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THE RELATIVE IMPORTANCE OF WHITE SPRUCE

in the

FORESTS OF THE UPPER FRASER RIVER VALLEY

RESEARCH DIVISION
F. S. McKinnon, Assistant Forester



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The first extensive inventory of the forest resources of this Province was the survey conducted by the Commission of Conservation, and in 1918 the results were published by Messrs. H. N. Whitford and R. D. Craig under the title "Forests of British Columbia." In that publication the description of the interior montane forest types recognizes that in the Upper Fraser River Basin both Engelmann and white spruce are found in mixed stands of commercial importance but no direct statement is made as to the proportions occupied by each species. However, when referring to the interior montane region as a whole, the authors state, on page 200, "Of the 59 billion feet of spruce in the interior, 56 billion feet are of this species (Engelmann)," and on page 201, "There is estimated to be between 2 and 3 billion feet of white spruce in the Province." These statements are perhaps the initial basis for the assumption that Engelmann spruce predominated in the stands found along the Canadian National Railway between Prince George and McBride.

Forest Branch publications, annual reports, and timber sale notices, have referred to these stands as "Engelmann"; lumbermen have also sold the sawn product by that name, and lacking an intensive dendrological study, there was no authority for referring to the stands or lumber by any other name. However, a recent change in the American tariff structure made it imperative that accurate information be gathered regarding the proportion of the stands occupied by white spruce inasmuch as that species is to enjoy a considerable differential over Engelmann. Thus the Forest Branch, acting in co-operation with the Northern Interior Lumbermen's Association, requested Messrs. A. B. Recknagel,¹ B. G. Griffith,² and F. S. McKinnon to conduct a study for the purpose of determining the proportions which Picea canadensis (white spruce) and Picea Engelmanni (Engelmann spruce) occupy in the forests of the Upper Fraser River Valley.

* Nomenclature

The white spruce involved in the investigation is known by the scientific name of Picea canadensis (Mill) B.S.P. to most dendrologists and botanists; however, many foresters and some botanists refer to this spruce by the scientific name Picea glauca (Moench) Voss. Which of the

¹Professor in Forest Management, Cornell University, Ithaca, N. Y.

²Instructor in Forestry, University of British Columbia.

* Since this Research Note was originally published the scientific name P. glauca (Moench) Voss has become generally accepted rather than P. canadensis (Mill) B.S.P.

centre. Furthermore, the margins of the scales of Picea Engelmanni are typically erose in contrast to those of Picea canadensis, which are entire. Considerable variations of these forms in both species are frequent.

An examination of the cone scales being the means of identification between the species, the problem was to obtain sample cones. Two methods were followed--first, where logging was in progress it was possible to locate felled trees which were undisturbed and actually pull cones from the crown; however, the common practice of skidding close behind the falling crews, together with the unavoidable overlapping of crowns in falling, made this procedure slow and laborious, so that only ten per cent of the samples were identified in this way. Secondly, the groupwise stocking of the stands with relatively large openings readily lent itself to identification through the cones found on the ground under the crowns of the trees. The latter procedure was sufficiently checked against the method of actually removing cones from the crown to warrant making the inspection of undisturbed stands in that way.

Sampling

Six areas were examined between Giscome and Urling. Random sampling was practised on one; strip sampling, with groups of two to five trees identified at regular intervals of two and one-half chains, on four; and on the remaining area, part was strip and part random sampled.

Results

A total of 975.5 chains of strip were run in five areas and 295 acres were sampled at random on two additional areas. In all, 2189 trees were examined. Of these 2167 were identified as Picea canadensis, and 22 as Picea Engelmanni.

Conclusions

1. Both white spruce (Picea canadensis) and Engelmann spruce (Picea Engelmanni) occur in the forests of the Upper Fraser River Valley.
2. Of these two species, the white spruce vastly preponderates.
3. Because of the strong numerical preponderance of white spruce (Picea canadensis) in the forests of the Upper Fraser Valley, the stands may be considered as a pure white spruce-balsam forest type, and the designation of locally produced spruce lumber as "white spruce" is justified and well within the limits of reason.

F. S. McKinnon.