LANDS OF THE
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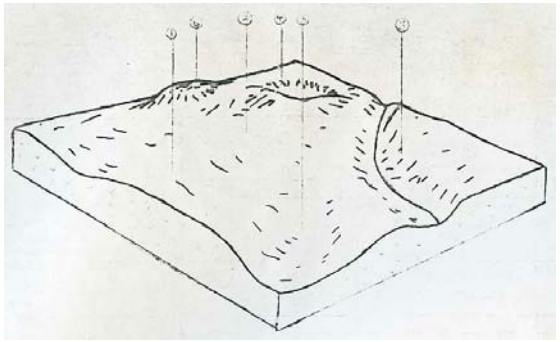
1977

By

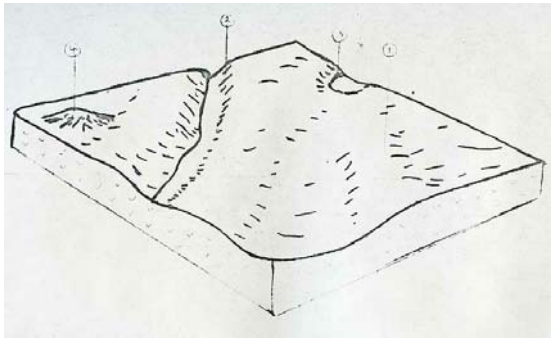
P J Jeffery



Land System No. 1

Area 85.8 km^2 Represents 36.7%

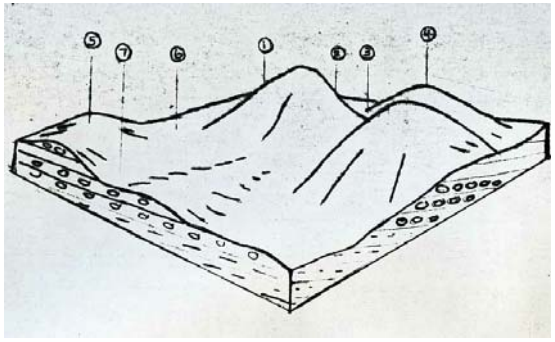
COMPONENT	1	2	3	4	5	6
Proportion %	50	24	15	6	2	3
CLIMATE (Average)						
Precipitation	Annual mm 851					
Temperature	Annual ^{o}C 11.8					
Seasonal growth factors	Temperature less than 10^{o}C – March to September					
GEOLOGY						
Age, rock	Pleistocene basalt					
TOPOGRAPHY						
Landscape	Gently undulating plains in north of catchment area					
Local relief, elevation m	3; 560					
Drainage pattern, density km/m^{-2}	Dendritic; 2					
Land form	Plain					
Position on land form	Upper slope	Middle slope	Lower slope	Low lying areas	Scarp	Stony rise
Slope, Slope shape	2; Convex	3; Straight	1; Concave	2; Straight	10; Convex	2; Straight
SOIL						
Parent material from	Basalt					
Group	Red gradational soil, fine structure	Dark red gradational soil, fine structure	Mottled, yellow sodic duplex soil, coarse structure	Mottled yellow, sodic duplex soil, coarse structure	Red shallow gradational soil	Red shallow stony gradational soil
Surface texture	Clay loam	Loam	Clay loam	Clay loam	Clay loam	Clay loam
Depth (average)	>1	>1	>1	>1	>1	0.8
PRESENT LAND USE	Cropping, Grazing (potatoes)	Cropping (cereal) Cropping (potatoes)	Grazing Cropping	Grazing Cropping (potatoes)	Cropping (potatoes)	
SOIL DETERIORATION						
Critical land features	Slope, exposure	Slope, hard setting surfaces	Low permeability, hard setting surfaces		Steep slopes	
Processes	Overland flow	Overland flow	Waterlogging		Overland flow	
Form	Sheet and wind erosion	Compaction, wind and sheet erosion	Compaction		Rill and sheet erosion	



Land System No. 2

Area 55 km^2 Represents 23.5%

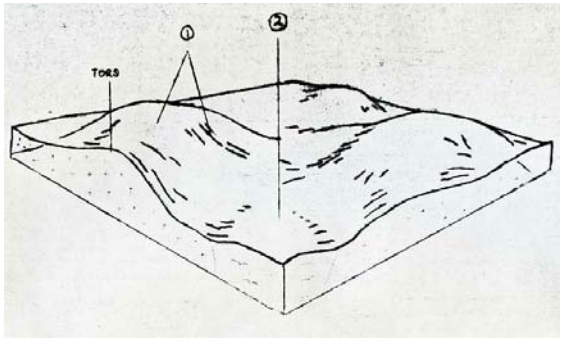
COMPONENT	1	2	3	4	
Proportion %	88	5	5	2	
CLIMATE (Average)					
Precipitation	Annual mm 775				
Temperature	Annual ^{o}C 118				
Seasonal growth factors	Temperature less than 10^{o}C – March to September				
GEOLOGY					
Age, rock	Pleistocene, basalt				
TOPOGRAPHY					
Landscape	Gently undulating plains, centre and southern part of catchment				
Local relief, elevation m	25; 520				
Drainage pattern, density km/m^{-2}	Dendritic; 1.8				
Land form	Plain				
Position on land form	Crest and slope	Scarp	Depression and swale	Stony rise	
Slope, Slope shape	3; Straight	15; Concave	2; Straight	2; Straight	
NATIVE VEGETATION					
Structure	Open forest				
Dominant species	*E. ovata, E. viminalis, E. rubida, E. obliqua*				
SOIL					
Parent material from	Basalt				
Group	Mottled yellow, grey sodic duplex soil; coarse structure	Red shallow gradational soil	Black clay soil, uniform texture, coarse structure	Red shallow stony gradational soil	
Surface texture	Clay loam	Clay loam	Clay	Clay loam	
Depth (average)	>1	0.5	>1	0.8	
PRESENT LAND USE					
SOIL DETERIORATION					
Critical land features	Hard setting surfaces, slowly permeable subsoil	Slope, hardsetting surfaces	Clay soils beside creeks	Slope	
Processes	Overland flow, periodic waterlogging	Overland flow	Waterlogging, streambank undercutting	Overland flow	
Form	Compaction of surfaces, sheet erosion	Rill and sheet erosion, land slip	Streambank erosion	Sheet erosion	



Land System No. 3

Area 25.1 km^2 Represents 10.7%

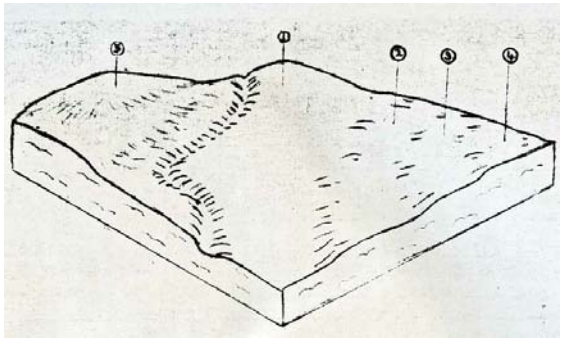
COMPONENT	1	2	3	4	5	6	7
Proportion %	4	10	4	12	10	40	20
CLIMATE (Average) Precipitation Temperature	Annual mm 760 Annual ^{o}C 11.8						
Seasonal growth factors	Temperature less than 10^{o}C – March to September						
GEOLOGY Age, rock	Ordovician, slates and sandstones						
TOPOGRAPHY Landscape Local relief, elevation m Drainage pattern, density km/m^{-2} Land form	Hills and rolling plains at southern, eastern and western end of catchment 50; 1150 Dendritic; 4 Hill and rolling plain						
Position on land form	Southern slope	Northern slope	Upper swale	Crest	Lower crest	Lower slope	Lower swale
Slope, Slope shape	15; Straight	15; Straight	3; Concave	3; Convex	2; Convex	7; Straight	2; Concave
NATIVE VEGETATION							
Structure	Tall open forest	Woodland					Open forest
Dominant species	*E. obliqua* *E. ovata* *E. radiata* *E. viminalis*	*E. obliqua* *E. dives* *E. viminalis* *E. radiata*	*E. radiata* *E. viminalis* *E. obliqua*	*E. obliqua* *E. dives* *E. viminalis* *E. radiata*	*E. obliqua* *E. radiata*	*E. viminalis* *E. radiata* *E. obliqua*	*E. ovata* *E. obliqua*
SOIL							
Parent material from	In-situ weathered rock		Alluvium clay, silt, sand and gravel	In-situ weathered rock			Alluvium clay, silt, sand and gravel
Group	Mottled yellow, red duplex soil, fine structure		Black gradational soil (variable)	Red shallow stony red gradational soil		Mottled yellow, red duplex soil	Mottled yellow, red gradational soil
Surface texture	Fine sandy loam		Clay loam	Gravelly loam		Clay loam	
Depth (average)	1	1	>1	0.5	0.6	1	>1
PRESENT LAND USE	Forestry and grazing						
SOIL DETERIORATION							
Critical land features	Steep slopes, hardsetting surfaces		Moderate permeability, hardsetting surfaces, dispersibility	Moderate slopes, hardsetting surfaces	Hardsetting surfaces, dispersibility	Hardsetting surfaces	Moderate dispersibility, poorly drained site, hardsetting surfaces
Processes	Overland flow		Overland flow, subsurface waterlogging	Overland flow	Overland flow, leaching of salts	Overland flow, leaching of salts	Overland flow, accumulation of salts
Form	Sheet and rill erosion, compaction		Gully erosion, compaction	Sheet and rill erosion, compaction	Sheet and rill erosion, compaction	Sheet and rill erosion, gully erosion, compaction	Salting, gully erosion



Land System 4

Area 32.1 km^2 Represents 13.7%

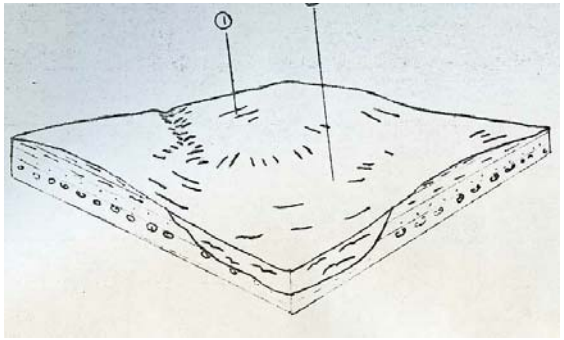
COMPONENT	1	2
Proportion %	30	70
CLIMATE (Average)		
Precipitation	Annual mm 771	
Temperature	Annual ^{o}C 11.8	
Seasonal growth factors	Temperature less than 10^{o}C – March to September	
GEOLOGY		
Age, rock	Devonian; granite, granodiorite	Quaternary; wash, gravels, sands and clays
TOPOGRAPHY		
Landscape	Hilly and rolling country in the centre south of catchment area	
Local relief, elevation m	30	520
Drainage pattern, density km/m^{-2}	Dendritic; 4.8	
Land form	Hill	Fan and swale
Position on land form	Crest and slope	Swale
Slope, Slope shape	7; Convex	3; Straight
NATIVE VEGETATION		
Structure	Open forest	
Dominant species	*E. radiata; E. viminalis*	*E. ovata; E. obliqua; E. radiata*
SOIL		
Parent material from	In-situ weathered rock	Unconsolidated wash
Group	Mottled yellow, red duplex soil	
Surface texture	Sandy loam	
Depth (average)	1	>1
PRESENT LAND USE	Grazing Soil and gravel stripping	
SOIL DETERIORATION		
Critical land features	Moderate slope, low permeability, hardsetting surfaces	Poorly drained site, low permeability, hardsetting surfaces, dispersible soils
Processes	Overland flow, subsurface flow, deep seepage, leaching of salts	Accumulation of salts, overland flow, waterlogging, subsurface flow
Form	Rill and gully erosion, sheet erosion	Salting, gully erosion, compaction



Land System 5

Area 13 km^2 Represents 5.6%

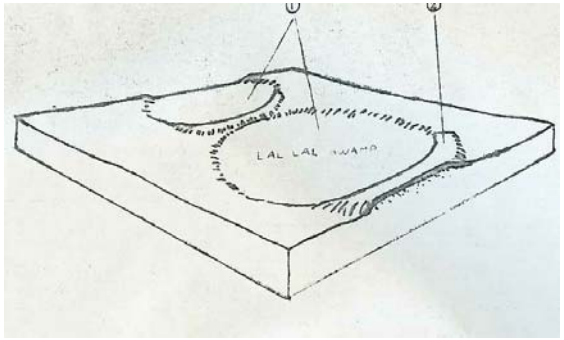
COMPONENT	1	2	3	4	5
Proportion %	80	5	5	5	5
CLIMATE (Average)					
Precipitation	Annual mm 800				
Temperature	Annual ^{o}C 11.8				
Seasonal growth factors	Temperature less than 10^{o}C – March to September				
GEOLOGY					
Age, rock	Quaternary; river deposits, gravels, sands and clays				
TOPOGRAPHY					
Landscape	Main river terraces in the southern part of the catchment				
Local relief, elevation m	1-4; 420-550				
Drainage pattern, density km/m^{-2}	Dendritic; 2				
Land form	Terrace 1	Terrace 2	Terrace 3	Terrace 4	Terrace 5
Position on land form	-	-	-	-	-
Slope, Slope shape	1; Straight	1; Straight	1; Straight	2; Straight	2; Convex
NATIVE VEGETATION					
Structure	Woodland				
Dominant species	*E. viminalis, E. radiata*				
SOIL					
Parent material from					
Group	Dark brown loam soil, uniform texture (variable)	Yellow brown duplex soil	Yellow duplex soil, coarse structure	Yellow gravelly duplex soil	Mottled yellow, red duplex soil
Surface texture	Fine sandy clay loam	Sandy clay loam	Medium sandy clay loam	Clay loam	Sandy loam
Depth (average)	>1	>1	>1	>1	>1
PRESENT LAND USE	Grazing				Gravel stripping
SOIL DETERIORATION					
Critical land features	Low lying areas, receiving drainage	Low permeability, hardsetting surfaces, structure			Slowly permeable subsoils, hardsetting surfaces, slope
Processes	Waterlogging, overland flow	Overland flow, movement of salts, subsurface flow waterlogging			Overland flow
Form	Streambank erosion, gully erosion	Streambank erosion, gully erosion, compaction			Sheet erosion, compaction



Land System No. 6

Area 11.3 km^2 Represents 4.8%

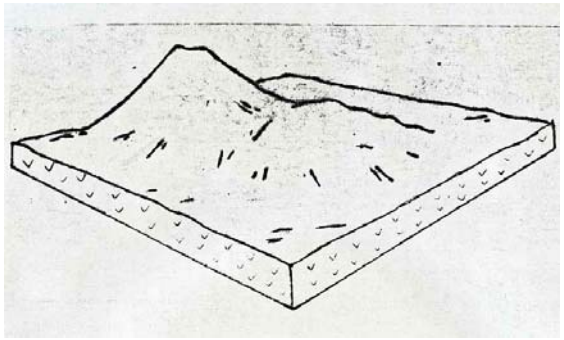
COMPONENT	1	2
Proportion %	50	50
CLIMATE (Average)		
Precipitation	Annual mm 760	
Temperature	Annual ^{o}C 11.8	
Seasonal growth factors	Temperature less than 10^{o}C – March to September	
GEOLOGY		
Age, rock	Tertiary; gravels, sands and clays	Quaternary alluvium; Tertiary colluvium derived from Ordovician rocks
TOPOGRAPHY		
Landscape	Scattered low hills and low lying plains in the southern part of the catchment	
Local relief, elevation m	2; 490	
Drainage pattern, density km/m^{-2}	Dendritic; 2.2	
Land form	Low hill	Plain
Position on land form	-	-
Slope, Slope shape	3; Convex	2; Straight
NATIVE VEGETATION		
Structure	Woodland	
Dominant species	*E. viminalis, E. obliqua, E. radiata, E. rubida*	*E. ovata*
SOIL		
Parent material from	Unconsolidated gravel, sand and clay	Unconsolidated sediment
Group	Mottled yellow, red duplex soil	
Surface texture	Sandy loam	
Depth (average)	1	>1
PRESENT LAND USE	Grazing	
	Gravel extraction	
SOIL DETERIORATION		
Critical land features	Hardsetting surfaces, dispersibility, permeability moderate	Hard setting surfaces, low subsoil permeability
Processes	Leaching of salts, overland flow	Accumulation of salts, waterlogging
Form	Sheet and rill erosion, gully erosion	Salting, compaction



Land System 7

Area 5.1 km^2 Represents 2.2%

COMPONENT	1	2
Proportion %	90	10
CLIMATE (Average)		
Precipitation	Annual mm 749	
Temperature	Annual ^{o}C 11.8	
Seasonal growth factors	Temperature less than 10^{-o}C – March to September	
GEOLOGY		
Age, rock	Recent; sands, silts and clays	
TOPOGRAPHY		
Landscape	Swamps with lunettes to the east	
Local relief, elevation m	<1; 475	1 – 2; 477
Drainage pattern, density km/m^{-2}	-	-
Land form	Swamp	Lunette
Position on land form	-	-
Slope, Slope shape	<1; flat	3; Convex
NATIVE VEGETATION		
Structure	Woodland	Open forest
Dominant species	*E. ovata*	*E. viminalis, E. radiata*
SOIL		
Parent material from	Unconsolidated swamp deposit	Unconsolidated sand
Group	Mottled dark grey, yellow gradational soil	Yellow sand soil, uniform texture
Surface texture	Light clay	Sand
Depth (average)	>2	>2
PRESENT LAND USE	Grazing, occasional cropping (cereal)	Urban, soil stripping
SOIL DETERIORATION		
Critical land features	Slowly permeable soils	Low water holding capacity, low nutrient holding capacity
Processes	Waterlogging	Leaching
Form	Compaction	Fertility decline



Land system 8

Area 3.7 km^2 Represents 1.6%

COMPONENT	1
Proportion %	100
CLIMATE (Average)	
Precipitation	Annual mm 813
Temperature	Annual ^{o}C 11.8
Seasonal growth factors	Temperature less than 10^{o}C – March to September
GEOLOGY	
Age, rock	Pleistocene basalt, scoria, tuff
TOPOGRAPHY	
Landscape	Scattered volcanic cones
Local relief, elevation m	60; 610
Drainage pattern, density km/m^{-2}	Radial; -
Land form	Volcanic cone
Position on land form	Slope and crest
Slope, Slope shape	31; Straight
NATIVE VEGETATION	
Structure	Open forest
Dominant species	*E. viminalis, E. obliqua, E. radiata, E. pauciflora*
SOIL	
Parent material from	Basalt, scoria
Group	Stony red gradational soil
Surface texture	Clay loam
Depth (average)	1
PRESENT LAND USE	Grazing, forestry (Mt Warrenheip) Recreational (Mt Buninyong)
SOIL DETERIORATION	
Critical land features	Steep slopes
Processes	Overland flow
Form	Rill and sheet erosion