

A Comparison of Pre-Settlement and Present Diversity Of the Forests of Central Ontario

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Original Crown Survey notes were used to infer the European pre-settlement forest diversity condition in the management units of Algonquin Park, French-Severn, Nipissing and Temagami in Central Ontario, Canada. This diversity condition was then compared to the 1990 diversity of the forests as determined from Forest Resource Inventory (FRI) maps. This study analyzed selected compositional proportions of the forest to identify significant changes that have occurred since 1890.

Ten sub-divided townships were randomly selected from Algonquin Park, French-Severn and Nipissing while all available non-subdivided townships were used in the management unit of Temagami. The 1890 data represented the pre-settlement condition of the forest and acted as the baseline to which the 1990 data were compared. The 1890 data were derived from the original Crown Survey notes which were the forest cruise notes of the day, giving detailed descriptions of the forest cover including species composition, abundance, diameter at breast height and disturbances. The data from 1990 were provided, by the Ontario Ministry of Natural Resources, in the form of FRI maps and spreadsheets. The data were sorted into working group proportions, hardwoods and softwood, shade tolerance groupings and frequency of occurrence.

This study revealed that in terms of changes in working group proportions there have been region-wide significant increases in maple (*Acer* spp), while balsam fir (*Abies balsamea*), hemlock (*Tsuga canadensis*) and, the 'other conifer' group, consisting of larch (*Larix laricina*) and cedar (*Thuja occidentalis*), have significantly decreased. This study also revealed that there has been a significant increase in the proportions of hardwoods in the region with a subsequent decrease in the proportion of softwoods. The analysis of shade tolerance groupings showed that there has been a significant increase in the shade tolerant species while no significant changes have occurred with the mid-tolerant species or the shade intolerant species. The regional analysis of frequency of occurrence of each species revealed that a total of ten of the fourteen species have significantly changed.

This study has shown the usefulness of the Crown Survey notes in reconstructing the pre-settlement condition of these forests. These survey notes were easily available and could be simply converted to spreadsheet form. Future forest management plans should attempt to use these data as they will allow for more informed decision-making and will lead to a better understanding of original diversity conditions.

Reference:

Leadbitter, P. 2000. A Comparison of Pre-Settlement and Present Diversity of the Forests of Central Ontario. M.Sc.F Thesis, Faculty of Forestry and the Forest Environment, Lakehead University, Thunder Bay, Ontario, Canada, 78 pp.