


AWARE Quarterly Progress Report Project ID: Question 14 Core Site: Hearst Ontario Title: Predictive Modeling of Black Spruce Stand Age to Increase Accuracy of Ecosite and LiDAR Based Wood Fiber Modeling in the Boreal Forest of Ontario		Institution: Nipissing University Project Supervisor: Dr. Jeffrey Dech HQP Name: Rebecca Wylie										
		Committee Members <ul style="list-style-type: none"> ▫ See Progress Report Year: 2016 ▫ Names: Murray Woods & ▫ John Kovacs 										
Report Period Year: <table style="display: inline-table; vertical-align: middle;"> <tr> <td style="padding: 0 10px;">▫ S1</td> <td style="padding: 0 10px;">▫ S2</td> <td style="padding: 0 10px;">▫ S3</td> </tr> <tr> <td style="padding: 0 10px;">Jan-</td> <td style="padding: 0 10px;">May-</td> <td style="padding: 0 10px;">Sep-</td> </tr> <tr> <td style="padding: 0 10px;">Apr</td> <td style="padding: 0 10px;">Aug</td> <td style="padding: 0 10px;">Dec</td> </tr> </table>		▫ S1	▫ S2	▫ S3	Jan-	May-	Sep-	Apr	Aug	Dec	Number of Courses Left to Complete 0 courses, 3 credits (Thesis) left.	
▫ S1	▫ S2	▫ S3										
Jan-	May-	Sep-										
Apr	Aug	Dec										
Research Progress During this Reporting Period <ul style="list-style-type: none"> ● Finished setting up databases and cleaning data for age prediction modelling, and wood quality modeling. ● Gained familiarity and experience using R to fit statistical models using various packages and approaches. ● Developed parametric and non parametric models to predict mean stem age from LIDAR-derived forest structure metrics in spruce-dominated stands in the HF. Workflow compared results of various techniques for variable selection and model fitting. Best model performance was achieved using a KNN and random forest approach, with RMSD of 16 years. ● Initiated wood quality modelling phase of project, using regression tree and random forests approach to predict wood density, MFA and MOE of black spruce from stand and site variables (including age). ● Worked as a teaching assistant for Biostatistics BIOL 3117 ● Completed committee meeting to assess progress (April 2018) ● Started the written portion of my thesis manuscript. <p>Presentations None.</p> <p>Papers Submitted None.</p>												
Annual General Meetings AGM1 <ul style="list-style-type: none"> ▫ Attended ▫ Reported results 		AGM2 <ul style="list-style-type: none"> ▫ Attended ▫ Reported results 	AGM3 <ul style="list-style-type: none"> ▫ Attended ▫ Reported results 									
Research Targets for next Reporting Period <ul style="list-style-type: none"> ● Finish wood quality modelling work using Random forests. ● Present my research at the next AGM in June. ● Complete thesis manuscript by mid July. 												

- Defend thesis in August.

HQP Signature: 

Date: May 7th 2018

Project Supervisor Signature: 

Date: May 14th 2018