



**Report on the 'Roadmap for the
New Zealand Land Resource
Inventory / Land Use Capability'
Workshop, 9 October 2012**

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Landcare Research
Manaaki Whenua

Report on the ‘Roadmap for the New Zealand Land Resource Inventory / Land Use Capability’ Workshop, 9 October 2012

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Summary

Project and Client

- As part of a review into the status and future of several important Nationally Significant Databases, Landcare Research is developing a roadmap for the future of the New Zealand Land Resource Inventory (NZLRI) and the Land Use Capability (LUC) classification system. A workshop to determine a path forward that best meets the needs of all users and stakeholders was held on 9 October 2012, supported by an Envirolink small advice grant from the Ministry of Business, Innovation and Employment, Science and Innovation Group.

Objectives

- The NZLRI and LUC are currently extensively used by regional councils in a variety of statutory and non-statutory planning settings, by central government for policy making, in research, and commercially.
- The current database is dated being largely compiled between 1971-1979, with limited 2nd edition remapping between 1985-1998.
- The goal of the workshop was to bring together as representative a group of regional council NZLRI users as possible and give them an opportunity to air their views and provide input into the future shape of the NZLRI and LUC.
- Specific objectives for the day were to:
 - Identify the future shape of the NZLRI/LUC
 - Identify the key requirements to deliver this
 - Identify existing or potential issues that need to be addressed

Conclusions

- The workshop exposed a number of discussion points, some which were broadly agreed upon and lead directly to the recommendations for specific action below. Other issues were more contentious e.g, the relationship to and the integration with other data, highlighting areas that need to be addressed and resolved in the NZLRI/LUC roadmap document.

Recommendations

- Key recommendations drawn from the discussions are that Landcare Research:
 - Take the lead on developing a national LUC legend
 - Investigate the incorporation of farm-scale mapping into the national database with appropriate Quality Assurance measures
 - Prepare a discussion document on the erosion factor, outlining the differing perspectives and potential ways forward

- Prepare and circulate for approval 'Terms of Reference' for a governance/stakeholder group
- Extend invitations in 2013 to form the Governance Group, one of whose top priorities should be addressing the issue of sourcing and training the next generation of LUC experts

1 Introduction

As part of a review into the status and future of several important Nationally Significant Databases, Landcare Research is developing a roadmap for the future of the New Zealand Land Resource Inventory (NZLRI) and the Land Use Capability (LUC) classification system. In the context of this roadmap Landcare Research wanted to arrange a workshop to determine a path forward that best meets the needs of all users and stakeholders. In August 2012, Garth Eyles' NZARM Broadsheet article pointed out that there are now few scientists within the Crown Research Institutes (CRIs), and land management staff within the regional councils, with experience in LUC. Consequently this workshop was an important opportunity to harness the knowledge of past experience with LUC to make sure that the future value of the existing NZLRI dataset is assured, and to properly manage not just the dataset but much of the ancillary documentation and knowledge that surround it.

With the assistance of Gisborne District Council (GDC) an application for an Envirolink small advice grant was submitted to assist in supporting this workshop. This is a brief report on the running and outcomes of that workshop.

2 Background and Objectives

The NZLRI and LUC are currently extensively used by regional councils in a variety of statutory and non-statutory planning settings (e.g. GDC's land overlay 3A) and by central government for policy making (e.g. the East Coast Forestry Project and Proposed Plantation Forestry NES), in research (e.g. determining the effects of mass-movement erosion on soil carbon stocks for MfE) and commercially (e.g. the high country pastoral leases earning capacity rental project for LINZ). Although widely used the current database is dated being largely compiled between 1971-1979, with limited 2nd edition remapping between 1985-1998

The goal of the workshop was to bring together as representative a group of regional council NZLRI users as possible and give them an opportunity to air their views and provide their input into the future shape of the NZLRI and LUC.

Specific objectives for the day were to:

- Identify the future shape of the NZLRI/LUC
- Identify the key requirements to deliver this
- Identify existing or potential issues that need to be addressed

3 Workshop format

The workshop was held at the Commodore Hotel in Christchurch on 9 October 2012 and was attended by land management and planning staff from 12 of the 16 regional councils covering the length (Whangarei to Invercargill) and breadth (New Plymouth to Gisborne) of the country. Additional attendees included a number of private consultants, recently retired 'experts', and Landcare Research, AgResearch and GNS staff with experience in the LUC methodology.

After a brief Māori welcome by Garth Harmsworth and a general welcome by Trevor Freeman (GDC), James Barringer outlined the objectives for the day and gave a presentation on the current status of the NZLRI and LUC from a 'national (CRI) perspective'.

Garth Eyles, former operational manager of the NZLRI mapping programme and recently retired from the land management staff at Hawke's Bay Regional Council, then spoke about the current state of the NZLRI and LUC from a 'regional perspective'.

These more formal presentations were followed by a series of three breakout and report-back sessions. Topics of discussion had been solicited from all participants (Landcare Research, regional councils, and consultants) prior to the workshop. The broad agreement on which topics should be discussed was encouraging (Table 1).

Table 1 Discussion topics put forward by Landcare Research, regional council staff and LUC consultants

| LANDCARE RESEARCH | REGIONAL COUNCILS & CONSULTANTS |
|---|--|
| <ul style="list-style-type: none"> • National consistency and the potential for a national LUC legend • Incorporation of regional-/farm-scale mapping with appropriate QA procedures • Stronger linkages between LUC classification and land management • Better database management (update, error identification and correction protocols) • Debate on field-style multi-factor mapping versus GIS/remotely-sensed single-factor analyses • Erosion, the most difficult factor to upgrade | <ul style="list-style-type: none"> • National consistency and correlation (a national legend) • Quality and audit of farm mapping – a national issue • Stronger linkages between LUC classification and land management / land use / environment issues • Erosion, the most difficult factor to upgrade • Human/intellectual capacity for now and the future, mapping consistency and quality [younger staff lack training, experience, confidence] • Linkage between LUC and high class soils (protection from urban spread) • Encourage national use at appropriate scales, practitioners' tool • Integrate S-map with NZLRI/LUC (not either/or) – more detail required • Form a governance group for NZLRI/LUC (practitioners, MPI, MFE, CRIs) to resolve issues & ensure future |

Robust discussion and debate was encouraged in the three breakout-group sessions. There was also an opportunity to identify and later discuss 'parked issues' (additional issues not identified in Table 1).

The workshop closed with a wrap-up of the group discussions, an attempt to prioritise the main issues and a start at developing a set of recommendations for the future.

4 Workshop discussions

The discussion-group topics and a brief summary of the main points of agreement/disagreement are outlined below.

Session 1: Getting the best value from the current data

Q1: Do you support development of a single national LUC legend?

There was strong agreement supporting the notion of developing a single national LUC legend. The main proviso was that the notion of the implied ranking of LUC units was dispensed with so that 'new or overlooked' units could be added consecutively. One group expressed a preference for the initial development of regional legends, but conceded that the current regional boundaries cannot be considered as stable, and that the ultimate goal is a national legend.

The meeting indicated it would like Landcare Research to take the lead on developing a national LUC legend.

Q2: Can we incorporate farm-scale mapping into the national database with appropriate QA procedures?

There was overall agreement that we should incorporate farm-scale mapping into the national database wherever possible, though some viewed this as a complementary rather than fully integrated approach. For this to be feasible, the mapping would have to conform to the standards outlined in the third edition of the LUC Handbook, there would need to be an appropriate Quality Assurance procedure firmly established, and a moderation body in place. Possible issues relating to ownership of data and privacy may also need to be clarified and resolved.

Q3: Do we need stronger linkages between LUC and land management / land use / environmental issues?

This was a more contentious question that saw a divergence in group opinions. There was a general consensus that stronger linkages between LUC and land management / land use / environmental issues were desirable. However, concern was expressed that LUC is currently being used as a surrogate in assessments for which it was not designed. Those with this view suggest LUC is not a silver bullet to address all environmental issues. It has limitations and in some cases detailed soil data or some other combination of primary attributes could be used to derive and model more appropriate suitability indices, e.g. irrigation suitability, a leaching index, suitability for dairy effluent and septic tank disposal.

Session 2: New mapping

Q1: Do you support continuation of conventional multi-factor-style NZLRI mapping or should we move to deriving single factors from the best available data sources and developing automated classification methods for land classification?

This was also a contentious issue that saw a wide divergence in group opinions from remaining with the status quo (multi-factor) to more reliance on accurate single-factor data where these are available (e.g. S-map or other more detailed soils data, DEMs for slope, and LCDB3 for vegetation cover). While derivation of LUC to at least the subclass level should be readily achievable through the application of 'rule based logic' operating over single-factor datasets, there are difficult issues around deriving management unit boundaries from raster datasets. Above all, a thorough understanding of landscapes and field experience will always be an integral part of LUC assessment.

Q2: Is erosion severity an adequate measure of erosion risk?

It was largely acknowledged that 'erosion' is a problem area and that the interpretation of 'erosion type' and particularly of 'erosion severity' was strongly dependent on the time since a significant erosion event. It was noted that, unlike the other inventory factors, no new national-scale mapping of erosion has occurred outside of NZLRI mapping.

Some expressed a traditional soil conservation perspective where present erosion and erosion severity (at the time of mapping) are valid views with respect to difficulty of control and remediation, and thus that no change to erosion recording and interpretation is required.

The alternative, perhaps more widely held view is that inherent erosion risk / landscape history / sediment production over a much longer time frame is more relevant in determining the true land use capability of the landscape regardless of the occurrence (or non-occurrence) of recent erosion events.

The meeting recommended that Landcare Research prepare a discussion document outlining the differing perspectives and potential ways forward.

Session 3: The future

Q1: Is an NZLRI/LUC governance / stakeholder group required to resolve issues etc.; who should be represented and how should it work?

There was strong agreement that a governance / stakeholder group was desirable to:

- Advocate the need for NZLRI/LUC to both users and potential funders
- Ensure the capability exists for the continuation of the NZLRI/LUC (support education, training and promotion)
- Select, oversee and respond to a technical group of NZLRI/LUC experts who will advise the governance group on specialist technical matters
- Ensure a coordinated approach with other related inventory and science activities (e.g. S-map, regional council farm plan mapping).

The composition and potential membership of this group was debated and a general consensus reached that it should have regional council, CRI and government agency representation. It was proposed that it should include at least one representative each of the regional council collective Land Management, Land Monitoring and Special Interest groups; at least two nominated CRI stakeholder representatives – most likely from Landcare Research and/or AgResearch; and up to two representatives from government agency stakeholders (e.g.

from the Ministry for Primary Industries, Ministry for the Environment, Ministry of Business, Innovation and Employment).

The meeting recommended that a 'Terms of Reference' for the governance/stakeholder group be prepared by Landcare Research, circulated for comment and approval, and then invitations extended to form this group.

Q2: How could a governance group be funded?

There was universal agreement that the governance group would need to be self-funded, in an operational sense.

Q3: What training is needed and where will the next generation of LUC experts come from?

Training and sourcing of the next generation of LUC experts was recognised as a MAJOR issue. (A quick glance at the accompanying photo confirms the skewed age spread of the workshop participants.) Accredited courses associated with the land-based universities (Massey and Lincoln), in much the same way as the Overseer courses, were suggested. Solving the training issue was seen as one of the top priorities of the proposed governance group.

5 Recommendations

Key recommendations drawn from the discussions in Section 4 are that Landcare Research:

- Take the lead on developing a national LUC legend
- Investigate the incorporation of farm-scale mapping into the national database with appropriate Quality Assurance measures
- Prepare a discussion document on the erosion factor outlining the differing perspectives and potential ways forward
- Prepare and circulate for approval 'Terms of Reference' for a governance/stakeholder group
- Extend invitations in 2013 to form the Governance Group, one of whose top priorities should be addressing the issue of sourcing and training the next generation of LUC experts.

Apart from these specific recommendations the workshop also provided excellent feedback, which is currently being incorporated into an NZLRI/LUC Roadmap document.

6 Conclusions

The workshop also exposed a number of discussion points, some of which were broadly agreed upon and led directly to the recommendations for specific action in the previous section. Other issues were more contentious, highlighting areas that need to be addressed in order that the NZLRI/LUC retains value into the future and builds on its 35-year legacy of valuable input to land use planning and land management in New Zealand.

7 Acknowledgements

A special thanks to the Gisborne District Council and Trevor Freeman for sponsoring the Envirolink small advice grant that covered the main workshop costs – and of course thanks to Envirolink (MBIE) for the grant.

Appendix 1 – Workshop participants



Figure 1 Participants at the one-day 'Roadmap for the New Zealand Land Resource Inventory / Land Use Capability' Workshop, 9 October 2012. From left to right:
Front row: Lachie Grant, Trevor Freeman, James Barringer, Garth Eyles, Norm Ngapo, Grant Cooper
Middle row: Sam Carrick, Malcolm Todd, Emily Greenberg, Bruce McAuliffe, Mike Page, Ian Lynn, Les Basher, Ognjen Mojsilovic, Fiona Curran-Cournane, Murray Harris
Back row: Andrew Manderson, David Medyckyj-Scott, Garth Harmsworth, Bain Cross, Tony Faulkner (obscured), Don Shearman, George Ledgard, Andrew Burton, Warwick Hesketh, Allan Campbell, Bob Cathcart, Reece Hill, Sharn Hainsworth