7.27 Sargent land system (St)

This area of rolling hills occurs within the Harcourt granitic pluton on the western boundary of the catchment. The hills and ridges are characterised by areas of prominent rock outcrop and gentler rock-free slopes and saddles.

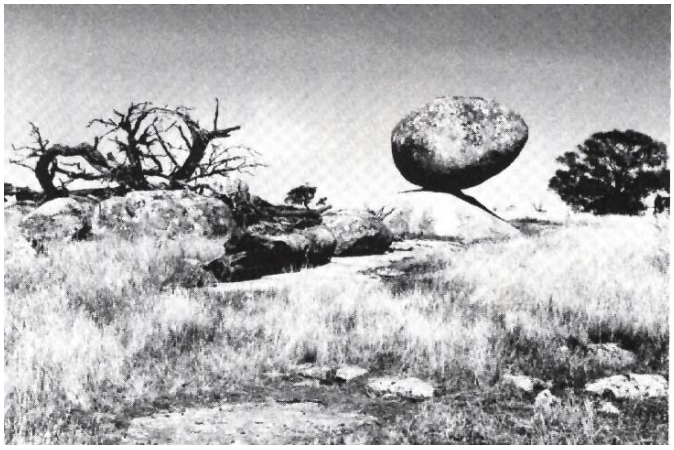
The rocky crests and steep slopes have coarse sands, whereas mottled yellow duplex soils occur on the gentler slopes and rock-free saddles. Yellow duplex soils occur in the drainage depressions, frequently overlain by a young coarse sandy wash.

Remnants of the native vegetation indicate that *E. camaldulensis* was dominant throughout, and *E. viminalis* was restricted to the rocky crests and steep slopes. A frequently associated species is *E. melliodora.* Land use is restricted to grazing on native or introduced pastures because of steepness and soil qualities such as low available water capacity and ready leaching of nutrients.

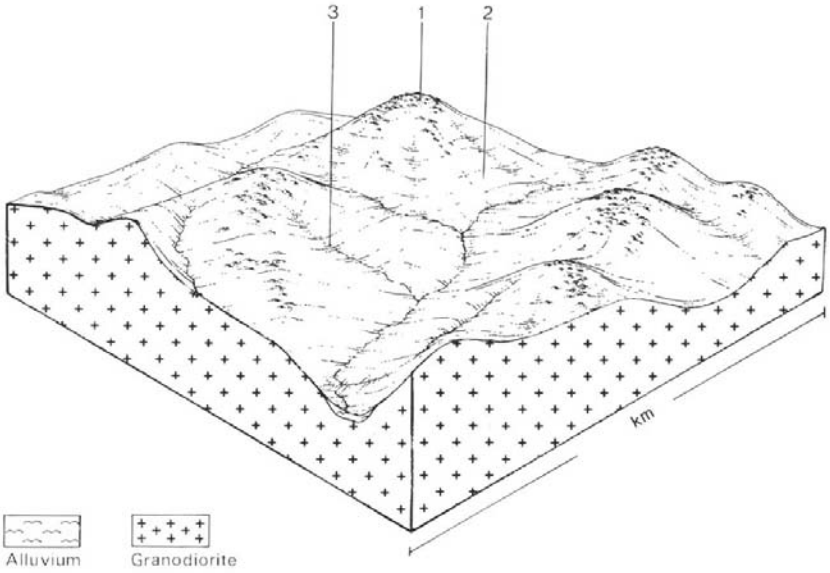
The sandy surfaces are prone to sheet erosion by water and wind, but under average management deterioration is slight. Gully erosion occurs to a minor extent and, although not generally serious, it can be difficult to control because of the steepness and inaccessibility of the drainage depressions.

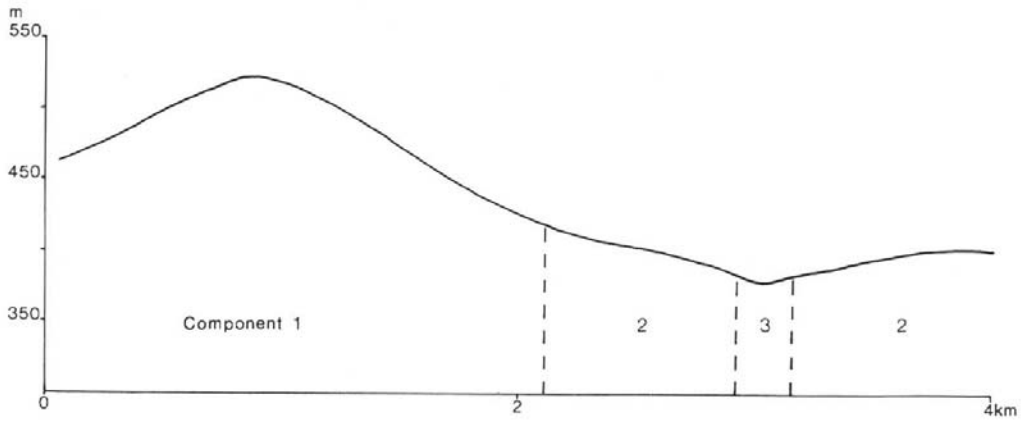
Outcropping of bedrock is a feature of these cleared rolling hills.

Components of the Sargent land system



Sculpture by Mother Nature and Father Time.





SARGENT LAND SYSTEM (St) Area 57 km^2 1.4% of catchment

CLIMATE			
Rainfall, mean (mm)	Annual, 600-700; lowest December (40-45), highest August (70-75)		
Temperature, mean (^{o}C)	Annual, 13; lowest July (6), highest February (20)		
Seasonal growth limitations	Temperature less than 10^{o}C (av.): May-August Rainfall less than potential evapotranspiration: October-early April		
GEOLOGY			
Age, rock type	Devonian, granodiorite		
PHYSIOGRAPHY			
Landform pattern	Rolling hills		
Elevation range (m)	340-560		
Relative relief(m)	100		
Drainage pattern	Radial/dendritic		
Channel spacing	Sparse		
LAND COMPONENT			
Number	1	2	3
Percentage of land system	45	50	5
PHYSIOGRAPHY			
Landform element	Crest and steeper slope, generally rocky	Gentle slope and saddle, generally rock-free	Minor drainage depression
Slope; modal, range	35,15-50	10,2-20	2,1-3
Site drainage	Excessively drained	Well drained	Moderately well drained
SOIL			
Parent material	Granodiorite	Granodiorite	Alluvium
Description	Brown coarse sandy soils; occasional mottled yellow duplex soils	Mottled yellow duplex soils with bleached A2 horizons; occasional sandy soils	Mottled yellow duplex soils with bleached A2 horizons, occasionally overlain by a recent sandy wash layer
Classification	Ucl.21	Dy3.4 1, Dy3.42; minor Uc1	Dy3.41; minor Uc over Dy3.41
Surface texture	Coarse sandy loam, loamy coarse sand	Coarse sandy loam, loamy coarse sand	Sandy loam
Depth to hardpan or bedrock (m)	03-0.5	0.6-1.5	> 2.0
Nutrient status	Low	Low	Low
Available water capacity	Very low	Low surface, moderate. subsoil	Low surface, moderate subsoil
Permeability	Rapid	Rapid surface, slow subsoil	Rapid surface, slow subsoil
Exposed rock/stone	10-80	0-10	0
Sampled site number	1030	718,1031	-
NATIVE VEGETATION			
Structure	Woodland II / Open forest II	Open forest II	Open forest II
Characteristic species (+ indicates predominant species)	*E. viminalis+, E. camaldulensis+ E.melliodora, E.goniocalyx, E. rubida*	*E. camaidulensis+, E.melliodora E. rubida*	*E .camaidulensis+, E. rubida*
PRESENT LAND USE	Grazing of native and improved pastures	Grazing of native and improved pastures	Grazing of native pastures
OBSERVED SOIL DETERIORATION	Sheet and wind erosion common	Minor sheet and wind erosion	Minor gully erosion

SUSCEPTIBILITY OF LAND TO PROCESSES OF SOIL DETERIORATION – Sargent

Compt.	Process	Susceptibility	Critical land factors	Off-site effects	Comments
1	sheet and rill erosion	low to moderate	• steep slopes • rock outcrops	• sedimentation	high soil permeability reduces overland water flow and reduces the erosion hazard added fertilizers are readily leached
	wind erosion	moderate to high	• weakly structured sandy topsoil • exposed topographic position • low water-holding capacity of • topsoil	• sedimentation	-
	leaching of nutrients	high	• high soil permeability • low cation exchange capacity • low percentage base saturation	• -	added fertilizers are readily leached
	landslip	low to moderate	• moderate to steep slopes • high soil permeability • impermeable rock or hardpan • below solum	• sedimentation	-
2	sheet and rill erosion	moderate	• moderate slopes • clayey subsoils of low • permeability	• sedimentation	-
	wind erosion	moderate	• weakly structured sandy topsoil • low water holding capacity of • topsoil	• sedimentation	-
	leaching of nutrients (topsoil)	high	• high topsoil permeability • low cation exchange capacity • low percentage base saturation	• -	added fertilizers are readily leached
3	gully erosion	low	• minor accumulations of sandy alluvium	• sedimentation	-
	compaction of topsoil	low	• sandy or loamy texture • occasionally moist	• -	-
	leaching of nutrients (topsoil)	moderate to high	• high top soil permeability • low cation exchange capacity • low percentage base saturation	• -	added fertilizers are readily leached

This lush spring growth of cape weed will disappear by summer, leaving the sandy topsoil exposed to the erosive forces of wind and water.

Conservative stocking (and allowing the vegetation to proliferate) has stabilised this gully.