

root exposure, and after 60 minutes macrocarpa had consistently lower water potential than radiata pine (Fig. 1). The decline was significant ($P \leq 0.001$).

Differences in ΨW between the July 2 lifting date and the other three dates was significant ($P \leq 0.001$). However ΨW remained satisfactory at lifting (not worse than -0.5 MPa).

Root growth capacity

Unexposed seedlings of macrocarpa had high RGC, except for those seedlings lifted on July 2. The difference between the July 2 lifting date and the other three dates was significant ($P \leq 0.001$). Root growth decreased slightly with exposure but this was not significant.

RGC in radiata pine generally decreased through the winter ($P \leq 0.001$), with the exception of seedlings lifted on July 2, which had the lowest RGC. Root growth in the radiata pine seedlings declined significantly ($P \leq 0.005$) with increasing exposure.

Low RGC was noted for both species on July 2, when ΨW were relatively high. The reason for the anomalous results for July 2 was not clear.

RGC of macrocarpa seedlings was affected by lifting dates, but not by length of root exposure, which affected only ΨW . However RGC of radiata pine showed a marked response to both lifting dates and length of root exposure. Macrocarpa seedlings had consistently higher RGC than radiata pine seedlings after all lifting dates and after each period of root exposure (Fig. 2).

This note highlights several points worthy of further investigation.

- * Macrocarpa seedlings proved to be more resistant to handling stress than radiata pine. Is this a general rule? If so, can the better performance be related to the more fibrous nature of the macrocarpa root systems?
- * What factors cause the variability in seedling performance between lifting in late May and the end of August? Is it related to the time between 'conditioning' and lifting? Or are there other seasonal or climatic factors operating?

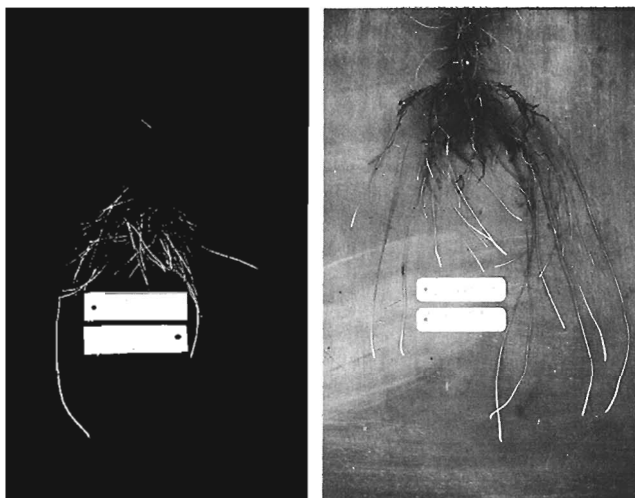


Fig. 2 New root growth of *C. macrocarpa* (left) and *P. radiata* (right) seedlings, lifted on July 2, exposed for 30 minutes and placed in the water bath for 21 days (photos: B. Cosslett).

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CONFERENCE PAPER

DOES MULTIPLE USE FORESTRY HAVE A FUTURE?

An overview of the Keynote speakers, NZIF Conference, Greymouth, May 1987

C. Anstey

Mike Orchard must be congratulated on his choice of speakers. A very diverse range of views were expressed and each speaker approached the question from a quite distinctive viewpoint. Priestley Thomson tended to reflect on the past performance of foresters in the practice of multiple use, as did Guy Salmon. John Gilbert explored the concept, its evolution and its future, tending to dwell on the social processes involved in achiev-

ing balanced decisions. Andy Kirkland reflected on the Forest Service's difficulties with the concept and, in his usual lucid way, explained the inevitability of changed administrative arrangements. Ken Piddington accepted the concept and outlined the values his department would be considering, and how these values were to be integrated into management. Ken was the only speaker who talked about integration and this seemed somehow significant. John Gilbert, in speaking about conservation land management, did concede a compatibility in non extractive uses.

Both John Gilbert and Priestley Thomson made reference to a common definition of multiple use. The definition is that adopted by the US Forest Service who modified Professor B.L. Orell's version given at the 5th World Forestry Conference in 1960.

"Multiple-use forestry is simply the accommodation of a maximum of other compatible uses with the highest single beneficial use of the land."

John Gilbert explored some of the difficulties with the concept and made reference to historic debate. The notion of

The reviewer, Clive Anstey, was chairperson of this session.

"highest single beneficial use" tended to be exclusive of other uses and what was really required was the 'best' combination of uses. In 1976 the Forests Act was modified to include the concept of balanced use. Recreational, educational, historic, cultural, scenic, aesthetic, amenity and scientific purposes were listed as the uses. John concluded that there was a certain confusion over what the concept meant and asked the question: "Are we getting hung up on outdated terminology?" John suggested that we should be paying more attention to what our society wants and suggested that "the current concern should, I believe, centre around achieving balanced use". In his exploration of "Values and Participation" John stated that "achieving balance is related very much to societal goals rather than forest management goals". This can be taken to imply that there is a level of debate which establishes what will or won't be done; for example, whether exotic forestry is an acceptable use. This I believe is quite separate from the issue of forest management goals. John quoted Andy Kirkland's paper "Management Classification and Zoning of New Zealand and Indigenous Forests", presented at the 1974 Forest Development Conference in Wellington, which clearly acknowledged the difficulties the forest manager has in establishing balance. "The principal difficulty encountered in this approach has been deciding the proof of the relative importance of values other than production forestry in lowland forest areas. ...the absence of supporting data from disciplines outside his or her own has forced the forester to rely more heavily on his or her personal experience and value judgements in planning..." Affirming Kirkland's statement, John observed: "Providing processes and opportunities for people to express their values in a way that is fair to all parties involved is extremely difficult to achieve".

In speaking about the Ministry of the Environment's approach to the attainment of balance, John Gilbert acknowledged the need for education and information in order that those who should rightfully participate are able to contribute. John acknowledged that his Ministry's resources were extremely limited but "we are basically a Ministry that will concentrate on developing processes to assist the main actors in achieving a good environmental result".

The Ministry clearly intends to achieve what the Forest Service failed to do; the Ministry will ensure that information and expertise are available from beyond its own staff and made available to the processes for which the Ministry will hold itself responsible.

John Gilbert admitted to having "had some difficulty in gaining any fair

impression of what it (multiple use) stands for or what it has achieved over the past 20 years".

All of the speakers tended to focus on multiple use in relation to indigenous forests and there was considerable criticism of the way the concept had been applied, particularly by Guy Salmon who could see no future for a concept. In the views of his organization it had grossly underplayed the inherent values of the resource. Priestley Thomson did acknowledge that "as foresters we were wrong in advocating such relatively small areas of scientific reservation". However, Priestley did go on to say too that this had been corrected in more recent years and considerable areas had been allocated for reservation.

In my view it is very easy to make glib and summary statements about the futility of the multiple-use concept. There has been a process of reconciliation going on and that process has extended beyond the indigenous forests, as Priestley Thomson clearly pointed out. The process may have been painful and drawn out but then making a concept work is a big step from establishing it as an ideal. Inadequate as their attempts may have been, foresters are the only professional group who have seriously attempted to manage land for a multiplicity of values, both extractive as well as non-extractive. While far from providing all of the answers, their attempts have been the stimulus for the right questions. If there is criticism it must surely be not of intent but of the extent to which the concept was applied in indigenous forests and the application of a balance which was weighted too far towards extractive uses.

To some extent I believe people generally, and some of the speakers in particular, tend to speak about two different concepts and John Gilbert moved from the first to the second in his review.

The idea of balance was always inherent in the multiple-use concept. Management for multiple use implies an active application of the concept of balance. Calls for greater accountability have seen the balance aspect of use made more explicit. One of Guy Salmon's criticisms of the Forest Service was that the responsibility for balance had been with people in the field and that the public had been excluded. Although the two concepts are inseparably linked they operate at different levels. Multiple use, as it manifests on the ground, is the tangible expression of the values a culture or sub-culture holds. Guy Salmon saw the Forest Service's practice of multiple use as the expression of a limited "professional power centre" and "utilitarian". In other words the values being expressed were those collectively associated with the male power and domina-

tion syndrome. Such a condition is not peculiar to foresters and how actions are directed is always influenced by the responsibilities vested in a group. Foresters have tended to be utilitarian in their approach and responsive to a necessity so often couched in economic terms. Having conceded this, I could never agree that the profession has been lacking in a genuine concern for natural systems and there has been much written, researched and done which attests to this. Within the profession there has been constant and ongoing conflict in attempting to resolve the, apparently, mutually exclusive objectives of protection and production.

John Gilbert quoted a submission to the 1974/75 Forestry Development Conference from the Beech Forest Action Committee who recommended that the "...thoroughly discredited concept of multiple use" should be discarded in favour of the dual concept of "protection management" and "production management". This was clearly the conclusion of Government and formed the basis of their restructuring process. All of the speakers, with the exception of Priestley Thomson, appeared to accept this separation, if not with enthusiasm then at least as a logical inevitability. The responsibilities for conservation and production should be clearly vested in separate sub-cultures with the Ministry for the Environment mediating the balance from a point of overview.

So the question remains: "Does multiple-use forestry have a future?"

Priestley Thomson raised some real questions in relation to the new administrative arrangement, with particular regard to the responsibilities of the Department of Conservation.

He posed questions regarding such matters as game management, minor forest produce, and mining, all of which involve a multiple-use management approach. He also pointed out that very large areas of the DOC estate involved cutover indigenous forest, much of which could yield valuable scientific information in terms of past practices and future potentials, if not for us then for some future generation. Priestley said that "in the long term NZ and world forests must be managed for the production of wood as well as for other benefits; to think otherwise is naive".

The message I took from Priestley Thomson was that we have a history and what we inherit is not a balance which, at some point in time, can be neatly described to categories of tenure. Balances change and must be constantly adjusted through management. I doubt that anyone would argue that the case for preservation is well established but the condition will require management and

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Report of the NZIF Education and Training Committee on Graduate and Postgraduate Training

A Council Committee was set up after the 1986 AGM to examine ways and means of implementing the recommendations from three recent reports on forestry education and training. These were:

- the 1981 Forestry Development Conference Working Party on Training
- the 1985 Forestry Council Committee on Forestry Education
- the final report of the NZIF Education and Training Working Group tabled at the 1986 AGM.

The Committee tabled its report at the 1987 AGM where it was accepted subject to minor changes to the wording of two recommendations. The report summarized below, deals with graduate and postgraduate training. A subsequent report will cover operator and field supervisor training, sub-professional training, in-service training, refresher training and retraining.

All three reports strongly supported strengthening the School of Forestry at Canterbury University. In drawing up its recommendations, the Committee accepted the following framework:

- the School's immediate future should be made secure;
- the School must endeavour to produce the very best graduates;
- student intake should not be limited by the perceived availability of jobs within the industry;
- graduates of the School should be encouraged to take up jobs in occupations outside forestry;
- the School should not base its curriculum choice entirely on the needs of the industry, as these can change quite dramatically;

Conference Paper (continued)

its extent can only ever be limited. For the remainder there is an inevitability about an increasing need for the management for a multiplicity of values running in concert. The challenge will be in ensuring that management, whether it is called multiple-use management or not, is able to integrate the values our society expresses to achieve a balance it defines.

- forestry needs a higher profile amongst school leavers.

On the basis of these assumptions, the recommendations were prepared on the following subjects.

1. Staffing levels

A staff of 12 was considered by the Forestry Council Education Committee to be the minimum for a strong vibrant relevant School offering an expanded curriculum. However, the present number of students was insufficient to allow an increase in staffing beyond the nine financed by the University. The Forestry Council sought assistance from the forestry sector to provide for an additional three positions. The private sector, by secondment and grants, has provided support for two positions but the state sector has been unable to make a commitment as a consequence of restructuring.

Recommendation 1

That the NZ Institute of Foresters (NZIF) approaches the Forestry Corporation, Ministry of Forestry and the Department of Conservation seeking their short-term support for the School of Forestry, either by sponsorship or funding, to the extent of one lecturer for four years, thereby matching the contribution being made by the private sector.

2. Contacts with the forestry sector

One of the concerns of NZIF members was the limited exposure of many students to the forestry sector. Members felt that it would be beneficial to have part of the degree course taught in Rotorua. This would enable the School to make use of the expertise locally available within agencies such as:

- the Forest Research Institute
- the Logging Industry Research Association
- the Wildlife Service
- the Pulp and Paper Research Organization
- the Forestry Corporation
- the Forestry Training Centre
- the major forestry organizations.

This occurred fortuitously in 1986 with some courses for the 3rd professional year students being taught in Rotorua but is not being repeated. If the FTC became a recognized out-station of the

University of Canterbury for teaching part of the final year forestry curriculum, the future role of the FTC would be stabilized.

Recommendation 2

- (a) *That the NZIF supports some courses being taught at Rotorua, drawing upon expertise available at FRI, FTC, LIRA, DOC, and the major employing agencies.*
- (b) *That the NZIF favours the FTC being recognized as an out-station of the School of Forestry.*

3. Student recruitment

A vigorous campaign of student recruitment will be needed if student numbers are to reach a level that can sustain 12 staff positions by 1990. Assistance will be needed from the forestry sector.

Recommendation 3

The Council recommends steps along the following lines:

- (a) *That the NZIF co-operates with the School of Forestry, Forest Owners Association and Ministry of Forestry in preparing pamphlets and videotapes on forestry careers and education opportunities.*
- (b) *That the NZIF nominates some of its members in key locations to be contact persons for careers advice. The School of Forestry would be responsible for keeping them supplied with up-to-date material.*
- (c) *That the NZIF vigorously promotes the image that New Zealand foresters are competent, professional and responsible, as a measure to counter the negative publicity forestry has received.*

4. Practical skills and experience

Council believe that a degree course that produces foresters with practical skills as well as scientific and management skills will greatly enhance their future employment prospects. Training in practical skills should be incorporated as a compulsory and integral part of the degree course, entitling students to receive bursary payments during their tuition. The facilities and expertise for providing such training already exist at the Forestry Training Centre in Rotorua.