

Name:	NV2005_EXTENT
Title:	Native Vegetation - Modelled Extent 2005 (25 metre raster)
Spatial Extent:	General - Victoria
Owner:	Department of Sustainability and Environment
Custodian:	Department of Sustainability and Environment
Access:	General
Source Data Scale:	1:25,000
Master Library Group:	G500VG94
Jurisdiction:	Victoria
Custodial Business Unit:	Ecosystem Services
Custodial Program:	Biodiversity and Ecosystem Services (DSE)
In CGDL?:	Yes
In Library?:	Yes
Abstract	Modelled dataset of Native Vegetation and major water-based habitats, created by the Arthur Rylah Institute, and completed July 15th , 2007

NV2005_EXTENT has been created from time-series(between 1989-2005) Landsat Imagery, many thousands of ground-truthing points, other relevant spatial data and expert validation. The dataset is a good interpretation of native vegetation extent (including aquatic habitat), but must be used with care, given it's modelled nature.

The dataset categorises the landscape into eight categories ranging from 'highly likely native vegetation' through to 'unlikely to support native vegetation'.

Application of Layer:

General:

To provide a consistent view of native vegetation extent across the state of Victoria at a landscape scale, primarily to inform and assist in native vegetation management. In particular this dataset will be used for strategic landscape-scale considerations & to identify potential native vegetation implications associated with planning decisions.

Planning or investment decisions at the site-scale should use some form of ground-truthing.

This dataset does not replace the Ecological Vegetation Class (EVC) datasets as it does not include EVC typology or conservation status (see NV1750_EVCBCS and NV2005_EVCBCS)

Laver Design Summary:

Current Layer Design Considerations:

Future Layer Design Considerations:

Summary of Relationship to other Layers:

This dataset is part of a series of native vegetation datasets, which have the following naming convention - NV{year}-ATTRIBUTE(s):

NV2005_EXTENT - Modelled extent of native vegetation (very broad categories)

NV1750_EVC - Mapped pre 1750 ecological vegetation classes (EVCs) distribution

NV1750_EVCBCS - Mapped pre1750 EVC distribution with Bioregional Conservation Status derived from NV1750_EVC and VBIOREGION100 and depletion statistics, also contains pre1750 geographic occurrence of EVCs

NV2005_EVCBCS - Extant EVC distribution with Bioregional Conservation Status derived from NV1750_EVCBCS and NV2005_EXTENT , also contains pre1750 geographic occurrence

NV2005_QUAL - Modelled Native Vegetation Quality - includes modelled site condition and patch-based landscape context

NV2005_LSIMP - Landscape Scale native vegetation importance and connectivity derived from NV2005_EVCBCS, NV2005_QUAL and landscape connectivity

Data Currency Information:

Data Set Status: Completed

Data Collection:

Collection Period: 01JAN1989 01JAN2005

Collection Progress: Complete

Update Frequency: Not Known

Data Currency Information:

Data Set Origin:

Originality: Primary & Derived

Data Collection Method: Site based data was collected in the field and through air photo interpretation

Data Set Source:

The layer is a composite data set primarily incorporating new and existing models of vegetation cover and ancillary spatial data used as masks or overlays. Data sources used in the creation of NVE_2005 :

TREE25 (CGDL) - 10 metre grid, of presence/absence of trees

LANDSAT Imagery - Statewide for 9 years (Commonwealth Greenhouse prep)

Site based training dataset - presence/absence data for each of the structural vegetation types

Data Set Processing Details:

General Method:

1. Creation of a Tree Cover Density Dataset

1a. Use of an existing dataset TREE25 -presence/absence of trees (10 m pixel)

Tree25 is an existing 10 m raster dataset from the CGDL. This is a dataset created by DSE from Landsat and Spot2.5 panchromatic imagery from around the year 2000. The output from the classification is binary: Tree Cover - no Tree Cover

1b. A Tree Cover Density dataset was created from TREE25. A neighborhood sum of immediately adjacent pixels was performed, resulting in a tree density surface of values 0-9. The surface was resampled to 25 m pixels and classified into three tree density classes - Dense (8-9), Thin (4-7) and Sparse (1-3).

2. Creation of a Classified Vegetation Cover Surface

2a. Creation of 3 Modelled datasets of probability of different vegetation structural types from Satellite Imagery (25m pixel)

Neural Network modeling procedure (Multi-layer perceptron) was used to classify a chronosequence of 9 Landsat images across the State using a site training dataset of presence and absence data for each of the structural vegetation types

"□Probability of Native Grassland/Pasture Cover, where native grassland was defined as areas in which the perennial cover was greater than 50% native.

"□Probability of Chenopod (including samphire) Shrubland Cover, analysed separately from Woody Cover due to its sparse nature

"□Probability of Woody Cover (trees & shrubs)

2b. A Classified Vegetation Cover surface was created by combining the 3 modelled datasets and subjecting the resulting dataset to an isoclustering procedure that assigned pixels to one of 35 classes. These classes produced combinations of cover types that were readily attributed to 4 unique types: Likely Woody Cover, Likely Grassland Cover, possible Grassland Cover and Likely Chenopod Shrubland Cover. These types were calibrated to thresholds that were based on real sites on the ground.

2c. A Classified Vegetation Cover Surface with Tree Density. The Vegetation Cover Surface was further modified by replacing Likely Woody Cover areas with tree density categories from the Tree Cover density dataset. Likely Woody Vegetation with No Tree Cover was retained as Likely Woody Vegetation. Tree Cover density outside Likely Woody Vegetation was retained as Sparse Tree Cover.

3. Final Vegetation Extent Dataset

3a. Low Native Vegetation Cover was added as a new category to explain natural features with a permanent or temporarily low cover of native vegetation such as fire scars, sand dunes rocky outcrops and low cover of native vegetation

3b. Urban Trees - Urban masks were made and employed to identify urban trees. These are retained as an urban tree cover category

3c. Plantation Trees - Plantation masks were made to identify exotic tree cover that is plantation (either pine or bluegum etc). These are retained as a plantation cover category

3d. Windbreak Trees - Windbreak masks were made to identify exotic tree cover (ie Sugar Gums and Cypress Pines) planted as a wind break. These are retained as a windbreak cover category.

3e. Wetlands & Waterbodies - were incorporated in the Terrestrial Vegetation Surface using existing spatial data. This was done to fill obvious gaps in the landscape and to assist with a more spatially complete view of habitat. This is not a new wetland dataset. The existing datasets hydropoly 25 and

the Wimmera CMA wetland dataset were combined into a notional binary wetland / no wetland surface and laid over the - the Terrestrial Vegetation Surface. Where wetlands and waterbodies intersected woody cover (including tree cover) it was assigned to a new category woody wetland cover. Where wetlands and waterbodies intersected grassy cover it has been included as emergent aquatic or intertidal vegetation cover. These categories are indicative only as limited effort was made to train imagery in wetland areas - they should not be used as a substitute for EVC mapping where available. Wetlands that did not intersect with modelled vegetation cover were retained as wetland unspecified. The major artificial impoundments were also identified as a separate category.

3f. Grasslands - the grassland categories Likely and Possible were further divided to broadly indicate the degree to which the grassland / pasture is the result of modifications to the tree canopy density. Grasslands / pasture which is thought to be the result of the clearing of forest types (i.e., typical EVC's would include Box Ironbark, Grassy Dry Forest, Lowland Forest) have been identified as "Tree Cover Removed" and those grasslands / pastures thought to be either originally treeless or woodland have been retained as their original categories Likely Grassland or Possible Grassland. The somewhat arbitrary boundary between woodland and forest was derived from another model of pre-settlement tree density.

Classified data was then grouped into these simplified vegetation extent classes:

Unlikely to support native vegetation

< ----No native cover

Possibly native vegetation

< ----Likely native grassy cover

< ----Structurally modified - likely native grassy cover

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

Wetland habitat

< ----Wetland Cover

Artificial impoundment □

< ----Artificial impoundment cover

Exotic woody vegetation □

< ----Urban Tree Cover

< ----Windbreak tree cover

< ----Plantation tree cover

Positional Accuracy:

Highly accurate

Attribute Accuracy:

This dataset is a modelled view of native vegetation derived from analysis of satellite imagery & a variety of satellite & other data. As such, there is a high level of confidence in the native tree cover categories, and slightly less confidence in the native grassland / pasture cover classes. Confidence in attribute accuracy is expressed using the adverbs - 'unlikely', 'possibly' and 'highly likely', where 'Possibly native vegetation' indicates less confidence than 'Highly likely native vegetation'. Also, refer to data derivation process.

Logical Consistency:

Good

Completeness:**Coverage:**

Complete statewide coverage

Classification:

- | | | |
|---|-------------|---|
| 0 | no colour | Unlikely to support native vegetation |
| 1 | Olive Green | Possibly native vegetation |
| 2 | Orange | Highly likely native vegetation - grassy |
| 3 | Dark Green | Highly likely native vegetation - woody |
| 4 | Light Green | Highly likely native vegetation - structurally modified |
| 5 | Blue-Green | Wetland habitat |
| 6 | Royal Blue | Artificial impoundment |
| 7 | Purple | Exotic woody vegetation |

Verification:

The neural network modelling process, involving many thousands of groundtruthing points, along with expert validation

Access:**Constraints:****Access:**

Public access

Use:

This is a landscape scale dataset, site verification is required for site based projects
Planning or investment decisions at the site-scale should use some form of ground-truthing.

Stored Data Format:

DIGITAL ESRI grid
DIGITAL TIFF image
DIGITAL Oracle/SDE

Available Format Type:

DIGITAL - All major formats available

Special Intellectual Property Details:**Quality:****Compliance:****Requirements:****Validations:****Search:****Search Word:**

ECOLOGY Habitat
ECOLOGY Landscape
FLORA Native
VEGETATION
VEGETATION Structural

Qualifier:**Further Information:****Authors Collators:****Supporting Documentation:**

History:

Stages:

Proposed:
Registered:
Provisionally Approved:
Approved:
Implemented:
Withdrawal To Occur:
Withdrawn:

Last Review:

Commenced:
Proposed:
Approved
Implemented:

Last Updated:

Date: 7/12/2007
User: ff01

History:

Related Datasets:

Name:

NV2005_QUAL
NV2005_EVCBCS

Type:

Child Modelled 2005 Quality of Native Vegetation
Child 2005 Bioregional Conservation Status of EVCs applied to 2005 distribution

Description:

Citations:

Events:

Full Description Report - NV2005_EXTENT

ANZLIC: ANZVI0803003404

Event: 1 of 1

Type: Load

User: ff01

Date: 25 Jul 2007

Status: Completed

Details: First load of NVE_2005 into CGDL based on NVE2005_ext42 produced by ARI.
ARI dataset was clipped to 1kilometre beyond the Victorian boundary.

Additional Metadata URL:

Related Documents:

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Libraries:

Library Name:

G500-VG94

Projection: Library Group:

VICGRID G500VG94
