7.1 Alexander Land System (Ar)

Mount Alexander forms a prominent ridge along the western boundary of the study area, rising about 250 m above the surrounding terrain of the Harcourt (Granodiorite) Batholith. Rock outcrop is common, with granitic boulders strewn over the crests and steep forested slopes.

Brown coarse sands of uniform texture predominate. Mottled duplex soils occur on the more stable gentler slopes and crests where clays produced by weathering tend to accumulate.

The native vegetation consists of a woodland or open forest of *E. viminalis*, with *E. obliqua* restricted to the moister summit.

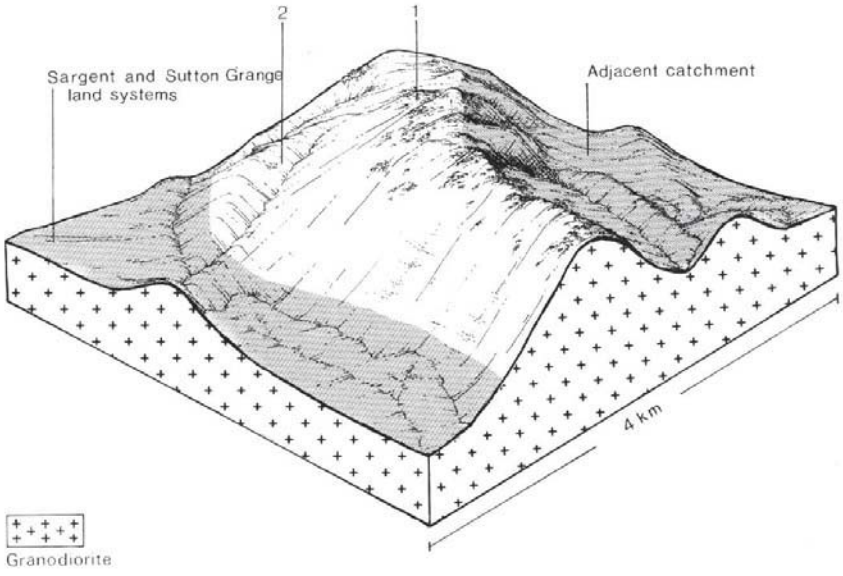
Although the slopes are steep, the permeable nature of the soils limits the potential for erosion. However, these features combine to provide a potential for landslips. Actual land deterioration is minimal because the stabilising native vegetation has been retained. Minor wash and scouring occurs along table drains and below culverts.

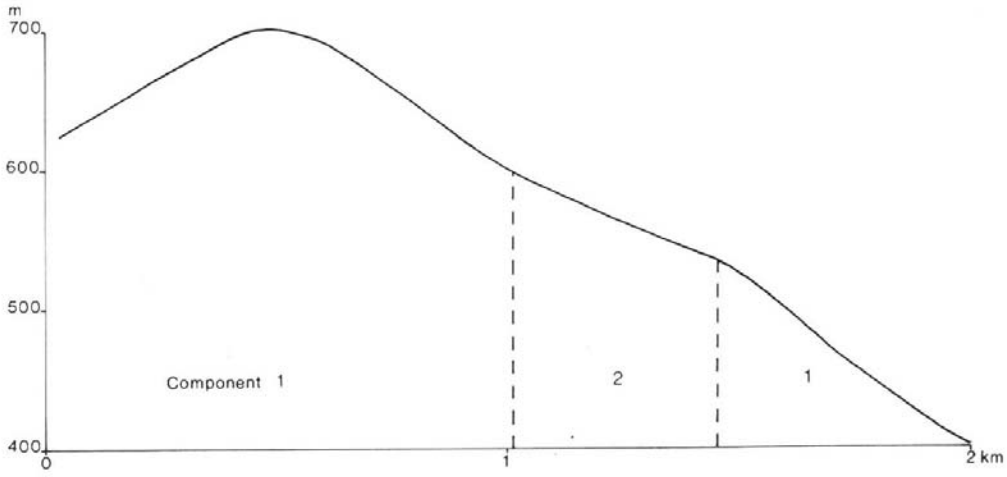
The Mount Alexander Regional Park has been established to preserve flor and fauna, including introduced koalas, to provide for recreation and to preserve the scenic appeal of the mountain. Commercial pursuits include apiculture and the mining of granodiorite for monuments and buildings.

An open forest of* E. obliqua *and* E. viminialis*, usually with a grassy or ferny understorey, occurs near the summit of Mount Alexander.

The prominent summit of Mount Alexander is an ideal location for televisions or telecom relay

Massive, lichen-encrusted granite boulders are strewn over the crests and slopes





ALEXANDER LAND SYSTEM (Ar) Area 7 km^2 0.2% of catchment

CLIMATE		
Rainfall, mean (mm)	Annual: 650-700; lowest December (45), highest August (75-80)	
Temperature, mean (^{o}C)	Annual: 12; lowest July (5), highest February (19)	
Seasonal growth limitations	Temperature less than 10^{o}C (av.): mid April – mid September Rainfall less than potential evapotranspiration: October – early April	
GEOLOGY		
Age, rock type	Devonian, granodiorite	
PHYSIOGRAPHY		
Landform pattern	Rolling hills forming prominent ridge	
Elevation range (m)	460 – 742	
Relative relief (m)	240	
Drainage pattern	Radial	
Channel spacing	Sparse	
LAND COMPONENT		
Number	1	2
Percentage of land system	70	30
PHYSIOGRAPHY		
Landform element	Steep rocky slope and narrow crest	Less steep slope, saddle and crest
Slope; modal, range (%)	35, 25-60	15, 5-25
Site drainage	Excessive	Somewhat excessive
SOIL		
Parent material	Granodiorite and colluvium	Granodiorite and colluvium
Description	Brown coarse sandy soils of variable depth; occasional yellowish grey duplex soils	Yellow or yellowish grey duplex soils with mottled acidic subsoils and bleached A_2 horizons; occasional brown sandy soils.
Classification	Uc1.23; minor Dy3.41	Dy3.41; minor Uc2.21, Uc4.13
Surface texture	Coarse sandy loam	Coarse sandy loam
Depth to hardpan or bedrock (m)	0.1 – 1.0	0.5 – 1.5
Nutrient status	Sandy soils – low throughout; duplex soils – low topsoil, moderate subsoil	Sandy soils – duplex soils – low surface, moderate subsoil
Available water capacity	Sandy soils – low throughout; duplex soils – low topsoil, moderate subsoil	Sandy soils – duplex soils – low surface, moderate subsoil
Permeability	Sandy soils – rapid throughout; duplex soils – rapid topsoil, slow subsoil	Sandy soils – rapid throughout; duplex soils – rapid surface, slow subsoil
Exposed rock/stone (%)	5-80	0-10
Sampled site number	-	719
NATIVE VEGETATION		
Structure	Open woodland II, woodland II open forest II/III	Open woodland II, woodland II, open forest II/III
Characteristic species (+ indicates predominant species)	*E. viminalis*+, *E. obliqua*	*E. viminalis*+, *E. obliqua*
PRESENT LAND USE	Regional park – includes protection of native flora and fauna, and of the introduced koala population; limited mining of granodiorite for monumental stone.	
OBSERVED SOIL DETERIORATION	Minor sheet erosion in cleared areas, usually minimised by the high infiltration rates.	Minor sheet erosion

SUSCEPTIBILITY OF LAND TO PROCESSES OF SOIL DETERIORATION – Alexander

Compt.	Process	Susceptibility	Critical land factors	Off-site effects	Comments
1.	Sheet & rill erosion	Low to moderate	• Steep slopes • Rock outcrop	• sedimentation	Massive rock outcrops shed water, although high soil permeability general prevents overland flow
	Wind erosion	Moderate	• weakly structured sandy topsoil • exposed topographic position	• sedimentation	-
	Leaching of nutrients	High	• high soil permeability • low cation exchange capacity • low percentage base saturation	• -	Added fertilizers are readily leached
	Landslip	Moderate	• steep slopes • high permeability • impermeable rock or hardpan below soils	• sedimentation	These steep slopes are presently stabilised by native vegetation
2.	Sheet & rill erosion	Moderate	• moderate slopes • rock outcrop • clayey subsoils of low permeability	• sedimentation • increased run-on	Erosive overland water flow occurs when the highly permeable sandy topsoil is saturated
	Wind erosion	Moderate	• weakly structured sandy topsoil • droughty topsoil	• sedimentation	-
	Leaching of nutrients (topsoil)	High	• high topsoil permeability • low cation exchange capacity • low percentage base saturation	• -	Added fertilizers are readily leached
	Landslip	Low	• moderate slopes • impermeable rock or hardpan below soil	• sedimentation	As for component 1, although the gentler slopes reduce the hazard

The attractive grey granodiorite is quarried for monumental stone