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State Victoria

Brief	Details	Attributes
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Metadata Name	Description
Resource Name:	GDE_TERR_WGCMA
Title:	Potential Groundwater Dependent Ecosystem (GDE) Mapping for the West Gippsland CMA
Anzlic Id:	ANZVI0803005170
Custodial Program:	Future Farming Systems Research
Custodian:	Department of Environment and Primary Industries
Abstract:	<p>Potential Groundwater Dependent Ecosystems (GDE) are ecosystems identified within the landscape as likely to be at least partly dependent on groundwater. State-wide screening analysis was performed to identify locations of potential terrestrial GDEs, including wetland areas. The GDE mapping was developed utilising satellite remote sensing data, geological data and groundwater monitoring data in a GIS overlay model. Validation of the model through field assessment has not been performed. The method has been applied for all of Victoria and is the first step in identifying potential groundwater dependent ecosystems that may be threatened by activities such as drainage and groundwater pumping. The dataset specifically covers the West Gippsland Catchment Management Authority (CMA) area. The method used in this research is based upon the characteristics of a potential GDE containing area as one that:</p> <ol style="list-style-type: none">1. Has access to groundwater. By definition a GDE must have access to groundwater. For GDE occurrences associated with wetlands and river systems the water table will be at surface with a zone of capillary extension. In the case of terrestrial GDE's (outside of wetlands and river systems), these are dependent on the interaction between depth to water table and the rooting depth of the vegetation community.2. Has summer (dry period) use of water. Due to the physics of root water uptake, GDEs will use groundwater when other sources are no longer available; this is generally in summer for the Victorian climate. The ability to use groundwater during dry periods creates a contrasting growth pattern with surrounding landscapes where growth has ceased.3. Has consistent growth patterns, vegetation that uses water all year round will have perennial growth patterns.4. Has growth patterns similar to verified GDEs. <p>The current mapping does not indicate the degree of groundwater dependence, only locations in the</p>


landscape of potential groundwater dependent ecosystems. This dataset does not directly support interpretation of the amount of dependence or the amount of groundwater used by the regions highlighted within the maps. Further analysis and more detailed field based data collection are required to support this.

The core data used in the modelling is largely circa 1995 to 2005. It is expected that the methodology used will over estimate the extent of terrestrial GDEs. There will be locations that appear from EvapoTranspiration (ET) data to fulfil the definition of a GDE (as defined by the mapping model) that may not be using groundwater. Two prominent examples are: 1. Riparian zones along sections of rivers and creeks that have deep water tables where the stream feeds the groundwater system and the riparian vegetation is able to access this water flow, as well as any bank storage contained in the valley alluvials. 2. Forested regions that are accessing large unsaturated regolith water stores. The terrestrial GDE layer polygons are classified based on the expected depth to groundwater (ie shallow <5 m or deep >5 m). Additional landscape attributes are also assigned to each mappnig polygon.

In 2011-2012 a species tolerance model was developed by Arthur Rylah Institute, collaborating with DPI, to model landscapes with ability to support GDEs and to provide a relative measure of sensitivity of those ecosystems to changes in groundwater availability and quality. Rev 1 of the GDE mapping incorporates species tolerance model attributes for each potential GDE polygon and attributes for interpreted depth to groundwater.

Separate datasets and associated metadata records have been created for GDE species tolerance.

Search Words:	WATER Groundwater, ECOLOGY Ecosystem, GEOSCIENCES Hydrogeology
Nominal Input Scale:	1:100000
Currency Date:	13 January 2014
Dataset Status:	Completed
Progress:	Complete
Access Constraint:	Creative Commons Attribution 3.0 Australia licence, Copyright and Attribution, Terms of Use - http://creativecommons.org/licenses/by/3.0/au/deed.en General

Data Existence: 

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Custodian:	Department of Environment and Primary Industries
Owner:	Department of Environment and Primary Industries

Jurisdiction:

Victoria

Abstract:

Potential Groundwater Dependent Ecosystems (GDE) are ecosystems identified within the landscape as likely to be at least partly dependent on groundwater. State-wide screening analysis was performed to identify locations of potential terrestrial GDEs, including wetland areas. The GDE mapping was developed utilising satellite remote sensing data, geological data and groundwater monitoring data in a GIS overlay model. Validation of the model through field assessment has not been performed. The method has been applied for all of Victoria and is the first step in identifying potential groundwater dependent ecosystems that may be threatened by activities such as drainage and groundwater pumping. The dataset specifically covers the West Gippsland Catchment Management Authority (CMA) area. The method used in this research is based upon the characteristics of a potential GDE containing area as one that:

1. Has access to groundwater. By definition a GDE must have access to groundwater. For GDE occurrences associated with wetlands and river systems the water table will be at surface with a zone of capillary extension. In the case of terrestrial GDE's (outside of wetlands and river systems), these are dependent on the interaction between depth to water table and the rooting depth of the vegetation community.
2. Has summer (dry period) use of water. Due to the physics of root water uptake, GDEs will use groundwater when other sources are no longer available; this is generally in summer for the Victorian climate. The ability to use groundwater during dry periods creates a contrasting growth pattern with surrounding landscapes where growth has ceased.
3. Has consistent growth patterns, vegetation that uses water all year round will have perennial growth patterns.
4. Has growth patterns similar to verified GDEs.

The current mapping does not indicate the degree of groundwater dependence, only locations in the landscape of potential groundwater dependent ecosystems. This dataset does not directly support interpretation of the amount of dependence or the amount of groundwater used by the regions highlighted within the maps. Further analysis and more detailed field based data collection are required to support this.

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	Separate datasets and associated metadata records have been created for GDE species tolerance.
Search Words:	WATER Groundwater, ECOLOGY Ecosystem, GEOSCIENCES Hydrogeology
Purpose:	
Geographic Extent Polygon:	
Geographic Bounding Box:	<div><div>-34</div><div>141<div></div>150</div><div>-39</div></div>
Beginning Date:	01FEB1995
Ending Date:	31DEC2005
Maintainence and Update Frequency:	Irregular
Stored Data Format:	DIGITAL: ESRI File Geodatabase
Available Format(s) Types:	DIGITAL
Lineage:	Derived
Positional Accuracy:	As accurate as the source data
Attribute Accuracy:	Not known
Logical Consistency:	Not known
Data Source:	The maps are created from base layers of Landsat imagery from 1988 to 2005 that was supplied by the Australian Greenhouse Office (AGO) and time series data from the NASA WIST website supplied the Modis (MOD13Q1) product for 2003. Additional base layers that were used include the Geological 250 series, Geomorphological Management Units, Wetland and EVC Layer Stream Gauge catchments. Expert analyses selected thresholds within the data sets that were combined within a Weighted Overlay Model and converted to Shape files for use.
Completeness:	
Contact Organisation:	Department of Environment and Primary Industries
Contact Position:	Dataset Data Manager
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Metadata Date: 2013-11-18 00:00:00.0

Additional Metadata: For further information, see: Dresel PE, Clark R, Cheng X, Reid M, Terry A, Fawcett J and Cochrane D 2010, Mapping Terrestrial Groundwater Dependent Ecosystems: Method Development and Example Output, Department of Primary Industries, Melbourne, Victoria, 66 pp.

Resource Name: GDE_TERR_WGCMA

Title: Potential Groundwater Dependent Ecosystem (GDE) Mapping for the West Gippsland CMA

Object Name: WATER.GDE_TERR_WGCMA

Column Name	Column Name 10	Obligation	Unique	Data Type	Reference Table	Comments
AREA_HA	AREA_HA	O	N	NUMBER(38,8)		
DESCRIPTON	DESCRIPTON	O	N	VARCHAR2(165)		
DTW_MAJOR	DTW_MAJOR	O	N	NUMBER(38,8)		
GMU	GMU	O	N	VARCHAR2(5)		
GW_CODE	GW_CODE	O	N	NUMBER(4)		
GW_TDS	GW_TDS	O	N	VARCHAR2(13)		
SHAPE_NUMBER		O	N	NUMBER(38,8)		
SUR_GEOLGY	SUR_GEOLGY	O	N	VARCHAR2(13)		
TOL_MED	TOL_MED	O	N	NUMBER(38,8)		
VARIETY	VARIETY	O	N	NUMBER(38,8)		

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