

THE PAST AND FUTURE OF NEW ENGLAND FORESTS

I've often heard that those without a knowledge of history are doomed to live it over again. It is also true that those who keep asking me to speak about forest history are doomed to hear it all over again! Hopefully, each time we reexamine man's experience here in the northeast corner of the country we may get some new flash of insight. But there is no guarantee that the exercise will really pay off.

The more we study the past, the more obvious it becomes that three facts about the natural world have had an overriding impact on the way New Englanders have related to their land:

P. First, the North American continent is the only one in the world open to the invasion of moist tropical air without a set of intervening mountains that wring the water out of it before it reaches the heartland. The resulting climate has not only made a breadbasket out of the upper Mississippi Valley, but also the prevailing drift of weather has made forest the climax vegetation of the humid east. Consequently, trees spring up on every untended plot of land in New England so that, unlike much of the country, regeneration is easy to get.

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P. Second, we now know that the physics of tectonic plate movement has crumpled much of the east coast and in New England this has made most of the major rivers run north and south. This configuration early made travel easier along the streams and valleys rather than east and west across the grain of the countryside. This, in turn, affected the course of settlement, the location of some critical state boundaries, established defense and invasion routes, and set trade and transportation patterns to name only a few of the factors that still affect us.

P. Finally, New England is mostly underlain by granitic rocks which, after grinding by the glaciers, have produced soils that are generally on the sandy side with relatively little clay. Because clay is the only soil particle size capable of holding nutrients in a condition for cation exchange and plant uptake, our deficient soils have little inherent fertility available for crops. Even with a good deal of help from organic matter, we must add nutrients yearly or watch food production decline. The deep, rich, stone free soils of the middle west must have seemed like paradise to migrating New Englanders, and certainly provided a permanent regional advantage to agriculture which is still effective.

For all practical purposes, the history of our forest starts 12 to 15 thousand years ago as the last glacier was decaying and laying down bare ground for plants to colonize with first a tundra-like complex and then a boreal mixture of trees. Animals must have appeared rather quickly because within 3000 years the first paleo-Indian hunters arrived. In 9000 B.P. they probably fitted into their environment instinctually, much as animals develop a survival technique to live off the land. However, it wasn't long before these folks started the age old process of improving on their environment to make life easier. The neolithic revolution happened here too as the Indians gradually learned to grow crops, although their stone age technology led to clearing relatively limited amounts of land. By the time Europeans arrived

a substantial part of the Indian diet came from crops.

The biggest Indian fields were on the river flood plains where, as on the Nile, annual silting could replace plant nutrients. We hear in folk lore that fish were also used as manure but there is a strong suspicion that this idea was imported from Europe. There was also an indeterminate amount of woods burning probably for game management, but it is hard to believe that this had much impact outside of those areas where wildfires were naturally fairly common. In any case, the Indians depended on the forest but apparently didn't modify it on a grand scale, consequently, populations were never very large.

P. Europeans, on the other hand, had a very efficient iron age technology that could easily change the whole countryside, and strong ideas about how people should live. Although some of them hunted for a living it was quickly apparent that such "woods runners" were pretty rough and independent characters who seldom went to church and had no interest in building "a city on a hill" or living up to any social compact with the Congregationalists' God. Partly as a consequence, the Pilgrims thought of forests as a, "heidious and desolate wilderness full of wilde beastes and wilde men". A thoroughly undesirable place, socially!

P. Besides, once woods were cleared for farm land 40 to 50 people per square mile could be supported, enough to form congregations, start schools, town governments and begin to recreate most of the more desirable features of European civilization. So most of New England went through the familiar course of colonial settlement. First, with subsistence farming and later rapid conversion to commercial agriculture as roads improved and the Industrial Revolution created water-power factory towns where workers needed food. At the peak, in the middle 1800's, we had cleared 3 out of 4 acres in most of New England, outside of northern Maine and the high country. Truly a staggering job of humanizing the landscape to make civilized life possible

and to support more people.

Many folks look back on visions of this landscape handed down by Currier and Ives and Grandma Moses as representing the best that New England had to offer as an environment supporting an attractive life style. Some believe that it's been a steady down hill slide ever since and would like to return to those halcyon days of organic farming. However, probably few could stand the diet, the lack of health care, high infant and childbirth mortality, rampant woods and farm accidents, the abismal factory working conditions and the general lack of security that pervaded the whole of society. One has only to read the gravestones in any rural cemetary, think about Robert Frost's poem, "The death of the Hired Man", or, although it pertains to a later date, read over the Lynd's analysis of "Middletown" to realize that those days left vast room for improvement in the human condition.

P. Farmers realized this quite early when they couldn't meet the competition of cheap food from the Mohawk and Ohio valleys. Even while New England was industrially prosperous and growing, agriculture started to decline rapidly as farmers sought jobs in the towns or new lands in the west.

P. As you all know in this climate the forest marched right in behind the departing farmer and the various "old field" successions took over. In central New England there was enough old field white pine to make pine industries a prominent part of the rural economy for a while. Although cutting peaked in 1909 the container industry was important well into the 1920's. Thereafter, it was largely innovated out of business as other packaging materials better suited peoples' needs.

P. The clear-cutting generally used to log the pine brought back a mixture of hardwoods, pine and hemlock on most sites. These second generation forests were much like those originally cleared, at least so far as the species present are concerned. And the pollen record suggests that our

P. forest tree species mix has been quite stable for the last 2500 years in spite of clearing, regrowth, logging and recovery, not to mention fires, diseases, insects and hurricanes. We seem to have been provided with a very resilient suite of trees capable of withstanding the catastrophies visited on it by man and nature for over two millenia.

With the decline of agriculture some novel efforts were made to breathe new life into rural towns. For instance, the idea of an "old home week" was started in Vermont as a way of bringing back successful sons and daughters to enjoy the scenes of their childhood, and hopefully to invest some of their spare cash in local farms that were going begging. Although the program never did satisfy its promoters there was a definate movement of city folks to take over old farms as second homes. The idea that country life could be restful would have seemed ludicrous to our hard working ancestors, but recreational use of land by tourists and landowners alike became big business by mid-century. Land was cheap, taxes low and travel swift and inexpensive, so rural land was a good investment, even without active managment. Many like Ken Galbraith were content to keep the views open by letting neighboring farmers use the fields and as for the rest simply exercise patience enough to raise a "climax forest". Some, but not too many, expected cold cash to supplement psychic income and sold timber or hired consultants to do it for them. Practically all, when questioned, would say that they owned their land for a bundle of reasons, and this has complicated the managment picture for the last half century.

Throughout most of this century product prices have been low, land cheap, taxes and interest rates negligible. Under these conditions almost anyone could afford to own forest land and hundreds of thousands of New England folks now hold some. Not surprisingly with product prices low most of the returns realized were in the enjoyment of non-monetary amenity values and this generally resulted in fairly passive forest management.

This picture has changed radically in recent times since land values are up along with taxes, and interest rates have reached the stratosphere so that acquisition and carrying costs are now expenses of serious dimensions. Luckily, stumpage prices have also risen, stimulated by exports and a burgeoning fuelwood market so that even a relatively small woodlot is likely to contain values large enough to catch the eye of an owner. Under the lash of high costs, stumpage sales are increasing and, although cutting is not tantamount to thoughtful management, in many instances management is actually moving from passive to positive.

Here we must pause to take a special look at Maine. This one state is almost half of New England and its land use history is sufficiently different to justify a special note. From the beginning extensive settlement came later than elsewhere partly because Sir Fernando Gorges and others obtained large land grants with the idea of establishing the Province of Maine as a huge feudal estate. They were even less successful than the Patroons in New York, and Massachusetts eventually took over, so Maine was a district of the Bay State for over 150 years and therefore a long way from "downtown". One result of all this was that much of the public land continued to be granted or sold in large blocks to speculators, often several townships at a time. This was quite different than the system that generally prevailed elsewhere of giving a township to a group of people willing to actually settle it. The existence of these large grants, far in excess of any demand by farmers, made possible the accumulation of large holdings devoted at first to timbering and later to pulp and paper production. The availability of these lands, plus the wood that could be gotten from other private owners, has acted like a magnet to the wood-using industries which form such a significant part of the state's economy. In fact, no other New England state grows and harvests so much wood and is so dependent for success on being a large net exporter of forest products.

P. One way to summarize the impact that past land use has had on New England's prospects is with a series of maps. These clearly show that diversity is an important part of our forest heritage. Man and Nature have together produced the present forest vegetation zones that are so familiar to all of you and that have been so stable over the centuries.

P. The next map shows how people live in relation to forest land as a result of past settlement and population growth. Thus there is less than 1 acre of forest land per person in the black areas along the Boston and Providence and the Springfield-New York City axes. At the other extreme we find 10 Acres per person in much of Maine, Northern New Hampshire and Vermont and in the Adirondacks and the Catskills.

P. Although this pattern suggests where people live, and therefore where living space chiefly sets land value, Map 3 shows the zones where these same people congregate for summer and winter recreation. Because many townsmen own second homes in and near these areas, they also control a good deal of the forest land. In addition, city people who travel to and from these spots see and respond by their politics to any form of land use they think is inappropriate.

P. Map 4 shows where forest land is concentrated and we can see that, as expected, forests are heaviest where people aren't. However, it is significant that, aside from the area around the mouth of the Hudson and the farm and industrial lands of western New York, every place is more than 40% forested. And, if we use European standards, all of this land is heavily forested so even in the most populous counties, residents are likely to see and react to forest management practices.

P. Map 5 suggests that forest industries have largely adjusted to existing populations of people and trees. The concentration of jobs in the middle Connecticut Valley is due mainly to secondary manufacture of paper products from imported furnish, but the northern New England predominance is due to

primary forest-based industries drawing on local woodlands. The data are sketchy in New York but we know that forest industrial employment is also important in the Adirondacks.

Forest industry land holdings are concentrated in the North, away from high residential values. However, the build-up of outdoor recreation since the '50's and of the second home buying since the '30's has carried competition for land into the north country. Some of the large forest industries have tried their hand at developing real estate and resorts, mostly with unfortunate results.

P.

Judging from this information, Map 6 seems to be a reasonable working collection of those counties with more or less common forest land use problems and prospects. The Urban Forest area where land use problems are resolved in close proximity to dense settlements is well defined by the region with less than 1 acre of forest per person. Amenity and living space values take precedence in this urban forest setting. The Fringe Area is still reasonably close to many full-time residents, but with 1 to 10 acres of forest per person, there is space for a variety of land management practices. Amenity and real estate values remain high, but there is also room for the melding of wildlife, recreation, watershed and timber production. Beyond, with over 10 wooded acres per resident, lies the Winterland Forest where year-round residents are sparingly scattered and wildlife, recreation and timber production are dominant themes of management.

In northern New England, especially in Maine, there is a large segment of industrial land where management is strongly influenced by market forces modulated only by federal and state holdings, various state laws and such zoning as that represented by the Land Use Regulatory Commission in Maine, by Act 250 in Vermont or by the Adirondack Park Agency in New York.

The map of Urban, Fringe and Winterland Forests should be viewed only as a statement of central tendencies. Reality is more complex, with bits and

pieces of all three forests intricately interdigitated over much of the landscape. However, the Urban Forests of the south do tend to dominate thinking there, while the Hinterland and Fringe Area problems predominate further north. These conceptual regions may assist discussion and suggest where fresh ideas can most appropriately be applied.

We are now in a position to review how our economic, legal and cultural heritage has affected the outlook for forest land in New England. We seem to be emerging from a long period when cultural and amenity demands were the prime influence on the actions of most private owners who were not somehow connected with a forest industry. Few of these non-industrial folks cut products and most wanted to realize a complex set of satisfactions from owning land. So long as land was inexpensive, carrying costs low and stumpage cheap it was easy for them to give primary emphasis to psychic income, but those days are gone forever. Land prices, interest rates, taxes and wood values are all up and this has given economic values more clout. These owners are still interested in cultural values but they are less able to afford them without some help from economic activities. So, although there is no less interest in multiple use, there is new incentive for finding more satisfying compromises between harvesting and other uses.

P. Over the last few decades the balance of forces worked out so that drain was less than growth and forest inventories accumulated throughout the northeast, even in Maine. Now, however, this situation promises to reverse itself so that we may move from glut to stringency as the backlog of P. accumulated timber is worked off, or killed off by insects. New information systems that continually update growth and drain data are needed to keep public and private thinking abreast of events during times of rapid change.

For instance, guiding private silviculture to use new fuelwood markets to improve the quality of residual growing stock rather than degrade it, and adjusting current industry activities to episodic supplies of wood resulting

from bud worm depredations are two current problems that call for new information flows that inspire ingenious remedial policies.

Any new effort is complicated by the fact that as economic forces quicken there is also public disillusionment with government programs and tax burdens. Although this may not last, the present mood seems to favor a smaller role for government and a larger one for private enterprise. Cultural values, meanwhile, remain about the same.

It seems obvious that under these circumstances any new public initiatives must be designed with exceptional care to achieve worthwhile ends that are generally perceived as critical, and do it with a minimum of effort. To be successful in today's political atmosphere any new public venture must be selective and cost effective.

P. From what we already know nearly half the forest land is public or in large holdings whose owners, if they choose, are quite capable of managing with little aid and a minimum of guidance from society. The owners of the other half, however, need help. Today most of them rely on loggers for technical advice. As this diagram shows, the logger is the central figure in our present forest scene. He not only buys about half the stumpage, but he is a prime source of information on management and prices and is the only representative of the market and forestry that most owners ever see. He also puts into effect on the ground practically all the silviculture that is done. The logger is generally the one who gets through the hard protective shell of landowners to actually work on forest land.

Unfortunately, the logger is also the least well trained and financed of all the actors in the forest system. Also because careful woods work takes extra time, doing it reduces his pay check by cutting down on log delivery at the mill. Thus financial incentives often favor the fast and sloppy operator.

When these ideas are added to the fact that there are many landowners

and only a few loggers, it is clear that public attention might be most cost effective and efficient if given to helping and constraining loggers to become better businessmen and more skillful and sensitive operators. Any new public or private initiatives should have it clearly in mind that the first step in the wood extraction system is the weakest link, so that presently the private market system seems to put its worst foot forward.

This situation must be changed before we can hope to strike a balance among forest uses that provides, ^P fuel, ^P logs, ^P recreation of all kinds, beautiful ^P young and old forests and ^P healthy watersheds that benefit both the owner and the public. The talent to do that is in this room if we work it out together.