

BERRINGAMA LAND SYSTEM

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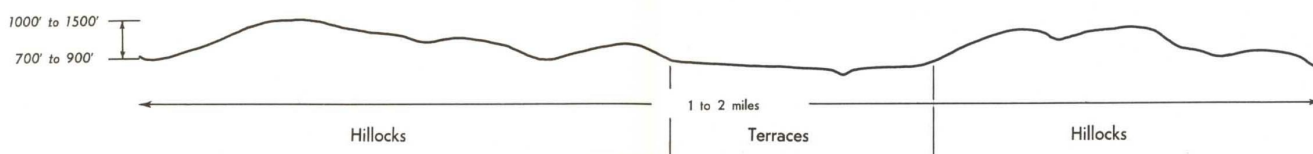
Area: 119 square miles 3.1% of catchment

Comprising two sub-systems

(b) Lucyvale sub-system

(c) Wagra sub-system

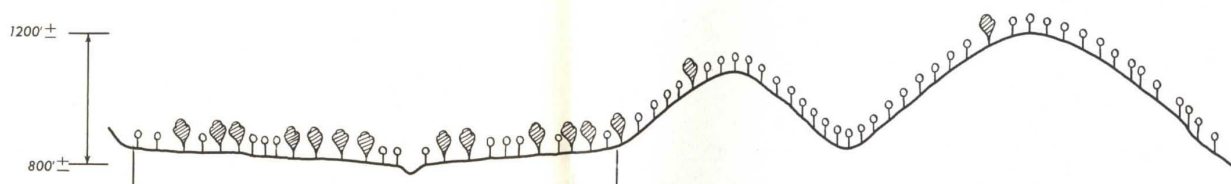
(a) Distribution of land forms



(b) Sub-system diagram

LUCYVALE SUB-SYSTEM

Area: 39 square miles 1.0% of catchment

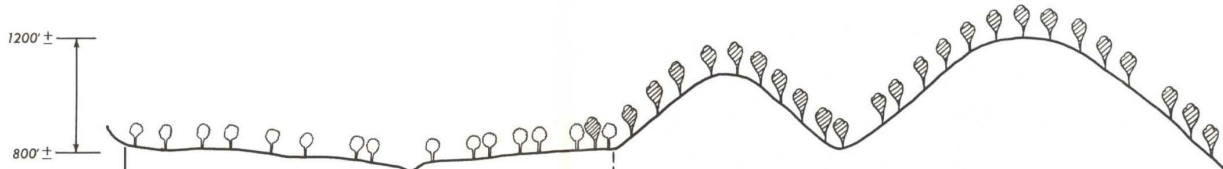


Climate	Average annual rainfall about 40 in.—cooler and moister than the Wagra sub-system ; rainfall has a winter incidence ; occasional summer storms	
Geology	Post-Pliocene alluvium ; very limited areas of Recent alluvium	Mainly grey granite or gneiss ; some schist and Ordovician sediments
Topography	Undulating to rolling	Rolling to hilly and occasionally steep
Land Form	Terraces, small areas of stream flats. Occasional alluvial fans at break of slope	Hillocks
Soil Groups	Red podzolic soils, merging into amphipodzols Alluvial brown earths on stream flats	Mainly leptopodzols, some amphipodzols and red podzolic soils
Vegetation Structure	Dry sclerophyll forest tending to wet sclerophyll forest. Tall woodland along streams	Dry sclerophyll forest tending to wet sclerophyll forest
Vegetation Floristics	<i>E. macrorhyncha</i> alliance to <i>E. radiata-E. rubida-E. dives</i> alliance <i>E. camphora-E. stellulata</i> alliance along streams	<i>E. radiata-E. rubida-E. dives</i> alliance ; occasional <i>E. macrorhyncha</i> alliance
Present Land-use	Grazing sheep for wool and meat, beef cattle and dairying	
Potential Land-use	Generally suitable for present forms of land-use ; however, greater production could be achieved with improved pastures. More internal subdivisional fencing to separate lands with differing potential would enable better pasture management and contribute to increased productivity Perennial pastures should be possible. Irrigation of small areas from permanent streams would be possible	
Hazards	Minor sheet erosion ; some gully erosion and some stream-bank erosion Hazard generally moderate to low	Moderate sheet erosion, particularly on northern and western aspects. Occasional slumping of steep slopes Hazard moderate. The erosion hazards are higher on coarse-textured soils derived from granite or gneiss
Problems	Development of improved pastures and management. Development of supplementary irrigation for summer fodder crops and perennial pastures	Improvement of pastures, particularly on steeper land, without causing conversion to high-fertility annual weeds. Subdivisional fencing and control of grazing stock ; management of the steeper land

(c) Sub-system diagram

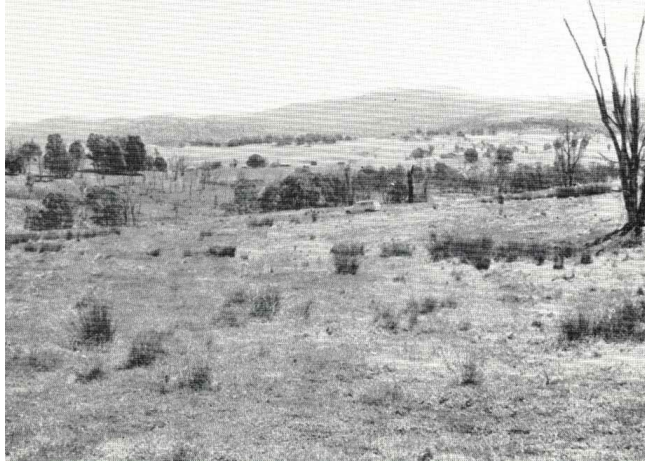
WAGRA SUB-SYSTEM

Area: 80 square miles 2.1% of catchment



Climate	Average annual rainfall 30 in. to 35 in.—warmer and drier than the Lucyvale sub-system; rainfall has winter incidence; occasional summer storms	
Geology	Post-Pliocene alluvium; very limited areas of Recent alluvium	Mainly grey granite or gneiss; some schist; quartz porphyry in Walwa Creek area
Topography	Undulating to rolling	Rolling to hilly and occasionally steep
Land Form	Terraces; small areas of stream flats. Alluvial fans at break of slope	Hillocks
Soil Groups	Mainly red podzolic soils, some leptopodzols, particularly on alluvial fans. Alluvial brown earths on stream flats	Mainly leptopodzols; occasional amphipodzols and red podzolic soils
Vegetation Structure	Savannah woodland to dry sclerophyll forest	Dry sclerophyll forest
Vegetation Floristics	<i>E. tereticornis</i> - <i>E. albens</i> - <i>E. goniocalyx</i> alliance to <i>E. macrorhyncha</i> alliance <i>E. camaldulensis</i> on wet stream flats	<i>E. macrorhyncha</i> alliance
Present Land-use	Grazing sheep for wool and meat, beef cattle and dairying. Small soft-fruits orchards in George's Creek area	
Potential Land-use	Generally suitable for present forms of land-use. Greater productivity could be achieved with improved pastures. More internal subdivisional fencing to separate lands of differing potential would enable better pasture management and contribute to increased productivity	Limited irrigation of summer crops from small permanent streams in some areas
Hazards	Minor sheet erosion, some gully erosion and some stream-bank erosion Hazard generally moderate to low	Moderate sheet erosion, particularly on northern and western aspects, and occasional slumping of steep slopes Hazard moderate. The erosion hazards are higher on coarse-textured soils derived from granite or gneiss
Problems	Development of improved pastures and management. Development of supplementary irrigation for summer fodder crops and perennial pastures	Improvement of pastures, particularly on steeper land, without causing conversion to high-fertility annual weeds. Subdivisional fencing and control of grazing stock; management of the steeper land

Fig 32. – Berringama Land System



**Plate 36. Berringama land system in the Pheasant Creek catchment.
This land should be capable of considerably higher productivity than at present.**

This land system is subdivided into two sub-systems, which have been named Lucyvale and Wagra. The land system is made up of a number of small areas all of which are in the northern part of the catchment. Its total area is 119 square miles which is 3 per cent. of the catchment. The main difference between the two sub-systems is in climate ; the Lucyvale sub-system is slightly cooler and has a somewhat higher rainfall.

Lucyvale Sub-System

The areas which make up the major part of this sub-system are in the valleys of Pheasant and Beetoomba Creeks, and the upper reaches of Cudgewa Creek, north and south of the settlement of Berringama. Another part is the valley of Callaghans or Watchingorra Creek, to the north-east of Mitta Mitta township. The total area of the sub-system is about 39 square miles which is one per cent. of the catchment area. Most of the sub-system is freehold land, but there are areas of Crown land in the Upper Cudgewa and Pheasant Creek valleys.

In both of the sub-systems the hillock land form is the most extensive, and old stream terraces and alluvial fans are of lesser extent (Figure 32). There are very few recent stream flats, and where they are present they are small. This land system usually occurs in the upper-valley tracts of tributaries to major streams (Plate 36).

In the Pheasant Creek, Beetoomba Creek and Cudgewa Creek areas, the rocks are almost entirely grey granite or gneiss, whereas the Callaghans Creek (Watchingorra Creek) area has a large proportion of Ordovician mudstones and shales as well as some granite or gneiss in its upper reaches. The terraces have been built up from erosion products of their respective catchments and are thus alluvium of varying geological origin.

The Lucyvale sub-system has an average annual rainfall of about 40 inches, and because of its generally higher elevations, the temperatures are slightly cooler than in the Wagra sub-system. The rainfall has a winter maximum. Summers are relatively dry and hot with occasional thunder storms. Frosts are fairly common during autumn and spring and can be expected to occur both earlier and later than in the Wagra sub-system, although there are no records to confirm this.

The soils of the sub-system are mainly red podzolics on the terraces and the flatter parts of the hillocks, and leptopodzols on the steeper country. In higher-rainfall, or generally moister areas, red podzolic soils merge into amphipodzols. Small areas of alluvial brown earths occur along some streams. In areas of restricted drainage on the terraces, the red podzolic soils are replaced by yellow podzolic soils.

In general, the vegetation is a dry sclerophyll forest tending to wet sclerophyll forest of the *E. macrorhyncha* alliance and the *E. radiata-E. rubida-E. dives* alliance. Tall woodland of *E. camphora* and *E. stellulata* occurs along the stream flats. Aspect and local rain-shadow effects are important factors controlling the distribution of the types of vegetation.

Erosion is not a particularly serious problem in this sub-system. Some gullying and sheet erosion have occurred in places, but recovery is usually good with no special treatment other than careful use of the land. Slumping or earth flows may occur in wetter-than-average years, indicating that the steeper country would benefit from some tree planting to bind the soil. The shelter provided by trees is also of benefit to stock.

Land-use is mainly grazing of beef cattle and sheep with some dairying. Most farmers store grass hay as a fodder reserve and some also make silage. Pasture improvement is largely limited to annual applications for superphosphate. Areas of forested Crown land are useful for supplying fencing material, poles and firewood for local use.

The environment is quite suitable for grazing and dairying. However, greater productivity could be achieved by the use of better pasture species. Most of the country should be suitable for perennial species. Some of the Crown lands may be suitable for agricultural development, but closer examination of individual areas would be necessary for a sound decision. The economics of bringing virgin country into full production in an area so far from markets should be considered.

Many of the terrace areas could be spray-irrigated from small perennial streams which flow through them. This would allow summer fodder crops to be grown and result in an increase in farm productivity. The soils of the terraces appear to be

generally quite suitable for irrigation. Advice from irrigation experts on the economics of this operation, and on the choice and layout of plant and equipment would be necessary.

The Callaghans Creek area is more remote from a rail-head than the other areas concerned in this sub-system, and this places it at a slight economic disadvantage.

Wagra Sub-System

This sub-system consists of a number of separate, relatively small areas in the valleys of Sandy and Lockharts Creeks, Fairyknowe Creek, Spring Creek and the Georges Creek-Talgarno area, the Walwa Creek-Guys Forest area, the area around Granya township, and in the lower reaches of Koetong Creek. They are all in the northern part of the catchment and mostly on the western side. The area occupied by this sub-system is 80 square miles, which is about 2 per cent. of the total area of the catchment. It is all freehold land.

The land forms and their patterns are the same as for the Lucyvale sub-system (Figure 32).

The rocks are entirely grey granite or gneiss, the latter often closely resembling granite and producing soils of similar texture and profile development.

The climate is the factor which distinguishes the Wagra sub-system from the Lucyvale sub-system. Average annual rainfall is about 30 inches to 35 inches and has a definite winter maximum. Summers are usually relatively hot and dry with occasional thunder-storms. Because the Wagra sub-system has generally lower elevations than the Lucyvale sub-system, temperatures are a little warmer and frosts probably start later and finish earlier in the year.

The soils of this sub-system are the same as in the Lucyvale sub-system, but with only occasional amphipodzols.

The indigenous vegetation of the hillocks is dry sclerophyll forest of the *E. macrorhyncha* alliance, and on the terraces it is savannah woodland of the *E. tereticornis-E. albens-E. goniocalyx* alliance with a tendency towards dry sclerophyll forest of the *E. macrorhyncha* alliance in moister localities. *E. camaldulensis* often occurs along wet stream flats.

Excessive run-off from some parts of this sub-system, as well as causing some sheet erosion, has resulted in stream-bank erosion. This is particularly so in Fairyknowe Creek and to a lesser extent in Cottontree Creek, which flows through the Granya area, Sandy Creek and Walwa Creek. Minor

gullying and rilling occur from time to time but generally soon heal over. Slumping occurs on the steeper country in winters of excessive rainfall, but this is not usually a serious problem.

General land-use practices and problems are as described for the Lucyvale sub-system. The lower rainfall probably makes perennial species marginal for this country and results in earlier drying off of pastures in summer.