

# Forest health

Colin Bassett

Pleased to see the theme of biosecurity and forest health in the August 2014 issue of the journal – a timely reminder that our industry is constantly under threat through the steady accumulation of alien pest species. The underlying message is that these incursions will continue. I do have a few comments: on the paper about *Phytophthora* diseases, and on the one about the history of forest health research.

## Phytophthora diseases

Just for completeness of the record, both European and Japanese larch have also been attacked by *P. cinnamomi* in the past. In FRI's 1959 annual report I recorded that the so-called resinosis of larch was first discovered at Golden Downs in 1935; many three-year-old trees, exuding resin from roots and lower stems, had wilted and died. From 1935 to 1937 over 4,000 trees in young plantations were pulled up and burnt. Tom Birch looked at it and tentatively concluded this was a 'physiological disease'.

Larch planting was resumed at Golden Downs in the late 1950s and resinosis again showed up in plantations. I isolated *P. cinnamomi* from resinous trees, nursery seedlings and nursery soil, proved its involvement by pathogenicity tests, and established field trials to follow the disease progress. This work was reported in FRI's 1960 to 1963 annual reports.

I went on overseas study leave in 1963, and when I came back in 1966 most of our effort had to concentrate on *Dothistroma*. Resinosis of larch and other projects were, of necessity, abandoned and so were never published in a scientific journal. But the findings from this research were nevertheless scientifically proven, factual and published in the annual report of a reputable scientific institute.

Larch is hardly planted at all now, but in the early days of plantation forestry it was a significant element of some forests. Although it is unlikely that larch will ever come back into favour, I believe this *Phytophthora* disease should be included in the record.

## History of forest health

The authors did an excellent job of summarising the long history of the topic, but I would like to comment on two aspects:

- No mention was made that in the 1950s to 1960s nursery diseases were studied for the first time,

very significant losses were quantified in certain nurseries, and the pathogens responsible identified and control measures were researched (large-scale soil sterilisation was successful but never adopted, fungicidal seed dusting was adopted).

- I thought the account of *Dothistroma* was a bit underdone. It is after all by far the most significant disease to hit forestry here. It virtually took out two species, ponderosa and Corsican, and has been estimated to cost \$20 million a year in lost increment and \$1 million a year for control.

The fact that FRI was so diverse let us put together a comprehensive *Dothistroma* Project Team, which I had the privilege of leading, that looked at it across the board. Never before, and probably not since, has there been such a concentrated research effort on a New Zealand forest disease. We had experts in soils, physiology, the infection process, the way it killed the foliage, increment loss, chemical control, host resistance, breeding for resistance – all working to understand what made the disease tick and how best to attack it.

John Gilmour was rightly mentioned for his chemical control research, but the other key finding came from the difficult and painstaking work of Graham Whyte, who showed there wasn't significant increment loss until about 20 per cent of the crown had been affected. So John showed us how to spray and Graham showed us when in the development of the disease to spray; this was vital in optimising control costs.

As well as the coordinated industry-wide control programme, if I recall correctly the private sector contributed £100,000 for the equipping of the FRI pathology labs which until then had been skeletal. So for the first time this disease brought out the best in us and had the entire industry pulling together.

I enjoyed both papers very much and these comments are not a criticism, but more in the nature of additions.

*Colin Bassett was Head of FRI's Pathology and Entomology Branch from 1967 to 1972 and FRI's Director of Research from 1972 to 1989.*