LETTERS TO THE EDITOR

Growth Modelling of Radiata Pine

Sir,

Dr Tennent's article on "The Status of Growth Modelling of Radiata Pine in New Zealand" (Vol. 27, No. 2, pp. 254-8) would appear to be either incomplete or incorrectly titled. Whether the contents adequately summarise the history of growth modelling within the N.Z. Forest Service I am not in a position to judge, but for New Zealand as a whole there is a definite omission.

When describing the development of so-called "second generation" growth simulators, no mention is made of the N.Z. Forest Products Ltd growth model discussed in depth by Clutter and Allison (1974). Reference is made solely to the Kaingaroa model, citing Elliott and Goulding (1976). Interested readers will be disappointed to find that this article is a one-page abstract of a paper which has never been published.

Belatedly, the author does allude to the Clutter and Allison system, which is cryptically described as a "diameter-distribution" model. Following the terminology of Munro (1974) it is very largely a stand-level simulator in structure, analogous to the Kaingaroa model.

It is not my intent to compare the two second generation models, but in fairness to its originators, the Clutter and Allison system has proved a flexible and reliable model, and would rank as one of New Zealand's better radiata pine stand simulators. Dr Tennent states in his introduction that future models will provide information on the distribution of tree sizes; much of this is already available from the Clutter and Allison system.

R. C. WOOLLONS,
N.Z. Forest Products Ltd.
Kinleith

REFERENCES

Clutter, J. L.; Allison, B. J., 1974. A growth and yield model for *Pinus radiata in New Zealand.* pp. 136-60 *In* J. Fries (Ed.), *Growth Models for Tree and Stand Simulation,* Royal College of Forestry, Stockholm, Sweden.

Elliott, D .A.; Goulding, C., 1976. The Kaingaroa growth model for radiata pine and its implications for maximum volume production [abstract]. *N.Z. Jl For. Sci., 6* (2): 187.

Munro, D. D., 1974. Forest growth models—a prognosis. pp. 7-21 *In* J. Fries (Ed.), *Growth Models for Tree and Stand Simulation,* Royal College of Forestry, Stockhilm, Sweden.

Dr Tennent replies:

Sir,

Mr Woollon's comments on my paper are appreciated. The sections describing the various generations growth modelling has passed through were intended to be illustrative as opposed to enumerative. As such

I tried to choose models which were widely used and of general availability, both in published form and on computers.

The reference to the model of Elliott and Goulding (1976) was not intended as a laudatory statement any more than the omission of the model of Clutter and Allison (1974) was intended to be derogatory. I agree that the model of Clutter and Allison has proved flexible and reliable for New Zealand Forest Products Ltd., but the model is site invariant and probably unsuitable elsewhere. I believe that the Elliott and Goulding model has had a greater effect on radiata pine growth modelling than Clutter and Allison's model, which I understand to be without imitators in New Zealand.

Incidentally, I disagree with Mr Woollon's description of Clutter and Allison's model, which cannot be described as a stand level model as diameter distribution information is intrinsic to the prediction of growth. My use of the term "diameter distribution" refers to models such as that of Clutter and Allison which can be seen to fall into more than one of the categories of Munro (1974).

R. B. TENNENT

Soil Factor and Tree Stability

Sir

I would like to make a few comments on a recent article on the influence of the soil factor on tree stability by D. M. Boyd and T. H. Webb, (Vol. 26, No. 1, pp. 96-102).

I felt the paper dealt too superficially with a number of points and in others, may prove misleading. For instance:

Page 98. "Non-soil Factors Influencing Tree Stability"

". . . climate does not change appreciably over such a small area . . .". This ignores the effects of the adjacent hill system which causes very different wind characteristics and consequent damage patterns in the western end of Balmoral Forest.

" . . . younger trees are more wind-firm". This is not necessarily true.

Page 100: Broken trees are excluded from the analysis. What happens to results if they are included?

"Within about a 5 m radius". I find this a little unscientific.

"Results and Discussions"

Transects A, B and C show percentage damage that changes from a high damage zone across a standing zone and back into a high damage zone. An examination of the aerial photographs of the 1975 storm will reveal that tre two high damage zones result from two distinct wind patterns. The damage zone to the north resulted from a "dumping" down of wind off the adjacent hill. Wind damage nearer the Hurunui River was a consequence of winds funnelling down the Hurunui Gorge. The standing zone, whirh coincided with shallow soils, may have been in a sheltered buffer zone between these two wind systems. Damage patterns might not be a consequence of soil characteristics as the article would suggest.

ALAN SOMERVILLE