



## Making cents for Northland Farms with the ETS

John-Paul Praat and Bob Thompson explain the opportunities available to farmers through the ETS. This article is abridged from the original which appears in September 2010 issue of NZ Journal of Institute of Primary Management.

NZ has now implemented an Emissions Trading Scheme (ETS). This imposes increased costs on everyone and of course no one thinks that is fair, farmers included! However, it is not well understood that the ETS presents some farmers with opportunities to make money. But that depends!

A project recently completed for the NZ Landcare Trust in Northland by John-Paul Praat (P.A. Handford and Associates) and Bob Thomson (AgFirst Northland) compared the potential impact of the ETS on two Northland properties. This was part of a wider SFF funded project looking at issues around farm resilience. A key component of resilient sheep and beef farms is 'appropriate land use', which often involves review of existing landuse for some classes of pastoral land. Increased awareness and exploration of the opportunities to generate alternative, carbon income from steeper, lower producing areas may encourage farmers to consider changing to more appropriate landuse.

Two aspects were made clear by the work. Firstly, the importance of assessing land use capability and profitability in order to maximise the benefits from integrating a carbon management strategy. Secondly, farms with existing post-1989 forests have valuable risk management options.

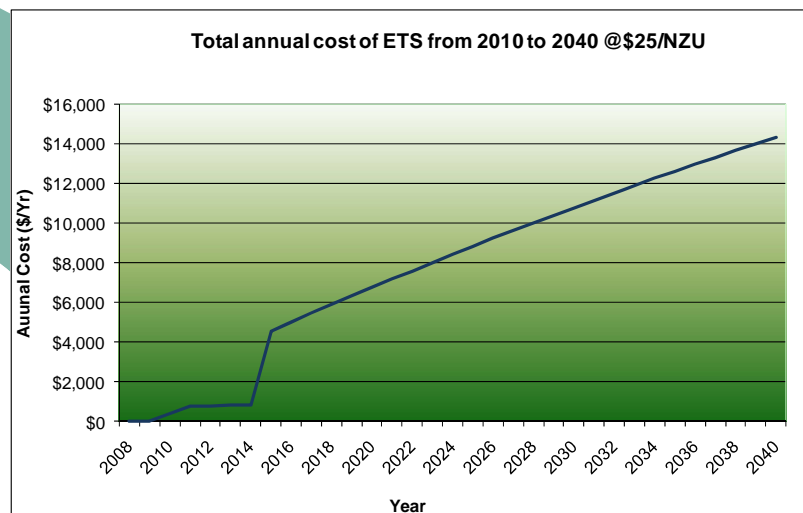
### Pohoatua

Pohoatua is a traditional sheep and beef operation with around 4,500 stock units, situated about 25km west of Whangarei. The farm has an effective grazing area of 360ha with a mixture of flats and rolling country. The farm's production base is 850 ewes plus 620 cattle, ranging from heifer calves to two-year bulls and beef cows (sheep:cattle ratio of 33:67). Annual greenhouse gas emissions from the farm are described in the following table. Note that livestock are the source of 96% of emissions (1,476 of the total 1,540 NZU).

Greenhouse gas source (annual emissions)	Tonnes CO <sub>2</sub> (NZU)
Petrol 4,300 litres	10
Diesel 270 litres	1
Electricity 6,183 kWh	1
Nitrogen 9.2 tonnes	45
Sheep 1,466*	484
Cattle 580*	992
	<b>1,540</b>

The ETS will initially result in some cost increases to farmers as suppliers of diesel, electricity, fertiliser etc pass on their own carbon liability costs. Farmers' liability for livestock emissions will initially be limited to 10% from 2015 then increasing by 1.3% year. At \$25/NZU this will amount to a levy in 2015 for Pohoatua of about 3c/kg of beef and 6c/kg of sheep meat. The total annual cost to the farm between 2010 and 2040 (based on \$25/NZU), including energy and fertiliser, is shown in Figure 1.

Figure 1: Cost of the ETS to Pohoatua between 2010 and 2040



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# NZARM

The New Zealand Association of Resource Management (NZARM) is an incorporated society that provides support and focus for people who share a professional interest in the sustainable management of New Zealand's natural resources.

NZARM's purpose is to champion the resource management cause, to promote professionalism, and to maintain a strong community spirit of meeting, sharing, and generally having a good time. Members receive benefit through an annual conference, regional workshops, a Broadsheet newsletter three times each year, and the opportunity to become a recognised professional and accredited practitioner of resource management.

Further information, including membership registration details, can be obtained from the NZARM website ([www.nzarm.org.nz](http://www.nzarm.org.nz)) or by contacting the secretary:

The Secretary  
C/- NZARM  
PO Box 4315 Hamilton East  
HAMILTON 3247

## BROADSHEET

BROADSHEET is the newsletter of the New Zealand Association of Resource Management. It is now published three times per year.

The Editor welcomes correspondence, reviews of recent publications, interim reports of current research or resource management issues, news items, other articles, and lighter items about members activities and career movements. An invitation to make submissions to Broadsheet is sent out 2 - 4 weeks prior to the publication date. However, SUBMISSIONS CAN BE MADE TO THE EDITOR AT ANY TIME. Generally submissions are sent to NZARM regional coordinators or directly to the Editor. Copy sent by E-mail is preferred, although typed copy is also acceptable. Items can be sent to:

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# Editor's note

*"Unless someone like you cares a whole awful lot,  
Nothing is going to get better.  
It's not."  
The Lorax- Dr Suess*

The Lorax has become a bit of a bedtime standard of late for my kids. And although it's dealing with a reasonably grown-up topic I do enjoy the ethical debate it sparks from a child's perspective about the pros and cons of the entrepreneurial but short sighted Once-ler versus the gruff but altruistic Lorax. This quote has been used by people much more eloquent than myself as a way of expressing the plight of society unless individuals take things personally enough to take action. Lest the problems we collectively face become the victim of dispersion of responsibility, a common contagion among large groups of people.

Sure enough, we have more than our fair share of issues to care a whole awful lot about. However I'm focusing this editorial on the old chestnut of stock access to waterways and the resultant water quality issues. Now, easy as it would be to launch into a rant on the inequities of farmers (let's call them the Once-ler, just for fun), it would in truth be disingenuous and a simplification of the scale of the issue.

This thought has come about by the combination of some work I've been doing on an environmental plan for a dairy farm and the recent report by NIWA on the continued decline of the quality of our fresh water resource, mostly due to increasing temperature, nutrients and faecal bacteria. All of which are largely derived from pastoral farming sources. Now sure, if you farm NZ as intensively as we do (and we're damn good at it too I'm told) then there is going to be an impact on our environment. But to see the constant stream (sorry, couldn't resist) of reports regarding the state of our waterways it makes me wonder is it worth it? Indeed do we care, and if we don't at what stage will we?

Fencing off of waterways in the highly modified environment of a dairy farm strikes me as a relatively simple exercise. Their drain like straight line nature coupled with stock that will respect minimal hot wires make it a simple fencing job. Furthermore, my experience suggests that when dairy farmers care a whole awful lot they tend to have the resources to undertake

riparian planting. This deals with the stock, however I do wonder about the ease of connectivity for readily leached nutrients between paddock and waterway via groundwater. Something a fence can't fix.

What about sheep and beef? As many of you will know, retirement of waterways in this environment is at times impracticable and highly expensive. What will a fenced off waterway look like that isn't grazed and where riparian planting with suitable species isn't affordable? A haven and corridor for pest plants is a likely result. How can this best be managed? One idea that has been talked about is the exclusion of the more damaging cattle from waterways whilst allowing sheep to graze the banks, thus enabling vegetation to be controlled and some unpalatable natives to establish. As Simon Stokes touches on in his comment, the sheep has a relatively low impact footprint in terms of sediment generation and nutrient into waterways.

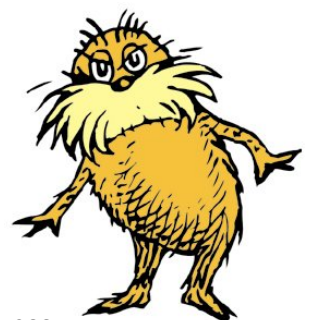
Spare a thought for the Lorax out there as well. Pick a fight with a farmer about fencing off of waterways and nutrient run off and you're likely to get beaten up. If we are talking about the profitability of farms and people's livelihoods and, to extrapolate, the economic viability of the nation, then it's not always a comfortable position to be in. Indeed, it takes some genuine conviction to care a whole awful lot.

In summary, it is a vast issue to get one's head around as you can see by me having more questions than answers. Naturally, we have lots of water, lots of waterways and lots of farming. Like my lecturer used to tell me whilst lumping me with more work, "Tony, this isn't going to go away". He was right, it isn't going away, and unless we care a whole awful lot, nothing is going to get better. It's not.

Looking forward to seeing you all in Canterbury next month. And well done to our outgoing president Simon I'm sure I speak for many when I say the energy and enthusiasm that you brought to the role will be missed.

**Tony Faulkner**

The Lorax.  
Courtesy Dr Suess.



# Perspectives – 10 years of Integrated Catchment Management research

Jim Risk looks back on 10 years of Integrated Catchment research in Nelson

The team from the Integrated Catchment Management (ICM) programme celebrated 10 years of FRST-funded research in Nelson last week. Programme leader Andrew Fenemor and researchers from Landcare Research and Cawthron coordinated a 3-day public workshop 'ICM – Connecting Research and Practice' which attracted over 135 participants including the Parliamentary Commissioner for the Environment.

Guest Dr Gene Likens, founder of the Hubbard Brook Ecosystem Study 47 years ago, and discoverer of acid rain said he sees integrative research like this as the way of the future. But as one of the original designers of the Motueka ICM project he made a plea for longer term research programmes, commenting that '10 years just isn't long enough to understand how things work?.'

The amount of interest in the workshop was beyond expectations, but feedback shows that ICM is seen as a fundamental approach for resolving the high profile land and water issues facing NZ. The audience evaluations suggest they took away many pointers on what makes a successful ICM approach.

The inter-disciplinary research team sees ICM as based on 3 integrative principles –

1. Resource management which considers land as connected with water and with the coast (geographical integration)
2. An adaptive management process driven by the big issues in a catchment
3. A way of operating which links biophysical knowledge (our traditional science) with engagement processes (what we've loosely termed community resilience).

We've found that by researching together in this way, the outcomes and spin-offs from different disciplines working together are multiplied. ICM water quality and riparian research with farmers in the Sherry catchment for example has led to a 50% improvement in water quality.

It also led to stock crossing recommendations in the Clean Streams Accord, but as importantly motivated the community in that catchment to commit voluntarily to ongoing changes in land management via Landowner Environmental Plans to achieve an 80% improvement and make their river swimmable. That's their success more than it's ours.

What are the big ICM take-home research findings? Here are a few that we discussed at the workshop's Café Scientifique –

- ICM is about ways to engage the whole community with the science of land-water management, so they almost instinctively see themselves within a wider environment than their own property or sector.

- Catchments' extend offshore (in the case of the Motueka about 400km<sup>2</sup>); increased interest in coastal values and aquaculture demands conjunctive management of catchments and coastal zones
- Long-term sediment yields from agriculture are often larger than from forestry
- Long duration floods in spring were the main cause of the 1990s 70% decline in Motueka trout numbers
- Building iwi capacity and respect for kaitiakitanga principles can do wonders for collaborative catchment management.

Presentations may be seen at <http://icm.landcareresearch.co.nz/>.

What's next for ICM research? ICM may no longer fit the funders' core business models but we're working on that one!

*Landcare Research researchers in the ICM programme are Chris Phillips, Les Basher, Garth Harmsworth, John Dymond, Oscar Montes de Oca, Marc Dresser, John Payne, Jagath Ekanayake, Ron deRose, Mike Marden, James Barringer, Louis Tremblay and Andrew Fenemor*

*The programme is a partnership between Landcare Research, Cawthron Institute and Tasman District Council and includes researchers and participation from NIWA, GNS, Scion, NZ Landcare Trust, Tiakina Te Taiao Ltd, Common Ground Ltd, Pansophy Ltd, Fish & Game, Will Allen & Margaret Kilvington, plus stakeholders within the Motueka catchment.*

## Jim Risk

Environment Southland



# Letters to the Editor

Dear Sir

I have been a forest manager for 40 odd years with a vast practical experience in land use management throughout a number of regions of New Zealand. I have seen my share of good and bad over that time at both the operational and regulatory level. In the vast majority of cases, the good has been built on and the bad corrected through education (thanks to Norm Ngapo I learnt why good old soil was a pollutant – after that, finding answers was relatively simple ) and experience. As a result, it is fair to say that there has been consistent progress in environmental performance throughout New Zealand, particularly post RMA.

I have unfortunately been reminded in recent years of the “pendulum affect” of public expectations (we are well past 6 o’clock when the only flat area was a stream bed so that is where the skid went which connected with the haul track - the river bed) and the current often ill informed response by bureaucracy to correct what is seen to be a problem as per the following example:

Over recent years we have seen a concerted move by the ARC to generate rules and operational requirement in line with earthworks generally - at the request of urban earthworks operators so we are told. This has resulted in the generation of the TP223 document with the principals within TP223 of minimising and controlling erosion and treating sediment laden runoff from disturbed land - just what any control mechanism should focus on. I would also stress at this point that my argument does not extend to the rare poorly planned / managed operation where TP 223 may well be applicable

Where it goes wrong though is that, in pandering to the urban earthworks sector (which frequently permanently obliterate natural streams [politically too hard to control???) rather than at worst having a short term adverse effect as in a well managed forestry operation; or for that matter even most bad ones) it does not recognise the intrinsic values of the logged area in terms of logging debris (slows velocity allowing settlement; creates many small “settlement dams”, attracts sediment to the surface area and diffuses flow – all great control mechanisms) and the “whole of life” forest performance.

As a result, expensive and often unnecessary additional earthworks are required to meet the TP223 standard. There is no formal ability to use sound environmental management or even common sense as we are advised that the job is audited to that standard and that there is no room for movement.

To illustrate the effect of this standard, in the last month I separated and diverted the dirty water generated from a small skid area from the clean water runoff and channeled it to a natural depression greater in volume than the “2% rule” required of a pond. The area was covered in

vegetation and any overflow was through vegetation. There was no disturbed earth. The result of the monitoring inspection however was that, by not constructing a pond to TP223 standards, I was in default and was instructed to construct such a pond. The only difference in performance between what I had implemented and what I have since had to construct is about six cubic meters of raw soil exposed to the elements.

No doubt many of you are saying “he is just trying to get out of his responsibilities”. Well I am passionate about effective environmental management and think my credentials are pretty good. For example, I introduced large scale sediment retention / settlement ponds (“Elephant traps”) to the Timberlands BOP forests (and many BOP quarries) in the late 1980’s and 90’s and hosted a number of field visits with EBOP staff and others to implement them as “Best Practice”. I also facilitated and authored the “Streamside Management Policy” for those forests which contributed greatly (and still does to this day) to the wise management of these sensitive areas. My proudest achievement was planning and managing the harvesting of around 110,000 tonnes of logs from the Williams Block in Tory Channel over a four year period without problem – the first large scale operation in the Sounds – despite being told by almost everyone that it was impossible. Finally, I brought these skills to the ARC from 1993 - 2000 whilst contracted to the ARC to manage its forestry and selected other landuse portfolio.

As a result, it is very difficult to sit by and see a rule that frequently results in the following: additional cost; at times adverse environmental outcomes (required earthworks in marginal areas with point discharge rather than diffuse discharge); the suppression of “Best Practice” initiatives; the alienation of the industry (best environmental outcomes are derived from those enjoying the ride)

The worst issue about ARC’s TP223 is that I was told three weeks ago that I had better get used to TP223 as it was going to be uplifted by most other councils in the North Island. This should be of grave concern to all practicing NZARM’ers who recognise the importance of site specific remedies and who value their relationships with their clients.

In conclusion, I have thrived on informed debate over the years. I would therefore challenge any NZARM member in the ARC area to tell us why TP223 is the best tool to achieve environmental outcomes in forest areas in that region and for any other member to tell us why it will be such a great tool to control forestry activities in their region. And, by the way, you will do so with either

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# Making cents for Northland Farms Cont.

*Continued from front page .....*

## Potential forestry credits and carbon price effects

There is little that can be done to reduce livestock emissions immediately without reducing stock numbers so we have assumed emissions remain constant in the short term (20+ years). Changes in the carbon price will have a direct impact on the final costs of any scheme. Carbon credits can be claimed for forests planted after 1989 on land not previously forested. Access to these credits reduces a farm's exposure to future increases in the carbon price, significantly reducing business risk, and helping to build a resilient farm. Because Pohoatua lacks suitable existing forest, and the farmer wants to address the carbon imbalance, we suggest a forestry regime to generate carbon credits sufficient to offset emission liabilities for the next 30 years.

Total emissions liabilities for Pohoatua between 2010 and 2040 will be 10,327 NZUs. We calculate that, at 400 NZU/ha, 26ha of new mixed-age forest would offset this amount.

Carbon (NZU) price	Total Cost to 2040	
	No Forestry	With 26 ha Forestry
\$25	\$255,525	Cost of forest, approx \$60,000*
\$50	\$511,050	Cost of forest, approx \$60,000*

**Note:** \* based on approximately \$2300/ha including establishment and basic tending.

At \$25/NZU the total cost of emission liabilities to the farm until 2040 will be \$255,525 or about \$8,500 per year; double this if the price rises to \$50/NZU. The addition of forestry to offset emissions could play an important role in reducing the cost of the ETS to the farm, but how much will it cost the farm?

Farmax® computer modelling was used to assess the impact on the livestock operation of converting 26 ha of grazing land to forestry. Several paddocks estimated to be producing pasture at only 70% of the farm's average rate per hectare were identified for planting in trees. The table below shows the impact on farm financials.

	Current	Less 26 ha	Difference
Revenue (sales less purchases)	\$271,410	\$257,657	-13,754
Expenditure (animal health, shearing, N, Feed, interest on livestock capital, excludes fertiliser and weed control)	\$66,517	\$63,755	-\$2762
Gross margin	\$204,894	\$193,902	-\$10,992
Gross margin/ha	\$569	\$581	+\$11

On the face of it, the forestry would save an average of \$8,500 per year but would cost the farm \$10,992 in reduced gross margin. Therefore the investment in forestry does not stack up at current prices. We calculate that the investment would break even at \$32/NZU. However, also worth considering is the potential timber value of the forestry as another source of income to offset the cost and gradual planting of the required forest area (5-6 ha per 5 years) to smooth out cashflow effects.

## Millbrook Station

The other farm we assessed was Millbrook Station, a sheep and beef farm with around 4,100 stock units as at May 2010, fewer than usual due to drought conditions. The farm, located at Pakiri on the east coast near Wellsford, was involved in the Meat and Wool Monitor Farm Programme. Valuable information was available for the property, which has been used to investigate a range of future farm management options. The effective grazing area is 478 hectares and the current livestock base is 628 ewes plus 702 cattle, including 134 beef cows. Total annual greenhouse gas emissions from Millbrook Station are 1,401 NZU and livestock are the source of 97% of emissions. The total annual cost of the ETS to Millbrook Station was calculated to be \$557 in 2011, \$4,259 in 2015 and \$12,951 in 2040.

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## CONFERENCE

NZARM holds an annual conference to promote new learning, information sharing, networking, and a sense of community in the field of resource management. Venues alternate between the North and South Islands, and one of NZ's 16 regional authorities will usually host the conference itself. October-November is most favoured as the time.

This year's conference will be held on the 21st-23rd September in Canterbury. Go to the NZARM website for registration details ([www.nzarm.org.nz](http://www.nzarm.org.nz)).

## MEMBERSHIP

NZARM welcomes new members, particularly if you have an interest in sustainable resource management. Prospective members can apply anytime, by obtaining a registration form from the website ([www.nzarm.org.nz](http://www.nzarm.org.nz)) or from the NZARM secretary. Candidates are nominated by two existing members (contact the secretary if this would be a constraint).

Annual subscription is discounted to \$50 if paid before 31 March each year. Late payments after that date are charged at the full subscription cost of \$70. All subscription enquiries to...

The Secretary  
C/- NZARM  
PO Box 4315 Hamilton East  
HAMILTON 3247

As a member of a registered association, members must inform the secretary in writing when they cancel or let their membership lapse. Otherwise the member will continue to be billed for the annual subscription.

## PROFESSIONAL ACCREDITATION

The system that NZARM uses for professional accreditation is currently being reviewed.

## NEW MEMBERS

Welcome Aboard!  
Warren Coffey  
Tony Fenton  
Wendy Robinson  
Emma Thomas  
James Imlach  
Julie Beaufill  
Nicolas Caviale-Delzescaux

## EVENTS

### Erosion Processes and Mitigation Workshop Series

MAF, with support from regional councils has funded eight regional erosion mitigation workshops around the North Island as part of its support for regional sustainable land management initiatives. The Spring Series Workshops, run by Norm Ngapo and Garth Eyles, will be held in Te Kuiti, Stratford, Masterton and Gisborne.

Dates and registration information follows:

#### Te Kuiti:

Tuesday Nov. 9th  
Register before Wednesday 3rd Nov. by:  
Phone: Su Davie  
(07) 859 0557 or 0800 800 401  
Email: su.davie@ew.govt.nz

#### Stratford:

Friday Nov. 12th  
Register before Monday 8th Nov. by:  
Phone: Cheryl Newport (06) 765 7127  
Email: cheryl.newport@trc.govt.nz

#### Masterton:

Tuesday Nov. 23rd  
Register before Tuesday 16th Nov. by:  
Phone: Andrew Stewart (06) 370 5669  
Email: Andrew.Stewart@gw.govt.nz

#### Gisborne:

Thursday Dec. 2nd  
Register before Thursday 25th Nov. by:  
Phone: Kerry Hudson or Trevor Freeman at GDC  
(06) 867 2049 Ext: 7338  
Email: kerryh@gdc.govt.nz

## ADVERTISING

Following on from recent enquiries, the NZARM executive committee have agreed to a policy of allowing some advertising in the Broadsheet.

Any advertising submitted to the Broadsheet editor for publishing will be assessed to decide on whether the content is tasteful and accurate and in accord with the aims and philosophy of NZARM. Furthermore no advertorial style content will be accepted.

Please forward any advertising material directly to the Broadsheet editor (tony.faulkner@gw.govt.nz) prior to the closing date of submissions of the next Broadsheet issue; generally 15 April, 15 August and 15 December.

Full details of the Broadsheet advertising policies and requirements will be available on the NZARM website presently ([www.nzarm.org.nz](http://www.nzarm.org.nz))

The cost structure for advertising content is:

Type of advert	Member	Non-Member
Business Card	\$15	\$30
Quarter Page	\$50	\$100
Half Page	\$100	\$200
Job Vacancies	\$50	\$50

# Northland Erosion Control Workshop May 7 2010

Lee Whaley reports on one of the recent erosion control workshops in Northland one of a number being run jointly between MAF and the Regional Councils.

MAF's recent Northland Erosion Control Workshop featured an impressive line up of very experienced campaigners. Now that the original soil conservator up there and my old boss Brian Burrige has long returned to the Wairarapa family farm, Bob Cathcart can be considered Northland's "father" of soil conservation." Likewise now that Charlie Harris is long gone Garth Eyles must be the NZ's "father of Land Use Capability and erosion Control Processes!" Norm Ngapo, my own vintage, is just a boy by comparison with only 35 years of soil conservation under his belt! Despite this Norm has extensive experience with EBOP and now consulting in this area. MAF man Russell Knutson told us that it was the second of eight such workshops to be hosted over the North Island.

Garth gave a very comprehensive account and plenty of examples of NZ's erosion processes while Norm told us how to fix them. Bob told us about Northland's particularly mixed up geology and the soils derived from it along with examples of Northland's erosion problems and control methods.

After a great lunch, thanks MAF we piled into buses to check out how it all works on the ground. We headed straight for the tiger country and ended up at Utukura somewhere between Keri Keri and the Maungamuka Ranges on a massive earthflow site. All agreed that the source of the problem was runoff water from a spring / ponding area above via the road water table. Diversion of this water was the key to control along with various planting options. I was keen for evergreen pines maximizing evapotranspiration all year round while Bob extolled the virtues of poplar and willow's superior root systems. Kathy Mortimer pointed out that the toe of the movement was somewhat farther down than what we could see and that stabilization at the base would also be essential.

We bused from there through more tiger country with a very interesting social message. I could not get over the number and frequency of large marae with no apparent catchment population. It was pointed out that locals were actually living in buildings that appear at first glance to be deserted.

Extended family no doubt make their pilgrimage back north for major functions swelling the population over Xmas and other celebrations.

Then it was up a classic Ngwha Gully at Rangiahua to check out the yellow sulphur mudstone / argillite substrate with battery acid phs in the 1-2 range! No wonder revegetation of these gullies has always been a Herculean task! After decades of trialing all species known to man Bob now reckons it is best to leave them to leach out the worst acid discharges to a point where native species such as tea tree and toe toe start to regenerate.

It was a particularly interesting return to the north re-emphasising the erosion and social issues providing challenges up there. Good on you MAF and the presentation team for a very informative day.

Cheers,

Lee Whaley

Chinese Embassy.



Slip erosion near Maungaturoto. (NRC)

# 25 Years Ago: “Town in Trouble”

It has been twenty-five years since Te Aroha in the Waikato suffered severe damage from debris avalanches.

In a time when natural disasters such as earthquakes, tsunamis and landslides seem to hit the news daily, it is pertinent to reflect one of New Zealand’s own more prominent disasters. Although not of the same scale as recent overseas events, it was to dramatically change the lives of people living in small Waikato town squeezed between the Waihou River and the Kaimai Ranges.

February this year marked 25 years since three members of a single family died when Te Aroha suffered severe damage from debris avalanches off Mt Te Aroha – the highest point in the Kaimai ranges. The avalanches were triggered by a cyclonic rain storm which hit the area, and resulted in a major debris flow rampaging through the township.

For a long time after, the sound of heavy rain on their roofs meant sleepless nights for many local residents – for fear of another similar event. But subsequent extensive flood protection works in and around the town – including concrete flood channels, debris traps and stopbanks – have eased their fears.

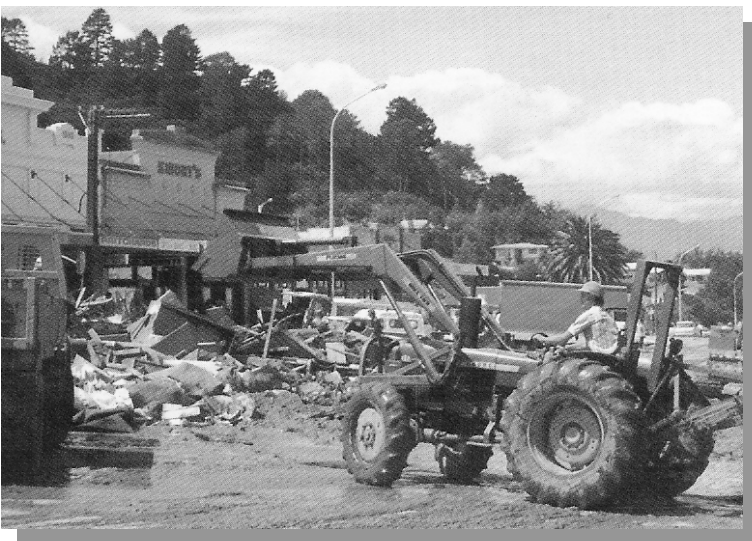
For many years to follow, the local fish ‘n chip shop clad its walls with photos of the damage - a pictorial reminder of the carnage caused that one summer’s night.

The photographs have gone now and the memories faded, but the flood protection works continue to operate in the background, providing ease of mind, and saving lives.

Ongoing management of the Waihou River catchment is provided for by the Waihou Valley Scheme (rating system). The Scheme built and maintains the town’s flood protection works, as well as an extensive network of other protection works throughout the catchment (stopbanks, pump stations, flood gates, river management and soil conservation works).

In recent times Councils have come under increased scrutiny with regard to expenditure and even the existence of regional councils in general has been debated. Reflecting on some of these historic events, what has been done to minimize future risk and the need for expertise to maintain the protection infrastructure can help bring back some common sense to this debate.

**Rien van de Weteringh**  
Land Management Officer  
Waihou & Piako Catchments



Photographs from: “Town in Trouble” by Merle Howarth

# Letters to the Editor cont.

*Continued from page 4.....*

brief science or clearly definable case studies relating to retained vegetated areas adjacent to watercourses versus large scale earthworks with minimal retained mature vegetation across the site.

Be careful with your "science". For example, be wary of quoting the ARC document TP321 (which I understand was a key driver for TP223) which showed elevated sediment levels in a receiving area of the Maharangi Harbour for several years after harvesting but was surprised at the lower levels after 5 years than the adjacent native catchment.

Three issues:

1. Should have been no surprise at all as consistent with "whole of life" profile.
2. Blamed the actual forestry operations when, I suggest, the main contributor was the reactivation of a relatively small proportion of the sediment aggraded in the stream margins over the rotation due to increased peak stream flows - a statement of operational fact on a harvesting operation of ours at Puhoi. It totally ignores the benefit derived from the retention on site of the balance of the aggraded material which will be built on during the next rotation.

3. I was advised by ARC that "TP321 does not link sediment loads to specific operations within the plantation forest operation". How did they therefore form the opinion in 2 above?

And finally, if front line NZARM members are concerned that such a rule will limit their ability to effect site specific outcomes, then maybe NZARM should be looking at these type of issues directly as the professional body representing Resource Managers – those charged with implementing plans.

I detect that the pendulum is now well past midnight and that we are heading back to towards the dark hours as the political wind favours the noisiest resource users as well as those more reserved parties that are increasingly frustrated by the numerous rules that have little to do with environmental performance.

If this happens, we need to look first at Regulators as per the above example and the picture I see is not great. Lets work together to get the pendulum to 9 or 3 o'clock and see if we can achieve what we want – good environmental outcomes with the minimum of fuss and cost.

**Ross Bawden**

## Expand Your Horizons in the Bay of Plenty



This is an opportunity for a person passionate about becoming part of a highly skilled and professional team delivering sustainable land management programmes in the western Bay of Plenty.

### **Land Management Officers**

**Two positions exist in the Tauranga-based team of Bay of Plenty Regional Council**

Bay of Plenty Regional Council is looking for a **Land Management Officer** to work on **biodiversity, biosecurity** (pest plant/pest animal) and **sustainable land management** projects. This is an exciting opportunity to work with us as we take a catchment management approach working with tangata whenua, landowners, community and agencies around Tauranga Harbour.

The second position is for a **Land Management Officer** who will support the **above projects** but whose principal role is to coordinate the council's **Recreation and Open Space programme**, including the operational coordination of Pāpāmoa Hills Regional Park.

Qualifications and experience in land and/or resource management, environmental management, or equivalent are essential. You must have excellent communication and negotiation skills, and have the capacity to work on your own. Experience in project management, including financial and contract management is essential.

Applications close Wednesday 8 September 2010 and will be accepted online at [www.envbop.govt.co.nz](http://www.envbop.govt.co.nz).

Copies of the position descriptions are available from our website [www.envbop.govt.nz](http://www.envbop.govt.nz). Phone **Robyn Skelton** Manager Land Resources (Western) on 0800 ENV BOP (368 267) for all other queries.

**BROADSHEET is available electronically in full colour.**  
Download from  
[www.nzarm.org.nz](http://www.nzarm.org.nz)

# Making cents for Northland Farms Cont.

Continued from page 5 .....

## Existing forestry

Millbrook Station is eligible to claim carbon credits under the ETS for 20 ha of existing forest established in 1995 on non-previously forested land. In addition, the farm can claim credits for 166ha, retired after 1989 to native forest reversion.

## Calculating carbon credits from forests at Millbrook

At present, carbon credits can be claimed for carbon accumulated from January 2008 onwards. Radiata pine accumulates approximately 22 tonnes/CO<sub>2</sub>/ha/year if left to grow for 50 years. Just 3 tonne/ha/yr is used to calculate accumulation by native reversion, although a newly revised rate will amount to approximately twice that.

Using the look-up tables, we calculate that the forest areas on the station are currently accumulating approximately 1,268 NZUs per year. When agriculture first enters the ETS in 2015 it must meet 10% of its emissions. Ten percent of Millbrook's emissions will amount to 140 NZUs. This will be more than offset by its annual credits from forestry and native reversion. Over the period between 2008 and 2015 Millbrook will potentially be able to claim a surplus of 8,666 NZUs – these may be sold, or could be retained.

## Matching land use capability with productive land use

A wide range of land types occur within the 1,087 ha of Millbrook Station. The flat/easy land has annual production of almost three times that of the steep hills. This low-productivity steep land is sprayed for gorse every three years at a cost of \$600/ha. The combination of low productivity and high cost resulted in a negative gross margin on this land type.

Farmax® was used to assess the impact on the livestock operation's productivity and profitability of converting 100ha of steep grazing land to forest. The analysis showed that while Gross Margin for the farm would be reduced by \$17,939 or 8.5%, Gross Margin per ha would increase (see table below). The reduction in Total gross margin could be offset as the cost of maintaining the steep land in pasture exceeded the returns. An average of \$20,000/yr may be saved on gorse control. Furthermore it is expected \$20,000 could be added to farm income by diverting the effort expended on the hills to the adoption of intensive beef systems on the more productive areas of the farm. Farmax® analysis also showed a less than five percent reduction in overall farm productivity resulting from a 20% reduction in the area grazed (data not shown). This analysis is conservative as no account has been taken of significant potential income from carbon or timber from the 100ha of new forest. For example, given the range of species and areas of the proposed planting, and assuming the entire 100ha is planted in 2011, accumulation of 23,893 NZUs is possible during the first ten years. At a current market value of \$20/NZU this equates to a gross return of \$480/ha/year, similar to current returns from livestock.

The analysis shows that focusing livestock production on the better land and producing timber and carbon on less productive land will improve overall profits, probably reduce work requirements, and improve overall farm efficiency.

	Current	Less 100ha steep hills	Difference
Revenue (sales less purchases)	\$298,897	\$269,367	-29,530
Expenditure (animal health, shearing, N, Feed, interest on livestock capital, excludes fertiliser and weed control)	\$86,809	\$75,218	-\$11,597
Gross margin	\$212,088	\$194,150	-\$17,939
Gross margin/ha	\$444	\$514	\$70

## Funding the new forest

Cash flow is required for forest establishment, which is usually the sticking point for forestry investment given the long wait for returns. However, assuming an average establishment cost of \$2,000/ha and NZU price of \$20, Millbrook Station will have sufficient surplus carbon credits to sell from existing forestry to fund the proposed new forest over the next six years. Furthermore there will be sufficient credits available to address the expected harvest liabilities from the 20ha of existing pine in 2025.

In contrast to Pohoatua, Millbrook Station is ideally placed to capitalise on the potential returns from carbon while minimising the risks. Establishing the new forest could be done over several years and funded directly from carbon sales so that no extra capital would be required.

A range of other benefits from forestry can also add value to the farm, including protecting waterways, reducing soil erosion, providing shade and shelter for livestock, increasing biodiversity, diversifying income from carbon and timber and improving the amenity value of a property.

.....continued on page 10

# Making cents for Northland Farms Cont.

*Continued from page 9 .....*

## Conclusion

The contrasting potential effect of the ETS on these two farms clearly shows that detailed analysis of land productivity and profitability is critical to making the best land management decisions. For example accurate information on pasture and livestock production for individual sites is vital to comparing continued investment in livestock production with diversifying and adding forest production to the business. In the present environment, short term income from carbon could fund sensible land use changes. The Millbrook Station example shows how farms with existing post-1989 forestry have ideal, low risk opportunities to achieve this.

In a wider sense, access to carbon credits insulates a farm business from the potential cost of liabilities from livestock emissions by neutralising carbon price effects over the medium term (30 to 50 years) while technological solutions to livestock emissions are developed and implemented. This could be especially valuable if future carbon prices are high. Average gross margin and productivity is predicted to improve at Millbrook Station as a result of retiring less productive areas of the farm to forestry and focussing inputs on the more productive areas. The decision to implement this plan makes economic sense independent of the ETS. Forestry provides multiple benefits and forms part of a sustainable land management strategy with positive environmental and economic outcomes. Farming operations which already include forestry planted after 1989 are not only more resilient to climatic change (droughts and floods) but will be ideally placed to address any increase in costs imposed by the ETS.

**John-Paul Praat**- P.A. Handford and Associates

**Bob Thompson**- AgFirst Northland

For more information, please contact **Helen Moodie**, NZ Landcare Trust 09 430 0954 [helen.moodie@landcare.org.nz](mailto:helen.moodie@landcare.org.nz)

## Conference Reminder

The 57th NZARM Annual Conference will be kicking off next month in Canterbury with a day in Christchurch and a two day field trip to Kaikoura.

To register visit the NZARM website :

[www.nzarm.org.nz](http://www.nzarm.org.nz)

Conference information and the programme are also available from the website.



## Regional Roundup

### HAWKES BAY

Wet, wet wet – great for tree planting but the countryside is on the move. That's what east coast hills do every so often and so soon after **Garth Eyles** and Norm Ngapo presented their first round of Erosion Control workshops. Garth has also been busy preparing farm plans and completing the SFF Climate Change project with Gavin Kenny. This concluded with two successful field days. Garth has formed a view (soon to become a feature article....) that science and extension communities have not served hill country farmers well in recent years with respect to development and management of persistent pasture species.

AGS, Farm Forestry and the Wetland Ranking Workshop have highlighted **Warwick Heskeths** work recently. Warwick and others on the HBRC staff have been strong

supporters of the HB Farm Forestry branch and this is seen as a very important alliance. **Nic Caviale** based in Wairoa, has established a local trial of the 'Ramial chipped wood technique' which is already showing very positive signs for remediation of degraded farm land. The trial is replicated on both flat land and a hill country slip scar. A huge amount of seedling planting has been completed on two council properties, planned and directed by **Joe Devonport**. One property is to be a receiving area for treated waste water from a municipal treatment plant and the other is a severely eroding property with forestry, carbon and recreational values. Multiple forest species and some clonal and seed line trials have also been established. **Neil Faulknor** has retired after a 45 year career in Soil Conservation and Land management in the Hawkes Bay region. He's had a couple of send-offs already, but rumour has that there are bigger, better parties to come.... In the meantime, you guessed it, he's back working in Land Management on contract.

# Regional Roundup (continued)

## HAWKES BAY CONT.

**Ian Millner** has presented a carbon paper at the Deer Industry Conference which was well received. He's been part of a team setting up Balance Farm Environment Awards for Hawkes Bay. Keeping us busy and turning the big '5' '0' have occupied **Chris Perley**. As managers are prone to do, he's been sorting contracts, man power and a new Land Management Implementation Plan. Riparian options and managing resilience are the talk of the day. Our first staff member to achieve the Advanced Nutrient Management Course **Brendan Powell** has of course been doing nutrient budgets. Working with landowners and other interested parties in a sensitive catchment, with prominently dairying land use is proving to be a major commitment. Foreign investment has not been all bad in the Wairoa area. **Peter Manson** along with Nic, has been working with a company who purchased several northern Hawkes Bay/Gisborne properties and are committed to a high level of Land Management and conservation input. The very wet winter has reactivated earthflows throughout the region. Several months of wet weather is usually broken by.....dare we use that term on the east coast?!

**Peter Manson**

## WAIKATO

**Bala TikkiSETTY** has been working with Massey University on preparation of a report on soils risk factors that will support the related work on developing a farm dairy effluent storage calculator which farmers can use to calculate how much storage they need. Most other regions are also coming on board with that work. A pilot version of the calculator was a feature of our stand at the National Agricultural Fielddays in June.

**Ross Abercrombie** has organised a further evaluation of the ICM work in the Waipapa and Little Waipa catchments where **Don Harford** and **Paul Smith** are preparing farm plans, including comprehensive nutrient management plans for every farmer who wants one. It'll be on our website next month. He's also working with Raukawa Maori

Trust Board to develop a plan for expanding the ICM work to cover the entire Upper Waikato catchment and this will also include support from the Primary Sector Water Partnership. This is one example of co-management in action and we believe it provides a positive model for others to follow.

Gabriele (Gabi) Kaufler left in April to return to Germany with her family. **Kate Ody** joined us in June to replace Gabi. Kate comes from Southern England where she was working as a Catchment Sensitive Farming Officer. We're hoping that Kate might be able to follow up on one of Gabi's initiatives, the Effluent Management Code of Practice, which is still in its final stages of editing at DairyNZ, with no word on its likely delivery date. When it finally emerges it will appear as a DairyNZ document and they will run the process of ensuring standards are maintained.

The draft revised RPS is nearly completed and it will go to Council for final sign-off before the elections. It contains some key elements of the sustainable agriculture strategic directions, including the identification of high value water bodies to be maintained at current standards, and an objective of contact recreation standard for all other water bodies in the region. A catchment focus supports the use of ICM approaches to achieve that. As part of the analysis going into the policy review we have had some work done on farmer decision making. Not surprisingly this has shown that farmers decide on things such as nutrient use and whether or not to use PKE for a wide range of reasons, so it is risky to make generalisations about why they do what they do. This work will be reported and on our website later in the year.

**Warren Coffey** has been spending a lot of time advising on erosion control as a result of many slips occurring after the drought, then heavy June rains.

He is also focusing on riparian and bush retirement projects - including working on a large Maori Trustees block along with Nga Whenua Rahui, as well as several joint projects with QEII Trust.

Inspections and maintenance on historic scheme works continue to require a lot of time and negotiations.

**Nicki Hughes** has been focusing on two new large works projects lately. First is Te Kawakawa Farm Trust on the northern flanks of Mt Pihanga. With the help of WCEET funding and assistance/support from DoC and Tongariro Natural History Society, we are carrying out protection and restoration of two wetlands (32.8ha). Fencing has been completed, weeds will be controlled in spring and autumn and the buffer area will be planted next spring. The Second project is on Tongariro/Rangipo Prison Farm. The Memorandum Of Encumbrance is being currently being processed by LINZ, and as a result will protect (via lodging on the title) approx 800ha, including areas of open water and wetlands which feed into Lake Taupo.

**John Quinn** - NIWA's research proposal on Aquatic Rehabilitation (led by John) was approved by the Foundation for Research Science and Technology for next six years from October 2010. This involves subcontracts with Otago and Canterbury Universities, the Cawthron Institute, Gail Tipa and Ian Kusabs and linkages with most regional councils, DoC, and iwi partners. The research will involve four interlinked areas: (1) Values and co-management - providing benchmarks, targets and timelines for rehabilitation, real-time and traditional Māori assessment tools, and report cards to support aquatic co-management that link values, indicators and rehabilitation actions. (2) Habitat bottlenecks - bio-complexity and key habitat features (e.g., large wood, sea-grass, connectivity) required to boost rehabilitation processes; (3) Critical stages of key species - addressing the life cycle bottlenecks for key species including mussels, kōura (freshwater crayfish), galaxiid whitebait species, eels, lamprey; and (4) Legacies and eutrophic ecosystems - chemical, biological and habitat manipulation tools to mitigate nutrient enrichment and manage legacies that constrain restoration (e.g., in-lake phosphorus, willows and mangrove expansion). The team is looking forward to getting on with the new research.

# Regional Roundup (continued)

## WAIKATO CONT.

**Tane Desmond** has been busy in his role as Waipa Zone Manager working with Russell Powell and Lyndon Stokes (Environment Waikato - Waipa River Supervisors) to confirm the Waipa Zone (catchment) River Capital Maintenance works programmes for the year, looks like a busy year ahead for the guys. Some of the key projects for the year include;

- The top up of the Otorohanga Stop Bank which provide 100 year return period flood protection to the urban area of Otorohanga.
- The continuation of channel improvements to the Waipa River above Otorohanga. Works predominantly consist of erosion control/channel training structures.
- The refurbishment of the 150 long erosion control structure down stream of Whatawhata bridge. This will be Lyndon's first job utilising the Environment Waikato Barge Tamahere and its twin 20 tonne excavators.

**Adrian Jepson** (Land Management) and Tane have also been busy preparing works agreements and allocating the Waipa Catchment New Work budget (Soil Conservation/Clean Streams funding). To date the zone is 90% allocated with plenty more work to be done. Key projects include;

- The completion of the Waitomo scheme condition assessment.
- The continuation of the Tiroa and Te Hape Station retirements works.
- The continuation of the Lake Mangahia restoration works.

Adrian is also flat tack preparing the tender documentation for the Plant Supply Programme which is due to go out to nurseries very soon. Meanwhile Tane is preparing the agenda and papers for the final Waipa Liaison Sub Committee meeting for the triennium.

**Therese Balvert** has been spending most of her time of late over-seeing the Mangatangi and Matahuru Stream Riparian Mgt Plans – including willow removal, fencing, planting, and erosion control. Also keeping her busy has been AGS applications/agreements and assisting Adrian with the Native Plant

Supply Programme tender process. Finally, right now, she would be quite happy if she never saw a poplar/willow pole again!

## BAY OF PLENTY

**Anthony Olsen**, senior cultural heritage advisor for Boffa Miskell, has been facilitating negotiations between tangata whenua Te Roroa and the Department of Conservation in regard to the future management of the Waipoua Forest and associated areas north of Dargaville. **Anthony** says that the joint management relationship is a unique co-management model based upon agreements that bring together matauranga Ma-ori and Western science, and kaupapa Ma-ori and Western management methodologies. "We've been able to act in a neutral advisory role, and have also provided land information and landscape assessment advice to assist in developing a conservation management plan and long-term vision for culturally-sensitive tourism opportunities in the area." While management of Waipoua Forest is the core component, the future plans also extend to nearby freehold land which has come into Te Roroa ownership through the Treaty settlement. As Boffa Miskell landscape architect Phil Wihongi puts it, "Simply, it's about recognising the mana of the rakau (trees), the mana of the two partners and respectfully managing the resource for the future."

**Darryl Hall** and the Western Land Management Team has been busy rolling out the new Riparian and Biodiversity Management Plans. They have had reasonable uptake for the new programmes, particularly for riparian protection work. Some of the difficulties of implementing work in this region relates to the demographic nature of the area. The Tauranga Harbour catchment has a lot of smaller pastoral based farms in the upper reaches, a large amount of lifestyle blocks in the middle with significant horticultural land use in the lower reaches. Combine this with a reasonable amount of retirees around the harbour margin and it means, planning and implementation of sustainable land management initiatives often requires truck loads of consultation and negotiation. The Kaituna area east of Te

Puke is about to have a land use assessment undertaken to help guide our priorities for resourcing in this area. Most of the lower reaches are included in a council supported river catchment scheme that is predominantly focussed on economic development and asset protection. The Kaituna/Maketu strategy has identified a number of biodiversity concerns so it's a case of incorporating the needs of the scheme with the intended outcomes of the strategy. Should be an interesting evolution.

**Ben Banks** has been working around the Lake Okareka catchment with a number of landowners. We are now starting to see some of the land use change projects implemented around the northern side of the lake. "One of these projects involves the planting of a redwood stand, this has been an exciting project as we have been able to source a colonial variety. This allows the top performers in growth to be selected for the right attributes and assures excellent trees and a high market value. This future proofs the initial investment, with further options available for carbon sequestration, wood values or to just enjoy the intrinsic value of the stand. The planting regime is 800 stems per hectare with half clones and half seedlings. This allows the cost to be kept down to a minimum. Projects such as this start to show that there are other economic alternatives to pastoral land use in sensitive catchments. As people start to realise the effects of pastoral farming have on water quality the more people start to consider the environmental effects of their business decisions".

**John Whale** has returned from the US where he and his wife Susanne spent July and met up with the Whanau of his son's fiancé up in Gloucester (Perfect Storm country). Saw lots of quartz quarries and interesting glacial landscapes up on the New England coast from Massachusetts and into Maine. The glacial ice sheets over Acadia in the last ice age (15,000 years ago) was 2.4km thick.

They enjoyed the July 4 Independence Day celebrations with bonfires, marching, beers and lots of flags. Watched the Americans at play on vacation in their

# Regional Roundup (continued)

## BAY OF PLENTY CONT

big fat Winnebago's and big fat pickup trucks, listened to bluegrass music at the Watermelon Wednesday concert in West Whatley and spent four days in NY City. They had a most excellent time - yee-harr. They also melted as July 2010 was the hottest month ever recorded in eastern Massachusetts; two days were over 40°C and humid. If you want a fun fundraiser, Google cow poop bingo!

On the work front John is managing submissions on changes to the Environment Bay of Plenty On-Site Effluent Treatment Regional Plan and helping **Simon Stokes** with an audit on parts of the Ohiwa Harbour Strategy. Also assisting **Glenn Sutton** with an application for a quarry.

**Norm Ngapo** has been working with **Garth Eyles** and staff from Bay of Plenty, Northland, Whanganui and Hawke's Bay delivering the autumn series of Erosion Control workshops. The next series are planned for November and early December in Te Kuiti, Stratford, Masterton and Gisborne (see the flyer in this Broadsheet). Norm has also been involved with carrying out a review rural land management approach of the ARC's Sustainable Catchments Programme. Otherwise, working with Bay of Plenty Regional Council staff on a range of ongoing work.

We have **Ross Bawden** in the Bay having retired from full time forestry to a very full time Kiwifruit Orchard at Pukehina with his current project being the grafting of 1.32 Ha of conventional green to the new green hybrid variety. "It is highly enjoyable work and I am learning about water allocations and procedures as a Director of a private irrigation scheme - great to catch up with some of the "old" EBOP guys".

**Ross** has completed 19 years of full time marketing and harvesting activities in the southern North Island when his last contract with Wellington Regional Council ended on 31 March. Over those 19 years he has been very fortunate to have worked with many passionate land managers - both owners and regulators (many fellow NZARM members). "It was a great region to do business in and I think the good relationships between most users and regulators resulted in sound environmental outcomes under challenging conditions".

Also currently involved in the harvest management of the last 100 Has of trees (900 Has total logged over 8 years) in the Water-Care Forestry Right at Riverhead Forest (where he started his forestry career in 1968) in the ARC watersupply reserve area.

**Ross** has raised some interesting points about forestry harvesting and inconsistencies across regional boundaries, **Ben Banks** reports that this issue is also been raised from the larger forestry companies wanting to have consistency regarding harvesting methods and resource consent requirements across regional boundaries. With the recent creation of the Environmental Protection Agency (June 2010) are we about to see a roll out of National Environmental Standards?

## Ben Banks

## TARANAKI

### General

Hopefully we are over the worst of winter and can look forward to a warm spring. Calving is well underway in the coastal belt. We've had our share of severe weather warnings and unfortunately are in the middle of another storm as this report is written.

### Sustainable Land management programme

95% of dairy farms (1680) now have a Council prepared riparian management plan in place, and it's now easier to focus on the 80 that don't. Since 1 July 2009, Land Management Officers (LMOs) have focused on visiting their planholders (300 each) face to face which has resulted in 5500 separate contacts throughout the year. Overall, just under 90% of planholders were visited and this has increased the percentage of farmers that are planting through Council's native plant scheme from 26% to around 30-40%. Consequently, 278,000 native plants were dispatched for the financial year. LMOs are continually honing their extension skills to ensure farmers have every opportunity to implement their riparian works under a voluntary approach. In the short to medium term, Council will also investigate other options to ensure increased implementation of plans.

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# Regional Roundup (continued)

## TARANAKI CONT.

Throughout the year, implemented fencing and planting is recorded. For the last financial year, a further 370 kms of fencing and 156 kms of planting were implemented. To date, 1400 kms of fencing and 800 kms of planting have occurred resulting in 68% of waterways now adequately fenced and 59% with suitable vegetation. The challenge is still to implement the 4000 kms or so of planting and fencing still required. Anticipating an increase in the number of farmers planting, Council has secured 320,000 plants for next year's planting season.

Hill country LMOs are flat out administering and auditing planting under the Afforestation Grant Scheme (AGS) and fencing under the South Taranaki and Regional Support Scheme (STRESS). STRESS in particular has been well received with 96 ha of forestry (MAF limit of 1 forestry block under 5ha per entity) being planted this winter, 12kms of retirement fencing and 4000 poplar poles to be planted under the scheme.

**Kevin Cash** has been particularly active in promoting and assessing works for the AGS and STRESS schemes. He has also managed to complete a successful poplar and willow pole harvest and dispatch at the same time. Kevin has been so busy; work has been getting in the way of his normal outdoor pursuits. He's looking forward to the NZARM conference where he plans to hit (not literally I hope) the snowboarding slopes down south.

**Jess Soper** has left her riparian position and jumped across to the hill country role vacated by Jason Loveridge. Jess has started the process for joining NZARM and is heading south to her first conference in September. Jess enjoys LUC mapping and farm planning. She recently benefited from the immense wisdom of Neil Faulknor after a visit to Waipukurau.

**Darren Scown** has completed the successful delivery and dispatch of 278,000 native plants over 3 weeks and secured a further 320,000 for next year. He is also chomping at the bit to get to

NZARM conference and later on, to ride down the west coast to the Burt Monroe rally at the end of November in Invercargill. Will Southland still have the "log of wood" then?

Unfortunately for Council, **Sarah Ries** has applied her sales skills to such an extent that she's been head-hunted by the fertilizer industry and will be starting a new sales career. We wish her well. Sarah has been preparing plans and selling plants for five and a half years now and has gotten to know a lot of farmers.

**Dex Knowles** never slows down! He has just completed 20kms of planned mechanical willow clearing along the Waitotara River. This project is jointly funded between Council and the South Taranaki District Council and was initiated after the 2004 event to reduce flooding of the Waitotara Township. Forty one of the 47 houses were hit with 13 later condemned. After a significant section of willows had been cleared in the main channel, the work was tested not long after in the 2006 event which was equal to, if not greater than the 2004 event (in terms of cumecs) but resulted in no flooding of note in the township. Dex is also continuing with the investigations to upgrade the Waiwhakaiho River stop banks to a 1 in 100 year standard (plus 50 years added on for climate change) which protect the Waiwhakaiho Valley's mega shopping complexes. Works are expected to start this summer.

**Julie Hagenson** has had a busy year convincing farmers to plant and fence their riparian margins. Her 1956 Chev, pickup truck, restoration project is progressing and she is now ready to choose a colour, tiger bronze or dark maroon - what will it be? She is also part-time farming again, looking after a mates stock on her property, after having a holiday from it last year when the land was leased out. Sadly, she has been too busy with late planting projects to supply the land management team with her famous home-baked cakes for morning tea! As Julie does, when you get asked to make fancy cakes for weddings - you are good!

Below is a summary of the report, on the effects of stocking rate on "ecosystem services" (catchy phrase) in Taranaki pastures. For the full report, go to:  
<http://trc.govt.nz/Land-Management-2/>

## Executive summary

Agricultural intensification is aimed at increasing farm profitability and productivity. It typically involves increases in fertiliser use, supplementary feeding, stocking density and irrigation along with decreases in fallow duration and the presence of hedgerows, shelterbelts and remnant native vegetation. Intensification of agricultural practices has been occurring rapidly worldwide and is an issue of concern to scientists globally as numerous studies have demonstrated that it can have negative impacts on plant and animal abundance and diversity.

Reductions in levels of species diversity and abundance beyond certain thresholds can decrease ecosystem functioning and ecosystem services that are essential to support agricultural production. Such ecosystem services include nutrient cycling, maintenance of soil structure and fertility, soil carbon sequestration and pollination. Reductions in species diversity and abundance can also reduce ecosystem resilience - the ability of ecosystems to withstand disturbances and environmental perturbations.

It is becoming increasingly accepted that conservation of soil biodiversity is essential to maintain agricultural productivity and resilience into the future. However, while many studies have been conducted internationally, very little is known about the impact of intensification on biodiversity in New Zealand, or about the status of biodiversity in New Zealand's agricultural landscapes. Hence the effect of agricultural intensification on biodiversity has been identified as a critical knowledge gap and high priority for study.

One common component of agricultural intensification which has been shown to impact on species diversity and abundance are increased stocking rates. In Taranaki, dairy stocking rates have increased markedly over the last

# President's Comment

In a minor revamp of the format, the President's Comment has been moved to the edgy confines of the back page.

Nga mihi maioha ki a koutou katoa

Welcome to our winter edition for 2010.

I trust many of you have registered for this year's conference in Canterbury. Julia Crossman and the team at Environment Canterbury and Chris Phillips have been working hard on our behalf to organise the event. Personally, I'm looking forward to a trip to the South Island and catching up with the NZARM fraternity, and maybe a paua or crayfish or two in Kaikoura.

I am a bit disappointed that for my last president's comment, instead of focusing on only the positives of my involvement and role with NZARM that I feel compelled to comment on the current growing wave of negative media comment related to trees on farms – or to use that oft overused term 'forestry', on farms, in relation to, firstly, carbon sequestration and its international obligations, and the emission trading scheme, which adds nitrous oxide and methane to the greenhouse gas emission management list in 2015.

This morning listening to a popular rural radio commentator from the South Island and a popular fertiliser consultant from the Waikato I was dismayed to hear their inaccuracies over forestry, particularly recent history (<25yrs) and land conversion activity. This followed on from my reading earlier in the week, a promotional blurb for a Royal Society's one day discussion at Massey University on colliding land use (August 23<sup>rd</sup>), where the text put forestry into the negative combative position of reducing our land use base for primary production due to the loss of land. Maybe it was a selling point.

Firstly, people use the term 'forestry' very quickly and poorly.

I like this definition; *Forestry is the art and science of managing forests, tree plantations, and related natural resources. The main goal of forestry is to create and implement systems that allow forests to continue a sustainable continuation of environmental supplies and services. (Wikipedia; Gale Encyclopedia of Science. Thomson Gale, 2001. N.A. General OneFile. Gale. 12 Oct. 2009)*

In New Zealand the common use of the term forestry conjures up *Pinus radiata* forests and that seems to pre-empt rural opinions over what really is a mis-use of the word and what it really means. It all ends up with forestry and the forestry sector in my opinion pushed into a corner which of course necessitates some response to support forestry. This maintains the 'us and them' approach that the agricultural and forestry sector seems to promulgate when it suits them.

Dr Wink Sutton, doyen of the forestry sector in New Zealand, states quite regularly in the Journals of Forestry, that there will be a demand for wood and its by-products into the future. I believe him. But unlike many, I see

wood and its by-products or co-benefits, such as carbon sequestration, being delivered by many tree varieties, for a variety of reasons from our landscape, where they are suitably and appropriately grown. Isn't this approach called farm forestry, where one's farm can emulate an expanse of woody and grassland vegetation for a variety of business use? Thankfully clever people in New Zealand recognised this formally in 1956 and built an Association to support such an approach so it's not new. One only has to discuss this subject with Chris Perley, our resident NZARM environmental theoretical philosopher, and you quickly get the beneficial picture of multi-use landscapes.

So, for those who see or hear the 'forestry' word written in relation to sequestering carbon or the emissions trading scheme please be aware that it does not mean the end of pastoral farming or it is purely about plantation or *Pinus radiata* forests. Future rural business will decide the extent of trees in our landscape, and good land, be it good hill country or not, will require robust analysis and discussion to support a change to or from its current use. There are many many reasons to plant or capture the reversion of, trees on a farm; it is not exclusive to carbon. Let's hope a more open minded pragmatic understanding or debate prevails soon in relation to understanding forestry to ensure our current positive momentum towards trees on landscapes remains.

Shifting emphasis, I am more concerned with our sheep industry long term and its role in our pastoral landscape. It does seem to enjoy a dark cloud constantly hanging over it – either woolly or weather induced, or lacking positivity as a collective. Perhaps one of the most important projects being embarked on currently is the project to get a high quality meat product from the merino, which can be added to its very high quality wool product. Very smart concept. If we can't maintain a strong sheep industry then I suggest that our dairy and beef industry will continue to grow which puts our natural resources at higher risk levels which is seen with the increasing cattle intensification of our hill country, or we will indeed have much more plantation forestry present. Those little woolly fellas are pretty unobtrusive environmentally when it comes to it; when considering herbivores to farm and harvest for protein and fibre. A high quality mix of both commodities might just be the ticket for the future.

Finally I have a lot of people to thank for their support, encouragement, and advice, over my years in the role of president. So thanks Sue Powell, Dave Cameron, Garth Eyles, Alan Campbell, and the ever omnipresent Chris Phillips. Thanks also to the people I have worked with on the Executive, particularly in my role as president. We have achieved a lot of organisational change and I'm really proud of that. It has been a really enjoyable time.

Noho na

Simon

# Regional Roundup (continued)

## TARANAKI CONT.

30-40 years with average cow stocking rates having risen from 1.43 cows per hectare in 1979-1978 to 2.8 cows per hectare in 1998-2001.

This study examines whether and to what extent increased stocking rates are to the detriment of species diversity and abundance in Taranaki dairy pastures. It was conducted at the DairyNZ research farm at Whareroa near Hawera in order to take advantage of study plots which had established and maintained for the purposes of another study. The abundance and diversity of plants, earthworms, insects, spiders, mites and nematodes were compared among paddocks subject to differing stocking rates. Measurements of abiotic properties such as soil chemistry bulk density and macroporosity were also compared between treatments.

Higher stocking rates, when compared with lower stocking rates were not found to have resulted in changes to soil chemistry, bulk density or macroporosity, although grazed paddocks were found to have lower soil macroporosity compared to the fallow and mowed paddocks. Results did however suggest that over a period of five years higher stocking rates may result in small increases in percent cover of bare ground and small decreases in percent cover of clover. Higher stocking rates were also not found to have had significant detrimental effects on the diversity or abundance of surface dwelling insects or soil dwelling nematodes, earthworms, mites (excluding Oribatidae & Scutacaridae) and springtails [refer glossary]. However, higher stocking rates seem to have resulted in decreased abundances of Oribatid mites and in increased diversity and abundance of Collembola & anecic earthworms. Oribatids may have been influenced by changes in abundance of

anecic earthworms which damage Oribatid habitat through their burrowing activity or may have been affected by changes in resource availability. Positive responses of anecic earthworms and Collembola are likely to have resulted from paddocks with higher stocking rates having increased food availability due to increased dung deposition.

These results suggest that in the short term at least, higher stocking rates do not pose a significant threat to agricultural biodiversity in Taranaki dairy pastures. However, it is worth noting that the extent to which individual paddock management affected the diversity and abundance of some organisms in this study (especially the more mobile surface dwelling species) may have been diminished by the small size of replicate paddocks and their close proximity to those subject to different management regimes. Many studies have shown that habitat heterogeneity and presence of undisturbed habitat patches has been shown to increase species diversity in agricultural landscapes as a whole.

**Don Shearman**

## NELSON

**Les Basher** (Landcare Research, Nelson) recently managed a programme of work involving Landcare Research, GNS Science and Scion staff to devise a method for accounting for the effects of mass movement erosion on soil carbon stocks. This work is part of MfE's improvements to the Soil Carbon Monitoring System (CMS) for Kyoto Protocol reporting. The work defined and mapped the land subject to mass movement erosion, and suggested an approach to accounting for its effects which are consistent with the Soil CMS model and the Calculation and Reporting Application of LUCAS.

Subsequently funding was gained from the Sustainable Land Management and Climate Change fund and MfE to begin implementation. In May he worked with Peter Newsome and Russell Coker to produce an environmental impact assessment of harvesting of Tongas only commercial forest plantation on 'Eua island. Les has also been busy writing a series of papers on the sediment work completed within the Integrated Catchment Management programme which finishes in September this year. He has also been working on the effects of the storm that hit the Tapawera area in May which caused severe landsliding and damaged several roads and houses.

## WELLINGTON

From July to September I have been leading a public consultation around the region gathering ideas for the next regional plan. There were about 20 workshops and at the half-way point, we had about 300 people who had come along to them. Participants were very positive about the work of Land Management Officers and have particularly highlighted their desire to have more Council staff providing environmental education in the region so that people would know more about their impact on natural resources and how they might reduce that impact. The workshop report will be on the Greater Wellington website in December.

On the home front, we have built a house on our bush block and are due to move in October. We had a big planting event in May and added about 200 podocarps to the understory of our bush. Bait removal in our bait stations has begun to slow down, but now we have had a few people going through our bush block and removing them, so I am going to have to get some more and wire them onto the trees!

**Terry Parminter**

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