

- the total loss by Proseed of credibility and client regard within the Nursery industry.

Research and Development

The second issue is Research and Development. Because of its state of limbo Proseed is, to my knowledge, not carrying out any research or development into genetic improvement of any species, nor is there any development of existing or new seed orchards. While the major forestry companies may be carrying out R&D, the results of their efforts will not necessarily be available to the industry as a whole. The Tree Breeding Co-op presumably has some activity in this area but only for the benefit of its own members and I suspect there are reservations as to those benefits.

Suggestions have been made for funding of R&D through some form of levy on tree stocks, but I would suggest that before any nursery manager would participate in collection of levies they would require a system displaying much more equity and integrity than at present.

After all, Proseed still forms part of an SOE and its assets were put in place by the taxpayers, not through any effort by Proseed or its parent, and while it can be

conceded that the taxpayer is entitled to a return, that return should be based on performance and service to its industry, not a short-term gain.

The NZ Forest Nursery Growers Association has been established for the very purpose of providing cohesion and discipline to a vital part of the forest industry and the current problems we face are indicative of the need for such an organisation. Membership is high, with almost all growers of forest tree stocks being represented from the major companies to the smaller operators.

Where to Now?

The third issue is the future of Proseed. The present system of ownership, management and relationship with other producers of genetically improved material as well as the Tree Breeders Co-op seems to be impractical.

There must be some sympathy for staff. They have coped with an extended period of uncertainty and rumour pending the sale of their employing company with all the indecision and frustration through lack of resources that must be their lot.

There seem to be two options for the future of Proseed and both have already

been canvassed:

- ownership transfer to MOF or FRI. This would protect the 'national interest' status of the company;
- purchase by a consortium, but consisting of forest owners, nursery owners and FRI.

In both instances the company should be managed by a Board consisting of all interested parties and, while I believe the first option to be preferable, there is reservation regarding the ability of FRI to provide competitively priced R&D. This has to be balanced against the expertise within FRI as opposed to any other organisation capable of providing research.

Whatever happens Proseed must be controlled by people experienced in the practicalities, who have an understanding of the requirements and who can make decisions based upon the long-term advantage to all.

There we are! Something to reflect on and hopefully to constructively comment on.

Adrian Ford
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Eucalypt planting in Chile

Chile has taken to eucalypts – as the Chileans says, they have a 'fever'! The following observations on their programme were made in November 1992. While there could well be some inaccuracies in the data (it was not easy to get reliable figures), the overall impression should be of interest.

Chile now has about 100,000 ha of eucalypt plantations. The latest planting expansion only began three seasons back. For the last two years they have planted about 31,000 ha per year. The majority of the planting has been with large private companies (perhaps 22,000 ha per year). The remainder is by private investors.

The objectives of the plantings are to provide short rotation pulp, not sawlogs. The companies have identified the shortage of this type of hardwood pulp. I was told that hardwood pulp is currently worth about 75% more per tonne than radiata pine pulp, making the investment very attractive. Currently only one pulpmill in Chile is using eucalypts, but there are several pulp companies planting.

Most of the area being planted is in the Central Valley region around Los Angeles and Angol. However planting is widely spread – from Santiago in the north to south of Valdivia and on some of the

coastal areas. Much of the planting is on farmland but there is some conversion of radiata going on as well. Some of the areas being purchased are degraded farming soils, but others are more fertile, being deep andesitic soils. Even irrigated land has been purchased. The prices being paid for land can exceed \$US1000 per ha –

\$US1300 is not uncommon. The competition for land is pushing up prices. On top of this some companies were willing to invest \$US600 in establishment – even higher if the areas are close to the mill.

Eucalyptus globulus is the preferred species (80%) with *E. nitens* the second species (5%). Depending on sites there are



General view of a one-year-old *Eucalyptus globulus* plantation in the Central Valley, Chile. Photo D.J. Mead.

several other species being planted such as *E. delegatensis*, *E. viminalis*, *E. fastigata* and *E. camaldulensis*. Red river gum (*E. camaldulensis*) tends to be planted on warmer, dryer sites and the others are used where more frost tolerance is required. There is very little disease although *Mycosphaerella* sp. has been recently observed in some coastal plantations.

Silviculture is generally intensive and rotations are expected to be about 10 years. Most companies now recognise that site preparation and weed control must be of high standard and they will also fertilise at time of planting. The foresters are generally aiming for fast-growing, uniform plantations. There is intense interest in getting the best genetic material and in tree breeding. Container grown stock is commonly employed. Many foresters are expecting >30 m³/ha/yr.

It is interesting to speculate if this diversification into short rotation eucalypts will be a success. Certainly there is great enthusiasm and investment. And it is also interesting to ask why the West Australians have also followed a similar path and we have not, with the exception of some relatively small-scale plantings (1000 ha per year) in Southland. Is it our poorer growth rates, disease problems, lack of suitable easy contour land, the lack of investment capital? Or is it that we haven't caught the 'fever'?

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Eucalyptus nitens age three years planted at 5 x 1.5 m spacing. Near Santa Fe, Chile. Photo D.J. Mead



One-year-old *Eucalyptus globulus* planted at 1600 stems/ha and with soil ripped to 80 cm. Note complete weed control. Photo D.J. Mead.

Paul Bunyan – conservationist

Aldo Leopold, ecologist before the word became fashionable, is widely regarded as the West's first apostle of a new "ethic of conservation" based on deliberate political choice. His "Sand County Almanac" published in 1949 called for radical change in "Man's relation to the land and the animals and plants which grow upon it" – to replace the orthodox God-given "dominion over all the earth" (Genesis 1, 26) and His ecologically unsound injunction to "be fruitful and multiply and replenish the earth and subdue it" (Genesis 2, 26).

Less well known is an earlier (1941) call for such an ethic from W.H. Auden, perhaps the greatest poet then living in America, in his libretto for an operetta scored by Benjamin Britten – probably the most accomplished composer then in America – about Paul Bunyan – undoubtedly the greatest and most pervasive folk-hero ever created in America. When first performed on a University Campus, Britten's "Choral Operetta" ran for less than a week and was then buried for 30 years. It was revised and extracts performed at music festivals in the 1970s but not until 1976, the last year of Britten's life and three years after Auden's death, was it presented in its entirety – on radio. In 1988 it was recorded by the Plymouth Music Series of Minnesota, one of the several States which claims Paul Bunyan as its son, and won international acclaim, including an international prize.

Auden wrote in his introductory press account of Paul Bunyan in 1941: "America is unique in being the only country to

create myths after the occurrence of the Industrial Revolution". Paul was not only the demigod of loggers – who have never needed an industrial revolution, extolling the virtues of sheer size and strength of man, ox and, later, dozer. Because the logging industry spread from Maine to Oregon, he was also the universal pioneer – taming nature raw in tooth, claw and axe, then moving on to work similar wonders in such improbable arenas as big business (macaroni farming) and the US Marine Corps. Paul was Action Man

"Where the dream becomes the fact
I am the Eternal Guest,
I am Way,
I am Act"

is the final statement in Auden's libretto. He is the epitome of "hesomeness", moral philosopher and, ultimately, when "gone, the natural disciplines and the life of choice begins", a credible conservationist.

Story-teller Perry Allen recorded tales of Paul Bunyan collected by Esther Shepherd in the 1920s and now in the archives of the Library of Congress in Washington. He had no doubts about his origins. "He was born in Maine. When he was three weeks old he was such a lummo of a kid that he wallowed around so much in his sleep that he rolled down four square miles of standing timber. Well, the natives wouldn't stand for that so they built him a floating cradle and anchored it out at East Port, Maine. Every time he rocked in that cradle, he caused a 75-foot tide in the Bay of Fundy. And it destroyed several villages and lots of lives were lost. And