

Preface

The purpose of this study has been to provide essential soil and land information that can be used to guide land management and related policies across the CCMA region of Victoria. Continuous improvement and application of improved farming systems provide the key drivers for land use change and sustainable land management, and this process requires better soil information. The 1:100 000 scale soil-landform survey for this region complements a similar study for the neighbouring Glenelg-Hopkins CMA (Baxter & Robinson 2001) and completes the work at this scale for south-west Victoria.

Although a number of historical land resource surveys have been undertaken within this region, they cover smaller areas, or are at coarser scales with less detail. The Corangamite Land Resource Assessment (CLRA) project undertaken by Primary Industries Research Victoria now provides a comprehensive, consistent soil-landform survey for this region.

The data gathered during this project has been used to develop land hazard degradation susceptibility maps. However, the availability of soil-landform data and soil point data allows for more specific and detailed applications in future including catchment modelling, scenario modelling and possibly future redesign of landscapes for sustainability. It will enable a clear understanding of the potential to develop land for agriculture and identify limitations linked to the natural resource base. The ability to access detailed soil point information and soil-landform units will benefit many modelling applications currently used to assess land resource management and water quality aspects such as Land Use Impact Model (LUIM), Soil and Water Assessment Tool (SWAT) and the Catchment Assessment Tool (CAT). Soil point information is stored in the Victorian Statewide Soil Site Database (VSSD) which allows access to soil point information for incorporation in spatial models.

At the map scale of this project (1:100 000), soil-landform units are not homogeneous. Often a co-dominant and minor soil type have been described as part of this process. Importantly it should be noted that, at this mapping scale, soil attributes (for example soil depth, soil structure, size and abundance of coarse fragments, sodicity, pH) are expected to vary within map units.

As the variability of soil attributes within a map unit is difficult to predict, it is important to note that representative soils should be used as a guide only. Site specific mapping and soil analysis is essential prior to establishment of any new development or enterprise.

Map unit and detailed soil profile information can be accessed in either Internet Explorer or Netscape Navigator from Adobe Acrobat files included on this CD-ROM via the [index](#) htm file.

Documents and their relationship in this report

Regional scale and geomorphic setting

The Corangamite CMA region comprises three broad geomorphic divisions including the Western Uplands, Western Plains and Southern Uplands. This framework provides a setting for landscapes at detailed scales including subdivisions of the geomorphology and the relationships with soils and landscapes. Second and third tier divisions have been described.



Balson et al. (2015) Geomorphic Land Resource Assessment, DPI Victoria

K.1.5 Alluvium, alluvial terraces, floodplains and coastal plains of the Sedimentary Western Plains

Alluvium, alluvial terraces and floodplains are prevalent in the valley floors of the dissected sedimentary plains of the Victorian region. The extensive coastal plain occurs across the Mullock Northland, west of the upland Bullock Block. This area was a shallow swampy flats during the last interglacial (ca 120 000 years ago) and the Holocene maximum (ca 6000 years ago) (Madsen 1989). Associated soil types include modified soils under natural soils, grey and black cracking clays and some dark loams.



| Soil-landform unit | Original unit ID | Unit description | Area (ha) |
|--------------------|------------------|---|-----------|
| 87 | 27 | Alluvial plain and valley sides (Dissected River) | 76 |
| 87 | 301 | Extensive longitudinal coastal dunes (Cape Chen) | 36 |
| 82 | - | Undulating rises and plains (St Leonards) | 26 |
| 91 | - | Floodplains (Barwon River and its tributaries) | 27 |
| 96 | - | Floodplains (Gallipool, Aar and Barwon rivers) | 3 |
| 100 | 107 | Gently undulating heathes (Ringside) | 2 |
| 101 | 101 | Alluvial plain (Pines Valley) | 37 |
| 102 | 223 | Alluvial plain (Pines/Flood) | 1 |
| 103 | 101 | Gently undulating plains (east of Kingshill) | 1 |
| 104 | 109 | Swampy plain (Pines Valley) | 1 |
| 105 | 211 | Gently undulating plain (Kingshill) | 23 |
| 106 | 208 | Undulating plains (Barwon Heads) | 10 |
| 107 | - | Level and gently undulating plains (Lismore Creek) | 2 |
| 108 | - | Flat floodplains | 5 |
| 109 | - | Dissected undulating plains and river flats (Lismore) | 12 |
| 200 | 2 | Swampy and depression (east of Stone Mallee) | 12 |
| 203 | 138 | Swampy and flat (Lodge Mallee) | 13 |
| 204 | 200 | Flat extensive floodplains with broad channels (L.A.) | 2 |

23 third tier geomorphic unit descriptions

Soil-landforms

Over 200 soil-landforms have been defined for the region. All units relate to a geomorphic setting (third tier geomorphic units) and contain soils, landform, climate, vegetation and land characteristic information. All soil-landforms described include photographs of the general landscape setting, as well as 3-D block diagrams and topographic section profiles. For each soil-landform appropriate soil sites are listed.



Balson et al. (2015) Geomorphic Land Resource Assessment, DPI Victoria

Soil-landform unit 82

Area: 4020 ha
0.37% of CMA region

This unit of undulating rises and plains includes a few occurrences on the Ballarinn Peninsula on a floodplain in the Coleraine area sitting on Neogene terrain (plains) and to the south of Forsterlington at a lower elevation east of the Neogene plains. Unit components comprise dunes and depressions. The soils are sands (Entosols, Dystricols) or sands over clay (Chromic) the steep dunes are very rapidly drained but susceptible to wind and sheet erosion, particularly where vegetation cover is removed. Nutrient decline (nitrogen) is also a susceptibility. Land use is grazing (sheep and beef), minor cropping, recreation and mineral extraction.



Looking east along the Drysdale-St Leonards Road over Neogene swamped plains and rises

204 soil-landform descriptions

Soils

Soil point or site information including pits, cores, cuttings and other exposures provides the greatest level of detail for the region. Over 165 profile descriptions along with chemical and physical data and management considerations, have been included in the report.



Soils of the region have also been broadly grouped on the basis of parent material, texture and key physical or chemical properties important for management.



Notes: Balson et al. (2015) Geomorphic Land Resource Assessment, DPI Victoria

165 soil site descriptions and datasheets