



MEETING	LCDB Steering Group Meeting
DATE	1st May 2012 2:00 pm
ATTENDEES	MSI – Viv Smith (Chair) MfE – Karl Majorhazi DOC – Allan Ross NZ Geospatial Office (NZGO) – Mike Judd Regional Council Rep – Rob Phillips Landcare Research - David Pairman, James Shepherd
APOLOGIES	Len Brown, Craig Trotter, Sarah McDermott
SUBJECT	Land Cover Database Programme

1. Apologies

Len Brown, Craig Trotter, Sarah McDermott

2. Minutes of February meeting and matters arising

- Action items from February meeting reviewed:
 - Craig's email to Viv (30 Apr) states that he and Len now conclude that we cannot use ETS collected data to validate LCDB. Therefore neither approval signoff nor Len's letter to MAF stating LCDB is a direct future contributor to national inventory, are now needed. Likewise agreeing on formats for ETS data is moot.
 - Noted that Peter had presented to CEEFs meeting on 24th Feb.
 - David had discussed with Reece Hill about presenting to a future Land Monitoring Group meeting – pencilled into next meeting.
 - Kevin nominated Fran McNamara to represent LINZ on the technical advisory group.
 - The 1990 LCDB concept and LCDB at other scales were put to the Stakeholder/Technical Group last week but no decision on them yet.
 - David and Rob did email out to collaborators to try and hurry them along, engender more competition etc. There is some feedback that they now see it as competitive.
 - Len didn't manage to get an update out of Grant Barnes on ARC progress.
 - Unfortunately the Land Managers Forum cancelled a talk by James Barringer due to a crowded agenda. Noted that Peter had addressed the Biodiversity forum on 20th March – really good feedback from several people.
 - The Steering Group's TOR were recirculated and now finalised.
 - The Technical Advisory Group's TOR were amended and re-circulated. The group itself is now formed and met last week (24th Apr). Their terms of reference were put to the meeting to see if they wanted to amend anything, but Chair (Tim Park) agreed to work on that after the meeting.

ACTION: No outstanding actions to carry over.

Mike Judd introduced himself as the Geospatial Office representative – his interest is in data and how it gets used inside/outside government. Ex Defence Force (Geospatial Intelligence Office) and Fire Service before that, and Critchlow. We did a round of introductions for Mike.

3. Project status:

- **Mapping progress:**

David reported on regional mapping progress – see David's Powepoint notes for this meeting. All regions out (Gisborne last 7th March), map shows regions in yellow that have returned data. Wellington has also now returned data since map was drawn last week.

- Eight returned to date – Nelson is the stand out having employed someone to do a very comprehensive job.
- Most others have made a reasonable effort but a few less so.
- Some regions have taken it more as an accuracy exercise rather than an opportunity to correct mistakes. Probably because it was easier with the data they had.
- Wellington had taken this route, and it has thrown up some concerns on specific classes and boundary accuracy. We are following up with them to resolve what we can.
- Several of the outstanding regions are imminent (Northland, Auckland, Waikato, Hawkes Bay, Horizons).
- West Coast – not engaged. However we noted that much of the region is covered by DOC interests.
- Southland and DOC both should return something shortly.

While deadline is tight, we are reasonably comfortable with where we are. It is a pity more didn't follow instructions more closely but that is probably to be expected.

Allan asked about engagement and what we would do differently. It was discussed at TAG. Engage more within the councils rather than just single contact point – talking more directly to the people doing the work. Resources available within the councils, particularly data sets (wetlands mentioned).

Data now coming back – have decided on technical issues (TAG) so just need to implement and get it out by end of year.

Allan asked what happens if region doesn't return data. We have always said that while it is an opportunity for councils to improve mapping in their area, we are happy with the product if they don't take up that opportunity.

Discussed identification of errors that remain uncertain – perhaps input for next round or intermediate release. Only Wellington gave information that raised some of those issues. Councils generally tried to fix specific errors rather than provide feedback on general areas of difficulty. Some more weaknesses will probably come out during accuracy assessment exercise.

Discussed input of other (council held) datasets more – discussed at TAG and really keen to do this but it has a number of issues around resolution, standards they are done to, timing of

classifications, class definitions etc. Really issues for Landcare to sort. There is an intention to survey councils/DOC etc on this once they have digested LCDB3. Allan mentioned StatsNZ Environmental Domain Plan mentioned as a useful list of data.

4. Feedback from Technical Advisory Group meeting: David

Reported that TAG now set up and meeting last week 27th March. Members were largely from Rob's recommendations. Richard Earl (DOC) was shown as deputising for Elaine Wright but felt that as he was doing the work he would probably carry on in that role.

- Tim Park was elected as chair.
- Lots of discussion on other databases etc as above.
- TOR presented but no interest in line-by-line analysis. Tim will work on it later if anyone had issues.
- Discussed six technical issues needing resolution before finalising LCDB3. Good discussion and we came to agreement. Allan asked if any of note to this group. Of the six issues, standardising on Topo50 coastline has the biggest ramifications. Previously had drawn based on imagery – now will be consistent with other datasets used in NZ. Will separately attribute anything mapped outside the Topo50.
- TAG group had been forewarned about these technical issues so not too much difficulty coming to consensus during meeting.
- Discussed how we intend to track change due to previous mapping errors as opposed to real change. Important for reconciling with figures in previous reports written.
- Licensing was discussed but settled on CC-By as others too restrictive. Will try and address anyone forking the data by making it easy to feedback updates. Noted also that they couldn't call it LCDB.
- Release discussed – TAG wanted staged releases not continuous.
- No other substantive issues that needed feeding back to Steering Group.

Discussed about getting TAG more involved in defining the process next time around. Viv noted that council staff involved will want legitimacy of involvement with LCDB – need to ensure it has backing at high level during forward planning.

Karle wondered if a LUM like QA/QC tool could be made available to councils – yes we do intend to get that sort of involvement next time, or even after doing the initial LCDB3 accuracy checking.

5. Planning for LCDB-3 release: David

Intention is to get LCDB3 up on Landcare's download site <http://iris.scinfo.org.nz>. Others could copy it although would prefer one authorities site.

No appetite in TAG group to implement sophisticated online mapping for future error correction/reporting. Rather just implement simple reporting mechanism – perhaps with ability to attach screen-shots or other ancillary input such as a sketch, photograph etc.

While download portal gives GIS professionals access to the map data, David felt other visualisations aimed at the public should be available. Adding LCDB in as a layer to OurEnvironment was discussed with TAG, who had expressed a preference for the whole class set of LCDB3 to be put up as a layer rather than the simplified version (of LCDB2) currently used. Karl felt that this was outside the scope of the LCDB programme - i.e. Landcare (and anyone else) were free to publish LCDB data as part of a map but that the programme's resources should not be used to set up additional visualisations of the data.

Mike asked if we are planning a WFS – we do internally served up data for OurEnvironment and it is our intention to serve up LCDB in that way. Some technical issues to solve – don't have a timetable yet. James pointed out that there are on-going costs of serving data like that. Karl commented that we need to start planning for that or give the data up to LINZ to serve out. He also added that providing “portal stuff” must not be used as an excuse for late delivery of the LCDB3 data. We clarified that we are not promising or even contemplating WFS etc delivery as being available on 1st July and that having the LCDB3 on the LRIS portal was the bottom line commitment for that date.

Discussed launch publicity for LCDB3. Karl said Len was keen for Steering Group members to be talking to their own people about LCDB3 when it is launched. Landcare expected to publicise technical aspects via conferences etc. Digital Earth Summit was mentioned as an opportunity.

Suggest we produce a resource kit for council staff that have been doing checking to make a presentation to their bosses/colleagues. Say a page or two covering what is going on – Viv could also put something up on MSI website. Mike said something could be put up on the NZ GEO website as well. James made point that the exciting aspect is that LCDB4 is coming and we will be in a better position to meet expectations in that version – so this these communications should convey that on-going continuity.

Action: David to discuss WMS/WFS with LCR staff and clarify timetable.

Action: All members to publicise LCDB3 with their own people around the launch date.

Action: David to submit a talk (abstract) to Digital Earth Summit in Wellington.

Action: Viv and Mike to put something up on MSI and NZ GEO websites respectively.

6. Accuracy assessment: James

James covered some history of LCDB accuracy assessment. Initial LCDB independently verified 17,000 random points (15 classes) at 93.9%. It was later corrected as part of LCDB2 (LCDB 1.1), which should make it more accurate. But 20% of the area was changed, making the basis of the original 94% accuracy figure questionable.

James accepts that there are some complications in the comparison between 43 and 15 classes and also in the way accuracy was initially defined (allowing some spatial uncertainty). The bottom line is that there has never been a formal assessment of LCDB2 accuracy – although he felt it was probably approaching the previously quoted figure.

As a bare minimum we do need to do a formal accuracy assessment. However given that people have been happily using LCCB2 we shouldn't overcook it initially. Suggest a preliminary survey using ~two weeks of a staff members time to get a feel for where the strengths/weakness are (agreed by TAG). Around 10,000 point survey using Landcare tool but on a different site with staff not involved in LCDB3. Assess accuracy on LCDB3 (2008) and later look at a different assessment of accuracy of change.

Allan asked if we should also focus on known awkward zones (e.g. shrub/grass) as well as change accuracy. David noted we would stratify in the initial survey. Allan is suggesting stratifying on expected problem areas. Some discussion on how error measures are used. While it may not be productive to dwell on accuracy problems in a high level policy paper, it is important to the people writing the paper understand the implications – is data fit for purpose?

Viv felt accuracy assessment framework should be designed to be on-going in next version – “don't build myths around accuracy”, and give examples of how data should be interpreted.

Allan asked that the accuracy assessment should be written up as a project plan.

James discussed making a tool available to involve council staff with the advantage that we could then get out some regional statistics (similar number of points required for each region to get a regional accuracy as would be required nationally for a national figure).

Action: James – Write up accuracy assessment as a project plan (1-page).

7. Research Programme: James

James reviewed the research work this past year – see Jame's power point.

- Historical BRDF work – understand how light is spread in different directions by vegetation.
 - Important in modelling out topography to make it practical to spectrally classify.
 - Mentioned that we intend to purchase a UAV helicopter to do more work in closing the loop on this type of work.

- Image segmentation – see two movies
 - Did an initial k-means clustering but still had ~ 176,000
 - Demonstrated how we can segment the data into connected segments with similar spectral characteristics.
 - Was able to simplify this down to 3600 segments without losing appreciable detail and producing boundaries similar to where a human operator would have drawn them.
 - Meeting minimum spec (1ha) inherently as we iterate until that is achieved.
 - Key thing was being able to do the two dates simultaneously – i.e. segmenting areas that are similar across the two dates.

- End up with polygons that either stayed the same or changed uniformly – framework to do the mapping from.
- Discussed the next year's research objective to be able to classify individual segments. Difficult but more robust as we have a whole polygon of measures rather than just single pixels.
- Can put all sorts of information into a large attribute table to help make these decisions.

Noted: that we are already using spin-off from this in the LUM mapping – to generate change polygons.

We should be able to provide more objective rules as to why a classification was made.

Approach is to improve the mapping quality as much as to reduce cost.

8. Other business

- **Next meeting**

As there are no governance issues required decisions before release, it was decided that the next meeting should be after that. James suggested after accuracy assessment done but David pointed out that could be September.

Date of next meeting left with David to suggest – possibly early August.

Action: David to suggest a date for next meeting.

Meeting closed 4:30 pm