

ABSTRACTS

A Comparison of Forest-Wildlife Habitat in Selection Logged and Un-logged Hardwood Landscapes in Algonquin Park

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We measured the forest-wildlife habitat in tolerant hardwood forest landscapes in Algonquin Park during the late 1990s. The major hypothesis tested was: “*There are no differences in forest structure and composition between landscapes with timber harvesting disturbances and landscapes with natural disturbances but no timber harvesting.*” Comparisons were made between a Louisa Lake study area subject to selection logging during the past 30 years and a Canisbay Lake study area closed to logging during the same period.

Elements of habitat structure and composition were measured along randomly located transects, one kilometre long, in each of the study areas. Since many wildlife species range beyond stand-sized patches, this design allowed us to assess the landscape level differences as well as site and stand level effects. Nested plots were located along transects at intervals of 50m. Plots varied from 2 x 2 m to 50 x 25 m in size depending on the element being measured. The following elements were measured: trees; shrubs; snags; fallen wood (coarse woody debris); herbaceous cover; stand vertical structure and layer volume; canopy closure; land cover type; Forest Ecosystem Classification cover type; Ecological Land Classification; disturbance types; frequency; and age. We also recorded all vertebrate wildlife species and wildlife signs found on the 50m x 25m plot. Other measures of wildlife responses and logging road disturbances were part of the study but not reported here. Preliminary analyses of transect level data have shown differences between logged and unlogged landscapes although impacts on wildlife are unknown.

No differences were found in total canopy closure (85% logged vs. 81% unlogged) or conifer canopy closure (5% logged vs. 21% un-logged). Total basal area of trees was greater in unlogged areas primarily due to more super-sized trees (39 vs. 3 m²/ha). In contrast there were more small trees, notably beech (*Fagus grandifolia*) and yellow birch (*Betula alleghaniensis*), in logged areas although there was no difference in shrub density. We did note a different species composition of shrubs however, with yellow birch, raspberry (*Rubus* spp.), hazel (*Corylus cornuta*), hemlock (*Tsuga canadensis*), and red maple (*Acer rubrum*) dominant in logged sites but more balsam fir (*Abies balsamea*) in unlogged sites. The volume of vegetation at various layers did not show any differences. Overall snag density was similar but logged areas had more pole-sized snags and more plots with no snags, whereas un-logged areas had more saw and super-sized snags. There were no differences in stump density but as expected there were more logged stumps in logged areas but unlogged plots had more stumps from natural causes. 20 of 140 logged area plots did not show evidence of recent logging, but only 12% of all logging occurrences were within the past 5 years. In both logged and unlogged landscapes, grazing by moose ranked as the most common disturbance followed by fallen trees (wind-thrown). Our field observations suggest moose have changed both species composition and structure of the forest. Anthropogenic disturbances totalled 1169 occurrences in the logged area versus only 163 in unlogged. Total numbers of non-anthropogenic disturbances were similar (1518 vs. 1885 climatic and 1381 vs. 1606 non-climatic). The data collected from this study are available to assist in the future tests of hypotheses of the effects of disturbances on wildlife populations.