

Forest Experiments in New Brunswick

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An Effort to Discover Better Methods of Securing Maximum Reproduction of Black Spruce



THERE is an increasing appreciation among timber-land owners that the old methods of forest exploitation do not as a rule leave the forest in a condition to produce another crop of timber of the more valuable species.

In connection with the Crown timber survey, the New Brunswick Forest Service has devoted considerable attention to studies of regeneration, volume and rate of growth of the principal timber species. As one phase of this research work, the Provincial Forest Service, in the summer of 1919, entered into a co-operative arrangement with the Bathurst Lumber Company, Limited, for the conduct of some experimental cuttings on the limits of the latter near Bathurst Mines, Gloucester county. In this project, the Commission of Conservation has also co-operated, the field work being carried on under general direction of Dr. C. D. Howe, with the writer as party chief. A tract of 500 acres has been set aside and is reserved for twenty-five years for experimental purposes.

The object of the work is to demonstrate what are the best and most practicable methods for the management of slow-growing black spruce, of which there are considerable areas in New Brunswick as well as in the other forest provinces of eastern Canada. The topography, soil and types found on the plot being characteristic of considerable areas, any deductions from these experiments may be of wide application.

The surface is flat or slightly rolling and the soil for the most part is shallow and sandy, with numerous loose boulders. The main stand of timber is even-aged, 80 to 90 years, having followed the

great Miramichi fire of 1825. The forest types may be classed as mixed (conifer and hardwood) slopes, about 200 acres; conifer flats, 250 acres; spruce and cedar swamps, 35 acres; and the remainder of the area as waste (water and rock). The uplands, where the soil is somewhat deeper and the drainage better, bear a mixed type composed of white birch, red maple, poplar, black and white spruce, balsam fir and white pine, over 50 per cent. of which is coniferous. A good growth of cedar occupies the swamps. The stand on the conifer flats is composed of pure black spruce, very dense, and for the most part in the polewood or small timber stage.

A study of ring counts and measurements reveals comparatively good growth of the stand for the first four decades, with a very markedly decreasing rate during the remaining five decades. In order to determine why such a condition exists, and what remedy, if any, can be applied to maintain the increment, intensive study and experimentation are necessary.

Certain parts of the stand have been wind-thrown. A system of cutting to be recommended to reduce loss from this source can be found only by trial.

The principal objects of the experiments are to determine:—

- (1) The best conditions for the natural regeneration of the commercial species after logging.
- (2) The effect of various degrees of thinning upon the subsequent rate of growth of the remaining stand.
- (3) The effect of thinnings upon wind-firmness.