

Soils of the South Gippsland 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 South Gippsland 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

Silurian sandstones and mudstones (400-430 million years) are the oldest rocks in the South Gippsland region, outcropping in the Cape Paterson area. Outcrops of Devonian granite (400 million years) can be seen towards Wilsons Promontory. Tertiary basalts (10-40 million years) occur widely around Warragul, Mirboo North and Leongatha.

Cretaceous sediments deposited (~135million years ago) occupy the majority of the South Gippsland region.

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, these formed coal seams in the Wonthaggi and Korumburra areas.

A tectonic belt that stretches across southern Victoria is responsible in South Gippsland for numerous episodes of faulting, resulting in the block mountains you see today.

Rocks weather to soils

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

The Landscape

South Gippsland covers an area of approximately 3,305 square kilometres

including hundreds of kilometres of spectacular coastline, picturesque rivers, and forests.

The diversity in its geographical landscape is a result of its geological history where significant faulting and uplift of sediments occurred. Striking granite peaks at Wilsons Promontory with its array of local flora contrasts with the lush rolling hills supporting dairying, vineyards and other agricultural activities.

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 for sustainable production.

Agricultural production across the South Gippsland region is largely determined by the soils and their inherent fertility.



Typical Strzelecki (Sz) soil core



Soils of the South Gippsland Region

COMMON GROUND

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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 South Gippsland region. This resource informs readers on how the area was formed, and as a consequence, what soils are now seen.

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 and 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/Guides/Regionalsmall.pdf



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Soils of South Gippsland

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

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

Athlone (Al)

The soils occur on the undulating areas around Drouin, Athlone, Nyora and Poowong.

They generally range from dark greyish brown fine sandy loams to finer silty loams and are elementally poor in phosphorus, potassium and molybdenum, but they respond well to fertiliser inputs. They are strongly acidic with a pH (5.1). They are poorly drained so pugging can be an issue.

These areas are extensively sown to improved pasture grazed by cattle.

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 30 cm with a coffee rock layer from 90cm. These soils have low fertility and require phosphorus and potash as well as trace elements to establish pastures. They are strongly acid with a pH of (4.7). Recently vegetable production has been introduced on some of these soils.

Ripplebrook (Rb)

These soils have developed on the valley floors in the eastern part of the catchment. They have a blocky structure. Once forested, they are now cleared and sown to improved pastures.

The surface soils are generally grey in colour and a silty to sandy clay loam in texture. At 60cm the clay loam changes to a light to medium clay with some light brownish grey and yellow mottling. Soil pH is around (5.0). Soil profiles in these areas are prone to prolonged periods of saturation.

Strzelecki: (Sz)

These soils occur widely across the South Gippsland region in a belt from Fish Creek to Mirboo North.

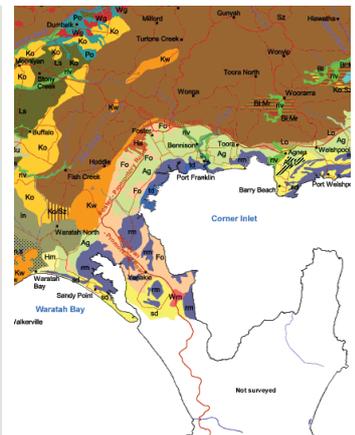
The surface soils are dark grey to brown clay loams with moderate organic matter levels which grade into yellowish grey brown clay loams or light clays at about 35cm. The Cretaceous geology influences the texture of the soil being either sandy or clay rich loams. They have a moderate pH (5.9).

The soils are reasonably fertile where the major land use is beef and dairy cattle grazing. The soils are low in phosphorus, sulphur, molybdenum and copper but respond well to fertilisers.

Warragul (Wg)

All of the soils overlie early tertiary basalts. Most of the surface soils are dark brownish grey clay loams or very fine sandy clay loams. They cover extensive areas around Leongatha and Mirboo North.

They are 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).



Map unit	Name	Landform	Geology
Al	Athlone	Undulating Plain	Palaeozoic (late) to recent alluvium & colluvium
Al	Athlone	Rolling Low Hills to Undulating Rise	Tertiary (Pliocene) sediments
Al	Athlone	Rolling Low Hills to Undulating Rise	Palaeozoic (late) sediments
Al	Athlone	Rolling Low Hills to Undulating Rise	Tertiary sediments
Al	Athlone	Rolling Low Hills to Undulating Rise	Palaeozoic sediments
Al	Athlone	Rolling Low Hills to Undulating Rise	Palaeozoic sediments with alluvial sediments
Al	Athlone	Rolling Low Hills to Undulating Rise	Tertiary sediments
Al	Athlone	Rolling Low Hills to Undulating Rise	Cretaceous sediments
Al	Athlone	Rolling Low Hills to Undulating Rise	Recent sediments
Al	Athlone	Rolling Low Hills to Undulating Rise	Recent alluvial sediments
Al	Athlone	Rolling Low Hills to Undulating Rise	Recent sediments (basalt)
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