

**Proceedings of the
SYMPOSIUM ON
INTENSIVE CULTURE OF
NORTHERN FOREST TYPES**



**USDA FOREST SERVICE GENERAL TECHNICAL REPORT NE-29
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**FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE
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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.

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SYMPOSIUM ON
INTENSIVE CULTURE OF
NORTHERN FOREST TYPES**

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

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- School of Forest Resources, University of Maine
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NATURAL REGENERATION - SMALL OWNERSHIPS
FROM CONCEPT TO PRACTICE

by Arthur G. Dodge, Jr., North Country Resources Conservation and
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Service, Conway, N. H.

Abstract

Established concepts of successful natural regeneration are not necessarily practiced on small ownerships of ten to 500 acres. Unevenage management will be the primary management system on small ownerships and natural regeneration is the most practical method of providing for continuous forest production. We can obtain satisfactory natural regeneration by good planning and proper supervision of the on site application of necessary techniques.

Small Ownerships

American Forest Institute tells us that individuals own 59 percent of the commercial forest land in this country. This is a significant portion of our forest and small ownerships fall within this category. For the purposes of this paper, I will be discussing ownerships of 10 to 500 acres in size (4.05 - 202.40 hectares). In the three southern New England states plus New Hampshire and Vermont, the USFS Northeast Forest Experiment Station estimates that there are some 348,000 private landowners. Of this group, approximately 150,000 (43 percent) own more than ten acres but less than 500. In New Hampshire, the average privately owned woodlot is about 47 acres and I believe the average within the northern forest types that we're discussing probably will not be much larger than that, but for today, let us consider ownerships up to 500 acres.

There are several premises upon which I base this paper. They are:

- A. These owners will continue to depend on natural regeneration to reproduce trees on their woodlots.
- B. With the exception of a few pure stands of white pine and spruce-fir, management on these areas will be primarily unevenaged. Well over half of New Hampshire's commercial forest is in mixed hardwood-softwood types or hardwood types. I am assuming that this is pretty much

the case for the rest of the area that concerns us. Unevenage management seems more practical on small ownerships containing these types. Another reason that I believe unevenaged management will prevail is that even though the reconstituted wood industry has grown at approximately 15 percent annually over the past few years, the price for fiber alone will not be attractive to this owner. Mr. Charles W. Bingham of Weyerhaeuser Company expressed this idea very well when he spoke to the Sixth American Forest Congress at Washington, DC in October 1975. He stated that "The industry is also a direct user of its own raw materials, to a large degree. Through its manufacturing facilities, it can obtain efficiencies and values that the owner of a 40-acre woodlot cannot achieve." According to Nick Engalichev, our Extension Utilization and Marketing Specialist at Durham, wood in the solid form is going to get more value recognition. To quote him, "Good hardwoods are going to be worth the price of gold." He tells me that on today's wholesale market, a thousand board feet of the top grades of northeastern oak sells in the 500 dollar range.

The other factor that requires us to think in terms of unevenaged management is, this landowner usually wants to use his or her land for several purposes. Timber production is not necessarily the main aim in life and the owner is unwilling to have large areas clearcut at any one time. A large area in this owner's mind may be two or three acres. Ten acres could be "complete devastation".

I would also like to point out that my statements regarding natural regeneration are based on some application of other people's research, and personal observation of small ownership forest management in the New England area since 1957.

Natural Regeneration Concept

Before we talk about natural regeneration practices on the small ownership, we should consider several related ideas or concepts. First, assuming that a preferred species seed source exists in the area, there will nearly always be some natural regeneration. This regeneration really has no expense attached to it. You might say it's pretty much a gift of nature. Secondly, the sixth edition of "The Practice of Silviculture" by Hawley and Smith states "Most of the answers to problems of securing natural regeneration are to be found in existing forests". In my experience I have found this to be very true. The third concept is that a tremendous amount of written information on this subject exists. The Northeast Forest Experiment Station

publications, various university bulletins, textbooks, and Forest Service handbooks are all available and should be included in your personal, company or institutional libraries.

Practice

In practice I have found several things of interest and very apparent on the small ownerships that I have observed:

- A. The desirable natural regeneration has occurred pretty much by chance and is usually associated with a silvicultural activity. In most cases, this has been an unsupervised harvesting operation.
- B. Much of the regeneration is not where we want it. It's found primarily in or adjacent to logging roads or yards that will have to be relocated in the future if we decide to produce timber from this regeneration. If the young trees are not growing under the previous situation, they will be found in close proximity with or, what I term, within easy suppression distance of unwanted species.
- C. In the case of intolerant and intermediate species you may, at first glance, get the impression that natural regeneration has not provided enough desirable specie stems per acre.

Even though these are the conditions that usually exist in practice, I see no reason why we cannot provide plentiful natural regeneration of the species we choose. In my opinion this is the only way to go when dealing with small ownerships. Stand establishment by direct seeding is a more expensive alternative. At this point in time, it appears that conventional planting is just too expensive. Good planning, layout, and particularly supervision, are the criteria for successful natural regeneration. We must keep in mind such things as seed source, timing, amount of shade or sunlight necessary, site factors, plus forest protection and be sure that the proper techniques are accomplished on site.

The biggest problem is getting to the landowners and convincing them that intensive culture is needed. I remind you that in two recent forest landowner studies the USFS Northeast Forest Experiment Station indicates that no more than five percent of small ownerships receive professional advice during harvest operations. I understand this includes selection or intermediate cuttings. I've long been of the opinion that our profession has not been in the driver's seat, particularly when it comes to the management of small forest ownerships. National

commercial forest production statistics bear this out. We foresters have to go on the offensive, convince these landowners that we know how to make their lands more productive, and that there is not just one step but many steps in maintaining this renewable resource. Establishing a forest by natural regeneration is the least expensive and most practical first step in the cycle.