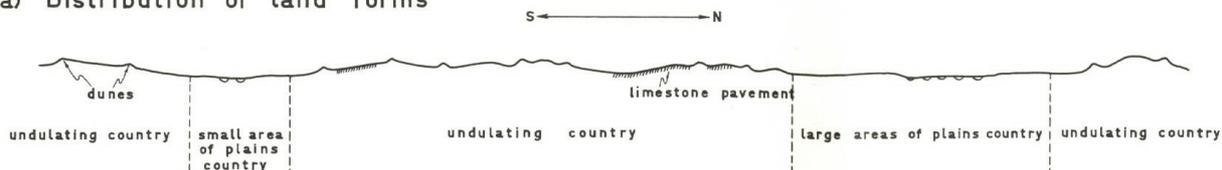


Millewa Land System

Fig. 26 – Millewa Land System

MILLEWA LAND SYSTEM

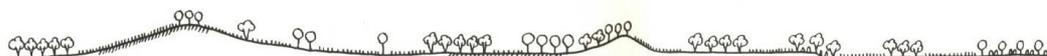
(a) Distribution of land forms



(b) Land system diagram

AVERAGE ANNUAL RAINFALL: 10"-11"

LAND USE: Grazing; cropping and grazing; small percentage of irrigation



LAND FORM	Undulating country				Plains country					
	Hummock		Plain	Dune	Plain					
Type										
Approx. percentage of land system	50		15	15	20					
Approx. cross-section	100 yards-2 miles		50 yards-1/4 mile	4-6 chains	1/4-1 mile					
PARENT MATERIAL	Coarse saltation material and parna (on moderate slopes)		Mainly coarse saltation material (on crests and upper east slopes of steeper rises)	Mainly coarse saltation material and parna	Mainly coarse saltation material	Coarse saltation material and parna	Parna	Parna (with saltation material at surface ?)		
NATIVE VEGETATION	Big mallee, grassland, savannah containing pine, belar, mallees, sandalwood, and rosewood, woodland of pine, belar				Big mallee, grassland, shrub steppe mallee containing bladder saltbush or bluebush		Grassland and shrub steppe woodland containing belar and bluebush			
SOIL	Textural group	Sandy loams		Sands	Sandy loams	Sands	Sandy loams	Light clays	Sandy loams	
	Morphological group	Group A	Shallow sandy loams on limestone	Group D red	Group A	Shallow sandy loams on limestone	Group D red	Group A (lime at surface)	Light clays	Group C
	Proportion on land form	Dominant		Minor	Dominant	Minor	Dominant	Subdominant	Dominant	Minor
	Moisture characteristics	Moderate		Good for deep-rooted species	Moderate	Good for deep-rooted species	Moderate to poor	Poor	Moderate to poor	
	Fertility reserves	Moderate		Low to moderate	Moderate	Low to moderate	Moderate	High	Moderate	
LAND USE	Most suitable form	Cropping and grazing		Grazing	Cropping and grazing	Grazing	Grazing	Grazing		
	Nutrients required in fertilizers	P			P	P	P			
	Recommended pastures	Harbinger medic, Wimmera ryegrass		Lucerne ?	Harbinger medic, Wimmera ryegrass	Lucerne ?	Native vegetation			
	Land use class	2 (a)	3	4 (a)	2 (a)	3	4 (a)	5	3	5
WIND EROSION HAZARD	Slight ← lower heavier soils stony soils		← higher lighter soils → severe	Moderate	Slight	Severe	Slight to moderate	Slight	Moderate	
OTHER HAZARDS	Channel seepage salting						Dry land salting			
	Least favourable climate within the region for agriculture; even the lighter soils are marginal for cropping and introduced pastures									

To the north of Panitya there is a track leading from the Ouyen-Murrayville to the Redcliff-Morkalla settlement. It passes through the Berrook land system into an uncleared portion of the Central Mallee land system which is covered with dense mallee and with savannah mallee on the dunes. Finally the track emerges into a most attractive parkland known as the "Taplan country". It is an uncleared portion of the Millewa land system which covers some 1,080 square miles. The native vegetation is diverse consisting mainly of intermingling stands of grassland, savannah, pine-belar woodland and big mallee (Plate 31). Although each of these communities occurs on a wide range of soils and topographic situations, grassland is most common on the heavier soils of the lower sites and woodland occurs most widely on the dune sands.

Most of the land system is undulating, owing to the presence of hummocks and dunes (Fig. 26). Hummocks occupy the bulk of the landscape and they are of variable dimensions, consisting usually of large mounds up to 100 feet high and up to a mile or more across with smaller mounds perched upon them. Apart from the high land which trends in a north-south direction through Redcliff, ridges are not noticeable. Dunes occupy about 15 per cent of the landscape and they are less dense than those in the Central Mallee land system. Medium-textured soils predominate. Sandy loams of Group A are the main soils on all sites except the dunes. They are interspersed with scattered areas of shallow sandy loams on limestone which are most widespread towards the west. The dunes and the occasional steep, upper slopes of hummocks support the relatively fertile red sands of Group D. Although sandy loams of Group B have been noted on the upper slopes of hummocks they appear to be less common than in other land systems further to the south.

About 20 per cent of the land system consists of relatively large individual plains up to a mile or more across. This "plains country" occurs at a lower level than the surrounding undulating land and it is most commonly found in the eastern parts of the land system. It frequently contains natural terraces and, although the differences in level between adjacent plains are generally small, they can be as great as 20 or 30 feet. The overall soil texture is heavier than that on the undulating country, consisting of gilgaied light clays, sandy loams of Group C and sandy loams of Group A. The latter have lime at the surface and they occupy the highest levels where there is a terraced effect. They support grassland, big mallee and shrub-steppe mallee in which bladder saltbush and bluebush form the understorey. These shrub-steppe communities can best be seen to the west of the Mildura airport which is located on the plains country. The latter also covers most of the Mildura irrigation settlement in contrast with the Redcliff settlement which has been laid out on undulating land. Grassland predominates on the gilgaied light clays and on the sandy loams of Group C. The latter also contain areas of shrub steppe woodland consisting of belar and bluebush.



Plate 31 – Aerial photograph of part of the Millewa land system, showing uncleared, leasehold country. The vegetation is mainly savannah. There are patches of big mallee which are densely stippled.

When grazing runs were established in the, 1840's with headquarters along the River Murray the stock penetrated the Millewa land system, attracted by its abundant grass supply. The main problem away from the river was water. supply. The area was settled for agricultural production in the 1920's when a channel water supply was put through by lifting water from Lake Cullulleraine and when a railway line was laid from Redcliff to Morkalla. This was the last large-scale settlement to take place in north-western Victoria. Under the low average annual rainfall of 10 to 11 inches, agricultural productivity is low and the settlement has proved to be marginal for cropping and introduced pastures. As in the settlements further south the allotments, or living areas, were laid out in approximately rectangular or square units, each covering about 640 acres. Cropping and grazing were uneconomical in the early years of settlement, resulting in the reallocation of the land by the Crown into large leases averaging 3,000 to 5,000 acres in extent. These were regarded as more suitable living areas. They can

be compared with the average farm size of about 1,200 acres in the Ouyen-Murrayville settlement; where amalgamation of allotments has occurred without intervention by the Crown.

Cropping is still practised on the sandy loams and sands of the undulating country. Although the fertility of the red sands is declining significantly under this form of land use, the crops obtained are better than those on the reddish yellow dunes which predominate in farm lands further to the south. Introduced pastures have not been widely sown owing largely to the relatively small amount of feed produced under the dry conditions. However, the area sown to barrel medic, Wimmera ryegrass, and lucerne, has increased in recent years and, as these species have been found to provide more feed than natural pastures, there is a considerable potential for increased pasture production within the land system. Harbinger medic may well be more productive than barrel medic. In land systems further to the south with a higher rainfall it has been found that the introduced pastures, and particularly lucerne on the sands, are capable of maintaining a cover on the land during dry years. This remains to be determined, however, in the Millewa land system, so that here it is doubtful whether a stable form of land use has been developed. The erosion hazard is severe even though it is less than that in the Central Mallee land system where the dunes are denser. Trials of introduced pastures on farm lands should continue. Because the red sands of the Millewa land system are relatively fertile, with a better nitrogen status than the reddish yellow sands, it may be that, instead of lucerne, a non-leguminous perennial could be the most suitable species for the dunes.

Because the climate in the Millewa land system is drier than in the other agricultural settlements, the danger of crops burning off on the sandy loams after the build up of nitrogen under legumes is relatively high. Despite this, the medics should be sown, because their green growth and buffs provide good feed. Subsequent crop management should then be modified, if necessary, to counteract the increased moisture stress brought about by the nitrogen build up. For example, if the crop sown after the break-up of a medic pasture "burns off" it can be grazed or cut for hay. More examination of these aspects of management is required.

The plains country is not suitable for cropping or introduced pasture because of the relatively poor moisture characteristics of the soils under the dry climate. The soils are light clays, sandy loams of Group C which have clay close to the surface, and sandy loams of Group A which have, lime at the surface. The native grasses have been largely eaten out and their place taken by unpalatable weeds among which bindy-eye (*Bassia* spp.) is prominent. Investigations are needed to determine the best pasture species for the plains and the techniques required for their establishment. Excellent stands of the native wallaby grasses remain in places, particularly along road easements. These grasses provide green feed throughout the year following rains and they may well be the most suitable species. Erosion on the plains country is not severe except on the sandy loams of Group C which are badly wind scalded. As on similar soils in the Ned's Corner land system the most suitable technique of reclamation is likely to be checkerboard furrowing, accompanied by the sowing of native halophytes.

Most of the land to the north of the Sturt Highway and to the west of Morkalla (the Taplan country) is uncleared and it remains as grazing country. Although the high proportion of grasslands and savannahs provide good feed the carrying capacity is low and large tracts of land are required for a living area. Low stocking rates have been maintained, resulting in considerably less erosion than in the farming settlement. In addition to its contribution to livestock production this form of land use is of value in preserving the country in its original, park-like condition.