Soils of Bass Coast 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, or 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 Bass Coast region and discusses their properties in terms of what enterprises they might best support.

All rural landowners should 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, landowners have a responsibility to ensure that this precious resource is protected and well managed.



Soils are derived from rocks

Cambrian greenstones (600 million years) are the oldest rocks in the Bass Coast region outcropping on Phillip Island. Silurian sandstones and mudstones (430 million years), and Devonian granite (400million years) are also seen here along with Tertiary basalts, which cover most of the island and part of French Island.

Cretaceous sediments deposited (~ 135million years ago) occupy the majority of the Bass Coast mainland area.

In the late Jurassic and early Cretaceous periods (96-160 million years ago), sediments were deposited into a basin, along with swamp material. Once compacted, this formed coal seams in the Wonthaggi area.

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

Rocks weather to soils

Through the agency of weathering, chemical, physical and biological elements combine to render ancient rocks into finer particles that together with organic materials, over time form the basis of the soils and soil profiles that we see today.







The Landscape

Bass Coast has environmental and landscape values of regional and national significance. These include Ramsar listed wetlands, marine parks and remnant native vegetation covering 864 square kilometres.

This environment contains fragmented natural landscapes with large patches of remnant native vegetation that has significant biodiversity values. It has 180 kilometres of coastline, wilderness areas and productive farmland on a range of topographical landscapes.

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 across the Bass Coast region is largely determined by the soils and their inherent fertility.



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

Five of these major units have been selected to illustrate the type of agricultural production they support.

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 Bass Coast 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 which can assist landowners with their whole farm planning to ensure appropriate sustainable land use for their property.

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

Regional Guide to Victorian Geology http://vic.gsa.org.au/Victorian Geology/Gu ides/Regionalsmall.pdf





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Flinders (Fl)

All of the soils overly early tertiary basalts. Most of the surface soils are dark brownish grev clay loams or very fine sandy clay loams. They cover most of Phillip Island and outcrop on French Island. They are either sown to improved pastures for dairy and beef production or used for more intensive horticulture such as vegetable crops and cut flowers. They have a moderate pH (6.1).

Dalmore (Da)

These soils occur to the SW and NW of Bass. Two types of soil can be identified. however both have very dark grey medium or heavy clay textures. Dalmore soils have good crumb structure, are high in organic matter and used for market gardening and improved pasture. When wet, soil compaction can be an issue, through over cultivation or trafficking with heavy equipment, which impacts on root penetration and water logging. The soils are generally very acid pH (4.7).

Monomeith (Mn)

These soils occur extensively to the south and east of Bass.

The surface soils are grey or brownish grey clay loams or light clays. These soils carry cattle on improved pastures.

The soils are prone to pugging in wet conditions and, on drying, result in hard setting surfaces. They are acid soils around pH (4.5).

Strzelecki: (Sz)

These soils occur to the West of Kilcunda and embrace the southern end of the Strzelecki Ranges around the Woolamai area.

The surface soils are dark greyish brown or brown clay loams with moderate organic matter levels which grade into yellowish greybrown clay loams or light clays at about 35 cm.

The Cretaceous geology influences the texture of the soil and can be either sandy or a clay rich loams. They have a moderate pH (5.9).

Where the major landuse is grazing (beef or dairy cattle) the soils are moderately fertile. However, they are low in phosphorus, sulphur, molybdenum and copper.

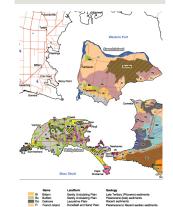
Nyora (Ny)

Most of these soils have grey or dark grey loamy sand surfaces with low to moderate amounts of organic matter.

A significant bleached zone occurs at about 30cm with a coffee rock layer from 90cm.

These soils have low fertility and require phosphorus, potash and trace elements to establish pastures They are strongly acid with a pH of (4.7).

Recently vegetable production has started to be introduced on these soils.





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Gippsland region including Phillip Island and French Island

Disclaimer: Bass Coast Landcare Network (BCLN)

All effort has been made to give true representation, provide accurate information and apply comprehensive knowledge to this document. However, BCLN does not guarantee the accuracy nor the conclusions drawn from this information and therefore should not be relied upon solely for decision making purposes.