LETTERS TO THE EDITOR

The Editor
New Zealand Ecological Society
Dear Sir,

We wish to draw your readers' attention to two of the figures in "An Ecological Approach to New Zealand's Future"[1]. We feel that a false impression of nutrient relationships in forest soils is given in both Figures 2 and 3 of this publication.

After recent correspondence, the authors agreed to produce a corrigendum. This referred only to Figure 2 and while some grounds for criticism were corrected, a major source of misinterpretation will remain. Figure 2 shows *concentrations* of nutrients in the soil and litter without drawing attention to the large difference in bulk density between them. We believe most readers would assume from Figure 2 that there is a greater total of nutrients in the litter than in the soil. This assumption is false. While *concentrations* are higher in the litter, *amounts* of nutrients are considerably less. Not having bulk density values for the typical case in Figure 2, we would illustrate our point from the work of Miller[2,3]. Under beech, at Silverstream, the *concentration* (me%) of Ca + Mg + K + Na in the litter is about six times that in the topsoil but the *weight* of these elements (lb/ac) in the litter is a half (or less) of that in the topsoil. Nitrogen concentrations are very similar in the litter and topsoil but the litter contains less than 1/12th of the amount of N (lb/ac) in the topsoil.

The caption and diagram of Figure 3, and reference to them in the text give the impression that the results presented are typical of what can happen after a normal forest clearfelling operation. This impression is not true. The Hubbard Brook study was concerned with extreme devegetation brought about by clearfelling plus repeated herbicide treatments. The American Forest Institute[4] has concluded that Hubbard Brook results were "not applicable" to normal commercial timber harvesting practices and Lull[5] stated they were "of interest but have no practical significance. . . ."

When one report on the Hubbard Brook study was summarised in "American Forests", without reference to the extreme conditions, R. S. Pierce, the project leader in charge of Hubbard Brook Experimental Forest wrote to the author:—

The digest failed to state an important fact—that the treatment imposed was not intended to simulate clearcut timber harvesting practices prevalent in the Northeast, but was designed solely for research purposes to study the influence of complete forest elimination . . . vegetative growth was virtually eliminated by subsequent spraying with herbicides for three successive summers. A reader not knowing this could conclude that any forest clearing creates catastrophic nutrient depletion.

This comment is offered to set the record straight and to inform those who might have reached an erroneous conclusion about one of the important features of this experiment.

We believe the project leader's comment applies equally to the way Figure 3 is presented and referred to.

Yours, etc.

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REFERENCES

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[2] Miller, R. B. and Hurst, F. B. 1957: The quantity and nutrient content of Hard Beech litter. *New Zealand Forestry Research Notes,* 8: 14 pp.

[3] Miller, R. B. 1963. Plant nutrients in Hard Beech III. The cycle of nutrients. *New Zealand Journal of Science* 6: 388-413.

[4] The effects of clearcut harvesting on forest soils. A Summary of major research. Compiled by the American Forest Institute, Washington D.C. 1973.

[5] Lull, W. H. 1972. Runoff from forest lands. In *Man's impact on terrestrial and oceanic ecosystems.* Ed. Matthews, Smith and Goldberg, M.I.T. Press, Cambridge, Mass.

[6] Pierce, R. S. 1969: Setting the record straight. A letter to the Editor *American Forests* 75(8): 62.