

## Born-again Forest

by Edwin H. Ketchledge

The pulse of a forest beats in years, not in days. Change comes slowly and surely, but shifts in any forested landscape must be measured in decades, centuries, and millennia. The primeval forests that greeted the early explorers in the Adirondacks were themselves new arrivals, the older forests having been destroyed during the Pleistocene Ice Age when continental glaciers swept the landscape clean of all vegetation. Less than 12,000 years on the scene, the fifty or so species of trees encountered by the pioneers had not yet fully settled into balance with the regional climate and soils.

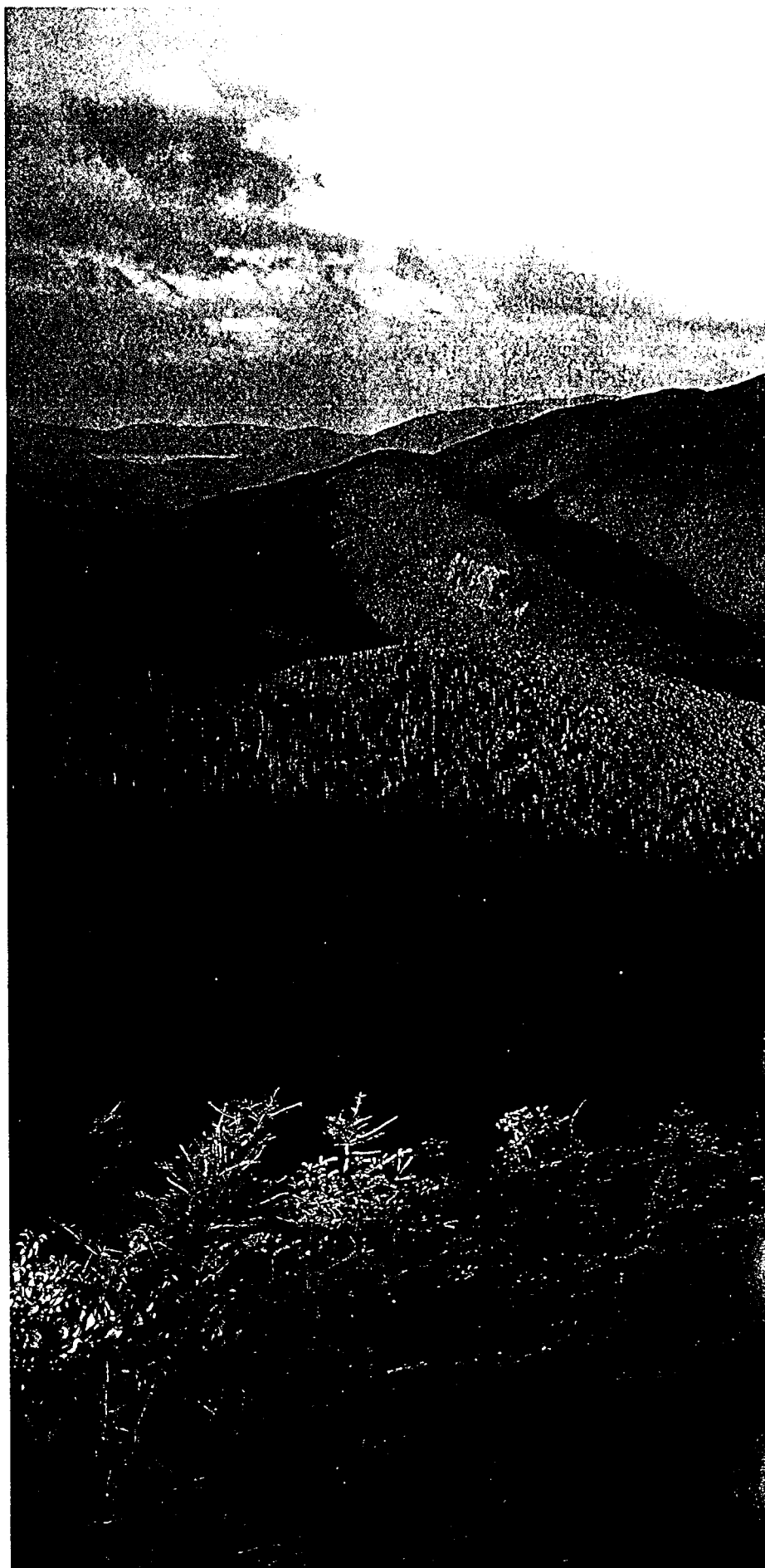
To the colonists, the Adirondack region was nothing but a "dismal wilderness"—a vast, impenetrable barrier of trees, extending unbroken as far as the eye could see and to be avoided during the westward expansion. For miles and miles, four long-lived species—sugar maple, American beech, red spruce, and eastern hemlock—dominated the rich soils of the rolling uplands characteristic of most of the area. Yellow birch was universally present too, because it was an aggressive pioneer in the wake of natural disturbances. The branches of the hardwood trees met in a dense canopy eighty or ninety feet above the ground, leaving the shaded understory to the few plants that could survive with a minimum of sunlight.

Darker and gloomier in the eyes of their first beholders were the conifer forests that grew on the poorer, water-washed soils at lower elevations. Here red spruce, eastern hemlock, and balsam fir grew close together in crowded stands. Fast-growing eastern white pines, commonly

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*Protected from the ravages of logging, trees are reestablishing themselves in their former stands.*

Nathan Farb



125 to 160 feet tall, were widely distributed throughout the Adirondacks, their towering spires poking above the forest canopy. Northern white cedar, too, could be found along many a lakeshore and streamside, but these species were neither as abundant nor as continuous in distribution as spruce, hemlock, and the hardwoods.

Logging changed all this, beginning in 1820. First to go were the big pines, three to four feet in diameter, and two or three log lengths clear of limbs. After three decades, the loggers had penetrated into the very heart of the wilderness but had harvested only the white pines for logs and

the hemlocks for their tannin-rich bark.

By the 1870s, however, a process to produce pulp for the paper industry had been developed that could use pine, spruce, hemlock, fir, and aspen. In another twenty years, even maple and beech—heavy hardwoods previously left standing because they would not float in the log drives—were taken when railroads pushed into the interior and could haul every tree away. Of today's 6 million acres, only 200,000 acres of virgin forest remain in the Adirondacks (one-fourth of them in the Five Ponds Wilderness Area south of Cranberry Lake).

Loggers clear-cutting softwoods for pulp left great piles of flammable limbs and slash throughout the forest. Sparks from locomotives' stacks and coals from fire boxes frequently ignited the debris as trains traversed the forest interior. Subse-

quent fires destroyed 464,000 acres of forest cover in the spring of 1903 and another 346,000 acres in the fall of 1908.

Such severe fires set back the process of plant succession. The organic soil was destroyed along with the vegetation. Consequently, pioneer species, such as quaking aspen, paper birch, and fire cherry, had to grow up before the climax species—spruce, fir, maple, beech, and hemlock—began to reestablish themselves as the dominant trees. Because of the loss of soil through erosion, fires on the steeper mountain slopes were especially devastating, greatly delaying the return of forest cover.

Trees were affected not only by logging and fire but by animal life as well. Deer, for example, were not common within the original forest—too little browse grew on the shaded forest floor in climax stands.

*Pioneer species, such as paper birch, grow in clearings where the forest has been disturbed.*

James Joern



But the brushy growth that came in after logging, fire, or blowdowns attracted them. By selectively eating maple, birch, and white cedar and avoiding beech and spruce, large populations of deer altered the successional trends—at least until the maple, birch, and white cedar grew beyond the reach of browsing deer.

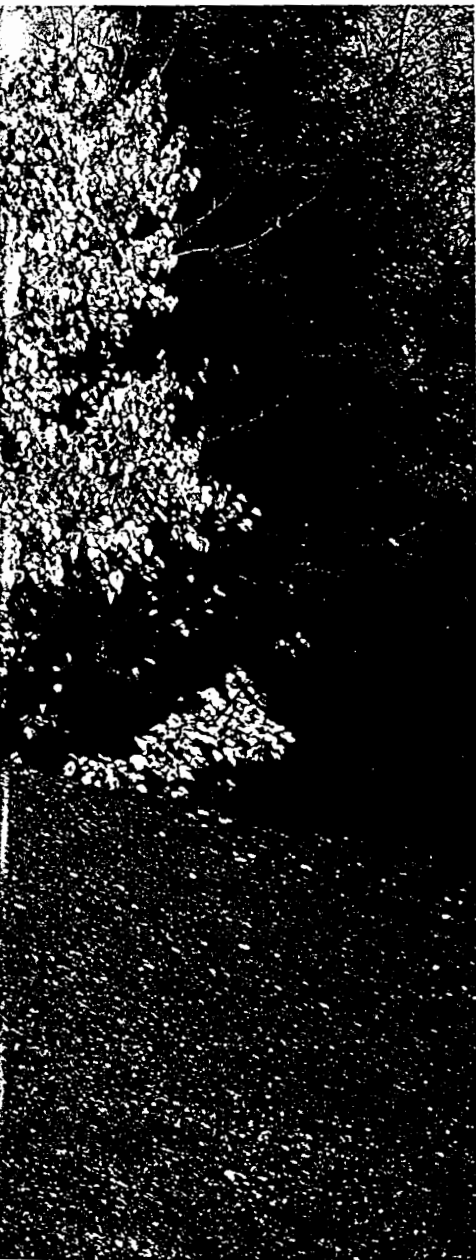
What comes as a surprise in the Adirondacks is that the forest, so heavily cut over, is now a healthy ecosystem, rebounding vigorously. Most of the modern park had been cut over or disturbed to some extent by the time the Forest Preserve was created 107 years ago. With thousands upon thousands of acres of virgin forest disturbed, the modern forests today are mostly transition forests, different from the primeval stands first encountered. But no important species of forest plant has been lost. On the state-owned Forest Pre-

serve lands, 42 percent of the Adirondack Park, wildness is again returning, at its own slow pace and sometimes in a different but temporary guise compared with its primeval composition.

Standing on one of the higher summits or flying over the mountains in a small airplane, one can see that the major feature of today's Adirondack forests is their conspicuous separation into three elevation zones. The lowlands stand out because of the dark green foliage of the swamp and bog conifers in the peaty, mucky soils, and of the water-tolerant conifers—red and black spruce, balsam fir, and eastern hemlock—that surround every lake and every stream system to the exclusion of pale-foliage hardwood species. On the sandy, water-washed soils bordering the wetlands, where low slopes blend into flat, wet ground, red spruce

outcompetes its more demanding hardwood brethren.

For miles around, the rest of the hilly countryside is the pure yellow-green of hardwood species. The heavy conifer logging of yesteryear destroyed the mixed woods (nearly equal numbers of hardwoods and conifers) that once covered these slopes. This landscape, so heavily harvested, now includes sugar maple, American beech, and yellow birch, along with sun-loving hardwood pioneers such as black cherry, white ash, balsam poplar, American elm, eastern hop hornbeam, and other species typically sparse in dense, old-growth forests. Under this new canopy of hardwoods, however, spruce, hemlock, and fir are reappearing, so that in a couple of centuries, conifers and hardwoods will be reestablished in their primeval mix of numbers and sizes. Now the ocean of pale



## TREES FOR SOLES

by Barbara McMartin

How did tanbarkers alter Adirondack forests? Between 1850 and 1890, as many as 20 million eastern hemlocks were harvested exclusively for their tannin-rich bark. And since hemlock made up about 15 percent of the trees, tanning had a staggering effect.

Ground up and leached, hemlock bark produced tannin, which could turn animal hides into leather for shoe soles. The hides came from South and Central America and were distributed to about a hundred tanneries in the Adirondack region. About five hemlocks yielded a cord of bark, which could tan four or five hides.

In late spring, tanbarkers cut the hemlocks, scored them into four-foot lengths, pried the bark loose, and stacked it into piles. In winter, teamsters hauled the bark to tanyards, where it was piled into solid, shedlike stacks 8 feet wide, 12 feet high,

and up to 600 feet long. A mile of stacks could supply one large tannery for a year.

After the Mohawk and Malone Division of the New York Central Railroad opened up the heart of the Adirondacks in 1892, no new tanneries were built. But the bark was still harvested and shipped out to tanneries elsewhere. By 1926, however, chemicals had replaced bark as the tanning agent for shoe soles.

Of the towns that grew up around the tanneries, many still survive, but a handful, like Jerden Falls, below, are ghost towns. Only its stone foundations, concealed by thick forest, remain to indicate that a tannery town ever existed there.

*Barbara McMartin, author of Hides, Hemlocks, and Adirondack History, is head of the Committee for the 1992 Adirondack Park Centennial.*



Old Forge Historical Society

*Paper birches covering much of Cascade Mountain (background) came in after the 1903 wildfires and will, in time, be replaced by balsam fir (foreground).*

Carr Clifton

green is broken only on the bluffs and rocky ridges, where just a few species of conifers can grow in the poor soils.

In the High Peaks region, a third forest zone caps the Adirondack landscape. Red spruce and balsam fir thrive in the northern climate of high elevations; there, alone among the hardwoods, paper birch holds on for dear life. Even these three toughest species drop out on a few of the highest peaks and give way to an open, alpine zone of tundra-type plants—dwarf shrubs, hardy grasses, and tough mosses and lichens that withstand extreme winds and wintery weather. These isolated summit populations contain the highest concentration of rare, threatened, and endangered species in New York State.

What will the forest look like in another hundred years? On the private and commercial lands of the Adirondack Park, where lumbering activities and all sorts of landscape alterations—such as tree farms, hunting camps, recreational resorts, and private homes and estates—go along with economic development, we will see the highest ecological diversity. The many disturbances will permit the growth of hundreds of pioneering species.

Approximately half of the landscape—that in the Forest Preserve—will be approaching the original wilderness. Coniferous stands will be dominated by red spruce and eastern hemlock, but with tall white pines on the steep bluffs and dry moraines and an understory of balsam fir in wetter areas. Black spruce and tamarack will continue to dominate sites with a high water table, while red spruce and balsam fir will prevail on terrain above 3,000 feet. Scattered hardwoods, such as yellow birch, paper birch, and red maple, will still grow among the conifers.

On the hardwood sites, sugar maple, American beech, and yellow birch will share dominance, mixed in with hemlock and spruce. The vast array of pioneering species, which now collectively attest to earlier logging history, will be shaded out by the increasingly dense canopy and will only be found where natural disturbances have created open, sunny spaces. Within two hundred years, only the trained eye of the expert will be able to discern any past disturbances on Forest Preserve lands. By then, for all practical purposes, a “second generation wilderness,” as I call it, will have returned, and we will have successfully reclaimed our wildland heritage. □

