

INTERNAL REPORT 104

ROOT BIOMASS IN OLD-GROWTH DOUGLAS-FIR

Richard Hermann  
Oregon State University

Initial phases of this study were focused on developing methods for sampling and measuring the root biomass in the old-growth forests of watershed #10. Two methods were selected: The first method used a 1-m-long, 5-cm-diameter coring tube to remove soil and roots from beneath sample trees selected using a sampling scheme developed by Dr. Scott Overton. Sampling pattern beneath each tree was determined using the unique polygon technique of Overton. Roots and soil were separated in the laboratory by sieving, then use of a seed blower and finally hand sorting to remove bark chips, needles, etc. from the root mass.

The second method required excavation of intact root systems, weighing them, and taking samples for water content determinations and for developing allometric equations to estimate the mass of roots broken during excavation.

Field work has been completed and laboratory work and data analysis is currently in progress. During the field season, approximately 250 soil cores were taken from areas beneath 22 trees; the trees representing the major soil vegetation associations on the watershed. About 1/3 of these samples have been processed in the laboratory. Estimates of fine root biomass for soil vegetation units on the S-facing slopes will be ready soon. The remaining ones are currently being processed.

Laboratory work and data reduction is also in progress from the three excavated root systems. Biomass of three root systems was determined. Field weight of these roots systems ranged from 3000 kg to 7500 kg. Correction of field weights for water content and breakage is currently in progress.

This study will be completed in June 1973. Data resulting from the study will include estimates of both fine and coarse root biomass in the major soil-vegetation units of watershed #10. H.J. Andrews Experimental Forest. The results of this study will be reported in M.S. Thesis V and in an IBP internal report by Dan Santantonio.