

LINKONLINE

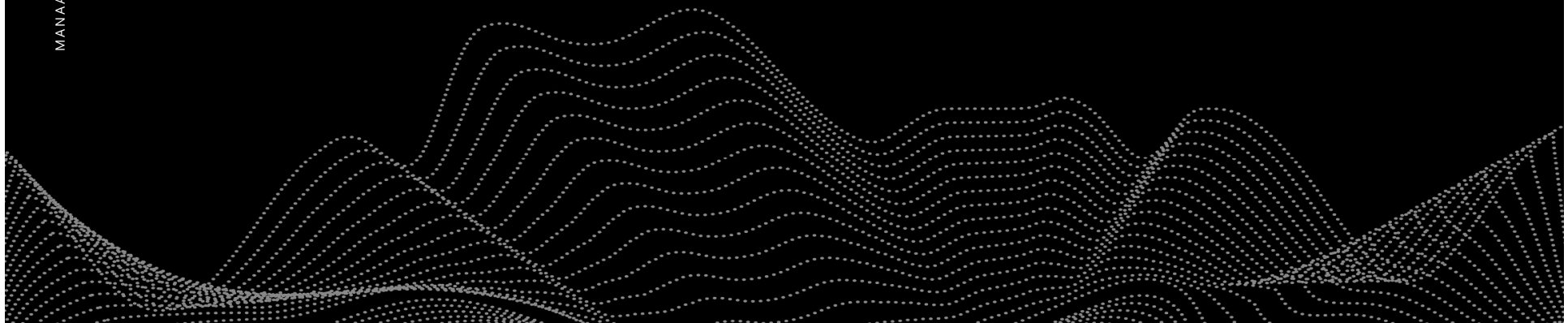


Manaaki Whenua
Landcare Research

LCDB v5 Tracks New Zealand's Changing Landscape

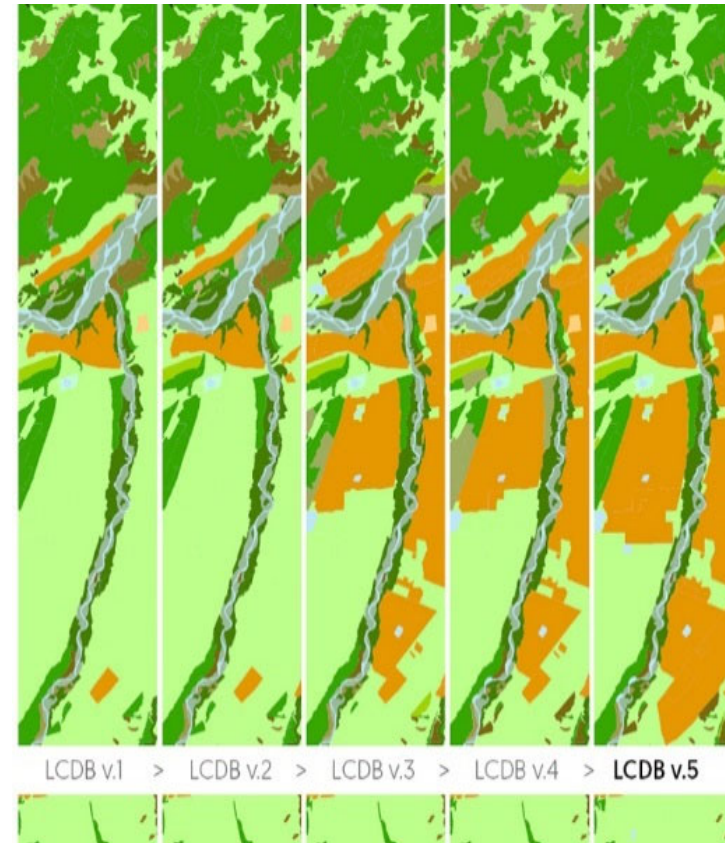
David Pairman

MANAAKI WHENUA – LANDCARE RESEARCH



Outline

- Brief details on LCDB v5.0
- Changes from earlier versions
- Where to get it and how to view it
- Ancillary files and other information
- Feedback on mistakes and improvements
- Change analysis summaries
- Significant improvements in LCDB v5.0
- Usage issues





LCDB v5.0 brief details

- Land cover map of NZ (1ha minimum) – at five points in time
- Funded on behalf of Government, by the Ministry for the Environment, Te Uru Rākau (Ministry for Primary Industries), and Department of Conservation.
- Publicly released on 31st January 2020
- Available since 20th December 2019 to funders - for feedback

- Compatible with earlier versions
- New timestep – nominally summer 2018/19
- Significant improvement across all timesteps
- First revision using Sentinel-2 imagery

- LCDB v4.1 and earlier versions now deprecated – **Please use LCDB v5.0**
- Over 5400 views and over 700 downloads



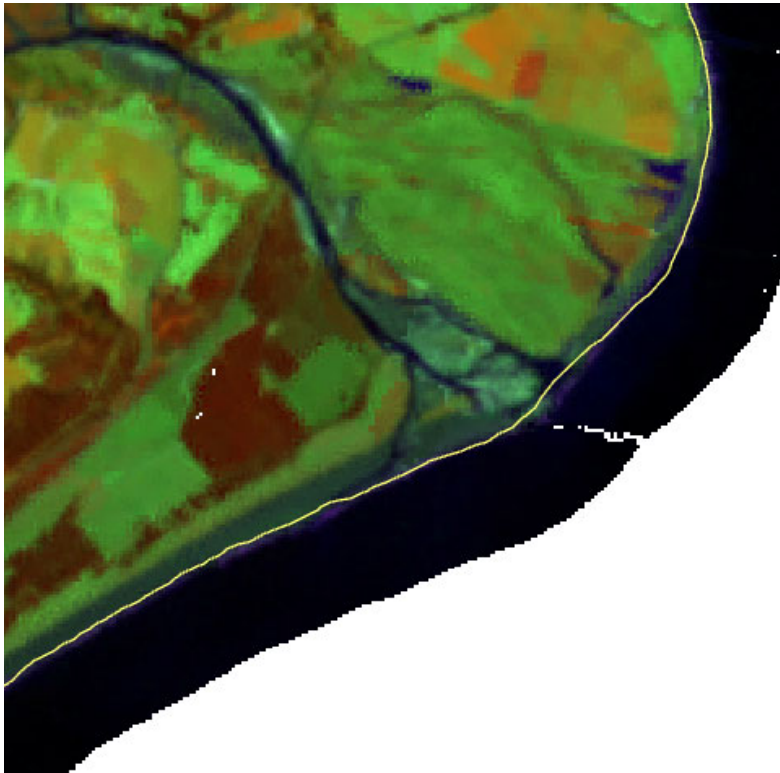
Attribute changes from earlier versions

- Added **Name_2018** and **Class_2018**
- Wetland flags
 - Previously **WET_CONTEXT**
 - Now one **Wetland** flag per timestep
 - Covers **all** wetlands
 - Lakes, Rivers, Estuarine open water are not considered wetlands
- Onshore flags
 - One **Onshore** flag per timestep
 - From LINZ coastlines
 - Few changes – not suitable for coastal movement tracking

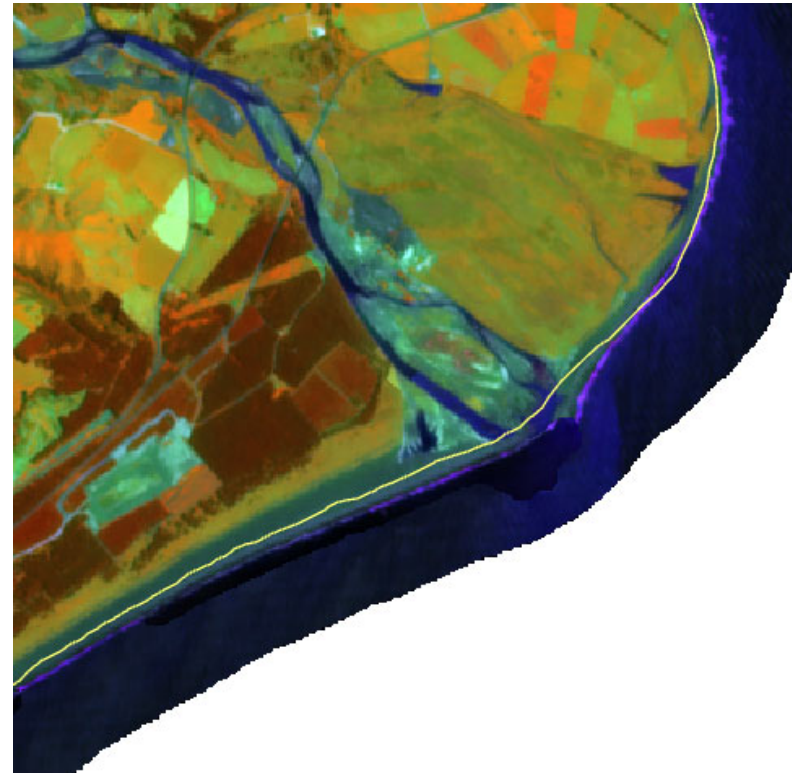




No coastline change mapped near Clarence River mouth



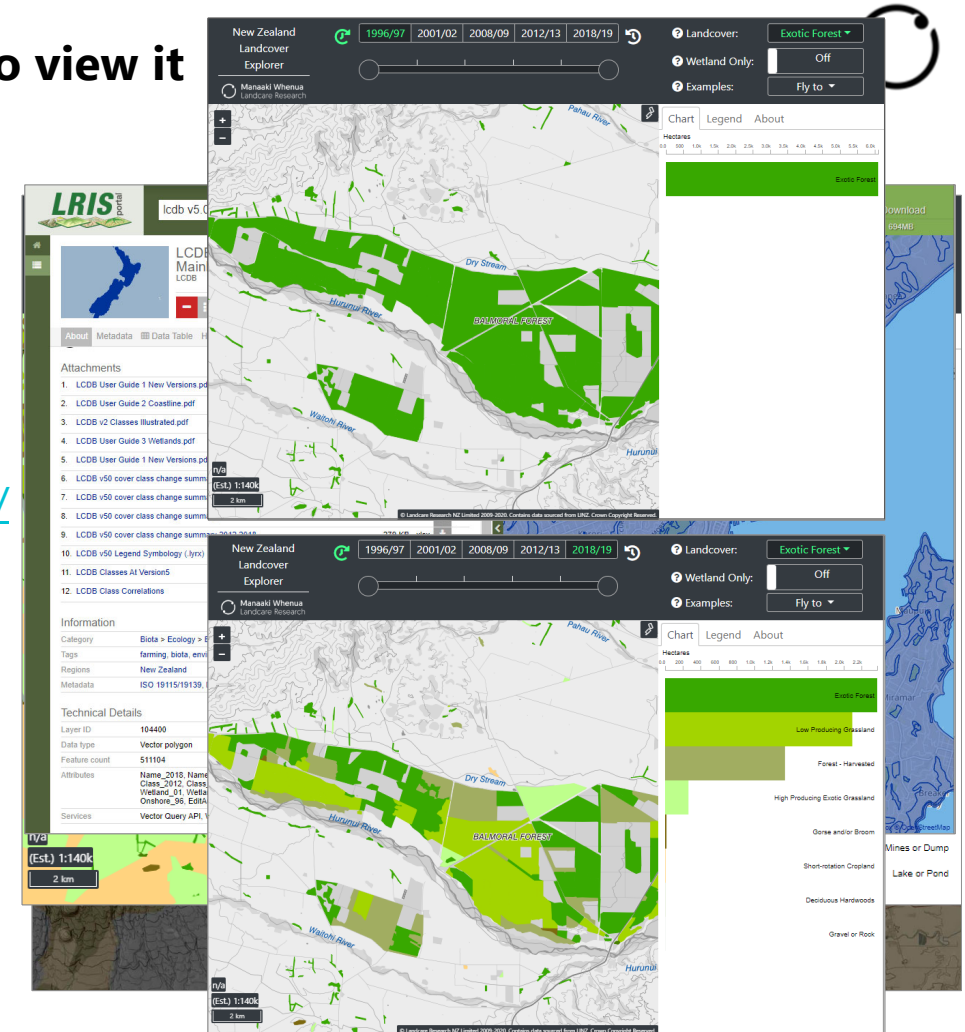
2013/14 Landsat 8 mosaic



2018/19 Sentinel 2 mosaic

Where to get LCDB v5.0 and how to view it

- Data – Via the LRIS Portal
<https://lris.scinfo.org.nz/>
- LCDB Explorer – using Our Environment
<https://ourevironment.scinfo.org.nz/>
- Web Map Service (API)
<http://maps.scinfo.org.nz/>
- OGC API Features service
Experimental – contact us



Ancillary files and other information



- Guides
- Class definitions
- Symbology (ArcPro)
- Feedback
- Change summaries

The screenshot displays the LRIS portal interface for the LCDB v5.0. The page title is "LCDB v5.0 - Land Cover Database version 5.0, Mainland New Zealand". The page includes a search bar, a "Submit feedback" button, and a list of attachments. Red arrows point to the "Submit feedback" button and the "LCDB v50 cover class change summary" files.

Attachment	Size	Format
1. LCDB User Guide 1 New Versions.pdf	1.47 MB	pdf
2. LCDB User Guide 2 Coastline.pdf	790 KB	pdf
3. LCDB v2 Classes Illustrated.pdf	14.1 MB	pdf
4. LCDB User Guide 3 Wetlands.pdf	1.84 MB	pdf
5. LCDB User Guide 4 New Versions.pdf	1.45 MB	pdf
6. LCDB v50 cover class change summary 1996 2001	273 KB	xlsx
7. LCDB v50 cover class change summary 2001 2008	289 KB	xlsx
8. LCDB v50 cover class change summary 2008 2012	281 KB	xlsx
9. LCDB v50 cover class change summary 2012 2015	279 KB	xlsx
10. LCDB v50 Legend symbology.lyrx	53.4 KB	lyrx
11. LCDB Classes At Version5	110 KB	pdf
12. LCDB Class Correlations	189 KB	pdf

Information:

- Category: Biota > Ecology > Ecological parameter > Land cover
- Tags: farming, biota, environment, planningCadastral, imagery/BasemapEarthCover, inlandWaters
- Regions: New Zealand
- Metadata: ISO 19115/19139, Dublin Core

Technical Details:

- Layer ID: 104400
- Data type: Vector polygon
- Feature count: 511104
- Attributes: Name_2015, Name_2012, Name_2008, Name_2001, Name_1996, Class_2015, Class_2012, Class_2008, Class_2001, Class_1996, Wetland_15, Wetland_12, Wetland_08, Wetland_01, Wetland_06, Onshore_18, Onshore_12, Onshore_08, Onshore_01, Onshore_06, EddiAuthor, EddiDate, LCDB_UID
- Services: Vector Query API, Web Feature Service (WFS), Catalog Service (CS-W)



LCD version 5.0 Pivot table - New Zealand (excluding Chatham Islands)

Class (paraphrased)	Not land	Built up	Urban Park	Transport Inf	Mines & Dumps	Sand & Gravel	Landslide	Snow & Ice	Alpine Grass
Not land	0	14	6			2			
Built up		189322	670	1					
Urban Park		169	39793	1					
Transport Inf		11		5765					
Mines&Dumps		16			12052				
Sand&Gravel	51					43485			
Landslide							22398		
Snow&Ice								104344	
Alpine Grass									
Gravel&Rock		30	1		148		2		
Lake&Pond		4		0	30	5			
River	7				3	3			
Estuarine	2					69			
Cropland		532	58		23				
Orchards/Vineyard									
High Producing Grass									
Low Producing Grass									
Tussock Grassland									
Depleted Grassland									
Herbaceous Freshwater									
Herbaceous Saline									
Flatland									
Fermland									
Gorse&Broom									
Manuka&Kanuka									
Broadleaved Indig									
Sub Alpine Shrubland									
Mixed Exotic Shrubland									
Grey Scrub									
Forest Harvested									
Deciduous Hardwood									
Indigenous Forest									
Mangrove									
Exotic Forest									
Total	66	196094	40949	6099	14403	43850	22743	104344	
New	66	6772	1155	333	2351	365	345	0	
Net gain	42	6087	971	315	1921	277	271	-401	
	174.17%	3.20%	2.43%	5.45%	15.39%	0.64%	1.21%	-0.38%	

Total unchanged area: 26335999
Total changed area: 504990 1.88%

Production forest cycle
% of total change: 336926 66.7%

Between 2012 to 2018.
M 8,

Wetland flag
hectares 2012 2018 Loss
229886 228306 1580

ough Nelson Northland Otago Southland Taranaki Tasman Waikato Well ...

Waikato Well ...

Flatland	Fermland	Gorse & Broom	Manuka & Kanuka	Broadleaved Indig	Sub Alpine Shrubland	Mixed Exotic Shrubland	Grey Scrub	Forest Harvested	Deciduous Hardwood	Indigenous Forest	Mangrove	Exotic Forest	Total	Lost
													24	24
												1	190007	685
												5	39978	184
												3	5783	18
												2	12483	430
												0	43572	88
												0	22471	73
												10	104745	401
													229171	15
												18	879216	1111
												361699	71	0.02%
												82570	39	0.05%
												96537	71	0.07%
												369251	1077	0.29%
												102986	303	0.29%
												21264	8667008	32785
												13162	1748504	27037
												1004	233682	1758
												123	172413	2967
												3	130126	1222
													18589	66
													6315	43
												305	71001	2166
												1547	200777	12436
												3882	1182306	19500
												530	685447	2976
												27	433023	66
												103	48783	690
												746	113393	2671
												38701	160559	159945
												21	100098	1202
												4	6309314	2319
													26232	99
												56794	1887525	230731
												38310	26840990	1222%
												81517		
												49214	0	

% -0.64% -0.31% -4.87% -1.28% 1.53% -0.01% 0.07% -2.28% 24.24% -0.98% -0.04% -0.21% -2.61%

LCD version 5.0 Pivot table - New Zealand (excluding Chatham Islands)

Class (paraphrased)	Not land	Built up
Not land	0	1
Built up		189322
Urban Park		169
Transport Inf		11
Mines&Dumps		16
Sand&Gravel	51	
Landslide		
Snow&Ice		
Alpine Grass		
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Lake&Pond		4
River	7	
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Flatland		
Fermland		
Gorse&Broom		
Manuka&Kanuka		
Broadleaved Indig		
Sub Alpine Shrubland		
Mixed Exotic Shrubland		
Grey Scrub		
Forest Harvested		
Deciduous Hardwood		
Indigenous Forest		
Mangrove		
Exotic Forest		
Total	66	196094
New	66	6772
Net gain	42	6087
	174.17%	3.20%

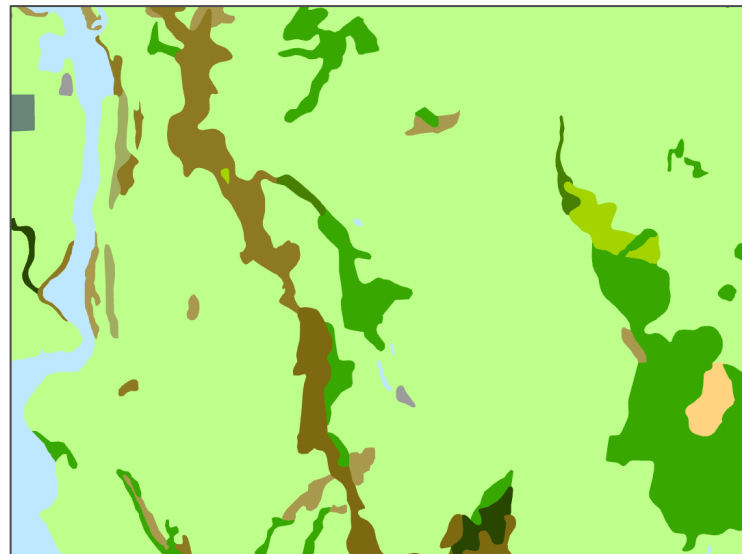
NOTES
2012 to 2018 change
Green diagonal is unchanged

Named classes
Nur

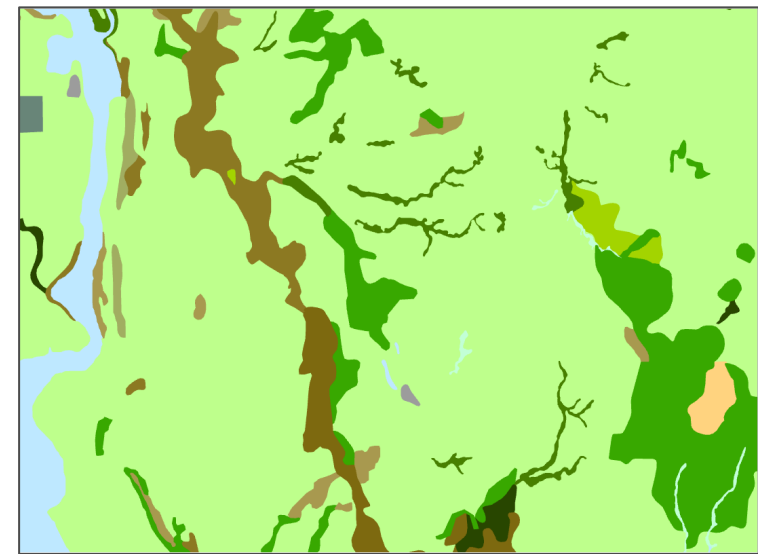
The same can be done while the net increase

Named classes
Numbered classes

Significant improvements – Wetlands, especially in Waikato



LCDB v4.1 (2012)

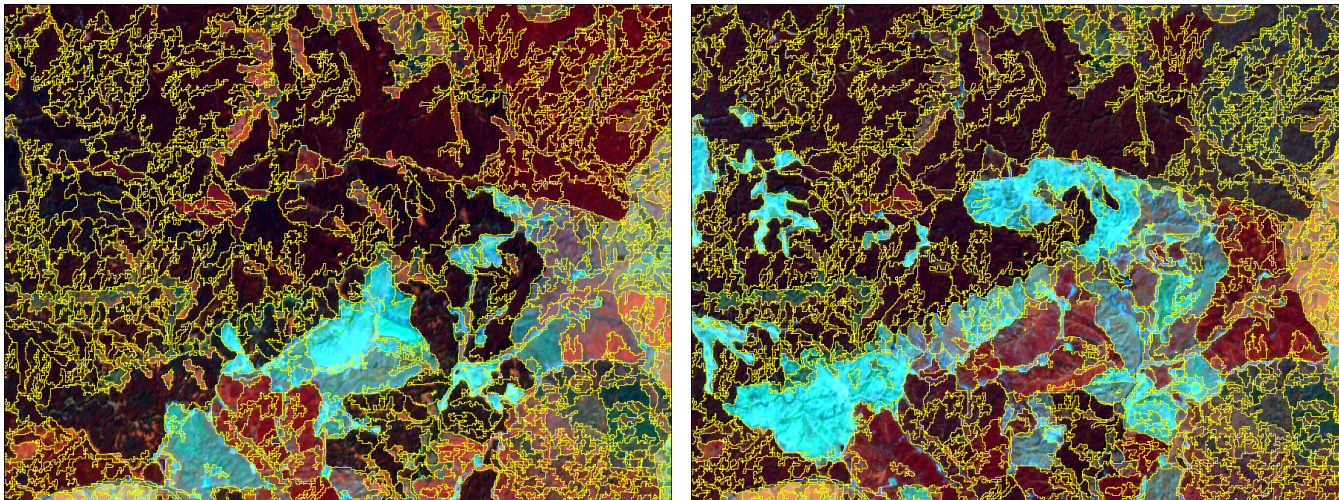


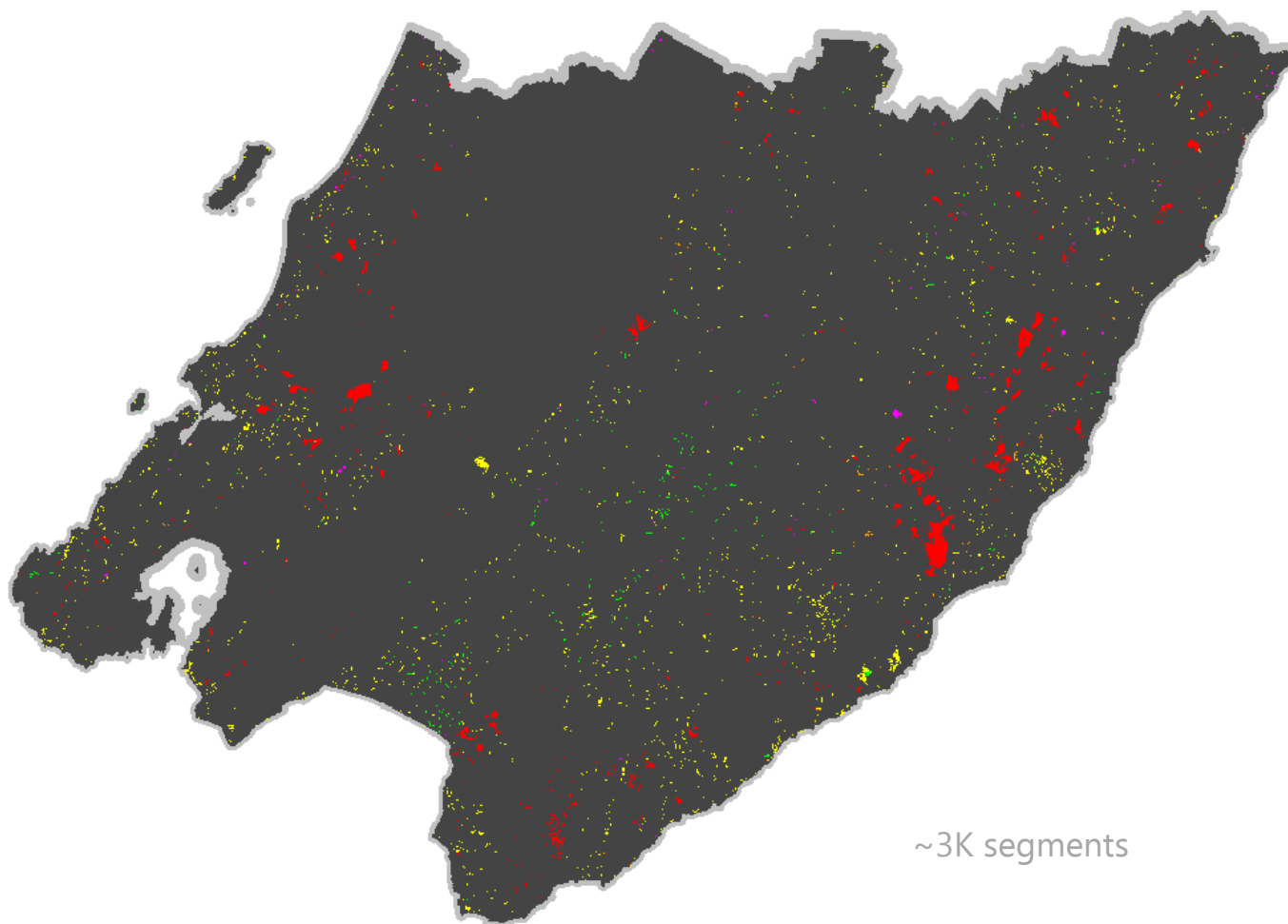
LCDB v5.0 (2012)

Targeted change polygon generation



- Change polygons identified (destock, re-stock, scrub, urban, water)
 - Multidate image segmentation
 - Additional attributes, e.g. radar, dem
 - Rules and thresholds based on polygon statistics identify likely change
 - Visual confirmation
- LUM mapping (up to 2016)
- New 2016-18 target polygons identified and mapped



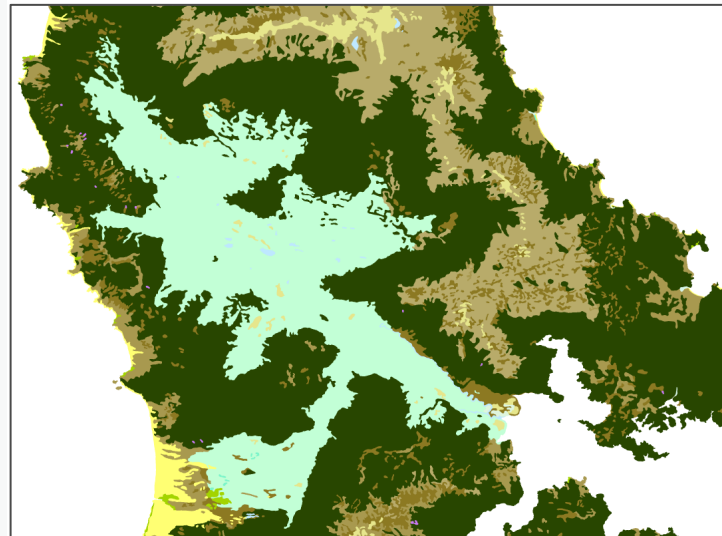
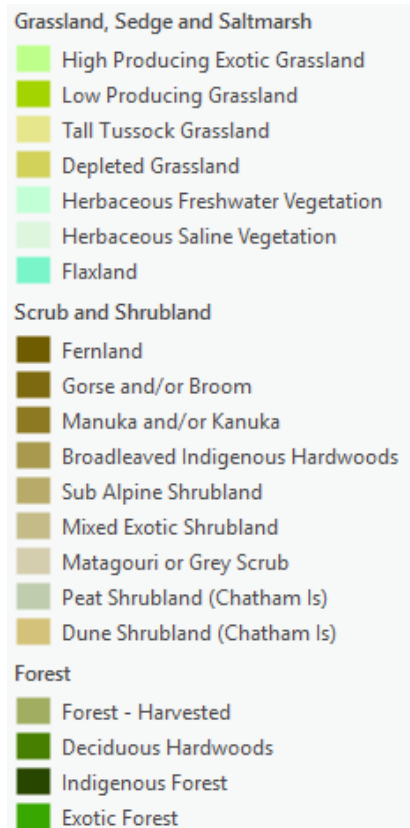


~3K segments

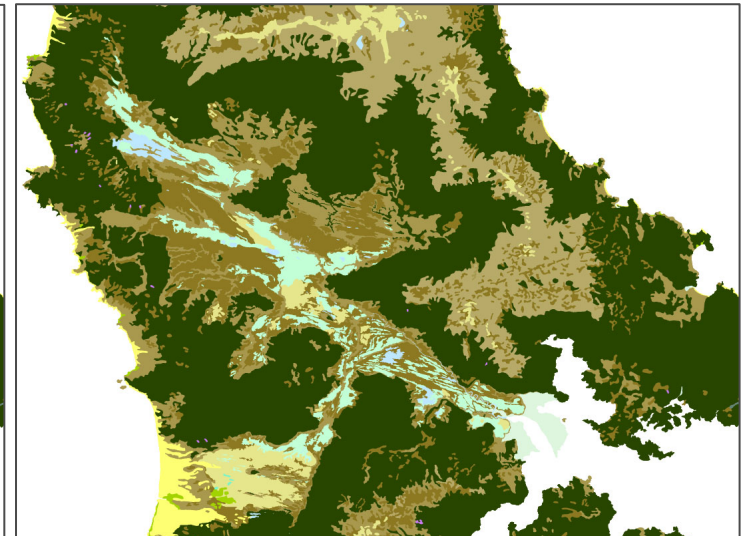




Significant improvements – Stewart Island / Paterson Inlet



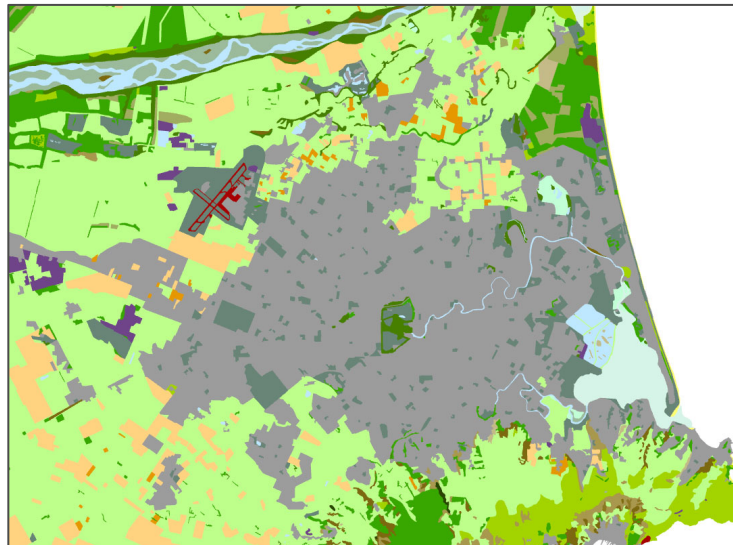
LCDB v4.1 (2012)



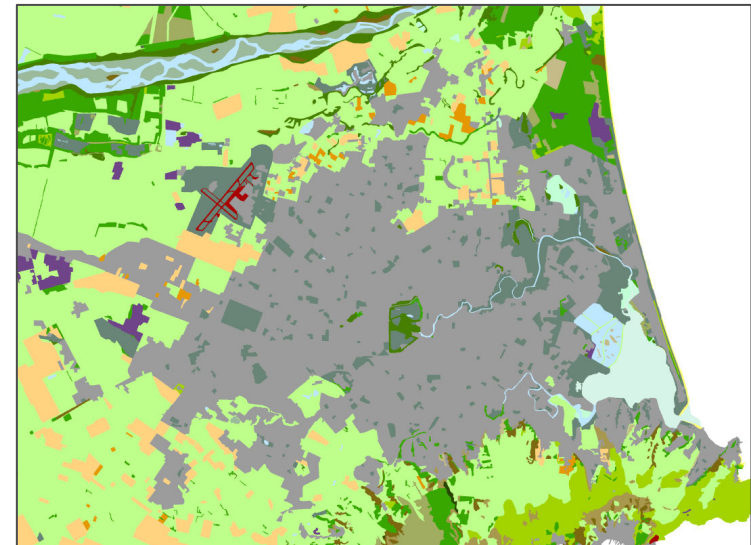
LCDB v5.0 (2012)



Significant improvements – Post Earthquake Christchurch



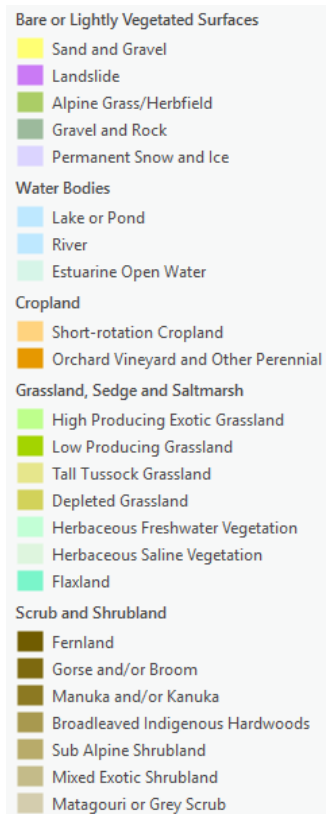
LCDB v4.1 (2012)



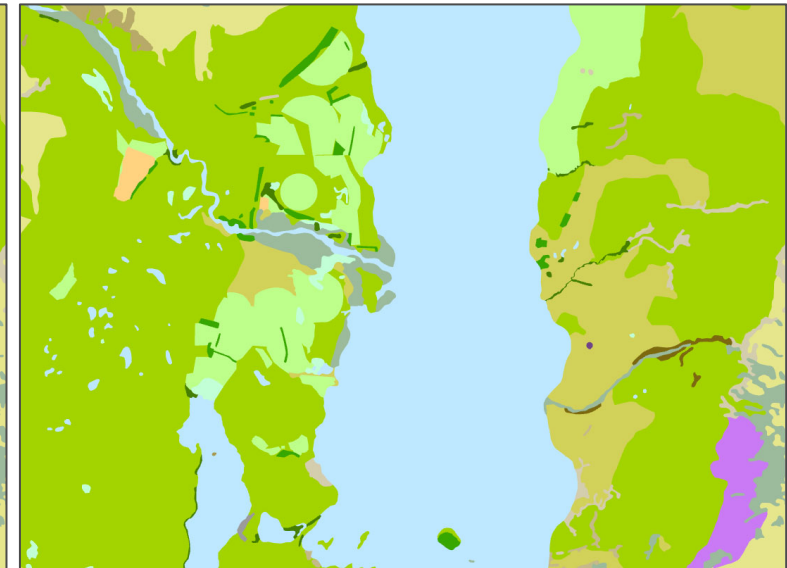
LCDB v5.0 (2018)



Significant improvements – Irrigated Grassland



LCDB v4.1



LCDB v5.0



Other Significant improvements

- User feedback from v4.1 (known errors)
- Mappers spent two weeks “freestyle scanning” their areas



Quality Assurance, and Usage issues

- A variety of means used to pick up errors
 - Unexpected significant changes in class areas
 - Improbable transitions
 - Stakeholder feedback (MfE, MPI, DOC)
- Usage issues
 - Fundamentally still a 1 hectare mapping scale
 - Will pick up broader scale patterns of change
 - Can miss an accumulation of smaller changes if they are inherently small

Summary

- LCDB v5.0 is available – please use this new version
 - New 2018 timestep, but also really significant improvements throughout
 - Summary information available from portal
 - Please feed back errors or other datasets that could improve future versions
-
- Thank you for listening

