

AWARE Quarterly Progress Report Project ID: Q15 Core Site: Causapscal, QC spruce budworm outbreak Black Brook, NB if outbreak occurs there		Institution: University of New Brunswick PI: David MacLean HQP Name: Shawn Donovan	
Title: How can satellite and high spatial resolution optical imagery be used to augment spruce budworm forest health surveys?		Committee Members Dr. John Kershaw, Dr. Mike Lavigne Dr. Yun Zhang	
Report Period Year: 2018 S1 Jan. 1-Apr. 30		Number of Courses to Complete 0	
Research Progress During this Reporting Period 1. <i>Finish final edits to hemispherical manuscript and submit for publication to Agricultural and Forest Meteorology.</i> Hemispherical manuscript once approved by advisory committee was submitted to journal for peer review. Currently awaiting reviewer feedback. 2. <i>Complete Hyperion image pansharpening and change detection work for before and after budworm defoliation for both south and north study sites.</i> Change detection investigation of various vegetation indices is nearly completed. Hyperion image pansharpening research using methods from Dr. Yun Zhang’s research group has been delayed as setbacks in the extensive preprocessing methods required revisions before proceeding with pansharpening methods. 3. <i>Complete an initial first draft of introduction and methods sections for the Hyperion EO-1 manuscript.</i> Manuscript introduction and method sections are still in the drafting stages as more time has been invested in processing and analysis of Hyperion images. Presentations Done – Presented spruce budworm defoliation/hemispherical imagery research at the Northeastern Forest Pest Council 80 th Annual Meeting on March 13 th in Burlington, Vermont. Papers Submitted – Submitted manuscript titled “Quantification of forest canopy changes caused by spruce budworm defoliation using hemispherical imagery” to the journal of Agricultural and Forest Meteorology on March 26 th (Review process ongoing)			
Annual General Meetings AGM1 ✓ Attended ✓ Reported results		AGM2 ✓ Attended ✓ Reported results	
		AGM3 Attended Reported results	
Research Targets for next Reporting Period 1. Receive reviewer feedback for hemispherical manuscript, make the necessary recommended revisions for publication. 2. Finalize EO-1 pansharpening datasets allowing for analysis of the accuracy improvement from the resulting increased spatial resolution compared with the initial 30 metres spatial resolution. 3. Begin work on pixel-based classification using Maximum Likelihood and Support Vector Machine algorithms for mapping defoliation per pixel in Hyperion images.			
HQP Signature: Shawn Donovan Date: May 10, 2018		PI Signature: <i>David A. MacLean</i> Date: May 14, 2018	