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AN ABSTRACT OF THE THESIS OF

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Soil Science presented on March 17, 1983 .

Title: Impact of Landslide Erosion on Tree Growth and Vegetation
in the Western Oregon Cascades

Abstract approved: _____
Chester T. Youngberg

Shallow, rapid soil mass movements are common events and primary sources of sediment in steep terrain of the Pacific Northwest. Poorly vegetated debris deposits and scars resulting from landslides remove land from the productive timber base, and are subject to continuing erosion. To examine the impact of these events on the timber growth potential of forest land, height growth of Douglas-fir (Pseudotsuga menziesii (Mirb.) Franco) and stocking level of all commercial conifer species on landslides in the western Oregon Cascades were compared with height growth and stocking level on adjacent clearcut units of similar aspect, elevation, ages, and slope position. Cumulative height growth of Douglas-fir trees 18 years old on the landslides was reduced 38% compared to trees on clearcuts, and the stocking level was reduced to 75% of the clearcut level.

One-third of the landslide area was estimated to be non-stockable because of unstable or impenetrable substrate. Calculations combining height growth and stocking level estimate a reduction of 40% in wood volume grown on landslides compared to clearcuts, when trees are

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