

7.25 Redesdale land system (Rs)

Basaltic plains near Redesdale are characterised by abundant surface rock and by majestic specimens of *E. camaldulensis*. The gently undulating plain is usually bounded by steep scarps along the major streams. A line of basalt-capped mesas are all that remain of a basalt flow along the Coliban River. Dissection by the Campaspe River has formed the spectacular Barfold Gorge, where basalts of three ages are exposed.

Deep gilgaied soils occupy the flatter section of the plain, with stony red gradational soils on the steeper parts. The latter soils also occupy the scarps, along with self-mulching clays. The broad depressions and alluvial valleys generally have dark clays.

E. camaldulensis is dominant and scattered trees remain in much of the area. *E. viminalis* and *E. melliodora* occur along the Campaspe river valley.

Agricultural land use is restricted by the excessive amounts of surface and subsurface rock to the grazing of introduced pastures by sheep and cattle. Crops are grown only where the soils are deeper or where rocks have been cleared.

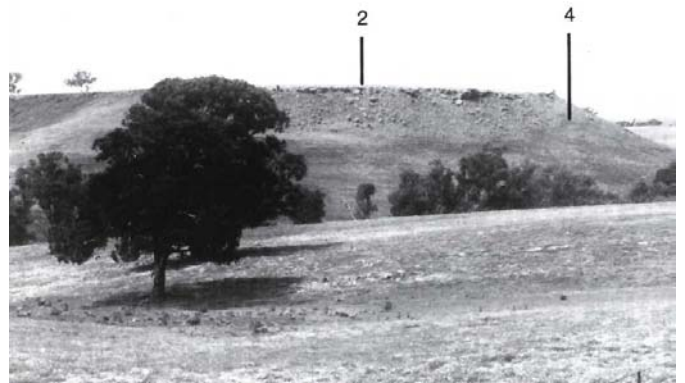
The erosion hazard is minimal except on the scarps, which have a moderate susceptibility to soil loss. However, the shallowness of soils even on gentle slopes indicates that past rates of soil loss have equalled rates of soil formation. Areas with shallow stony gradational soils are susceptible to leaching of nutrients, and compaction is a problem on the flatter gilgaied areas.



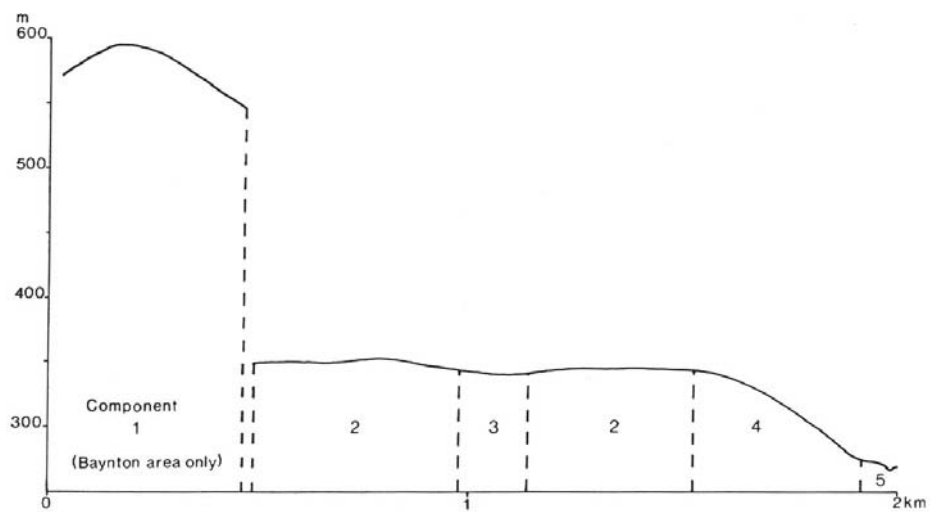
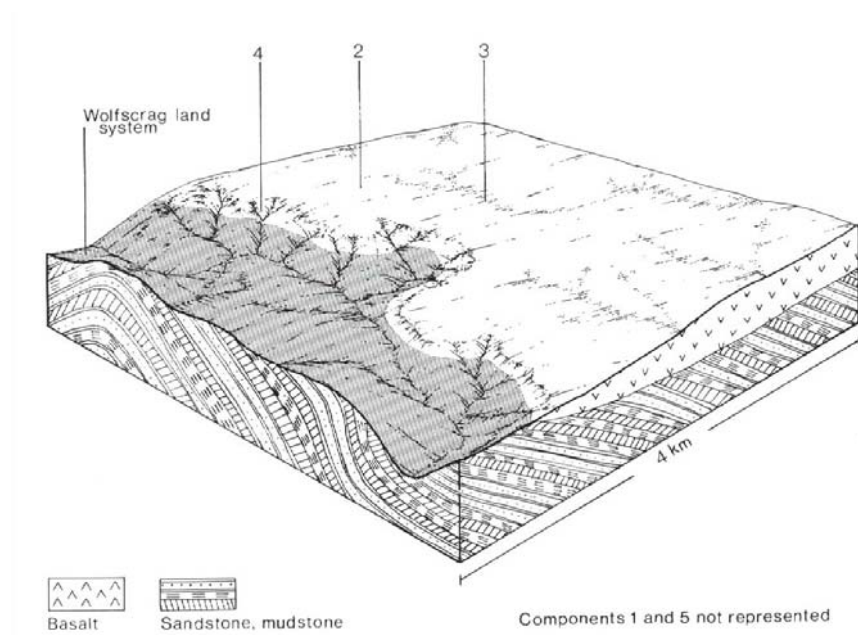
Sheep grazing introduced pastures under E. camaldulensis near Redesdale.



The relatively flat basalt plain is steeply dissected by Pohlman Creek



Columnar basalt forms in impressive backdrop in the picturesque Barfold Gorge.

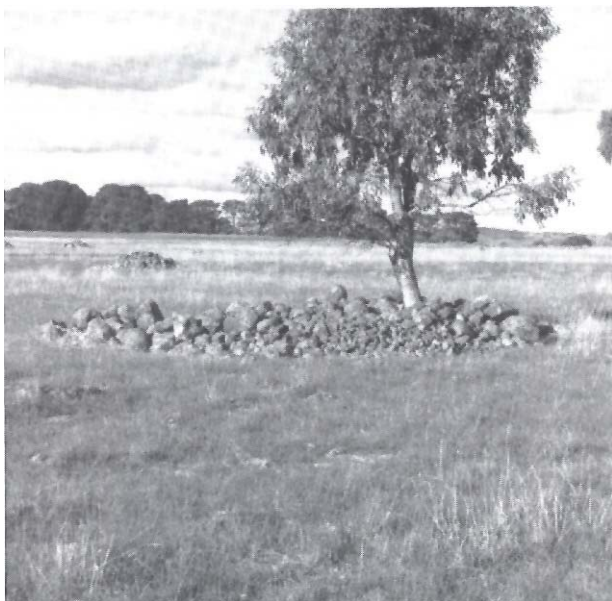


REDESDALE LAND SYSTEM (Rs) Area 158 km² 3.9% of catchment

CLIMATE Rainfall, mean (mm) Temperature, mean (°C) Seasonal growth limitations	Annual, 550-750; lowest January (35-40), highest June (65-75) Annual, 13; lowest July (7), highest January or February (20) Temperature less than 10°C (av.): May-August Rainfall less than potential evapotranspiration: October-early April				
GEOLOGY Age, rock type	Pliocene, olivine basalt				
PHYSIOGRAPHY Landform pattern Elevation range (m) Relative relief (m) Drainage pattern Channel spacing	Gently undulating plain bounded by scarps, volcanic cones in south 220-594 Variable, usually less than 15 Dendritic Sparse				
LAND COMPONENT Number Percentage of land system	1 5	2 75	3 10	4 5	5 5
PHYSIOGRAPHY Landform element Slope; modal, range Site drainage	Crest and slope of volcanic cone 15,10-30 somewhat excessively drained	Undulating plain, gilgaied in parts 2,0-6 Moderately well drained	Minor drainage depression 1,0-2 Poorly drained	Scarp, occasionally precipitous 10,5-30 Somewhat excessively drained	Narrow flood-plain and terraces of the Campaspe River 1,0-1 Poorly drained
SOIL Parent material Description Classification Surface texture Depth to hardpan or bedrock (in) Nutrient status ' Available water capacity Permeability Exposed rock/stone Sampled site number	Basalt Shallow stony red gradational soils Gn2.12, G3.11 Silty loam 0.2-0.6 Moderate Low Rapid 10-50 -	Basalt Shallow stony red gradational soils; complex of uniform grey clays (puffs) and yellow duplex soils (depressions) Gn3.1, Ug5.25, Dy3.1 Loam, clay loam 0.5-> 2.0 Moderate surface, high subsoil Moderate Moderate (red soils), slow (others) 0-5 1054	Alluvium and colluvium Variable; often loamy deposits over buried, dark clay soils Variable; Um, Dy3.12 Sandy loam to clay loam 1.0-> 2.0 Moderate to high Moderate Moderate to slow 0 1080,1116	Basalt and colluvium Shallow stony gradational soils, usually stony; occasional shallow friable clay soils Gn3.11; minor Uf6.32 Silty loam 0.3-0.6 High Low Rapid to moderate 20-80 1081, 1082	Alluvium Variable; young loamy deposits, dark duplex or dark clay soils Um, Ug, Dd Silty loam to clay loam > 1.0 Moderate Moderate to high Variable 0 -
NATIVE VEGETATION Structure Characteristic species (+ indicates predominant species)	Open forest II <i>E. viminalis</i>	Woodland III Open forest II <i>E. camaldulensis</i> + Baynton area: <i>E. viminalis</i> , <i>E. ovata</i>	Woodland II / Open forest II <i>E. camaldulensis</i> + Baynton area: <i>E. viminalis</i> , <i>E. ovata</i>	Woodland II / Open forest II <i>E. camaldulensis</i>	Woodland II / Open forest II <i>E. camaldulensis</i> + <i>E. melliodora</i> , <i>E. viminalis</i>
PRESENT LAND USE	Grazing, mainly introduced pastures	Grazing, mainly introduced pastures; cropping of cereals and legumes	Grazing, mainly introduced pastures	Grazing, introduced pastures	Grazing, mainly introduced pastures
OBSERVED SOIL DETERIORATION	Minor sheet erosion	Compaction of surface soil	Minor gully erosion	Minor stream-bank erosion	Minor sheet erosion, occasional landslips

SUSCEPTIBILITY OF LAND TO PROCESSES OF SOIL DETERIORATION – Redesdale

Compt.	Process	Susceptibility	Critical land factors	Off-site effects	Comments
1	sheet and rill erosion compaction of topsoil	low moderate	<ul style="list-style-type: none"> • moderate to steep slopes • loamy texture • moderate organic matter content 	<ul style="list-style-type: none"> • sedimentation • increased run-on • increased run-on 	high soil permeability and a perennial vegetation cover usually limits this process of deterioration -
2	compaction of topsoil	moderate to high	<ul style="list-style-type: none"> • loamy or clay loamy texture • moderate organic matter content 	<ul style="list-style-type: none"> • increased run-on 	-
3	gully erosion compaction of topsoil	low moderate to high	<ul style="list-style-type: none"> • shallow accumulations of alluvium • loamy or clay loamy texture • soil often moist • moderate organic matter content 	<ul style="list-style-type: none"> • sedimentation • - 	- moderate levels of organic matter offer some resistance to compaction
4	sheet and rill erosion landslip compaction of topsoil	low low to moderate low to moderate	<ul style="list-style-type: none"> • moderate to steep slopes • moderate to high soil permeability • • moderate to steep slopes • moderate to high soil permeability • steeply dipping underlying • Ordovician bedrock • loamy texture • moderate organic matter content 	<ul style="list-style-type: none"> • sedimentation • increased run-on • sedimentation • increased run-on 	moderate to high soil permeability usually limits this process of deterioration - -
5	stream-bank erosion compaction of topsoil	moderate moderate to high	<ul style="list-style-type: none"> • deep deposits of alluvium <p>loamy or clay loamy texture soil often moist</p> <ul style="list-style-type: none"> • moderate-high organic matter content 	<ul style="list-style-type: none"> • sedimentation • - 	the existing native riparian vegetation usually restricts the actual amount of deterioration the generally high levels of organic matter offer some resistance to erosion



Rocks have been gathered by hand and stockpiled to increase pasture density and dry matter yields.



The gentleness of the landscape and a grazing land use present minimal land deterioration hazards