Department of Sustainability and Environment

Native vegetation information

Native vegetation extent dataset

Information sheet No. 3

Introduction

Mapping of the current extent of native vegetation across Victoria has been revised by the Department of Sustainability and Environment. The revised mapping carried out by the Arthur Rylah Institute for Environmental Research provides a more consistent and up-to-date view of native vegetation extent across the whole of Victoria.

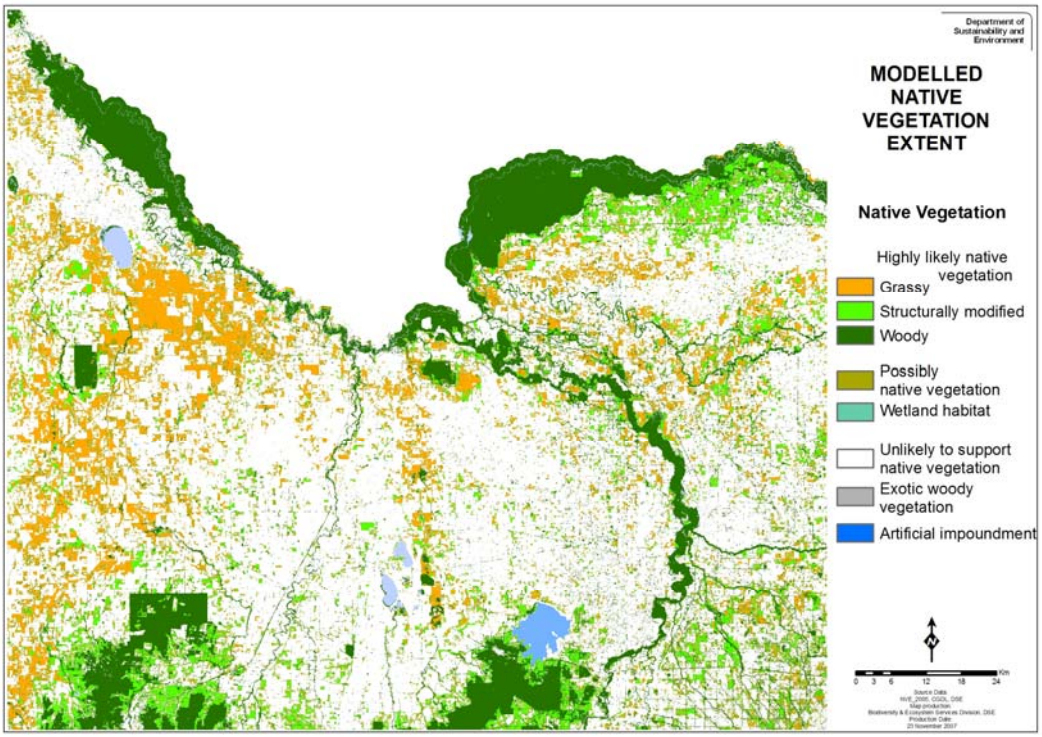
Previous mapping had been done using a variety of subjective techniques at different times over the last decade. Taking advantage of advances in Geographic Information Systems and computer processing capacity, the modelled approach uses time-series LANDSAT imagery together with a number of ancillary spatial datasets and ground-truthed site data. This shift from mapping (linked to old projects often using aerial photography dated over a number of years) to ongoing modelling using current satellite imagery is intended to enable the regular update of datasets that represent aspects of current native vegetation extent, for example, current distribution of ecological vegetation classes and assessment of landscape context of remnant vegetation.

Dataset derivation

The native vegetation extent (NV2005_EXTENT) modelled dataset has been generated by combining a number of DSE source datasets including:

- Tree cover – (Tree25);
- Grass cover;
- Water – Hydropoly25 and Hydro25 (rivers, streams wetlands, dams); and
- Plantations – manually created from Aerial Photo interpretation, State Forest Resource Inventory data and LANDSAT (satellite) image analysis.

Sample Output of Native Vegetation Extent



Native vegetation extent dataset

Model Inputs

Tree Cover

This is a model of native and non-native trees derived from a neural-network classification procedure (combined LANDSAT images from 1998 to 2005 which nominally reflect a 2004 view) which extrapolates from approximately 110,000 training points.

While the spatial resolution of the LANDSAT imagery (25m sq. pixels) can be useful for detecting relatively small patches of treed native vegetation, it is not fine enough to adequately represent isolated paddock trees. Therefore, the tree component also incorporates information from the Tree25 layer (in DSE, Corporate Geospatial Data Library (CGDL)) which is derived using SPOT imagery (10m pixel size, over a number of years) that can resolve mature isolated trees in many circumstances.

The modelling also 'filters out' Pine and Hardwood Plantations, Agricultural Trees (non-native trees in an agricultural landscape) and Urban Trees where they are predominantly of garden origin.

Grasses and non-woody native vegetation

A model of native and non-native grasslands and other non-woody native vegetation which was derived from neural-network modelling using a field observation image 'training' dataset of approximately 110,000.

These data were used to train or classify a number of statewide datasets including a time series of LANDSAT imagery from 8 different years between 1998 and 2005; temperature, rainfall, elevation and radiometric data (reflecting soil properties). Areas already determined to be treed or open water were excluded from the analysis.

Model Outputs - Data attributes

The dataset categorises the landscape into native woody, native grassy and native wetland cover together with probability ratings ranging from 'highly likely native vegetation' through to 'unlikely to support native vegetation'. Woody native vegetation cover includes forest, woodland, heathland and shrubland.

Grassy native vegetation cover includes grassland, native pasture, sparse chenopod shrublands and other low open shrublands eg. Lignum. There is a separate exotic woody vegetation cover which includes urban trees, windbreaks and plantations.

There are 8 simplified categories which are practical combinations of the cover types and probability levels (For more information/definitions of these categories please refer to the link to the metadata document under the section "Data Access" at the end of this Information Sheet). The categories and their contributing model outputs are:

Category in dataset	Contributing model outputs
Highly likely native vegetation - grassy	Highly likely native grassy cover
	Herbaceous wetland cover
Highly likely native vegetation - woody	Highly likely - dense native woody cover
	Highly likely - less dense native woody cover
	Highly likely - sparse native woody cover
	Disturbed natural (sand dunes etc)
	Woody cover fire scars
	Woody wetland cover
Highly likely native vegetation - structurally modified	Structurally modified - highly likely native woody cover
	Structurally modified - highly likely native grassy cover
Possibly native vegetation	Likely native grassy cover
	Structurally modified - likely native grassy cover
Wetland habitat	Wetland cover
Unlikely to support native vegetation	No native cover
Exotic woody vegetation	Urban tree cover
	Windbreak tree cover
	Plantation tree cover
Artificial impoundment	Artificial impoundment cover (man-made dams, reservoirs etc)

** Please note: This does not pretend to be a comprehensive wetland cover dataset – wetlands are largely taken from existing indications of wetlands and are included for symmetry and interpretation. DSE will be carrying out further work to comprehensively map wetlands in the future.*

Data limitations

The model is a useful interpretation of native vegetation cover (including aquatic habitat), but must be used with care, given its predictive nature. Some limitations include:

- Designed for use at a large scale (1:25,000 to 1:100,000) and is not definitive at the site or property scale.
- Includes areas of significantly altered native vegetation (for example, areas that are now grassy due to loss of original overstorey).
- Excludes small areas of native vegetation which have not been adequately predicted by the model.
- Is not a replacement for the Ecological Vegetation Class (EVC) datasets and does not include EVC typology or conservation status.

Note: Any planning or investment decisions at the site-scale should still use some form of ground-truthing.

Improved detection of existing native vegetation

Improvements in mapping techniques using satellite imagery and other spatial datasets has resulted in the better detection of existing native vegetation in Victoria. The table below summarises the differences in area of native vegetation from 2004 to 2007 as a result of these improved techniques.

Data access for DSE staff

For Department of Sustainability and Environment staff, access to the native vegetation extent spatial layer (NV2005_EXTENT) is via the DSE Corporate Spatial Data Library in the following format:

- Grid in the g500-vg94 library;
- Image TIFF format in the i500-vg94 library (and also the image Web Server); and
- A polygon layer is available in Oracle/SDE.

Associated metadata for DSE staff can be accessed via the following link:

NV2005_EXTENT.

Data access for external organisations

For external agencies, a data licensing agreement with DSE is required by emailing the DSE Data Distribution Manager: data.cgdl@dse.vic.gov.au.

Associated metadata can be accessed via the following link:

Native Vegetation Extent 2005 (25 metre raster) (NV2005_EXTENT)

Contacts

Any queries regarding spatial datasets or EVC mapping can be directed by email to: evc.benchmark@dse.vic.gov.au

Changes in recorded amounts of native vegetation due to improved detection (ha)

	Native vegetation remaining in Victoria		
Dataset	**Private land**	**Public land**	**Total**
Previous mapping (various dates, mostly from the 1990s)	1,370,805	6,987,693	**8,358,498**
New mapping (all the same date – based on 2004/5 imagery)	3,027,113	7,315,358	**10,342,471**

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