Manaaki Whenua
Landcare Research

LCDB v4.1 Version Trace, Mainland New Zealand

Title
> LCDB_v41_Trace

Creator
> Landcare Research New Zealand Ltd

Date
> 2015-06-30

Description
> This data set (LCDB v4.1 Version Trace) allows users to track changes back to the previous version (v4.0), and to reconcile derived quantities, such as the total area of a class in a region, to those derived from the earlier LCDB version. Additionally the authority (and date) for mapping the change is recorded in this database where such a change has been manually mapped. DO NOT use this dataset to assess real vegetation change over time. Rather use the latest available LCDB version which will contain vegetation cover for all timesteps. This Version Trace dataset is only provided to help reconcile with an analysis done on an earlier version of the LCDB. Similar datasets were provided to trace LCDB2 ==> LCDB v3.0, LCDB v3.0 ==> LCDB v3.3, and LCDB v3.3 ==> LCDB v4.0. Note however, we previously called the dataset "Change" rather than "Version Trace", e.g. "LCDB v4.0 Change".

Source
> LCDB v1 was created 'de novo' from classified SPOT satellite imagery with polygons either captured directly from the classified imagery or manually digitised. The modest classification of 16 LCDB v1 classes were considerably expanded to 43 classes for LCDB v2 and polygon boundaries were significantly re-drawn by manual digitising over LandSat 7 and ETM+ satellite imagery. Mapping of the second (2001/02) time step was informed by a ‘difference layer’ created by comparison between 1996/97 and 2001/02 imagery and an extensive field checking phase sought to verify the mapping. LCDBs v3 and v4 consolidated and refined the mapping process by firstly rationalising the classification to 33 mainland classes (35 with Chatham Islands included), smoothing polygon boundaries to remove latent artifacts of the early raster mapping, and aligning the mapping with the standard topographic coastline. Improved imagery and image classification techniques, combined with resource limitations, prompted a decision to not undertake widespread field checking, but ancilliary data and stakeholder reviews were built into the mapping workflow. Change mapping remained a manual, on-screen, process but was assisted by improved imagery difference detection, a variety of supporting imagery (including aerial photography), and accessory datasets (such as New Zealand’s Kyoto Land Use mapping). The minimum mapping unit for the data is nominally 1 hectare. Polygons from earlier versions less than 1/10 hectare were removed. LCDB v3.0 undertook a 'rubber-sheet' correction of a mis-aligned area of mapping in South Westland / northern Otago, and mapped a new time step corresponding to summer 2008/09 using SPOT 5 satellite imagery acquired between November 2006 and October 2008. Some cloud affected areas were in filled using Landsat or imagery from earlier dates. Satellite imagery was pan sharpened to 10m spatial resolution with terrain normalisation. Orthorectification was to the New Zealand Map Grid using photogrammetric software. Ground

control points, used to position the imagery in the rectification process, were measured from aerial photography. Elevation models, used to correct distortion due to height, have 15m pixels and were generated from 20m contour data. Orthorectification met the target of 95% of the imagery being accurate within 5 metres r.m.s. error. Map updates were guided by an analysis of the new data identifying patches with spectral signatures inconsistent with the LCDB2 class. Operators then used visual interpretation and manual digitising techniques to re-map in the vicinity of identified inconsistencies. In addition to the new SPOT data, imagery from other dates before and after was viewed simultaneously to help make decisions on the correct class and what is likely happening on the ground. Higher resolution SPOT Maps data from 2008/09 was included in this image set. Harvested forest polygons at 2001 were reviewed and their new 2008 state entered and new forest harvesting at 2008 incorporated. Ancillary data such as digital topodata, aerial photography and published topomaps were used to assist in the interpretation of the imagery. Regional councils and the Department of Conservation reviewed the draft mapping and provided corrections for errors found in their areas of interest. An accuracy assessment on LCDB3.0 mapping was undertaken early in 2012 and results made available on the LRIS portal (https://lris.scinfo.org.nz/) and on the LCDB project site (www.lcdb.scinfo.org.nz). LCDB v3.3 is an improvement to LCDB3.0 as a result of five processes: • A review of improbable land cover transitions, correcting those found in error • A review of >20ha mapped land cover transitions between 2001/02 and 2008/09, correcting those found in error (some of these records were exposed as original error rather than recent-date change) • Croplands and Settlements were reviewed and improved using recently updated Kyoto Land Use Mapping (refer http://www.mfe.govt.nz/land/data-organisations/land-use-map#map). • A review of South Island tussock and low producing grasslands to delineate those which have undergone recent improvement (commonly, but not always, associated with dairy conversion) • Correction of error (in classification or delineation) noticed in the vicinity of edits undertaken above and those notified by users LCDB v4.0 introduced a fourth time step, land cover corresponding nominally to summer 2012/13 using SPOT 5 satellite imagery acquired between October 2011 and February 2013. In addition to 2008-2012 change mapping, further improvements were made through five other processes: • Incorporation of high-quality wetland mapping of five Regions (Bay of Plenty, Taranaki, Manawatu-Whanganui, Wellington and Otago), and one District (Far North) • Mapping of detected change between 2008/09 and 2012/13 including that associated with harvesting/replanting of production forests • Correction of error (in classification or delineation) noticed in the vicinity of edits undertaken above and those notified by users • Incorporation of new urban development not detected by the change analysis above but recorded in the LINZ core record system (cadastral) database LCDB v4.1 is an improvement to LCDB v4.0 as a result of three processes: • Significant contradictions in woody land covers between LCDB v4.0 and 2012 Kyoto Land Use Mapping were investigated and, where necessary, corrections made - these mainly represented indigenous/exotic and forest/scrub confusions. • Unmapped woody vegetation patches in grassland polygons were detected by spectral methods verified with radar (ALOS PALSAR) analysis, and incorporated in a semi-automated process. • Error-correction arising from user feedback and limited 'green field mapping' improvements were made during and following the foregoing processes. The data set has been captured and is stored in digital ArcGIS file Geodatabase and ESRI Shapefile format with an internal database structure storing the attribute data. The data has been built for polygon topology and has been checked for duplication and anomalies within the data.

Coverage

-47.421639 166.262038 -34.008229 179.501385
Identifier
https://lris.scinfo.org.nz/layer/48429-lcdb-v41-version-trace-mainland-new-zealand/
Type
vector
Subject
New Zealand
Subject
Herbaceous Saline Vegetation
Subject
Gravel and Rock
Subject
Exotic Forest
Subject
Permanent Snow and Ice
Subject
Estuarine Open Water
Subject
Fernland
Subject
Depleted Grassland
Subject
Tall Tussock Grassland
Subject
High Producing Exotic Grassland
Subject
Alpine Grass/Herbfield
Subject
Built-up Area (settlement)
Subject
Transport Infrastructure
Subject
Sub Alpine Shrubland
Subject
Sand and Gravel
Subject
Broadleaved Indigenous Hardwoods
Subject
Herbaceous Freshwater Vegetation
Subject
Deciduous Hardwoods
Subject
Mangrove
Subject
Short-rotation Cropland
Subject
Forest - Harvested
Subject

Gorse and/or Broom
Subject
Surface Mines and Dumps
Subject
Lake or Pond
Subject
River
Subject
Matagouri or Grey Scrub
Subject
Low Producing Grassland
Subject
Orchard Vineyard & Other Perennial Crops
Subject
Mixed Exotic Shrubland
Subject
Landslide
Subject
Urban Parkland/Open Space
Subject
Indigenous Forest
Subject
Flaxland
Subject
Manuka and/or Kanuka
Subject
Dune Shrubland
Subject
Peat Shrubland
Subject
1996, 2001, 2008, 2012, 1996/97, 2001/02, 2008/09, 2012/13
Subject
Vegetation, Wetland, Agriculture, Forest, Environment, Land Cover, Land Use
Subject
Downloadable Data
Subject
inlandWaters
Subject
environment
Subject
farming
Subject
biota
Subject
imageryBaseMapsEarthCover
Subject
planningCadastre