July 12, 2018

Lidar Inventory Research Discussion

**Attendees:**

Nate Osborne

Peter Gould

Jeff Ricklefs

Jacob Strunk

Tim Gebuhr

Michael Premer?

**Rayonier Objectives:**

Lidar to improve data quality, consistency, aid in acquisitions and dispositions

Hagloffs

Need species, individual tree attributes

Postx(?) to stem-map plot in an hour

**Data discussion:**

Panther creek dataset – stem mapped plots, lidar.

[TBD] Which year of measurements lidar / plots.

[Option] Validate / compare DNR cruised stands

**Project Concept:**

Evaluate the agreement between estimates derived from projection of lidar-derived individual tree segments and projection of actual tree lists.

Inference is for individual plots rather than stands. E.g. leave one out cross validation.

**R&D Steps and Considerations:**

1. Segmentation algorithms
2. Segmentation parameters
3. Manual vs automated vs no segment to tree linkage
4. Parameter calibration at plot or tree?
5. Calibration of plot prediction (area-weighted adjustment vs raw predictions)
6. Modeling of individual tree aspects (and modeling paradigm)
7. Projection of lidar segments

**MOU:**

Preparing an MOU adds some credence to projects within organization – i.e. this is a real and significant research effort.

There is the added advantage of an MOU that it should prevent a single individual preventing dissemination of results. It will be signed by all parties to dictate what can be shared, by who, and how. Ideally it will specify that all parties are given the opportunity to participate in reports (etc.), but, in the event that an individual unreasonably delays or opposes dissemination of results, any participant is free to communicate the results in any format (presentation, manuscript, etc.) with or without the consent of the remaining parties.

**Division of Labor:**

?? Collate data

?USFS & Rayonier? – Segmentation and parameter optimization

?DNR? – Implement pairing strategy for trees / segments

?? – Model individual tree attributes from lidar or imagery segments

?? – Plot level calibration of forest attributes, tree lists

Rayonier – Individual segment growth projection

**Action items:**

Peter, Jacob – check on MOU

Peter – Draft MOU, Check with Kevin Ford

Jacob – Contact Jim for data, evaluate interest from Bob McGaughey

Nate – set up next meeting