LETTER TO THE EDITOR

BUILDING REGRESSIONS FROM ORDINAL DATA

The article by Collier & Baillie which appeared in *New Zealand Journal of Forestry Science 29(2)* 225–235 (1999) includes graphs of four regressions (page 231) together with multiple correlation squared values. The dependent variables used are ordinal scales, based on visual assessment. One scale goes from 1 to 7, representing degrees of decay in logs, ranging from "sound" to "failure". The authors make no comment that the validity of the regressions depends strongly on the assumption that the decay levels are strictly linear progressions. For example, will the change from "deepening" (5) to "severe" (6) be of the same magnitude as moving from "severe" to "failure" (7)? If this cannot be guaranteed, the functional forms depicted may not be true.

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RESPONSE

Although we can't strictly guarantee that the magnitude between each decay class is equal, we feel that a good empirical relationship exists between decay class and time since harvest when using Method A to assess decay rates. However, the main object in presenting the figures was to demonstrate that the relationship between decay rate and time since harvest is better using Method A than Method B. We believe this is clearly demonstrated by the R^2 values on these figures. The regression lines are not intended to be used for predictive purposes at this stage and the equations were not presented.

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