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Oct. 31, 2008

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The Effect of ecological forest gradients on macrolichens & bryophytes on coarse woody debris in central BC

Coarse woody debris (CWD) in forests forms an important habitat for mosses, liverworts and lichens with many species restricted to CWD substrates. The influence of coarse woody debris characteristics on lichen and bryophyte species has not been well examined for sub boreal spruce forests in central BC. Wildlife tree patches are maintained on the landscape after clearcut logging with the intent of conserving wildlife habitat, however, the ability of these patches to maintain other species assemblages including lichen and bryophyte communities has not been well examined. With the rapid changes occurring to forests throughout BC through harvest, fire and insect damage it is imperative to understand the habitat requirements of these specialized species in order to take conservation efforts to reduce species loss.

We examined how a variety of ecological factors, especially those which are most often modified by disturbance, influenced the species richness and abundance of lichen and bryophyte species. The factors examined were CWD characteristics (diameter, height, % bark coverage, decay class, CWD species) and forest stand gradients (moisture, and nutrient regime, site series, size of forest patch and time of isolation of forest patch).

Regression analysis and non metric multidimensional scaling ordination indicate the particular importance of CWD decay class, height from ground and diameter on the diversity of macrolichen and bryophyte species. The species of CWD also affects macrolichen and bryophyte species composition. Distinct trends with patch size were not evident, however, moss and liverwort species diversity and cover declined steadily over the time since a patch was isolated. Our results highlight the importance of maintaining a variety of coarse woody debris on the landscape and suggest that in their current size and configuration, many wildlife tree patches may not be conserving sensitive lichen and bryophyte species over time.