

spread introduced species, in some places having altered ecosystems so drastically that we have lost any vestige of native New Zealand.

At the same time, our native plants are being grazed and browsed by a whole range of animals, especially possums, goats and deer. Without substantial pest control programmes, something like 1.8 million hectares of protected forests would suffer significant biodiversity losses from these browsing animals.

Meanwhile, birds, reptiles, frogs, and the larger invertebrates fall prey to predators like stoats, rats, cats and even possums. Several aquatic species appear to have been reduced by trout. Aggressive introduced birds like magpies and Asian mynas seem to out-compete native species. Introduced wasps may be compounding predatory pressures from stoats on threatened birds such as the yellow-head in parts of the northern South Island. The list goes on.

Because pest and weed control is such a large problem, much of New Zealand's species preservation effort is concentrated on island sanctuaries where it is easier to maintain pest-free habitats. Some heroic rescues have been made (the black robin, for example), but the main problem is

something we can do little about: the small size of most islands limits the number and variety of species that can be sustained on them. However, we have few other viable options.

Exotic biodiversity is vital to the New Zealand economy. Little genetic diversity among crops and livestock means that primary producers may only have limited ability to adapt to diseases, significant climate change or new market preferences. The potential consequences of a lack of genetic diversity in our crops and livestock may be worsened by the loss of many minor crop and livestock strains and varieties, some of which are specifically adapted to New Zealand conditions.

There is a need to better coordinate efforts by government agencies, primary industries and the research community to conserve valuable crop and livestock strains and varieties.

The task facing us

The flow-on effects of the actions of previous generations are still with us. With each succeeding generation, vulnerable populations shrink even further. If the damage is to be undone, habitats need to be restored.

Native forests need to be restored to at

least 10-20 per cent of the lowlands and the foothills, particularly along streams and rivers, and other native habitats like wetlands need expansion. Because native forests grow slowly, some habitat-deprived species will need intensive conservation programmes for several generations while their environment regrows.

The second major and ongoing problem is the army of predatory and browsing animals and aggressive weeds threatening our remaining natural habitats. Costly pest and weed control must continue if our biodiversity is to be retained.

Hard choices need to be made, not just by our decision-makers. As the final paragraph of the book's biodiversity chapter eloquently puts it ...

Ultimately, the fate of New Zealand's biodiversity will depend on our ability to manage the exotic species we have brought here and on our willingness to share more of the nation's land and water resources with the depleted species which have nowhere to run. It may also depend on our willingness to accept a single ethical proposition: that the species which evolved here have a basic right to be here, whether we need them or not.



ONE HUNDRED YEARS OF PLANTATION FORESTRY



The impact of human values on forest management

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Abstract

Forest management has changed dramatically over the last 1000 years, and even those foresters of a mere 100 years ago would not recognise the current management orthodoxies. This essay argues that one of the main drivers for this change in management is a change in human values: what we believe. Human values dictate what management is 'right' at the time. These human values will continue to change, and foresters ought to be aware of that reality, and of the reality that their current management orthodoxy will not last.

Do Values Change?

In 1949 Aldo Leopold started his famous essay "The Land Ethic" with the story of Odysseus returning from the Trojan war to string up his slave girls for some suspected misdemeanour – only suspected, mind you. Leopold's graphic point was to illustrate how human values change over time. In Ancient Greece slaves were property, and there was then no more moral right or wrong associated with destroying 'property' than there is now. Some, at the time, may have gossiped and tut-tutted about the waste, but any moral outrage was probably reserved for the actions of the slave-girls!

To assume that we, in our more 'enlightened' age, have

reached some plateau of values and perspectives is a mistake. Leopold lamented the attitudes and perspectives of his own age, and hankered for an ethical mood swing to acknowledge and value the whole ecology – less hubris and more humility. He would be happier now, but not that happy. He would want more change, the difference being that he would now have more confederates – and perhaps more enemies.

We need only look back to our childhood, short decades ago, to realise how perspectives change (remember corporal punishment?). When we reflect upon how our own personal history, changes in our ontology – how we view the world – may appear a self-evident truth, but so often the actions we see around us reflect an arrogance and belief in our own Rightness, for the Now, and for the Hereafter. Most people believe that they are right – as those in the past, or those from other cultures, or those with a different perspective are so obviously wrong: if only they could "come to their senses", and see as we do.

What are Values and Why care?

Our values are the basis of what we believe, and make up our world view, whether concerning the existence of God, the workings of the cosmos, or the superiority of our social "betters"; all metaphysical questions whose answers are now quite different from the accepted view even 50 years ago. These metaphysical

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values underlie everything we think, speak and do, almost always implicitly. Thomas Kuhn, in his famous book 'The Structure of Scientific Revolutions' (1960), is one of the best at discussing the development and changes of values within communities, whether those communities be made up of scientists or ordinary people. His major theses are:

- that our world view is constructed from our family background, our society, and our education (witness the 'heredity' of religious affiliation and political persuasion);
- that all our observations, and how we perceive the world, are laden with the theory and values that make up our 'paradigm' (one person may 'see' some placard-waving protester as one of the exploited, another may 'see' a seditious traitor); and lastly,
- that change is brought about more by revolutionary paradigm shifts than evolutionary change (triggered by an event, discovery etc., some big, some small – Darwin's theory, Einstein's papers, WWI, the 1936 NZ election, Britain joining the EEC in 1973, the 1985 decision to move State log sales to market prices).

Almost universally, we judge others' actions by our own values, without any attempt to understand their perspective on life. Some claim the high ground of 'rationality' and judge others' actions 'irrational', with all that word's pejorative connotations. Radiata pine managed in this way is 'rational'; planting redwoods is not, say we. Some say a forest represents no more than a capital cost and a crop, an ecosystem with its own intrinsic worth, say others. We should, or should not, be nuclear free. Who is right? Can we always assume that it is ourselves? That is quite obviously absurd, given the historical evidence of value changes. It is that view of 'rightness' that is the 'irrationality'.

So why should we bother with this discussion? Here's the rub: if we acknowledge that our values are an integral part of our own decision making, we can then truly communicate with those with other values. (I expand on this below.) Additionally, if we acknowledge our own, we acknowledge that other values exist and have a right to consideration.

There is one other key advantage – by trying to make our own values explicit, and acknowledging the history of change as well as the inevitability of future change, we subject them to our own critique. We can begin to doubt ourselves, and that is the first step towards a change of mind and accommodating another's perspective. We need that flexibility and sensitivity towards others, particularly as society continues to change more and more rapidly.

Values and Communication

Alternative views and perspectives are so often and so easily rationalised away: especially if you steer clear of any analysis of those implicit underlying assumptions – values – that may threaten your own self-belief. Picture a relatively modern Field Marshal (Montgomery perhaps) in discussion with Odysseus. Both would talk past each other, without any understanding of the other's point of view – on the rights of slaves, of prisoners, of your own soldiers, of women, of the crippled, of animals, of the peasants, of forests, of the earth itself. More likely than not frustration would result, and Odysseus would probably reach for his sword (many parents will recognise the same dynamic, on a less dramatic scale). Without attempting to understand the other's underlying values, real communication is impossible. Odysseus, as a Greek with 'Hero' values, would be convinced for a start that Monty was a coward for not fighting from the front! He may, however, have got along splendidly with General Patton.

We can begin to communicate by first discussing our separate

values and beliefs – the premises to our arguments – instead of talking past each other by trying to force our respective conclusions down an antagonist's 'irrational' and 'ignorant' throat.

What is the History of Value Change in New Zealand Forestry?

The second part of this essay deals with some perceived value changes in New Zealand forestry over the last 100 years. I say "perceived" because I am no historian, and the more you read the more you realise that there are wheels within wheels – quite literally, given that some current predominant views seem to have returned from the past.

I had presumed that the development/exploitative stage was some obvious initial theme. But when you read of the incredible (for the age) foresight and philosophy of politicians like Vogel, Potts and Stafford with regard to the attempted conservation of forests in the 1860s and 70s, you realise that any cursory discussion does no credit to the real history. Skimming through Belich's (1996) *Making Peoples* in a bookshop is enough to shatter some preconceptions about the motives of early colonists. There was cheaper, more available land in America. Belich implies that by choosing New Zealand over America, many immigrants were motivated by their own vision of an ideal society, not by the maximum material gain. Perhaps our record with women's suffrage and labour laws speaks volumes in that respect, which is not to imply there wasn't strong opposition in this country. Ideals, as ideologies, differ.

It would be incorrect to say that all early European colonists perceived the indigenous forests of the day as wastelands awaiting conversion to the 'ideal' pastoral state, and certainly the Maori didn't. As mentioned, as far back as the 1860s there were considerations of the indigenous flora, and Bills before Parliament designed for its protection, yet the interests of settlement (and regional politics) remained paramount (Roche 1990). We even had our own Leopolds of the 1940s when Waipoua, the last virgin predominantly Kauri forest, and under Forest Service control, was made a sanctuary after an organised petition (Allsop 1973).

Ecological Values

It is probably easier to limit comment on specific values to a few key areas. Views on ecological worth and economic perspectives are the two areas that most concern foresters. But first another caveat: these views are my own (and therefore laden with my own values) and are necessarily general. The value of these general comments does not, in any event, relate to the specifics; the real worth lies in the realisation that values have changed, do influence what we think is 'right', and will continue to change. It is the seed of doubt undermining our own immortality of perspective. As we denigrate the perspective of 100 years ago, so will others judge us 100 years hence.

I've already touched on some attitudes towards New Zealand's indigenous forest. As temperate rainforests they must have seemed alien, and perhaps more frightening than welcoming, to European colonisers used to deciduous forests and conifers. Any 'worth' these forests had was probably perceived as commercial, either as timber, or as a cost to absorb prior to pastoral development. This is an instrumental, or utilitarian, view, where any value must relate to some human appreciation.

If I were sceptical I would also attribute most of Vogel's conservation concern in the late 1800s to some instrumental value the ecology plays on the community – flood prevention for instance. Roche certainly implies as much. But this view of forests as having value only in their ability to reward society in some way is different from a view that ecosystems have intrinsic values in their own right, independent of human interaction. The intrinsic view was that espoused by Leopold, more recently

Maser (1994), and by many contemporary preservationists.

The lack of perceived intrinsic value of the past is perhaps illustrated by the annihilation of the Huia (a New Zealand native bird) attributed to the hysteria surrounding the Prince of Wales's visit early this century. By wearing a Huia feather he started a very destructive fashion. Within an instant a Huia tail feather represented money, and the poor creatures were probably thought to be abundant in any case (probably much the same as most perceived the timber resource).

It is probably true that most modern foresters tend more toward the former instrumental view of forest value, than the latter intrinsic view. Having said that, the predominant view is not universal and is certainly changing as the international forester community focuses more and more on "ecosystem management" (Jenkins 1997, Kolb *et al.* 1994). New Zealand's own Forests Act, amended in 1993, espouses principles of ecosystem management and intrinsic values, even if the application may be imperfect.

Some credit belongs to the environmental pressure groups here. They were at the van of this shift in values, though their arguments were sometimes illogical and frustrating to foresters even when analysed from the environmentalists' new perspective. The motives appeared often more anti-harvesting, in any form, than pro-ecology. However, the point remains that we foresters did not lead the value change, we merely followed. If we had been a little more understanding, and a little more flexible, New Zealand's forest history over recent decades may have been different.

Economic Values

The change in our economic perspectives is perhaps the more interesting, partly because they can be the most influential, damaging or otherwise. Reading Roche (1990 p 89) and his account of Captain Campbell Walker's arguments in the 1870s for Government involvement in forestry, you could be mistaken for thinking you were reading the political debates of today! The lexicon is similar, with terms such as Government 'interference' in use. Free enterprise was "in vogue" at the time (Roche 1990). Given that fact, it is perhaps not surprising that Campbell did not succeed in convincing the parliamentarians of a more strategic view toward their indigenous forests. He was arguing that the actions of the 'exploitative' forestry private sector of the time would not be to the benefit of New Zealand's future, and long-term goals could only be achieved by Government involvement. Faith in the market reigned on the day, and development was the primary short-term concern.

It took another 40 years for the 'vogue' to change to the extent that forestry was looked at strategically again, with the 1913 Royal Commission, preceding the 1919 establishment of the State Forest Service. The goals were to develop the indigenous forests to "serve the country's needs". These needs included soil and water protection as well as timber managed for sustainable yield. The strategic vision of MacIntosh Ellis, the first Director of Forestry, is extremely impressive when you read it. It extended out over 200 years.

The planting of introduced trees such as radiata pine was only grasped with a gusto once it was realised that the resources of the indigenous forest were insufficient to meet the country's future timber needs (Allsop 1973). Again, the decision-making criteria were strategic, not financial. One wonders what would have been the result had Ellis to face a Treasury demanding a 10 per cent real rate of return, as existed in more recent decades. The first large-scale private plantings were stimulated by these State plantings, and with the technical help of head-hunted Forest Service staff. If it had been left to the market "to provide" it could be argued that we would not have our current industry – largely based on unproductive agricultural land – and might be import-

ing timber, making our balance of payments look extremely sick.

For the latter period of forestry's development (the 1970s through to the early 1990s), financial decision criteria largely replaced the strategic. The corollary of requiring a high rate of return was, in the eyes of some, a production mentality and an over-emphasis on the cost of capital, without adequate consideration of matching products to future markets, actions of competitors, or risks. A single, simplistically applied, high rate of return criterion resulted in the favouring of one species, and largely one regime (radiata pine direct sawlog). In the face of a simplistically-applied high real discount rate the values of a long-term view are easily 'rationalised' away. During this period the planting of Douglas-fir was a rare, and barely tolerated, exception, whereas planting of Redwood, or many other world-renowned, moderate rotation, timber species, was bordering on the insane. Thus are short-term and overconfident values manifested.

Long-term strategic views encompassing markets, risks, options and competitors are now returning. Generally the overseas buyers of the ex-State forests brought with them some of the variety of values and perspectives that are evident in international forestry management. That diversity of perspectives is, I believe, the major benefit of the State Forest asset sales, and, ironically, the one least mentioned alongside so many weak and shallow arguments put forward by recent Governments.

Conclusion

Today, we appear to be in the flux of a paradigm shift. The limiting financial decision criteria of yesterday are no longer accepted without question. There are too many people that are prepared to do something different, and forget minimising the cost of capital and maximising the IRR; other factors are as important, or more so. On top of that is the changing view of forest ecosystems, and the way they ought to be managed to encompass both their instrumental and their intrinsic values.

It's a safe bet that, in another 100 years, the generally accepted values associated with making decisions about forest ecologies, their associated communities and commercial interests will be markedly different from what they are today.

That belief gives a perspective on what we do today. We will not be 'right' in our decision-making approach for long, perhaps even for one rotation out (if they still exist in the future). What is more, the 'oddball' dreamer who today quite happily rationalises his Silver beech plantings may represent the next orthodoxy. As a colleague is fond of saying: "No doubt they'll reinvent the Forest Service one day." Who knows? Be careful at whom you poke the borax.

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