

Local Biodiversity Program

2013 Native vegetation by vegetation complex dataset for the South West of Western Australia

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This dataset was developed as part of a State NRM 2012-2014 project delivered by the Local Biodiversity Program through the Western Australian Local Government Association, in partnership with the Department of Planning and the Department of Environment and conservation and supported by the South West Catchment Council and Local Government.



1 Background

The native vegetation status statistics are prepared to assist Local Governments with completing critical components of the local biodiversity conservation planning process developed through the Perth Biodiversity Project.

One of the criteria for determining the conservation significance of natural areas is the representativeness of ecological communities and their maintenance above or at accepted threshold levels. There are several options for defining ecological communities and assessing their retention and protection status:

- State wide, broad scale vegetation type mapping (vegetation associations or system associations) (Beard's vegetation-landscape mapping data). See Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report) Current as of October 2012. Department of Environment and Conservation, Perth <https://www2.landgate.wa.gov.au/web/guest/downloader>
- More detailed vegetation type mapping is available for some parts of the south-west of the State (see Figure 1 below).

This dataset replaces the previously published data produced by the Perth Biodiversity Project in 2004, 2007 and 2011 and by the South West Biodiversity Project in 2007. It provides information on the pre-European and current extent of ecological communities in the south west portion of Western Australia.

2 Native Vegetation Extent by Vegetation Complex

This dataset categorises remnant vegetation extent according to vegetation complexes. For the large portion of the south-west of Western Australia vegetation complexes represent the most appropriate level to interpret ecological communities for establishing assessments of representation levels based on area.

These vegetation complexes are based on the patterning of vegetation at a regional scale reflected by the underlying key determining factors of landform, soil and climate. There are two sets of vegetation complex mapping available:

- Vegetation complex mapping by Heddle *et al* (1980)
- Vegetation complex mapping by Havel & Mattiske (2000).

While the extent of the above datasets does not cover the extent of the biogeographical regions (Interim Biogeographical Regionalisation of Australia 7.1, 2013) within which Perth and Peel Regions occur, the above listed vegetation complex datasets are the most appropriate datasets available to inform local biodiversity conservation planning.

To determine the representation levels of vegetation complexes across a study area, pre-European extent and current extent of vegetation complexes is assessed at two levels:

1. At the biogeographical region level (IBRA regions and sub-regions)
2. At the study area level (for example for the Perth and Peel Scheme Regions or a Local Government area).

3 Native vegetation extent by Administrative Planning Categories

This dataset provides a broad overview of the different themes of native vegetation according to existing administrative planning and protection categories. Importantly this dataset quantifies the spatial extent of vegetated Local Natural Areas because it is Local Natural Areas that will be the major focus of Local Government's biodiversity strategies. Local Natural Areas are all natural areas outside the DEC conservation estate, State Forest and Bush Forever Sites (del Marco *et al*, 2004).

4 Spatial Extent of the Data

Vegetation complex mapping covers the extent of the vegetation complex mapping by Heddle *et al* (1980) and Havel & Mattiske (2000). The two vegetation complex mapping datasets overlap. The Perth Biodiversity Project team undertook a process to join the two datasets along appropriate complexes so as to create one vegetation complex mapping layer. This is further explained in the metadata statement.

Figure 1 shows the extent of vegetation complex mapping, IBRA sub-regions and the Perth and Peel Scheme Regions.

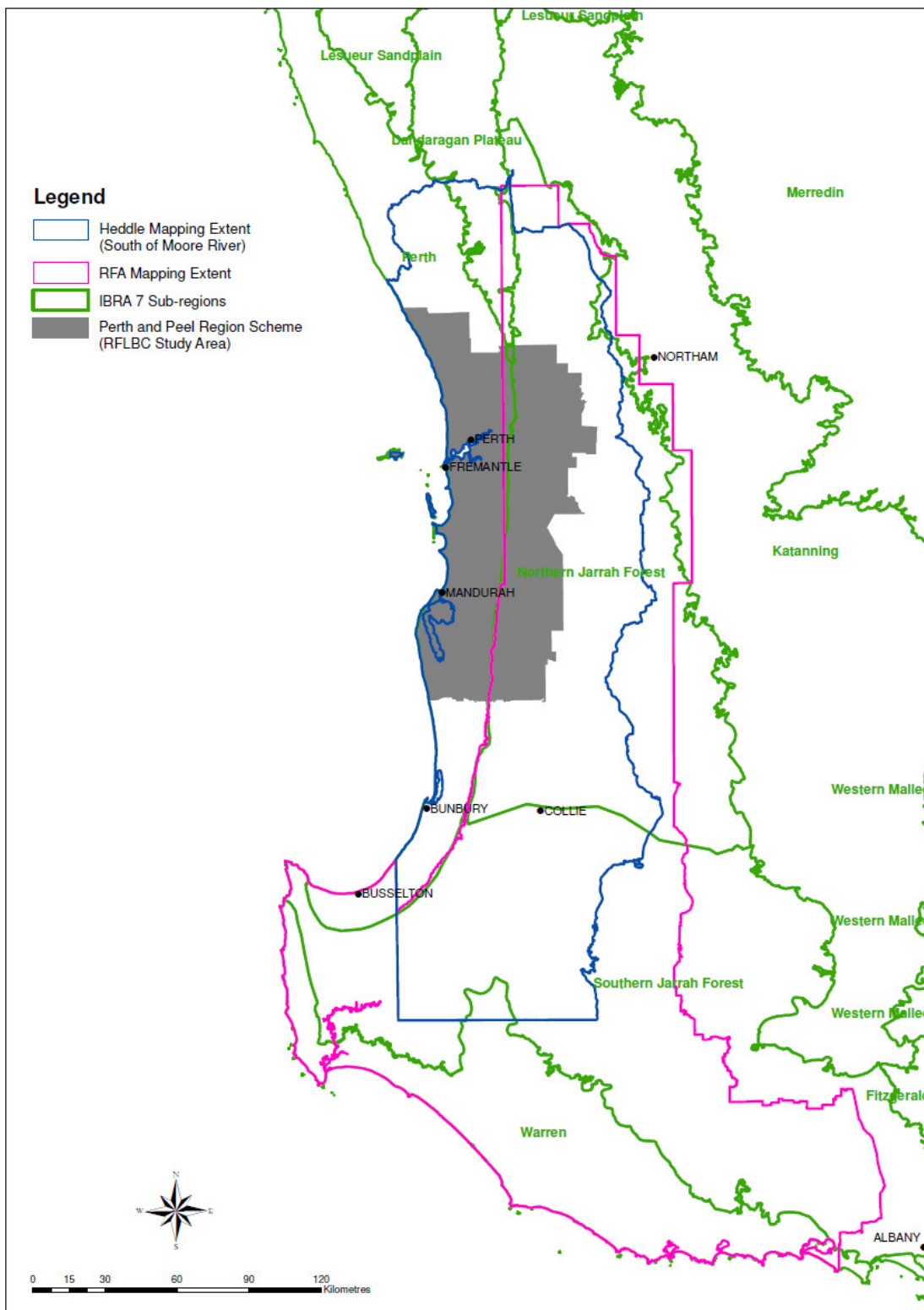


Figure 1: Extent of vegetation complex mapping datasets used in the native vegetation status analysis.
(IBRA – Interim Biogeographic Regionalisation of Australia)

5 Limitations of the statistics.

These statistics are indicative due to the limitations of the mapping, such as the scale and coverage of vegetation complex datasets.

The vegetation extent mapping provided by the Department of Agriculture and Food (2013) within the Swan Coastal Plain and the Jarrah Forest IBRA regions is based on 1:20,000 digital orthophotography, except some south west coastal areas that have been captured at a scale of 1:10,000.

The vegetation complex mapping datasets have been captured at 1:250,000 scale. As the Figure 1 shows, the vegetation complex datasets do not cover the full extent of the IBRA regions.

6 Contacts

Any questions or queries relating to the mapping, statistical analysis and information can be directed to:

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7 References

- Del Marco A, Miles C, Taylor R, Clarke K and Savage K (2004) *Local Government Biodiversity Planning Guidelines for Natural Area Protection and Management in the Perth Metropolitan Region*. Western Australian Local Government Association, Perth.
- Havel, J.J. and Mattiske, E.M. (2000) *Vegetation Mapping of South West Forest Regions of Western Australia*. Prepared for CALMSCIENCE, Department of Conservation and Land Management and Environment Australia
- Hedde, E. M., Loneragan, O. W., and Havel, J. J (1980) *Atlas of Natural Resources Darling System, Western Australia*. Department of Conservation and Environment.

7 Metadata

7.1 2013 Native Vegetation Extent by Vegetation Complex

Dataset Title:	Native Vegetation Extent by Vegetation Complex Filename: (Veg_by_complex_full_extent.shp)
Custodian:	Western Australian Local Government Association (Perth Biodiversity Project)
Contact:	Renata Zelinova (08) 9213 2047 rzelinova@walga.asn.au
Description:	This dataset categorises Native vegetation extent according to vegetation complexes, as mapped in the Jarrah Forest by Mattiske and Havel (2000) and on the Swan Coastal Plain by Heddle et al. (1980)
Data Creation:	This dataset was derived by intersecting the 2013 native vegetation dataset (DAFWA, May 2013) with: <ul style="list-style-type: none">• Pre1750 Vegetation Complexes. The vegetation complexes used are by Vegetation mapping of South West Forest Regions of Western Australia (Havel & Mattiske, 2000) and vegetation complex types and geomorphology captured by Heddle, E. M., Loneragan, O. W., and Havel, J. J. (2000), combined by the Perth Biodiversity Project (2011).• Coast definition is based on the coastal line provided by Geoscience as this is used to define the IBRA regions.• Interim Biogeographic Regionalisation 7 (2013).

Changes to the dataset:

The northern extent of the vegetation complex mapping does not include the portion mapped by Heddle *et al* (2000) north of Moore River.

The two vegetation complex datasets overlap and in some instances different vegetation types are assigned to the same area.

As a general principle, vegetation complexes mapped by Heddle *et al* (2000) on the Swan Coastal Plain form the eastern boundary of the Swan Coastal Plain.

Figure 2 below demonstrates the implications on an example of Wannamal and Cullula vegetation complexes. The extent of Wannamal vegetation complex as mapped by Mattiske and Havel (1998) (black hatching) overlaps Heddle's Cullula (in yellow). The area of the overlap is 2654.69ha and has been allocated as Cullula. When the pre-European extent for Cullula and Wannamal following this change to the dataset are compared with figures published in the EPA's Guidance statement No 10 (2003), the areas are comparable.



Figure 2: Overlap of two types of vegetation complex mapping datasets.

Heddle's vegetation complex mapping does not extend to the whole length of the Swan Coastal Plain south of Bunbury. Various vegetation complexes mapped within Quindalup Dune systems by Matiske and Havel (1998) were added to those complexes mapped by Heddle using the following formula:

- Qd and Qu were added to Quindalup complex
- Qwy were added to Vasse
- Abba vegetation complex consists of all Abba type complexes mapped.

Data Currency: June 2013

Spatial Extent: South of Moore River covering the extent of Heddle (1980) and Matiske and Havel (2000) mapping. (See Figure 1)

Datum: Geocentric Datum of Australia (GDA)

Grid Coordinates: Map Grid of Australia 1994 (MGA94)

UTM Zone: 50

Available Formats: Arc View Shape files.

Polygon Attributes

- SOURCE:** Source from which vegetation complex was derived
- HEDDLE - Vegetation complex types and geomorphology captured by Heddle, E. M., Loneragan, O. W., and Havel, J. J. (DEP, 2002)
 - RFA - Pre1750 Vegetation Complexes - Complete Coverage captured by Matiske and Havel for the Regional Forest Agreement (CALM, February 2003),

COMP: Vegetation Complex (assigned to an area in the joint dataset)

7.2 2013 Native Vegetation Extent by Administrative Planning Categories

Dataset Title:	Native Vegetation Extent by Administrative Planning Category File Name: (APC3.shp)
Custodian:	Western Australian Local Government Association (Perth Biodiversity Project)
Contact:	Renata Zelinova (08) 9213 2047 rzelinova@walga.asn.au
Description:	Provides a broad overview of the different themes (e.g. Bush Forever, Local Natural Areas etc) of native vegetation according to existing administrative planning categories relevant to local biodiversity protection and management in the Perth and Peel Region Scheme areas.
Data Creation:	This dataset was derived by combining the 2013 remnant vegetation extent mapping with: <ul style="list-style-type: none">• DEC Managed Lands and Waters (12/12/2012),• Bush Forever Areas – Site boundaries (Department of Planning, 2011),• Regional Parks – Regional Park Boundaries (DEC, 2012)• Pre1750 Vegetation Complexes. The vegetation complexes used are by Vegetation mapping of South West Forest Regions of Western Australia (Havel & Mattiske, 2000) and vegetation complex types and geomorphology captured by Heddle, E. M., Loneragan, O. W., and Havel, J. J. (2000), combined by the Perth Biodiversity Project (2011).
Data Currency:	June 2013
Spatial Extent:	Western Australia
Datum:	Geocentric Datum of Australia (GDA)
Grid Coordinates:	Map Grid of Australia 1994 (MGA94)
UTM Zone:	50
Available Formats:	Arc View Shape files.

Polygon Attributes

THEME:	Native Vegetation Extent by Administrative Planning Category: <ul style="list-style-type: none">• BF – Native vegetation contained within Bush Forever sites excluding that native vegetation categorised as BFREG, DECSFBF;• BFDECCON – Native vegetation in a Bush Forever site within DEC's conservation estate defined as: National Parks, Nature Reserves, Conservation parks, 5 (g) Reserves;• BFDECCONREG – Native vegetation in a Bush Forever site classified as a Regional Park within DEC's conservation estate defined as: National Parks, Nature Reserves, Conservation parks, 5 (g) Reserves;• BFDECOTH – Native vegetation in a Bush Forever site within a DEC estate that has not been recognised in any of the above categories.• BFDECSF – Native vegetation in a Bush Forever site within a State Forest• BFREG – Native vegetation contained within Bush Forever Sites that also exist within the Regional Parks;• DECCON – Native vegetation within DEC's conservation estate defined as: National Parks, Nature Reserves, Conservation parks, 5 (g) Reserves;• DECCONREG – Native vegetation in a Regional Park within DEC's conservation estate defined as: National Parks, Nature Reserves, Conservation parks, 5 (g) Reserves;• DECSF – Native vegetation in State Forest;
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- DECOTH – Native vegetation in DEC estate that has not been recognised in any of the above categories.
- REG – Native Vegetation that exists within Regional Parks that has not been recognised in any of the above categories.
- LNA – Local Natural Areas being native vegetation areas not within CALM estate (CALM and CALMREG), Bush Forever (BF and BFREG) sites or Regional Parks (REG).