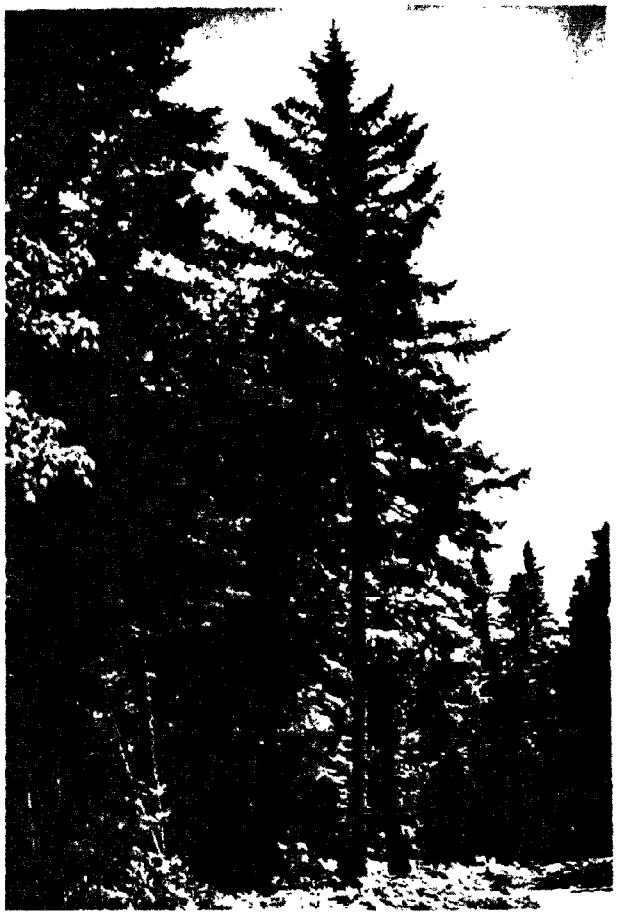
Proceedings of the SYMPOSIUM ON INTENSIVE CULTURE OF NORTHERN FOREST TYPES



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FOREWORD

THE NORTHERN FOREST TYPES constitute a vast natural resource for the United States and Canada. For instance, in the eastern United States there are more than 10 million acres of commercial forest land supporting spruce and fir types alone. The magnitude and variety of this resource is such that treating it in any detail at a 3-day meeting was impossible. Rather, the idea that germinated and developed into this symposium was to present a broad picture of the extent of our knowledge of intensive cultural techniques, the status and trends of our research in the northern forest types, and some actual experiences in managing this resource; and to explore those factors that affect our use of the intensive cultural techniques we have at hand.

There is no doubt that we face a new era in the management of northern forests. The production of wood products is no longer the primary objective of many owners, and increased pressure for the social values of our forests is being felt by all landowners. We must recognize these other forest values, which in turn dictates intensification of all aspects of forest management if we are to meet the future demands of a wood-hungry society

The enthusiastic efforts of the symposium sponsors—the School of Forest Resources, University of Maine; the Maine Bureau of Forestry; the Maine Forest Products Council; and the U.S.D.A. Forest Service—and the individuals behind those efforts, should be commended. Special thanks are due to Great Northern Nekoosa, Inc., and Brooks B. Mills for their help in providing interesting field trips, and to the Casco Bank and Trust Co. for sponsoring the symposium brochure. Also, without the enthusiastic participation of the experts invited to present papers, and the moderators of each session, the Symposium could not have taken place.

—BARTON M. BLUM
Symposium Chairman

PUBLISHER'S NOTE

This report is published by the Northeastern Forest Experiment Station as a public service. The papers it contains are published as received from the authors. Any questions or comments about these papers should be directed to the authors.

Proceedings of the SYMPOSIUM ON INTENSIVE CULTURE OF NORTHERN FOREST TYPES

held 20-22 July 1976 at Nutting Hall, University of Maine, at Orono.

SPONSORED BY:
- School of Forest Resources, University of Maine
- Maine Bureau of Forestry
- Maine Forest Products Council
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Fred Holt, Maine Bureau of Forestry (retired): 20 July 1976, afternoon session.

Ray McDonald, Casco Bank & Trust Company: 21 July 1976, morning session.

Dick Kennell, USDA Forest Service, State & Private Forestry: 21 July 1976, afternoon session.

C. D. Hartley, Valley Forest Products Ltd., Canada: 22 July 1976, morning session.

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LARGE SCALE SOFTWOOD PLANTING OPERATIONS IN NEW BRUNSWICK

by M. K. Barteaux, Chief Forest Management Section, Forests Branch, Department of Natural Resources, Fredericton, N. B.

Abstract

New Brunswick is presently planting 20,000 ac. per year and expects to be planting nearly 60,000 ac. per year by 1979. Total productive forest area is 15,000,000 acres. The program is directly related to projected industrial demand and other forest uses. Plantations are established by scarification and planting of paper pot containers and bare root stock.

Introduction

This presentation will depict the softwood planting program being implemented in the Province of New Brunswick, Canada. I will outline briefly, past and present efforts, future plans, reasons for the program, techniques involved and lastly provide some observation of results and problems.

The Province comprises some 15,000,000 acres of productive forest land. Of this approximately 7,000,000 acres is Provincial Government controlled and the remainder freehold. My remarks will be slanted to Government activity although softwood planting is relatively similar on all lands.

Considering the Provincial situation, planting on an operational basis has been taking place since the early 1960's and has increased from 5,000 acres per year to 15,000 acres in 1975. This year approximately 20,000 acres will be planted and by 1979 (only 3 years) nearly 60,000 acres, representing approximately 1/3 of the annual cutover. Planted acres are expected to level off at this date or be reduced by thinning and seeding.

Why a Softwood Planting Program

This is the first question the administrators of any province, state or private agency must ask themselves before embarking on a program costing millions of dollars annually. In New Brunswick it is simply a matter of supply and demand. The forest industry is essential to the Province and the Government has committed itself to a program of development and proper management. The demand for wood has been calculated and projected; the potential of the Province to meet the demand has been assessed and projected. A necessary third step has been the adjustment of demand to conform with potential supply by controlling industrial activity through mutual cooperation and regulations - the net result being a clear indication of large scale planting effort required along with other silvicultural treatments. This calculation and projection is not an easy exercise and I will not go into the numerous considerations including economic feasibility, natural regeneration, natural growth rates, plantation growth rates, annual allowable cut determination, other forest uses, industrial expansion, land tenure, politics, social impacts, etc. But, it should be re-emphasized that this is the necessary first approach to any planting or reforestation program and it must be "sold" to all those concerned or at least a substantial majority. New Brunswick is plagued with the spruce budworm and this calculated effect on the forest has also been very influential in dictating the planting program.

Planting Techniques

Softwood planting stock for government controlled land consists at present of 50% bare root and 50% greenhouse grown paper pot containers. This will change to 70% containers and 30% bare root when the 30,000,000 seedling goal (30,000 acres) is reached in 1979.

Other than the fact that they are an acceptable type of planting stock, there are basically two reasons for a high proportion of containers (1) encouragement of a more stable labour force (planters) by producing stock which can provide employment throughout the season rather than large bare root operations in the spring and fall (summer planting of bare root represents a survival problem in New Brunswick); (2) to

provide short term flexibility with respect to varying species and quantity requirements of forest managers and possible nursery crop failures. Container stock can be produced in 4-5 months whereas bare root is restricted to production schedules of 2-4 years.

All planting stock is now produced in a central nursery and delivered to District Forest Managers. By 1979 satellite nurseries are planned for several regions. Custom made truck boxes are used for transportation. Costs of growing nursery stock (excluding capital investment) are in the vicinity of $35/M for both container and bare root. However, it is felt that container stock can be significantly reduced through improving nursery expertise and large volume material purchases.

Species composition is now 45% black spruce, 40% jack pine and 15% miscellaneous. These two species are resistant to spruce budworm and are native species currently believed to be best suited to a broad range of New Brunswick sites. However, experience and study indicate a different proportion because of growth-site response. In other words these species may not provide the volume at rotation age required to meet demand projections. By 1979 the proportion should be less than 40% black spruce, jack pine approximately 25% and the remainder white spruce, red pine and larch.

Obtaining sufficient quantities of seed is not a simple accomplishment in the Province and necessitates intensive planning and expenditure of reforestation dollars. A new and modern seed extraction plant and storage facilities are under construction this summer. Also a tree improvement program was initiated in 1974 and we are planning for ever improving sources of quality seed.

Actual planting sites are selected by District Forest Managers who base their selection on regeneration surveys after cutover, projections of annual allowable cut and professional opinion as to site-species productivity. It is recognized that these professional opinions are often less than satisfactory and study of site-species productivity has commenced to devise a systematic and feasible technique for measuring the most important parameters involved.

Most planting is carried out on scarified areas. The different types of scarification equipment are as