Department of Environmental & Plant Biology

Colloquium

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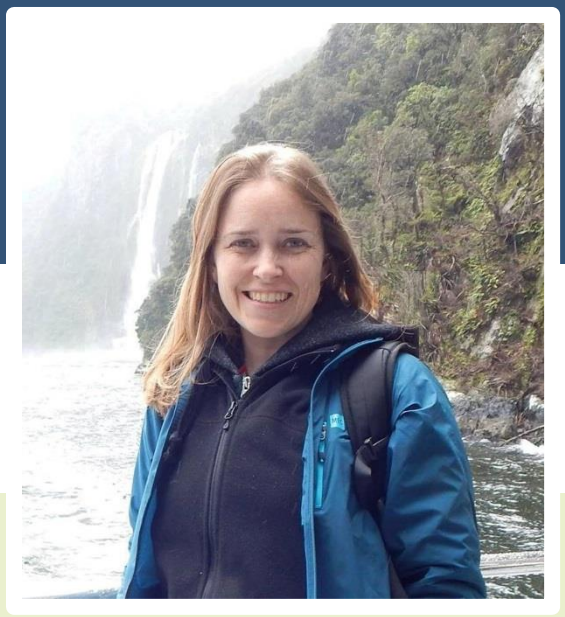

Friday, November 13, 2020
via Zoom | 11:50 am

Mast seeding across scales: Patterns, drivers, and climate change

Patterns of tree reproduction have implications for forest regeneration and as a resource pulse for seed consumers. A common reproductive pattern in perennial plants is mast seeding, which is described by high temporal variability and widespread spatial synchrony. There are a variety of hypotheses as to why this phenomenon occurs, from evolutionary responses to satiate seed predators or increasing pollination efficiency; or it could be a result of resource availability or weather cues. Our lab studies patterns of mast seeding across scales, from individual trees to continental scales, and we test hypotheses about the roles of weather conditions (e.g., temperature, precipitation), plant-available soil nutrients, and insect seed predators in driving these patterns. Studies of spatial synchrony in mast seeding have historically been based on local to regional areas, limiting our ability to quantify the full spatial extent of these patterns and identify drivers. Our recent work on white spruce mast seeding in the North American boreal forest at a continental scale has revealed an 'ecological dipole', characterized by significant asynchrony in high reproduction 'mast seeding' events in eastern and western North America. The spatial extent of weather patterns influences spatial and temporal mast seeding patterns. Experimental work on experimental warming and elevated CO_2 impacts on conifer reproduction will also be presented.