

A problem with equations: reflections on the NZ Journal of Forestry

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In the NZ Institute of Forestry (NZJF) weekly electronic newsletter of the 11th July '08 (the Newsletter) I accused the Editor of the NZ Journal of Forestry (the Journal) of filling it with too many equations. He has responded (as editors may) by giving me an imposition. It follows, with a southern emphasis.

Summary

The Journal of Forestry is important as one of only two publications - the other is the Tree Grower - to deal with New Zealand forestry in the round. As such it must not be clogged with the detail of science, but rather deal with the issues that face the profession of forestry in a primarily pastoral culture. Also an excess of technical detail deters readers, who may cease their membership of the Institute.

The range of issues, many changing by the minute, requires closer coordination between the Journal of Forestry and the NZIF electronic newsletter.

Forest management, the foundation interest of the profession, is generally ignored or treated as an undifferentiated corporate radiata monoculture. However even that has a greater range of variety than is acknowledged, and on a smaller scale much more is happening both with radiata and with other species. The full range of forest management practice in New Zealand must be covered in the Journal. There is a case to ask forestry companies to describe their management philosophy.

It is suspected that tertiary education in forestry ignores some of these issues and the Journal has a role to play there too.

It is concluded that the Journal is much too important to be clogged with equations.

The place of the NZ Journal of Forestry

There aren't many channels of communication for New Zealand foresters. At the top, if you care to look at it that way, is the New Zealand Journal of Forest Science. It puts out three issues a year and is just what the title suggests, a vital organ for the forest science world but a bit beyond most field foresters' day to day needs.

Then comes the NZIF Journal of Forestry and the NZ Farm Forestry Association's (NZFFA) Tree Grower, both quarterly. Their interests overlap, with the Journal tending to see itself as the more weighty of the two and the Tree Grower dealing more with the interests of the small

grower and considering itself to be the more open minded and adventurous. You will not find equations in the Tree Grower. It has a child, 'Indigena', serving the NZFFA's Indigenous Forest Section, also quarterly.

If you wanted to find out about the state and place of forestry in New Zealand, the Journal is where you would expect to go. If you want to find out about species other than the big two, trees as a part of the rural land use mix, look to the Tree Grower.

Then there are two electronic newsletters, both weekly, on a Friday. The NZIF one, limited to members, was designed to inform and encourage debate between issues of the Journal, but has had limited success there other than as a diary of events. The other, Friday Offcuts, concentrates on forest industry and trade developments in New Zealand and Australia rather than on forest management. It is put out by Innovatek, free, - see their website.

So the Journal of Forestry is important.

My contention that there is no place for equations simply reflects my view that the Journal is not the place for this level of detail. It is the consequences of research that we need here, not the process. The process belongs elsewhere, for example the NZ Journal of Forest Science, if only for the reasons that there is so much else to discuss in the Journal.

Also, dare I say it, much of the readership won't digest the maths, and will miss the possibly valuable message hidden beneath by hurrying on to something more easily swallowed. That is also important in itself because the magazine is for many members the Institute's flagship and if it doesn't catch their interest they may leave.

Well, of course the next issue of the Journal arrived the day after I had dispatched my opinions. Inevitably, it was almost (but not quite) equation-free, and additionally contained three articles of the kind whose absence I was lamenting (Burdon, Davis, Ledgard it).

But if science on its own is not to be there, what is? First and foremost the Journal must cover the prime event of the Institute's year, the annual conference and AGM, and the inclusion of key papers and a report on what went on. There may be a case for an additional Conference issue. We did that in 1996, printing verbatim the discussion on each paper alongside the paper itself. We haven't done it since (expense perhaps) but it made interesting reading.

Forestry in New Zealand has always been the outsider land use. After all, the country was founded on getting

rid of forest, a feeling not yet dead - we recently had a Minister of Forests who saw no harm in getting rid of forests because "they are in the wrong place", and who had earlier canned the West Coast Accord, claiming it to have 'served its purpose', thereby putting an end to experiments in sustainable nothofagus management and opening the door to imports of dubious origin.

So, alongside discussion of that, maybe there is a case to lobby for the death of the Ministry of Agriculture and Forestry and to resurrect it as 'the 'Ministry of Land use', to accentuate the fact that Forestry is just another land use.

There are a whole mass of forestry issues unrelated to science that we need to keep up with too, just now centred round matters such as climate change and forestry's place in emission trading - how we propose to tackle this and how that compares with what other people are doing, and forestry's place in the spectrum of land use in New Zealand.

What about Treaty settlements, and the unasked question of why these always seem to be at the expense of forested land rather than agricultural, of which the Crown also has a large area?

That in turn leads on to the question of whether Maori see forestry as the sounder of the two investments, which certainly seems to be the case for the pension fund investors (including our own) in the central north island forests. A report quoted to me by Andrew McEwen claimed that 'the stellar performers since 2003 have been timber, infrastructure, and private equities, with an annual return of 25.15%'. Our domestic forest owners see the reverse and are currently looking to trash their trees and convert to dairy, a sad case of belated band wagon chasing perhaps.

So will somebody please explain, if necessary over the bodies of the writhing resurrectionists of the Faustmann formula, just why we have two such diametrically opposed answers to the same problem. I have asked the question before but no voice answers I presume one must be right - or is it horses for courses? Consultants churning the crop? I know which one I'd back but I'd like an explanation.

We shouldn't forget that when the NZ Forest Service came to an end the government of the day casually sold off the plantation estate. Most was bought by overseas interests, some of whom have done New Zealand well and some who haven't. Why do we not invite each, New Zealand ones too, to give their impressions of New Zealand forestry and how, in their case, they plan to take it forward.

The editor of a quarterly journal may fairly argue that he cannot catch the more ephemeral issues, particularly the evolving ones, since by the time an article hits print we have all moved on. Climate change is possibly the prime example of that, where science has long ago given way to public sentiment and political convenience and we dance on marbles of uncertainty. Only occasionally do we need

articles, but we do need a continuous flow of information on how the dance goes. The Newsletter perhaps for detail, with a short review in each issue of the Journal and longer reports whenever something gets nailed down?

Perhaps members could suggest topics of interest for the Newsletter editor to pursue. Either way I feel that the Journal and the Newsletter need to be more complementary to each other.

Forest Management

The list rolls on - I leave it to others to add to it, with one exception which I will add myself. That is forest management, which foresters, forestry schools and forestry journals are all about. Of forest management we hear very little where should we not be hearing a lot?

Forest management is the central issue. Forestry does not usually get the sites where change is possible except by manipulation of the crop itself. We can choose the species to plant or encourage, we can research problems of establishment, timber quality, tree breeding and so on, we can derive silvicultural programmes to achieve our management objective, but we do not cultivate, flip soils, fertilise, or use pesticides and herbicides on a regular basis, drain wetlands and aquifers or straighten rivers.

Of all land uses forestry is the most benign, mostly because of those things we cannot do. We cannot impose a regime as dairy farmers do. We must sail within the constraints of the site and also of course our ultimate objective may not be clear. How do we define those sites and the quality of what we can grow on them, how do we define our objectives ten, thirty, fifty years hence, how do we measure and record our success and failure? Where else but in the Journal! With the possible exception of the Tree Grower, the Journal is the only place where we should be able to take the temperature of forestry in New Zealand and bring everybody into the argument.

Forest management in New Zealand in its most rudimentary form goes back about 150 years, when people, peering through the smoke, began to comment on those species of trees and forest types that looked manageable and might be useful in the future. At the same time the landed gentry began planting trees round their new homesteads, experimenting with what they could get, to see how it went.

I remember in the early '60s attending a farm forestry meeting near Culverden, in Canterbury, and being shown a copy of a letter giving thanks for a present of radiata and insignis pine seed. The seed had been sown and the seedlings planted in separate blocks, and "already you can see the difference". We saw them too in their old age, but I was lacking the experience to see the difference if there was any. I asked after them recently and got the general answer "gone, all dairy now", and as we know there, "First thing we do is rip out all the trees".

Not far from where I write this stands one of the largest *P. coulteri* in the world and it is (or used to be) possible to date early run homesteads by the eclectic mix of species in those early plantings.

But picking winners began early - after all that was the point of the exercise - and the only quarrel I have with that is that some potential winners in the south, such as the eucalypts, never made it to the start line. Conformity set in, and Corsican and ponderosa pine, Douglas fir, larch and radiata ruled the roost. The process has continued until now radiata is almost the undisputed king, virtually the only tree discussed publicly and, as far as I can see, in academia and research institutions as well.

There was reason behind the process, if only a foreseen need to provide for the future when the native forest was exhausted. At one time the whole thing was visible in the Tapanui District forests (Otago), from the early carefully sited 19th century patchwork plantings at Dusky and Conical Hill, to pre WW1 larch (for durable wood, only in New Zealand it wasn't durable), neat squares of closely planted Corsican and ponderosa pines in mid '20s Dusky, radiata beginning to dominate in late '20s Tapanui and finally king in the Beaumont and Pebbly Hills (Southland) plantings of the early '30s.

And so we ended up with the State and corporate scene dominated by radiata pine. Given our agricultural propensity for monotony (all cows are black and white) that may not be surprising, and perhaps just a mark of an immature human society still coming to terms with new surroundings and the social need to be seen to be 'practical', concentrating on doing rather than thinking. A need for social homogeneity perhaps, equally suspicious of organics and alpacas, and we shouldn't be surprised to find it too in the forestry world. I have heard it said still (quite recently) that we shouldn't train people in other than radiata management because there isn't any need for anything else.

But change creeps in, despite our best precautions. The beginning of farm forestry in the '50s brought in farmers bored by agricultural monoculture, eager to explore something different and unaware of the disapproval of equally monocultural foresters.

That change has now spread to the more innovative private companies. Douglas fir has recently found solid support in the south. Most still valiantly deny any prospect for eucalypts, though some with forests, also in the south, are beginning to talk beyond wood chips. The cypresses have a small place, with timber demand exceeding supply, and coastal redwoods are back again, as they were a century ago, but this time with more regard to site. Blackwoods attract attention where the climate suits. We are thinking again about how to manage all these.

And I haven't even mentioned the indigenous forest, particularly the move back to sustainable nothofagus forest management, also in the south.

In all of this we appear to be forgetting radiata, formula forestry that fits in nicely with our love affair with sheep and black and white cows. The coming wider interest in other species hasn't harmed it - it still pays for all. But how do we manage it? Is there any innovation there? And above all, should we be ashamed of it? I for one say we shouldn't, nor do I particularly oppose blanket radiata planting - it doesn't all have to be fibre and export logs, the last resort of corporate colonial non-think for any species. What is objectionable anywhere is a lack of experimentation with species and management method in the forest. That, in an enterprise of any scale, is unforgivable.

I have never heard much more about radiata management in my career than the need to decide whether or not to thin and prune. In the beginning sires thinned the plantations and if it didn't they were left alone because thinning was a wicked waste of wood for which a use might turn up. A low pruning might be done because it makes the trees look nice and it could be justified as fire-proofing. It took a long time to put pruning and thinning together as a management strategy and the names of those who did it are still spoken of with awe. But beyond that (40+ years ago), what else?

I had heard a while back that Jukon Nissho were into longer radiata rotations and higher than normal pruning, and recall Blakeley Pacific's argument at the 1996 conference that the purpose of economic analysis was to identify what the common herd is doing so that you can do something else, but I hadn't seen anything new until I went to John Wardle's forest as a part of this year's Canterbury Farm Forestry Conference.

John is a forestry graduate (Canberra) with a long and distinguished career as a high country forest ecologist with a penchant for nothofagus. Now he manages his own property with about thirty hectares of radiata and eighty hectares of nothofagus. He manages radiata differently, on a long rotation and seeking to produce top value logs. He talks about 'continuous cover' forestry. Google him for details and click on "Seeing the wood among the trees - Farming - The Press".

He has the credentials. He is not some aberrant farm forester, easily dismissed as an eccentric enthusiast. You have to take him seriously, but do we? On the day the belt and braces lot shook their heads and muttered "Too complicated by far for a practical forest manager", but his logging contractor claimed that working at Woodside brought his brain alive. In fact his method is simple and only apparently complicated by scale. Possibly it is too hard for the corporate enterprise with a forester per 100,000 hectares and all decisions made off a screen, but the majority of owners are not like that, and never will be.

John is the ultimate analyst, identifying where conventional radiata management fails to create value, and setting out to correct that. Now he doesn't have to sell his

logs - people seek to buy them, top dollar, being, we are told, around \$130/tonne for the top half of the cut at a time of depressed prices.

So there you are, a whole feast of potential for articles on forest management, and while I am on the subject, what about education?

Forestry Education

When I asked if Forestry School students visited John's property, I was told that they did, occasionally. Is that good enough when the bulk of our tertiary forestry education is only an hour away from what looks like a most useful experiment. Do our students only pursue the conventional? Do they only do advanced study on abstruse corners of the radiata genome? More importantly, do they study the range of forest management techniques for a species, from the most simple to the better thought out, like John's, which maximise value? If not, why not?

Tertiary training is never about the best way to do it. It is about the range of ways, some of them as yet untried. Let the practical people snort how they may, it is essential that our foresters of the future have seen everything we have to offer, so that they know the whole range of possibility. And if they can't see it in the field then at the very least they should be able to read and write about it in the Journal.

In this respect I was fortunate in taking forestry at Edinburgh in the reign of Professor Mark Anderson. Unlike most of his peers and predecessors Professor Anderson was not tarnished with the grandeur of empire. He had spent his whole forestry career in the British Isles, noted at the time as having the smallest percentage of forest cover in Europe with the exception of Holland. The British position (and here for my convenience I include Ireland) was, that as a maritime economy, wood was easily imported and a home grown supply wasn't economically justified. The place of trees was to distinguish the homes of the gentry from those of the peasant. The U boats sank the economists.

New Zealand followed much the same philosophy only we are too far away from other peoples' forests for importing to have ever been considered a wise option and we lacked the U boat medicine. All the same, both of us came to much the same solution at roughly the same time - to establish a State forest service to fill the gap.

So when I came to New Zealand from Britain in 1962 I found a situation not dissimilar. The concentration was on introduced species, many of them the same in both places, but with the difference that no one predominated in Britain as radiata does here. Latitude and the harsh climate of the treeless deforested British uplands saw to that, and radiata confines itself to southern suburbia and coastal resorts, shading old ladies and invalids. Even Corsican pine is delicate there.

Professor Anderson wrote only one book that I know of, his 'Selection of Tree Species'. He translated European forestry works from many language into undigestable English and his lectures, short and sharp and read from those same books, were appalling. His genius lay in his field trips and his ability to teach what you could see if you used your eyes - was the species happy, and if so, why (or why not). Site recognition, getting things in the right place, was the message.

There was no silviculture, because there was none to see. We went to Europe for that, to the beech forests of Normandy, to the 17th century oak forests of central France, established for naval timbers and ending up as wine barrels, to the Landes to see the world's largest planted forest (Napoleon - sand dune reclamation and naval stores), and to the selection or continuous cover forests of the Jura.

We greatly admired the uniforms of the French forestry officers, Beau Sabreur only lacking a sword. In the oak forests we were shown a blasted heath of sphagnum and stunted pines, a clear felling by colonial soldiers (Canadians I think) in WW1, where control of the water table on these ill-drained and infertile sites had been lost and oak could not be re-established. We saw La Chene Anderson in the grove of heroes and near it La Chene Petain, the hero of Verdun, riddled with bullet holes. I gather they are more forgiving now. The horrors of the war before had overcome him, just as I read they did some of our own commanders on Crete.

It was explained to us that the origins of continuous cover forestry were industrial, not biodiversity, a word not then invented. The making of musical instruments, a local industry, required wood of a quality not to be got from conventional clear felling, so they had evolved a management regime which gave them what was needed. We pondered the case for the elaborate roading system which Faustmann told us wasn't economic, and the untidiness of the whole thing, a nightmare for practical forest managers.

We can't do that here. We are not yet mature enough perhaps and certainly we haven't had the time, but ideas are beginning to hatch (Tane's Tree Trust has written a treatise on continuous cover management) and hopefully all our forestry students get to see them and the Journal to write about them. Above all they must know what's there even if it means an outlay on hospitality as it did in France. Through a glass darkly is better than not to see at all.

Conclusion

There is much beyond equations for the New Zealand Journal of Forestry to write about, and if the Journal of Forestry doesn't do it, who will?

See the editorial on page 1 for the editor's reply