Associations of survey height and tree age with arboreal lichen communities in Acadian hardwood forests of Nova Scotia

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Forest canopy habitats remain underrepresented in lichen surveys because much of the available substrate occurs beyond the reach of conventional ground-based sampling. To evaluate the importance of canopy habitats for arboreal lichens, we examined how survey height, tree age, and host species were associated with macrolichen richness and community composition in Acadian hardwood forests of Nova Scotia. We surveyed the lower bole and lower crown of mature and old yellow birch (*Betula alleghaniensis*) and sugar maple (*Acer saccharum*) trees in 28 sites using single-rope ascension techniques. Tree- and stand-level variables, including bark pH, tree age, canopy openness, and depth to water table, were also measured. A total of 49 macrolichen species were recorded on sugar maple and yellow birch. Lower crown plots supported significantly greater richness and cover than did lower bole plots, averaging 9.4 ± 4.5 species compared with 4.8 ± 2.6 species at the lower bole. Older trees (>140 years) exhibited the strongest vertical differences, with canopy richness increasing substantially as crown structure became more complex. Sugar maple hosted more diverse lichen communities than did yellow birch and supported a greater number of cyanolichens, likely reflecting higher bark pH. Community composition differed significantly between survey heights and host tree species, and 22 species were recorded exclusively in lower crown plots. Several species of conservation interest, including *Anzia colpodes*, were detected only in canopy habitats. These results demonstrate that lower crowns represent a distinct and biodiversity-rich habitat that is poorly characterized by conventional ground-based surveys. Incorporating canopy sampling into biodiversity inventories will improve assessments of lichen diversity and conservation value in eastern Canadian hardwood forests.

Keywords: biodiversity, epiphyte, macrolichen, sugar maple, yellow birch