



## Land Use Capability Survey Handbook (3rd ed.)

With the 3rd edition of the Land Use Capability Survey Handbook completed, Ian Lynn of Landcare Research details the significant changes.

### Overview of Changes

There has been a renaissance in land use capability (LUC) assessment as a management tool, particularly at the farm scale, led by a number of regional councils, particularly those in the lower North Island. But until now the methodology, assessment criteria, definitions and descriptions of the LUC system have been difficult to source, being out of print – and out of date.

A FRST Envirolink tools programme grant of \$360K, combined with ‘in kind’ support from several regional councils, enabled a joint Crown Research Institute and regional council team to rewrite the *Land Use Capability Survey Handbook*. The resulting 3rd edition of the handbook (Lynn et al. 2009) supersedes the 2nd edition (Water & Soil Division 1971), which was last reprinted in 1974.

The 3rd edition provides upgraded, nationally applicable LUC classifications and standards for on-farm, catchment and regional planning purposes and is a step-by-step procedural manual for undertaking LUC surveys. It includes the knowledge gained from science and applied management over the last 30+ years and sets the standards for the next decade and beyond.

The LUC survey handbook rewrite also provided an opportunity to:

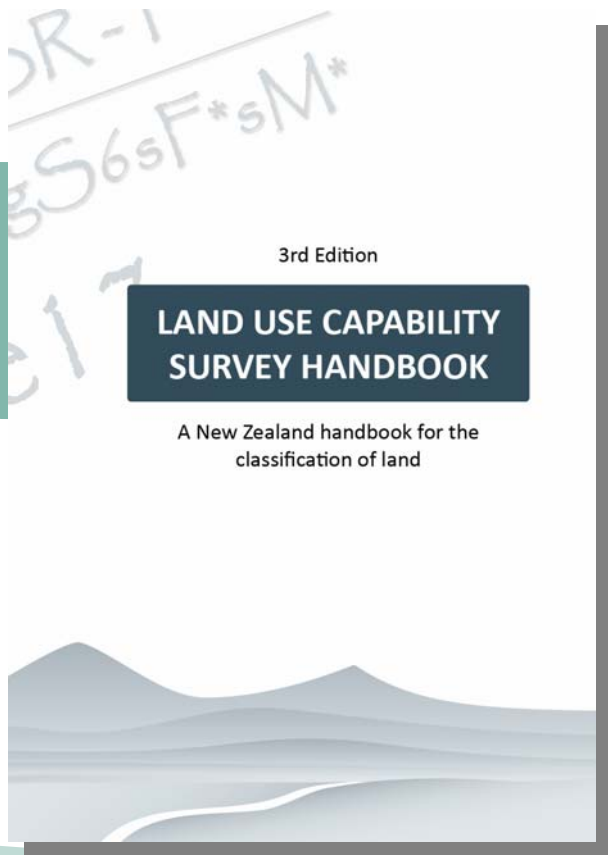
- Include more objective definitions and assessment criteria,
- Improve the LUC class and subclass definitions,
- Provide guidelines for the assessment of erosion severity,
- Add new reference and underpinning scientific information,
- Add links to key databases.

Clear and precise definition of the criteria used in LUC assessment is important to ensure accurate and repeatable application. It ensures that the ‘art’ of LUC classification is not ‘magic’, but rather an objective, robust assessment based on good science. It also ensures that the process is transparent, sound, and able to withstand close scrutiny in planning hearings and at the Environment Court.

The 3rd edition of the LUC survey handbook retains a similar layout and contents to past editions. It has a modern, easy to follow format with an abundance of imbedded tables, figures and colour illustrations. The volume is a little larger (163 v. 140 pages), but includes the inventory factor descriptions, extensive appendices, a comprehensive glossary, and a modern reference list. It strongly promotes the use of a minimum data set in the form of a land resource inventory (rock type, soil, slope, severity and type of present erosion, vegetation cover), and an objective land use capability assessment of LUC class, LUC subclass, and LUC unit, Figure 1.

The A5, spiral-bound, waterproof and tear-resistant hardcopy is available through either AgResearch or Landcare Research. A low-resolution black and white version is also available to view on the Landcare Research website.

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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:

Tony Faulkner  
Land Management Officer  
Greater Wellington Regional Council  
34 Chapel Street  
Masterton  
DDI 06 370 5663  
Mob 0272175169  
Fax 06 378 2146  
Email [tony.faulkner@gw.govt.nz](mailto:tony.faulkner@gw.govt.nz)

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# Editor's note

Dear NZARM'ers. Greetings from your new Broadsheet editor. I'm hoping that this will be the first edition of a reasonably seamless segue between Andrew Mander-son's successful piloting of the good ship Broadsheet over to my green-horned guardianship. Time will tell.

Firstly, a brief background about myself, not that this will be of great interest, it will however provide me with a reasonable list of disclaimers whence the tirade of abusive letters to the editor ensue.

Although coming from ostensibly good rural stock in the Manawatu, I was raised in country Queensland from an early age. I have a past life as a geologist in the oil & gas exploration industry and briefly in minerals. I selflessly repatriated myself 5 years ago in an effort to reduce the brain drain and have since found myself working in the hallowed offices of the Wairarapa Land Management Department. Although a relative newcomer to resource management, the upside is that with a lack of experience comes a lack of baggage.

Enough on that, what I would like to make comment on is the Afforestation Grant Scheme (AGS). Twelve months ago the prevailing sentiment towards this was, understandably, scepticism and occasionally derision. The Emissions Trading Scheme (ETS) was looming, omnipresent, with a promise of genuine revenue from carbon sequestration. How dare the government suggest to plant trees on our land and keep that carbon for themselves; how can I offset my farming emissions this way and anyhow timber is not worth any-thing?

Time, and the new National government's actions, intended or inadvertent, that have effectively deflated the ETS have brought the AGS back into consideration for landowners. By removing carbon (temporarily) from the equation, the AGS is now beginning to look like a highly effective land management tool. Traction is being gained on land that had been crying out for tree cover for years by removing a landowner's lack of finances as the rate limiting factor. Landowners are now being able to see the retirement of their Class VII and their worst Class VI land as good land stewardship without the financial burden, and with a minimal reduction in stock numbers from the removal of low production land from grazing. All this being lubricated by high subsidies, in some cases 100% depending on the species planted and fencing requirements. There may be an argument that the revenue from timber will not compensate for permanently removing land from production. However, this shouldn't be the point. My experience has been that the landowner often doesn't intend to harvest, planting (typically a long-lived species) has solved a problem for them on the land that is recognised as inappropriate for farming.

That being said, the ETS, and the potential future cost placed on farm emissions, is still a very real concern for many farming businesses. So, to this end I will leave you with some home spun Australian ingenuity. Actually I acknowledge this came from New Scientist magazine, 20/27 December 2008. Did you know a cow produces 600 times as much CO<sub>2</sub> equivalent as the humble kangaroo? And a sheep 50 times as much. This simple fact may be the panacea for New Zealand's methane heavy sheep, beef and dairy industry. In fact, I recall some gastronomic zealots in Australia who refused to eat meat from cloven hoofed animals due to the resultant erosion and soil compaction it caused. Putting aside the inevitable biosecurity disaster (I present Australia's other great gift: the possum), kangaroo farming could be the answer, and a delicious one at that.

....600 times less CO<sub>2</sub> equivalent than a cow



# Look to the cause before treating the symptoms

Invasive weeds, inappropriate subdivision of land and poor land management are issues not unique to any part of New Zealand. Bob Cathcart discusses his recent Northland experiences with these problems.

After recently spending almost a week doing fairly detailed land resource inventory surveys and inspecting rural properties in the Hokianga, Mid and Far North generally, I have been having a re-think about our whole approach to weed management. Land that shows as grass on our aerial photos, all less than 10 years old, is now in solid scrub, or totally covered in weeds.

Weeds are a symptom of poor land management, of someone who cannot or will not manage their land in a productive way.

The “cannot” may include:

- a lack of finance - They are under-capitalised or carrying so much debt that they cannot afford fencing, fertiliser, stock, or other inputs required to either manage a dense pasture sward or manage a plantation;
- those not prepared to invest sufficiently – I suspect that this is a problem with many of the people who are simply occupying a piece of land as a life-style, either the traditional small life-style block or a larger, potentially economic, unit;
- not having the know-how – This should not be a barrier but is certainly out there, as we find when dealing with some smaller block owners; those hampered by land ownership/title issues – While this is a real problem in respect of multiple ownership Maori land, it is also a problem in some dysfunctional family-owned properties. I will come back to the Maori land issue later.

The “will not” can be either when the landowner just sits on the land because they own it, where they are speculating on its future use for urban or industrial purposes, or where they have some belief that supports them not utilising their land for primary production. In some cases the landowner has made a conscious decision to allow the land to revert to indigenous cover. The danger is that as well as indigenous species, the scrubland is also carrying lantana, wild ginger, tree privet, or other serious weed species.

Rather than trying to stop the spread of individual weeds such as gorse, or ragwort, or a host of other opportunistic species, perhaps we need to look seriously at the management of the land.

Northland has traditionally had a problem with small, uneconomic units and under-capitalised landowners. If you couldn't afford a farm elsewhere in NZ you headed north and bought a small block of “cheap” land. What few realised is that the costs of inputs to develop and produce from Northland land are higher than almost anywhere else in the country, a bit like building and maintaining our roads. We have therefore ended up with lots of farmers on small farms barely making a living.

The old Lands and Survey Department learned this lesson during their period of large-scale land development and settlement. They were able to overcome some of it

by buying back and splitting every third sheep and beef unit with the two neighbouring blocks. Similarly, they increased the size of dairy settlement blocks by buying back farms and adding them to neighbouring properties.

## Is there a case for restructuring land ownership to create larger blocks more suited to productive farming?

I know that an economic unit is pretty hard to define and it is a moving target but our current block sizes exacerbate the land management problems.

Subdivision and creation of so called lifestyle blocks in Northland, while providing a choice of where people may live, has not helped either the productivity of the region or the control of weeds. It would be tempting to require small block owners to provide evidence of adequate skills and know-how, and to sign a rural living and land husbandry covenant before they occupy their block.

The opportunity to subdivide into lifestyle blocks has also been one of the causes of increasing land prices. Should the current subdivision policies that enable subdivision of productive properties into lifestyle blocks be revisited? I will not pursue the issue of efficiencies in infrastructure development when you have cluster or village development rather than a dispersed population but this adds weight to the argument for a review. So too does the loss of our prime arable and pastoral land to lifestyle blocks.

## Maori Land

The other issue is of course multiple ownership Maori land. I had an interesting discussion with a Maori landowner near Panguru the other day, similar to one I had had previously with a Maori former workmate. Both expressed concern at the reversion and lack of use of large areas of Maori land in Northland and in particular within the Far North District. While the Treaty of Waitangi would prevent it, both these two were concerned that government, in one form or another, may introduce a “use it or lose it” policy.

As I understand the situation, formation and management of Maori incorporations, which have been very successful in the Rotorua-Taupo and East Coast areas, requires a high proportion, if not total majority agreement amongst the shareholders. Under this structure there remains an opportunity for individual shareholders to influence, either directly or indirectly, the management of the incorporation.

Both the people I have spoken to recommend a structure more akin to a public company in which your shareholding relates to the area/value of land that you have contributed. As a shareholder you have the ability to annually elect directors. Once elected, the directors have power of governance over the company; the shareholders do not.

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# Look to the cause... (con.)

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Is there a political opportunity, with several settlements being signed and Maoridom on a high, to raise the whole question of Maori land ownership in Northland?

If we do nothing, something like 20 to 25% more of the Far North District will have reverted to scrub and weeds within the next very short while.

Just as a footnote, regulation does not work for the control of those weeds that are a symptom of poor land management! Ragwort was declared a noxious plant in Whangarei County on September 1908, 100 years ago, and we have had a spectacular flowering this summer to celebrate the centenary of it by

Bob Cathcart  
Northland

## Honorary Membership for NZARM Stalwart

Greater Wellington Regional Council's Dave Cameron received honorary NZARM Membership at the 2008 Nelson Conference.



Past NZARM president and long time member, Dave Cameron, Manager of the Land Management Department at Greater Wellington Regional Council, proudly displays his honorary NZARM Membership.

# New NZARM Members

## A quick bio of our newest NZARM members

### Dr Mike Patrick

*Environmental Scientist with Resource and Environmental Management Ltd in Nelson*

Mike is an environmental scientist based in Nelson who has over 30 years' experience in the areas of:

- the petroleum exploration & production industry
- environmental management in all guises
- marine oil spill contingency planning & response
- waste treatment & disposal
- aquaculture
- water quality

### Reuben Hawtree

*Stream Care Officer at Environment Bay of Plenty*

### William Allen

*Researcher at Landcare Research in Christchurch.*

## Soil Conservation Reunion Taupo

Ian Cairns provides the round-up of the reunion held at Taupo from the 21st to the 23rd of November 2008.

Around 30 people turned up for a weekend's celebration of 40 years of soil conservation in the Rotorua/Taupo area. This included 7 who worked in the pioneering 60's and 70's when massive land use changes were underway especially in the Lake Taupo catchment. Besides the professionals and their partners, there were farmers, politicians, a fencing contractor, and the first female hired to keep order in the office. To add balance a number of younger NZARM members also came along

The planned activities were arranged to both celebrate 4 decades of pioneering conservation work in the pumicelands and to evaluate the results of this work.

The Crown land development projects that turned bush and scrub into sheep and dairy farms in the 50's and 60's were not expected to encounter any soil erosion problems as in the words of the Superintendent of Land Development –“the soil was so porous all the rain would immediately soak into the ground”. By the 1970's gully and stream erosion on a grand scale was evident through much of the new farmland. Contrary to former views on the porosity of pumice soils, under certain circumstances dry pumice could shed substantial amounts of rainfall as surface run-off and measurement at the time showed evidence of up to 30% of rainfall occurring as surface flows. With the frequency of high intensity rainfall events, overland flows devastated fences, tracks and road culverts and caused massive gully heads to appear in apparently benign flat bottomed gullies.

A Friday evening function saw the walls covered in nostalgia. Photographs, plans and drawings lined the walls, Not surprisingly, eroding gullies featured in many. Representatives from Environment Waikato, Taupo District Council, Lake Taupo Protection Trust and President Simon Stokes of NZARM had been invited and gave welcome speeches. A clip from a 1970's National Film Unit called, appropriately, 'Erosion of our Land' was shown. Event organiser, Ian Cairns, clad in white shirt, tie and long socks was the star of this segment filmed around the Taupo area. Standards of dress for field staff seemed to have slipped since those days. Once everyone had bridged a 30 year gap since last having met, serious chat became the theme of the evening.

A bus trip around familiar places was organised for Saturday. Soil conservation in the early days concentrated on doing things out in the countryside. That's where the problems were. There were no computers to stare at, complex software to manipulate, and bonding meetings to attend. Out there with an aerial photo and a chinagraph, map 2 farms a day, organise the fencing contractor, plant some poles, build a detention dam, a bridge, a flume. These were the things we did. So how useful was this work? The bus trip took us to overgrown gullies, now full of trees and often

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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.

### CALL FOR CONFERENCE PAPERS

This year's conference will be held on the 3- 5th November 2009 in Waitangi Northland. The theme is : Northland Is The Future: See It Here First. See page 11 for details.

## 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 a discounted \$50 if paid before the 31st March. Late payments incur the full subscription cost, which is an extra \$20 (late payments extend administration requirements and end up costing the Association money). All membership enquires 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.



LUC Class	Physical limitations	Arable suitability	Slope	Soil stoniness, depth & workability	Soil texture & drainage	Erosion severity & erosion types	Salinity	Elevation & annual rainfall ranges*	
								South Is.	North Is.
<b>Arable land</b>									
1	Minimal limitations for arable use.	Suitable for a wide range of crops.	0- <7°	Deep, >90 cm, easily worked & resilient.	Fine textured, silt loam, fine sandy loams, well drained.	Minimal erosion risk (negligible W, Sh under cultivation)	Nil	<200m 650–1500mm	<350m 650–1500mm
2	Slight limitations for arable use.	Suitable for many crops.	0- ≤ 7°	Moderately deep 45–90 cm, slightly difficult to work.	Wide range, loamy sand & clay textures are less favourable, well to imperfectly drained.	Slight erosion risk under cultivation, W, Sh, R.	Very weak to weak	<400m <1500mm	<500m 800–2000mm
3	Moderate limitations for arable use. Soil conservation measures required.	Restricted range of crops, intensity of cultivation is limited.	0- ≤ 15°	Shallow 20–45 cm &/or stony (5-35% in upper 20 cm), often difficult to work.	Wide range, clay loam, & sandy loam textures are less favourable, well to imperfectly drained.	Slight to moderate erosion risk under cultivation, W, Sh, R.	Weak	<650m <2400mm	<750m 800–2500mm
4	Severe limitations for arable use. Intensive soil conservation measures required.	Occasional cropping but reduced range of crops and intensity of cultivation.	0- ≤ 20°	Very shallow <20 cm) &/or stony or very stony (35-70% in upper 20 cm), often difficult to work.	Clay, loamy sand, sand, & very stony textures are less favourable; well to poorly drained.	Severe erosion risk under cultivation, W, Sh, R, G.	Moderate	<800m <3000mm	<1000m 800–3000mm
<b>Non-arable land (assessed under perennial vegetative cover)</b>									
5	Negligible to slight under perennial vegetation cover.	Non-arable, high producing.	0- ≤ 25°	Variable, deep to very shallow (<20 cm) &/or stony or very stony.	Variable texture, well to poorly drained.	Negligible to slight, Sh, Ss, R, T	Moderate	<950m <sup>a</sup> & 1050m <sup>b</sup> 600-4000mm	<1000m 3000-4000mm
6	Moderate, soil conservation measures desirable.	Non-arable, suited to grazing, tree crops, & forestry.	0- ≤ 35°	Variable, deep to very shallow (<20 cm) &/or stony or very stony.	Variable texture, well to poorly drained.	Moderate, Sh, Ss, Sc, T etc	Moderate to strong	<950m <sup>a</sup> & 1050m <sup>b</sup> <600-4000mm	<1000m 3000-4000mm
7	Severe, requires active soil conservation measures.	Non arable, with soil conservation measures suited to grazing and forestry in some cases.	0- >35°	Variable, deep to very shallow (<20 cm) &/or stony or very stony.	Variable texture, well to poorly drained.	Severe, Sh, Ss, Sc, G etc	Strong	<950m <sup>a</sup> & 1500m <sup>b</sup> <4000mm	<1100m <sup>c</sup> & <1300m <sup>d</sup> 4000-6000mm
8	Very severe to extreme – conservation or protection uses.	Unsuitable for arable, pastoral or commercial forestry use.	0- >35°	Variable, deep to very shallow (<20 cm) &/or stony or very stony.	Variable texture, well to poorly drained.	Very severe to extreme Sh, Ss, Sc, G etc	Strong	<3700m 420–10000 <sup>d</sup>	<2800m 750–7000 <sup>d</sup>

\* Regional variations occur.

<sup>a</sup> Southland, <sup>b</sup> Marlborough, <sup>c</sup> Wellington, <sup>d</sup> Gisborne.

Table 1: Summary of generalised LUC class guideline criteria (from Lynn et al. 2009)

In the 3rd Edition *Land Use Capability Survey Handbook* LUC Class 5 is defined as:

“High-producing land with physical limitations that make it unsuitable for arable cropping, but only negligible to **slight** limitations or hazards to pastoral, vineyard, tree crop or production forestry use”

LUC Class 5 was redefined because under the previous definition it was restricted to land with negligible erosion. As a consequence very little LUC Class 5 was ever mapped, with only 210 900 ha being recognised in the New Zealand Land Resource Inventory (NZLRI) compared with 7 500 000 ha of Class 6. Under the previous definition a significant area of hill country of moderate slopes, high fertility and with only slight erosion potential was mapped as Class 6, despite the overall level of limitation better matching the Class 5 concept. This land, the best hill country in New Zealand, will now be mapped as Class 5.

*Greater detail on erosion types and criteria to quantify erosion severity*

More details on erosion types and the criteria to quantify erosion severity have been included. The erosion types are defined in Appendix 2, with two new erosion types being recognised. These are: Rock fall ‘Rf’ – abrupt free-fall of rock masses of any size from very steep slopes or cliffs, and Debris flow ‘Df’ – dense fluid mixtures of debris (rock, soil vegetation) and water that enter a watercourse, forming a channelised flow.

The former erosion type ‘Earth slip’ is now included in ‘Soil slip’. Earth slips – having concave failure surfaces

> 1 m deep – were difficult to recognise from aerial photographic interpretation and few were ever recorded. The former erosion type ‘Mudflow’ is now included in ‘Earthflow’. Mudflows were defined as very rapid flows of predominantly fine-grained materials which have a high water content. Debris flow has a more inclusive definition.

Guidelines for relating area eroded to erosion severity for all erosion types have been included (Table 8), as have checklists of other factors to be considered when assessing erosion severity, specific to each erosion type.

*Detailed descriptions of inventory factors with reference to the original source documents*

The inventory factors have been included as tables, and their detailed descriptions as appendices, or referenced to the original source documents as appropriate.

Rock type follows Lynn & Crippen (1991). At more detailed mapping scales the component members of this classification may need to be mapped separately.

*Soil*

The ability to be able to identify, describe and map soils in the field is emphasised. Soil is one of the more difficult inventory factors to assess and also to source information about. Common soil information resources available in New Zealand are therefore documented, the classification systems likely to be encountered are briefly outlined (New Zealand Genetic Classification, New Zealand Soil Classification, S-map), and methods for recording soil codes using the various classification systems are demonstrated with examples.

# LUC Survey Handbook (con.)

## *Sections on survey guidelines for on-farm and extensive LRI/LUC surveys*

Sections on survey guidelines for on-farm and extensive LRI/LUC surveys, and recommended procedures for producing NZLRI/LUC maps, databases and extended legends to a consistently high standard, are included as a series of flow diagrams and detailed text. These guidelines have been designed primarily for the novice mapper. Old hands would benefit by reviewing these guidelines. Procedures should be tailored to the individual job requirements, and the levels of expertise and experience of the staff.

## *Sections on the translation from inventory to LUC*

The section on the translation from inventory to LUC has been expanded. Procedures for translating from an inventory to LUC using an existing regional classification, hierarchical framework and LUC suites, as well as a methodology to follow when there is no regional classification available, are documented.

## *An overview of LUC suites, regional hierarchical frameworks and regional bulletins*

An overview of LUC suites, regional hierarchical frameworks and the published regional LUC bulletins has also been included.

## *Discussion of scale and its implications for interpretation*

The importance of scale and its implications for interpretation and management are emphasised. As a general rule, LRI and LUC information should not be significantly enlarged beyond the scale at which it was originally collected.

## *Less significant changes from the 2nd edition handbook include:*

- Modernised terminology and the use of metric units
- A change in LUC class numbering from Roman to Arabic, which are much easier to handle in the electronic age
- More comprehensive definitions of land use types as they are applied to the LUC classes
- Incorporation of modern examples of applications at the farm, catchment, and regional scale
- An updated and comprehensive Glossary of Terms, Reference List, Further Reading, and web linkages
- The use of modern colour photographs of LUC classes and subclasses
- Examples of correlating LUC units within regional council regions.

## **Summary**

As stated in the Introduction to the 3rd Edition *Land Use Capability Survey Handbook*, 'The importance of robust and objective evaluation of New Zealand's land resources in planning and the promotion of sustainable land management can be emphasised in two important ways. Firstly, the value of New Zealand's annual agricultural and wood exports in 2007 totalled \$13.45 billion and \$2.25 billion respectively. To maintain and increase this productivity requires sustainable land management, the primary objective of the LUC system. Secondly, land management requires an assessment technique that will provide planners, policy developers, and regulatory teams with confidence that their land use and management decisions are based on a transparent robust assessment and good science, and one that is able to withstand close scrutiny through the legal system'.

## **Acknowledgements**

The rewriting of the LUC survey handbook was a team effort. The science team consisted of GB Douglas (project manager), GR Harmsworth, IH Lynn (compilation editor), AD Mackay, A Manderson (publication manager), PFJ Newsome, and MJ Page. The regional council land management team comprised A Burton, D Cameron, B Cathcart, G Cooper, T Crippen, J Cuff, G Eyles, P Fantham, D Hicks, J Loveridge, N Ngapo, D Shearman, S Stokes, M Todd, and R Van de Weteringh. Final edits were undertaken by Christine Bezar.

## **References**

- Hunter GG, Blaschke PM 1986. The New Zealand Land Resource Inventory Vegetation Cover Classification. Water and Soil Miscellaneous Publication 101. 92 p.
- Lynn IH, Crippen TF 1991. Rock type classification for the NZLRI. DSIR Land Resources Scientific Report 10. 123 p.
- Lynn IH, Manderson AK, Page MJ, Harmsworth GR, Eyles GE, Douglas GB, Mackay AD, Newsome PJF 2009. Land Use Capability Survey Handbook – a New Zealand handbook for the classification of land, 3rd ed. Hamilton, AgResearch; Lincoln, Landcare Research; Lower Hutt, GNS Science. 163 p.
- SCRCC (Soil Conservation and Rivers Control Council) 1969. Land use Capability handbook. Wellington, Water & Soil Division, Ministry of Works. 138 p.
- SCRCC (Soil Conservation and Rivers Control Council) 1971. Land use capability survey handbook: a New Zealand handbook for the classification of land. 2nd ed. Wellington, Water & Soil Division, Ministry of Works for SCRCC.

# Soil Conservation Reunion Taupo (con.)

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blackberry, pasture that is now in trees and forests that are now being made into dairy farms. After a long bus tour through Reporoa, Waikite and Ngakuru and ending in Kinloch on the shores of Lake Taupo we saw a much more settled landscape with trees everywhere, not just in forests. There was a general feeling of satisfaction that we had all played a significant part in this transformation.

Saturday evening was a time to celebrate with dinner at Suncourt Conference Centre.

Afterdinner speakers came from within the ranks. Dougal Douglas, now with his own environmental consultancy in PNG gave us his enlightened view of the significant differences between the two countries, Dex Knowles some historical comments and welcome support for our work from Murray Black, former farmer, County and WVA Chairman. General conclusion from all was that the weekend had been a great occasion to celebrate good people and good work.

Many thanks from the organisers for support from EW and NZARM

Ian Cairns



# President's comment

Welcome to our first Broadsheet in 2009 from our new editor Tony Faulkner.

There are three topics I'd like to briefly mention; the annual conference, the re-birth of the LUC handbook, and the dairy industry and its farmers.

This Broadsheet contains details about the 2009 conference to be shared with the New Zealand Grasslands Association Inc. It is in Northland, in the Bay of Islands, so it is a mighty location and a mighty partnership, a challenge and an opportunity. Please consider attending this year to represent NZARM in this forum. We are very thankful to 'Grasslands' community.

Also this year, starting in March, and carrying on into April and May is the travelling road show to support the updating and re-printing of the LUC Handbook. Firstly, AgResearch will be presenting the newly updated guide to specific groups around the country. Then the LUC awareness workshops occur, with the aim of drawing those who are unaware of the LRI and LUC technique to learn about it. This year is a very important year for the LRI and the LUC assessment, and it is very important that we support MAF, who are coordinating the awareness workshops. Please make an effort to encourage as many agricultural professionals and others to the workshops. I think there will be renewed interest in the LUC assessment, particularly with its growing use in the analysis of a farm as in the ONE PLAN and SLUI PLAN approach in the Horizons area. Watch this space, objectivity on physical factors is one thing, subjectivity about an areas productive capability is another.....particularly with the rural sector.

Finally, I have been very positive towards our rural communities and farmers in general over the years, but I am increasingly frustrated with our dairy farming community and its industry. Just what will it take to get this land use and those who are involved in it to understand that if they do not look to manage its outputs that affect the environment, that they and we will not have an environment worthy of protection? If Regional Councils vanished tomorrow and there were no rules in relation to dairying, what would dairy farmers do? What would they do? Would their industry actually achieve what they seem completely inept at doing presently? Would they just keep on going until we looked like some third world mess which I have witnessed overseas? And to top it off, a dairy farmer from Top Grass Road, Dannevirke, in the latest Countrywide newspaper said that he didn't know why 'we' wanted stock out of water or riparian management in place, what was the problem? You're kidding right.

We are bending over backwards to help these guys meet the future by supporting much of the research projects and running funding schemes to boot, to benefit their sophisticated systems into the future, and what do we get, a continuous running commentary on our negativity by what we do. Get with it Dairy.

Ka kite ano  
Simon

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

# NZARM 2009 CONFERENCE

The call for conference papers is going out as the NZARM Annual Conference is heading to the winterless north.

This year our conference will be with The New Zealand Grasslands Association Inc, sharing their 71<sup>st</sup> annual conference with our 55<sup>th</sup>. The location is Northland and the theme is;

“Northland Is The Future: See It Here First”.

The venue is the Copthorne Hotel and Resort, Bay of Islands, Waitangi, New Zealand; November 3-5<sup>th</sup>

We are very fortunate to have this opportunity with ‘Grasslands’, and it is long overdue that resource managers and agricultural professionals mingled to discuss New Zealand’s long term future in agriculture. Personally, I have wanted to do this for a long time and I want members to make an effort to attend and present, and represent NZARM well. It is very important that we respond to this opportunity and almost regard it as a challenge. The only way we can test our theories, science, practical experience, and commitment to resource management is with the very people who provide the science, expertise, and commitment to agriculture.

Last year our conference tested our wisdom. Some of that wisdom was borne from the same part of the paddock as ‘Grasslands’ – we both support legumes for instance but for slightly different reasons.

The future solutions to our environment and pastoral industry rest with a combined knowledge.

We seek conference papers for sessions in the following guideline areas, particularly those related to the overall conference theme. However, abstracts on all aspects relating to resource management will be considered.

## Proposed Session Themes

- Managing pastures in a Sub tropical environment  
eg pugging, pests & controls or other
- Adapting farming systems  
eg Nutrient Management
- Dealing with carbon  
eg ETS
- Future focus  
eg increasing climate variability, carbon; managing enterprises in volatile economic times, dealing with risk
- Pasture technologies  
eg Biotech, high sugar grasses, endophytes
- Any other topic related to grassland farming

At this early stage, if you are interested in presenting a paper please contact Norm Ngapo (Norm’s details are in Broadsheet) and he will record your interest. If we end up struggling for presenters/papers the Exec will look to shoulder tap people. As more detail comes to hand we will keep you well informed through the regional coordinators and Broadsheet.

We would also like the members to start thinking about nominations for our new Special Achievement Award, that was presented for the first time last year to Garth Eyles. Details about the award and its criteria were in the last Broadsheet. Nominations with validation are to be sent to the President or Norm Ngapo.

Book early and save your pennies!!

## EXECUTIVE

President: Simon Stokes, Environment Bay of Plenty, PO Box 364, Whakatane. Ph. 0800 368 267 (ex. 9378) or cell 029 756 0311. Email: Simon.Stokes@envbop.govt.nz

Past President: Chris Phillips, Landcare Research, PO Box 69, LINCOLN. Ph. (03) 325 6700 Fax. (03) 325 2418 Email: PhillipsC@landcareresearch.co.nz

Treasurer: Murray Harris, Land & Forest Consultants Ltd, PO Box 5990, Moray Place, DUNEDIN. Ph. (03) 476-6251 or cell 021 616-605 Email: landfors@ihug.co.nz

Secretary: Groundwork Associates, C/NZARM, PO Box 4315 Hamilton East, HAMILTON 3247

National Regional Coordinator: Shelley Washington, ECan, PO Box 345, Christchurch. Ph. 03 365 3828 ext: 7478 or direct dial: 03 364 9878. Email: shelley.washington@ecan.govt.nz

Co-opted Committee: Ross Abercrombie, EW, cell 021-471 683. Email: Ross.Abercrombie@ew.govt.nz

Norm Ngapo, WSC Ltd, Ph. 07 312 6318, cell 027 2902 402, Email: norm@waiorasoilcon.co.nz

John Whale, John Whale & Associates Limited, cell 021 838 601, Ph. 07 308 4517. Email: whale@inspire.net.nz

## REGIONAL REPS

NORTHLAND  
Bob Cathcart (bobc@nrc.govt.nz)

AUCKLAND  
Rob Hughes (Rob.Hughes@arc.govt.nz)

WAIKATO  
T Balvert (therese.balvert@ew.govt.nz)

BAY OF PLENTY  
John Whale (John@envbop.govt.nz)

GISBORNE  
P Fantham (peterf@gdc.govt.nz)

TARANAKI  
D Shearman (Don.Shearman@trc.govt.nz)

MANWATU-WANGANUI  
M Todd (malcolm.todd@horizons.govt.nz)

HAWKES BAY  
Peter Manson (manson@hbrc.govt.nz)

WELLINGTON  
D Cameron (Dave.Cameron@gw.govt.nz)

NELSON & TASMAN  
Barbara Stuart (barbara.stuart@landcare.org.nz)

MARLBOROUGH  
Barbara Stuart (barbara.stuart@landcare.org.nz)

OTAGO  
N McGrouther (Nicola.McGrouther@orc.govt.nz)

SOUTHLAND  
Jim Risk (jim.risk@es.govt.nz)

CANTERBURY  
Judith Earl-Goulet  
(Judith.Earl-goulet@ecan.govt.nz)

WESTCOAST  
Barbara Stuart (barbara.stuart@landcare.org.nz)

# Regional Roundup

## SOUTHLAND

2009 is shaping up as another busy year. We have just completed Farm environment award judging with a high standard of entrants. Dairy conversions are still continuing although slightly less than was forecasted due to the current economic situation and improvement in lamb prices. This will provide some reprieve from what has become increased work loads for many staff.

The land sustainability division is pleased to welcome a new staff member to the team. Katrina Robertson will join ES from the Otago Regional Council, she will be working predominately in the Waituna/Awarua catchment. The Waituna/Awarua wetlands are an internationally recognised with RAMSAR status. No doubt Katrina will be sorely missed in Otago. Katrina will be working closely with the local farming community, land care group, DOC and other agencies. The Waituna/Awarua area has seen significant landuse intensification in recent years. Through the promotion of best land management practices and better communication and interaction with the farming community it is hoped that the goal of improving water quality and the health of the Waituna lagoon can be achieved.

Nathan Cruickshank is busy organising the annual landcare networking fieldday to be held in the Te Anau district. The Te Anau landcare group had a large involvement in the multi agency Mararoa restoration project. The projects focus was on willow clearance of the Mararoa River. The day will allow the various groups from around Southland to share information and experiences from their activities during the past year as well as a chance to view the Mararoa project and hear how the various agencies worked together.

**Jim Risk**

## HAWKES BAY

Hawkes Bay is revelling in the long awaited rain that has fallen on our parched soils during February. **Chris Perley** has recently been working with The Balance Farm Environment Award Trust, to see if we can add the

award to current schemes. **Neil Faulknor**, although our most aged staff member has been off on the annual Veterans Hockey (and other related pursuits) tournament and even had time for setting up some top class wetland projects. **Ian Millner** has recently submitted a significant application to MAF relating to a project in the Huatokitoki catchment which will be one of several catchment based projects in Hawkes Bay running over several years. **Peter Manson** has been involved with a HCE grant application to address issues in the Wairoa district and like Neil, has been pretty busy with environmental grant scheme claims locally. **Warwick Hesketh** has been working with various coastal and dune protection projects, including Cape Kidnappers and Mahia Peninsula. **Garth Eyles** is having some difficulty learning how to retire. Due to a shortage of tennis opponents, he's resorted to work again albeit on a less rigid time frame. Garth has completed a management plan for Tutira and a study on the feasibility of commercial use of poplar timber in Hawkes Bay. **Joe Devonport** is about to embark on a five week tour of Vietnam and Korea. Luckily for his workmates, he has set up the next seasons Landcare Scheme already. Recently Joe has completed a whole seasons Old Mans Beard control in the Tangoio soil Conservation reserve, using energetic and faithful university students. **Andrew Curtis** has been setting up a Water Metering Business unit and also leads a Water Storage project based in the Ruataniwha basin. **Iain Maxwell** reports that he is near the end of the wetland restoration projects seasons. This has involved rebuilding of the Purimu Lakes at Wanstead, including Raupo and willow control. Extensive willow removal has been completed in a tributary of the Waipawa river using the Bio Condition fund. He also has Lake Rununga lined up to start restoration work in the 09-10 year.

**Peter Manson**

## TARANAKI

### General

The autumn is off to a good start with enough rain having fallen over February (139-223% of norm-

al) to keep the province looking verdant. Council's LTCCP will be out for public release mid March with submissions due a month later.

Next year's proposed rate increase is 2.8% which is below inflation as are the next 10 years of projected increases. It's business as usual with increases generally for proposed improvements to transport services and the potential upgrade of the Waiwhakaiho River Valley flood control scheme. Interestingly, 13 years ago when the stopbank was built, there was industry present surrounding vacant land which was a former rubbish dump. Now it's home for numerous large businesses such as Harvey Norman, Rebel Sports and Mitre 10 Mega etc. The flood protection scheme was built for a 1 in 50 year event and it is now proposed to investigate building it to a higher standard – now that there's a lot more to lose. As Kevin Costner said "build it and they will come".

### Riparian Management Programme

Two hundred and fifty riparian management plans were prepared by Christmas which met the annual plan target for the year. Recalculation of remaining dairy farms indicates that around 92% of dairy farms now have a Council prepared plan in place (1762 out of 1868) which also meets the Taranaki Regional Action Plan target under the dairying and Clean Streams Accord of having 90% by 2010.

The focus is now on implementation of plans through a "Riparian Management Implementation Strategy". Following planholder research, one of the key methods of increasing the uptake has been identified as one-to-one contact. However, the effects probably won't show through until 2010 when the traditional planning season has been substituted with more landholder visits. Another, method is to provide a contractor planting service through a tendering system. This worked well after a trial period in April last year and will be resumed if there is sufficient demand.

# Regional Roundup (continued)

a trial period in April last year and will be resumed if there is sufficient demand.

Council's native plant scheme has 300,000 plants grown on contract for this financial year. Currently, 115,000 plants have been ordered which is slightly ahead of last year. To help change plant ordering habits (usually a month before planting), a promotion is being run again for the 3<sup>rd</sup> time. Fonterra suppliers, who order 300 plants before the 1<sup>st</sup> of April, can win a \$3500 plant package or goods to the value of \$2500 from an RD1 store. Each year the close off date has been brought forward to encourage earlier orders. Next year we plan to close entry on 1<sup>st</sup> January. Fonterra is the sponsor of this prize and have restricted entry to their suppliers – just in case a drystock farmer wins (nearly happened last year). Consequently, we have found a separate sponsor for drystock and lifestyle entrants to recognize their contribution.

**Don Shearman** has been busy submitting an application to the MAF Hill-country Erosion Fund. The application is called "South Taranaki and Regional Erosion Support Scheme (STRESS) and was submitted to MAF last month and we are waiting to see if we get invited to progress to stage 2. Our application is based around assisting with: the cost of 3m poplar and willow poles; forestry establishment, and the fencing of native scrub for retirement. The latter 2 options provide for some flexibility with carbon farming as the farmers will also be contributing. Landscaping is never-ending, golf is just a distant memory and kids rugby coaching is just around the corner.

**Darren Scown** has been busy lately as he's going to be a daddy end of April. His aim is to get to the South Island on his motorbike a week before the baby's born for one last hurrah. Is it do-able he asks? He didn't have any bike accidents this year and rides a little slower.

**Kevin Cash** has been busy organising the construction of a building for our poplar nursery site in between submitting applications from planholders for forestry establishment under the Afforestation Grant Scheme. He is also not far from moving into his new house.

**Jason Loveridge** is still busy visiting farmers and is organising a field day on a property that has been converted completely to forestry and entered into the Permanent Forestry Sink Initiative.

**George Powell** has been flat out preparing farmplans. Rather than heading to the beach in the weekends for fishing, he is now learning to play the guitar.

**Don Shearman**

## WAIKATO

### **John Quinn (NIWA)**

Shallow Lakes Restoration Workshop: A "Shallow Lake Restoration" workshop was held in Hamilton on 1 December to review the state and values of shallow lakes and the policy and science tools available to restore them. It was attended by over 80 people from a wide range of agencies and organisations and involved a morning information session and an afternoon discussion session at the Serpentine Lakes where participants explored their key goals for restoration, key barriers to progress and innovative ways to make progress. A summary and the presentations and discussion is available on the NIWA website at <http://niwascience.co.nz/ncwr/tools>.

### **Ross Abercrombie, Paul Smith, Don Harford (EW ICM Team)**

The ICM team is still soldiering on and getting good coverage of farm plans in both ICM catchments. Ross is working on plans to expand ICM into the Upper Waikato (hydrolakes) catchment but with less money and more work will have to get creative. This is likely to include working more with industry partners. Ross is still biking like crazy, Paul is trying to give up dancing, and Don is preparing for an OE to walk the Camino de Santiago (if his foot comes right).

### **Therese Balvert (EW)**

Therese is taking a short break from LMO-world to tackle a 6-month secondment as Sustainable Agriculture Coordinator. (This is covering Bala Tikisetty's position as Bala is currently Acting Programme Manager Coasts, Land and Wetlands). So far I am enjoying the change of scenery which sees me working more with community and industry groups rather than one-on-one with farmers.

### **Emily O'Donnell (EW)**

After 5 years as a LMO, Emily has taken up a new position as Harbour and Catchment Management Coordinator (still based in the Whitianga office). This role will focus on the implementation and development of harbour and catchments plans, as well as linking in with the Blue Print local area plan project. One of the first tasks will be prioritising harbours and catchments as part of developing an implementation strategy

### **Alan Campbell (EW)**

#### LTCCP

Council was elected with a strong mandate to control rates increases and this has been made more difficult due to losses on our investment fund and changes in depreciation provisions. As a result many projects have been trimmed or cut in the draft.

#### Clean Streams (Stream fencing grant)

This was a \$10m project scheduled to run for ten years. It has been cut after seven years due to financial restraints. We have regional rules requiring that stock be excluded from priority water bodies and not cause undue effects in others.

#### Waikato Agricultural Summit

Environment Waikato ran a summit on 12 November 2008, bringing together agricultural business leaders and stakeholders to discuss issues of sustainability of agriculture.

A declaration was agreed at the end of the summit. Under it, agriculture industry leaders agreed to work together with Environment Waikato to develop new solutions to the environmental challenges facing agriculture and to implement existing ones.

#### Sustainable agriculture strategy

Work continues on the strategy with consultation with stakeholders due to take place over the next couple of months. A second agriculture summit at which a draft strategy will be presented is planned for the end of April. The strategy will provide direction for the review of the RPS which is taking place at the same time.

**Therese Balvert**

# Regional Roundup (continued)

## BAY OF PLENTY

**Robyn Skelton** has been keeping herself busy of late with the Environment Bay of Plenty Ten Year Plan (Sustainable Coastal Management and Open Space and Recreation Programme areas). A big job and still a ways to go.

It has been a busy few months for **Reuben Hansen**; contract consent processing for WDC, involved in the WBOPDC District Plan Review, and normal land use/subdivision application type work with the most interesting an application recently lodged with ODC to develop part of the Reeves Farm at Ohiwa. The Reeves Farm proposal is quite unique in that the developer is proposing to create an 18 ha reserve with Upokorehe hapu for the enjoyment of all new Zealanders, the cow shed will finally go and 40 ha of mature native bush will be fenced off and protected. Other goodies in the package include restrictions on built form (scale and reflectivity), advanced effluent treatment systems, creation of a wetland for 'soft' treatment of stormwater and significant plantings of indigenous vegetation for landscape and ecological linkages which are designed to enhance existing stands. Also proposed are restrictions on fertilizer use on the newly created lifestyle allotments. Reuben believes this development proposal is the most environmentally sympathetic and appropriate he has ever seen promoted around the Ohiwa Harbour and really 'raises the bar'. Reuben is very excited and proud to be associated with it and says that in terms of land management practices/alternatives this proposal should become a working model of how things should be done.

**Norm Ngapo** has been continuing with a range of work for Environment Bay of Plenty; developing Management Plans for the Maintenance of three small Drainage and River Schemes in the eastern Bay of Plenty; working with **Glenn Sutton** and **Andy Woolhouse** on the Forest Operators Accreditation Panel to assess a rush of applications; looking at land use capability mapping and nutrient runoff issues in the Rotorua Lakes area; and working with **John Douglas** on land resource information available for Ngati Awa in the eastern Bay of Plenty. Norm has been lamenting the lack of fishing time lately, and hopes that this will be addressed in the near future. Norm and **John Whale** have also been practising their whistling to imitate the kokako birdsong. They both belong to the Manawahe Kokako Trust, and are getting quite adept at calling the birds in on private native forest block where the Trust operates as a Care Group in conjunction with Environment Bay of Plenty.

### John Whale

## CANTERBURY

I thought I could use this opportunity to give a regional update related to what's happening in Canterbury in the area of biodiversity. For some members you will be well informed about the recent initiative in Canterbury to develop a Regional Biodiversity Strategy while for others (both within and outside Canterbury) this may be new.

In 2008, the Canterbury Biodiversity Strategy was launched as part of a region-wide initiative aimed at protecting and enhancing the indigenous biodiversity of our region. The Strategy, which has been adopted and supported by range of authorities, agencies, primary

industry and non-governmental organisations, establishes a set of collaborative actions for promoting the well-being of Canterbury's biodiversity. These include:

- raising awareness and understanding of the importance of our biodiversity among our communities;
- identifying ways to better coordinate resources and expertise to ensure the protection of important remaining native habitat and ecosystems;
- providing communities and landowners with better information and resources about how to integrate and use native species within farming, lifestyle block or urban environments;
- showcasing examples of some of the great initiatives that landowners and communities are already undertaking to protect and enhance biodiversity.

As part of these actions, Wayne McCallum (the Regional Biodiversity Coordinator) is working to link people, information and resources in order to promote biodiversity throughout Canterbury. A website has also been established to help people discover more about Canterbury's biodiversity and to help them recognise how they can become involved in its management. If you would like to learn more visit [www.canterburybiodiversity.org.nz](http://www.canterburybiodiversity.org.nz) or contact the Regional Biodiversity Coordinator at [wayne.mccallum@ecan.govt.nz](mailto:wayne.mccallum@ecan.govt.nz) or 03 371 7160.

**Judith Earl-Goulet**

## Sponsorship

NZARM welcomes possible expressions of interest regarding sponsorship of this publication. Successful sponsors could receive preferred advertising and promotion through Broadsheet and NZARM's annual conference. For further information please contact the Editor.

## Next issue...

Broadsheet is now published three times each year (April, August, December).

## Letters to the editor policy

We encourage reader participation and welcome diverse or varied opinion, but reserve the right to decline inappropriate material. Because of space limitations, all letters should be no more than 300-500 words in length. Letters become the property of NZARM on publication. We will not knowingly publish information that is factually incorrect. You can send us letters via email or regular mail to the editor:

T. Faulkner  
Greater Wellington  
PO Box 41  
Masterton 5840

[tony.faulkner@gw.govt.nz](mailto:tony.faulkner@gw.govt.nz)