

BIRCH MANAGEMENT ON INDUSTRY LANDS

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I HAVE NO revolutionary ideas to offer concerning the management of white and yellow birch. The most I can hope to accomplish is to acquaint you with Brown Company's current and past operating procedures in northern hardwoods, and to relate some of my observations of the results we are getting from harvesting substantial volumes of birch and other commercial species from nearly 800,000 acres of timberland in northern Maine, New Hampshire, and Vermont.

First, let me make it clear that, in my opinion, none of us here needs to apologize for past hardwood management practices. In fact, I think we all can agree that we did the best we could with what little knowledge was available, and operating within the economic framework of the times. Of course we might do some things differently if we were to do them over. It is the age-old story of foresight vs. hindsight.

Let me go back a few years to set the stage. One of our earliest efforts to do any cultural work on our holdings—around 1948—was a program of girdling and poisoning hardwoods. This was done to encourage the establishment and growth of softwoods, but obviously it did nothing to promote birch. Many a first-class hardwood tree was ruined in carrying out this practice.

Economics of the times played an important role in this decision. I should point out that during the past 15 years or so, yellow birch has become the most valuable species on our lands. Its presence and quantity on a job has an important influence on the financial success of the operation. The fact that we were girdling birch as little as 20 years ago indicates just how short a time we have had an interest in the propagation of this important species.

GOOD DISASTER

Well into the 1950's the Brown Company was taking part in clearcutting extensive areas of old-growth timber. Since our mills utilize all species of hardwood and softwood (except cedar), this cutting practice was relatively simple. This technique is commonly referred to as a "regeneration cut"; and in my opinion it has done more to re-establish thrifty stands of northern hardwoods and softwoods on our lands than any other silvicultural method devised. Clearcuttings are still taking place in some areas, mostly on the lands of others and quite often at the recommendation of qualified foresters. This method, under certain conditions and on certain sites, is proper; and the results, silviculturally, are gratifying.

This might be a good place to point out that one of the largest and purest well-stocked stands of high-quality white birch on our holdings came about as a result of what must have been an extremely heavy cutting of softwood over a large area around 1900. This cutting was followed closely by a severe burn. As a result of what would normally be considered a disaster, we now have several square miles of pure white birch of valuable boltwood quality. This area was thinned recently by Maine Dowel Company of Farmington, under the supervision of Ray Mitchell. I am not sure whom we can give credit to for the establishment of the fine stand of birch, but I rather suspect that whoever it was may have got himself fired if he was in any way connected with the blaze. Incidentally, I might add here that we have other areas on which this same unplanned technique for some reason did not work out so well.

When we take visitors through areas where clearcuttings have taken place, some of our guests are obviously shocked at what, on the surface, appears to be extensive areas of devastation. Those bushy looking, leafy jungles,

with a dead stub sticking out here and there, are anything but attractive to the untrained eye. But once the visitors have had a closer look, they begin to understand that these lands are far from being idle.

Careful remeasurements of permanent growth plots tells a rather exciting story. We find there is generally an adequate stocking of birch in mixture with other important commercial species. This birch appears to be competing satisfactorily with other, more tolerant species.

Although birch is the species we currently favor, we have no high hopes nor even interest in regenerating pure birch stands. Pure stands of yellow birch are not too common anywhere in our region today. Birch in mixture with other species, including softwoods, has been satisfactory. Birch found in mixture often develops more trees of superior quality. We recognize, but are not interested in tackling, the problems that are associated with pure stands of any species.

We have recorded proof that some of our 1930 clearcut hardwood lands are putting on commercial growth as rapidly as some of our better softwood types. Birch, unfortunately, is not always a leading component; its percentage varies from one location to another. Some of the answers and theories about why this is so are being brought out at this meeting.

A BLAZE OF ORANGE

Should we have cut these lands differently? I recall that, back in 1958, I had a discussion with John Bork, who was then the Brown Company's general logging superintendent, about how we should cut our old-growth hardwood types in the vast Swift Diamond drainage. Our interest was not so much in birch regeneration as it was to leave the stand in the best possible condition to insure the earliest or the greatest return on the owners' investment. Birch did interest us, however, because we owned a birch sawmill and veneer mill; but we also had a pulpmill that could utilize hardwood of any species.

With these markets on hand, we were in the best possible position to do the thing that should leave this property in top shape. We decided to see what marking our cut would do for us. Armed with paint guns, we set out to mark a sample. Obviously we

wanted to take off the large mature timber. This was the initial reason for our being there. While we were there, we decided that we might just as well cut the overmature trees, for we doubted that they would last long after the cutting in their weakened state. We could at least salvage some pulpwood from them if we took them now. Then we considered the deformed intermediates. They were as old as the mature dormants and could not contribute much to the residual stand if left. They, like the overmature trees, did not give the appearance of being seed-orchard material. We found a number of individual spruce and fir trees that were hardly noticeable when we first started. To open the stand up, as planned, was to bid them goodbye. Since they were fairly large, we marked them for cutting. The few smaller suppressed trees found on this tract were so deformed and weak looking that we marked them for pulpwood.

By this time, the forest was a blaze of orange paint. So that ended this experiment in our old-growth hardwood timber types, and we proceeded to cut all the commercial-size wood. If opening up the stand and permitting the light to come through was good for the regeneration of birch, then that appeared to be the thing to do with this timber. We agreed that second-growth hardwood stands represented something else again, and should be given special consideration and quite likely different treatment.

Forest Service people first drew our attention to a comparison between some company property that had been clearcut years ago and some adjacent Government land where a partial cutting had taken place at about the same time. You guessed it. After 20 years, we had a fine young pole-size stand with a high percentage of thrifty yellow birch, while across the line there is a pretty fair stand of pulpwood-quality maple. I wish I could say that this always happens. Let's just say that all systems were "Go" for yellow birch, and we just couldn't miss.

CUTTING TODAY

By contrast, Brown Company's operations today, like most everyone else's, are geared to the use of rubber-tired skidders and other mechanical equipment. Economics in the use of this type of equipment dictates that we concentrate on larger wood, leaving smaller

trees that normally might have been cut when we were using horses. For hardwood, we generally stick to a 14-inch d.b.h. class and up. This means that in mature stands containing old-growth and second-growth timber in mixture, we are now cutting roughly 6 to 8 cords of all species per acre, depending on the stand's past treatment. This generally leaves a stand that supports an average of 8 to 10 cords of pulpwood-size wood per acre. The species composition of our residual stands varies, again depending to a great extent on previous treatment.

What this all amounts to is that we are currently operating wood to a diameter limit. Exceptions to this rule are when stand conditions dictate either a clearcutting or an individual tree-selection method. Factors entering into the choice of cutting method are age, stand stability, health, aesthetics, accessibility, wildlife requirements, recreation, etc.

Because of the good demand for birch veneer and sawlogs, we have profited from cutting old-growth stands that are heavily stocked with birch. As we cut the old-growth birch, we generally pick up all other species in the larger diameter classes for both logs and pulpwood. A large share of the old-growth hardwood and mixedwood forests found on our lands contain high percentages of yellow birch (often 40 to 50 percent of the hardwood content has been birch). For the many reasons discussed at this meeting, all too often after these partial cuts, yellow birch has become a minor component of our residual or second-growth stands. The only exceptions have been when an overall stand is heavily populated with 2- to 3-acre bunches of old-growth hardwood. These bunches are generally clearcut because of their large diameter, often leaving a site condition suitable for the establishment of birch or other intolerant species.

CATCH OF BIRCH

Regardless of what method of cutting we decide on, it appears that, to make yellow birch an important component of our future stands, we must consider in our planning:

1. Intensity and selectivity of the last cut.
2. Intensity and selectivity of our planned operation.
3. Advanced reproduction.

4. Season of operation.
5. Method of logging.
6. Seed source and wind direction.
7. Soils and site quality.
8. Site preparation.
9. Moisture.
10. Vegetation and wildlife competition.
11. Weather and temperature.

If we are fortunate and we find ourselves with a good catch of birch, then we must be prepared—IF NECESSARY—to:

1. Weed and thin and carry on other cultural work . . . or bide our time for the long haul and hope for the best.
2. Adjust to changing markets brought about by changing public demands.
3. Protect from fire, insects, disease, poachers, etc.
4. Adapt to changes in logging and utilization technology.
5. Continue to control against destructive competition—wildlife, etc.

In addition to the above, we must defend our timber lands from:

1. Human competition.
2. Single use advocates.
3. Adverse legislation.

Lastly, we must brace ourselves against rising tax costs and be prepared to pay our bills.

In the 70 to 80 years it takes to grow an average quality, medium-size birch tree, any one of the above factors could contribute to the failure of a tree to get started, to reach maturity, or to be harvested. It would almost appear that we are dealing with a very sensitive, high-risk product. Is it any wonder that we may be a little skeptical about spending large sums of money on the intensive management of birch, with all its potential value?

SUMMARY

Clearcutting

1. Clearcutting will increase our chances of establishing fair stands of thrifty young hardwood, which often will contain reasonably high percentages of birch.
2. It may be necessary to limit the size of our clearcut areas to insure establishment of hardwood seedlings as opposed to sprout

growth, and at the same time to offer the new crop limited protection from the elements.

3. We can expect rapid growth rates (in all species) in noncommercial size stems (on reasonable sites) for at least the first 30 years.
4. In general, we will not get severe competition for any length of time from noncommercial woody species. (No apparent need for treatment.)
5. Commercial volumes will be too limited in size for operation for some time unless harvesting and utilization standards change radically.
6. In the long run, regeneration cuts will require more acres to sustain the kind of production of the commercial size trees we require today.
7. We should establish additional growth plots sampling a variety of locations, age classes, and other conditions so as to better measure and understand the results of our efforts and their effect on the establishment and growth of birch and other associated species.

Partial Cutting

It is generally felt that our chances of regenerating high-quality hardwoods, especially intolerant birch, are not too great with partial cuts. Chances are that we will reduce the quality of our residual stand by logging damages. We will encourage maple and other tolerant species. However, we are prepared to accept these calculated risks in exchange for the following anticipated gains:

1. An acceleration in growth of commercial-size residual trees as a result of the removal of old-growth timber.
2. An early return to the area for a harvest of sizable wood.
3. For our mills, a more continuous supply of raw materials from fewer acres.
4. An opportunity to manage all areas more intensively.
5. Less fiber loss to disease, insects, and other risks.
6. Greater mechanical and manpower production as a result of operating fair-size timber.
7. Less public pressure from the standpoint of aesthetics.

Last fall I attended a Hardwood Training Session in Bartlett, N.H. Almost everyone involved in any form of hardwood management was present; and many of the leaders of that session are here today. We attended lectures and field trips that dealt primarily with hardwood stands, and not with individual species. We found the subject involved and challenging, and we found differences of opinion. One thing we all came to realize was that we had hardly scratched the surface of this complex subject. The variables from one area or site to the next were almost overwhelming.

The same holds true today, where we are concentrating on one species. Even after we have learned all the idiosyncrasies that go with the establishment and cultivation of birch, we still must develop practical harvesting methods that will insure the propagation of this important forest species. I'm not discouraged: I simply hope I can attend the next symposium, when we can again summarize the results of our efforts.

