Soils of Phillip Island French Island

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.

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 Phillip Island and French Island 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 there is a responsibility of landowners to ensure that this precious resource is well managed.



Soils are derived from rocks Phillip Island

Cambrian greenstones (600 million years) are the oldest rocks in the Bass Coast region, outcropping on Phillip Island.

Silurian sandstones and mudstones (430million years), and Devonian granite (400million years) are also seen here.

Cretaceous sediments were deposited in a basin (~135million years ago) and can be seen in areas around Rhyll. Tertiary basalts cover most of the island.

French Island

Cretaceous sediments (~135 million years old) of sandstones and mudstones are the main geological elements with small outcrops of Tertiary basalts in the south of the island. Quaternary (~1 million years old) windblown sands and morerecent swamp and intertidal deposits complete the geology.

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

Phillip Island has environmental and landscape values of national significance attracting over a million visitors per year. Ramsar listed wetlands, world class beaches, basalt cliffs, remnant native vegetation, rolling hills and grass lands supporting beef grazing and more intensive agriculture are some of the wide range of landscapes to be seen.

French Island has low relief with extensive sand sheets and swamp deposits containing a network of freshwater wetlands. Extensive mangrove areas, mudflats occur on the coast with steep hills towards the centre. Remnant vegetation supports a wide array of fauna. Cleared areas support low level grazing regimes and other increasingly diverse agricultural practices.

Land classing

Land classing ranks land on its suitability for agricultural and horticultural production and identifies land more suited to nonagricultural activities. This evaluation includes assessment of the biophysical, economic and social factors that potentially could constrain the use of the land for horticulture and agriculture. Knowledge of the landscape described above will dictate the relative suitability of land for these activities and will help with the development of plans and actions for sustainable production.

Viable agricultural production on both these islands is largely determined by the soils and their inherent fertility.









Soils of Phillip Island & French Island







Practical resources

The Department of Land, Water Environment, and Planning (DLWEP) formerly the Department of the Environment and Primary Industries, can provide detailed information on the geology and geomorphology of the Bass Coast region, which informs readers how the area and its 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 in their whole farm planning ensuring the 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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Soils of Phillip Island

The soil-mapping units are dominated by soils derived from the Tertiary basalts and it is their characteristics that identify them with agricultural production on the island.

Flinders clay loams

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



Soils of French Island

French Island sandy loams (Fl)

Most of these soils are wind blown sediments. The better-drained soils are dark grey with a loamy texture. Semi permanent swamps occur on the low areas. The pH is about 6.3.

Coffee rock occurs at about 60 cm above the mottled yellow-brown and light grey medium or heavy clay subsoil.

Stock is grazed on the cleared land with some horticultural activities such as olives and nut trees taking place on the better-drained soils.

Merricks Association (Me)

These soils are dark grey very fine sandy clay loams overlying a bleached layer with similar textures.

The soils in this landscape are mostly cleared cleared and support pasture based grazing. The pH of the surface soils is around 5.0 to 6.0.

Merricks Clay Association (Mc)

These dark grey to brown light clay soils occur around the middle of Phillip Island. Surface soils are subject to cracking but have a medium to strong structure.

Some of these soils have high water tables and are saline. They have a pH of about 5.7. This soil also supports grazing enterprises.

Bittern sandy loams (Bi)

The surface soils are dark greyish brown fine sandy loams to fine sandy clay loams with a bleached zone occurring below them.

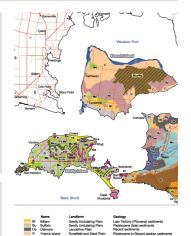
Most of these areas are now cleared and support improved pastures.

Nyora sandy loam soils

These soils are found to the north of French Island. They have a grey or dark grey loamy sand surfaces with low to moderate amounts of organic matter.

The soils are low in fertility and require elements such as phosphorus and potash as well as trace elements for pasture establishment. They are best suited to light grazing.

They are acid sols with a pH of about (4.7).





Soils of Phillip and French Islands

Disclaimer: Bass Coast Landcare Network (BCLN)

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