

7.8 Fryers Land System (Fs)

Hills on Ordovician sediments occur to the east and west of Taradale, with the highest part of the ridge in the western area forming the catchment divide between the Loddon and Campaspe River systems.

A diversity of eucalypts occurs within the land system. The steep, exposed upper slopes and crests with shallow stony gradational and uniform loam soils carry a low woodland to open forest of *E. macrorhyncha*, *E. polyanthemos* and *E. goniocalyx*. As the slopes become gentler and more protected, with deeper yellowish brown gradational and occasional duplex soils, an open forest II of *E. melliodora*, *E. goniocalyx*, *E. polyanthemos*, *E. rubida*, *E. obliqua* and *E. radiata* is found. An open forest II of *E. ovata*, *E. rubida* and *E. viminalis* occupies the major drainage depressions where deep yellowish-brown to greyish-brown gradational soils predominate.

The steep and rocky nature of the terrain and the low fertility and the low water-holding capacity of the soils have discouraged clearing, except on some of the gentler, lower slopes that support native pastures. The forest provides limited supplies of sawn timber, posts and firewood.

The shallow soils of the mid to upper slopes and crests are extremely prone to sheet erosion, while the deeper soils in the drainage depressions suffer readily from gully erosion.



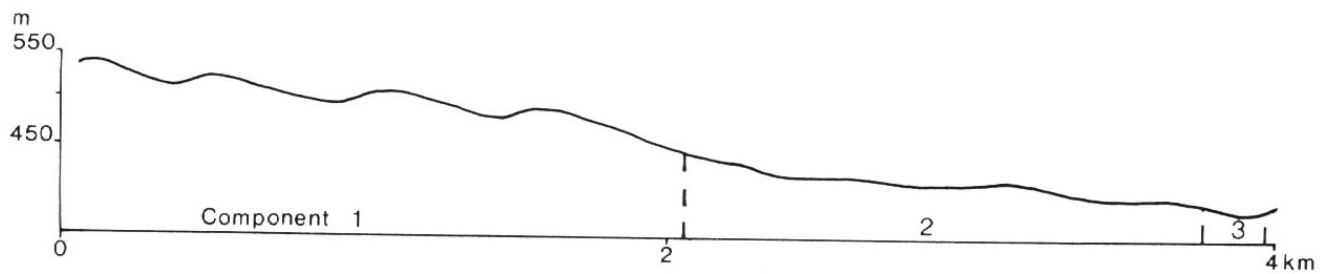
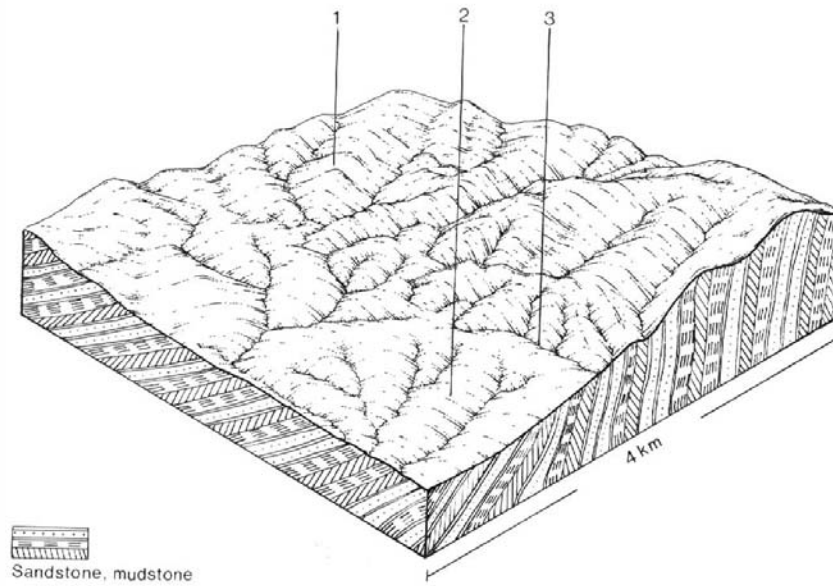
A high proportion of the Fryers land system remains under native timber.



The gentler slopes of the Fryers land system have been cleared and are used for grazing.



The heavily timbered areas usually occupy the shallow stony soils.



FRYERS LAND SYSTEM (Fs) Area 112 km² 2.7% of catchment

CLIMATE Rainfall, mean (mm) Temperature, mean (°C) Seasonal growth limitations	Annual, 600-800; lowest January (35-40), highest June (85-90) Annual, 13.5; lowest July (7), highest February (21) Temperature less than 10°C (av.): May – August Rainfall less than potential evapotranspiration: October – March		
GEOLOGY Age, rock type	Ordovician, sandstone and mudstone		
PHYSIOGRAPHY Landform pattern Elevation range (m) Relative relief (m) Drainage pattern Channel spacing	Rolling low hills 400-560 40-60 Dendritic Moderate		
LAND COMPONENT Number Percentage of land system	1 60	2 35	3 5
PHYSIOGRAPHY Landform element Slope; modal, range (%) Site drainage	Steep slope and narrow crest 16, 10-40 Somewhat excessively drained	Gentle slope and broad lower crest 6, 0-12 Well drained	Drainage depression 3, 0-6 Moderate well 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, stony yellowish brown soils of uniform or gradational texture; the topsoils are frequently hydrophobic, and the A ₂ horizons pale or bleached Gn3.74, minor Um4.11, Gn3.8 Loam, sandy loam 0.2-0.6 Very low Low Moderate 0-20 1029, 1094	Sandstone and mudstone Greyish to yellowish brown gradational soils with pale or bleached A ₂ horizons; occasional yellow-grey duplex soils Gn4.65, Gn3.84, Gn3.04, minor Dy3.41, Dy2.1 Loam, sandy loam 0.5-1.0 Very low surface, low to moderate subsoil Moderate Moderate surface, slow subsoil 0 1027, 1121	Alluvium Greyish to yellowish brown gradational soils with bleached A ₂ horizons; loamy soils on younger alluvial deposits. Gn4.64; minor Um2.12, Dy3.41 Loam >2.0 Very low to low Moderate to high Moderate 0 1028, 1095
NATIVE VEGETATION Structure Characteristic species (+ indicates predominant species)	Woodland I/open forest I (poorer sites); open forest II <i>E. macrorhyncha</i> +, <i>E. polyanthemos</i> +, <i>E. goniocalyx</i> +, <i>E. melliodora</i> , <i>E. dives</i>	Open forest II <i>E. melliodora</i> +, <i>E. goniocalyx</i> , <i>E. polyanthemos</i> +, <i>E. rubida</i> , <i>E. dives</i> , <i>E. obliqua</i>	Open forest II <i>E. ovata</i> , <i>E. rubida</i> , <i>E. viminalis</i> (major drainage depression); <i>E. rubida</i> , <i>E. polyanthemos</i> , <i>E. melliodora</i> , <i>E. radiata</i> , <i>E. obliqua</i> (minor drainage depression)
PRESENT LAND USE	Forestry, recreation	Grazing of sheep on native or less commonly introduced pastures; forestry	Grazing of sheep on native and less commonly introduced pastures
OBSERVED SOIL DETERIORATION	Sheet erosion common, locally severe in cleared areas	Sheet erosion common	Gully erosion common and locally severe, even in frosted areas

SUSCEPTIBILITY OF LAND TO PROCESSES OF SOIL DETERIORATION – Fryers

Compt.	Process	Susceptibility	Critical land factors	Off-site effects	Comments
1	Sheet & rill erosion	High	<ul style="list-style-type: none"> • moderate to steep slopes • hydrophobic topsoil 	<ul style="list-style-type: none"> • sedimentation • increased run-on 	<p>Numerous rock outcrops impede overflow, thereby increasing the infiltration of water, the shallow topsoils have a low tolerance of erosion</p> <p>In cleared areas the mobilisation of accumulated soluble salts leads to salting problems in the lower landscape</p> <p>-</p>
	Leaching of nutrients	Low to moderate	<ul style="list-style-type: none"> • moderate soil permeability • moderate cation exchange capacity 	<ul style="list-style-type: none"> • - 	
	Compaction of topsoil	Moderate	<ul style="list-style-type: none"> • loamy textures • weak topsoil structure • moderate organic matter contents 	<ul style="list-style-type: none"> • increased run-on 	
2	Sheet & rill erosion	Moderate	<ul style="list-style-type: none"> • gentle to moderate slopes • hydrophobic topsoil 	<ul style="list-style-type: none"> • sedimentation • increased run-on 	<p>-</p> <p>-</p> <p>-</p>
	Leaching of nutrients	Low to moderate	<ul style="list-style-type: none"> • moderate soil permeability • moderate cation exchange capacity 	<ul style="list-style-type: none"> • - 	
	Compaction of topsoil	Moderate	<ul style="list-style-type: none"> • loamy texture • weak topsoil structure • moderate organic matter contents 	<ul style="list-style-type: none"> • increased run-on 	
3	Gully erosion	Moderate	<ul style="list-style-type: none"> • channelised run-on • subsoil that slake/disperse 	<ul style="list-style-type: none"> • sedimentation • water turbidity 	<p>-</p> <p>The retention of native vegetation in most of this land system usually maintains the water table at safe depths.</p> <p>-</p>
	Salting	Moderate	<ul style="list-style-type: none"> • saline groundwater table at shallow depth • stored salts in soil and parent materials 	<ul style="list-style-type: none"> • saline stream flows 	
	Compaction of topsoil	Moderate	<ul style="list-style-type: none"> • loamy texture • topsoil often moist • moderate organic matter contents 	<ul style="list-style-type: none"> • increased flash flows 	



This gully stream, initiated on cleared land has eaten back into the forested area, emphasising the general instability of the land



Erosion of the many forest racks, although significant, is not a major form of land deterioration