

NZARM Broadsheet

Issue #45 December 2023

# RESOURCE MANAGEMENT NEW ZEALAND

2023:  
Resilience and Relationships

[NZARM.ORG.NZ](http://NZARM.ORG.NZ)



# Contents

- 3 Welcome
- 4 NZARM Award Winners
- 5 NZARM CEO's 2023
- 6 Achieving thriving relationships
- 9 Working together empowers west coast farmers to 'Know their numbers'..
- 11 Freshwater farm plans - the why and the when
- 12 Farming and freshwater thriving together
- 14 Te Uru Rākau - New Zealand Forest Service
- 16 No-till and broadcasting



# Welcome to the December 2023 Issue of the Broadsheet

I am sure that elections and a new Government have not diverted members from the fantastic takeaways during the Christchurch Conference, so well organised by Judith Earl-Goulet and team. We were treated to two days of stimulating and informative presentations and masterclasses. Plus, there was the bonus of two excellent field trip options—a special thanks to Chris Phillips, who ably facilitated the first two days of presentations.

This year will be remembered for its catastrophic weather events. Those in affected regions had many new experiences, directly affected or involved in response and recovery work. Those outside flood areas would have been watching in awe at the forces of nature, which are so far beyond our control. However, there were plenty of examples of the success of good work done in the hill country over previous decades.

Another highlight is the build-up in every region towards the Fresh Water Farm Plan process, some more imminent than others. Mostly received as a good approach to managing fresh water. Still, it is concerning to see the odd council taking what could be described as outdated approaches to freshwater management when so much good is being done by leading catchment groups.

More than ever before in our resource management roles, professional growth has become a vitally important pursuit whether we are working for central Government, local Government or private enterprise and NZARM is delivering that for you.

You will soon be able to use the Capability Builder tool to assess your skill levels as part of the ongoing and growing professional development role NZARM will provide.

As the calendar year draws to a close, it is obvious that there is huge optimism for the future of our natural and farmed environments. The amount of positive effort and successes, which have often been with MfE and MPI funding support, is enormous, but much more needs to be done. Innovation and encouragement of land owners to participate and lead the way are key elements of the required rate of progress.

NZARM members represent the leaders in environmental management – and proud to be so.

Enjoy reading this issue of Broadsheet!



**Peter Manson**  
Interim President

# NZARM Award Winners

Congratulations to our two recipients of awards at the conference.

Ian Brown and Kerry Hudson have been members of NZARM, and its predecessor – The NZ Soil Conservators Association, and were recognised for their work in resource management over many years.

Ian, who was my first mentor in the industry in Wairoa, has contributed to soil and water management throughout the country, notably Hawkes Bay, Otago and Canterbury. Ian received the 'NZARM Special Award'.

Kerry received the 'NZARM Special Award'. He was recognised for his extraordinary devotion to soil and water conservation in the Tairāwhiti region for over 40 years. The supporting presenters gave impressive accounts of the work and achievements of both recipients. Kerry's formidable knowledge of the East Coast and the high degree of respect that its people have for him was highlighted, and he is the envy of many. Some may remember that Kerry was involved with organising an NZARM conference many years ago, which included helicopter flights!

Ian's long history and well-known analytical skills have held him in high regard. Ian notably organised the first 'International Conference on Sustainable Land Management' in Napier in..... well, a long time ago!

**Peter Manson**

## **Kerry Hudson - NZARM Special Award**

This Special Award is for NZARM members, retired members or honorary members, and can be for any particular achievement, contribution, project, or input that the Executive Committee considers appropriate.

Kerry has been a member of NZARM since 1982 and a part of the executive since 2014.



## **Ian Brown - NZARM Special Award**

This Special Award can be for NZARM members or non-members. It is made on the recommendation of the organizing committee of the Annual Conference, and would apply to someone within their region.

The award is to recognise a local person's contribution to resource management issues, and could pertain to their contribution locally, regionally, nationally, or internationally.



# NZARM CEO's 2023

## Matt Highway - NZARM CEO



What a year it has been for those involved in natural resource management, and people working with communities! Peter has summed the year up nicely, so I will just add by saying thank you for everything you do – if there is one thing NZARM should say about this year in response to the weather events, and the impact they have had on our lives and communities is that NZARM members and their skills are in as hot demand today as they were 70 years ago when this organisation began.

For those of you who are new to NZARM this year welcome to a great association, welcome to new connections to new people and welcome to a profession where you can make a difference, where you never stop being challenged and never stop learning.

NZARM's landmark project "the capability builder" is on the precipice of providing what I think is a game changer for upskilling natural resource managers and farm system experts. A new capability tool to be launched this year alongside a new website, will not only be great for individuals but also organisations. See the details of this project on our (old) website: <https://nzarm.org.nz/capability>.

I'm very proud of some of the core delivery that NZARM has completed this year. Thanks to the wonderful volunteers who have delivered 8 webinars in 2023, the talented contractors who have produced high quality training across farm systems, land management and water management, and the mentors and mentees that have signed up to NZARM's mentoring programme.

I'm very proud also of another great conference. A massive thank you to all involved in the 2023 conference in Christchurch. It seems that our conferences can consistently maintain a high level of quality and continue to be very relevant to our sector. Content from masterclasses and other talks will be available via our new website in early 2024.

I would like to finish by saying a warm thank you to all members of NZARM. You are the blood that pumps through NZARM's veins and keeps this 70-year-old organisation alive. We are a network of caring and dedicated individuals, and thank you for the hard work you put into your day-to-day activities to make Aotearoa/ New Zealand a better place.

Enjoy summer and your time off, I look forward to hearing from many of you in 2024!  
Matt Highway

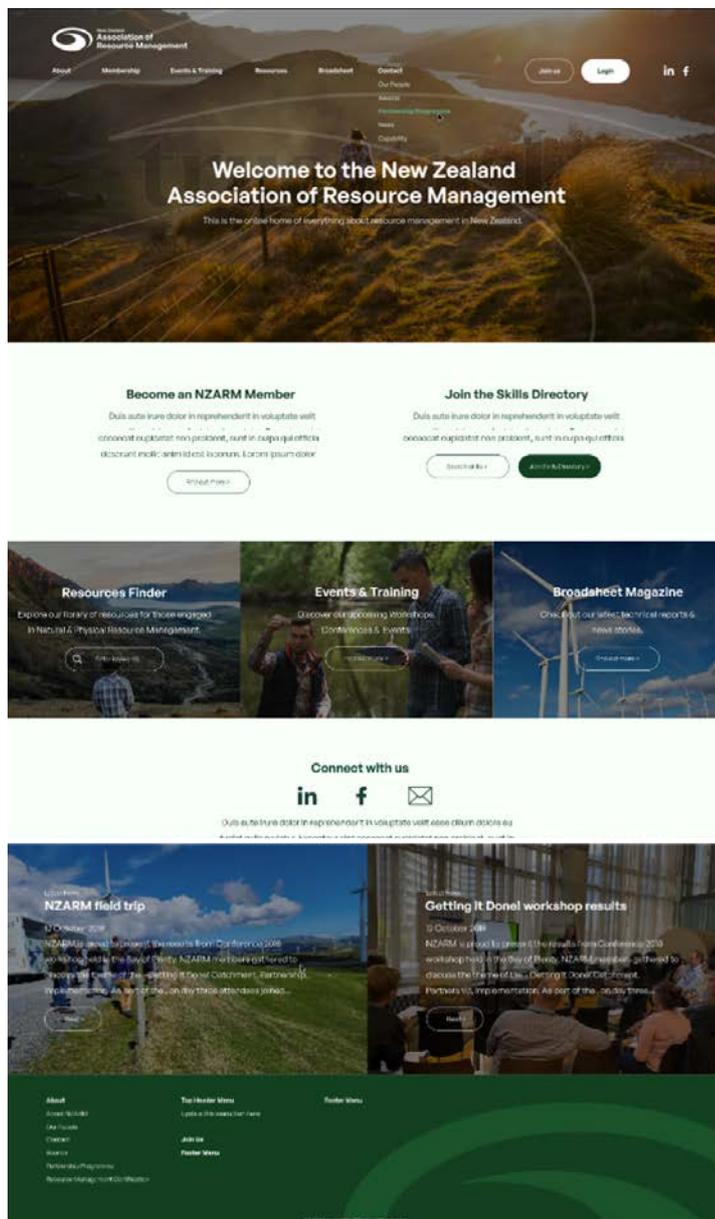


Figure 1- NZARM's new website, with an updated design new tools and new content.

# Achieving thriving Relationships

## Simon Stokes - Simon Stokes Consulting

In 2008 NZARM held a conference in Nelson with a theme of Integrated Catchment Management with the byline of “Are we wiser than we were?”

The consensus was that we were, naturally, as it had been a long time since the late 1950's when soil conservation really got underway in Aotearoa. However, we also agreed that we had not progressed as much as we should have in using that learnt wisdom from the past to see progress in resource management to the extent that it should be for the environment and people.

It's also interesting that when I peruse my archives on soil conservation and resource management in Aotearoa, that the interest and focus of our professional ancestors covered the full extent of what we cover now, albeit from a slightly narrower perspective, except for climate change as it is now and greenhouse gases.

The integration of our work and the focus on catchments has long been a working focus so that is not an innovation per se. Our ancestors wrote about environmental issues and got quite political in the 1970's and 1980's but couldn't affect any real change in the work they were doing until the end of the Catchment Board and River Authorities structure in the late 1980's. Fast forward to 2023 and our conference theme of Thriving Wai, Thriving Whenua, Thriving Communities is circling back to 2008 and probably previous similar themed conferences. So, in a way we're repeating a well tread pathway, but this time, with more complexity, we must look at how and what we're doing with more clarity of focus to ensure we progress significantly. We owe it to our hard-working selves and the communities we serve.

Using this as a backdrop to the 2023 conference, the question is what did it do to inspire us individually or collectively in progressing wisdom, lessons learnt and new ideas? Front and centre were a consensus that relationships are incredibly important. And yes, they are and have been recorded as such for decades.

But I posed the question to us – what do these relationships look like and resemble? Are they to be transactional or more transformational? From my own experience in a range of relationship situations, the scaffolding to secure behaviour change comes from understanding 'why' and therefore one's sense of role, place and whakapapa becomes apparent along with responsibility, enthusiasm and commitment to the change proposed – even if it is hard sometimes.

Connection to place is a stronger driver of change than being told what to do. Unless we understand this difference as an individual, collective or a business, then how we do our work and what we do will remain as static as the work of the past. We're wiser than that but are we able and willing?

If you look at the power of what relationships can achieve, with examples presented and seen at the conference, and where they need to exist now more than ever, there is huge potential to progress significantly.

For example, we are now empowered and directed to be involved in and work with communities in rohe, catchment and sub-catchment locations – even if the key driver for this is freshwater. We also have other wide-ranging considerations like ecological management and habitat restoration, future proofing farm and forest businesses, managing hazards, supporting economy and the list goes on, because it is an integrated environment, we work in. We also have, finally, a degree of focus on what we're trying to achieve. Some goals and targets. Thank goodness these relationships will be values driven in relation to who we work with, who we work for, and why we're doing it, although there is much to understand and hard work to occur to truly understand the values of our communities and rural businesses so that they feel comfortable in their long-term roles and responsibilities. Not us. This is not about us. Our success is their successfulness.

The breadth of environment and people related issues involves many different professional people now to support this historical time of change in the rural domain.

In 20 years the rural economy will look quite different and still exist. If our relationships are truly relationships of change where confidence, trust, and belief exist it will happen. That is a lesson from the past, while soil conservators and early land management officers really had great relationships with their farmers, they didn't quite achieve the depth of ownership change over who is responsible for the environment. Other than perhaps with farm foresters. I include myself in this. Because we were primarily from a Catchment Board or Council, it was seen as a Council service and so Council was responsible. I used farm plans as the tool to support change on a considerable scale. However, it was rare that a farmer truly owned the power of that document. Will that be the same proposition with freshwater farm plans? Will the current model generate the relationship I'm proposing.

If you look at our conference audience, it was the most wide-ranging professional group of attendees to participate I have known in 26 years of attendance. This is our new grouping of navigators, leaders, innovators, and workers. Our work is now not just the domain of a government or local government agency anymore, thankfully, it has been evolving quickly in the last decade to bring more people into our working world. We are seeing a greater level of commercial opportunity in working with people to manage the environment. I don't see this as necessarily a bad thing at all. I think it will drive change quicker. However, the wisdom of the past carries a cautionary tone, in that our professional and commercial growth will be fast and possibly ad hoc because of what drives us.

Will the commercial opportunity of roles and work and the pace of legislated requirements override the emphasis on the value of relationships and value settings? Will that really create the legacy of significant change to benefit the environment and people that we have been working towards for decades?

You need to ask yourself – what do these relationships look like and resemble for me, for my community, for my business. We owe it to those who are paying us to the support the future to know the answer.

Finally, our history as a profession in having a relationship with tangata whenua must improve, whether as part of our profession or as colleagues or as partners in programmes and projects. And working with marae and hapū.

When I started in 1995 it was a consultative battleground with little understanding, if any, of the authentic respect and recognition required to work with tangata whenua or the legislation in front of us. This situation is improving, but there is a long way to go, and politics should not get in the way of what we need to do, collectively.

If our conference is to truly bring some wisdom and lessons to life on relationships in managing and protecting the environment, as you collectively noted, it is that we have a lot of work to do to partner and participate with tangata whenua, and support the protection of our indigenous heritage, inspired, and led by Te Ao Māori knowledge. This isn't transactional. This is authentic relationship. When I asked our keynote speaker Mananui Ramsden (Kāti Huikai/Ngāi Tahu), how can we help? He replied "Relationships", visit marae, visit mana whenua".

Thank you to the conference committee for a very professional conference and to everyone who participated. He toa taumata rau – courage has many resting places.

Ngā mihi nui  
Simon

# Register today for your invite to the NZARM CAT

The launch of NZARM CAT – the first tool of its kind for farm planners and natural resource managers to assess their capability, plan and grow their careers – is nearly here. We're inviting all members to register for an invitation to be first to get access.

Register here for early access - <https://nzarm.org.nz/register>

CAT – the Capability Assessment Tool - is a fast, independent, online assessment that will provide you with a personalised capability profile, helps you set the direction for your career growth, and identifies opportunities for development and training. There is also a function that works as a pre-qualifying step to see if you're ready to become a Freshwater Farm Plan Certifier

The tool will be free to complete, and will take approximately thirty minutes. At the end, you'll get an industry-recognised record of your skill and experience that you can share with employers and potential new clients. The tool has been developed in partnership with industry, councils, and MfE, so will have good recognition.

"It's designed to be flexible and useful" says Matt Highway, CEO at NZARM. "We know that our members have different goals, so it allows an individual to focus on your skillset in 13 areas identified as important by the sector.

The tool is part of NZARM's wider project to grow capability and capacity in our sector, funded in partnership with MfE and regional councils.

"Our sector is changing all the time, but we know that demand for better resource management advice is growing – the capability project is about making sure that we, as farm planners, catchment managers, land air and water specialists and resource management professionals, are prepared to meet these needs not only now, but for the future, and to make it easier for our members to access upskilling, networking and mentoring opportunities" says Matt.

Everyone who registers for the tool will get first access to complete their assessment. For more information <https://nzarm.org.nz/capability>



**Building capability  
in freshwater management**



# Working together empowers west coast farmers to “Know their numbers”...

## OverseerFM

When Westland Milk Products needed to set up a system to support their farmer suppliers to get their greenhouse gas (GHG) emission numbers, they opted for a collaborative approach using OverseerFM.

“One of the requirements of the He Waka Eke Noa Primary Sector Climate Action Partnership (HWEN) triggered the need for all our suppliers to know their GHG emission numbers by December 2022,” says Penny McIntosh, On Farm Liaison Officer for Westland.

“We wanted to support our suppliers calculating their GHG emission numbers by making the whole process as easy and affordable as possible.

“One of the reasons we chose OverseerFM as the greenhouse gas calculator was because it models the whole farm system, including mitigations and all the good work farmers are already doing.

“It gives a good breakdown of GHG emissions and sources and it can run scenarios, which helps farmers avoid ‘pollution swapping’. Also, it enabled us to report collectively as an organisation.”

Penny is one of the team of Westland Milk Farm Liaison Officers/milk supply managers who provide support to 388 farmers throughout the West Coast and part of Canterbury.

She says teaming up with Ravensdown and Ballance Agri-nutrients enabled them to streamline the whole process and make it as easy as possible for farmers to get their GHG numbers.

“Both already had good knowledge of OverseerFM and we could use their experienced environmental teams, which already process Overseer accounts for other dairy companies.

“Lots of information needed to be collected and we needed to be very efficient, get the information on time and avoid duplication. Their fertiliser reps also had existing working relationships with many of our suppliers, knew their farm systems and had a lot of the fertiliser information so it made total sense to work together. We teamed up with them to do the digital mapping of farms too.”

Ahead of rolling the project out widely in May 2022, the companies created a template farmers could fill out, so their farm systems could be modelled in OverseerFM. They ran an advance trial with a small number of farms to ensure they could streamline the process as much as possible for farmers and pick up any potential issues in advance. They also worked closely with Alastair Taylor, business development manager for OverseerFM, to gain a good understanding of the software.



"It was really good having Alastair on board to help us," says Penny. "If we had any issues or questions, we only had to pick up the phone and call him."

"Following approval from farmers, we set up the Overseer accounts for farmers and paid the subscription for them directly to Overseer, and to Ravensdown and Ballance for the processing. The money was then repaid from their monthly milk cheque."

"Taking part in the Overseer project was optional and we gave our suppliers the option to use any of the calculators approved by HWEN however, 97 per cent of our supplier base came on board and used Overseer."

The three companies also ran a series of drop-in sessions for farmers so they could bring in their templates and be helped to fill them in. The fertiliser Reps and Westland Milk Supply Managers also provided help with filling out templates on farm.

Following the successful completion of the project, Westland teamed up with DairyNZ and Overseer FM to provide a series of roadshows throughout the West Coast covering topics such as the main drivers of GHGs, use of OverseerFM and benchmarking. Ongoing support is also being provided to those farmers who have opted to continue using OverseerFM.

Penny says the whole process was well received.

"It was brilliant, farmers came on board really well and they saw that we were trying to make it as easy as possible for them by setting them up in Overseer and working with the fertiliser companies to gather and process the information."

Penny says a further benefit for farmers is that banks are increasingly asking to see farms' GHG numbers when discussing financing - and a number of their customers have requested their Overseer reports for this purpose.

"It's also about being a good corporate citizen and caring for the environment. That is at the heart of Westland's business philosophy. More of our customers are also asking for GHG numbers for the whole supply chain, including on-farm emissions."

"I'd certainly recommend working collaboratively with other businesses, as we did. We were all singing from the same song sheet. We all wanted to help farmers and had existing working relationships with them and so we all picked it up together and it worked very well."

"OverseerFM and the fertiliser companies were brilliant to work with and everyone had a very good understanding of the goal we were trying to achieve."



# Freshwater farm plans – the why and the when

## Ministry for the Environment

Gina McGrath – a programme director at the Ministry for the Environment – spoke at this year’s conference on the freshwater farm plan journey. Some of Gina’s key points follow – with her full address available on the NZARM website soon.

Freshwater farm plans are part of a wider suite of reforms aimed at turning around the decline in many of our waterways and freshwater ecosystems. They start, however, with the acknowledgement that almost everyone understands and appreciates the significance of freshwater. The approach in developing freshwater farm plans has been a partnership.

Until now, regional councils have been expected to manage the effects of land use on freshwater via policies and rules in regional plans, with resource consents for many activities. In many cases this has not resulted in an appropriate level of environmental protection. Farmers have been asking for a system that allows individual circumstances to be considered. In response, freshwater farm plans were created with significant input from the farming sector, iwi, councils, and the community to provide a nationally consistent system, owned and implemented by councils, and tailored to each farm.

Freshwater farm plans will be developed and put in place by each farm operator, supported by their council, with certifiers providing an independent review that the plans are fit for purpose. A year after certification, an auditor will check that the action plan is being followed and will provide the farmer with a grade (from A-D).

The aim is to give farmers a practical suite of tools to reduce the impacts of farming on freshwater and reduce the need for consents and one-size-fits-all rules that are often hard to enforce.

The first two areas went live with freshwater farm plans in August this year (Southland and Waikato) with more areas set to start from February and April 2024 (Otago, the West Coast, and Horizons). The ministry has been talking to other regional councils too and other regions are expected to start later next year and into 2025.

There is also ongoing work to bring industry assurance plans and existing farm environment plans into the freshwater farm plan system. In many cases, farmers with an existing environmental plan will be able to adapt or transition to the new system without duplication of effort.

For more information visit [environment.govt.nz/ruralhub](https://environment.govt.nz/ruralhub).



# Farming and freshwater thriving together

## Living Water



Living Water was a ten year partnership between Fonterra and the Department of Conservation between 2013-2023. We set out to trial new approaches and ways of working that could accelerate change for freshwater in Aotearoa New Zealand.

We wanted to find solutions that could be applied at scale and have real impact for farming, freshwater and healthy ecosystems to thrive together. What we discovered is that there is no silver bullet for solving the freshwater challenge, but we know that Living Water has played a part in achieving positive impact for freshwater over the ten years of the partnership. The following showcases some of that mahi and how change can happen at different scales.

You can read about all the projects, case studies, trials and stories of our work at [www.livingwater.net.nz](http://www.livingwater.net.nz)

### Lowland waterway restoration trials

We partnered with the University of Canterbury to design and implement waterway restoration trials in a farming landscape. These trials were then used to design solutions at catchment scale. The trials focused as much on how to co-design solutions with farmers and communities as they did on the ecological science itself. The University of Canterbury approach to working in rural communities has helped reduce farmer anxiety around change and also respected the knowledge of mana whenua alongside farmer knowledge and western science.



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### LandscapeDNA

Water quality can vary widely between regions and catchments around New Zealand due to the influence of soil types and other land features. This can account for more than twice the variability in water quality than land use practices. LandscapeDNA is a new science GIS tool that puts physiographic data into the hands of land stewards, rather than that information just sitting with scientists and regulators. We think this will be a game-changer for New Zealand by helping to democratise data, drive informed local discussions about land use, and change mindsets related to what nature needs in order to be healthy in the future. [www.landscapeDNA.org](http://www.landscapeDNA.org)



## Reimagining lowland waterways

Most rural drainage schemes in New Zealand were designed years ago with one purpose - draining water off the land as fast as possible.

We collaborated with district and regional councils, mana whenua, and various stakeholders to redesign the water network management approaches at a catchment level in the Ararira-LII, Canterbury. Our goal was to achieve ecological and cultural objectives alongside drainage. We learnt that this is a system level change, with water network managers (normally councils) and communities needing to collaborate in different ways. This will require organisational and structural changes to funding and sharing of information and knowledge to collectively decide on actions



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## Fine Particle Fertiliser Application (FPA)

Using an application method that grinds nitrogen fertiliser into smaller granules, FPA can achieve the same pasture growth with a 50% reduction in fertiliser use, and result in less nitrogen loss to waterways. The FPA method has been developed so that it can be applied through a clip on technology to current spreading trucks, making this work within the current fertiliser delivery system. There is a huge opportunity to apply this across New Zealand and achieve significant reductions in nitrogen loss to waterways.



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## Farming with Native Biodiversity

We partnered in a national pilot to promote ecosystem thinking in farming, enhance biodiversity expertise, and encourage on-farm biodiversity improvements.

Through Living Water we discovered nature-based solutions are critical for having resilient productive landscapes.

From a primary sector perspective, we need to be demonstrating to our global markets that we are actively working to regenerate our land and water. As market and climate forces increase, buyers, banks and insurers are looking to support farms that are environmentally resilient.

[www.biodiversity.nz](http://www.biodiversity.nz)



# Te Uru Rākau – New Zealand Forest Service



## **Empowering informed decision making for the prosperity of people and the planet**

Want to plant some trees but don't know what to plant? Have some trees that you want to enter in the ETS but not sure how to find more information? Are areas of your farm erosion-prone, and you want advice on erosion control? These questions and more can be answered by Te Uru Rākau – New Zealand Forest Service.

We advise landowners and the forest sector on the benefits of forests and trees, supporting sustainable land use. By doing so, Te Uru Rākau – New Zealand Forest Service helps the sector make stronger contributions to New Zealand's economic and decarbonisation objectives.

Our team of forest advisers are registered, with local knowledge and expertise, and are based in nine regional offices: Kerikeri, Whangarei, Whakatane, Gisborne, Palmerston North, Whanganui, Nelson, Christchurch and Timaru.

We collectively bring together a set of skills and experience, to identify opportunities that support decision making for people and for the planet.

## **What we do**

### **Benefits of trees**

We provide advice and guidance to landowners and stakeholders that is easily accessible, reputable, local, impartial, and free. The goal is to give landowners confidence to start a forestry venture or to embark on a native afforestation project, and to partner with trusted stakeholders.

We aim to understand what people's goals and visions are for their land – be it planting for land stabilisation, amenity values, financial returns, or biodiversity. We are regionally based and understand regional nuance for species selection.

Trees are the best nature-based solution for erosion control. We can provide landowners with options for planting to reduce erosion and align advice with landowners' aspirations.

## **Information and connection**

We provide seamless access to interrelated Te Uru Rākau – New Zealand Forest Service and Ministry for Primary Industries work programmes and initiatives.

The team can provide information about opportunities for grant funding, work on the native afforestation project, and offer support and information on biosecurity issues to support forest health. We can also keep our stakeholders updated on innovative new projects in the forestry sector.

## **The future for forestry**

Did you know the [Forestry and Wood Processing Industry Transformation Plan](#) sets out a vision and an action plan to support the better use of forestry resources by processing more wood onshore, producing more high-value wood products, and using residues to grow the forest-based bioeconomy.



Figure 2 - Te Uru Rākau Forest Service Advice Team

## Maximising carbon in our forests

Have you read that the [Maximising Carbon Programme](#) is exploring new methods of improving how carbon stock changes in forests are measured, and how improved management practices can affect how much carbon a forest stores?

Te Uru Rākau – New Zealand Forest Service has programmes of work that address our forest systems, our climate response, and threats to our indigenous biodiversity through managing biosecurity risks and species decline.

## Regulatory guidance

We can provide landowners and other stakeholders, including local Government, guidance on the rules and regulations linking you to the correct internal contacts for Te Uru Rākau – New Zealand Forest Service:

- Emissions Trading Scheme (ETS)
- National Environmental Standards for Plantation Forestry (NES-PF)
- Forests Act 1949
- Forests (Log Traders and Forestry Advisers) Amendment Act.

## Contact us

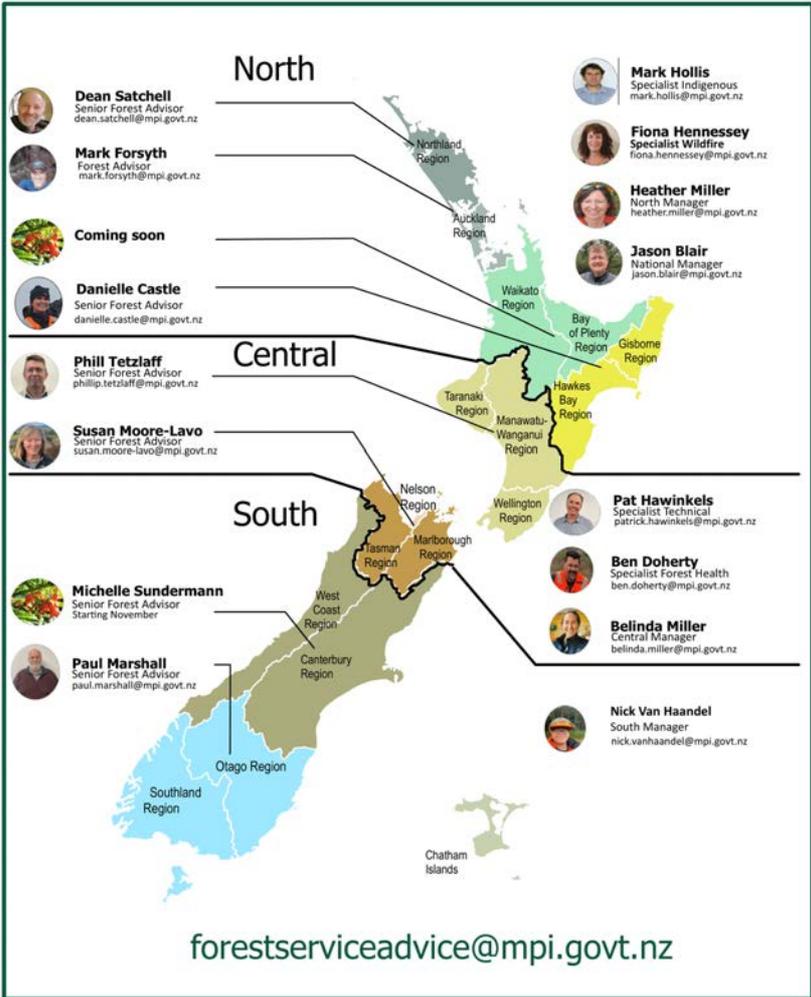
Our forest advice team is here to help people navigate information, investigate opportunities, and access advice.

**Email us at:** [forests-service-advice@mpi.govt.nz](mailto:forests-service-advice@mpi.govt.nz)

**Call:** 0800 00 83 33

**Visit:** your local TUR-NZFS regional office [Forestry advisory service](#) | NZ Government ([mpi.govt.nz](http://mpi.govt.nz))

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# No-till and broadcasting

Using no-tillage cropping in a pasture renewal programme helps to protect and conserve soil, control pests and provide feed.

## What's no-tillage cropping?

No-tillage cropping involves sowing seed by drilling or broadcasting, without cultivating the soil. In New Zealand, most small seeded forage crops can be no-tilled – brassicas (swede, kale, turnip, rape), clover, chicory and plantain. Cereals and pasture grasses are also no-tilled.

No-tillage drilling is a proven technology, used worldwide for all types of cropping. Specialised seed drills place seed at the right depth in close proximity to fertiliser, regardless of surface terrain.

For land not suitable for drilling, seed can be broadcast, either via a truck (truck cropping) or helicopter (helicropping), or as recently demonstrated in the South Island, fixed wing aircraft. Helicropping is a useful tool for any terrain, enabling new pastures to be introduced via a forage crop, or simply to regrass old pasture to new pasture, or to bring scrub and ex-forestry land into pasture. Truckable terrain can be sown using a fertiliser spreading truck.

## What benefits does broadcast cropping offer?

### Healthier, undisturbed soil

Not cultivating the soil and leaving it undisturbed is good for its physical health.

No-tillage leaves the soil structure intact, with good water infiltration, making it less vulnerable to pugging and wind and water erosion. Almost no soil is lost during the crop's establishment and growing phases, mitigating the risk of sediment entering water. Soil loss during harvest depends on grazing management, but as the soil still has structural strength, it is a very different starting point to cultivated soil.

Without cultivation, fertile topsoil remains on the surface and is not buried and mixed with low fertility subsoil, and less moisture is lost from the soil.

The predator/pest relationship remains unchanged. When soil is cultivated, beneficial soil organisms such as predators of the NZ grass grub are impacted. As a result, 3-4 years after cultivation grass grub populations may

increase to unmanageable levels and destroy the new pasture.

### Supplementary summer or winter stock feed on sloping land

Over recent years helicropping techniques have been refined, enabling summer or winter small seeded forage crops to be established almost anywhere. Slopes steeper than 10° can be sown to summer crops, grazed and be back in new pasture for winter grazing. If sowing winter grazed crops, slopes greater than 10° cannot be grazed in winter without a regional council resource consent.

### Quick and efficient

With good planning, 40 ha of crop can be established via helicropping in 6 hours. Ideally everything is done on the same day, as weather and other factors can make it difficult to get a helicopter back in a timely manner. Often weather conditions prevent cultivation or drilling operations, but helicropping just needs a break in the weather, and truck cropping can be carried out with minimal passes of lighter vehicles.

### Economically competitive with cultivating

The economics of helicropping are competitive with tillage, according to analysis carried out by the 'Sustainable helicropping – protecting our soils' project. A helicopter is very efficient for non-truckable or hard to access land, but also expensive, so the size of job and ferrying time need to be part of the equation. The cost to establish a helicrop is similar to a full cultivation programme using tractors. As fertiliser trucks don't cost as much as helicopters, truck cropping is even more cost-effective.

### Is helicropping suitable for you?

Stock class and slope are important factors in deciding if an area can be helicropped. Grazing large animals on a winter forage crop on steep land should be avoided. Helicropping can be used to renew pastures on steep land, either via a summer crop or by using a summer fallow (see page 11).

### What are the potential drawbacks of broadcast cropping, and how are they overcome?

#### Lack of mineralisation

As soil is not cultivated, plant available nutrients are not released to the soil solution via mineralisation. This can be overcome by a significant capital phosphorus (P) application with the seed.

#### Broadcasted starter fertiliser not concentrated near the seed

A significant capital P application (400-500 kg DAP/ha) with the seed overcomes this issue. Note that after grazing the forage crop, most of the applied phosphate will still be in the paddock, enhancing the next crop.

#### Birds can take seed

Surface sown seed is easy for birds to take. This can be overcome by treating seed with Avipel (anthraquinone), which repels birds. Experience has shown there is less bird predation of spring sown brassicas seed (perhaps due to the type of seed coating), however autumn or winter broadcast grass seeds are vigorously consumed. Avipel, applied on top of the insecticide seed treatment, is destined to play an important role in regrassing and cover crop establishment.

### Need for rain

Seed needs to be broadcast at a time when rain can be expected following seeding.

### What does broadcast cropping involve?

For successful establishment and growth, the recommended steps are:

- 1. Check the slope** - The NZ Government has put a 10° slope limit on growing winter forage crops such as swedes or kale without a resource consent. There's no slope restriction for summer crops of turnips, rape and plantain, chicory or plantain, which are generally back in pasture for the winter.
- 2. Spray** - In October, with seasonal rain still expected and pasture cover of around 1800 kg DM/ha, spray the pasture dead with an appropriate rate of glyphosate (plus diazinon to control springtails). Ideally aircraft should use Accuflow no-drift nozzles to prevent herbicide drift.
- 3. Broadcast** - Likely the same day, broadcast crop seed at 1.5-2 times the normal rate. Evenly spread slug bait at the high label rate, plus fertiliser such as Cropzeal Boron Boost at 400-500 kg/ha for brassicas. Ensure even coverage is achieved by half overlap spreading

at half rates. Soluble phosphate near the seed is important for seedling establishment vigour.

- 4. Side dress** - Four weeks after sowing, broadcast SustaiN at around 200 kg/ha (applying around 90 kg N as a side dressing).
- 5. Control pests** - As usual, spray for pest control and germinating weeds. As the soil hasn't been cultivated, the main weeds are likely to be grassweeds, requiring a grassweed herbicide (not a broadleaf herbicide). Walk the paddock to confirm this.
- 6. New pasture** - After grazing a summer crop, broadcasting grass seed to establish new pasture should be planned around the autumn drought breaking rain. Simply spray glyphosate, then surface broadcast the insect protected pasture seed treated with Avipel bird repellent, plus DAP at 200-300 kg/ha, applying half rates in a half overlap spreading technique. After a winter grazed crop, new pasture should also be sown in the same manner when conditions allow.

**i FOR MORE INFORMATION**  
**ballance.co.nz/helicropping or contact your Ballance Nutrient Specialist.**

### Strip tillage

For 40 plus years maize has been grown in New Zealand via a full cultivation regime. The impact on the soil is becoming apparent and growers are seeking alternative methods. Strip tillage is proving to be both relatively simple and cost-effective. The technique disturbs only 15-20 per cent of the soil, reducing the impact on soil structure, organic matter and soil organisms.

For farmers growing maize in a new paddock each season, the good news is that as more contractors offer strip tillage their maize crops can be grown and harvested with very little disturbance to the soil. It's likely that when cropped paddocks are back in new grass they will be able to support winter grazing.

*Photo: Paul Hunter*



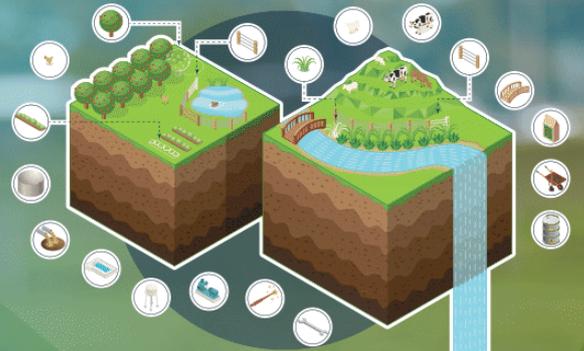
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