

7.10 Glenholt Land System (Gt)

This gently undulating area on Ordovician sandstones and mudstones occurs along the northern catchment boundary.

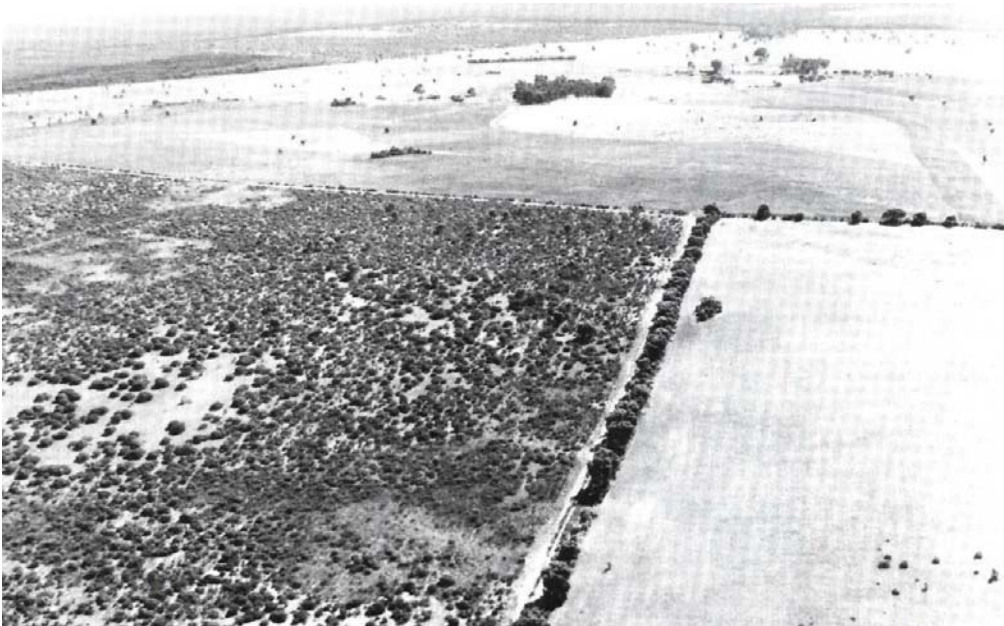
The land is characterised by the predominance of mallee eucalypts, which reflect the dry climate and the leached soils formed on lateritised rocks and ferruginous hardpans. Other eucalypts occur on relatively unweathered soils and rocks – for example, *E. sideroxylon* on the upper slopes and the deeper drainage depressions and *E. leucoxylon*, *E. polyanthemos* and *E. microcarpa* on the mid to lower slopes.

The soil contain a high proportion of iron oxides, which may occur in the fine earth fraction as buckshot gravel and stones derived from laterite. Shallow stony red gradational and red sodic duplex soils are more common the low lower slopes. The high iron contents lead to fixation of applied phosphate.

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Production is limited largely to the intermittent harvesting of the mallee for eucalyptus oil production and to grazing of the lower slopes. Some crops are also grown on the lower slopes. Some areas with mallee vegetation are reserved for nature conservation and recreation.

The dominant feature of this land system is dryness, illustrated by the absence of *E. camaldulensis* from the drainage depressions. Low nutrient status, compaction and the high susceptibility of the poorly structured, hydrophobic topsoils to sheet erosion are the main limitation to any form of production.



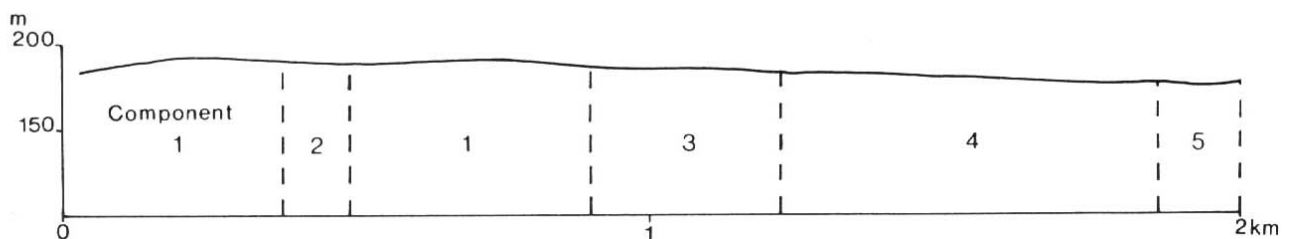
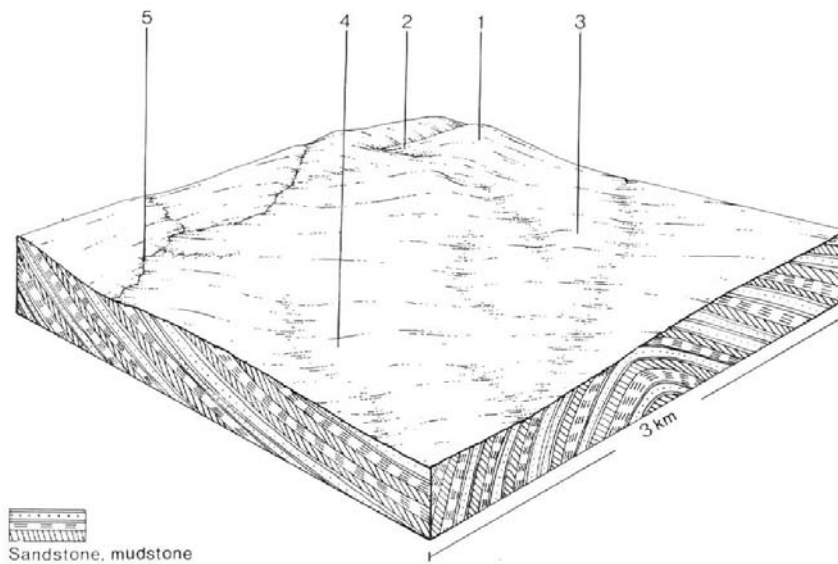
This very gentle landscape has a low level of productivity, and approximately 50% of the area remains under native eucalypt vegetation.



*The open mallee scrub vegetation gives way to the open forest of *E. sideroxylon*, *E. leucoxyton* and *E. polyanthemus* where the deeper soils and better moisture regimes occur.*



Mallee scrub regrowth after mechanical harvesting – note the lack of protective litter or vegetative ground cover between the bushes.

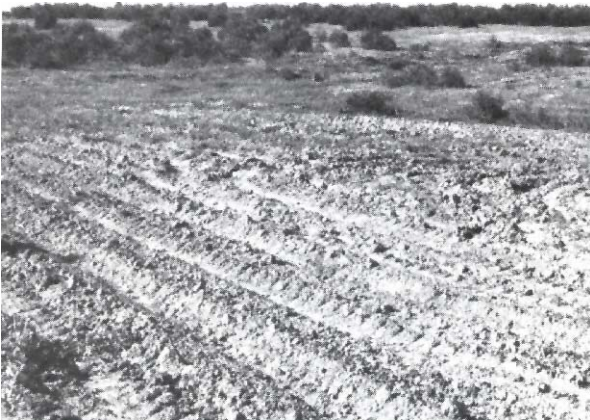


GLENHOLT LAND SYSTEM (Gt)
Area 136 km² 3.3% of catchment

CLIMATE Rainfall, mean (mm) Temperature, mean (°C) Seasonal growth limitations	Annual, 450-525; lowest December (30-35), highest June, July or August (50-55) Annual, 15; lowest July (8), highest January or February (22.5) 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	Gently undulating rises 140-210 5-15 Dendritic Sparse				
LAND COMPONENT Number Percentage of land system	1 50	2 5	3 10	4 30	5 5
PHYSIOGRAPHY Landform element Slope; modal, range (%) Site drainage	Crest and slope 3, 1-8 Somewhat excessively drained	Drainage depression within component 1 1, 0-2 Moderately well drained	Upper slope and gentle crest 3, 1-5 Well drained	Mid to lower-slope 2, 1-3 Swell drained	Lower drainage depression 1, 0-1 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 Shallow red gradational or duplex soils, often with bleached A ₂ horizons containing buckshot gravel Gn3.1; Dr2.41; minor Um1, Gn3.2 Loam 0.2-0.3 Very low to low Low Moderate 5-80 1036	Alluvium Red or occasionally brown gradational or duplex soils, usually with bleached A ₂ horizons Gn3.22, Dr2.41, minor Dy3.41 Loam, clay loam 0.6-2.0 Low surface, moderate subsoil Low surface, moderate subsoil Moderate surface, slow subsoil 0 1037	Sandstone and mudstone Red duplex soils with bleached A ₂ horizons Dr2.41, Dr2.12, minor Gn3.2 Loam 0.2-0.4 Low surface, moderate subsoil Low Moderate surface, slow subsoil 0-10 1033, 1042	Sandstone and mudstone Yellow duplex soils with bleached A ₂ horizons and mottled clayey subsoils Dy3.41, minor Gn3.85, Db1.4, Dr2.4, Dy3.31 Loam 0.4-1.0 Low surface, moderate subsoil Low surface, moderate subsoil Moderate surface, slow subsoil 0 1038	Alluvium Yellow duplex soils with bleached A ₂ horizons and mottled clayey subsoils Dy3.41, minor Dy3.31 Loam 0.7-2.0 Mow surface, moderate subsoil Low surface, moderate subsoil Moderate surface, slow subsoil 0 1039
NATIVE VEGETATION Structure Characteristic species (+ indicates predominant species)	Open scrub <i>E. viridis</i> +, <i>E. polybractea</i> +, <i>E. behriana</i>	Open scrub/open forest I <i>E. viridis</i> +, <i>E. behriana</i> +, <i>E. froggattii</i> , <i>E. sideroxylon</i> , <i>E. leucoxylon</i> , <i>E. polyanthemos</i>	Woodland II/open forest II <i>E. leucoxylon</i> +, <i>E. microcarpa</i> , <i>E. polyanthemos</i> , <i>E. sideroxylon</i>	Woodland II/open forest II <i>E. leucoxylon</i> +, <i>E. microcarpa</i> +	Woodland II/open forest II <i>E. leucoxylon</i> +, <i>E. microcarpa</i> +
PRESENT LAND USE	Nature conservation, eucalyptus leaf harvesting	Nature conservation	Grazing; nature conservation	Grazing; minor cropping	Grazing
OBSERVED SOIL DETERIORATION	Sheet erosion common and often severe	Deposition of sediments from component I	Sheet erosion common	Sheet erosion, usually minor	Minor salting and gully erosion.

SUSCEPTIBILITY OF LAND TO PROCESSES OF SOIL DETERIORATION – Glenholt

Compt.	Process	Susceptibility	Critical land factors	Off-site effects	Comments
1	Sheet & rill erosion	Moderate	<ul style="list-style-type: none"> gentle slopes weakly structured topsoil 	<ul style="list-style-type: none"> sedimentation increased run-on 	The extremely shallow topsoils have a low tolerance of sheet erosion
	Leaching of nutrients	Moderate	<ul style="list-style-type: none"> hydrophobic topsoil moderate soil permeability low cation exchange capacity low percentage base saturation 	<ul style="list-style-type: none"> - 	-
	Compaction of topsoil	Moderate	<ul style="list-style-type: none"> loamy textures low organic matter content weak topsoil structured 	<ul style="list-style-type: none"> increased run-on 	-
2	Compaction of topsoil	Moderate to high	<ul style="list-style-type: none"> loamy textures low organic matter content weak topsoil structure 	<ul style="list-style-type: none"> increased run-on 	-
3&4	Sheet & rill erosion	Low to moderate	<ul style="list-style-type: none"> weakly structured topsoil 	<ul style="list-style-type: none"> sedimentation increased run-on 	-
	Compaction of topsoil	Moderate	<ul style="list-style-type: none"> hydrophobic topsoil loamy textures low organic matter content weak topsoil structure 	<ul style="list-style-type: none"> increased run-on 	As for component 1
5	Salting	Moderate	<ul style="list-style-type: none"> saline groundwater table at shallow depth stored salts in soil and parent material 	<ul style="list-style-type: none"> saline stream flows 	-
	Gully erosion	Low to moderate	<ul style="list-style-type: none"> subsoils that slake/disperse accumulation of alluvium 	<ul style="list-style-type: none"> sedimentation water turbidity 	-
	Compaction of topsoil	Moderate to high	<ul style="list-style-type: none"> loamy textures weak topsoil structure topsoil often moist low organic matter content 	<ul style="list-style-type: none"> increased run-on 	-



The topsoil are highly susceptible to sheet erosion, cultivation only increases the hazard.



Sheet erosion has completely removed the topsoil from this site.