

Track #1 - Published Abstract

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Environmental and economic comparison of cable-assisted harvesting systems in the Pacific Northwest

Abstract

Timber harvesting in the Pacific Northwest has a long history steeped in large timber, environmental litigation and regulation, and workforce dynamics that have created a current environment where cable-assisted harvesting is quickly gaining popularity among private and public land managers alike. However, their environmental impact is largely undocumented from a scientific perspective, and this lack of information can in some cases be grounds for exclusion of cable-assistance as a possible harvesting option.

The research conducted in this study examines both environmental impact as well as productivity and cost of various steep-slope harvesting systems including: 1) cable-assisted feller buncher with cable yarding, 2) conventional hand-falling and cable yarding, and 3) cable-assisted cut-to-length system. Environmental impact of these systems will be measured through pre-harvest, post-harvest, and post-extraction samples of the following: soil bulk density at soil surface, penetration resistance through soil horizon, water infiltration rates, and sediment yield. Productivity and cost will be examined through conventional time-study techniques and multiple linear regression analysis of independent variables.

This research builds upon previous work done at OSU involving a cable-assisted harvester-forwarder operation. Results suggested that the presence of cable-assistance not only reduces the *spatial spread* of machine impact, but also the *severity* of machine impact, with minimal cost differences between the two systems. The significance of this research is the development of data that can be used to compare the environmental as well as economic impact and feasibility of cable-assisted harvesting systems.

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