are natural forests only those in which humans have played no significant role? By that definition, few natural forests would have existed even in 1500—for humans have occupied and influenced the landscape since forest migrated northward behind the retreating continental glaciers more than 8,000 years ago.

Whether the forests of 1800 were more "natural" than the forests of today is a philosophical question without a definitive answer. But one thing is clear: If we don't like the kind of forests we see developing, we are going to have to do more than simply watch.

Some federal resource managers are using the concept of "range of natural variation"—often called the "range of historic variation"—to analyze this situation. Many of today's forests are considerably outside this range.

The task of bringing forests back within their historic range is daunting. Doing so will require land managers to reintroduce natural and prescribed fire. In many cases, past fuel buildups and smoke management guidelines will require them to first use mechanical treatment, such as thinning understory trees, to create conditions conducive to planned low-intensity fires and to reduce the risk of damaging wildfires.

The powerful image of the forest primeval causes some otherwise well-informed people to propose systems of inviolate preserves where human intervention is prohibited. Yet in most fire-prone forest ecosystems, continued human action will be essential to maintain them in a pre-European condition. A prime example of such an inviolate preserve is the Boundary Waters Canoe Area Wilderness in northern Minnesota. As the late Miron "Bud" Heinselman, U.S. Forest Service ecologist, demonstrated, the exclusion of fire from the Boundary Waters has doomed large, nearly pure stands of red pine and white pine. In the decades ahead, they will be taken over by spruce and fir.

## WHY THE FOREST PRIMEVAL?

In "The Pristine Myth: The Landscape of the Americas in 1492," cultural geographer W. M. Denevan writes: "The myth persists that in 1492 the Americas were a sparsely populated wilderness, 'a world of barely perceptible human disturbance.' There is substantial evidence, however, that the Native American landscape of the early sixteenth century was a humanized landscape almost everywhere. Populations were large. Forest composition had been modified, grasslands had been created, wildlife disrupted, and erosion was severe in places. Earthworks, roads, fields, and settlements were ubiquitous."

So why, in the light of all this evidence, do we continue to cling to the image of the forest primeval? This is an interesting topic in itself, one a number of scholars have explored.

In "The Invention of American Tradition," M. J. Bowden writes that the image of the pristine forest has endured for 300 years or more because opinion leaders—from 17th-century Pilgrims to modern environmentalists—have found it useful.

Bowden writes: "The grand invented tradition of American nature as a whole is the pristine wilderness, a succession of imagined environments which have been conceived as far more difficult for settlers to conquer than they were in reality. . . . The ignoble savage, nonagricultural and barely human, was invented to justify dispossession . . . and to prove that the Indian had no part in transforming America from Wilderness to Garden."

Two hundred years after the early co-

lonial period, a reaction to U.S. industrialization spawned a back-to-nature movement, which continues today. Writers such as James Fenimore Cooper, Henry David Thoreau, and Henry Wadsworth Longfellow, as well as artists such as the Hudson River School landscape painters, sought to glorify precontact America and its inhabitants.

The concept of an interventionist indigenous people had no place in the image of the "forest primeval" this group sought to portray. Therefore, Bowden writes, the 19th-century Romantic Movement sought to portray "Indians who lived, so the tradition goes, in harmony with nature, making no irremediable changes in the environment, and handling over to Europeans a virgin land. Whether denigrated as ignoble savages or idealized as Native Americans living in perfect equilibrium and harmony with the environment, the Indians were given no credit for opening the Eastern Woodlands, for creating much of America's grassland, for transforming hardwoods to piney woods with their 'woods-burning habit.'" Over the years writers such as Kirkpatrick Sale, in his best-selling book *The Conquest of Paradise: Christopher Columbus and the Columbian Legacy,* have perpetuated the image of the ecologically invisible Indian.

## MORE THAN A MYTH

But there is more to this story than just American myth-making. Bowden failed to mention one significant factor that influenced the European perception that indigenous people had a small ecological impact; that factor was the devastating effect of Old World diseases on native populations. Ethnohistorian Henry F. Dobyns estimates that the Indian population of North America collapsed from perhaps 18 million in 1500 to fewer than 1 million by the late 1700s, when the first waves of European expansion began to move west over the Appalachians.

In 1500 many parts of the Midwest, Southeast, and Atlantic coastland had highly structured agricultural societies with high population densities and landscapes that were heavily cleared for crops. While we will never know fully the extent of forest clearing by these native people, we can gain some indication from the writings of a Spanish chronicler on the 1539–43 expedition of Hernando De Soto, which pillaged, plundered, and inadvertently spread diseases beginning at what is now Tampa Bay, Fla., and moving north across the Appalachians at North Carolina, west and south across the Mississippi River in southern Missouri, and down to the Gulf of Mexico. In describing Indian agricultural fields in northern Florida, the writer reported that De Soto and his men marched through fields of corn, beans, squash, and other vegetables, which "were spread out as far as the eye could see across two leagues of plain." Dobyns has estimated that this single field covered more than 16 square miles. These were no small family garden plots!

The first waves of depopulation of native people from smallpox hit shortly after 1500, even before the De Soto expedition. Successive waves followed as new diseases were introduced and took their horrible toll. This holocaust took place largely out of sight of Europeans. Agricultural lands had two to three centuries to reforest before the first permanent European-American settlers poured through the Appalachian gaps. By 1800 native populations were a shadow of their former numbers, and the social structure had been substantially disrupted. The pioneers found landscapes that looked more "pristine" than they had in more than 1,000 years.

## LINKED TO THE LAND

If language is a looking glass into a people's culture and images, then today's common usage of the term "presettlement" to refer to pre-European settlement reflects either an ignorance of history or cultural arrogance—or perhaps some of both. We have the power to change that. As land managers carry out activities in the name of "ecosystem restoration," we need to more fully understand the role that humans have played in the landscape.

What conditions should ecosystems be restored to? For example, will we try to bring them back to conditions before modern fire control? Or to conditions before European settlement? If to the latter, should we try to restore the landscape to its condition before or after the holocaust of Old World diseases decimated native peoples? It's not an option to go back to conditions before people inhabited North America: It would be tough to get the continental glaciers to come back.

Just asking these questions requires us to seek a better understanding of the human dimension in our natural landscapes and to reconcile conflicting views as to where we are, how we got here, and where we should be heading.

All human history has a natural context. We shape the land and the land shapes us. What binds us together is a relationship with the land that is in many ways common to all peoples. This has been true for millennia, even here in North America, where, in the words of cultural ecologist Karl W. Butzer, there exists "a pre-European cultural landscape, one that represented trial and error as well as the accomplishment of countless human generations. It is upon this imprint that the more familiar Euro-American landscape was grafted, rather than created anew."

There is something comforting in this knowledge. The American Indian legacy lives on today in our forest and grassland landscapes, if only we have the eyes to see it. It lives on in the art, culture, and genes of many of our citizens. This legacy lives on also in our bodies, sustained by the myriad plants originally domesticated here in the Americas, mostly by women. Today, 60 percent of U.S. crop production, on a dollar basis, comes from crops first cultivated by American Indians.

We are linked as human communities to the human communities that went before us, and to those which will follow. We are linked to the land, as they were, for sustenance and spiritual renewal. A better understanding of these connections can help us become better stewards of the earth. □

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