Data dictionary, Coastal land and groundwater for horticulture from Gingin to Augusta

Werner Runge
Dennis van Gool

Follow this and additional works at: http://researchlibrary.agric.wa.gov.au/misc_pbns

Part of the Soil Science Commons

Recommended Citation
Data dictionary

Coastal land and groundwater for horticulture from Gingin to Augusta

Werner Runge and Dennis van Gool

Agriculture Western Australia

May 1996
FRONT COVER:

The diagram on the cover shows the extent of the 'Coastal land and groundwater from Gingin to Augusta' study region. A series of eight map sheets (at 1:100,000) and an accompanying report have been produced by the authors as part of the study.

AVAILABILITY OF INFORMATION:

Copies of this publication are available from Publication Sales, Information Services, Agriculture Western Australia, 3 Baron-Hay Court, South Perth 6151. Inquiries can be made on fax (09) 474 2018 or telephone (09) 368 3729.

The digital information described is available from Agriculture Western Australia and inquiries can be made through Kellie-Jane Pritchard on (09) 368 3440.

© Chief Executive Officer, Agriculture Western Australia 1996
Data dictionary

Coastal land and groundwater for horticulture from Gingin to Augusta

Werner Runge and Dennis van Gool

Agriculture Western Australia

May 1996
# Contents

<table>
<thead>
<tr>
<th>Introduction</th>
<th></th>
<th>page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data format</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Meta data structure</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Data description</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Data diagram</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Administration</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>calm</td>
<td>(CALM estate boundaries for all of WA)</td>
<td>6</td>
</tr>
<tr>
<td>irbnd</td>
<td>(Waroona, Harvey and Collie gazetted irrigation district boundaries)</td>
<td>8</td>
</tr>
<tr>
<td>waecia</td>
<td>(Local government authority boundaries)</td>
<td>10</td>
</tr>
<tr>
<td>Cadastre</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>&lt;shire&gt;cad</td>
<td>(Cadastral boundaries on shire-by-shire basis)</td>
<td>14</td>
</tr>
<tr>
<td>Groundwater</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>gwasub</td>
<td>(Groundwater subarea boundaries)</td>
<td>18</td>
</tr>
<tr>
<td>Water</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>rivers</td>
<td>(Major drainage features within WA)</td>
<td>22</td>
</tr>
<tr>
<td>watsou</td>
<td>(Water bodies within south-west WA)</td>
<td>24</td>
</tr>
<tr>
<td>Soils</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>cave</td>
<td>(Soil-landscape units - Busselton to Augusta)</td>
<td>28</td>
</tr>
<tr>
<td>cpsoil</td>
<td>(Soil-landscape units - Armadale to Capel)</td>
<td>30</td>
</tr>
<tr>
<td>nthmet</td>
<td>(Soil-landscape units - Northern Metropolitan region)</td>
<td>32</td>
</tr>
<tr>
<td>scarp</td>
<td>(Soil-landscape units - Darling Scarp)</td>
<td>34</td>
</tr>
<tr>
<td>soil6</td>
<td>(Soil-landscape units - Gingin to Bunbury)</td>
<td>36</td>
</tr>
<tr>
<td>swarn</td>
<td>(Soil-landscape units - Swan Valley)</td>
<td>38</td>
</tr>
<tr>
<td>egin</td>
<td>(Soil-landscape units - East Gingin)</td>
<td>40</td>
</tr>
<tr>
<td>wgin</td>
<td>(Soil-landscape units - West Gingin)</td>
<td>42</td>
</tr>
<tr>
<td>Transport</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>cwaroads</td>
<td>(Major roads within WA)</td>
<td>46</td>
</tr>
<tr>
<td>metrd94</td>
<td>(Perth metropolitan roads)</td>
<td>48</td>
</tr>
<tr>
<td>Vegetation</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>&lt;shire&gt;</td>
<td>(Remnant vegetation on shire-by-shire basis)</td>
<td>52</td>
</tr>
<tr>
<td>bodveg</td>
<td>(Remnant vegetation - Boddington area)</td>
<td>54</td>
</tr>
<tr>
<td>metro</td>
<td>(Remnant vegetation - Perth region)</td>
<td>56</td>
</tr>
<tr>
<td>vegcoas</td>
<td>(Remnant vegetation - Peel-Harvey region)</td>
<td>58</td>
</tr>
<tr>
<td>Other</td>
<td>61</td>
<td>61</td>
</tr>
<tr>
<td>cwatowns</td>
<td>(Major town sites within WA)</td>
<td>62</td>
</tr>
<tr>
<td>wacoast</td>
<td>(Western Australian coast line)</td>
<td>64</td>
</tr>
<tr>
<td>Glossary</td>
<td>66</td>
<td>66</td>
</tr>
<tr>
<td>Related publications</td>
<td>67</td>
<td>67</td>
</tr>
</tbody>
</table>
Introduction

This report summarises the primary digital data which was used to analyse the land and groundwater resources along a coastal strip between the shires of Gingin and Augusta-Margaret River. The geographic area covered in this report represents the first region completed in a statewide project called *Land and Water for Horticulture*.

The aim of *Land and Water for Horticulture* is to identify, gather, collate, analyse and present all digitally available natural resource information relevant to the sustainable development of horticulture in Western Australia. The project does not aim to capture new data, but rather to use existing data to derive new information. Despite this, some data capture to fill gaps could not be avoided. A considerable amount of data cleaning and checking was also done.

The work has been funded by the National Landcare Program in partnership with Agriculture Western Australia and the Geography Department of the University of Western Australia.

**Data format**

The analysis for this project was performed using Arc/Info for Unix (Rev 7.0.3). However, all the data in this report is also held in MicroStation design file (*.dgn) format (also referred to as IGDS files which is short for Interactive Graphic Design Software), or can be exported in a variety of other formats such as AutoCAD Exchange Format files (*.dxf) or Adobe Illustrator. All attribute information is also held in Microsoft EXCEL spreadsheets and can be exported in comma delimited ASCII format.

**Meta data structure**

The meta data associated with each digital data set consists of a data description and data diagram.

Because all the data mentioned in this report is in Arc/Info format it was not possible to avoid vendor specific terminology. However, in most cases an explanation will be found either in the text or the glossary of this report.

It is important to bear in mind that digital data does evolve as errors are discovered and omissions are corrected. Hence, while the general data structure will remain, some details may change over time.
Data description

The description of each data set consists of the following:

**NAME**  
Name of the Arc/Info data set. Each data set is referred to as a coverage in Arc/Info. Each coverage is a directory which encompasses the map (line data) and data tables (attribute data).

**TYPE**  
Coverage type. This may be either 'polygon' (i.e. closed areas), 'line', 'point' or 'raw'. The term 'raw' refers to a line or polygon coverage which has not yet been built to create line or polygon topology. This is usually done with cadastral files which are used for display purposes only and would use too much disk space if built. A 'raw' coverage does not have any associated .aat or .pat tables.

**DESCR**  
Brief description of the mapping theme.

**EXTENT**  
Description of the geographic region or spatial extent of the data set e.g. Perth coastal plain.

**PROJECT**  
Projection of data (e.g. Australian Map Grid (AMG3) zone 50).

**SCALE**  
Scale at which mapping is designed to be used, e.g. 1:50,000.

**SOURCE**  
From whom or where this data set was obtained.

**ORIGIN**  
Original creator of the data set. On what information the data set was based (e.g. aerial photos, 1989 LANDSAT imagery etc.).

**CONTACT**  
Who to contact for more information. The first contact is always the Natural Resources Assessment Group (Dennis van Gool or Werner Runge).

The second contact is usually someone from the data originator.

**HISTORY**  
Description of any manipulations or other editing operations to which the data set has been subjected.

**NOTE**  
Any special comments regarding the data set.

**REF**  
References associated with the data (e.g. published or internal reports etc.).

**ASSOC**  
Names of any files and coverages which are associated with the data. These could be look up tables, data tables etc. The file type is usually indicated in brackets i.e. (coverage, EXCEL, text-file etc.). Often the full path name is given with '...' indicating the home directory.

*** Index to .PAT Items ***

Description of any non-standard Polygon or Point Attribute Table (.PAT) items.

*** Index to .AAT Items ***

Description of any non-standard Arc Attribute Table (.AAT) items.

*** Index to Annotation Subclasses ***

Description of any annotation subclasses (if they exist). Any naming conventions adopted and the Arc/Info text set to be used with the annotation should also be listed.

*** Index to .LUT Items ***

Description of any Look Up Table (LUT) items not described under any previous headings.

*** Index to .DAT Items ***

Description of any Data table (DAT) items not described under any of the previous headings. Data tables contain attribute information related to the .AAT or .PAT file. Data tables can usually be related to the .PAT or .AAT file via a common item. Data tables are kept separate from the .AAT and/or .PAT file to allow for independent updating of attribute and spatial information.
**Data diagram**

The data diagram shows the data set’s main graphic features (points, lines and polygons). At the base of each diagram the full name (including path) of the data set and the scale of the data diagram are given. A location diagram showing the data set’s position and areal extent in relation to the whole of Western Australia is also shown.

Under the heading ‘Coverage features’ is a brief index to the main graphic entities which make up each data set. This lists the number of basic graphic entities (also called feature classes) which make up that particular data set, the number of bytes of descriptive database information (known as attribute data) linked to each graphic entity as well as the presence of any spatial indexing and/or topology.

A brief description of the various graphic entities which may be listed under the heading ‘Coverage features’ is given below.

**ARCS:** Line features in the data set. Each arc is defined by two end points (nodes) and a number of shape points (vertices).

**POINTS:** Single x, y coordinates which represent geographic features too small to be represented as lines (i.e. arcs) or area (i.e. polygons).

**POLYGONS:** Enclosed areas.

**NODES:** Points defining the beginning or end points of an arc.

**ANNOTATIONS:** Text labels are stored on different levels (known as annotation subclasses). Hence, ‘No.Subclasses’ refers to the total number of levels present within text levels within the data set. ‘Number of Features’ refers to the total number of text labels across all levels.

**TICS:** Registration or geographic control points. Each tic represents a known location on the earth’s surface.

**ARC SEGMENTS:** A straight line defined by two shape points (or vertices). Each arc consists of one or more arc segments.

**POLYGON LABELS:** Point located within a polygon and linking that polygon to attribute data stored in a database.
Administration

Data in this category relates to the management of land areas. The data is of a political, cultural or tenure nature. Land boundaries in this category are relatively artificial and in some cases arbitrary, rather then being defined by physical boundaries.
NAME            calm
TYPE            Arc/Info polygon coverage.
DESCR           Land managed by the Department of Conservation and Land Management (CALM), i.e. CALM Estate boundaries.
EXTENT          Western Australia.
PROJECT         AMG zone 50.
SCALE           Varies from 1:50,000 to 1:100,000.
SOURCE          Coverage was created from IGDS files obtained June 1995 from Agriculture Western Australia.
ORIGIN          Department of Conservation and Land Management Western Australia.
CONTACT         1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
                2: Spatial Resources Information Group, Agriculture Western Australia (Greg Beeston or Julian Cocker).
HISTORY         About 6% of the polygons in the coverage did not contain labels. It was assumed that these were due to non-CALM Estate being completely surrounded by CALM Estate (doughnut effect).
NOTE            A problem may exist with this coverage as it was "bailed out" of Arcedit repeatedly when attempting to edit and then save the coverage (January 1996). A working sub-section of the coverage exists (see coverage 'cp-calm' under ASSOC).
ASSOC           './workdir/csplain/cp-calm' (coverage). A copy of the coverage 'calm' clipped to the area of the coastal plain mapping region (i.e. './workdir/csplain/sheetref'). Contains annotation not contained in the coverage './admin/calm'.
*** Index to .PAT Items ***
MAPU-CODE       DOLA pin number
TEN-CAT          CALM Tenure Category:
                  ten-cat               description
                  a                     State forest
                  b                     CALM Act timber reserve
                  c                     National park
                  d                     Nature reserve
                  e                     Marine park
                  f                     Marine nature reserve
                  g                     Section 5(g) of the CALM Act
                  h                     Conservation park
                  i                     Miscellaneous reserve
                  j                     Executive director freehold
                  l                     Leasehold
PI               Either the DOLA parcel identifier (e.g. reserve number, State Forest number etc.) or the volume/folio flag (Note: From the information supplied it was not clear which one of these two items this column of data represented).
NAME             Gazette name.
TEN-SYS          Tenure category (broad category into which CALM land can be classified based on tenure. This is not an official CALM item but was added by Werner Runge, November 1995).
                  ten-sys        ten-cat               description
                  1               c                     National Park
                  2               b                     Timber plantation
                  3               a                     State forest
                  4               All others  All other reserves
TEMP             Temporary item which can be used to tag polygons.
<table>
<thead>
<tr>
<th>Coverage Features</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td>59872</td>
<td>116</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>POLYGONS</td>
<td>12223</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td>52307</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIGS</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td>241649</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td>12222</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Coverage Name: alanuma/dep/admin/colm

Diagram Scale: 1cm = 120.176km
<table>
<thead>
<tr>
<th>NAME</th>
<th>irbnd</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>Arc/Info polygon coverage.</td>
</tr>
<tr>
<td>DESCR</td>
<td>Waroona, Harvey and Collie gazetted irrigation district boundaries.</td>
</tr>
<tr>
<td>EXTENT</td>
<td>Within the Shires of Waroona and Harvey, Western Australia.</td>
</tr>
<tr>
<td>PROJECT</td>
<td>AMG zone 50.</td>
</tr>
<tr>
<td>SCALE</td>
<td>1:50,000.</td>
</tr>
<tr>
<td>SOURCE</td>
<td>Water and Rivers Commission, Western Australia (formerly Water Authority of Western Australia).</td>
</tr>
<tr>
<td>ORIGIN</td>
<td>Unknown.</td>
</tr>
</tbody>
</table>
| CONTACT | 1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).  
          2: Water and Rivers Commission, Western Australia (Kim Werne). |
| HISTORY | Updated January 1996. |
**Coverage Name:** AlarmsAgdeptAdminrbnd

**Diagram Scale:** 1cm = 3.319km

**Coverage Features:**

<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute Data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td></td>
<td>45</td>
<td>36</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>POLYGENS</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td></td>
<td>43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATION ONE</td>
<td></td>
<td>1-C%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIES</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td>2150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NAME  waecla
TYPE  Arc/Info polygon coverage.
DESCR  Western Australian Electoral Commission, Local Government Authority boundaries.
EXTENT  Western Australia.
PROJ  AMG Zone 50.
SCALE  1:100,000 to 25,000.
SOURCE  Western Australian Land Information Service (WALIS), as Arc/Info export coverage, January 1996.
ORIGIN  Western Australian Electoral Commission. Based on cadastral map.
CONTACT  1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
          2: Western Australian Land Information System (WALIS) (Mark Taylor or Phil Tasker on telephone (09) 273 7046).
HISTORY  Projected from geographic to AMG coordinates.
NOTE  Updates the coverage 'alliga'.
ASSOC  - './agstats/denprod.dat' (info). 1993/94 production volume information for various agricultural and horticultural activities on a shire-by-shire basis. This data was obtained from the 'Agstas' computer package available from Australian Bureau of Statistics (ABS).
       - './agstats/denval.dat' (info) 1993/94 production value information for various agricultural and horticultural activities on a shire-by-shire basis. This data was obtained from the 'Agstas' computer package which is available from ABS.
       - './agstats/denval.lut' (info).
       - './agstats/denprod.lut' (info).

*** Index to .PAT Items ***

shire
Shire name.

region
Name of statistical region. Shire boundaries are used as statistical regions in recording ABS agricultural data. The item 'region' is used to link the .pat file to the files './agstats/denprod.dat' and './agstats/denval.dat' using the relate stored in the file 'waecla.rel'. The lookup tables associated with the above two data tables are './agstats/denprod.lut' and './agstats/denval.lut' (also see ASSOC).

srp-code
Distribution of shires within the Sustainable Rural Development (SRD) regions. Integer code which identifies into which SRD region each particular shire falls.

code region name
--------------------------
1  Southern
2  Southern rangelands
3  Kimberley
4  Central
5  South-west
6  Northern

type
Local government authority (lga) type. Indicates whether lga is a shire, city or town. This item has not been completed for all shires.
#### Coverage Features

<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td></td>
<td>570</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYXONS</td>
<td></td>
<td>168</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td></td>
<td>429</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td></td>
<td>1</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TICS</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td>86344</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYXON LABELS</td>
<td></td>
<td>157</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Diagram Scale:** 1cm = 121,520km

**Location:**

---

11
Cadastre

Data relating to land parcel boundaries including land subdivision boundaries, reserves, freeholds, vacant Crown Land and legal roads.
NAME  armacad (1)
augcad
bevecad
bunbcad
busscad
capecad
chiccad
cockcad (1)
collcad
dandcad
dardcad
donncad
gincad
gosncad (1)
harvcad
kalacad (2)
kwinncad
mandcad
muncad
murrcad
nanncad
norncad
rockcad (1)
serpcad
swncad
toodcad
victkad
wanncad (2)
warrocad
yorkcad

NOTE Coverage name is usually of the format <shire>cad with <shire> being the shire name's first four letters.

TYPE  Arc/Info raw coverage.

DESCR Cadastral boundaries.

EXTENT Coverages arc on a shire-by-shire basis.

PROJECT AMG zone 50.

SCALE 1:25,000.

SOURCE Agriculture Western Australia MicroStation design files. Only linework was imported. Most shires within the south-west agricultural region were derived from clean feature built files which formed part of the agency's Client Property Database.

(1) Created from 1:25,000 map sheets backed up in 1992 at the Department of Agriculture. The following sheets were needed:
- Kwinana - 2033i1ne, 2033i1nw, 2033i1se, 2033i1sw
- Cockburn - 2033i1nw, 2033i1se, 2033i1sw, 2033i1vne, 2033i1ne
- Gosnells - 2133, 2033i1ne, 2033i1se
- Rockingham - 2033i1se, 2033i1ine, 2033i1vsw, 2033i1nw, 2033i1sw, 2033i1ne
- Armadale - 2133, 2033i1ne, 2033i1se.

ORIGIN Department of Land Administration (DOLA) Western Australia.

CONTACT 1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
2: Spatial Resources Information Group, Agriculture Western Australia (Greg Beeston).

HISTORY (2) Completed using 1:25,000 map sheets backed up in 1992 at the Department of Agriculture. The following sheets were needed to complete the coverages:
- Wanneroo - 20344, 20343, 20342nw, 20342ne
- Kalamunda - 2033i1ne, 2133, 21343sw, 20342se.

NOTE In some residential areas the cadastre may have been thinned or cut out completely.
<table>
<thead>
<tr>
<th>Coverage Features</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td>1</td>
<td>24604</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TI CS</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td>32476</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Coverage Name: /daruma/ugdept/cad/gimcad

Diagram Scale: 1cm = 5.437km

Location:
Groundwater

Data relating to sub-surface water resources. While the presence or absence of groundwater is a physical characteristic, it is relatively difficult to map and quantify accurately. Hence, much of the groundwater data is based on administrative boundaries, and is really a subset of the administration category.
NAME: gwasub

TYPE: ARC/INFO Polygon coverage.

DESCR: Groundwater subareas.

EXTENT: Coastal plain from Geraldton to Augusta.

SCALE: Probably 1:25,000 or more detailed scale.

SOURCE:
- Linework: Water and Rivers Commission (formerly Water Authority of Western Australia) as a non-clean MicroStation design file, September 1995.

ORIGIN:
- Linework: Digitised by Dianne Abbott and Andrew McCrea, Water and Rivers Commission.

CONTACT: 1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
2: Spatial Resources Information Group, Agriculture Western Australia (Greg Beeston).
3: Water and Rivers Commission (Kim Werne), however original data was very unclean.

HISTORY:
- Polygons lacking a mapu-code were deleted using the Arc/Info command "eliminate" with the "keepedge" and "border" option.
- Dangle and node errors were corrected.
- Rockingham groundwater area attribute information was updated 10 October 1995.

NOTE:
- In the Busselton groundwater subarea the values for water availability have had future allocations for towns discounted.
- A value of "99999999" within the 'sup-tot', 'oth-tot', 'sup-avail' or 'oth-avail' items indicates that no data was available. This only applies to the Augusta groundwater subarea.
- A value of "0" within the 'sup-tot', 'oth-tot', 'sup-avail' or 'oth-avail' items indicates that no groundwater or only minor supplies are available or if groundwater is available, it is confined to very small areas within the groundwater subarea.
- If water is found to be available it still needs to be licensed with the Water Authority.
- Only water suitable for horticulture (i.e. quality being either fresh or marginal) has been considered. Where water is available but the quality is brackish it has been ignored. Only water resources available for public use have been considered; water reserved for future community use etc. has been excluded. Where well yields are expected to be too low for commercial use, water has not been taken into account.

ASSOC:
- 'gwasub.xls' (Excel) Contains the data upon which information in 'gwasub.dat' is based.
*** .PAT Item Description ***

sub-code  Groundwater subarea abbreviation. This item links the .dat file to the .pat file.

*** .DAT Item Description ***

order  Order in which data appears in the hard copy information supplied. Used for data checking purposes.

sub-code  Groundwater subarea abbreviation. This item links the .dat file to the .pat file.

sub-decode  Full groundwater subarea name.

gwa-code  Groundwater area abbreviation.

gwa-decode  Full groundwater area name. Each groundwater area comprises a number of subareas.

sup-tot  Total available water within superficial aquifer in '000 kL/year (Also comments under NOTE).

oth-tot  Sum of total water available within other aquifers in '000 kL/year. Others include the Leederville, Cockleshell Gully and Yarragadee aquifers (see NOTE).

sup-avail  Water from the superficial aquifer available for public use in '000 kL/year (see NOTE).

Oth_avail  Water from other non-superficial aquifers available for public use in '000 kL/year (see NOTE).
### Coverage Features

<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td></td>
<td>466</td>
<td>36</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>POLYGONS</td>
<td></td>
<td>132</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td></td>
<td>337</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td>9</td>
<td>279</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIES</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SECTIONS</td>
<td></td>
<td>55880</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td></td>
<td>130</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Coverage Name:** Aduruma/ndepc/ground/gwasisub

**Diagram Scale:** 1 cm = 32.822 km
Water

Relates to surface water including still and flowing water bodies and networks both permanent and seasonal. This category also includes artificial drainage networks and artificial water bodies (such as dams). It is important to note that many stream networks obtainable from common sources are not continuous as many drains such as roadside drainage (gutters) tend to be omitted.
NAME  rivers
TYPE  Arc/Info line coverage.
DESCR  Major drainage features.
EXTENT  - Linework: Western Australia.
         - Annotation: Coastal plain between Gingin and Augusta.
SCALE  - Linework: probably 1:1,000,000 or less detailed.
         - Annotation: 1:25,000.
PROJ  AMG zone 50.
SOURCE  - Linework: Arc/Info export file from Eleanor Bruce (Ph.D. student, University of WA) and edited by Werner Runge (Agriculture Western Australia), January 1996.
         - Annotation: Created by Werner Runge, Agriculture Western Australia, 1995/96.
ORIGIN  - Linework: unknown.
         - Annotation: Stream names have been based on those in The West Australian Travellers Atlas: Road maps of Western Australia, Edition 1, 1994. Placement was performed using a 1:25,000 cadastral map background. Only those streams which are clearly visible on a cadastral map, or form a shire boundary or groundwater subarea boundary were annotated. All annotation by Werner Runge, Agriculture Western Australia 1995/96.
CONTACT  1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
         2: Spatial Resources Information Group, Agriculture Western Australia (Greg Beeston).
NOTE  Linework is extremely poor.

*** Index to Annotation Sub-classes ***

cpsheet<no>  Where <no> is a number between 1 and 8. Stream names for the eight 1:100,000 map sheets of the coastal plain mapping series. Stream names are generally written with the first letter in upper case and subsequent letters in lower case. Extensions (such as River, Drain, Brook etc.) are spelled out fully except where not possible for space reasons. In such cases they are abbreviated and terminated with a full stop (e.g. R., Strm., Br. etc). Offset from stream centre lines approx. 150 m. To be used with textset '.../common/custom.txt'.

scale100  Combination of the annotation sub-classes 'anno.cpsheet5' and 'anno.cpsheet6' with duplicate labels deleted (which occur where map sheets of the 1:100,000 coastal plain mapping series overlap).
## DATA DICTIONARY

**Coverage Name:** Alamosa/gdept/water/rivers  
**Diagram Scale:** 1cm = 117.454km  
**Location:**

<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td>360</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td>9</td>
<td>123</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TICs</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td>19177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NAME: watsou

TYPE: Arc/Info polygon coverage.

DESCR: Waterbody boundaries.

EXTENT: Larger south-west region of Western Australia.

SCALE: 1:25,000 to 1:100,000.

PROJ: AMG Zone 50.

SOURCE: Originally compiled by Werner Runge, Agriculture Western Australia, December 1995.

ORIGIN: Various including:
- Reselection of water features from various soil/landform mapping coverages of the south-west of Western Australia
- 1:25,000 cadastral coverages
- Some metropolitan dams were obtained from coverage by the Ministry for Planning.

CONTACT: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).

NOTE: This is a compilation of main water features as landmarks. It is for map display and orientation purposes only.

*** Index to Annotation Sub-classes ***

cpsheet<no> Where <no> is a number between 1 and 8. Water feature names for the eight 1:100,000 map sheets of the coastal plain mapping series. To be used with textset ‘./common/custom.txt’.
<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td></td>
<td>1824</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGONS</td>
<td></td>
<td>853</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td></td>
<td>1020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td>8</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIES</td>
<td>8</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td>88671</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td></td>
<td>852</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Soil-landscapes

Data relating to soil-landscape boundaries. Most of the data in this category has been captured by Agriculture Western Australia as part of the current National Landcare Project funded program which is aimed at providing a soil resource inventory of Western Australia.

This mapping program is based on soil-landscape mapping units identified from aerial photography and soil profile descriptions obtained in the field.

The following data description information applies to all soil-landscape maps:

**NOTE**

Most Agriculture Western Australia mapping is based on soil-landscapes. This summarizes soil and landform features. For example, Bassendean Dunes are all leached siliceous sands, but the land qualities and the land capability will be quite different on the crest of a windblown dune or in a deep swale which is subject to seasonal water logging.

Land qualities are attributes of land (i.e. the soil-landscape mapping unit) which affect specific types of land use. For example land qualities include wind erosion risk and soil workability. Land qualities can be used independently or as a basis for land capability assessment.

The term 'Land capability' refers to the ability of land to sustain a particular land use without causing environmental degradation. The land capability classes used here are based on Agriculture Western Australia's five class land capability rating system as described by Wells and King 1989.

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Very high capability. Physical limitations are very few and easily overcome. Risk of land degradation is negligible.</td>
</tr>
<tr>
<td>2</td>
<td>High capability. Some physical limitations which may be overcome by careful planning.</td>
</tr>
<tr>
<td>3</td>
<td>Fair capability. Moderately significant limitations. Careful planning and conservation measures must be undertaken.</td>
</tr>
<tr>
<td>4</td>
<td>Low capability. High degree of physical limitations which are not easily overcome by standard development techniques. High risk of land degradation. Extensive conservation requirements.</td>
</tr>
<tr>
<td>5</td>
<td>Very low capability. Physical limitations are prohibitive in terms of development cost and/or land degradation risk.</td>
</tr>
</tbody>
</table>

**REF**


*** Index to .CAP items common to all soil coverages ***

**mapu-code**
The identifier for a specific soil-landscape mapping unit to which a land capability assessment may be applied.

**hr**
House and road construction potential. This rates the suitability of the soil-landscape unit for construction of residential dwellings of one or two storeys and/or the construction of roads with sealed surfaces for light vehicles (also see NOTE).
ef  Effluent disposal potential. Suitability of land for on-site absorption of septic tank effluent and sludge from a single family dwelling on a block of 1 ha or larger (also see NOTE).

rr  Rural residential potential combines housing, road construction and effluent disposal. This rating can be used to assess capability for rural living purposes. It could also be matched with the ratings for the agricultural activities below to provide an assessment for hobby farming.

ah  Annual horticulture potential. Suitability of land for vegetable growing or market gardening where the soil is cultivated at least once a year, fertilised regularly and generally only shallow-rooted species are grown.

ph  Perennial horticulture potential. Suitability of land for orchards, vineyards and tree crops where the soil is cultivated only at initial planting and generally only deep-rooting species are grown. The soil is irrigated and fertilised regularly, and weeds are controlled by herbicides.

g  Grazing potential. Suitability of land for the grazing of cattle or horses on non-irrigated volunteer and improved pastures with occasional top dressings of superphosphate, within an average annual rainfall zone of 750-1250 mm, stocking rates sufficiently low to maintain permanent ground cover, preventing wind and water erosion.

tblgrp  Table grape potential.
winrpe  Wine grape potential (See note under 'tblgrp').
dryfrt  Dried fruit potential (See note under 'tablegrp').

NOTE

In some cases a more specific rating for grape production may be required. These ratings were attempted for the Ministry for Planning, however, given the mapping scale, in most instances the rating for perennial horticulture is as accurate as could be expected. In most cases the ratings will be identical to the perennial horticulture rating.

cap-horti  Horticultural capability. This gives three general categories for most horticultural land uses. These were used for the current study.

<table>
<thead>
<tr>
<th>horti</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Suitable for most types of horticulture (i.e. market gardens, vineyards, orchards).</td>
</tr>
<tr>
<td>2</td>
<td>Suitable for some types of horticulture (some uses are restricted, particularly market gardens).</td>
</tr>
<tr>
<td>3</td>
<td>Unsuitable for most horticulture.</td>
</tr>
<tr>
<td>4</td>
<td>Water features.</td>
</tr>
<tr>
<td>5</td>
<td>Unmapped land.</td>
</tr>
</tbody>
</table>

Generally, category 1 horticultural land corresponds with land capability classes 1 and 2 for annual or perennial horticulture. Category 2 horticultural land includes any area that is class 3. Category 3 is any land with a class 4 or 5 rating for either annual or perennial horticulture.

Note  With careful management and planning, category 1 or 2 would be suitable for horticulture.

system  Map units can be aggregated into a system of related soil-landscape units.
NAME      cave
TYPE      Arc/Info polygon coverage.
DESCR     Soil-landscape unit boundaries.
EXTENT    Busselton, Margaret River and Augusta region
           plus a small portion around Capel townsite.
SCALE     1:50,000.
PROJECT   AMG zone 50.
SOURCE    Agriculture Western Australia. Compiled from individual map sheets
           covering the following areas (see ASSOC):
           1. Borranup
           2. Busselton
           3. Margaret River
           4. Augusta.
ORIGIN    Digitised from 1:25,000 aerial photographs and verified using
           standard free survey technique.
CONTACT   1: Natural Resources Assessment Group, Agriculture Western Australia
           (Dennis van Gool or Werner Runge).
           2: Natural Resources Assessment Group, Agriculture Western Australia
           (Peter Tille, Philip Goulding).
NOTE      This coverage was formerly known as 'mrbusaug'.
ASSOC     Original map sheet borders can be regenerated using the
           <coverage>-bor files:
           - cave1-bor (formerly 'tilupdat'). Coverage showing extent of data
             updated by Peter Tille, Agriculture Western Australia, Bunbury.
           - cave2-bor (formerly 'bussoil'). Coverage showing extent of the
             Busselton data.
           - cave3-bor (formerly 'borasoil'). Coverage showing the extent of
             the Borranup data.
           - cave4-bor (formerly 'margsoil'). Coverage showing the extent of the
             Margaret River data.
           - cave5-bor (formerly 'augsoil'). Coverage showing the extent of the
             Augusta data.
REF       Tille, P. and Lantke, N. (1990). 'Busselton, Margaret River-
           Augusta Land Capability Study', Department of Agriculture Western
           Australia, Land Resources Series No 5.
<table>
<thead>
<tr>
<th>Coverage Name:</th>
<th>Diagram Scale: 1cm = 5.045km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarna/agept/soil/cave</td>
<td></td>
</tr>
</tbody>
</table>

### Coverage Features:

<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td></td>
<td>8725</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYgons</td>
<td></td>
<td>3401</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODEs</td>
<td></td>
<td>5985</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td>155384</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYgon LABELS</td>
<td></td>
<td>3400</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NAME  cpsoil
TYPE  Arc/Info polygon coverage.
DESCR  Soil-landscape unit boundaries.
EXTENT  Coastal plain from Armadale to Capel.
SCALE  1:50,000.
SOURCE  Agriculture Western Australia. Compiled from the following map sheets:
1. Peel-Harvey North (incorporated in Rockingham and Jandakot)
2. Mandurah-Murray (2 map sheets)
3. Peel-Harvey South (2 map sheets)
4. Harvey to Capel (2 map sheets).
ORIGIN  Agriculture Western Australia mapping program (see references).
CONTACT  1: Natural Resources Assessment Group, Agriculture Western Australia
          (Dennis van Gool or Werner Runge).
          2: Natural Resources Assessment Group Agriculture Western Australia
             (Philip Goulding).
HISTORY  - Small parts of this cover have been updated via aerial photo interpretation only. Coverages showing the borders of the updated regions have been maintained (see ASSOC).
          - The following map unit codes were changed:
            original  new
            140a      140b
          - P10a      P10b
          - F1        F1b
REF  - Barnesby, B. et al. (In prep). Land resources from Harvey to Capel on the Swan Coastal Plain Western Australia. Agriculture WA.
      - Van Gool, D. (1990). Land resources in the northern section of the
        Peel-Harvey Catchment, Swan Coastal Plain, Western Australia.
        DAWA Miscellaneous Publication (map and land capability table).
        section of the Peel-Harvey Catchment, Swan Coastal Plain, Western
        Australia. DAWA Miscellaneous Publication (map only).
        and Murray. DAWA Land Resources Series No. 2 (map and report).
      - A combined report for Armadale to Capel is in preparation, however
        most mapping units are described in Wells 1989.
ASSOC  - cpicap1-bor (coverage). Extent of Capel survey data.
       - cpicap2-bor (coverage). Showing extent of southern Capel survey data.
       - cprock-bor (coverage). Extent of Rockingham survey data.
       - cpmand-bor (coverage). Extent of Mandurah survey data.
       - cphbnz-bor (coverage). Areas updated via aerial photo interpretation only by Beverley Barnesby, Agriculture Western
         Australia. Initially completed for the Ministry for Planning's Metropolitan Rural Strategy.
       - cpwells-bor (coverage). Extent of area updated via aerial photo interpretation.

*** INDEX TO .PAT ITEMS ***

SAND-NEW  Sandy Topsoil Indicator. This item can be used to shade polygons using 'colornames.shd'.
SAND-NEW  description

            83  bleached sandy topsoil
            21  water features
             1  all other land
             0  other land
**NAME**  nthmet

**TYPE**  Arc/info polygon coverage.

**DESCR**  Soil-landscape unit boundaries.

**EXTENT**  Northern Metropolitan region.

**SCALE**  1:50,000.

**PROJECT**  AMG zone 50.

**SOURCE**  Agriculture Western Australia.

**ORIGIN**  Agriculture Western Australia resource mapping. This combines Gngara Mound, Wanneroo and Northern Corridor, plus two missing areas interpreted from aerial photographs only to complete the coverage. The two missing areas:
1: A triangle defined by the AMG coordinates 371500mE, 6524598mN; 367220mE, 6530722mN; 372976mE, 6531481mN; by Dennis van Gool, 25 September 1995.
2: Small section along the eastern margin which was added by Beverley Barnesby, 1992.

**CONTACT**
1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
2: Natural Resources Assessment Group, Agriculture Western Australia (Philip Goulding).

**NOTE**  This coverage was formerly part of metsoil which was separated to avoid duplication.

**REF**

**ASSOC**
- nthmet.cap (info). Attribute data for assessing suitability of soil polygons along coastal plain for horticultural development, derived from EXCEL file '..\soil\metcap.xls'.
- metapi-bor (coverage). Shows areas mapped using aerial photo interpretation.
<table>
<thead>
<tr>
<th>Coverage Features</th>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ARCS</td>
<td></td>
<td>4068</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>POLYCONS</td>
<td></td>
<td>1743</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NOTES</td>
<td></td>
<td>2964</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANNOTATIONS</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TICS</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ARC SEGMENTS</td>
<td></td>
<td>11,198</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>POLYCON LABELS</td>
<td></td>
<td>1,742</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NAME: scarp

TYPE: Arc/Info polygon coverage.

DESCR: Soil-landscape unit boundaries.

EXTENT: Darling Scarp region.

SCALE: 1:50,000.

PROJECT: AMG zone 50.

SOURCE: Agriculture Western Australia.

ORIGIN: 1:20,000 aerial photography, and standard free survey technique.

CONTACT: 1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
2: Natural Resources Assessment Group, Agriculture Western Australia (Philip Goulding).

NOTE: - This coverage excludes portion overlapped by the coverage 'swanv' which is more detailed.
- Was formerly part of the coverage 'metsoil'.


- metapi-bor (coverage). Shows areas mapped using aerial photo interpretation - formerly called metsoil-api.
### Coverage Features

<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td></td>
<td>7597</td>
<td>38</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>POLYGOINS</td>
<td></td>
<td>2672</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td></td>
<td>5896</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONNS</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGCS</td>
<td>4</td>
<td>65430</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SECTIONS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td></td>
<td>2671</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Coverage Name:** /durusm/agsdept/soil/scarp  
**Diagram Scale:** 1cm = 4.878km  
**Location:**

![Location Map](image)
NAME    soil6
TYPE    Arc/Info polygon coverage.
DESCR   Soil-landscape unit boundaries depicting broad land systems.
EXTENT  Gingin to Bunbury.
SCALE   1:250,000.
SOURCE  Agriculture Western Australia.
ORIGIN  Scanned from original published maps (see REF).
CONTACT 1: Natural Resources Assessment Group, Agriculture Western Australia
         (Dennis van Gool or Werner Runge).
         2: Natural Resources Assessment Group, Agriculture Western Australia
            (Philip Goulding).
HISTORY Changed all (four in total) 'B(d)' map units to 'Bd' (7 September
         1995).
ASSOC   - soil6.cap (Info). Horticulture capability assessment values; only
         for those areas likely to be needed for filling gaps in the
         coastal plain 1:25,000 and 1:50,000 soil mapping; based on
         data within '...soil/soil6.xls'.
         - soil6-ers (coverage). Portion of the soil6 coverage needed to
           complete missing portions of the coastal plain mapping. This was
           created from 'soil6' using the Arc/Info command "erase".

         of the Darling System'. In: 'Atlas of Natural Resources of the
         Darling Region of Western Australia'. Department of Conservation

*** Index to .PAT Items ***
corr_1:  Item listing the 1:50,000 map unit which is most common within
         this particular 1:250,000 map unit.
corr_2:  Item listing the 1:50,000 map unit which is the second most common
         within this particular 1:250,000 map unit.
<table>
<thead>
<tr>
<th>Coverage Features:</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td>6156</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGONS</td>
<td>2200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td>4185</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIES</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td>244054</td>
<td>40</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>POLYGN LABELS</td>
<td>2199</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Coverage Name: /data/soil/soil16

Diagram Scale: 1cm = 18.026km

Location:
NAME: swanv

TYPE: Arc/Info coverage.

DESCR: Soil-landscape unit boundaries.

EXTENT: Swan Valley.

SCALE: 1:50,000.

PROJECT: AG3 zone 50.

SOURCE: Agriculture Western Australia.

ORIGIN: Digitised from an original soils map by Pym 1954.

CONTACT: 1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
2: Natural Resources Assessment Group, Agriculture Western Australia (Philip Goulding).

NOTE: - Formerly part of metsoil coverage (which no longer exists and has been deleted).
- There are hundreds of mapping units with only minor variations making this coverage difficult to work with. Many minor mapping units were omitted from the published report and have been included as part of this study.


ASSOC: - swanv-bor (coverage). Outside border of the coverage 'swanv' based on a reselect of the global polygon.
- metsoil-calm (coverage). Includes the CALM estate land information as defined in './admin/clmall'.
- swanv.cap (info). Attribute data for assessing suitability of soil polygons along coastal plain for horticultural development, derived from EXCEL file './soil\eval-cap.xls'.
- metapi-bor (coverage). Shows areas mapped using aerial photo interpretation.
<table>
<thead>
<tr>
<th>Coverage Features:</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td>2187</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGONS</td>
<td>778</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td>1527</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIES</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td>27734</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td>777</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NAME  egin
TYPE  ARC/INFO coverage.
DESCR  Soil-landscape unit boundaries.
EXTENT  East Gingin.
SCALE  1:100,000.
PROJECT  AMG zone 50.
SOURCE  Agriculture Western Australia.
ORIGIN  1:50,000 aerial photographs and standard free survey technique.
CONTACT  1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
          2: Natural Resources Assessment Group, Agriculture Western Australia (Philip Goulding).
HISTORY  Imported from 'egin.fea' (MicroStation design file). Levels 8 (text) and 9 (linework) were extracted to create the coverage.
         - Coverage was updated to include lake features, 13 July 1995.
         - Coverage was updated to include some holes not previously included, 2 October 1995.
         - Some lake features fell outside the area covered by the soil data and were deleted, 8 October 1995.
         - Sliver lake features were deleted to create a fairly clean coverage, 9 November 1995.
ASSOC  - egin-str (coverage). Streams within the East Gingin region.
       - egin-lake (coverage). Lakes within the East Gingin region - includes slivers created by the streams file.
       - egin.cap (Info).
       - egin.rel (Info).
<table>
<thead>
<tr>
<th>Coverage Name: Alaruma/ugdept/soil/eglin</th>
<th>Diagram Scale: 1cm = 2.382km</th>
<th>Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coverage Features:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Feature Class</strong></td>
<td><strong>No. Subclasses</strong></td>
<td><strong>Number of Features</strong></td>
</tr>
<tr>
<td>ARCS</td>
<td>567</td>
<td>209</td>
</tr>
<tr>
<td>POLYGONS</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>NODES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEIGMENTS</td>
<td></td>
<td>63955</td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td></td>
<td>208</td>
</tr>
</tbody>
</table>
NAME  wgin
TYPE  Arc/Info polygon coverage.
DESCR  Soil unit boundaries.
EXTENT  West Gingin region.
SCALE  1:50,000.
SOURCE  Agriculture Western Australia.
ORIGIN  1:20,000 aerial photographs and standard free survey technique.
CONTACT  1: Natural Resources Assessment Group, Agriculture Western Australia
        (Dennis van Gool or Werner Runge).
        2: Natural Resources Assessment Group, Agriculture Western Australia
           (Philip Goulding)
NOTE  This differs from most other Agriculture Western Australia mapping
      as it is based on soil units only, and not soil-landscape units.
ASSOC  - wgin.cap (Info).
        - wgin.rel (Info). Sets up a relate between the cap and the .pat file.
### Coverage Features

<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td>1</td>
<td>1843</td>
<td>36</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>POLYGENS</td>
<td>758</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td>1290</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td>737</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIES</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td>71965</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td></td>
<td>757</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Diagram Scale

- 1 cm = 3.062 km
Transport

Data relating to road and rail networks.
NAME        cwaroads
TYPE        Arc/Info line coverage.
DESCR       Major roads.
EXTENT      Western Australia.
SCALE       - Linework: 1:1,000,000.
             - Annotation: 1:25,000.
PROJECT     AMG zone 50.
SOURCE      Linework: Agriculture Western Australia.
             - Linework: unknown.
             - Annotation: Road names have been based on those in The West
               Australian Travellers Atlas: Road maps of Western Australia,
               Edition 1, 1994 (country roads) and UBD Map of Perth, 9th Edition
               Northern & Southern Section (metropolitan roads). Placement of
               annotation was based on 1:25,000 cadastral maps.
CONTACT     1: Natural Resources Assessment Group, Agriculture Western Australia
             (Dennis van Gool or Werner Runge).
             2: Spatial Resources Information Group, Agriculture Western Australia
               (Greg Beeston).
NOTE        1:1,000,000 scale.

*** Index to Annotation Sub-classes ***
nor1:        Road names for the Northam mapping region. To be displayed at
             1:200,000 using textset 'font.txt'.

cpsheet<no>  Where <no> is a number between 1 and 8. Road names for the eight
             1:100,000 map sheets of the coastal plain mapping series. Road
             names are generally written with the first letter in upper case
             and subsequent letters in lower case. Extensions (such as Road,
             Highway, Avenue etc.) are spelled out fully except where this is
             not possible for space reasons. In such cases they are abbreviated
             and terminated with a full stop (e.g. Rd., Hwy., Av. etc.). Offset
             from road centre lines approx. 100 m. To be used with textset
             'font.txt'.

cale100     Combination of 'anno.cpsheet5' and 'anno.cpsheet6' with duplicate
             labels (which occur where the map sheet of the 1:100,000 coastal
             plain mapping series overlap) deleted.
**Coverage Name:** /daruma/agdept/transport/cwroads  

**Diagram Scale:** 1cm = 128.137km  

<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td></td>
<td>6922</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td></td>
<td>74</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td>11</td>
<td>1321</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIES</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td>55081</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Location:**
NAME metrd94
TYPE Arc/Info line coverage.
DESCR Road centre lines, current for 1994.
EXTENT Perth Metropolitan area.
SCALE Probably 1:25,000 or more detailed.
PROJ AMG zone 50.
SOURCE Arc/Info interchange file obtained from Main Roads Department, December 1995.
ORIGIN Unknown.
CONTACT 1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
2: Anthony Maroney, Main Roads Department.
NOTE This coverage updates 'metrd'. However, 'metrd' was retained as it contains a road classification not in 'metrd94'.

*** Index to .pat Items ***

road_#
All main roads have a 4 digit code and will be prefixed with H, M or S. Other roads have a 7 digit code.

*** Index to Annotation Sub-classes ***

(blank) Road names. The road names are in capital letters and extensions are abbreviated (e.g. RIVERVIEW AV.)
## Coverage Name:
/data/transport/transport/metro94

## Diagram Scale:
1cm = 5.698km

### Coverage Features:

<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td>1</td>
<td>64365</td>
<td>136</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TICS</td>
<td></td>
<td>48940</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td>21016</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>290871</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Vegetation

Data relating to the botanical/biological classification of the land surface. This includes natural vegetation, which may be subject to various levels of disturbance, as well as revegetated areas and plantations.
DATA DICTIONARY

NAMES
auguvec
beveveg
bunbvec (1)
bussvec
capevec
chitvec
collvec
dardvec
donnvec
gingvec
harvvec
murrvec
nannvec
norsvec
toodvec
victvec
waroveg
yorkvec

TYPE
Arc/INFO polygon coverage.

DESCR
Remnant vegetation.

EXTENT
Shire-by-shire basis.

PROJECT
AMG zone 50.

SCALE
1:50,000 to 1:100,000.

SOURCE
Agriculture Western Australia.

ORIGIN
- Photographs and black and white orthophotomaps dating to the early 1980s. Initial capture of information is generalised due to the relatively short time-frame for this project. Several missing areas (which are not regrowth) have been noted. Combined with some recent clearing, this means that this information can only serve as a fairly general regional overview of remaining vegetation.
(1) Digitised from 1993, 1:25,000 orthophotomaps (sheets: 203IIIse, 203IIIsw, 203IIIIne by Dennis van Gool and Werner Runge, Agriculture Western Australia, October 1995). No fieldwork was undertaken to verify the vegetation categories.

CONTACT
1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
2: Spatial Resources Information Group, Agriculture Western Australia (Greg Beeston).

HISTORY
- All coverages are derived from MicroStation design files of the same name (minus the 'veg' extension (lines: level 34, text: level 44) kept by Agriculture Western Australia.
- Sliver polygons were eliminated using the Arc/INFO command "reselect area <500 sqm and mapu-code = 0".
(1) Those polygons with an area >500 sqm and no mapu-code were located on aerial photos and assigned attribute values, 1995. (See './/veg/cpfix' under ASSOC).

REF

ASSOC
'.//veg/cpfix' (coverage). Those polygons along the coastal plain which were corrected from aerial photos and used to update the relevant coverages (see HISTORY).

*** INDEX TO .PAT ITEMS ***

mapu-code:
Remnant vegetation type:
mapu-code  description
----------------------------------------
R         Remnant
S         Scattered
M         Modified
X         Salt affected
H or C    Hole or Clear
Coverage Name: /danimu/agdepc/veg/gingveg

<table>
<thead>
<tr>
<th>Coverage Features</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td></td>
<td>11855</td>
<td>36</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>POLYONS</td>
<td></td>
<td>2646</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td></td>
<td>11808</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIES</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td>81954</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td></td>
<td>2645</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Diagram Scale: 1cm = 4.852km

Location:
NAME: bodveg

TYPE: Arc/Info polygon coverage.

DESCR: Vegetation and land use.

EXTENT: Boddington area.

SCALE: 1:50,000.

PROJECT: AM3 zone 50.

SOURCE: Agriculture Western Australia.

ORIGIN: DOLA 1993 1:25,000 orthophoto maps, but includes updates for horticulture areas by Keith Bradby obtained during the Peel-Region survey 1994 for the Peel Development Commission, Mandurah.

CONTACT: 1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
          2: Spatial Resources Information Group, Agriculture Western Australia (Greg Beeston).

REF: Information is similar to Van Gool, D (1993). 'Preliminary Vegetation and Land Use in the Peel Harvey Catchment Area', Department of Agriculture.

ASSOC: vegcoas (coverage). 'bodveg' was added to vegcoas to complete the vegetation and land use mapping in the Peel region.

*** INDEX TO .PAT ITEMS ***

MAPU-CODE: Main polygon identifier.

DIS: see '../workdir/phedit/disselect.aml'

DIS2: see '../workdir/phedit/disselect.aml'

*** INDEX TO .LUT ITEMS ***

symbol_1: shadesymbol number used for shading the broad categories of map units described in 'description_1'; to be used with shadeset 'cmyk.shd'.

description_1: description of map units grouping them into broad categories.
### Coverage Features:

<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td></td>
<td>12658</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGONS</td>
<td></td>
<td>7018</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td></td>
<td>9671</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TICS</td>
<td></td>
<td>7017</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td>268677</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td></td>
<td>7017</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Coverage Name:

/data/shape/data/veg/hoodveg

### Diagram Scale:

1cm = 5.712km

### Location:
NAME: metro

DESCR: Remnant vegetation (based on 1994 aerial photo interpretation and substantial field checking).

EXTENT: Perth metropolitan region.


ORIGIN: - This coverage was produced by Cathy Keenan from the National Trust, working for the Perth Environment Project (PEP) February-June 1994.
- Most of the remnant vegetation coverage is based on aerial photography dated January 1991. Photographs dated February 1989 were used if 1991 were absent. The coverage was edited against a December 1992 SPOT-LANDSAT image background.
- Steve Connell conducted extensive field checking between September and December 1994, and digitised the amendments January 1995.
- Areas of remnant bushland interpreted from aerial photographs were hand drawn on 1:10,000 map sheets which were used to digitise the original coverage. Some polygons, but not the larger more complex ones, were moved from the original digitised coverage to match the satellite image background. Much of the Darling Scarp area was digitised directly from the satellite image background.

CONTACT: 1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).
          2: Ministry for Planning (formerly 'DPUD'), Jim Dixon or Steve Connell.

NOTE: - The data set is only a 'snapshot' of a changing situation.
- A conservative approach was taken when digitising because of difficulty in distinguishing between remnant and non-remnant vegetation, especially when aerial photographs were not available. If a polygon was present in the original coverage and the image appeared too dark to discriminate remnant from non-remnant vegetation, then that polygon remained. Similarly, a polygon would not be added unless clear boundaries were apparent on the image. Rivers were incorporated in the polygons identified as remnant vegetation bordering a river.
- Updates will be required periodically because of further clearing.

*** INDEX TO .PAT ITEMS ***

VEGCODE: Remnant bushland indicator. Bushland was defined as: Land on which there is vegetation which is either a remainder of the natural vegetation of the land, or if altered, is still representative of the structure and floristics of the natural vegetation and provides the necessary habitat for native fauna (National Trust 1993).

vegcode  description
----------
  v  Remnant bushland
  w  Water areas not containing remnant bushland e.g. dams
  n  Areas not containing remnant bushland.

CONDITION: Vegetation condition. Note 'deg'd' stands for degraded and 'senesc' for senescent.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level</td>
<td>&gt;50</td>
<td>25-50</td>
<td>&lt;25</td>
<td>0</td>
</tr>
<tr>
<td>disturbance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low level</td>
<td>&gt;75</td>
<td>50-75</td>
<td>25-50</td>
<td>&lt;25</td>
</tr>
<tr>
<td>disturbance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>absent</td>
<td>local</td>
<td>general</td>
<td>general</td>
</tr>
<tr>
<td>recruitment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>senesc.</td>
<td>senesc.</td>
<td>good</td>
<td>good</td>
</tr>
<tr>
<td>structure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical strata</td>
<td>loss &gt;75</td>
<td>loss 25-75</td>
<td>loss &lt;75</td>
<td>intact</td>
</tr>
<tr>
<td>Community</td>
<td>&gt;75</td>
<td>25-75</td>
<td>&lt;25</td>
<td></td>
</tr>
<tr>
<td>diversity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>very deg'd</td>
<td>deg'd</td>
<td>good</td>
<td>very good</td>
</tr>
</tbody>
</table>

ECO_SCORE: Ecological score. Open-ended, non-zero score from 0.0001 to about 32. Values derived by Dr Steve Connell, botanist to the PEP project.
<table>
<thead>
<tr>
<th>Feature Class</th>
<th>No. Subclasses</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td></td>
<td>4645</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYONS</td>
<td></td>
<td>4453</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td></td>
<td>4538</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TICS</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td>181605</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td></td>
<td>4452</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NAME       vegcoas
TYPE       Arc/info polygon coverage.
DESCR      Vegetation and land use.
EXTENT     Peel-Harvey Coastal Catchment area.
SCALE      1:50,000.
PROJECT    AMG zone 50.
SOURCE     Agriculture Western Australia.
ORIGIN     Department of Land Administration 1991 1:25,000 orthophoto maps, but includes updates for horticulture areas by Keith Bradby obtained during the Peel Region survey 1994 for the Peel Development Commission, Mandurah.
CONTACT 1: Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge). 2: Spatial Resources Information Group, Agriculture Western Australia (Greg Beeston).
ASSOC      bod veg (coverage). 'bod veg' consists of similar mapping for the Peel region but based on 1993 photos.

*** INDEX TO .PAT ITEMS ***

MAPU-CODE  Main Polygon identifier.
DIS        see '.../workdir/phedit/disselect.aml'.
DIS2       see '.../workdir/phedit/disselect.aml'.

*** INDEX TO .LUT ITEMS ***

symbol_1   shadesymbol number used for shading the broad categories of map units in 'description_1'; to be used with shadeset 'cmyk.shd'.
description_1 description of map units grouping them into broad categories.
<table>
<thead>
<tr>
<th>Coverage Features:</th>
<th>Diagram Scale: 1cm = 5.697km</th>
<th>Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature Class</td>
<td>Number of Features</td>
<td>Attribute data(bytes)</td>
</tr>
<tr>
<td>ARCS</td>
<td>16055</td>
<td>32</td>
</tr>
<tr>
<td>POLYONS</td>
<td>7873</td>
<td>54</td>
</tr>
<tr>
<td>NODES</td>
<td>11679</td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TICS</td>
<td>7874</td>
<td></td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td>283700</td>
<td></td>
</tr>
<tr>
<td>POLYON LABELS</td>
<td>7874</td>
<td></td>
</tr>
</tbody>
</table>
Other

Data which does not easily fall into any of the other classes.
NAME          cwatowns
TYPE          Arc/Info point coverage.
DESCR         Townsite locations.
EXTENT        Western Australia.
PROJECT       AMG zone 50.
SCALE         Unknown (but from observation not more detailed than 1:250,000).
SOURCE        Agriculture Western Australia.
ORIGIN        Unknown.
CONTACT       1: Natural Resources Assessment Group, Agriculture Western Australia
              (Dennis van Gool or Werner Runge).
              2: Spatial Resources Information Group, Agriculture Western Australia
              (Greg Beeston).
HISTORY       - A significant number of smaller towns was added (mainly along the
              coastal plain between Gingin and Augusta).
              - Some town centroids along the coastal plain were shifted to bring
              them into closer alignment with the actual town centre.

*** Index to Annotation Sub-classes ***

cpshet<no>    Where <no> is a number between 1 and 8. Town names for the eight
              1:100,000 map sheets of the coastal plain mapping series. To be
              used with textset 'font.txt'.
<table>
<thead>
<tr>
<th>Coverage Name:</th>
<th>Coverage Features:</th>
<th>Diagram Scale:</th>
<th>Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>/diruma/agdept/other/owatowns</td>
<td>Feature Class</td>
<td>No. Subclasses</td>
<td>Number of Features</td>
</tr>
<tr>
<td>ARCS</td>
<td></td>
<td>1</td>
<td>153</td>
</tr>
<tr>
<td>POINTS</td>
<td></td>
<td>12</td>
<td>169</td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>TICS</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>ARC SEGMENTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAME</td>
<td>wacoast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td>Arc/Info polygon coverage.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DESCRIPT</td>
<td>Western Australian coastline.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXTENT</td>
<td>Western Australia.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROJECT</td>
<td>AMG zone 50.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCALE</td>
<td>1:100,000.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOURCE</td>
<td>Unknown.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORIGIN</td>
<td>Unknown.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTACT</td>
<td>Natural Resources Assessment Group, Agriculture Western Australia (Dennis van Gool or Werner Runge).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Coverage Features

<table>
<thead>
<tr>
<th>Feature Class</th>
<th>Number of Features</th>
<th>Attribute data (bytes)</th>
<th>Spatial Index?</th>
<th>Topology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCS</td>
<td>4535</td>
<td>36</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>POLYGOINS</td>
<td>4122</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NODES</td>
<td>4535</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANNOTATIONS</td>
<td>8</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCS</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARC_SEGMENTS</td>
<td>248462</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLYGON LABELS</td>
<td>4121</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Coverage Name:** Aluruma.agdept/other/wacoast

**Diagram Scale:** 1cm = 121.559km

**Location:**

---

65
Glossary

.AAT  Arc Attribute Table. A database table which is linked to arc features and contains the descriptive or attribute information associated with that particular graphic entity.

.PAT  Polygon or Point Attribute Table. A database table which is linked to either points or polygons features and contains the descriptive or attribute information associated with that particular graphic entity.

Arc/Info  High end Geographic Information System (GIS) software package. Vendor of Arc/Info is ESRI Australia Pty Ltd (Environmental Systems Research Institute).

Arcedit  Subprogram within Arc/Info. The Arcedit program allows for the manipulation and editing of spatial data.

Attribute data  Descriptive information associated with a geographic feature. Attribute data is stored in tabular format.

Coverage  A digital data theme consisting of a set of thematically associated graphic and attribute data. In Arc/Info each coverage represents one directory.

Data set  A set of thematically associated graphic and attribute data. Each data theme is known as a coverage within Arc/Info.

Design file  Mapped features held in a binary file format suited to the MicroStation CAD (computer aided drafting) software. These files are also referred to as IGDS files (Interactive Graphic Design Software), a registered trade mark of Intergraph Corporation.

Feature class  Basic graphic entity which can be represented in a coverage. The feature classes supported by Arc/Info include arcs, nodes, label points, tics, annotations etc.

IGDS  (See Design file)

Label  Single data point. Labels are located within polygons and are used to link the polygon to its attribute information. Each polygon must have one and only one label.

Map scale  A large scale map refers to one which shows a relatively small portion of the earth’s surface in relatively great detail (e.g. scale 1:25,500). A small scale map shows a relatively large portion of the earth’s surface in little detail (e.g. 1:1,000,000).

Meta data  Descriptive information explaining the data set’s characteristics, such as what it shows, date and method of creation, accuracy and ownership.
MicroStation  High end computer aided drafting (CAD) software package produced and sold by the Intergraph Corporation.

Relate  Operation which establishes a temporary connection between two files in a database. During a relate operation corresponding records in the two database files are connected using an item common to both files.

Topology  The spatial relationship between connecting or adjacent geographic entities. Topology is created (and stored within Arc/Info’s database) via a process known as ‘building’ the coverage.

Related publications
