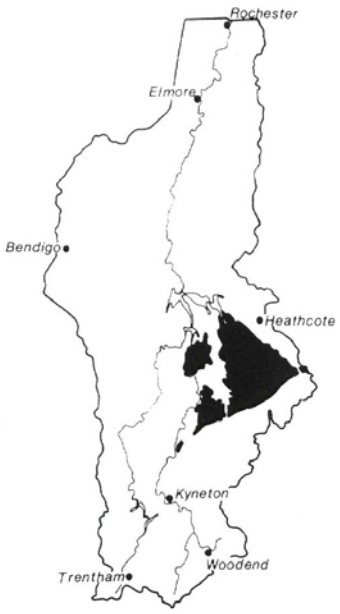
7.34 Wolfscrag land system (Wg)



This area of relatively steep low hills formed on Ordovician sediments occurs to the south of Heathcote between Mclvor Creek and the Campaspe River. The topography is varied, with areas of hills and ridges interspersed with subdued terrain along the major streams. A characteristic feature of the land system in the steeper areas is the presence of outcropping parallel bands of resistant sandstone interspersed with more easily weathered siltstones.

A low woodland or open forest of *E. polyanthemos, E. goniocalyx* and *E. macrorhyncha* reflects the low agricultural capability of the shallow stony soils on the crests and upper slopes. *E. camaldulensis* and *E. melliodora* are confined to the yellow duplex soils on the lower slopes and to variable soils on alluvium in the major drainage depressions.

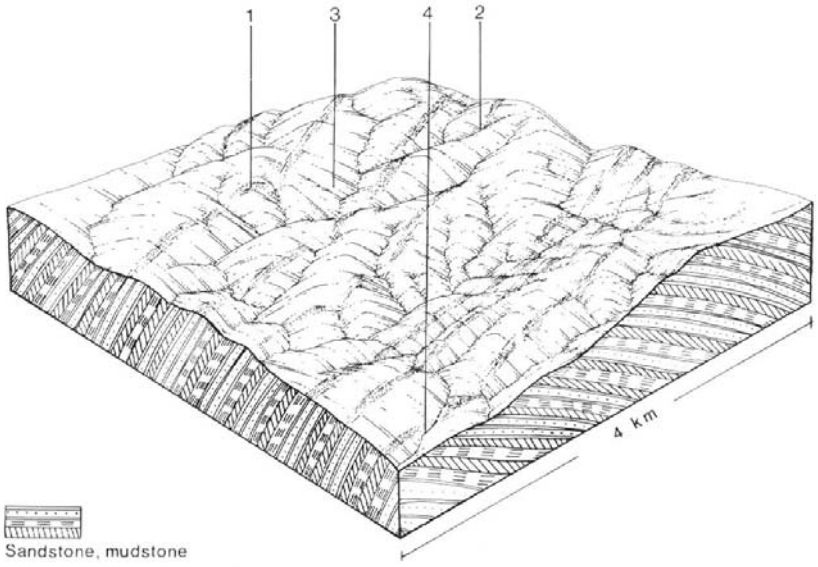
Most of the area has been cleared. Agriculture is restricted to grazing native pastures, although phalaris pastures have been established, even on steep slopes. Lucerne and other crops are grown under irrigation on a limited area of alluvial terraces.

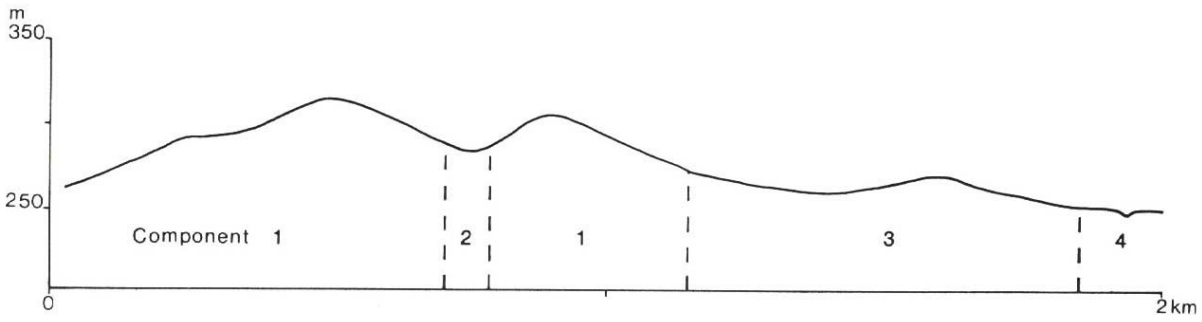
Sheet and gully erosion are the most common forms of land deterioration and the problem is accentuated by overgrazing and compaction. Clearing of the native vegetation from the shallow permeable soils of the upper slopes has resulted in the increased accession of rainwater to the groundwater table. This groundwater intersects the surface in some low-lying areas, causing dryland salting, the death or retarded growth of trees and pastures and increased erosion.

The rolling hills of the Wolfscrag land system.

The shallow rocky soils only support native pastures, and the level of animal production is low.

Salting, sheet erosion and gully erosion signify extreme land deterioration and management of the land.





WOLFSCRAG LAND SYSTEM (Wg) Area 237 km^2 5.8% of Catchment

CLIMATE				
Rainfall, mean (mm)	Annual, 550-700; lowest January (30-35), highest June or August (60-70)			
Temperature mean (^{o}C)	Annual, 14; lowest July (8), highest February (22)			
Seasonal growth limitations	Temperature less than 10^{o}C (av.): May-August Rainfall less than potential evapotranspiration: October-early April			
GEOLOGY				
Age, rock, type	Ordovician, sandstone and mudstone			
PHYSIOGRAPHY				
Landform pattern	Rolling low hills			
Elevation range (m)	200-450			
Relative relief (m)	50			
Drainage pattern	Dendritic			
Channel spacing	Moderate to close			
LAND COMPONENT				
Number	1	2	3	4
Percentage of land system	55	5	35	5
PHYSIOGRAPHY				
Landform element	Steep crest and slope with outcropping rock strata	Minor drainage depression	Gentle lower crest and slope	Major drainage depression
Slope., modal, range	20,10-40	4,1-6	5,1-12	1,0-2
Site drainage	Excessively drained	Moderately well drained	Well drained	Somewhat poorly drained
SOIL				
Parent material	Sandstone and mudstone	Alluvium and colluvium	Sandstone and mudstone	Alluvium
Description	Reddish brown or brown gradational soils, frequently stony; minor stony loams	Yellowish brown duplex soils with bleached A2 horizons	Yellowish brown duplex soils with bleached A2 horizons; occasional red duplex or red or yellowish brown gradational soils	Variable; commonly mottled yellow duplex soils overlain by a loamy wash
Classification	Gn3.14, Gn3.71, Urn; minor Dy2.1 1, Gn3.17	Dy3.41; minor Gn3.04, Gn4.51	Dy3.41; minor Dy3.21, Gn3.14, Gn3.84, Dr2.41	Dy3.41, Um over Dy3.41; minor Um
Surface texture	Loam	Loam	Loam	Sandy loam
Depth to hardpan or bedrock (m)	0.1-0.7	1.0-1.5	0.3-1.5	>2.0
Nutrient status	Very low	Low to moderate	Low surface, moderate subsoil	Low surface, moderate subsoil
Available water capacity	Low	Low surface, low to moderate subsoil	Low surface, moderate subsoil	Low surface, moderate subsoil
Permeability	Moderate	Moderate surface, slow subsoil	Moderate surface, slow subsoil	Moderate to rapid surface, slow subsoil
Exposed rock/stone (%)	10-80	0	0-10	0
Sampled site number	1090,1093	1092	1091	1089
NATIVE VEGETATION				
Structure	Open forest I/II	Open forest II	Open forest II	Open forest II
Characteristic species (+ indicates predominant species)	*E. polyanthemos*+, *E. goniocalyx*+, *E. macrorhyncha*+, *E. microcarpa*+, *E. melliodora; E. radiata* (west)	*E. camaldulensis*+ *E. melliodora, E. microcarpa*+, *E. polyanthemos, E. macrorhyncha, E.goniocalyx*	*E. microcarpa*+, *E. polyanthemos, E.goniocalyx, E. macrorhyncha, E. melliodora, E. albens*	*E. camaldulensis*+, *E.melliodora, E. rubida*
PRESENT LAND USE	Grazing on native and introduced pastures	Grazing on native and introduced pastures	Grazing on native and introduced pastures; minor cropping	Grazing on native and introduced pastures
OBSERVED SOIL DETERIORATION	Sheet erosion common and locally severe	Gully erosion and salting common	Minor sheet erosion and salting	Gully erosion common and often severe; Salting common

SUSCEPTIBILITY OF LAND TO PROCESSES OF SOIL DETERIORATION – Wolfscrag

Compt.	Process	Susceptibility	Critical land factors	Off-site effects	Comments
1	sheet and rill erosion	high	• **MODERATE TO STEEP SLOPES** • hydrophobic topsoil	• sedimentation	numerous rock outcrops impede overland flow, thereby increasing the infiltration of water; the shallow topsoils have a low tolerance of erosion
	leaching of nutrients	moderate	• moderate soil permeability • moderate cation exchange capacity • low percentage base saturation	• -	-
	compaction of topsoil	moderate	• loamy texture • low organic matter content • weak topsoil structure	• increased run-on	-
2	gully erosion	moderate	• minor accumulations of alluvium • subsoils that slake/disperse	• sedimentation • turbid run-on	-
	compaction of topsoil	moderate	• loamy texture • topsoil often moist	• -	-
	salting	moderate	• saline groundwater table at shallow depth	• saline stream flows • water turbidity	loss of the protective vegetative cover due to salt toxicity can initiate erosion problems
3	sheet and rill erosion	moderate	• gentle slopes • hydrophobic topsoil • clayey subsoils of low permeability	• sedimentation	-
	compaction of topsoil	moderate	• loamy texture • low organic matter content	• increased run-on	-
	salting	moderate	• saline groundwater table at shallow depth • stored salts in soil and parent material	• saline stream flows • water turbidity	as for component 2
4	stream-bank erosion	moderate	• accumulations of alluvium • subsoils that slake/disperse	• sedimentation • turbid stream flows	-
	salting	high	• saline water table at shallow depth • stored salts in soil and parent material	• saline stream flows	as for component 2
	compaction of topsoil	moderate	• loamy texture • topsoil often moist • low-moderate organic matter content	• -	-

The dry, rocky slopes contrast with the west, saline drainage depressions; only the low productivity is common