Composition and structure of epigeaic, understory and canopy spider assemblages in mixedwood forest cover-types after variable retention harvest.

Lead by: Jaime Pinzon

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Participants

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Background

Within arthropods, spiders are one of the most ubiquitous and diverse groups of terrestrial arthropods. As generalist predators spiders comprise a key component of habitat and ecosystem stability by regulating invertebrate populations. On the other end of the food chain, spiders also constitute an important food source for many other organisms (e.g. other invertebrates, mammals, birds). Consequently, spiders are an essential component of ecosystem function. For these reasons, spiders have high potential as ecological indicators and therefore as key components in conservation issues. In Canada few studies have been conducted about the impact of disturbances on spider communities or the differences of spider composition between forest types. The large majority of studies are

focused only on ground-dwelling species and almost nothing is known about vertical distribution and the effects of forest cover and disturbance on assemblages in higher strata of the forest.

Objectives

Study objectives are to (1) describe and compare the epigeaic, understory and canopy spider composition in each of four vegetation types 5-6 years after application of variable retention harvests, (2) determine how vertical stratification is affected by differences in forest structure through comparisons between forest cover and harvest treatments, (3) establish and evaluate the function of retention patches as potential species refuges, (4) develop new information on the habitat affinities and population dynamics of boreal litter and foliage spiders and (5) determine the viability of the use of spider species as bioindicators of forest recovery.

Key Results

The results of this research will provide insight into how differences in habitat/microhabitat structure affect the composition of spiders associated with forest litter, understory and canopy in mixedwood forests. It will provide basic ecological data on the structure of the overall boreal spider community taking into account differences in successional stages of the forest (deciduous-mixedwood-coniferous) and forest strata (litter-understory-canopy). This will provide critical information about how spider communities respond to natural and human disturbances required to develop management practices that emulate natural dynamics more closely. From a more basic standpoint the work will provide information on the poorly understood spider biodiversity for northern forest habitats in western Canada.