

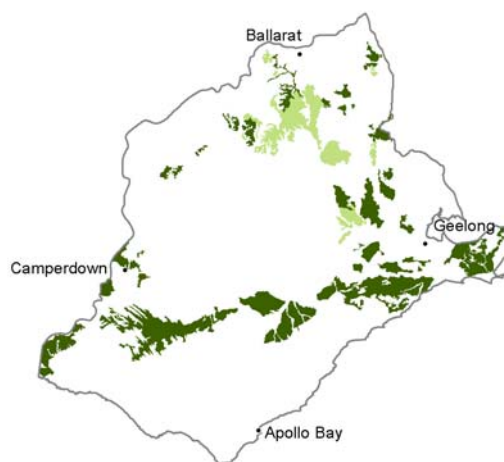
13. Grey and brown (occasionally black, yellow or red) mottled texture contrast soils on Neogene sediments

These soils are found on the gently undulating plains, rises or low level plateaux underlain by Neogene sediments (generally sands, often ferruginised) which are generally unconsolidated but often have an indurated pan or layer on which the soils have developed.

The surface soil is generally dark with organic matter but light in texture (sandy loam) and between 10 to 25 cm in depth over a (generally) lighter coloured subsurface (A2) horizon (20 to 30 cm depth) of similar texture to the surface but containing less organic matter. The apedal subsurface horizon is often bleached and may contain buckshot (ferruginous or ferromanganiferous nodules) of up to 50% volume of the subsurface horizon. These

horizons clearly contrast with a dark (black, dark grey or dark brown) strongly structured upper subsoil which then grades into a pale/red mottled lower subsoil which grades into weathered sediments or ferruginised sandstone at about 150 cm. The dark upper subsoil is a result of organo-clay translocation from above, coating the mottled soil aggregates or even replacing the mottle, and is a distinctive feature of soil development on this parent material.

Notable features include: the presence (or absence) of buckshot sitting on top of the subsoil, the sandy nature of the upper soil, occasional unbleached horizon which may be loose or weakly coherent, some sodicity of the lower subsoil, red and pale mottling of the subsoil, and the range of depth to parent material (60–150+ cm). The role of local climate, particularly rainfall, may influence soil development and such features as tiger mottles in weathered parent material are found further west in the CMA.



Soil sites

Site code	Soil-landform unit	Component	ASC	FK	1:100 000 mapsheet
CLRA2	77	Mid slope	Melanic-vertic Eutrophic, Black Chromosol	Db2.32	T7821 - SORRENTO
CLRA3	77	Mid slope	Bleached-sodic, Eutrophic, Grey Chromosol	Dy3.43	T7821 - SORRENTO
MM358	187	Mid slope	Mottled, Mesotrophic, Brown Chromosol	Dy3.51	T7521 - CORANGAMITE
MM361	170	Lower slope	Bleached-Mottled, Eutrophic, Brown Chromosol	Db2.41	T7521 - CORANGAMITE
MM363	175	Upper slope	Bleached-Mottled, Eutrophic, Black Chromosol	Dd2.42	T7521 - CORANGAMITE
OTR492	190	Lower slope	Eutrophic, Mottled-Subnatric, Brown Sodosol	Dy3.41	T7721 - GEELONG
OTR601	79	Mid slope	Ferric, Mesotrophic, Brown Chromosol	Dy3.11	T7721 - GEELONG

Department of Primary Industries

Site code	Soil-landform unit	Component	ASC	FK	1:100 000 mapsheet
OTR744	78	Hillcrest	Melanic, Mottled-Subnatric, Brown Sodosol	Dy5.22	T6721-COLAC
OTR783	161	Mid slope	Melanic, Dystrophic, Brown Chromosol	Db1.42	T7520 - PRINCETOWN
SW42	166	Upper slope	Melacic-Mottled (& Vertic), Eutrophic, Brown Chromosol	Dy3.32	T7521 - CORANGAMITE
SW60	159	Crest	Reticulate, Mesotrophic, Brown Chromosol	Dy3.41	T7520 - PRINCETOWN
SW65	181	Flat	Reticulate, Mesotrophic, Brown Dermosol	Dy3.11	T7521 - CORANGAMITE
SW66	170	Crest	Melacic-Mottled, Eutrophic, Brown Chromosol	Dy3.21	T7521 - CORANGAMITE
SW67	170	Mid slope	Bleached-Mottled, Eutrophic, Brown Chromosol	Db2.21	T7521 - CORANGAMITE
SW68	170	Crest	Bleached-Mottled, Eutoprhic, Brown Chromosol	Db2.41	T7521 - CORANGAMITE

Site code¹ OTR601



Location Wurdiboluc
Landform Plateau
Geology Neogene Hanson Plain Sand
Element Flat plain
Slope 0%
Aspect -

Ferric, Mesotrophic, Brown Chromosol

Pasture seed crops north of Torquay

Horizon	Depth (cm)	Description
A1	0–20	Dark yellowish brown (10YR4/3); fine sandy loam; apedal single grain structure; occasional ironstone gravel; clear boundary to:
A3	20–30	Yellowish brown (10YR5/6); with some red (2.5YR5/8); mottles; light clay; moderate very fine (3 mm) subangular blocky structure; ironstone gravel common; gradual boundary to:
B21	30–90	Mottled yellowish brown (10YR5/6); and red (2.5YR5/8); medium clay; strong very fine (2 mm) angular blocky structure; clay skin cutans; abundant ironstone gravel; diffuse boundary to:
B22	90+	Mottled dark yellowish brown (10YR4/6); light–grey (2.5YR7/1); and red (10YR4/6); heavy clay; strong very fine (2 mm) angular blocky structure; abundant ironstone gravel often in layers or floaters of ironstone.

¹ Source: Pitt AJ (1981) A Study of the land in the catchments of the Otway Range and adjacent plains. TC-14. Soil Conservation Authority. Kew, Victoria

Analytical data²

Site OTR601 Horizon	Sample depth cm	pH		EC	NaCl	Ex Ca	Ex Mg	Ex K	Ex Na	Ex Al	Ex Acidity	FC -10kPa	PWP -1500kPa	KS	FS	Z	C
		H ₂ O	CaCl ₂	dS/m	%	cmol _c /kg	cmol _c /kg	cmol _c /kg	cmol _c /kg	mg/kg	cmol _c /kg	%	%	%	%	%	%
A1	0-10	5.9	N/R	0.035	N/R	1.7	0.9	0.09	0.01	N/R	N/R	N/R	N/R	22	48	15	10
A1	10-20	5.8	N/R	0.034	N/R	1.1	1.1	0.08	0.02	N/R	N/R	N/R	N/R	18	48	17	15
A3	20-30	5.8	N/R	0.050	N/R	2.0	4.5	0.10	0.2	N/R	N/R	N/R	N/R	10	27	11	50
B21	50-60	5.8	N/R	0.070	N/R	2.1	6.5	0.09	0.3	N/R	N/R	N/R	N/R	7	20	10	63
B22	110-120	5.3	N/R	0.073	N/R	0.5	4.6	0.03	0.2	N/R	N/R	N/R	N/R	7	19	9	63

Management considerations

Strong texture contrast between the surface soil and the subsoil is a very important soil feature. This can have a major effect by reducing and/or redirecting the internal drainage and restricting root growth beyond the upper horizons. Options include reduced tillage, improving organic matter content and altering the subsoil through artificial drainage (ripping, mole drainage) and/or chemical amelioration (gypsum) to improve structure.

The sandy is likely to have poor plant water holding capacity and poor nutrient holding capacity due to the low level of bonding between soil particles. The surfaces are prone to wind, and sheet and rill erosion (depending on organic matter content and vegetative cover). These soils may be hydrophobic (in conjunction with organic coatings) when dry, taking time to reabsorb moisture. It is helpful to reduce the wetting/drying cycle and as well as increase organic matter and clay content (clay spreading is practiced in western Victoria). Sandy topsoils do however drain rapidly. Maintenance of a vegetative cover is important.

Mottled subsoils are common and are an indication of periodic waterlogging, particularly if the mottles are pale (low oxygen conditions). Some brighter mottling may be due to past soil mixing and clay illuviation. Improved drainage, with the application of gypsum for sodic subsoils may be beneficial.

² Source: Government of Victoria State Chemistry Laboratory.