Manaaki Whenua
Landcare Research

LINKONLINE
Short webinars for environmental policy-makers and practitioners

Land Use Capability back in the spotlight and the new Land Resources Portal

The following questions were asked during our live webinar with Thomas Caspari and Andrew Manderson but due to time restrictions, we were unable to answer these in the session.

The **Land Resources Portal** is accessible from https://lrp.landcareresearch.co.nz/.

SCALE AND RESOLUTION

Most Regional Councils have varying levels of coverage of farm scale LUC. Has MWLR been able to or intend to incorporate available farm scale data? If so, does the software indicate whether the LUC data displayed is farm scale or not?

MWLR currently make use of farm scale data from a small number of regional councils to inform other scales of mapping (for S-Map in this case). Data quality can vary considerably between councils, between neighbouring properties, between surveyors, and between different timescales of mapping. We do recognise the potential foundation of existing farm scale mapping, and are wanting to explore our ideas for standardising data collection between farms and councils, and other proposals for managing data privacy and selective data access.

Are you doing any work to update LUC to increase its resolution and address the known limitations? If so, can you tell us more about it?

MWLR has the capability and technology to produce a vastly upgraded NZLRI – in terms of scale and quality of information content – at any time. What we lack is the funding and support from users and industry to carry out this work.

How granular is the LUC?

LUC can be mapped at any scale (granularity). The intended use of the mapping guides the scale of mapping. The LUC Handbook contains recommended scales for mapping LUC according to different land uses. For national and regional LUC (the NZLRI database) the scale is mostly 1:50,000 although there is some variation in map unit size between 1st and 2nd edition mapping. At this scale the smallest area of interest is about 10 ha, although some polygons are down to 1 ha. Farm scale LUC might be mapped at 1:10,000 which roughly equates to a 0.4 ha minimum area of interest.

GENERAL QUESTIONS

How can the LUC be used for environmental protection too, not just how it relates to productivity? i.e. the good LUC land is down by the river, but due to the nature of the soil this is quite free draining so the nutrients go straight into the aquifer - now that good LUC land is not good for environmental ground. Would these view be able to be aligned?

MWLR have developed an advance on the traditional LUC classification to test how we can accommodate contemporary environmental issues and related mitigations. While LUC method & datasets may have received only minor updates over the years, what we've found is that the underlying framework itself is very amendable to accommodating these changes/improvements.

How much change over time do you see in LUC classes? I mean, does it make sense to have timesteps like LCDB?

At the LUC **class** level we wouldn't expect big changes over yearly timeframes, as LUC is based largely on the inherent qualities of land. The main exception is significant land developments like e.g. drainage schemes that are likely to stay in place for many years (decades). LUC **management units (the most detailed level of the LUC classification)** however, could be updated more frequently in some cases as our needs for the management of land change.

Your thoughts about how appropriate it is to use LUC, S-map, ESC (and similar national datasets) in regulation?

Provided the data have been collected to a standard by qualified professionals, then LUC and other data should be considered in the same manner as other factual evidence. A key consideration is that the scale of data is matched to the scale of application or decision making (you wouldn't use a national road map to locate a specific house number).

Are you saying these lands are in trust to LUC re Stewardship, Reservations, Legal unformed roads lands?

The LUC system and the NZLRI database are separate and unrelated to the NZ cadastre (parcels & ownership etc.). However, tagging LUC classification to parcel valuations or ratings databases has been mooted as a way indicating parcel production potential and environmental limitation (for informing lending risk, etc).

The LUC maps have been available down to a 1:25,000 scale which is not very useful for town planning purposes and although considered in Northland to be quite accurate, we find major disagreements.

NZLRI LUC is available for all of NZ at a nominal 1:50,000 scale. LUC can be mapped at any scale, and other different scale surveys exist around NZ. If there are 1:50,000 scale errors in the NZLRI for Northland then MWLR would welcome the specific identification of misclassified LUC at the 1:50,000 scale. At other finer scales we would expect disagreement as finer scales can result in the delineation of small areas of different LUC (that are otherwise too small to map or influence the unit classification at 1:50,000 scale). As always, it is key to match data scale with application or the level of decision-making.

Developers appoint experts to dig holes and prove that the soil is not LUC1,2, or 3 but the MfE Guidelines, which the Regional Council wants to apply, say that these localised evidence should not be encouraged. The Court has decided the Guidelines have no legal status.

This question may be better directed to the HPL team at MFE&MPI.

Why are the Subclass (e,w,s and c) and Unit numbers not used especially where land is LUC 4 or even 5 with certain provisions such as availability of water or wind protection, as example, not protected notwithstanding being very high agricultural potential.

This question relates to how HPL has been defined in the NPS, and is perhaps better directed to the HPL team at MFE&MPI.

Will S-mapping be taking over from LUC which is foreshadowed in the NPS and Guidelines—can that be accelerated?

S-map is unlikely to replace LUC (or more correctly, the NZLRI). However, S-map is currently being used as a valuable source of data to produce new classifications of LUC 1-3 to support HPL mapping. The rate of S-map mapping and coverage is a function of external funding and support from industry, councils, and Government. New S-map surveys are being added to S-map Online each year, but MWLR would love to accelerate the rate at which coverage is being achieved!

Although the NPS HPL is better than nothing it might have seen the light before the information was available.

This question may be better directed to the HPL team at MFE&MPI.

Rather than having Guidelines a NES might have been a better solution.

This question may be better directed to the HPL team at MFE&MPI.

I've always heard the message that the LUC is not the right scale for site specific decisions (e.g. resource consent applications). However, looking at the information in the new portal, it seems to be saying that LUC is an OK scale for determining regional matters. So, for example, mapping where HPL is in a region could be based on the LUC maps (as the NPS-HPL allows) and we would be on solid ground rebuffing submitters who challenged its accuracy at the regional level? I note that the HPL mapping does require us to determine exact boundaries for the HPL so in that regard, it could be detailed – or can we base these boundaries broadly on the LUC and use roads, coastlines, parcel boundaries? I favour the latter approach, but I am concerned that we will be challenged heavily on the accuracy of the LUC maps. Do you consider the LUC data is defensible for setting the boundaries of HPL?

LUC can be mapped at any scale so it is misleading to suggest that LUC cannot be mapped at a scale suitable for site specific questions. However, problems can be encountered when units are mapped to a size that is too small, such that the overall capability of land at the usable or management scale is misrepresented (e.g. a few small areas of less capable land might not detract from its use for a high value use such as cropping). If this is the case then the surveyor may not have chosen the most appropriate scale of mapping to address the question or application being considered.

I understood the discussion about S-Map to be basically saying that the S-Map data with Lidar inputs and some other things, was essentially an updated/improved dataset of LUC in NZ. This seems like it could be an even more defensible data layer on which to base HPL boundaries. I note that the whole of NZ is not covered by S-Map – Auckland seems to only have some areas in the south. Is there a process on 'filling in the gaps' for S-Map across NZ? If so, who is doing the work and what are the timeframes?

We agree that S-Map is an improved set of data for those LUC classes where soils are largely the most determining factor of the LUC classification (i.e. LUC 1-3). Regarding expanding the coverage of S-map, there is a programme with MPI & Regional Council funding to map some of the identified high priority areas, however that funding is currently only confirmed until 2025.

I see the new viewer has the "LUC 2021 layer". Is this based on the updated S-Map data (converted into LUC as mentioned above) where it is available?

No, the only update in 2021 has been the inclusion of the national LUC legend. A classification of LUC 1,2,3 from S-map is currently in development.

I see that one of the documents listed for Northland (including Auckland) is the Hicks 2017 Farm LUC work. This work reclassified a lot of LUC 2 to LUC 1 in Auckland and also included LUC 5 (which was a missing layer for Auckland prior to that). Does the "LUC 2021 layer" viewer show this data for Auckland, or is it still the original data and LUC classifications? From my quick look, it seems to be based on the original data?

The LUC 2021 layer on LRIS has not been modified other than adding the national LUC in 2021. So it will not include the reclassification as outlined in Hicks & Vujcich (2017). Further, the Auckland classification is produced at a finer scale (as suggested by the title), which allows for the delineation of smaller units with a LUC classification that may be different from the same area classified at a less detailed scale (which will have larger unit sizes).

EROSION AND ESC / FORESTRY

The LUC has been used to create the Erosion Susceptibility Classification, a key component of the NES-CF for forestry. Is the LUC dataset going to be revised to increase resolution to make the ESC more reliable and realistic?

MWLR have the expertise and digital capability to produce a more detailed and accurate NZLRI for both flat land to inform HPL applications, and for hill/steepland to inform forestry and other questions. Support and funding would be needed from industry and end users to give us a mandate to carry out these improvements

Whilst land use classes (1-8) are standard across regions the subclasses e.g. susceptibility to erosion is not. How have you handled that inconsistency?

Any inconsistencies arising from differences between Regional LUC Classifications should now be resolved through the national correlation and introduction of the new National LUC Legend (available in the LUC 2021 LRIS layer). Further, new work by the MWLR erosion team to produce improved representations of erosion vulnerability have yet to be used to update the NZLRI erosion classification.

SOILS

Re S-map, how do you define a "sibling"?

A sibling is a member of a soil family. The sibling partitions soil families on the basis of unique combinations of drainage class, topsoil stoniness, soil depth, texture contrasts, and a sequence of up to six functional horizons. (Functional horizons are defined in terms of topsoil/subsoil, stoniness class, texture class, ped size and consistence. Functional horizons also distinguish soil materials derived from acidic and basic tephra.) This link is also useful:
https://soils.landcareresearch.co.nz/topics/soil-classification/nzsc/

When will S-map be completed for the whole country?

This is really dependent on security of funding. There is a programme with MPI & Regional Council funding to map some of the identified high priority areas, however that funding is currently only confirmed until 2025.

With HPL how do you cater for the fact that there is a wide range of productivity on LUC1 2 and 3, mainly due to soils and climate? I.e. there is land that is actually not "highly" productive but it is being called that and rules applied accordingly.

How HPL has been defined in the NPS is a policy definition and is not necessarily a technical definition. Any questions as to why HPL has been defined in this manner should be directed to MfE & MPI.

PORTAL

Is there a way that the bulletins that thoroughly described the LUC units, region by region, can be made more readily available in electronic form?

All LUC bulletins that we are aware of have been digitised and are available from both the LUC regional data page as well as our Digital Library at https://digitallibrary.landcareresearch.co.nz/digital/collection/p20022coll27/search.

Will you put on the urban LUC mapping handbook?

This is being provided in the 'Key documents' section of the Land Resources Portal.

LUCGG

Can you provide us with information about the work programme for the LUCGG going forward?

Information on the Governance group is available on the Land Resources Portal https://lrp.landcareresearch.co.nz/topics/governance/.