

Bulletin

Summer 2025

THE RISE OF FOREST 'SLEEPER' PESTS

P15



IN THIS ISSUE

P6

Forest growers support levy renewal

Forest Growers
LEVY VOTE 2024

P8

Mitigating wildfire risk this summer



P12

Living Pā showcases timber possibilities





Forest Owners year in review – 2024

The year 2024 presented many challenges and successes for those in the forest industry.

Climatic, political, domestic commercial matters and export trade events have all made for a pressure cooker of an operating environment.

For those who were in support of renewal of the Harvested Wood Material Commodity Levy, the favourable vote outcome returned in December is testament to the decade of investment the sector has collectively made and the benefit growers clearly feel they receive from it. Continuation of the levy will ensure continued investment in the growth and resilience of production forestry in New Zealand.

One area requiring close attention is New Zealand forest health and biosecurity. A recent visit to the Basque Country in Spain by Australia and New Zealand forest industry representatives has highlighted the risks and challenges faced by the sector globally. Over the last decade there have been numerous other examples of significant forest pest and disease outbreaks. Global forest health challenges highlight the importance of having a strategic perspective and framework in place to build resilience in the New Zealand forest estate. We need to learn from others.

Our country has some natural advantages. Our location as an isolated island at the bottom of the world being one, naturally protecting us from many of the biosecurity threats and issues we see emerging in other parts of the world. To take advantage of this and to mitigate against the risk of incursions, or the failure of early detection, we need world class early diagnostics systems. This is contingent on strong public science system capability. Some would say forest health is a bit like a computer – it is not a matter of if you encounter a new pest or disease, rather when and how quickly you respond.

Robust forest health and biosecurity systems and capability in New Zealand are critical to maintaining the good health of our forests and associated industries.

Collaboration and partnerships are key to attaining excellence in many fields, not just forest health. Looking back over 2024, I am proud of the work started by the new leadership and team at the Forest Owners Association in this regard. Positive relationships build opportunity and positive outcomes. The work by the FOA team to collaborate with the likes of the Forest Industry Contractors Association (FICA) and the Wood Processors and Manufacturers Association (WPMA) is just one of many great examples of the alliances being built to achieve greater outcomes for everyone in the forestry and wood processing supply chain. I look forward to these developing relationships working for the betterment of all to overcome common goals and challenges the sector faces heading into 2025.

The FOA has been around in its present form since a new set of rules was registered in 1968 and the subsequent Executive Council comprising industry leaders was elected. For decades now a big part of the FOA's functionality has been its committee structures. As well as the dedicated FOA staff, the committees draw on the expertise and in-kind contributions of FOA members from across New Zealand and key contributing partners like those from the Farm Forestry Association and wood councils.

One of the many functions of these committees via the FGLT Secretariat is to provide research content and advice to the Forest Growers Levy Trust Board, assisting with the delivery and execution of the Levy Work Programme. This function is just one of the many ways the FOA, through collaboration with others, can look to advance the excellence and performance of the New Zealand Forest industry.



FOREST HEALTH IS A BIT LIKE A COMPUTER – IT IS NOT A MATTER OF IF YOU ENCOUNTER A NEW PEST OR DISEASE, RATHER WHEN AND HOW QUICKLY YOU RESPOND

I look forward to the continued positive efforts from all corners of our industry in 2025 and beyond; as our growers continue to produce quality forest products, generate jobs, support communities, enhance biodiversity and much more.



**MATTHEW WAKELIN,
FOA PRESIDENT**

Looking back at 2024

40,000 PEOPLE
WORK IN FORESTRY



44% OF THE
WORKFORCE ARE MĀORI



48% OF
COMMERCIAL FORESTS
ARE MĀORI OWNED

FOREST PLANTATION



1,788,799 HA
ESTIMATED NET STOCKED PLANTATION
FOREST AREA AT 1 APRIL 2023



33.7 MILLION M³
OF LOGS HARVESTED IN THE YEAR TO 31 MARCH 2023



5.6 MILLION M³
OF LOGS WERE CONSUMED BY PROCESSING FOR
DOMESTIC CONSUMPTION IN THE YEAR TO MARCH 2023



102,000 HA
OF PLANTATION FOREST WAS PLANTED IN 2022

**FOA
REPRESENTS
88 MEMBERS**

50% ARE LARGE
COMMERCIAL FOREST
OWNERS (>1000 HA)

50% ARE SMALL
SCALE FOREST OWNERS
(<1000 HA)

FORESTRY IS NZ'S FOURTH LARGEST EXPORT EARNER



\$5.75 BILLION
VALUE OF FORESTRY EXPORTS TO 30 JUNE 2024



\$3.2 BILLION
VALUE OF LOG EXPORTS TO 30 JUNE 2024



**21
SUBMISSIONS**
MADE BY FOA TO
GOVERNMENT ON
BEHALF OF GROWERS



Seeing the value of forests for the trees

New Zealand is great at growing forests, particularly pine, but sometimes I wonder if it wants to be.

If we are going to meet our climate targets and have a society built on natural materials, we need to change our relationship with trees and wood so that our talents in this space are appreciated and grown, not lamented and debated.

Forestry is green infrastructure and needs to be reframed as such. I agree with the Parliamentary Commissioner for the Environment when he says that people are a subset of the environment and not separate from it. We are increasingly seeing examples of how infrastructure developed for people with nature in mind is more successful at surviving an onslaught of environmental and economic challenges from climate change.

But often the term green infrastructure is only used to describe urban development projects. Urban tree planting and wood in construction often play an important role in these projects, but what if we expanded our definition of green infrastructure at the national level to include our forests and wood processing?

Chris Bishop announced in December his intention to develop a 30-year National Infrastructure Plan. Notably, he is seeking cross-party consensus on this plan, which would make it truly enduring and avoid the political back and forth every time the government changes. The plan is a description of New Zealand's infrastructure needs, planned investments over the next ten years and recommendations on priority projects and reforms.

Imagine if we could have a similar plan for green infrastructure, including forests and wood processing. The Climate Change Commission has made some estimations around a demonstration pathway for forestry but foresters have often felt these aren't aligned with industry projections – feedback the Commission is in the process of taking onboard.

If we had a national understanding of key targets for a broad definition of green infrastructure, we could attract investment with certainty. This could include forests, wood flows for bioenergy and building materials, or more broadly natural water management solutions. With priorities in place, we could look at not only carbon sequestration targets but also flood mitigation and recreation, as well as biodiversity, water quality and other environmental values that are less related to infrastructure. This will be critical for climate adaptation.

A study appearing in the October 2023 issue of the Applied Geography journal found that optimising targets at the national level maximised benefits for flood mitigation by 200 percent over a local level.

The upcoming debates around resource management reform will, I'm sure, revisit this tension between local planning and national targets and planning. Even the study I mentioned above found that a balance in optimising at the national scale but also then targeting decision making at the regional level to ensure certain areas are not over planted was critical.

Generally speaking, New Zealand uses blunt policy instruments to either encourage or discourage forestry. Afforestation grant schemes can be found in New Zealand law all the way back to the 1800s in some form or fashion; sometimes even co-existing with government grants for clearing land – evidence that inconsistency in policy making is nothing new.

The Emissions Trading Scheme (ETS) for forestry, for all its complexity, has arguably been a bit of a blunt instrument, driving a massive deforestation trend just before it came into being and then a planting spike post the review in 2019. That fever has cooled off now (or had cold water thrown on it), but given recent announcements about entry into the ETS, I'm not sure we've sharpened our policy tools at all.



IF WE HAD A NATIONAL UNDERSTANDING OF KEY TARGETS FOR A BROAD DEFINITION OF GREEN INFRASTRUCTURE, WE COULD ATTRACT INVESTMENT WITH CERTAINTY

WITH PRIORITIES IN PLACE, WE COULD LOOK AT:



FLOOD MITIGATION AND RECREATION



BIODIVERSITY



WATER QUALITY



OTHER ENVIRONMENTAL VALUES

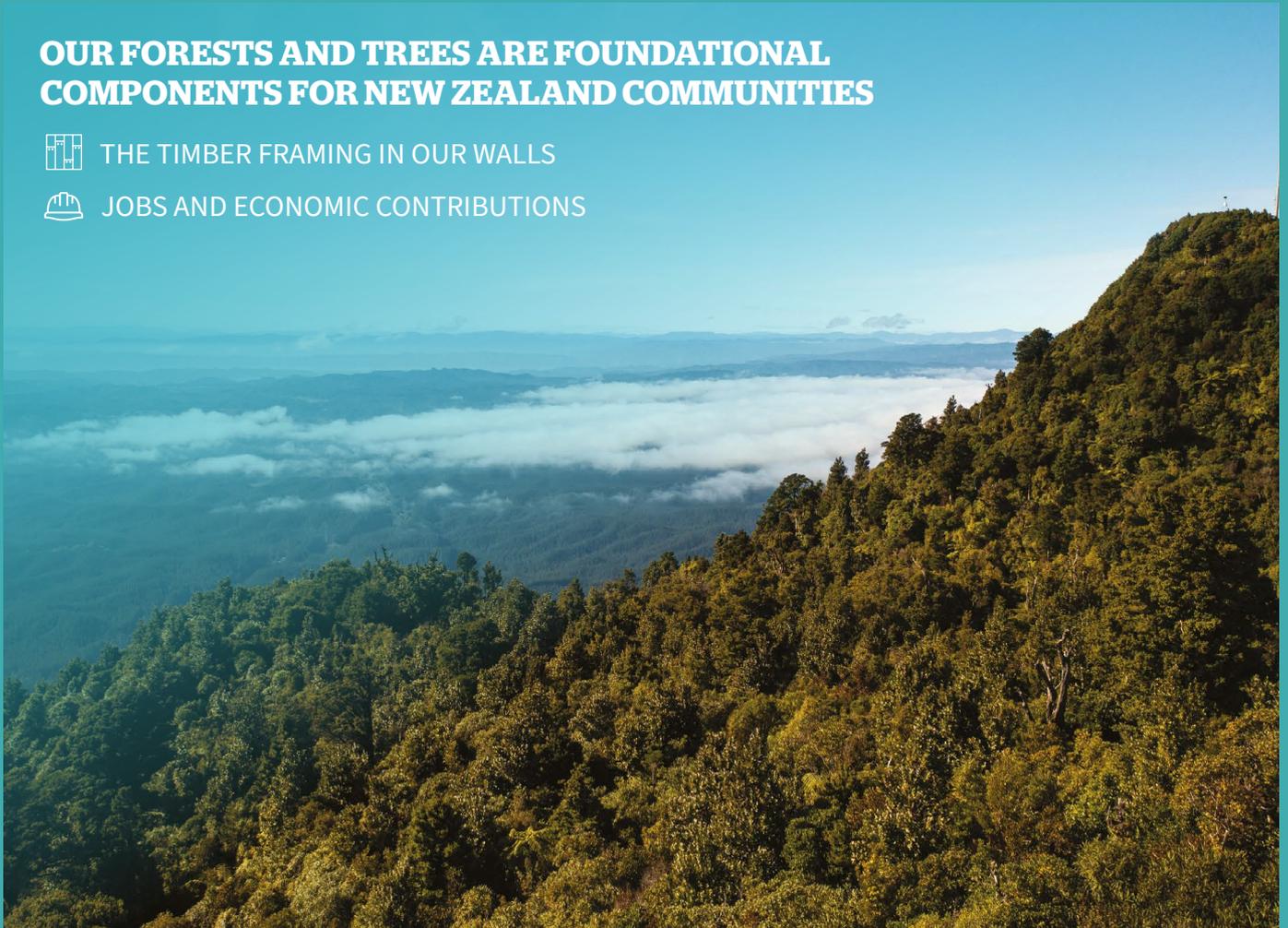
OUR FORESTS AND TREES ARE FOUNDATIONAL COMPONENTS FOR NEW ZEALAND COMMUNITIES



THE TIMBER FRAMING IN OUR WALLS



JOBS AND ECONOMIC CONTRIBUTIONS



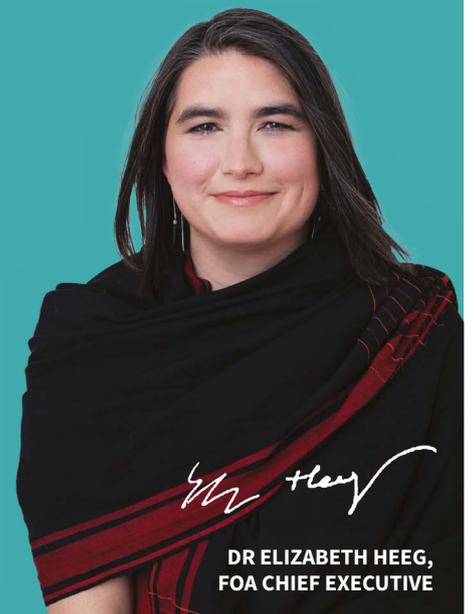
Markets will have ups and downs and I'm not arguing that land management has become overly prescriptive. Particularly in a world responding to climate change impacts that are unpredictable and increasing in severity, we need to be able to adapt and innovate. Instead, I hope that we can adopt a more nuanced and informed approach to land management and green infrastructure, that welcomes public and private partnerships and a balance of national targets that are implemented with local information.

And at the heart of this development are people who understand the unrealised

potential of our forests – and of trees – as foundational components for New Zealand communities. They already are, if you know where to look. The timber framing in our walls, the paper on our desks and the forests in the hills.

Our forests are facing a number of challenges, but perhaps the greatest is how chronically New Zealand undervalues the contribution they can make to our future.

I'm looking forward to continuing to inspire people throughout 2025 with what we can do with our trees.



DR ELIZABETH HEEG,
FOA CHIEF EXECUTIVE



Forest growers give green light to levy renewal

Forest owners have sent a clear message that the sector’s levy provides important support to forest growers by voting to renew it for a further six years.

The Harvested Wood Material (HWM) Commodity Levy was introduced in 2013 under the Commodity Levies Act 1990 as a way of collectively advancing the interests of all forest growers in New Zealand.

The Levy Vote, which ran from 1 to 31 October 2024, saw nearly 90 percent of voters supporting renewal of the levy at the proposed rate of 33 cents to 45 cents for the next levy order period.

“THE FACT THAT GROWERS ARE STILL COMMITTED TO THE LEVY DURING AN ECONOMIC DOWNTURN SHOWS A WELCOME RECOGNITION OF THE VALUE OF SHARED INDUSTRY-GOOD ACTIVITY AND REPRESENTATION.”

The ‘yes’ votes represented 99.63 percent of the total hectares of voters.

The vote was conducted by independent election agency Research New Zealand in accordance with the Act.

Post-voting audits indicated that some votes cast did not meet the voting or eligibility criteria. All votes that did not comply with these criteria were removed. This included some members of syndicates that cast multiple votes for the same forest, votes that were cast for non-qualifying forests and votes cast by individuals that were not the legal owner of the forest.

The audited result returned 191 eligible votes and a total forest area of 610,357 hectares. Of these votes, 171 were a ‘yes’ to renewing the levy and 20 were votes against renewal.

Votes in support of renewing the levy represented 608,070 hectares.

Research New Zealand reported the “yes” vote was conclusive, even if the 109 ineligible votes were counted. On that basis, the 300 total votes returned pre-audit would have still returned a 70 percent support rate for the levy.

Forest Growers Levy Trust chair, Stephen Franks, says the positive result highlights the importance of the levy to forest growers.

“Forestry has faced difficult times of late and we know growers across the country are looking very closely at their costs,” Stephen says. “The fact that growers are still committed to the levy during an economic downturn shows a welcome recognition of the value of shared industry-good activity and representation.”

“Forest owners big and small can achieve more together than on their own.”

The levy has generated approximately \$10 million per annum in recent years. It will continue to fund sector representation, research and development, biosecurity, environmental advocacy and more.

Ten years of the levy has helped forest owners achieve stronger biosecurity protection for New Zealand’s production forests. It has improved health and safety and helped to transform harvest operations with mechanisation.

“The forest research and development programme in particular has enabled access to co-funding for growers, raising \$2.50 for every levy dollar invested,” Stephen says. “The successful levy vote is a credit to the vision of those who established the levy and the continuing ability of forest growers to agree on core requirements to advance forest growing in New Zealand.”

Stephen says the focus of the levy has evolved over time in response to growers’ needs.

“FOREST OWNERS BIG AND SMALL CAN ACHIEVE MORE TOGETHER THAN ON THEIR OWN.”



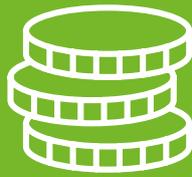
90%*

OF VOTERS SUPPORTING RENEWAL OF THE LEVY AT THE PROPOSED RATE OF 33 CENTS TO 45 CENTS FOR THE NEXT LEVY ORDER PERIOD

*EXACT VOTING FIGURE IN SUPPORT OF THE LEVY WAS 89.53%



VOTES IN SUPPORT
OF RENEWING THE
LEVY REPRESENTED
608,070
HECTARES



THE LEVY HAS
GENERATED
APPROXIMATELY
\$10 MILLION
PER ANNUM IN
RECENT YEARS



10 YEARS
OF THE LEVY HAS HELPED
FOREST OWNERS ACHIEVE
STRONGER BIOSECURITY
PROTECTION FOR
NEW ZEALAND'S
PRODUCTION FORESTS

“There is now a substantial focus on cost savings and building resilience. Not only to natural challenges but to local political responses as New Zealand faces international climate change policies and market disruptions.”

The passing of the levy is the culmination of eight months of consultation with stakeholders leading into the Levy Vote.

The FGLT heard about how the levy meets growers' needs and what changes the sector would like to see, including how the levy should be spent in future.

Growers said they wanted to see greater investment into activities promoting understanding of forestry's contributions. There was also appetite, particularly among small-scale forest owners, to fund more work on alternative species. Maintaining the sector's biosecurity programmes, which also help to protect non-production and indigenous forests, emerged as an ongoing priority for the sector too.

That feedback is guiding the levy budget the Trust will administer for the immediate future.

“The sector's input is needed to make sure the levy is doing what forest growers need it to do,” Stephen says.

The FGLT will now submit an application to the Minister of Forestry for a new Harvested Wood Material Commodity Levy Order.

The new Order will impose a levy rate band of 33 cents to 45 cents per tonne of harvested wood material (excluding GST) on forest owners for the 2026 to 2031 levy order period.

The Trust has undertaken not to increase the levy above 33 cents for the first year (2026) of the new levy order.

More information on the levy vote outcome is available on the [FGLT website](#)

NOTIFICATION OF LEVY RATE FOR 2025:

33¢

UNDER THE COMMODITY LEVIES (HARVESTED WOOD MATERIAL) ORDER 2019, THE FOREST GROWERS LEVY TRUST INC. ON 3 DECEMBER 2024 SET THE LEVY AT 33 CENTS (EXCLUSIVE OF GST) PER TONNE OF HARVESTED WOOD MATERIAL FOR THE YEAR BEGINNING 1 JANUARY 2025.

Preparing for increased risk of wildfire this summer

New Zealand’s wildfire season runs from October to March. Preparedness is key.

This year, conditions suggest a heightened risk of wildfire over summer, requiring increased vigilance from us all.

Fire and Emergency New Zealand data shows that 97 percent of wildfires are caused by human activities, underscoring the importance of public awareness and responsible behaviour.

Timely preparation is essential. Fire and Emergency wildfire manager, Tim Mitchell

warns that a combination of unusually dry autumn, winter and spring months, above-normal spring and overnight temperatures and persistent winds have created a perfect storm for heightened wildfire risk.

“Areas such as Hawke’s Bay, Tairāwhiti, Canterbury and Otago are particularly vulnerable,” Tim says. “In some of those regions, December’s rainfall has only reached 20–30 percent of the seasonal norm, while

temperatures have been ten degrees above average in some locations.”

According to Fire and Emergency, fire danger conditions in parts of Hawke’s Bay and Tairāwhiti are well above normal for this early phase of the fire season. While Fire and Emergency’s data goes back 27 years, Tim says some areas are now in uncharted territory.

“HEIGHTENED RISK MEANS IT’S EVEN MORE IMPORTANT FOR LANDOWNERS AND FOREST MANAGERS TO BE VIGILANT ABOUT FIRES THIS SEASON.”



WILDFIRE READINESS CHECKLIST

Fire and Emergency recommends growers take proactive steps to safeguard their forests and surrounding communities this summer:

1

Assess your risk

Evaluate fire hazards on your property. What activities are occurring in and around your forests and what fire prevention measures are in place or need to be undertaken?

2

Display fire risk signage

Use clear, visible signs to inform visitors of fire danger levels, particularly in public-access areas and ensure they are updated as risk levels change.

3

Follow fire danger protocols

Implement codes of practice for different fire danger levels to reduce risk during high fire-risk periods.

4

Maintain vegetation

Review vegetation along roadsides and boundaries. Consider reducing it to prevent wildfires from spreading across properties.



Sean McBride
NZFOA-NZFFA Fire Committee chair

“Canterbury and Otago are close behind,” says Tim. “We now expect the fire risk to expand to other areas including Marlborough, Northland, the Bay of Plenty and Wairarapa where conditions are heading towards being above average for this time of year.”

In response, Fire and Emergency has implemented fire restrictions in many of these areas and launched a media campaign to raise awareness. Tim says the fire risk areas are expected to expand and evolve as warm, dry and at times windy conditions persist.

The New Zealand Forest Owners Association (NZFOA) and New Zealand Farm Forestry Association (NZFFA) Fire Committee chair, Sean McBride, says the committee has observed wildfires occurring outside the typical fire season in recent times and a summer fire risk that has peaked unusually early this year. Forest growers should expect that risk will persist over summer.

“Heightened risk means it’s even more important for landowners and forest managers to be vigilant about fires this season,” Sean says. “Precautions need to be taken throughout the year and preparedness is key. Forest owners and managers should ensure their fire personnel are trained and equipment and resources are ready to be deployed at all times, but especially over summer.”

A lot of the firefighting resources that foresters use in their operations are also available for use outside of the forest boundaries to support their communities.

“The Fire Committee encourages all forest owners and managers to engage with Fire and Emergency as well as with the land managers surrounding their forests to work together to mitigate risk,” Sean says. “As we know, most wildfires are caused by human activities. It’s important that the rural sector collaborates to reduce the potential risk or spread if a wildfire does occur. Doing so will limit the impact of a wildfire and benefit us all.”

Despite the misconception that forests cause fires, Sean says 99 percent of wildfires originate outside of forest boundaries.

“By working with neighbouring land managers to implement appropriate fire controls foresters can reduce risk.”

The NZFOA-NZFFA Fire Committee has just completed revision of Forest Fire Risk Management Guidelines. The publication provides guidance to forest owners, managers and woodlot owners, discussions on fire prevention and management and planning with FENZ. The updated guidelines will be circulated in 2025.



Tim Mitchell
Fire and Emergency NZ wildfire manager

5

Monitor and patrol

Fires can spread rapidly, so early detection is essential. Regularly patrol high-risk areas to quickly identify any fires which occur.

6

Prepare for suppression

Coordinate with your local contractors for fire suppression resources, especially during holiday periods when access to help may be limited.

7

Restrict forest access

Review public accessways to your forests. Consider limiting access during high-risk periods to minimise the chance of accidental ignitions.

8

Stay informed

Regularly check fire risk updates on the [NIWA's website](http://fireweather.niwa.co.nz) (fireweather.niwa.co.nz) or [FENZ's website](http://www.fireandemergency.nz) (www.fireandemergency.nz) for monthly seasonal fire danger outlooks.

9

Collaborate with your neighbours

Fires often spread across boundaries. Talk with neighbours about risks and prevention strategies to build a unified defence.



Researcher tackles improvement of New Zealand’s production forest muscle tree



Radiata Pine Breeding Company’s (RPBC) newest recruit Duncan McLean has big plans for research that is set to benefit New Zealand’s *Pinus radiata* forest estates.

Duncan connected with RPBC’s tree improvement manager Mark Paget back in 2020, who provided Duncan several research topics to consider working on. RPBC also provided a stipend for Duncan while he undertook his research. Now, armed with a newly completed PhD in forestry genetics, Duncan’s research findings have already captured the interest of key industry publications.

Supervised by Te Whare Wānanga o Waitaha | University of Canterbury School of Forestry professor Luis Apiolaza and co-supervisor, associate professor David Evison, Duncan’s research included simulating the deployment phase of RPBC’s breeding programme. He described this simulation as one of the most pleasing outcomes of his research so far.

“It was a good way to kick off the discussion about how we could boost the deployment of improved germplasm from the breeding programme to the

production forest and how and how we could optimise things like seed orchards and the structure of the seed orchards to maximise the output from the breeding programme,” Duncan says.

“What really interested me about the programme is that it’s not just about breeding improved trees – you’re also working within the deployment space too to try and get those improvements out into the production forest as quickly as possible. Both of those areas are equally important.”

He says the availability of good data will be key to gaining valuable insights that improve breeding strategies, such as genotype by environment interaction – an interest of Duncan’s that developed during his PhD studies.

“[By using data] to develop a better understanding of the genotype by environment interaction, we could maximise genetic gain by exploiting those interactions to enhance production, particularly in the clonal deployment space.”



Duncan McLean



AVAILABILITY OF GOOD DATA WILL BE KEY TO GAINING VALUABLE INSIGHTS THAT IMPROVE BREEDING STRATEGIES

One of Duncan's key projects with RPBC will expand on this PhD research.

"I will take that research and have a look at some of the environmental variables that may explain these interactions, particularly for growth traits in radiata.

"To do that, we need to start including higher resolution environmental data into our genetic evaluation models. This includes things like rainfall and soil type to effectively look at what may be driving changes in genotype performance over different environments."

Technological advancements and the availability of datasets will advance the forest growing industry's understanding in this area.

The initial dataset Duncan used to investigate genotype by environment interaction in his PhD was limited in its geographic range but his postdoctoral research will include a more comprehensive data set.

A mixture of empirical data and simulated data will be used to optimise the training populations to suit within-family selection and maximise the predictive ability of individual performance within tree families for genomic selection.



A LOT OF THE WORK
WE DO ISN'T FOR NOW;
IT'S FOR

25-50
YEARS' TIME

PRESERVING THE GERMLASM ARCHIVE AND GENETIC DIVERSITY

Another of Duncan's projects is focused on RPBC's germplasm archive.

His goal is to determine what RPBC needs to retain as seed and ortet collections – the original plant from which the members of a clone have descended – in order to maintain a population that represents the genetic diversity of the wider germplasm collection.

During the establishment of a breeding programme, genotypes (genetically unique individuals) are selected from wild stands to form a genetically diverse breeding population. Breeders become caretakers for these diverse landrace collections, not only for the benefit of the breeding programme but also for long-term conservation should the collection need to be revisited in future for new genetic diversity. This might occur, for example, in the event of a serious biosecurity incursion or to manage future challenges due to changes in climate.

Despite the prevalence of *Pinus radiata* in New Zealand and Australian production forestry, the wider public may not be aware that the species is endangered in its native environment due to its limited natural distribution range and pressures from introduced pests. This means that some of the genotypes we are working with today, particularly from the Guadalupe and Cedros islands, may be the last remaining genotypes of their kind.

Much of RPBC's extensive germplasm collection is stored in production forest stands throughout New Zealand – many of which are approaching harvest age.

"These stands are essentially being removed," Duncan says. "We [researchers] need to decide what to keep from this gene pool that underpins RPBC."

Duncan likens the selection process to a triangle.

"At the top, you have the elite production population, which has a low level of genetic diversity but high performance in terms of breeding values. Further down the triangle, you have the breeding population and then you get to the conservation germplasm at the base, which often includes unimproved and founder material, originating from native *Pinus radiata* stands, such as those on Cedros and Guadalupe Islands."

Exploring whether RPBC can reduce the number of ortets in the archive to simplify the management of these resources is also a focus of the programme. This includes reducing duplication while preserving essential genetic diversity; as maintaining numerous *in situ* archives over decades can become difficult to manage.

Working with RPBC's archive of material and empirical data sets, Duncan says he's acutely aware of the legacy of tree breeders who have come before him and the fact that much of his work today is focused on long-term benefits for others.

"A lot of the work we do isn't for now; it's for 25- and 50-years' time," Duncan says. "It's for New Zealand's future."

"I really like that. You're not planting for yourself. You're never going to see the net value of that forest – it's going to be for your grandkids."

LEARN MORE ABOUT DUNCAN'S WORK:

Forest Ecology and Management
<https://www.sciencedirect.com/science/article/pii/S0378112724001993>

Tree Genetics and Genomes
<https://link.springer.com/article/10.1007/s11295-023-01607-9>

Living Pā an exemplar of timber design and construction possibilities



Ngā Mokopuna is a showcase of the beauty and strength timber construction can provide over traditional building materials.

Te Herenga Waka—Victoria University of Wellington’s iconic new 3000 square metre mid-rise marae complex, Ngā Mokopuna, was unveiled in December, boasting an impressive timber construction and design, with green credentials to match.

It’s the first ‘living’ building to take up residence in the Capital.

Ngā Mokopuna was built in pursuit of gaining the Living Building™ Certification (LBC), an international regenerative building practice standard consisting of seven performance cornerstones: place, water, energy, health and happiness, materials, equity and beauty.

The use of mass timber in its construction means the building sequesters more carbon than it will produce in its lifetime.

New Zealand’s leading supplier of mass timber solutions, Red Stag, played a pivotal role in the Living Pā build, supplying several Engineered Wood Products for structural elements including floors, roofs, beams, columns, the lift shaft walls and the grand central staircase.

The company also produced the Pā’s Cross Laminated Timber (CLT)-Glulam box beams which span nearly nine metres and facilitate the building’s expansive open spaces. The structure is designed to carry large combinations of imposed and dead load for educational use.

Red Stag’s TimberLab carried out full-scale testing on the CLT-GLT composite beams to ensure structural performance aligned with the engineer’s design parameters. Sustained load was applied for more than three months to ensure the long-term structural performance of the beams aligned with the Living Building criteria.

Red Stag investments managing director Jason Cordes says the team were excited about the challenge and saw it as a chance to showcase what timber can do as a building resource in New Zealand.



Red Stag supplied several of its Engineered Wood Products for much of the building's structural elements, including the Living Pā's statement staircase, pictured here.

“The Living Pā shows how we can transition from steel and concrete to timber in a cost-effective and sustainable way,” Jason says. “There are these misconceptions that timber is too costly a material, difficult to manufacture and that it comes with increased fire risk.

“This building shows that’s not the case and acts as a living demonstration of the enormous benefits timber construction brings.”

Timber’s advantages are many. While the production of steel and concrete generates significant carbon emissions through mining, processing and transport; timber operates as a carbon sink, sequestering carbon dioxide emissions (CO₂) throughout its lifespan.

“By switching to timber, we’re not only reducing the carbon footprint of construction but actually storing carbon within the building itself,” says Jason.

The use of timber in the building also lightened the building significantly.

“While using some concrete and steel has been unavoidable, the timber now serves as a bank of negative carbon which can be drawn on for this.”

Jason says Ngā Mokopuna is the most complex build Red Stag have ever been involved in.

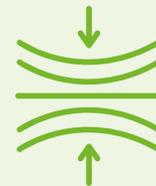
“Its location, surrounded by tall buildings on steep land, provided challenges for the project team,” he says. “It required a lot of bespoke elements as well as modular components.

“Creating the modular components ended up saving a lot of time and resource during construction. They could be assembled onsite in hours rather than days or weeks. The knock-on effect of this is that you don’t need cranes for as long which reduces both costs and carbon impacts.”

To meet the Living Building Challenge® the building is 90 percent compliant with the Red List – which prohibits the use of 22 worst-in-class toxic chemicals that are pervasive in the built environment such as chlorofluorocarbons, formaldehyde, phalates, chromium 6 and polyvinyl chloride (PVC).

Red Stag’s design and construction team looked at every single material used, verifying that each product’s chemical makeup was not harmful to humans or the environment.

Living Pā project manager Lincoln North says the sensory experience of the finished building is as transformative as its construction.



“ITS ENGINEERED DESIGN ALLOWS IT TO ROCK GENTLY ON ITS STEEL PLINTHS DURING EARTHQUAKES, OFFERING BOTH STRENGTH AND FLEXIBILITY.”

THE SEVEN PERFORMANCE CORNERSTONES OF THE LIVING BUILDING CERTIFICATION



PLACE



WATER



ENERGY



HEALTH &
HAPPINESS



MATERIALS



EQUITY



BEAUTY

“Timber dampens sound, creating a peaceful atmosphere that’s vastly different from concrete and steel buildings where noise often echoes. It creates a calming, natural environment reminiscent of a forest.”

Beyond aesthetics, the mass timber construction performs well under seismic codes, says Lincoln.

“Its engineered design allows it to rock gently on its steel plinths during earthquakes, offering both strength and flexibility.”

Jason sees great potential in extending this timber-first approach to other mid-rise buildings.

“The sweet spot for timber construction in New Zealand is four to eight storeys. Converting just ten percent of these buildings could drive demand, enabling economies of scale that reduce costs and boost domestic processing,” he says.

This shift could also yield secondary benefits, such as converting timber residues into renewable energy.

“Imagine if demand was so high that our construction residues were enough to fuel bioenergy facilities, replacing coal with a cleaner, sustainable alternative.”

For this particular project, 95 percent of the construction materials from waste was diverted from landfill.

The global building industry is a significant contributor to carbon emissions

(30 percent globally), with construction alone responsible for 17 percent. Timber construction offers a tangible solution to this challenge. Red Stag hopes projects like Ngā Mokopuna will inspire government support and incentives for sustainable building practices.

With our export log markets under pressure Jason thinks now is the ideal time to invest in domestic processing.

“We can add more value to the log as well as sequester carbon through domestic construction to help us meet our climate change goals,” Jason says. “In the future we could even be in the position to export modular construction components.

“It’s time for New Zealand to embrace this opportunity and lead the way in sustainable building practices.”

Now that the building is open, it will be audited over the next twelve months of continuous occupation for Living Building Challenge® certification.

Victoria University of Wellington deputy vice-chancellor Rawinia Higgins says as a living building, Ngā Mokopuna will be one of the world’s most sustainable civic constructions, with fewer than 30 buildings meeting these extremely high standards in the world.

“It has been designed and built to be self-sufficient to its site. It can generate all its own electricity, collect all required water, and manage all its own wastewater,” she says.



“TIMBER DAMPENS SOUND, CREATING A PEACEFUL ATMOSPHERE... IT CREATES A CALMING, NATURAL ENVIRONMENT REMINISCENT OF A FOREST.”

Ngā Mokopuna represents a bold step toward a sustainable future, integrating traditional Māori values with cutting-edge construction technology.

It is a testament to the potential of timber as a key material in New Zealand’s push for low-carbon, high-performance buildings that can meet the demands of a changing climate while respecting the environment and local communities.

Te Herenga Waka – Victoria University of Wellington sustainability director, Andrew Wilkes says the Ngā Mokopuna is not just a learning tool for students, it’s a resource for the entire community.

“We hope it will inspire others to think differently about construction and its potential to address environmental challenges.”



The rise of forest 'sleeper pests'

As the Earth has continued to warm, with it has come a raft of environmental pressures straining ecosystems around the world.

Oceans are becoming more acidic, droughts more frequent, carbon dioxide more concentrated, the seasons and their temperatures more varied and freak weather events more typical.

Forests are not immune. The ramifications of these climatic factors on pest and pathogen biology and ecology are becoming clear as forest managers across the globe battle an increase of pests and pathogens never seen in their forests before.

These 'sleeper pests' tend to be innocuous native or naturalised species that exhibit invasive characteristics and may become pests in response to environmental change – often a warmer, wetter, more favourable climate.

That's not to say that changes in climate are the sole pathway for forest pests and pathogens. Rather, climate change presents an opportunity that can increase the exposure risk, likelihood of establishment, range expansion, spread, population outbreaks and more. Individually or cumulatively, these can change the threat posed by what was previously a relatively benign organism.

There are numerous examples overseas, with a warmer climate giving rise to rapid growth of bark beetle populations in Europe and North America. These tiny beetles have impacted whole forests, affecting timber production and supply, with flow on effects to the economy.

Similarly, brown spot needle blight (BSNB), caused by the fungal disease *Lecanosticta acicola*, sat relatively dormant in Europe for decades until 2018, when changes in climate saw a shift in the severity and spread of this disease among forest stands, particularly in Spain. Its impact has been significant, slowing growth rates, killing trees and forcing forest owners to shift away from



An outbreak of red needle cast (RNC) in Waiau forest in 2023. Photo; Bill Wheeler.

planting *Pinus radiata*. Their sector is now exploring other species for timber production, each with their own collection of biosecurity threats.

Our secluded wee island at the bottom of the world has its own emerging challenge, with New Zealand radiata pine forests observing the beginning of a climate-induced pathogen – red needle cast (RNC).

This needle disease, caused by the fungal-like pathogen *Phytophthora pluvialis*, has caused growth losses of up to 40 percent after bad outbreaks.

New Zealand Forest Owners Association (NZFOA) director of biosecurity and risk, Brendan Gould, says the disease was first detected in 2008.

“Extreme weather events and a more temperate climate has meant the prevalence of red needle cast is more common now, particularly in northern New Zealand,” Brendan says.

Carried in airborne water droplets, the disease thrives in cooler, wet conditions, particularly in areas with prolonged periods of mist, rain and humidity. It's found in every region of New Zealand but areas like Gisborne, with coastal high elevation forests, are particularly vulnerable.

The most recent outbreaks were in 2017 and 2023, both of which were particularly wet years. The disease impacts tree growth by causing severe needle loss. In some cases, this can reduce growth by 51 percent in the year following a major outbreak. Although affected trees often regain their green appearance within a year, it can take three to four years for growth to fully recover.

“Not only does this impact the economics and productivity of our industry, it [red needle cast] has flow on effects for carbon sequestration,” Brendan says.



During the initial stages of red needle cast, pine needles have distinct olive or olive-with-black resinous bands. In later stages, the needles turn yellow then red to brown.

Red needle cast's sporadic and unpredictable nature makes it challenging to monitor and manage. With the increasing frequency of extreme weather events, outbreaks may become more regular, severe and widespread. Symptoms typically appear between March and October, peaking in late winter or early spring.

Brendan says growers should begin monitoring for RNC from March onwards.

"The first signs usually appear in the lower canopy as orange or red discolouration, which progresses upwards as the infection spreads," he says. "Early detection is crucial. The disease moves quickly. Under optimum conditions, its lifecycle – from infection to sporulation – is just one to two weeks. That's why early detection is crucial.

"Raising awareness, not just of RNC but of other pests and pathogens, will be important for mitigating risks posed to our forests and the cumulative impact they could have on forest health."

Growers can contact SPS Biota (0800 246 821 | bugs@spsbiota.co.nz) for any plantation forest issue related to RNC, or consult Scion's symptom guide. Growers can also send samples to Scion's diagnostic service for analysis

and confirmation of RNC (fhdiagnostics@scionresearch.com | 07 343 5513).

Currently, there are no widespread operational treatments for RNC, but preventative copper sprays have shown promise in trials and will be a crucial tool for dampening the sector's biosecurity threats. Low-volume aerial applications of copper, similar to those used for controlling *Dothistroma* needle blight, can reduce disease severity.

Unlike *Dothistroma*, RNC is fast-moving, meaning timing is critical. Growers need to monitor and spray in the same year to control the disease.

This can present challenges. The conditions that favour RNC, such as wet weather, can make aerial spraying difficult. Additionally, the reliance on copper raises concerns about long-term sustainability and the potential need for alternative solutions if copper becomes unavailable.

Considerable research efforts, some of which are funded by the Forest Growers Levy Trust, are making good progress on the problems of red needle cast in the short and long term and providing decision support to owners about its control.



"EXTREME WEATHER EVENTS AND A MORE TEMPERATE CLIMATE HAS MEANT THE PREVALENCE OF RED NEEDLE CAST IS MORE COMMON NOW, PARTICULARLY IN NORTHERN NEW ZEALAND."

Scion is also leading research into RNC under the Resilient Forests Programme, co-funded by Scion and Forest Growers Research. Research from Scion forest pathologists Dr Stuart Fraser and Dr Emily McLay is focused on four key areas:

1 QUANTIFYING IMPACTS

Studies in Gisborne and the Central North Island are assessing the economic and productivity losses caused by RNC. Dr Stuart Fraser says initial findings suggest radial growth losses of 30–50 percent in the year following a severe outbreak.

“Central North Island is a typical scenario,” Stuart says. “While Gisborne is the worse cast scenario. In 2023, more than 50 percent of forests in the Gisborne region were moderately to heavily impacted [by RNC], so much so that it was visible from space.”

2 EPIDEMIOLOGY

Dr Emily McLay is developing an infection risk model which estimates the number of needles that are likely to become infected per day given the climate conditions.

“It gives us an idea of how favourable the conditions have been (and are forecast to be) for RNC outbreaks and allows preventative control prior to the symptoms developing,” Emily says. “This is important because RNC typically spreads while the needle is green, so reactive control is not as effective.”

The team have developed a prototype model which they are testing with different types of climate data to see how well it predicted historic disease outbreaks. They hope to be able to use it to model potential impacts from climate change too.

“We would like to test the model in an operational setting, by getting forest growers and stakeholders to use it to help them plan their control operations.”

3 CONTROL STRATEGIES

The team are undertaking copper spraying trials in the Central North Island and Gisborne.

“Copper does seem to decrease the severity of the disease but we need to do a cost benefit analysis,” says Stuart. “We’ve also looked into resistance breeding and resistance has shown to be moderately heritable, but the sporadic nature of the disease makes genetic field trials challenging.”

4 FOREST HEALTH MONITORING

Platforms have been developed to monitor forest health from satellite imagery and now have disease estimations for all radiata pine forests in the Gisborne region from the last six years.

“Now we’ve got that data about the level of disease, we need to look at what it actually means in terms of impact on productivity,” explains Stuart. “As well as looking at satellite imagery, they are working at the granular, individual tree level by using wireless canopy sensors.

“The canopy sensors monitor temperature, humidity, and leaf wetness – key drivers for disease.

“This real-time data helps us understand infection risk and improve monitoring systems.”

The research team hopes to turn this information into an accessible handbook for growers in 2025 and share the risk model with them to use in their own forestry operations.

Timberlands environmental specialist Steve Gatenby has seen the effects of RNC firsthand and is looking forward to working with the model.

“The research from Scion will be invaluable in helping us plan where to spray in our forests,” says Steve. The *Dothistroma* Control Committee (DCC) headed by the New Zealand Forest Owners Association (NZFOA) and the New Zealand Farm Forestry Association (NZFFA) Biosecurity Committee, coordinates an annual *Dothistroma* spray programme for forest growers, providing copper and oil supplies and coordinating the aerial application as required.

“The DCC keeps residual stocks of copper and oil available for RNC spraying as requested,” says Steve. “We hope in the future to have multiple options for minimising the effects of RNC, as we can’t take for granted having access to the treatments and chemicals that we currently use.

“Like many forestry operators, *Dothistroma* is our focus, but we need to be aware and prepared for red needle cast,” says Steve. “Given how hard it is to predict where RNC will appear and the speed with which it progresses it is an ominous opponent that we need to start preparing for.

“It’s a sleeping pathogen that, with the right conditions over consecutive years has potential to hit us hard.

“The potential implications for New Zealand’s forest industry, the community and the economy, are not to be understated. It’s imperative that we learn more about it and prepare now.

“We’ve been lucky so far but that luck may run out.”

Protect your forests, protect the industry's potential

The forest growing sector has long recognised the risk posed by physical, environmental and biological threats to its forests. It is one of the few primary industries that invests significantly in actively mitigating these risks.

The movement of plants is one of the highest risk pathways for the spread and introduction of biosecurity risks, both internationally and domestically. Fortunately, New Zealand has a very effective biosecurity system with many layers that work together to minimise the likelihood that pests and pathogens will arrive and establish here. However, this does not and cannot eliminate all biosecurity risks.



The industry, through the Forest Growers Levy Trust, invests significantly in improving biosecurity protection for the sector, but there are many operational vulnerabilities that are best managed by forest owners. One is ensuring the seedlings you introduce into your forests are grown under biosecurity best practice. This minimises the risk of introducing plant and soil pathogens that could impact on your forests' productivity, value and market access.

This is where Plant Pass can help. Plant Pass is a voluntary certification scheme that promotes and supports good biosecurity practice in the nursery and its supply chain. It is aimed at helping plant nurseries identify and manage biosecurity risks, such as pine pitch canker (*Fusarium circinatum*) or brown spot needle blight (*Lecanosticta acicola*).

Plant Pass is a means to help reduce the likelihood of a pest or disease establishing in a nursery and being spread through the plant trade. It also improves traceability for plants, making rapidly tracing and recalling plants easier in a biosecurity response. This provides you as a forest owner with greater assurance that the biosecurity risks to your forests are being minimised.

Plant Pass Partners include plant buyers and those who influence and specify plant purchases such as local councils, central government agencies, sector advocates, and forest owners and managers. By becoming a Plant Pass Partner, you can support registered and certified nurseries and use your influence as a plant buyer to demonstrate your expectations to improve biosecurity risk management in your supply chain.

Protect your forests, protect your industry's potential, become a Plant Pass Partner.

Find out more about Plant Pass and become a Plant Pass Partner here:
<https://www.plantpass.org.nz/>

Plant Pass is a partnership between several plant-based sectors, including forestry and the government under the Government Industry Agreement (GIA) for Biosecurity Readiness and Response.

PLANT PASS



REDUCES THE LIKELIHOOD OF A PEST OR DISEASE ESTABLISHING IN A NURSERY



REDUCES THE LIKELIHOOD OF A PEST OR DISEASE BEING SPREAD THROUGH THE PLANT TRADE



IMPROVES TRACEABILITY FOR PLANTS



MAKES RAPIDLY TRACING AND RECALLING PLANTS EASIER IN A BIOSECURITY RESPONSE

Pine needle diseases on Australasia's radar



The New Zealand and Australian delegation of forest industry experts on a field visit with the Basque Country hosts in October. New Zealand forestry representatives included staff from the Forest Growers Levy Trust, the Forest Owners Association, Forest Growers Research, Timberlands Limited, Scion, Radiata Pine Breeding Company and Port Blakely. Australian forestry representatives included staff from the Australian Forest Products Association and Forest and Wood Products Australia. Photo: [Baskegur](#).

Growers in Basque Country, Spain, have been experiencing a severe outbreak of pine needle diseases, particularly brown spot needle blight (BSNB) – also known as *Lecanosticta acicola* – which has affected more than half of the region's radiata pine estate.

A 40 percent decline in radiata pine has occurred as a result, with many growers opting not to replant radiata pine again in future.

Forest health and biosecurity experts along with forest industry leaders from Australia and New Zealand's forest growing sectors visited the Basque Country in November to see firsthand the very real threat that BSNB could pose to our own softwood forest sectors.

The delegation saw the widespread impact the needle disease has had on forest health but also the flow on effects to the Basque economy, jobs, communities and people dependent on forestry.

We heard about the effect the disease has had on small forest owners in particular and the difficulty in effectively addressing BSNB when constrained by regulations and a lack of alternative tools at the sector's disposal.

The visit also presented an invaluable opportunity to discuss with European industry representatives and researchers current and future collaboration. A significant opportunity exists to participate in large-scale European tree species trials looking at resilience to climate change effects, pests and diseases.

Radiata pine is a remarkably productive and versatile fibre and timber crop for New Zealand and Australia and is highly

regarded in both domestic and export markets. In New Zealand, radiata pine constitutes 96 percent of the commercial plantation forest estate and in Australia, 65 percent of the overall estate. This pine needle disease poses significant threat to our forests if not managed or adequately addressed.

While BSNB is not currently present in the Australasian forest estate, it has spread throughout most forest growing regions in the northern hemisphere, including our major trading partner, China. The international pathway for its spread is not well understood. Should BSNB arrive in Australasia, with its heavy reliance on



A Basque Country radiata pine stand infected with brown spot needle blight (*Lecanosticta acicola*). Photo; Phil Taylor, Port Blakely Ltd, NZ Forestry.

radiata pine as the main softwood plantation species, it has the potential to cause disruption to domestic and international supply chains.

Having observed the very real impacts of BSNB on the Basque forestry and wood processing supply chain, Australasia's forest growing sectors have a unique opportunity to learn from their response and implement measures to mitigate the risks posed to radiata pine from BSNB. The experience also provides a platform for raising awareness among stakeholders should the disease become present.

What we've seen in the Basque Country highlights how critical forest health is to the

entire supply chain. Over the next twelve months, the delegation will continue to work collaboratively with government and forest owners in Australia and New Zealand to develop and execute a pre-emptive biosecurity strategy, encompassing international collaboration that will enhance protection of radiata pine and other species in Australasia.

The strategy will focus on identifying research and management priorities for needle diseases, finding ways to enhance surveillance and diagnostics and further testing of genetic material. The delegation will also look to develop new, and enhance existing, tools for responding to biosecurity

threats and ways of increasing education and awareness of forest health at both an industry and public level.

The delegation looks forward to further collaboration with international colleagues and discussing a pre-emptive approach with stakeholders to ensure the health and resilience of Australasia's forests endures.

96%
OF NZ'S PRODUCTION
FOREST ESTATE IS
COMPRISED OF RADIATA PINE

Delay to EUDR buys time for forest supply chains

Wood processors and forest growers around the globe breathed a sigh of relief in October when the European Commission announced a one-year delay to the implementation of European Union Deforestation Regulations (EUDR).

The EUDR aims to limit the EU market's impact on global deforestation and forest degradation as well as biodiversity loss. This new regulation brings significant implications, requiring New Zealand companies exporting wood products to the EU to conduct extensive due diligence on their supply chains.

Once in force, New Zealand wood product exporters will need to provide documentation that includes specific (geolocated) details on where the relevant commodities were produced, verified information that the commodities produced are compliant with our domestic legal requirements and evidence that the products are free from deforestation.

Even if New Zealand is assigned as a low-risk country (i.e., countries that have been identified as low risk of producing goods that do not comply with the EUDR), businesses will still need to provide the specified EUDR documentation in order to export timber products.

The EUDR was initially due to come into force on 30 December 2024. The 12-month delay will provide businesses the time and opportunity to ensure they have adequate processes and checks in place to implement the new rules.

Wood Processors and Manufacturers Association (WPMA) chief executive, Mark Ross, says while the delay is a welcome announcement from a transition standpoint, New Zealand is still on track to meet the necessary EUDR requirements.

"A working group, which includes forestry, government and wood processing members, has been meeting regularly to work through the EUDR with the goal of developing standardised guidelines and

a 'toolbox' by mid-2025 that will streamline data collection," Mark says. "Geolocation and forestry declarations are the primary focuses of that data.

"Despite the work various Associations and the working group are doing to prepare the sector here in New Zealand, it is important that forest growers are aware of the implications of the EUDR.

"Most significant is the need to work with mills in providing geolocation data and sourcing declarations."

Mark says this information will become necessary under the EUDR rules for verifying that trees have been legally harvested and that no deforestation or degradation has occurred in the harvested area.

"Should the harvested area be converted to farming in the future, then the products harvested from that area will not be accepted into the EU," Mark says. "It takes only one unverified tree to stop an entire export consignment at the border."

Compliance implications within the EU include fines, export bans and possible jail terms. Though the advantage of EUDR compliant export products includes decreased reputational risks, being able to meet consumer demands for ethical, environmentally friendly and legal products, plus contributing to the global efforts to combat climate change.

Although aspects of the EUDR are challenging, there are opportunities for New Zealand in working together and gaining a competitive advantage over other countries who may not have the ability to meet the regulatory requirements. The main opportunities are an increase in our exports of wood products to the EU and enhancement of our supply chain sustainability and traceability.

New Zealand's wood products are among the most sustainable in the world, as are our forests and forest management systems. The EUDR could inadvertently present an opportunity to tell that story with the credentials to back it.

ADVANTAGES OF EUDR COMPLIANT EXPORT PRODUCTS



DECREASED REPUTATIONAL RISKS



ABILITY TO MEET CONSUMER DEMANDS FOR ETHICAL, ENVIRONMENTALLY FRIENDLY AND LEGAL PRODUCTS



CONTRIBUTING TO GLOBAL EFFORTS TO COMBAT CLIMATE CHANGE

EU DR - KEY DEFINITIONS



GEOLOCATION

The geographical location of a plot of land described by means of latitude and longitude coordinates corresponding to at least one latitude and one longitude point and using at least 6 decimal digits. For plots of land over 4 hectares used for producing relevant commodities other than cattle, sufficient latitude and longitude points must be provided to describe the perimeter of each plot of land.



PLANTATION FOREST

A planted forest that is intensively managed and meets, at planting and stand maturity, all the following criteria: one or two species, even age class, and regular spacing. Plantation forests include short rotation plantations for wood, fibre and energy, and exclude forests planted for protection or ecosystem restoration, as well as forests established through planting or seeding, which at stand maturity resemble or will resemble naturally regenerating forests.



DEFORESTATION

The conversion of forest to agricultural use, whether human-induced or not. Note: A forest that has experienced a natural disaster (such as fire or flooding) and is then subsequently converted into agricultural land (after the cut-off date) would be considered deforestation under the regulation.



FOREST

A land area larger than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach those thresholds in situ. This excludes land that is predominantly under agricultural or urban land use.



FOREST DEGRADATION

Structural changes to forest cover, taking the form of the conversion of:

- primary forests or naturally regenerating forests into plantation forests or into other wooded land, or
- primary forests into planted forests.



OPERATOR

Any natural or legal person who, in the course of a commercial activity, places relevant products on the market or exports them.

Plugging New Zealand's energy gap with wood

Lower than normal hydro lake levels, caused by dry summers and low rainfall, are becoming the norm as climate change continues to alter the world as we know it.

Paired with the decline in our natural gas production, New Zealand is facing a potential electricity supply crisis.

Bioenergy Association executive officer, Brian Cox, says it's a situation born from an over-reliance on a single energy source.

But could wood be the solution?

"Relying on a single energy source is very risky for energy users and our communities, as we saw with the threats of powercuts in winter [2024]," Brian says. "However, this reliance also presents an opportunity for the forestry sector to step up and plug the gap.

"As the Genesis Energy chief executive told shareholders, the largest untapped energy resource in New Zealand lies in our forests."



"AS THE SUPPLY OF RESIDUE GROWS BECAUSE WE ARE PLANTING MORE TREES, SO TOO WILL EMPLOYMENT AND PROFITS. RURAL COMMUNITIES WILL ALSO BECOME MORE RESILIENT."

New Zealand has already begun paving the way for a wood-based future, using its forests to produce a variety of biological resources – construction timber, paper, pharmaceuticals and now renewable bioenergy.

Scion estimates that the bioeconomy could inject an extra \$30 billion into the economy while reducing emissions.

Our natural resources which make up our bioeconomy already give New Zealand a huge competitive advantage as the world moves away from fossil fuels.

Industry leaders increasingly recognise the potential of bioenergy and are investing in making it a reality.

OneFortyOne announced it will be investing \$30 million into a renewable power generation project at their Jubilee Sawmill, which will feature a biomass-powered steam turbine capable of generating enough electricity to power the entire mill. Surplus energy will be fed back into the grid or used to electrify their transport fleet and machinery.

A biorefinery at Marsden point has also been greenlit for development. The decommissioned oil refinery will be reconfigured to convert biomass, including woody debris, into biofuels, biochemicals and energy.

Meanwhile, a study by Air New Zealand and LanzaJet explored the potential of turning forestry waste and low-value wood products into sustainable aviation fuel (SAF). It found that local SAF manufacturing was possible and could generate \$430 million for New Zealand's economy, creating hundreds of jobs in the process and reducing Air New Zealand's carbon emissions by up to 85 percent.

Because of the sector's ability to grow trees quickly, Brian predicts that if we start making changes now, in 500 years we could be the leading exporter of energy and non-energy bio-based products.

That shift will be contingent on the sector making changes now.

"Currently the forestry sector thinks of their products as logs," says Brian. "But that only accounts for around 80 percent of the tree. The remaining 20 percent, which I call residue, can be used to make a variety of products, including vital biofuels.

"Manufacturers in other industries have worked out how to turn their residues into profit, it's time forestry did too.

"Growers are leaving dollars on the forest floor."

Currently this residue (branches, stumps and offcuts) is viewed as a waste product. The market dictates where value lies and for forestry that historically has been in logs. But growers need to start thinking bigger.

"The more products you can produce from your trees, the more resilient your business will be," explains Brian.

Wood-based biofuels can be as simple as wood chips for boilers, biomethane gas to replace natural gas or liquid biofuel for transport. Being a drop-in fuel, biofuels can often be used in existing equipment without need for capital expenditure. The alternative would be using electricity but that would require building new power stations and installing wind turbines and solar panels across the country.

"It is easier and cheaper to plant a few more trees than build a new power station," says Brian.

Not only does converting forestry residue to biofuels boost revenue for landowners and reduce emissions, it tackles one of the big issues facing the industry – post-harvest debris, which industry has typically had difficulty finding use for.



WOOD-BASED BIOFUELS CAN BE AS SIMPLE AS:



WOOD CHIPS FOR BOILERS



BIOMETHANE GAS TO REPLACE NATURAL GAS



LIQUID BIOFUEL FOR TRANSPORT

Greater focus on processing of wood residues into energy and other bioproducts could generate substantial business for forestry and the New Zealand economy.

Brian says tree growers need to start considering how to better use all parts of the tree, including these post-harvest residues.

“The forests themselves are a regenerating asset, so it makes sense to be using residues. There will be initial costs to develop production facilities and of course we still need to leave enough biomass on the slopes to provide nutrients for future planting. But as the supply of residue grows because we are planting more trees, so too will employment and profits. Rural communities will also become more resilient.”

That’s why Brian advocates for a much longer-term view of 500 years.

“Currently the industry is quite reactive, they look at what has and hasn’t worked in the past. They feel constrained by how many trees are in the ground now,” he says. “Instead, they need to be proactive.

“We don’t have enough residue today, but if we plant more, then in the future we’ll have enough to supply our energy needs. If we keep growing trees we will never run out.

“There is definitely a willingness to do this work but currently we don’t have enough knowledge or resources. Extracting energy and chemicals from within wood for a bioeconomy requires process engineers.”

Brian says the petroleum industry has process engineers with a wealth of knowledge and experience which a biobased economy needs and which the sector could start to draw on.

“It is not going to be easy; growers will have to take the lead and work together to tackle these challenges and collaborate with the emerging energy producers.

“New Zealand has the potential to be a world-leader in biofuel production. It’s time for forestry to start making these long-term investments now so that we can reap the rewards in the future.”



The New Zealand Forestry Bulletin is published three times a year by the New Zealand Forest Owners Association.

Please acknowledge the New Zealand Forest Owners Association as the source when republishing stories or abstracts from the Bulletin.

Publication date January 2025.

New Zealand Forest Owners Association

93 The Terrace
PO Box 10986, Wellington
Tel: +64 4 473 4769

Website: www.nzfoa.org.nz
Email: admin@nzfoa.org.nz