

Clearcut and road edge influence on lichens and slugs in forested wetlands

Sean Haughian^{1,2}, Hugo Reis Medeiros¹, Cole Vail³ and Karen A. Harper^{1,3}

¹Biology Department, Saint Mary's University, Halifax, NS

²Nova Scotia Museum, Halifax, NS

³School for Resource and Environmental Studies, Dalhousie University, Halifax, NS

Nova Scotia's forested wetlands host rare and at-risk epiphytic lichens that are threatened by clearcut logging and grazing by gastropods. We investigated how lichen and slug communities relate to clearcut edge influence at local and landscape scales, and the relative contribution of native vs non-native slugs to the grazing pressure on lichens. Thirteen mixed-wood forested wetland sites adjacent to recent clearcuts (2-5 yrs. old) were sampled across Nova Scotia. In each site we surveyed seven plots at 0, 20, 40, 60, 80, 100, and 150 m from the clearcut edge. We measured lichen abundance and richness, tree density and canopy openness, and trapped slugs on the ground, while clearcut cover and road density were calculated over circular areas with radii of 250, 500, 750, and 1000m to represent edge influence at the landscape scale. Linear models and linear mixed models were used to analyze the data at landscape and local scales. We recorded 44 macrolichen and nine slug species. Three non-native slug species (*A. subfuscus*, *A. fuscus*, *A. hortensis*) encompassed 91% of total individuals collected. At a local scale, the abundance of non-native slugs increased with proximity to the clearcut edge, and lichen species richness decreased with increasing abundance of non-native slugs. At the landscape scale, the abundance of non-native slugs increased with road density at a 1000 m radius. Our findings lend support to the hypothesis that clearcuts and road edges negatively affect lichen communities by benefiting lichenivorous non-native species at both local and landscape scales.

Keywords: gastropod, invasive species, logging, biodiversity, arboreal

Presentation type: Oral presentation