

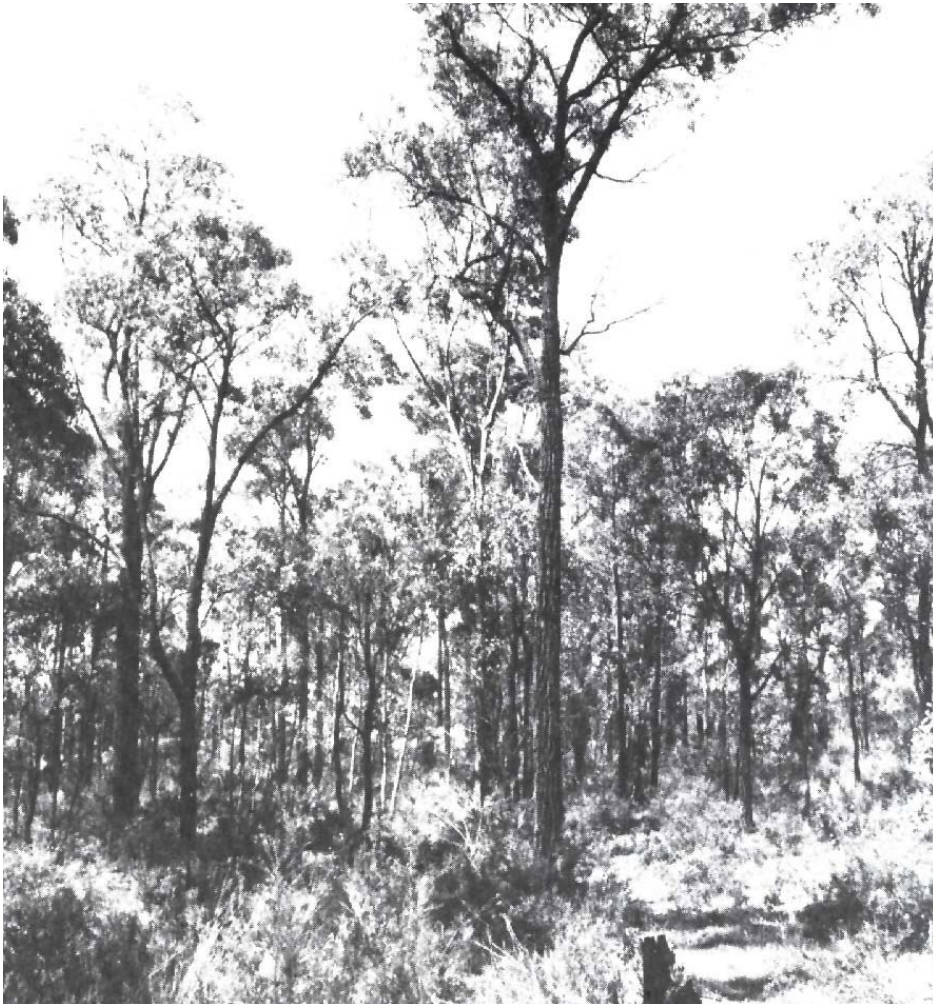
7.32 Wellsford land system (Wd)

This undulating land on Ordovician sediments occurs around Bendigo, to the south-west of Toolleen and to the south of Heathcote.

Upper parts of the landscape exhibit Tertiary weathering, with red, well-drained, highly ferruginised gravelly soils overlying weathered Ordovician bedrock. These soils characteristically support *E. sideroxylon*, which is largely confined to this land system. On the mid to lower slopes red sodic duplex soils with slowly permeable clayey B horizons occur, and yellow sodic duplex soils occur in the drainage depressions. *E. microcarpa* and *E. leucoxylon* occupy these lower positions in the landscape.

The lower slopes are commonly used for grazing of native pastures, with some cereal-cropping. The majority of areas, however, are retained as State forest to conserve flora and fauna, to provide opportunities for bush-based recreation and to supply limited quantities of sleepers, fence posts and firewood. The City of Bendigo is located within the land system.

Major hazards are related to rapid run-off from the slopes with hard-setting topsoils. Sheet erosion occurs readily on the slopes, and scouring produces gullying in the drainage depressions, accentuated by dispersion of the sodic subsoils. Small areas of salting also occur.



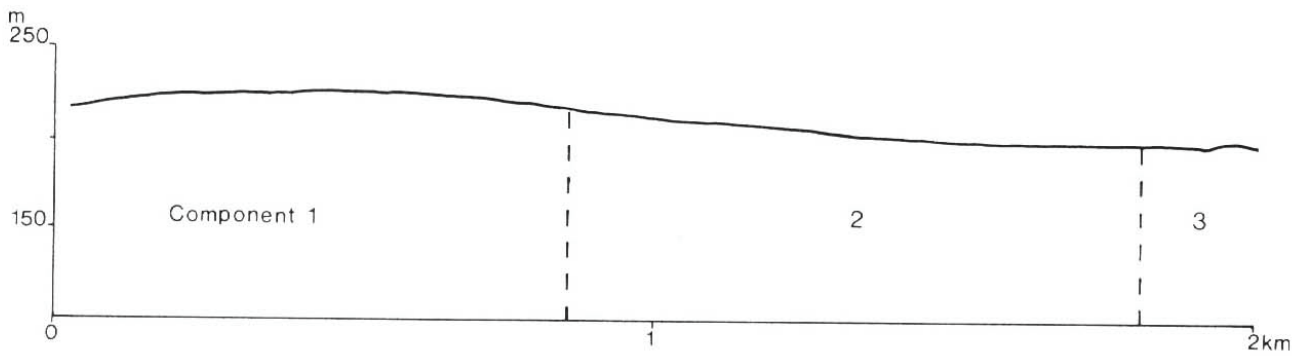
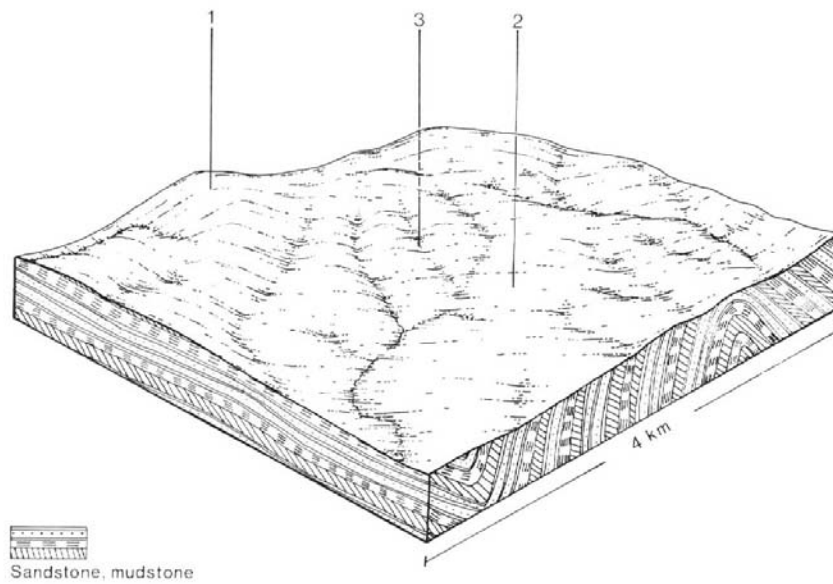
Ironbark forests (E. sideroxylon) are common to the Wellsford system and the Bendigo area.



The gentle slopes, where cleared of the native vegetation, support pastures and crops



Dodder-laurel (Cassutha melantha) makes life hard for small trees and shrubs.



WELLSFORD LAND SYSTEM (Wd) Area 402 km² 9.9% of catchment

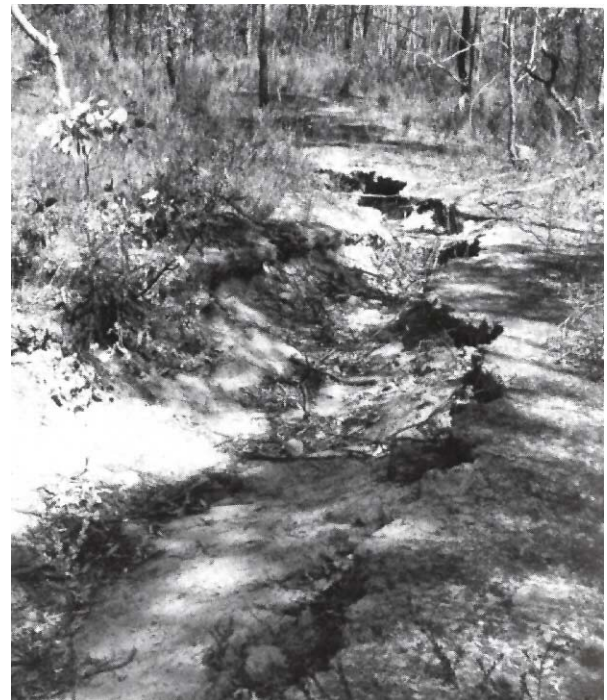
CLIMATE Rainfall, mean (mm) Temperature, mean (°C) Seasonal growth limitations	Annual, 475-650; lowest December (30-35), highest June (55-60) Annual, 14.5; lowest July (8), highest January (22) Temperature less than 10°C (av.): mid May-mid August Rainfall less than potential evapotranspiration: September-mid April		
GEOLOGY Age, rock type	Ordovician, sandstone and mudstone		
PHYSIOGRAPHY Landform pattern Elevation range (m) Relative relief (m) Drainage pattern Channel spacing	Undulating rises 140-320 15 Dendritic Moderate		
LAND COMPONENT Number Percentage of land system	1 40	2 50	3 10
PHYSIOGRAPHY Landform, element Slope; modal, range Site drainage	Crest and upper slope 5,2-12 Well drained	Mid to lower slope 2,14 Moderately well drained	Drainage depression 1,0-2 Somewhat poorly drained
SOIL Parent material Description Classification Surface texture Depth to hardpan or bedrock (m) Nutrient status Available water capacity Permeability Exposed rock/stone Sampled site number	Sandstone and mudstone Red or yellowish red stony gradational soils with pale A2 horizons; minor red duplex or uniform loam soils Gn3.14, Gn2.24; minor Um1, Dr2.12 Sandy loam, loam 0.2-0.6 Very low to low Low Moderate 0-20 727	Sandstone and mudstone Red duplex soils with bleached A2 horizons; yellow or brown duplex soils occur less frequently Dr2.41, Dr3.41; minor Dr2.31, Gn2.84, Dy3.41, Dr2.23, Db2.42 Sandy loam, loam 0.3-1.0 Very low surface, moderate subsoil Low surface, moderate subsoil Moderate surface, slow subsoil 0-2 708,1044	Alluvium and colluvium Mottled yellow duplex soils with bleached A2 horizons Dy3.41, Dy3.42 Sandy loam 1.0-1.5 Very low surface, moderate subsoil Low surface, moderate subsoil Moderate surface, slow subsoil 0 1045
NATIVE VEGETATION Structure Characteristic species (+ indicates predominant species)	Open forest II <i>E. sideroxylon</i> +, <i>E. polyanthemos</i> , <i>E. macrorhynch</i> 4 <i>E. microcarpa</i> , <i>E. leucoxylon</i>	Open forest II <i>E. microcarpa</i> +, <i>E. polyanthemos</i> , <i>E. leucoxylon</i> +, <i>E. sideroxylon</i> ; <i>E. camaldulensis</i> (minor occurrences)	Open forest II <i>E. microcarpa</i> , <i>E. leucoxylon</i> , <i>E. melliodora</i>
PRESENT LAND USE	Grazing; nature conservation; recreation; selective logging for durable timbers and firewood	Grazing; nature conservation; recreation; minor cropping; selective logging for durable timbers and firewood	Grazing, nature conservation; recreation
OBSERVED SOIL DETERIORATION	Sheet erosion common	Minor sheet erosion	Minor gully erosion, although occasionally severe, especially in cleared areas

SUSCEPTIBILITY OF LAND TO PROCESSES OF SOIL DETERIORATION – Wellsford

Compt.	Process	Susceptibility	Critical land factors	Off-site effects	Comments
1	sheet and rill erosion wind erosion leaching of nutrients compaction of topsoil	moderate low moderate moderate	<ul style="list-style-type: none"> hydrophobic topsoil gentle slopes weakly structured loamy topsoil moderate soil permeability sodic subsoils sandy loam texture low organic matter content 	<ul style="list-style-type: none"> sedimentation increased run-on - accession of soluble salts, particularly NaCl, to the groundwater table increased run-on 	- the susceptibility is reduced by the hard-setting and stony topsoil - -
2	sheet and rill erosion wind erosion compaction of topsoil	low to moderate low moderate	<ul style="list-style-type: none"> hydrophobic topsoil gentle slopes weakly structured loamy topsoil sandy loam or loam texture low organic matter content 	<ul style="list-style-type: none"> sedimentation increased run-on - increased run-oil 	- the susceptibility is reduced by the hard-setting and stony topsoil -
3	gully erosion salting compaction of topsoil	moderate moderate moderate	<ul style="list-style-type: none"> accumulations of alluvium subsoils that slake/disperse sodic subsoils saline water-table at shallow depth sandy loam texture topsoil often moist low organic matter contents 	<ul style="list-style-type: none"> sedimentation water turbidity - - 	- the retention of native vegetation within this land system maintains the water-table below rooting depth -



The combination of hard-setting topsoils and sparse ground cover results in severe sheet erosion.



Run-off from forested areas can be high enough to initiate small gullies