How is New Zealand's landscape changing: Introducing LCDB v5.0

The following questions were asked during our live webinar with David Pairman but due to time restrictions, we were unable to answer these in the session.

Could this LCDB version be used to produce catchment indices of riparian cover of waterways? Is it feasible to further delineate wetland extent into freshwater versus coastal? Coastal wetlands are very different ecosystems, with different policies and management issues.

I would be hesitant in relying on the LCDB to comprehensively map riparian cover. While larger patches should be mapped correctly, often riparian planting can be narrow and/or broken strips resulting in polygon detail below our mapping targets.

While some classes are obvious ("Herbaceous freshwater vegetation", "Herbaceous saline vegetation" and "Mangrove"), a botanist would be best to comment on potential for other classes to be either freshwater or coastal wetlands.

Can you make region by region kmls for charitable organisations without professional GIS tools - so we can use over Goggle Earth?

KLM is one of the formats supported by our portal so parts of the LCDB can be downloaded as klms already. The portal allows regions, map sheets or other spatial extents to be clipped from the full LCDB coverage. Note that the clipping returns any polygon that intersects with the area of interest specified. Unfortunately, klm is not a very efficient format, so downloading larger areas in this format may not be practical.

Would also be nice to be able to download spreadsheet with the attribute data to do our own change analysis.

I will add that spreadsheet of raw areas (broken down to regional level) onto our portal so that users can create their own pivot tables from it without needing a GIS to extract the data.

Questions & Answers

How have you applied wetland context to Flaxland - we've looked at a lot of the flaxland sites in Waikato and consider many more to be wetland context than LCDB suggests

There certainly are flaxland polygons with the Wetland flag on, so yes this has been done where our mapping staff felt there was evidence of a wetland. However, I think you are saying that significant number of additional flaxland polygons should be classed as wetlands - at least in the Waikato. In which case, can you send me some examples and I will take it up with the mapping team.

The changes in Stewart Island wetlands, are they included in wetland loss or discounted as they are a correction?

No, the improved Stewart Island mapping does not impact the wetland loss figures as they were corrections to all timesteps. There are no wetland flag changes between timesteps on Stewart Island.

Where does saline habitat or vegetation fit into this. I note the wetland covers freshwater etc.

The Wetland flag is used for both freshwater and saline wetlands. Some classes are obviously saline, i.e. "Herbaceous Saline Vegetation" and "Mangrove" classes. The rest would normally be freshwater, although I understand that flaxland can tolerate some brackish environments. It is probably best to consult a botanist on the possibility of different plants existing in different wetlands.

Is it possible to identify infestations of exotic conifers?

Wilding pines spread and thicken gradually making it difficult to detect change and even determine clear boundaries. I think that wilding pines would need to be quite well established for the LCDB to map them, so probably not ideal for monitoring early incursions. Possibly more useful to help in modelling spread by identifying seed sources.

How did you get the big tables?

The tables are available as supporting documents in the portal (https://lris.scinfo.org.nz). If you mean how did I generate them - I created a template spreadsheet with the equations all set up and colouring/shading that I wanted. I then wrote a Python script to extract the values from the LCDB and put them directly into the appropriate Excel spreadsheet cells.

Was an accuracy assessment conducted, and is there a quantification of the uncertainty?

We have not done an independent accuracy assessment on v5.0 yet but did do that on v3.0 (http://www.lcdb.scinfo.org.nz/about-lcdb/accuracy-assessment). We are confident that v5.0 is a significant improvement.

Can you say more about appropriate usage for fine scale land use change, from your last point?

Quite often we are alerted to examples where the LCDB change totals do not match results of other mapping exercises that have been done at a finer scale. This is to be expected and often, as I pointed out in the talk, a result of smaller features that the LCDB does not map accumulating to a significant change which is therefore missed by the LCDB. Being aware of the problem is important;

that is, don't try and use the LCDB where it is not fit for your purpose. The only real solution is to map at a finer scale if you need to detect such change. But it is expensive so may be more appropriate for smaller areas of interest. Alternatively, some classes may be more important to map at a finer scale even on a national basis. I should point out that it would be possible to use different mapping standards for different classes within a single database such as the LCDB if we had suitable methodology and funding to map some classes at a finer scale.

How "good" are the distinctions among the grassland types? Is "high producing" or "low producing" simple based on visual assessment? How distinct are the definitions of grassland categories?

The grassland classifications have largely been based on visual assessments along with the mappers knowledge of New Zealand landscapes. The high/low distinction is still felt to be a weakness in the LCDB and we are actively looking at ways to improve it in our associated research programme.