

As to large game, moose and caribou are plentiful, but we saw no elk or bear. More stringent game laws will shortly be necessary with the opening of the country to white hunters.

Nearly all those northern lakes are thickly studded with beautiful islands—quite a similar Laurentian country to Muskoka but on a more extensive scale. Some future day these large island-studded lakes will become popular summer playgrounds for the people of the prairies, for the July and August weather is delightful. As yet of course they are almost inaccessible.

In the region we traversed, only five species of timber, namely: spruce, poplar, tamarack, birch and jackpine have any possible commercial value, and of those, speaking generally, only the spruce is large enough for sawmill purposes or railway tie material.

The poplar, birch and pine are invariably too short, spindly, limby and crooked for any use save fuel or pulpwood, and what mature tamarack there was is now standing dead from insect attack. We did not find over 200 green tamarack above 10 inches diameter all summer. This remnant is to the northeast end of Bear island in Sipiwesik lake. Black spruce is easily the predominant species in all that region, except on very occasional well-drained tracts of spruce-flat type, (where it reaches 10 to 14 inches in diameter at breast height) it is a small spindly tree, only 4 to 8 inches diameter breast height at maturity, unless even for second class ties. This is the condition in which the jackpine also occurs.

The white spruce therefore is the only species large enough to furnish construction timber, sawlogs, or even railway ties, and the supply is very limited. In the first place this species occurs only on the best drained spots, such as river and lake margins or on the small islands, and in the second, the fires of the past 100 years have destroyed nearly all the old stand.

To sum up then, only a mere fraction of one per cent. of the area we surveyed, now carries merchantable timber—a fringe along the Lower Mitishto and Upper Minago rivers, and on a few of the islands and peninsulas in the larger lakes—as shown on the map. There is probably enough timber available to build the rough construction work of the Hudson Bay railway.

The following is a summary of the total timber found during the season exclusive of that on timber berths:—

System	System Totals.	
	Ties.	Lumber Ft. B.M.
1. Moose lake	54,500	180,000
2. Mitishto river	12,500	350,000
3. Grass river	173,050	4,065,000
4. Inter lakes	44,200	912,000
5. Nelson river	74,050	2,167,000
6. Minago river	3,000	1,750,000
Grand Total	361,000	9,424,000

If, from the above, the timber on Wekusko lake and lower reach of Grass river and on the Upper Nelson and Minago rivers is deducted as being commercially inaccessible to the railway, then the supply locally available for the building of this stretch of the road is reduced to approximately one-half the figures given above.

At 3,000 ties to the mile, the 235 miles between The Pas and the first crossing of the Nelson will call for some 700,000 ties, in addition to piling and construction timber, so that it is probable the above local supply will prove insufficient to meet all demands.

From the mere size of the country and the density of the oncoming second growth stands the possible supply of firewood is enormous. Because of its remoteness from settlement, however, it has no present commercial value.

Owing to the killing by bark beetles of practically all the larger tamarack (or possibly killed by larch sawfly previous to beetle attack, though we found no trace of the sawfly) there is almost no green pile timber of any value in the whole region. Hence unless by importation the only choice left is between dead tamarack and the largest of the close-grained black spruce. The latter would remain sound in soil contact for about ten or twelve years which would satisfactorily cover the first initial experimental stage in the operation of the new road.

Just at the present time, within the area we inspected, the timber is too young and small upon the whole to be cut at a profit even for pulpwood. But in the absence of fires for twenty years the now eighty-year-old stands of 4 to 8-inch timber can be profitably cut for this purpose, and it is probable that within the next quarter of a century part of the enormous energy now running free in the falls and rapids of the Nelson and Grass rivers will be harnessed to drive pulp and paper mills.

The age of the reproduction is in nearly every case a measure of the time which has elapsed since the last destructive fire occurred. As a general rule, to which, however, there are endless local exceptions and variations—the young growth is approximately either forty or eighty years of age; the former being now 1 to 4 inches in diameter, and the latter 4 to 8 inches, but none yet large enough for making railway ties. It will, however, soon be suitable for pulpwood.

Scattered trees from older stands occur in this second growth, but not in sufficient number to repay the cost of lumbering.

The rate of growth in the very dense stands that are usual in that latitude is decidedly slow except where the soil and drainage conditions happen to be just right. Black spruce on semi-muskeg, a site of average quality for that species, is only 4 to 5 inches in diameter breast height at one hundred years. White spruce is rather fastidious regarding moisture conditions and only appears on fairly well drained spots attaining there a size of 8 to 12 inches diameter within a century. Poplar in that time reaches 8 to 10 inches. As for jack pine occasional trees reach 12 to 16 inches, but only after long immunity from fires, and such trees are too limby for use. I saw no jackpine stand where the trees would average even 6 inches in diameter.

If the general drainage conditions could in some way be improved so as to partially replace the unprofitable black spruce with the white species, the wealth producing power of the region would be immeasurably greater.

Fire, insects and wind in the north country are all very destructive agents and all inter-related.

Bark beetles have not only destroyed practically all the large tamarack, but are everywhere actively at work to-day killing off the scattered patches of mature spruce which have escaped past fires.

The fire loss and danger is appalling. Within the past century two great general conflagrations, along with numerous intermediate fires, have reached every nook and corner of the vast region we traversed. Many instances were seen where the fierce conflagrations of some forty and eighty years ago had jumped lakes over a mile across. These great periodic fires accompany each cycle of very dry seasons—living in the deep moss during the winter and rushing hither and thither in summer.