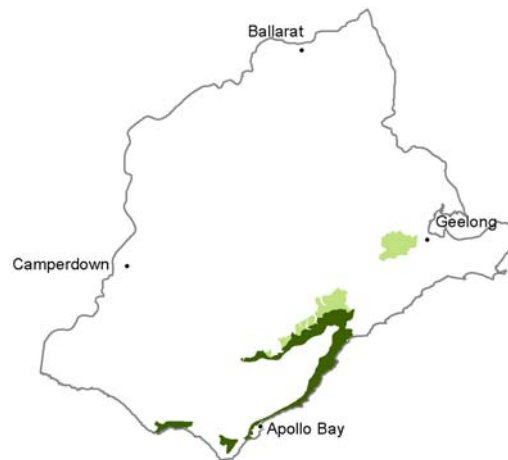


6. Brown, yellow and grey strongly acidic and non-alkaline mottled texture contrast soils on Cretaceous sediments

These soils occur on drier and moderately moist aspects of the Southern Uplands underlain by Cretaceous sediments.

The surface soil is a moderately fine structured dark organic fine sandy loam to clay loam (5-40 cm deep) with a clear change to a massive (occasionally weak structure) bleached hardsetting subsurface sandy loam to clay loam soil (A2 horizon 30–60 cm) which clearly overlies a dark medium to heavy clay subsoil which is often mottled particularly with depth. Subsoil structure ranges from coarse to medium depending on texture and cation dominance (coarser structure indicates higher sodicity). Subsoils may be strongly acidic or sodic at depth as an intergrade to the sodic soils. Soil depth is usually greater than 100 cm before grading into weathered sandstone, often clearly. Combined with steep slopes these soils are slip prone.

Notable characteristics include: high clay content with fine sand component, weathered deep profiles with little rock fragment content, texture contrast with variable surface soil depth, pale mottled lower subsoils which can be sodic, and high nutrient capacity (magnesian) despite relatively low pH.



Soil sites

Site code	Soil-landform unit	Component	ASC	FK	1:100 000 mapsheet
OTR424	64	Mid slope	Bleached, Eutrophic, Grey Kurosol	Dy2.21	T7520 - PRINCETOWN
OTR735	64	Mid slope	Bleached-sodic, Magnesian, Brown Kurosol	Db2.21	T7620-OTWAY
SW71	92	Waxing upper slope	Bleached-Vertic (& Mottled), Magnesian, Brown Chromosol	Db2.41	T7621 - COLAC
SW72	92	Mid slope	Bleached-Vertic, Magnesian, Brown Chromosol	Db2.41	T7621 - COLAC

Site code¹ OTR735



Location Separation Creek
Landform Hill
Geology Cretaceous Otway Group
Element Mid slope
Slope 40%
Aspect Easterly

Remnant vegetation on steep slopes

Horizon	Depth (cm)	Description
A1	0–5	Black (10YR2/1); clay loam; moderate crumb structure; clear smooth boundary to:
A2	5–30	Dark greyish brown (10YR4/2 moist); light brownish grey (10YR6/2 dry); clay loam; weak angular blocky structure; clear smooth boundary to:
B21	30–60	Dark greyish brown (10YR4/2) with yellowish brown (10YR5/6) mottles; medium clay; moderate very fine (4 mm) angular blocky structure; diffuse boundary to:
B22	60–90	Greyish brown (10YR5/2) with yellow (10YR7/8) mottles; medium clay; strong very fine (4 mm) angular blocky structure; clear wavy boundary to:
B3	90–128	Greyish brown (2.5YR5/2) with yellow (2.5YR7/8) mottles; light clay; moderate angular blocky structure; abundant weathering sandstone boundary to:
C	128+	Weathering with lenses of clay between joints.



Bleached-Sodic, Magnesic, Brown Kurosol

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 OTR735 Horizon	Sample depth cm	pH		EC dS/m	NaCl %	Ex Ca cmol _c /kg	Ex Mg cmol _c /kg	Ex K cmol _c /kg	Ex Na cmol _c /kg	Ex Al mg/kg	Ex Acidity cmol _c /kg	FC -10kPa %	PWP -1500kPa %	KS %	FS %	Z %	C %
		H ₂ O	CaCl ₂														
A1	0-5	5.3	N/R	0.110	0.012	1.4	3.0	1.0	0.7	N/R	N/R	N/R	N/R	4	25	37	25
A2	10-20	4.9	N/R	0.130	0.020	0.2	3.9	0.6	0.9	N/R	N/R	N/R	N/R	2	21	35	36
A2	20-30	5.4	N/R	0.083	0.010	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
B21	30-60	5.4	N/R	0.098	0.013	0.1	11.6	0.9	2.2	N/R	N/R	N/R	N/R	0.4	6	23	64
B22	60-90	5.4	N/R	0.120	0.018	0.1	15.0	0.7	3.2	N/R	N/R	N/R	N/R	0.4	7	24	63
B3	90-120	5.6	N/R	0.120	0.015	0.3	17.0	0.4	4.6	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
C	128-150	5.7	N/R	0.130	0.016	0.6	14.0	0.4	4.2	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R

Management considerations

The texture contrast between the surface soil and the subsoil can have a major effect by reducing and/or redirecting the internal drainage and restricting root growth beyond the upper horizons. Acidic surface soils (topsoil) are often associated with sandy surfaces due to the lack of base minerals and may or may not have organic matter (humose or peaty surfaces). This can restrict the uptake of certain nutrients as well as intolerance for some plant species (due in part to the increasing mobilisation of aluminium and manganese). The sodic subsoil may result in dispersion (and subsequent clogging of pores), restricting water and gas movement through the subsoil. Yellow mottling in the subsoil is an indication of periodic waterlogging/imperfect drainage.

² Source: Government of Victoria State Chemistry Laboratory.