

Explaining our forests

When former NZFOA chief executive Rob McLagan attended a meeting in South Africa in April to discuss revised environmental standards for plantation forestry, he had to be at his persuasive best.

Northern European attitudes tend to dominate the thinking of many international environmental groups and some of their delegates will try to avoid mentioning forests and plantations in the same breath.

"New Zealand has put a huge effort into ensuring that its plantation forestry operations are sustainable. Some of our radiata forests have been through four growth and harvest cycles without any loss of productivity, and we have codes of practice to ensure that this remains the case. But many environmentalists cannot accept this," he says.

"To some extent you can't blame them. Their idea of a plantation is the Amazon basin or tropical Asia, where rain forests are being destroyed and replaced by large-scale fast growing exotic tree crops. Natural flora and fauna are destroyed, and indigenous people often lose their natural resources.

"In New Zealand it's a very different story. Since the advent of the 1991 NZ Forest Accord our plantation forests have invariably replaced pastoral farms and very often provide soil conservation and many other benefits. Increasingly our indigenous people own the forests and get economic and social benefits from them."



In addition, by establishing commercial exotic plantations, New Zealand has been able to protect the bulk of its remaining natural forests.

"The challenge is to convince the ENGOs (environmental non-government organisations) to protect the environment by promoting effect-based standards, rather than opposing plantations as such. Attention should not be focussed on the type of forest but on the standard of management

and the impact of particular forestry operations on the environment and on local communities."

McLagan is attending a meeting of the Forest Stewardship Council's plantation review working group representing "northern" (developed country) economic stakeholders.

The FSC describes itself as an "international network to promote responsible management of the world's forests".

The FSC sets international standards for responsible forest management through consultation, which normally involves striking a balance between environmental standards and commercial realities. As with all such bodies, the politics of national and regional



NZFOA delegate Rob McLagan
At his persuasive best

interest can play a large part in its deliberations.

However, because the FSC label is increasingly accepted by retailers in affluent countries as the most credible symbol of responsible forest management, it cannot be ignored. The challenge for the NZ forestry industry is to ensure that the standards it sets are genuinely based on good environmental practice and not on slogans.

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Answer to Kyoto prayers

Enclosed with this edition of the *Forestry Bulletin* is a copy of a brochure which has the endorsement of all major players in the forest industry.


It explains how New Zealand can meet its Kyoto obligations by literally *Unlocking the Potential of Forestry*.

The brochure says major changes are needed to the government's existing Kyoto policies, and details the principles which forest growers believe should underpin New Zealand's Kyoto policies in the future.

NZFOA chief executive David Rhodes says forest owners are seeking parliamentary cross-party endorsement for these principles.

"They are logical and reasonable, and they won't result in forestry getting preferential treatment over other sectors."

As soon as the principles are endorsed, he says, the government needs to fast-track policy for forestry, so that forest growers and tree nurseries can confidently gear up for increased planting next season.

"Forestry will inevitably play a key part in any rational Kyoto policy framework developed for New Zealand. There is no need to delay any longer the implementation of appropriate forest policy." 

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Forest of dreams

By NZFOA chief executive David Rhodes

Cars made from plants and fueled by ethanol, biodegradable packaging and insulation made from recycled paper – the trend is already underway and the implications for those of us who grow trees are substantial.

In time wood is likely to be just one of an array of potential products which forest owners can choose to deliver in our carbon-constrained future.

Fibre engineering allows natural additives to be incorporated with materials derived from fossil hydrocarbons to produce products with enhanced performance. Bio-fibres are already being combined with recycled plastic to create weather-resistant decking material which doesn't require chemical treatment.

Cellulose from pulp and paper sludge is being combined with plastics to create bio-composites that can be made as strong as steel. Thanks to a EU policy which requires 85 per cent of materials used for vehicle construction to be recyclable or combustible, bio-composite car seats and engine covers will soon be a reality.

New technology like this means there will be significant new markets for wood fibre, even allowing for competition from growers of fibre crops like soy beans, sugarcane and jute.

In a move 'back to the future', forest products will also be a growing source of the bio-fuels we need to replace fossil fuels. But today's sophisticated technologies owe little to the combustion processes of the past.

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About 30 per cent of timber harvested in New Zealand each year comes from plantations which have been FSC certified.

"New Zealand has a vested interest in promoting best forest management practice. Some of our major international competition comes from clear-felled old growth forests, some of it illegally harvested," McLagan says.

"But despite sharing common ground with the ENGOs – the promotion of best practice – we sometimes find ourselves on opposite sides of the argument."

McLagan says the ENGOs are happy with the management of many production forests in mainland Europe, because the species are indigenous and the harvest is sustainable.



To make bio-energy a reality, strong market signals will be needed. The PRE scheme – which has seen generators preference wind power development over coal-fired power plants – is a good precedent.

Combined heat and power (CHP) combustion technology can convert dry forestry bio-wastes to electricity and heat with an efficiency close to 90 per cent. Straight electrical generation using conventional steam turbines is typically around 30 per cent.

Potential forestry bio-fuel sources include:

- Residues from sawmills and pulp and paper mills
- Residues from logging, site-clearing operations and thinnings

Tops, limbs, small branches and leaves are being harvested and compacted on site in Scandinavian forests and are now a major

"The reality is that most of their indigenous forests are plantations by another name because they have invariably been managed and harvested for centuries. They are different from the New Zealand situation in only two respects – we have exotic species and clear-fell – though their coup sizes are often surprisingly large."

The plantation review committee meeting in South Africa was the fourth in a series. The committee will now prepare a draft report for consideration by a wide group of stakeholders. It will then be reviewed in September once feedback has been received. The final report will then go to the FSC board in October for a decision.

source of bio-fuels. Apart from energy, the removal of these 'wastes' may assist disease control and replanting while reducing the production of methane which occurs when plant materials are left to decompose.

- Fast growing tree crops

In northern Europe, coppiced willow is already being grown on a rotation of two to four years.

The use of bio-fuels and bio-composites benefits the environment by reducing the use of fossil fuels. Bio-fuels do this directly. Bio-composites do so indirectly by reducing the need for glass and synthetic plastics.

In countries with large forest industries, such as Sweden, Finland and Austria, biomass – principally woody biomass – already provides around 20 per cent of primary energy supply.

The United States has a goal for bio-energy and bio-based products to make up 5 per cent of total energy demand, and for biomass-derived transport fuels to meet 25 per cent of demand, by 2030.

This will displace 30 per cent or more of that country's petroleum consumption and will require approximately 1 billion dry tonnes of biomass feedstock a year. Forest lands can sustainably deliver about a third of this.

In February the EU adopted a bio-fuels strategy. Interestingly the World Wildlife Fund responded by noting that not all bio-fuels are sustainable and calling on the EU to

Concerns raised with ministers

Forestry minister Jim Anderton and internal affairs minister Rick Barker have been advised of the NZFOA's deep concerns about a Department of Internal Affairs (DIA) review of fire legislation.

"We are alarmed that public submissions have been inaccurately analysed and interpreted by DIA officials. As a result, they are biased in favour of a pre-determined outcome – a highly centralised national fire control bureaucracy," says association fire committee chairman Kerry Ellem.

"Forest owners recognise that existing fire management laws need some minor reform. But it is crucial that we do not lose the good aspects of what we already have."

The association's fire committee was so concerned by DIA's analysis that it hired independent Dunedin-based consultant Chris Perley to re-analyse the public submissions.

In his analysis, he says most submitters showed a marked preference for moderate reform, building on existing regional strengths, and for the least disruption – especially at the local brigade level.

However, the DIA itself – and possibly the NZ Fire Service management – appears more sympathetic to more radical reform, with a focus on central management functions of accountability, demarcation of responsibility, and cost efficiency, Perley says.

"Forest owners, the Department of Conservation and rural fire interests are particularly in favour of retaining a regional presence and acknowledging the specialist skills and 'soft' management attributes (community support, volunteerism, esprit de corps, etc) that are necessary for effective outcomes."

Between them, forest owners and DoC manage 12.7 million hectares of forest, shrubland and tussockland – approximately 47 per cent of New Zealand's land area.

Perley concludes reforms may be necessary, but they should build on the core operational qualities of the existing fire brigades, their people and communities.

Analysis of submissions on the DIA Discussion Document, C Perley & Associates, February 2006, www.nzfoa.org.nz

"promote those bio-fuels which offer the greatest greenhouse savings such as sustainably produced forest and wood products".

The British Government proposes that 10 per cent of UK electricity requirement should be met by 2010 from renewables and contracts to generate electricity from forestry residues have already been allocated.

Fuel ethanol produced from forest residues – bearing in mind the need to retain enough residue for continued nutrient recycling – will probably play a big part in achieving international bio-fuel targets. New enzyme-based technology to break down lignin – which would otherwise prevent the fermentation of cellulose to produce ethanol – has been used successfully in pilot plants (see *Forestry Bulletin*, Summer 2004) and now its commercialisation is attracting high profile investors including Bill Gates.

Both the industry and government have roles to play in embracing these new potentials. There are also major implications for the prioritisation of research.

To its credit, the NZ government is driving a number of policies that reflect an awareness of what forestry has to offer a world which is much less reliant on fossil fuels. For their part, forest owners are helping fund much of the research which will help turn these potentials into commercial realities.

The Ministry for the Environment (with MED, SSC and EECA) aims to improve the sustainability of government. This includes research and information on sustainable buildings and the promotion of sustainable procurement practices in local government. MAF is also promoting a sustainable timber procurement policy within government departments.

Under the government's Forest Industry De-

velopment Agenda (FIDA) more funding is being made available to investigate bio-energy options for the forest sector.

A biomass integrated gasification combined cycle (BIGCC) research project at Canterbury University is already being funded by FRST at \$475,000/year for four years and has led to New Zealand becoming a member of an International Energy Agency taskforce on thermal gasification of biomass.

BIGCC technology has high electric efficiency, high and flexible power-to-heat ratio, and low emissions. As the fuel sources come from sustainable and renewable forests, net carbon emissions are zero (see *Forestry Bulletin*, Winter 2005 & Summer 2005).

The anticipated increase in our log harvest will result in a parallel increase in the output of forest wastes that could be used as bio-fuels when equipment is developed to allow them to be efficiently recovered from our often rugged terrain.

Before BIGCC plants and other options become a reality, strong market signals will be needed to encourage electricity generators and fuel companies to preference bio-fuels over fossil fuels. A precedent is the government's Projects to Reduce Emissions programme (PRE), which has seen generators preference wind power development over new coal-fired power plants.

Supply of fibre for bio-fuels, carbon storage or other valued products may have implications for forest management such as species selection and rotation length – but having choices will be a novel position for most forest owners to be in. One which all of us will welcome.

More: http://europa.eu.int/comm/agriculture/biomass/biofuel/index_en.html



What am I bid for?

Trees for wood, paper, bio-composites or bio-fuel? Or maybe all of these

Chemical reality check



Australian and New Zealand forestry companies with Forest Stewardship Council (FSC) certification late last year told the council that eliminating the use of all pesticides in forestry is not yet a realistic goal.

However, since then the FSC has released a revised pesticide policy which endeavours to restrict the use of several chemicals widely used in Australasian forestry, including hexazonine (*Velpar*) and terbuthylazine (*Gardoprim*).

NZFOA environmental committee member Colin Maunder says that in order to keep using these herbicides, FSC certificate holders need to obtain derogation (permission) from the FSC.

"At a recent gathering, New Zealand FSC certificate holders decided to apply jointly for derogations. Australia certificate holders are also taking part."

A steering group headed by Maunder has commenced this task with the circulation of a draft consultation document and a request for proposals from technical experts to draft the application. The time frames are tight, with application required by FSC by 30 June 2006.

Kevin O'Grady, of Timbercorp Australia, who co-ordinated the original submission, says forestry companies share the FSC's goal of a reduction in pesticide use.

"With continual improvement in forest management practices, chemical use can be reduced and some chemicals can be replaced by non-chemical controls. This is



already happening in well-managed plantations in Australia and New Zealand," he says.

"But the timeframe for achieving the goal has to be realistic and balanced with the economic reality of running commercial forestry operations."

The FSC review of its pesticides policy began in 2004 with the publication of a paper by the Pesticides Action Network UK, an anti-pesticide lobby group. FSC-certified companies in Australia and New Zealand reacted with concern, claiming that the proposals in the paper would make FSC certification untenable.

The FSC then issued a discussion document which addressed some forest owner concerns. Remaining concerns were addressed in a joint submission submitted to the FSC pesticide review committee late last year.

The submission said it was important that the terminology used to describe the hazard posed by a pesticide is consistent with the terms used by the World Health Organisation. These terms – Hazardous Substance, Poison, Dangerous Poison and Deadly Poison – are used on pesticide containers worldwide and are linked to standard user precautions.

A proposal for FSC to have

its own schedule of hazard terms, including the term 'highly hazardous', would be confusing and potentially dangerous.

O'Grady says there has been "spirited and passionate" debate between foresters and environmentalists about the methods used by FSC to set risk thresholds for determining whether the use of a pesticide should be permitted.

"However, the companies have come to realise that the FSC process involves compromise. In this spirit and for the sake of progress we suggest that we agree to disagree on the scientific basis of the FSC thresholds and in the meantime accept that these are simply seen as points beyond which all parties can agree that caution is required."

He says the companies agree with the FSC policy of setting standards which are higher than those set by international bodies and national regulatory bodies. But the rationale for raising the bar needs to be scientifically based and predictable.

"By matching FSC standards with other international standards, companies will be able to see the relative height of the 'FSC bar'. This will create a point of reference and a benchmark for continuous improvement."

However, O'Grady says the reality of pest control is that in some cases relatively toxic chemicals are used in forestry because there is no other practical management option and because the long-term benefits greatly outweigh the short-term risks.

"The FSC process needs to provide for these uses until new technology comes up with less hazardous options.

"A case in point is 1080. This is the only effective tool to control the Australasian Brush Tailed Possum in New Zealand where it is considered to be the world's fifth worst noxious animal pest. Removal of 1080 would lead to an economic and ecological disaster.

"There is a need to have a policy that continued use of such chemicals will be unopposed if no alternative is available or registered and if economic loss or environmental damage would be caused if that chemical control was not allowed. This would need to be tempered by an onus on companies to demonstrate that they are actively seeking alternatives."

For the full text of the joint industry submission, www.nzfoa.org.nz/file_libraries



Big public stake in forest health

With a \$3 billion industry at stake, "setting priorities for forest biosecurity research in New Zealand shouldn't be on the shoulders of just four or five people in the forest industry" says Forest Biosecurity Research Council chairman Jeremy Fleming.

In his opening address to the CEO and senior managers forest biosecurity workshop last month Fleming, who is also chairman of the NZFOA Forest Health Committee, was critical of the general lack of awareness within the industry of forest biosecurity and health issues.

He also took issue with the bureaucratic processes put in place by government funding organisations. These result in key scientists spending far too much time applying for research funding and performing other bureaucratic tasks.

"They should be allowed to get on with the most important job of protecting New Zealand's forests and forest products trade from pests and diseases," he said.

About 70 people attended the fifth annual NZFOA/MAF Forest Biosecurity Workshop on 28 February and 1 March and a further 40 participated in the CEO workshop the following day.

Improving awareness of forest biosecurity issues has been a major objective of both the NZFOA and MAF and is the main purpose of the annual workshops.

Fleming says holding separate CEO's workshops of less technical

presentations has helped improve communication with senior industry and government managers.

This year both workshops identified a number of key issues that industry and government needed to focus on over the next 12 months, with industry funding being a priority.

Fleming says industry players were sympathetic to this plea, but were quick to point out that increased funding was a difficult ask in the present environment.

"New Zealand needs to take a more 'whole of forest' approach to selling the benefits of biosecurity and forest protection in general. Apart from the economic benefits, forests – whether they are plantations, indigenous or urban – make important social and environmental contributions to New Zealand.

"The benefits need to be highlighted publicly so that all stakeholders in these 'goods and services' realise the benefits of keeping forests as free as possible of pests and diseases."

A number of high-risk areas that require urgent attention were identified during the

workshops Fleming says. At the top of the list was the threat that sea containers pose to New Zealand forests as vectors for pests and diseases.

The industry is increasingly concerned about this threat and is keen to work with MAF to better understand the issues and to jointly seek solutions. ■



Jeremy Fleming
Bureaucracy is getting in the way of good

Safeguarding our forests

A research perspective from Brian Richardson

Biosecurity is one of the greatest threats to a viable forest industry in New Zealand. Pests can have a large impact on forest production, wood quality and export market access. They also threaten the health of our indigenous ecosystems and urban trees.

In addition to a comprehensive biosecurity system, the most effective ways to mitigate these risks are through a stable forest biosecurity research capability, a high quality research programme, and a mechanism for rapid implementation of results and new technology. This capability is largely provided in New Zealand by Ensis Forest Biosecurity and Protection (FBP).

More than 250 exotic tree pests (insects and diseases) have established in New Zealand during the past 50 years. Tree pests would cost the forest industry around \$235 million a year if nothing had been done to mitigate their effects. However, these losses have been reduced to around \$157 million a year through

implementing the results of scientific research.

These are large sums. But the costs could potentially grow a lot bigger if high-risk insects or diseases became established in New Zealand.

A recent analysis demonstrated returns of \$3.5-\$5.9 billion from investment in



Brian Richardson is general manager, Ensis Forest Biosecurity and Protection

biosecurity research. Broader spin-offs from a successful research programme include the protection of many intangible values, such as tourism and export market perceptions, which rely to an increasing extent on the continued viability of our indigenous ecosystems and urban parks.

Research enables government agencies and forest managers to quantify and manage the risks associated with pest incursions more effectively. Management solutions come from knowledge of the biology and ecology of the organisms and through an understanding of forest management and silvicultural systems. To address biosecurity issues it is necessary to draw on a vast array of basic and applied sciences and apply them to specific questions.

In response to this need, the Forest Research Institute in Rotorua established a forest

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health group over 50 years ago that has since evolved to become Ensis Forest Biosecurity and Protection. Ensis FBP has a large and diverse forest biosecurity research programme, funded by the Foundation for Research Science and Technology (FRST), the New Zealand Forest Owners' Association (NZFOA), Biosecurity New Zealand (BNZ) and individual forest growers. This team of forest health and forest pest specialists represents an important resource for New Zealand in terms of mitigating risk along every step of a pest's pathway, both pre- and post-border.

Given the diversity of biosecurity threats and related research questions, the most difficult issues are how to set research priorities, and how to ensure stable research funding.

These issues are being addressed through strategic initiatives such as the Forest Biosecurity Research Council (FBRC) – a partnership between the NZFOA, BNZ and research providers. The FBRC has developed a research




Nectria-induced fluting
A target for priority research

strategy which has helped to focus research efforts against priority pests such as flute canker (Nectria), pitch canker, and gum leaf skeletoniser, and is finding alternatives to methyl bromide.

The FBRC is helping to ensure that research is relevant to end-users and that there are clear pathways for accessing and implementing

results. This partnership also satisfies Foundation for Research Science and Technology (FRST) requirements to define research priorities that are of benefit to New Zealand. Despite this strong foundation, maintaining a strong research capability in forest biosecurity is a constant challenge.

In this regard, one of the biggest issues for the forestry sector is meeting commitments for co-funding research on a long-term basis. This co-funding is required to leverage substantial government funding from FRST.

Without this underpinning, it would not be possible to maintain the current forest biosecurity research capability. A diminished research capability would significantly increase the risk to New Zealand forests from biosecurity threats. For this reason, the FBRC is committed to encouraging the involvement of forest owners, processors and all of those in the industry whose livelihood depend on the continued health of our valuable resource. 

Research

Structure to be fine-tuned

The New Zealand forest industry spends about \$3.5 million a year on research related to forest growing. This is funded by forest owners and the Foundation for Research Science and Technology (FRST).

Since the early 1980s, most of this research has been directed and managed under five joint Scion (formerly Forest Research) industry cooperative structures. The industry and Ensis (a joint venture between Scion and CSIRO of Australia) are now working jointly on a revised structure with the objectives of:

- Achieving better synergies and efficiency of research expenditure across research themes.
- Improving the industry input (at senior level) into the direction of research most relevant to its needs.



The research co-operative concept is still supported, but the structure needs fine-tuning

- Improving the early uptake of research findings into operational forestry planning and practices.
- Ensuring an all-inclusive approach that eliminates the time and energy presently devoted to IP protection, for what most consider a marginal if any gain.

Peter Clark, chair of the Forest Growing R&D Establishment Board, says an industry consultation round has established that there is strong support for this change.

"The research co-operative concept is still supported, but the structure needs fine-tuning.

"As we head into another FRST funding round we are looking for a model that meets FRST's new messages about close end-user engagement and delivers more to industry for it and FRST's expenditure.

"We also need a funding model that provides Ensis with the stimulus and stability it needs to ensure it has the capability to keep New Zealand at the forefront of softwood plantation growing research."


He says the NZFOA is facilitating forest grower

input into the new regime, but will not be represented on the board which will comprise Ensis and forest grower representatives.



Peter Clark
Research structures need to deliver more

"This time round the industry will be seeking in the order of \$4 million from FRST so that research can be expanded considerably into the environmental impacts of plantation forestry," Clark says.

"With water quantity and quality, biodiversity and climate change all emerging as issues of national importance it is clear that we need a more thorough understanding of land use impacts and the role of plantation forests." 

Big but safe



Off-highway truck operators have to comply with normal road rules, except those relating to payload and vehicle dimensions

Some of them are huge, but off-road logging trucks now have to comply with tough safety and maintenance standards which are similar to those which apply to trucks used on highways.

A new *Off Highway Code of Practice* has been developed by the Log Transport Safety Council (LTSC) with the support of most forest owners and fleet operators.

"The code was developed mainly because operators had no official code to work to. Also it would be fair to say there are vehicles in our industry that may struggle to meet the new code," says council chairman Bruce Nairn.

"New vehicles are required to comply with the code and any existing vehicles which don't comply will be progressively upgraded during 2006."

The code, which has been approved by the NZFOA, requires off-road truck operators to comply with normal on-road transport rules and regulations, with the exception of payload and vehicle dimensions.


"If an operator wishes to depart from the specifications in the code, they should make a case to Occupational Safety and Health (OSH) backed by supporting evidence that workplace standards are not being compromised. The intent is not to stifle innovation, or limit the possibilities of increasing any performance, but to ensure that safety standards are not compromised," Nairn says.

Off-highway trucks are used on networks of private forest roads, especially in the central North Island, which also carry ordinary on-highway vehicles on forest business.

The code does not cover articulated dumpers converted to log or stem trucks, and thinning forwarders. These vehicles do not share forest routes with other road users.

The code includes the following rules:

- Vehicles shall be operated in accordance with the Land Transport Act, with the exemption of over-width, -height, -length, and -weight and the reference to braking performance and SRT values.
- Each vehicle shall hold and display a current Certificate of Road Worthiness, be fitted with a cab protection frame which meets industry and OSH standards, comply with any other regulation or code that applies to log transport and be loaded in accordance with the Official NZ Truck Loading Code.
- The average axle weight on any vehicle, or vehicle combination, shall not exceed 13.5 tonnes (excluding steer axle) and no individual axle weight shall exceed 15 tonnes.
- The overall width of the vehicle including its load shall not exceed 3.3 metres.
- The vehicle shall be rated for the maximum load the unit shall carry, and have an auxiliary braking device.
- All vehicles are to be maintained on an ongoing basis to meet the 'Standard Operating Requirements' with all faults or breakages repaired as they occur.
- All new off-highway vehicles shall be rated on commissioning and all existing off-highway vehicles shall be rated before the end of 2006 by either an LTSA certified engineer or an LTSA approved manufacturer.
- Overall truck and trailer axle groups shall not exceed 29 m, measured from the centre of the front axle to the centre of the rear axle of the vehicle combination, with a maximum overhang of 15 metres and loaded to ensure the load does not drag on the ground when the vehicle is travelling on level ground.

For a copy of the code: www.nzfoa.org.nz/file_libraries/transport_roadng 

Worry about nitrogen next

A growing number of scientists say nitrogen is a problem we ignore at our peril. While we have been fretting about a 10 per cent increase in atmospheric carbon dioxide (CO₂), levels of nitrogen compounds in the environment have almost doubled.

Long-term, anthropogenic nitrogen is seen by some experts as posing a likely greater environmental threat than anthropogenic carbon.

"There are biodiversity issues from acid rain, aerosol issues which impact on human health, and eutrophication problems from nitrates going into water," says Mark Sutton, head of atmospheric sciences at the Centre for Ecology and Hydrology in Edinburgh, UK.

Nitrogen also affects climate change. Nitrous oxide (N₂O) is present in the atmosphere at 311 ppb, compared with CO₂ at 360 ppm. But molecule for molecule N₂O has 300 times the global warming potential of CO₂.

The answers to the problems, though, may be difficult to come by.

The closest thing yet to a Kyoto-style document for nitrogen – the 2004 Nanjing declaration – has been adopted by the European Union but is waiting at the United Nations for more signatures.

Worldwide, five times as much reactive nitrogen comes from food production as from energy production. That's because it's very difficult to "spoon feed" plants the exact amount of nitrogen they need, and any excess simply drains off into the environment.

Similarly, animals use only about 20 per cent of the nitrogen in their feed. The rest comes out the other end and either runs back into the ground or is given off as fumes.

All this extra nitrogen has overwhelmed the natural nitrogen cycle and de-nitrifying bacteria just can't convert it back into atmospheric N₂ fast enough.

Precision agriculture in which quantities of nitrogen fertiliser would be matched to the plants' needs would help. So would nitrogen-proofing of farms. Forests are particularly good at catching ammonia emissions, so planting trees around livestock farms could help dilute the impact.

Summarised from *New Scientist* 2535, 21 January 2006, www.newscientist.com 

Sound long-term investment

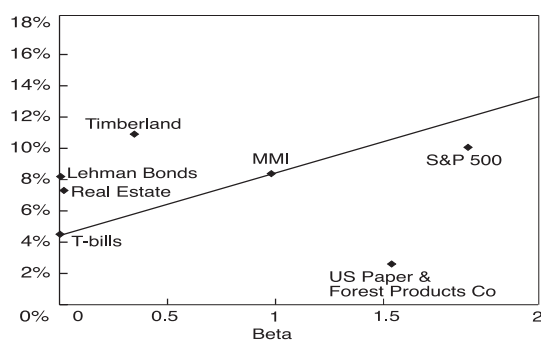
The growing area of New Zealand plantation forest owned by professional investment managers reflects good long-term returns from timberlands and their ability to spread risk in an investment portfolio.

Investment funds collectively now own 30 per cent of NZ forests – more than large companies (19 per cent).

In a paper to the 2005 NZ Institute of Forestry Conference Michael Edgar, director of Asia Pacific Investments Global Forests Partners LP, said timberland investment historically provides high risk-adjusted returns. There is also a low-to-negative correlation with other types of investment.

These factors, he says, have driven interest in timberland as an asset class.

He points (Table 1) to annual timberland



Returns per year and volatility (beta) by asset class 1987 - 2005 (March years)

The MMI (Multiple Market Index) is a UBS benchmark which tracks all forms of global investment and is a measure of the total market. Sources: Bloomberg, NCREIF, Global Forest Partners and UBS Global Asset Management

returns of more than 10 per cent from 1987-2005, a little better than the Standard and Poors 500 Index, and substantially better than real estate at about 7 per cent. Timberland also has much lower market volatility than the S&P 500.

The main type of investment funds to invest in forestry are timber industry management organisations (TIMOs).

These include GMO Renewable Resources Limited (GMO RR), Global Forest Partners (GFP), Hancock Natural Resources Group, Prudential Timber Investments, Rayonier/DBRREEF Trust JV

and Harvard Management Company (Kaingaroa Timberlands). Together, says Edgar, they own some 539,000 ha of New Zealand forests.

Unlike the vertically integrated forest product companies which have traditionally invested in forestry in New Zealand, the TIMOs are not concerned about fibre security or business scale, nor by the need to regularly report trading profits to a wide shareholder base.

They are driven by the long-term growth in their balance sheets, making little use of debt, acquiring and managing properties for small groups of limited partners to whom they regularly report in one-to-one meetings.

"TIMOs emphasise diversification of risk and superior returns. They strongly compete with one another for investment mandates from investor clients," Edgar says.

"Performance results are closely monitored by the TIMOs and their clients. The focus on investment results is unrelenting."

Only the best firms succeed. So why are these businesses investing increasing amounts of their clients' funds in New Zealand?

Quite simply, because they want to diversify their global risk and see the potential here for superior returns.

And while TIMOs typically invest in timberlands with very limited vertical integration this does not mean they are not interested in what happens outside the forest gate, Edgar points out that strong customers and markets add value to their timberland investment.

"Investment funds will remain a permanent part of the NZ forest industry," Edgar says.

"However they will continually assess ... both industry and country risk (including political) in their appraisal of the value and development opportunities that New Zealand represents."

Source: *NZ Journal of Forestry*, November 2005

Let's stop illegal logging

The NZFOA supports the Ministry of Agriculture and Forestry (MAF) decision to join the global fight against illegal logging. The ministry is seeking public and industry feedback on a discussion paper it has issued on the topic.

MAF policy analyst Alison Watson says illegal logging and its associated trade costs the producers of legitimately sourced wood products billions of dollars in lost revenue. And it can do considerable harm to forests and forest ecosystems.

"Combating illegal logging is important to New Zealand as the practice taints the entire forestry industry as being environmentally unfriendly. New Zealand also faces competition from illegal timber in its export and domestic markets."

The MAF paper is the first step in developing a New Zealand policy on illegal logging.

"New Zealand may be a small player in the global forestry industry, but for our size, we contribute greatly to the global trade of forest products and to international forums that work to progress sustainable forest management."

NZFOA chief executive David Rhodes says illegal and unsustainable logging is contrary to everything the New Zealand plantation forestry stands for.

"The paper proposes that the government should promote a New Zealand timber procurement policy in government departments and public sector agencies, and work with the private sector to develop information for consumers and importers and retailers on sustainable and legal wood products.

"Policies like these have been on the drawing board for a long time and forest owners strongly support them."

The MAF paper looks at how New Zealand can contribute. At an international level it can work through global forums and organisations; bilaterally and regionally with other interested countries; and locally through raising public awareness and convincing consumers to buy only legally sourced product.



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email: nzfoa@nzfoa.org.nz, www.nzfoa.org.nz

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