

# Saproxylic beetle - coarse woody debris habitat associations

Lead by: [Charlene Wood](#)

Theme: [Arthropod Diversity](#)

Status: Continuing

Start: 2007

## Participants

- [James Hammond](#)
- [David Langor](#)
- [John Spence](#)
- [Charlene Wood](#)

## Background

Dead and dying wood plays a critical role in the boreal forest. Dead trees contribute to forest ecosystem structure and function by providing habitat for saproxylic (dead wood dependent) organisms and substrate for cryptogam (moss, lichen, fungus) and vascular plant germination. In addition, dead wood contributes to long-term matter, energy and nutrient inputs and soil stability. Dead wood is a dynamic resource, decaying over time as a result of arthropod and cryptogam colonization events, influencing a characteristic succession of associated biota. Coarse (>7cm diameter) fragments of dead wood, or 'coarse-woody debris' (CWD) are largely undervalued by forest managers as a vital forest element. The view of CWD as 'waste' is leading to increased interest in utilising CWD as a renewable energy source, despite studies from Europe, which reveal catastrophic implications to biodiversity in response to dead wood removal (1,2). Saproxylic beetles are influenced by various wood qualities such as decay stage, size, orientation, species, presence of fungi, and proximity to forest edges (1). Recent studies in Alberta have supplemented our understanding of the saproxylic beetle fauna (3,4), yet specific CWD microhabitats required by the diverse saproxylic community have yet to be determined. Because saproxylic organisms are highly sensitive to declines in CWD, dead wood microhabitats must be further studied and an ecologically-based CWD measurement protocol for Populus wood should be constructed. Literature Cited: 1. Siitonen. 2001. Ecol. Bull. 49:11-41. 2. Siitonen et

al. 1994. Scand. J. For. Res. 9:185-191. 3 Hammond et al. 2001. Can. J. For. Res. 31(7): 1175-1183. 4  
Jacobs et al. 2006. Agric. Forest Entomol. 9: 3-16.

## **Objectives**

My objectives are to: i) examine saproxylic assemblages in CWD ranging from freshly dead to well decayed, ii) determine specific habitat associations of saproxylic arthropods with biotic and abiotic wood characteristics and iii) develop an ecologically sound hardwood CWD classification system.

## **Key Results**

In Progress. [Update October 2007: Summer 2007 field work complete. Collected samples from 150 logs and 100 snags every 1-2 weeks from June 7 through August 19. Started site preparation for next year at the end of September. Preparing for an additional trip mid-late October, 2007. I am currently enrolled in coursework at the University of Alberta, processing samples and entering CWD characteristics and stand data.]