



Introduction

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Background

Fifty years ago, Robert Frank and John Bjorkbom (1973) released “A Silvicultural Guide for Spruce-fir in the Northeast.” Typical of U.S. Forest Service publications during this era, their guide included prescription keys instructing the forester to follow a rigid, even-aged stand development framework. This emphasis on even-aged silviculture was driven by the extensive area of single-cohort stands common at that time that originated from heavy cuttings and spruce budworm mortality during a 50-year period between 1880 and 1930 (Seymour 1985, 1992).

The 1973 Guide was a distinct departure from the previous silvicultural paradigm captured in the capstone publication of Marinus Westveld (1953), the pioneering silviculturist who had long advocated partial cutting systems to favor red spruce over balsam fir. The 1973 Guide also included an uneven-aged prescription key based on various reverse-J-shaped diameter distributions, but these were rarely applied in practice (Seymour & Kenefic 1998) and have been largely supplanted by more accommodating irregular shelterwood systems (Raymond et al. 2009; O’Hara 2014; McGrath et al. 2022; Seymour 1995, 2024).

In this new technical series, Robert Seymour, University of Maine Professor Emeritus of Silviculture in the School of Forest Resources, summarizes the voluminous literature and research findings that have accumulated over the last five decades under seven major themes (plus supplementary materials) relevant to the silvicultural treatment of Acadian spruce-fir forests:

1. The Acadian Spruce-fir Resource: History and Current (2023) Condition
2. Assessing Soils and Site Quality
3. Production Forestry: Managing for High Timber Yields
4. Stocking Guide and Density Management Diagram
5. Natural Regeneration
6. Multi-aged Silviculture Systems
7. Ecological Silviculture
8. Supplementary Materials

Purpose

The purpose of this silvicultural technical series is to (1) synthesize all relevant research findings and professional experience in one accessible document, and (2) describe silvicultural approaches to achieve landowner objectives ranging from commodity production to conserving biodiversity.

Although silviculture is a necessarily prescriptive discipline, no decision trees or keys are presented. The wide array of species, structures, and sites in the Acadian region defies any attempt at a silvicultural cookbook. Silvicultural solutions must be devised uniquely for each situation, informed by the guidance offered in this series.

A Note on the Format

This silvicultural series exists in two formats: (1) downloadable pdf documents stored on Digital Commons, the open-access repository for scientific works of the University of Maine faculty, and (2) online via <https://crsf.umaine.edu/forest-research/spruce-fir-silviculture-series/>. Supplementary materials and technical appendices that would detract from the readability of the main content will be housed in its own section. Sections may also be added as new content is developed.



ROBERT SEYMOUR is Professor Emeritus of Silviculture, School of Forest Resources, University of Maine, having retired in 2017 after 39 years of teaching, research and service to the forestry community. He writes a monthly column on silvicultural topics for Maine Woodlands and maintains a YouTube Channel devoted to hands-on silvicultural techniques and webinar presentations.

<https://www.youtube.com/@tmimotf>

<https://www.researchgate.net/profile/Robert-Seymour>

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ACKNOWLEDGMENTS

This Silvicultural Manual for Acadian Forests was supported by the Northeast States Research Cooperative under a contract with the University of Maine and the Center for Research on Sustainable Forests.

Silviculture for Acadian Spruce-Fir Forests: Introduction
2024

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