

Association 3

Soils Associated with Devonian Extrusives

Geology

Middle Devonian extrusive igneous deposits of approximately 385 m.y. of age (Dc). They are extrusive in the south-east of the study area. The principal deposit is commonly termed the Cerberean Cauldron, and incorporates the Torbreck, Royston and Blue Ranges, as well as part of the Cathedral Range.

The material is totally surrounded by the Siluro-Devonian sediments except for its southern boundary which joins the Acheron Cauldron of similar material and spreads westerly with minor occurrences west of Narbethong and near Mount St Leonard. The outer fringe of the Cerberean Cauldron is lined by small thin deposits of non-marine sediments of similar geology.

Lithology

Principally the unit consists of a large extrusion of biotite rhyodacite with some well developed schlieren structures. Towards the fringes this material grades to a rhyolite which may exhibit a lenticular and non-welded tuff base. Also present on the fringes is some minor basalt together with some shale and sandstone basal conglomerates.

Soils

Generally profiles are a deep, friable, brown with the soft surfaces showing varying accumulated amounts of plant litter. It is common for rocks of variable size to protrude through surface layers and be incorporated throughout the profile.

The A horizons are shallow generally <20 cm thick and range from a black through a dark brown to brown clay loam to loam, which often incorporates some coarse sand. Typically the material is composed of medium to large crumb rough-faced peds which are very friable in the moist and dry state. Soil organic matter would be expected to be high. Below the A horizon textures gradually increase over 20-30 cm to the clayey B horizon.

Subsoils are somewhat variable. The B horizon soils grade from a whole coloured dark brown through a brown to a reddish brown, yellowish red and dark red at depth. Close to C horizons (possibly within the B₃) a light reddish brown colouring may occur. It is not uncommon in road and track cuttings for the reddish brown colouring to extend down to 1.5-2.0 m. Soil wash down the cutting face often colours the decomposing C materials. Material is strongly structured with an angular blocky, very friable pedality. Peds are rough-faced and quite porous and often separate into smaller, finer units. Textures are usually uniform throughout with light to light-medium plastic clays, which incorporate some coarse sand.

Extremely variable in depth, subsoils range from 50-299+cm. Actual depth at specific sites is difficult to ascertain due to rock content. The grading into the base parent material is usually very diffuse with some discontinuity.

Soil profiles are highly permeable and well drained. Although in the field they exhibit no dispersive or slaking tendency, the deep subsoils (generally those beyond 120 cm and close to C horizons materials) slake quite rapidly.

Summary of Soil Features: Soils Associated with Devonian Extrusives

Classification		Texture		Structure		Permeability		Depth to Bedrock	Subsoil Slaking Tendency	Inclusions
PPF	USC	Surface	Subsoil	Surface	Subsoil	Surface	Subsoil			Gravel, Stone, Other
Gn 4.1 Gn 4.3	CL (Rocky)	Clay loam Loam	Light- medium clays	Crumb	Friable Angular blocky	High	High	Variable Generally 1-2 m	None	Broken rock common. Very minor sand/grit in the deep subsoils.