

# Soils of the Western Port Region

Fact Sheet series for the  
Small Rural Landholder

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## What soil do I have on my property?

### **Managing soil is a complex issue.**

There are many questions landholders can ask to help determine key properties. For example: Do I have a sandy soil with good drainage but poor fertility? Do I have a red to brown volcanic loam soil that appears to be more fertile? Perhaps I have a gravelly granitic clay soil.

This fact sheet explores the major soil types across the Western Port region and discusses their properties to help align enterprise type with appropriate landuse capability.

All rural landowners need to be aware of their soil types and how best to manage them. Given that the earth's topsoil ranges from 1cm or less to 40cm there is a responsibility of landowners to ensure this precious resource is protected and well managed.



## Soils are derived from rocks

The oldest rocks in the Western Port region were deposited during the Silurian period (approximately 410 - 440 million years ago), and outcrop near Pakenham, Langwarrin and Pearcedale.

During the Devonian to the beginning of the Cretaceous period (~ 250million years ago) the uplifted land was eroded away leaving an almost level plain and exposed areas of Devonian granite, which is now exposed in the Dandenong Ranges, Tynong, and Baw Baw areas.

In the late Jurassic and early Cretaceous periods (96-160 million years ago), sediments were deposited into a basin, along with swamp material, which once compacted, formed coal seams which can be found in parts of the region.

Lava flows during the upper Cretaceous and early Tertiary period (20-40 million years ago) filled many of the valleys. In some areas Tertiary and Quaternary sediments have covered these basalts.

Extensive faulting resulted in the formation of Port Phillip and Western Port Bays.

## Rocks weather to soils

Through the process of weathering, chemical, physical and biological elements combine to render ancient rocks into finer particles. Together with organic materials, over time they form the basis of the soils and their profiles we see today.

## The Landscape

The Port Phillip and Westernport region covers some 12,785 square kilometres.

It represents approximately 5.6 % of Victoria's total area.

The Gippsland Plains occupy an area between Melbourne and Drouin where uplifted marine sediments and sands occur with extensive swamplands at Carrum and Kooweerup. Significant remnant vegetation and threatened flora and fauna occur in over 900 wetlands of the region.

## Land classing

Land classing ranks land on its suitability for agricultural and horticultural production and identifies land more suited to non-agricultural activities. This evaluation includes assessment of the biophysical, economic and social factors that potentially could constrain the use of the land for particular horticulture and agriculture enterprises.

Knowledge of the landscape described above will dictate the relative suitability of land for these activities and will help with the development of plans to implement sustainable production systems.

Agricultural production enterprises across the Western Port Catchment are largely determined by the soils and their inherent fertility.



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## COMMON GROUND



### Practical resources

The Department of the Environment and Primary Industries (DEPI) Victorian Resources Gateway can provide detailed information on the geology and geomorphology of the Western Port region. This resource informs readers how the area was formed and, as a consequence, how the different soils were formed.

The DEPI Victorian Resources Online Gateway also provides a Land Classing kit which explains how to identify and classify landscapes. This can assist landowners in their whole farm planning to ensure appropriate and sustainable land use for their property.

*A comprehensive soil survey titled, "Soil Survey Western Port Catchment by I.J. Sergeant, Report No. 52, 1975 can be found by at: <http://vro.agriculture.vic.gov.au>*

*Regional Guide to Victorian Geology [http://vic.gsa.org.au/Victorian\\_Geology/Guides/Regionalsmall.pdf](http://vic.gsa.org.au/Victorian_Geology/Guides/Regionalsmall.pdf)*



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### Soils of Western Port

There are a number of soil mapping units that comprise the major soil types seen in the region. It is the characteristics of these units that identify them with specific production systems.

Seven of these major soil types have been selected to illustrate the type of agricultural production they support.

#### Jindivick (J)

These soils occur in the northern part of the catchment. They have developed on Devonian granite. Soils are dark brownish grey sandy loams occasionally containing coarse sand and gravelly fragments. Forestry is predominant with some grazing. The soils have a moderately acid pH range of 5.6 - 6.7.

#### Strzelecki (S)

These soils occur in the upper Lang Lang and Bass River regions and encompass the Strzelecki Ranges.

The surface soils are dark greyish-brown or brown clay loams with moderate organic matter. They have a moderate soil acidity pH of 5.9.

The soils are moderately fertile and the major land use is grazing of either beef or dairy cattle. The soils are low in phosphorus, sulphur, molybdenum and copper.

#### Warragul (Wg)

These are the red soils occurring in the undulating hills around Gembrook, Jindivick, Neerim South, Warragul. They are deep clay loams and very fertile. The major land use is dairy, beef and cropping. The soils are dark reddish brown or dark brown with a very friable clay loam surface grading into red or brownish red crumbly clay loam or light clay at about 20 to 40 cm. Textures generally increase to medium clay at about 1 m.

#### Athlone (A)

These soils occur on the undulating topography around Drouin West, Drouin South, Athlone, Hallora, Nyora, parts of Ripplebrook, and west of Poowong. They have developed on Cretaceous sandstones and mudstones or Tertiary sands and clays.

The soils are generally dark greyish brown fine sandy loams and strongly acid at pH 5.1. They are elementally poor in phosphorus, potassium and molybdenum and respond well to fertiliser. Poor drainage and pugging can be an issue.

#### Monomeith (M)

This soil type occurs on the extensive plains southwest of the former Kooweerup swamp. The soils are grey or brownish grey clay loams or light clays overlying a slightly yellow-brown mottled clay.

The soils mainly carry improved pastures grazed by cattle. In wet winters stock may pug the soil badly, leaving a very hard and uneven surface in summer. The soils are strongly acid with a pH of 5.0-5.8.

#### Dalmore (Da)

The soil is a fertile, self-mulching black friable clay about 200 mm deep strongly acid with a pH from 4.7- 5.9. At about 700 mm, a thin layer (about 100 mm) of black peaty clay overlies a grey impervious clay.

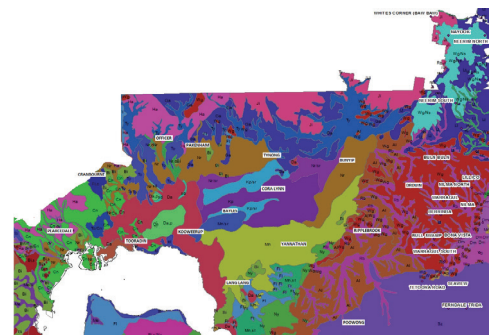
These soils usually have a very high organic matter. They are found on much of the 'Kooweerup Swamp' area at Cora Lynn, Iona and Bayles.

The soil is highly sought after for growing a wide range of vegetables including asparagus.

#### Narre (Nr)

These soils occur on the plains adjoining the granite foothills in the northern part of the Catchment. The majority of the surface soils are dark brownish grey clay loams. Soils are moderately acid with a pH of 5.5.

Drainage is generally poor and in some situations water can pond. These soils are mainly used for grazing cattle and must also be managed to minimise structural damage from livestock during extended wet periods.



Soil Landform mapping of the Western Port region.

#### **Disclaimer: Western Port Catchment Landcare Network (WPCLN)**

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