

7. LAND SYSTEMS

Concept

Definition of mapping units is based on the ecosystem concept, in which several land features are integrated. Climate, geological material, land form, soil and native vegetation are each considered because they affect the inherent properties and processes of the land and its response to management.

The mapping units and their interrelations are recognised by examining and matching classes of these features in local and regional sequences. Local sequences are repetitive — usually slope sequences of particular soils and vegetation within particular land-form associations. Superimposed at the regional scale are the effects of climatic trends.

The land is described in terms of its condition before intensive modification, which began in the mid 19th Century and has subsequently extended to a large proportion of the State. To establish this natural condition requires observations on relatively undisturbed sites, and the lack of such sites leads to a lack of data in some intensively used districts. Knowledge of the natural condition provides a standard against which to compare the effects of uses on the land and *vice versa*.

In general concept, the mapping unit can be considered as an area of land with specific variation in the five features listed above, and therefore having a specific range of properties and processes significant for a variety of uses — in terms of production, land deterioration hazard and management.

Mapping is required at various scales to meet planning needs ranging from a few hectares to the whole State. The Ovens and King catchment study uses three categories of mapping unit: land component, land system and land zone. Table 10 shows their common limits of variation. Variability of landscapes precludes the setting of rigid scales for the categories. For example, land systems are commonly mapped at scales of 1:100 000 to 1:250 000, but occasionally at 1:50 000 or 1:500 000.

Definitions

A land component is an area of land, distinct from surrounding terrain, having a particular combination of classes of geological material, land form, soil and native vegetation.

A land system is an area of land, distinct from surrounding terrain, within which particular classes of land features are consistently associated and are expressed as a recurring sequence of particular land components. The land components generally occur in similar proportions, and have similar interrelations in each occurrence of a particular land system.

A land zone is an area of land consisting of land systems that are related in terms of one or more of the independent land features — land form, geological material and climate. Soils and native vegetation are listed in broad terms, but differences in these are not used as criteria.

Table 10 — Limits of variation in classes of land characteristics for the mapping units

Mapping unit	Land form	Geological material	Soil	Native vegetation
Land component	Land form or slope segment	Uniform texture, structure, genesis	Series	Association
Land system	Land form(s)	Varied texture, structure, genesis	Series, association	Alliance(s)
Land zone	Land forms(s)	Dominant texture, structure, genesis	Principal profile forms	Formation(s)

Authorities are as follows:

Land form	- Alley and Jenkin (person communication 1980)
Geological material	- Texture, Wentworth (1922)
Soil	- Series, series complex, series association – Soil Survey staff, 1951 Principal profile form – Northcote (1979) (Series is regarded as analogous to extended principal profile form PPF + of Northcote 1979)
Native vegetation	- Association, alliance – Beadle and Costin (1952) Formation – Specht (1970)

Table 11 — Land system boundary characteristics

Land system	1. Bowman	2. Buckland	3. Buffalo	4. Bungamero	5. Carboor	6. Cobbler	7. Dandongadale	8. Drum Top	9. Evans	10. Feathertop	11. Hansonville	12. King	13. Koonika	14. Mahaakah	15. Moyhu	16. Myrthee	17. Myrtleford	18. Ovens	19. Pinnacles	20. Porepunkah
1. Bowman																				
2. Buckland																				
3. Buffalo		Gr																		
4. Bungamero			Cl																	
5. Carboor																				
6. Cobbler																				
7. Dandongadale				Gp																
8. Drum Top																				
9. Evans								Cl												
10. Feathertop		Cv				Cl														
11. Hansonville	Cl																			
12. King		Cr						Gp	Cl	Cv										
13. Koonika				Cl	Cl				Cr	Cv		Cr								
14. Mahaakah													Cl							
15. Moyhu	Cl										Cl									
16. Myrthee					Gp/r						Cl	Cn								
17. Myrtleford	Cl	Cl		Cl				Cl			Gp									
18. Ovens	Cl			Cl	Cl				Cl		Cl			Cl		Cl				
19. Pinnacles		Gr/p		Cl	Cr				Cr/l	Cv							Cl			
20. Porepunkah	Gp	Gv	Cr	Cl	Gp	Cl/r	Gp									Gp/r			Gr	
21. Stanley																			C	Cl
22. Toombullup								Cl				Cl	Gr							
23. Wabonga				Gp				Cr/l				Cl/r	Cl	Gr						
24. Yackandandah																Gp/p		Cl		

Boundary type	Land characteristic used
C clear	l land form
G gradual	r rock type
	v vegetation
	p land-form pattern

Application

The underlying aim in the mapping was to identify areas within which each of the important land features varied sufficiently little to enable useful generalisations to be made. Where the soils or vegetation within a preliminary mapping unit had a large range and the map scale allowed, subdivision to reduce the range was made.

Within the final land systems, areas with relatively uniform slopes, soils and native vegetation have been identified. These are the land components, which provide the basis for presenting the details of the distribution of the various land characteristics.



Major changes in slope or soil parent material are used to separate land systems. Land systems depicted are Wabonga (plateau), King (steep slopes), Myrtleford (foot slopes) and Ovens (stream alluvium).

Twenty-four land systems have been identified and mapped in this study area. The preliminary mapping units were based on differences in terrain patterns — as determined by stereo-interpretation of aerial photographs, rock type and, to a lesser extent, climate. Some boundaries were based on easily observed changes in land form or slope or rock, but often changes from one type of land to another are gradual, and the boundaries were placed where they were considered to have most application in terms of possible uses of land. Table 11 gives details of the boundary features for each land system.

The description of each land system includes a general description, a block diagram showing the topographic situation of each land component, an aerial photo stereogram, a photograph and a table of land features. The table of land features provides detailed information on productivity, hazards and many aspects of management. Brief explanations of how the data were derived and the basis for terms used are presented in Appendix VI.

Provisional land systems for the area, based on this study, have been published previously (Land Conservation Council 1974). Although the land systems presented in this report are very similar, some differences will be apparent.