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DYNAMICS OF LARGE WOODY DEBRIS IN STREAMS OF THE GREEN RIVER BASIN. J. Walter, E. Beach, B. Fransen, and J. Heffner. Weyerhaeuser, Tacoma, WA 98477-2999, USA.

Surveys to assess the amount, characteristics and location within channel of large woody debris (LWD) in four streams adjacent to mature conifer riparian stands were conducted in 1998. Study sites are in the upper Green River basin in the central Cascades of Washington. Average stream width ranged from 6.1 to 8.9 meters. A total of 1326 pieces of LWD were surveyed. Wood loading levels ranged from 3.2 to 7.6 pieces per channel width. Seventy-nine percent of all LWD was identified as decay class 4 or 5, suggesting the majority of current in-channel LWD was not recently contributed by the adjacent riparian stand. Source distance of two hundred and seventy nine pieces (21%) of LWD was identified. Although trees up to 43 meters from the channel delivered LWD, 92% of the source trees identified grew within 20 meters of the stream. Among identified source trees, 61% had fallen due to windthrow and 20 % had contributed LWD due to channel undercutting. Breakage of standing snags or live trees accounted for the remaining 19%. Re-measurement data collected in 1999 and beyond will be used to identify trends in LWD movement within the channel and recruitment from the adjacent riparian stand.

PATTERNS OF WOOD RECRUITMENT AND TRANSPORT AT THE WATERSHED SCALE. D. Martin and L. Benda, Martin Environmental, Seattle, WA 98103, USA.

A watershed scale wood budget was constructed for Game Creek (a 132-km2 drainage in Southeast Alaska) to identify spatial controls on large woody debris (LWD) abundance and distribution. Field measurements of wood storage, size, and age were used to estimate volumetric rates of LWD recruitment and transport. Mortality recruitment did not follow a spatial pattern and ranged from 0.3 to 8.0 m3 km-1 yr-1. Wood recruitment by bank erosion increased downstream with increasing drainage area and ranged from 1 m3 km-1 yr-1 at the smallest drainage areas to about 16 m3 km-1 yr-1 at 60 km2. Bank erosion recruitment exceeded the mean mortality recruitment at a drainage area of approximately 15 km2 (9 m wide channel). Recruitment from landsliding was only significant locally. Wood transport increased downstream non-linearly and transport flux (m3/yr) exceeded lateral recruitment at about 50 km2 (18-m wide channel). Mean estimated transport distances for mobile LWD over the lifetime of individual pieces varied from several hundred meters in small, jam-rich streams to more than two thousand meters in larger channels with fewer jams. Spatial patterns of wood storage showed inter-jam spacing and jam size increasing, and jam age decreasing with increasing distance downstream. Constructing LWD budgets at the watershed scale has numerous geomorphic and ecologic implications, including spatial controls on the abundance and diversity of aquatic habitats.

DECOMPOSITION AND MOVEMENT OF WOOD IN LOOKOUT CREEK, OREGON. M. Harmon, Oregon State University, Department of Forest Science, Corvallis, OR 97331-5752, USA.

The rate that wood decomposes in stream systems has rarely been studied in a quantitative manner. This paper will discuss the results of a 14 year long study from Oregon in which the decomposition of three species (Alnus rubra, Pseudotsuga menziesii, and Tsuga heterophylla) of logs was examined in a third-order stream (Lookout Creek) and in an adjacent upland forest. Logs 20-30 cm in diameter and 2.5 m long were either placed on the soil surface or added to the stream channel. The movements of logs in the channel have been tracked since 1985 when the experiment started. Destructive sampling of these logs occurred 2,4, 6, 10, and 14 years after placement. When logs were sampled, 6 cross-sections were removed at systematic intervals and examined for changes in density, moisture content, nutrient content, and decomposer colonization patterns. Preliminary analysis indicates that while decomposition for the upland logs exceeded that of the stream logs, that biological decomposition was quite rapid for some stream logs. Physical fragmentation of stream logs was quite rapid, with bark being lost from some logs within a few years. However, after 14 years, many of the upland logs had also undergone fragmentation, particularly of the bark layer. Decomposition rate varied with species with *Alnus rubra* >> *Tsuga heterophylla*> *Pseudotsuga menziesii*. Transport within the stream system was limited to about 2 km of movement despite the occurrence of several extreme flood events.