1137-92-275 **Travis Axe*** (traxe@uw.edu), Seattle, WA 98117, and **L. Monika Moskal** (lmmoskal@uw.edu), Seattle, WA 98507. *Estimating Effective Leaf Area Index in Heterogeneous Riparian Forest-Buffers: Airborne Lidar vs. Airborne Structure-from-Motion.* Preliminary report.

We demonstrate and compare the estimation of effective leaf area index (LAIE) using two remote-sensing techniques: airborne laser scanning (ALS) and airborne Structure-from-Motion (SfM). The study examines riparian forest-buffers in the Mashel watershed, Washington, for both its hydrologically complex landscape and range of riparian forest types.

Field-estimates were first compared to ALS analysis. These results showed that the penetration rate of first returns was strongly related to LAIE (R2 = 0.66). We used models that tested light attenuation variations of the Beer-Lambert law and saw similar results. However, these were more limited because the complexity of leaf angle distribution, canopy structure, and terrain within the project area, which is not completely captured within field-estimates or accounted in model variations.

The SfM approach utilized the point cloud of a digital surface model (DSM) which was rendered from airborne photography. Although this mimics ALS input data, many of the alluded models perform poorly because of the relative lack of appropriate ground-points. However, linear regression variations revealed an association between the coefficient of variation of point elevations within the upper-canopy and field-estimates of LAIE (R2 = 0.56). (Received February 05, 2018)