

CRISIS, — W H A T — CRISIS?

Editor's Note:

This week's feature has been contributed by Chris Smissart, a graduate of U.N.B.'s Forestry Program.

Forestry is one of the most important and volatile industries in New Brunswick. Past mistakes in forest management have led to a drastic wood shortage, which threatens to curtail productivity in the future. Mr. Smissart has chosen to entitle his feature "Crisis, What Crisis?" and, by use of graphs and figures he has placed this volatile issue in the minds of our readers.

As New Brunswickers we must realize the importance of the forestry sector and, we must educate ourselves on the issues and dilemmas which face this important sector of our economy.

I will welcome, (as Feature's editor) any further submissions by Foresters that will help us to better understand the lands and forests of New Brunswick.

Everywhere one looks today it is hard not to see trees. It's not surprising that alarmist statements from certain knowledgeable individuals concerning future industrial wood supply are often looked upon by colleagues and the public in general in a sceptical light. What do you think? Certainly at a glance it is easy to see the forests out there, especially when provincial agencies claim that 80% of the provincial land base is forested. How could we possibly have a problem related to wood supply to our mills?

This notion of an impending shortage of wood, supplied to our mills, has in recent years become quite the vogue topic of conversation. From this a slew of buzz words have arisen to accentuate ones vocabulary; 'proper forest management', 'silviculture', and 'reforestation', come to mind, to name a few. All of a sudden we must use good silviculture and properly manage our forests, (to serve both present and future needs of our society, while maintaining biological integrity). The all too familiar confrontation of short term profit and cost efficiency versus long term productivity is an issue that plagues the forest industry.

To understand the scheduling requirements of wood to the mills in our province, we must first realize that forests change with time. They grow. This is quite obvious to anyone, however, these changes are not quite so obvious on a year to year basis. Changes are guaranteed with or without intervention

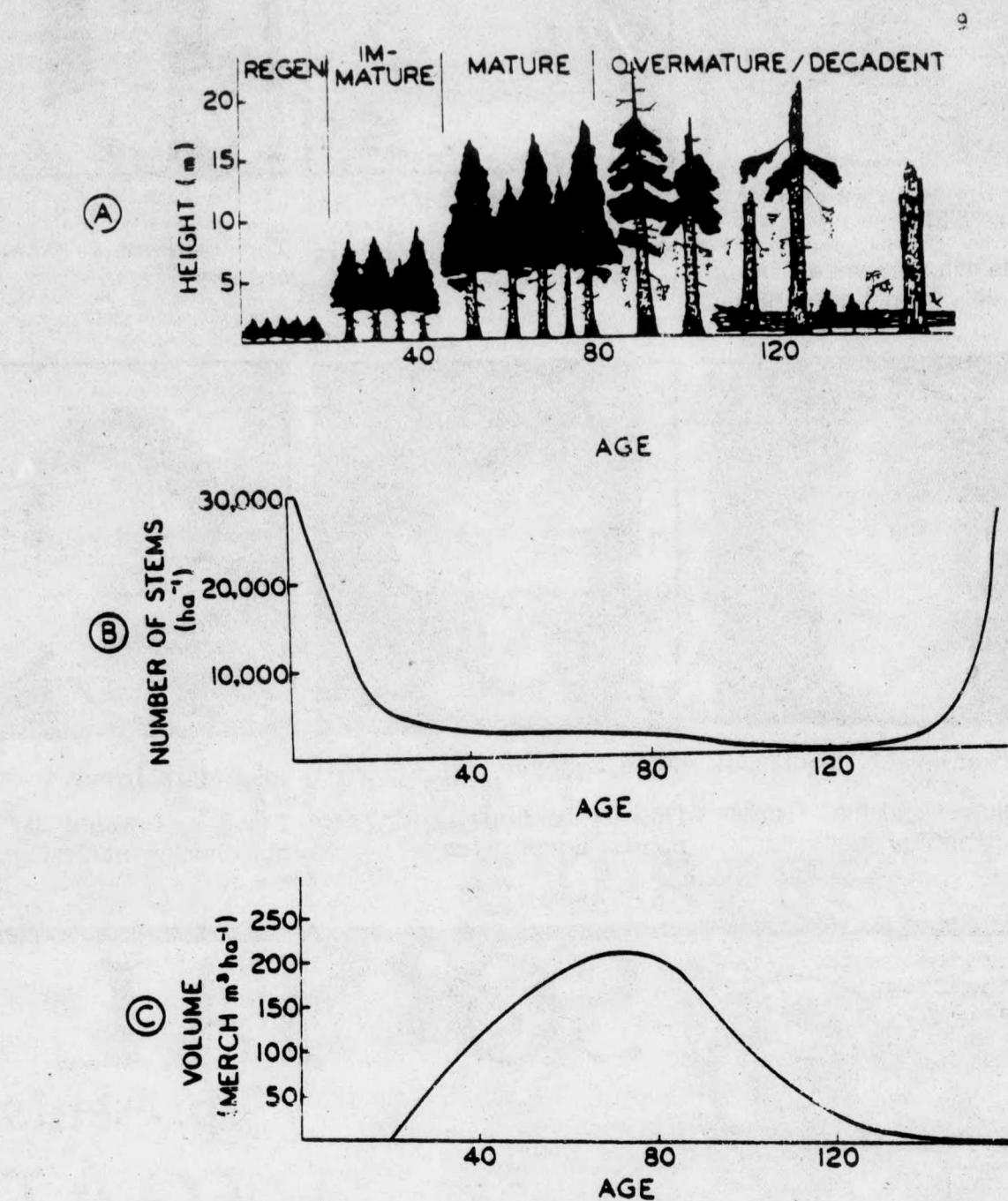


Figure 1 Some characteristics of development over the life cycle of a stand.

by man, however, the total response of a forest to any number of occurrences can only be seen as they accumulate over time. This creates a time horizon for forest management activities, (in the order of 50-100 years), before the full impact on the forests can be seen. This time frame eclipses a forest stand through its various life stages from regeneration to over-maturity and death.

Let us examine what this impending shortage of wood in New Brunswick means. Certainly the following discussion, albeit simplistic, will serve the purpose of enlightenment to our problem.

First of all a couple of definitions to clear the terminology. A 'stand' is - any group of similar trees which together develop in a predictable manner. A 'forest' is - any number or groups of stands with no specific locations and at

various stages of development. The stand is the working unit while the forest is the area which is managed to meet some annual harvest indefinitely.

STAND DEVELOPMENT:

Stands develop from early regeneration stages, through immature, mature and over-mature to decadent stages (Fig.1a). The pattern of development is dependent on many things including, geographic location, site characteristics, and species mix. These uncertainties cannot be eliminated but they can be identified by managers with a keen knowledge of the dynamics of stand development. From

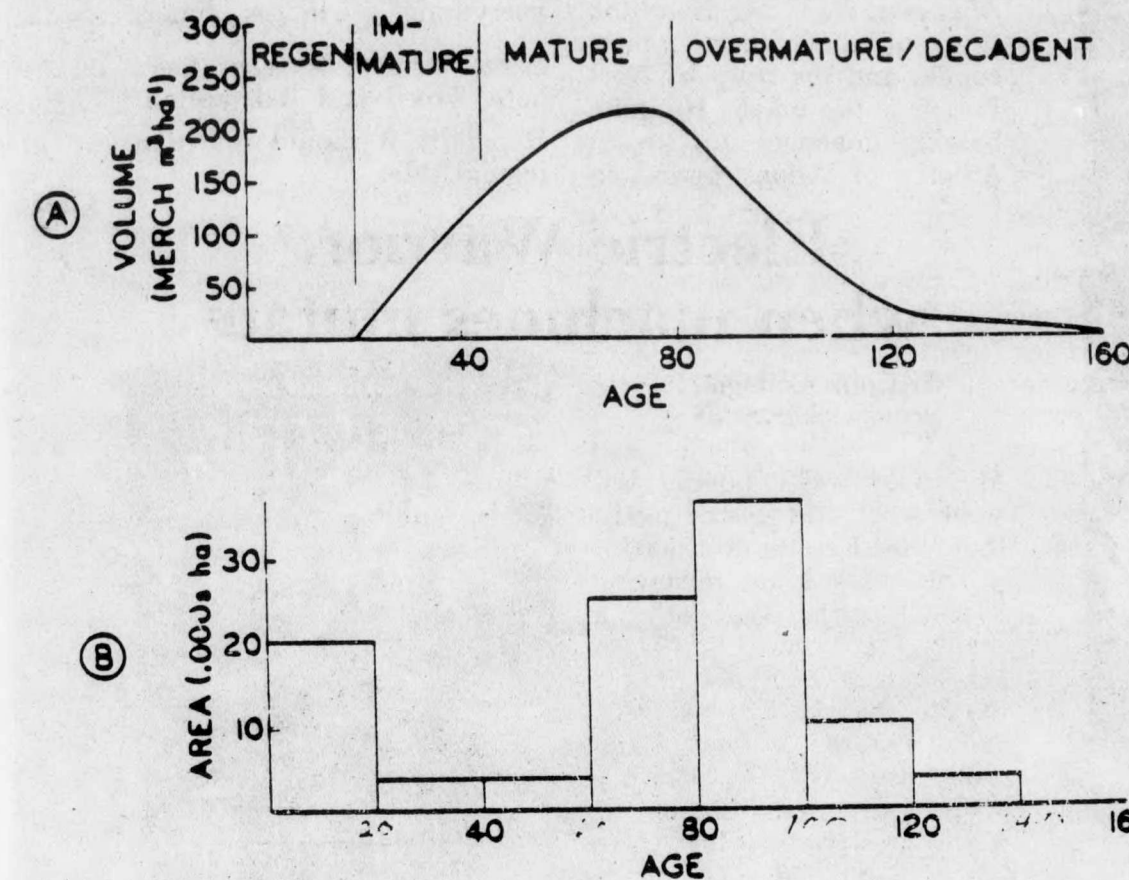


Figure 2

Description of a forest made up of stands at the various stages of development shown in Fig. 1. A - the yield curve from Fig. 1. B - the age-class structure of a 100,000 ha forest. Each bar indicates the number of ha of forest that are at the stage of development (in terms of merchantable volume) depicted in A.

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this, reasonable management decisions can be made.

Consider a typical balsam fir stand on a good site in New Brunswick. It begins its regeneration stage typically, with many young trees (Fig.1b). Tree growth provides for the expression of dominant individuals living into the immature and mature stages, while very many intermediate and suppressed trees die (Fig.1b). Often less than 2% of the original number of trees remain in the mature stage. The marketable volume of this fir stand, and its change over time is shown in Figure 1c. (Comparison of Figures 1b and 1c reveal that the stand begins with very many small trees with no appreciable volume.) However, as the weaker trees die they provide more room for the healthier trees, which proceed to produce considerable wood volume on relatively few trees.

FOREST DEVELOPMENT:

It is very important to understand the relationship between stands and forests. Many different stands in different stages of development and locations make up a forest. It is essential that the forest manager assemble this information. (Figure 2b presents this information in an understandable fashion by showing age classes for each stand to be placed.) This common development class is shown along the horizontal axis and the area of each age class is tallied up the vertical axis. What has occurred is that the many different stands (each following their particular development pattern), have been grouped into the stage of similar development. Figure 2a has been carried forward and is included to allow easy comparisons. Figure 2a illustrates merchantable volume as it changes over time per hectare (ha) of land area. From these two figures one could arrive at the total volume of wood present in the forest today or at any time in the future, simply by projecting the forest stands in the age classes ahead and recalculating the volume. So here lies the crux of the New Brunswick wood supply problem. Our forest closely resembles the case shown in Figure 2b. Large numbers of stands encompassing a very large area are found in the 80-100 year age class. Similar large areas are in the 60-80 year class. Very small areas are in the 20-40 and the 40-60 year classes and another large portion of land is in the 0-20 year class. The 80-100 year class supplies all the industrial wood needs of our mills. From this it can be seen that current requirements (even into the late 1990's) for wood supply are fairly consistent with present day stands. However, these old stands are declining naturally, while being harvested, and there is not enough area composed of middle aged stands to supply demand similar to today's requirements.

So I would submit that we have a crisis at hand. While it is not immediate it is no less uncertain and it requires our immediate attention. From our increased awareness 'good' silviculture is about to replace past silviculture with a better chance of resulting in proper forest management simply because it is needed. This is becoming quite obvious. We have many options including improved harvesting practices, planting and thinning at our disposal, however they are the topics of further discussion.

Remember this, when thinking about our forest, be certain not to lose sight of the trees.

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