

***Progress Report (July 1, 2014 – November 10, 2014)***

**Title:** Modeling geomorphic response to large wood introduction as a strategy to restore fish habitat in managed forest watershed.

**Investigators:** PI: Catalina Segura, OSU FERM; Co-PIs: Christopher Lorion (ODFW), and Stacy A. Polkowske (ODFW)

**Project duration:** July 1, 2014 – June 30, 2016

**Objectives:**

- 1) classify channel types in the alluvial stream network of the Mill Creek Watershed
- 2) characterize the fluvial regime of four reaches before and after LW
- 3) develop a watershed scale model of channel geomorphic response to LW additions,
- 4) investigate the relations between this model and the available biological information.

Summary of accomplishments toward objectives over past year

- We surveyed the topography of 3 reaches including 20-30 cross-sections per reach spaced approximately ½ bankfull width apart.
- The channel slope was also calculated by surveying water surface elevations over no less than 15 times the bankfull width in each site.
- Pebble counts (i.e. sample of 100 rocks) have been conducted in all cross section per reach to characterize grain size distributions of the surface material.
- Bulk samples of subsurface material were conducted in 2 locations per reach. These samples were sieved into sizes between 0.063 and 90 mm.
- Each reach has been instrumented with a pressure transducer to record water stage every 30 minutes. Based on this information and repeated discharge observations we are developing a rating curve for each site.

**Problems, barriers, proposed changes to objectives:**

Over the past 4 months of data collection we have had no problems, barriers, or changes to report.

**Planned work:**

- During the fall and winter 2014/2015 we will go periodically to gauge the streams and continue to refine the rating curves.
- By late November we will have installed scour chain grids below and above the locations in which the large wood pieces will be installed. This grids will be visited weekly to monitor erosion and deposition in the channel bed.
- Spring 2015 – We will start modeling flow conditions before wood additions.

- Summer 2015 - we will revisit the cross-sections to track changes of channel geometry before the wood is added. Additionally we will classify the total extend of the watershed network into channel types.
- Fall-winter 2015/2016- We will reestablished scour chain grids in the same locations as prior to the wood introduction to monitor erosion and deposition changes after the large wood pieces are installed.
- Spring 2016 – We will model the flow conditions after the wood has been added.
- Spring 2016 – Synthesize data, present results at conferences (e.g. AGU), and prepare manuscripts.

**List of names and brief overview of graduate and/or undergraduate engagement in project:**

Russell Bair, Master Student in Water Resources Engineering (thesis); Jon Sanfilippo (field support); an undergraduate student from the College of Forestry will provide field support during next summer. Part of the funds to support this student will come from the College as a BOV Student Success and SEEDS Student Success Award.

**List of presentations, posters, etc.:**

None to report

**List of publications, thesis citations:**

None to report