

PLANNING FOR STEEP COUNTRY LOGGING

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An important cornerstone for our harvesting research direction is the estimated volume to be harvested off steep country around the year 2015. The area to be logged is estimated to be 23,800 ha; volume is 15,700 m<sup>3</sup>, out of a total cut of 35,700 m<sup>3</sup>\*. These are impressive and very important figures to the forestry industry (cost of the wood) and the researcher (direction of effort).

How good is the information? Who supplied the original information, and what were the guidelines given? Should research organisations and the industry be making more effort to confirm the data?

The short answer to that question has to be "yes" and as quickly as possible. The problem must be approached on a wider basis than just crude volume figures aggregated within forests, between forests, combined into regional data to give a final national figure of such impressive magnitude that it turns the heads of industry and the research organisations.

The data must be re-collected on the following basis :

1. The use of a consistent terrain classification system
2. The species, volumes and age classes involved
3. The annual volume cut off easy and cable terrains
4. The data must be examined compartment by compartment, forest by forest, before aggregation.

A terrain classification has recently been developed that will assume a degree of consistency in terrain description - Appendix I\*\*.

A pilot-study in Lake Taupo State Forest indicated a significant transfer of area from cable to tractor terrain. What is initially proposed is that this exercise should be extended to other areas to obtain better data for industry.

It is perceived that the exercise is a joint one, it requires the co-operation of the many segments within the forest industry.

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\* LEVACK, H.H. "Estimated Changes in Area Volumes and Crops that will be Harvested by Cable Logging Systems" LIRA Cable Logging Seminar Proceedings, 1978.

\*\* This Paper will appear in the New Zealand Journal of Forestry in press. Acknowledgement is given to the Journal Editor for his permission to table this paper at the LIRA seminar and for it to be published in the Proceedings.

APPENDIX I

A PROPOSED TERRAIN CLASSIFICATION FOR HARVESTING IN NEW ZEALAND

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ABSTRACT

A terrain classification is required to give an adequate description of the terrain conditions encountered in harvesting operations in New Zealand. Terrain classifications developed overseas have not fully met our requirements and have been modified and extended to the needs of New Zealand harvesting researchers and forest planners.

The major terrain features considered are ground conditions, ground roughness, and ground slope. This follows international convention.

The measurement of ground condition relies on a cone penetrometer which relates to soil strength the number of blows to penetrate the soil to 50 cm. Ground roughness is expressed by size and frequency of the obstacles on the ground and whether they are permanent or impermanent features. Ground slope is expressed in a variety of ways (slope type, slope angle, slope length, slope aspect, and slope height) to ensure a clear expression of this important terrain characteristic. Other factors considered are slash ground cover, and standing vegetation.

Proposed data collection sheets designed for subsequent computer summary and analysis are included. A worked example shows the results of a field test.

The terrain classification requires further extensive testing by field practitioners. This will certainly result in further modification as experience is gained. The development of a relatively simple and accurate technique to measure soil moisture would add to the precision of the terrain classification.

The terrain characteristics measured are linked to a table developed by the British Forestry Commission setting out the approximate terrain limits of the more common forest extraction machinery. A task yet to be addressed is the linking of terrain difficulty to production rates. This information should be more readily available when the terrain classification is in place and an integral part of harvesting research, forest management procedures, and stand record systems.