13. ULLSWATER LAND-SYSTEM

Between Noradjuha and Jallumba the flat plain of the East Wonwondah land-system ends abruptly at the base of a long ridge which in places is about 100 feet higher than the plain. From the top of the ridge another one can be seen to the west lying in a parallel position and this sequence is repeated many times in the north-western parishes. This area has been mapped as the Ullswater, and Kowree land-systems and it is contiguous with a larger area in the neighbouring Shire of Kowree which Blackburn and Gibbons (1956) called the Ullswater, and Kowree land-units.

The Kowree land-system is readily distinguished by its short dry sclerophyll forests of brown stringybark growing in deep, sandy podzols. The remaining area of parallel ridges is cleared and farmed and constitutes the Ullswater, land-system of 117 squares miles. Figure 17 shows the relationship of the land-forms to each other and their features of environment and land-use.

The land within the boundaries of Ullswater land-system was at one time under the Tertiary Murray Sea and because of this the lard-system has a very similar geological history to the Horsham, East Wonwondah and Telangatuk land-systems. However, the numerous ridges distinguish this land-system from the other three land-systems. The ridges are aligned in a N.N.W-S.S.E. direction and according to one theory they are stranded coastal dunes formed along successive coastlines as the Tertiary sea retreated to the present position of the Southern Ocean (Anon,. 1961a, Blackburn 1962). The ridges are about one mile apart and both large and small examples are present. The large ridges are up to twelve miles ill length, one mile in width and one hundred feet in height and they are located in the eastern section of the lard-system. The small ridges are about half a mile long, a quarter of a mile wide and about 20 feet high and they are restricted to the western part of the land-system.

Other land-forms are the flat plain swamp, lunette and sand sheet which occur between the ridges and which bear the same relationships to each other in this land-system as they do in Telangatuk land-system. However, because of the parallel alignment of the ridges, these other lard-forms lie in the intervening troughs instead of being at random over the landscape. In this situation, the swamps form long, broken chains also lying in a N.N.W-S.S.E. direction.

Soils, vegetation, lard-use and erosion on the flat plains, swamps, lunettes and sand sheets are similar to those on the same land-forms in Telangatuk land-system. The ridges have comparatively steep slopes of up to three per cent. gradient with red and brown solonetzic soils which support the remnants of a woodland of grey box and also yellow gum. The slopes on the ridges, especially oil the larger ridges, offer a moderate hazard of water erosion, and gullies can develop if care is not exercised.

Land-use problems peculiar to this land-system have arisen because of the system of parallel ridges and troughs. The ridges direct and concentrate drainage waters into the troughs so that in wet years considerable volumes of water move from swamp to swamp along the troughs causing local flooding and often putting significant areas of adjacent farms out of production. The need is to implement sound schemes of drainage and/or storage and irrigation.

Ullswater, land-system has a slightly lower average annual rainfall than Telangatuk land-system, but perennial pasture species such as perennial ryegrass, phalaris and strawberry clover grow successfully in the troughs because the accessions of drainage water supplement the rainfall. These species cannot be used with success on the drier sites afforded by the ridges and sand sheets. There, Mt. Barker and Bacchus Marsh varieties of subterranean clover and Wimmera ryegrass form successful annual pastures.

Pasture improvement is an easier proposition in Ullswater, land-system than it is in East Wonwondah land-system and, to a lesser degree, than in Telangatuk land-system. This is because red and brown solonetzic soils are very common while the much heavier gilgaied solonetzic soils are confined to small areas in the troughs between the sand sheets and swamps. Many properties have only one or two paddocks with heavy soils, the rest of the paddocks having the coarser-textured soils on the sand sheets and ridges.

Land-Units

Three land-units are grouped together in Ullswater, land-system.

Ullswater land-unit is found in the central and western parts of the land-system. It is characterised by the presence of small ridges only the large ridges are absent. The land-unit is divided into a number of small areas by the Kowree land-system from which it is sharply defined on the basis of land-forms, soils and vegetation.

Lowan land-unit includes the eastern section of the land-system in the parishes of Lowan and Carchap. Here there are four large ridges the longest is 12 miles in length and readily observable to the west of the road between

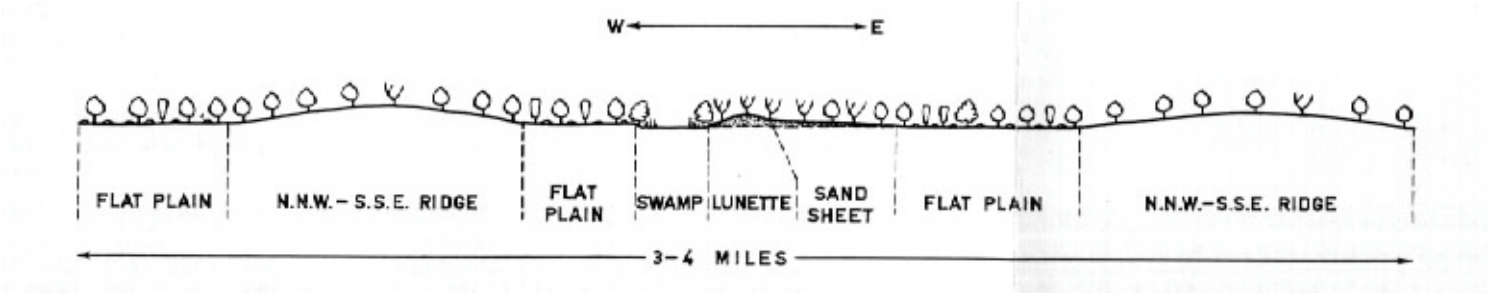
Noradjuha and Jallumba. The ridges are each about a mile wide and their heights above the troughs vary between 50 feet and 100 feet. They have red and brown solonetzic soils and the remnants of a grey box-yellow gum woodland. In the troughs are woodlands of grey box and buloke growing in gilgaied solonetzic soils. There are no swamps, lunettes or sand sheets except for two swamps and lunettes in the shortest trough north of Clear Lake.

In the parish of Nurrabiel, which is cast of the main area, is a single ridge also outlined as Lowan land-unit. There are no more ridges east of this one so that it marks the eastern boundary, in this part of the State, of the extensive system of N.N.W-S.S.E. ridges in western Victoria.

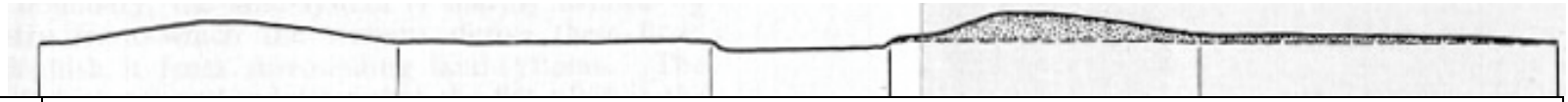
White Lake land-unit consists of a line of swamps and lakes in a shallow valley which trends in a northerly direction through the centre of the land-system and beyond to Mitre Lake north of Mt. Arapiles. The notable feature of this area is that most of the swamps and lakes are saline and are bordered by a zone of salt-tolerant vegetation, for example Salicornia spp. This unit is the northerly extension of the White Lake land-unit of Blackburn and Gibbons (1956).

ULLSWATER LAND-SYSTEM

(i) Distribution of land-forms



(ii) Land-system diagram



Climate		Average annual rainfall 18-19 inches : growing season May to September or October				
Land Form		Ridge	Flat plain	Swamp	Lunette	Sand sheet
Geology			Estuarine sediments (mainly clays)		Early Holocene siliceous sands	
Topography		Gentle slopes 2-3%	Flat		Short slopes up to 4%	Flat and up to 1% slope
Soil		Red and brown solonetzic soils	Gilgaied solonetzic soils		Podzolic deep sands, iron leptopodzols	Red and brown solonetzic soils
Land-Class		2A and 2B	2A	6	Possibly 5, probably 6	2A
Land-Use	Present	Fine wool on native and introduced pastures		Water supply	Fine wool on native and introduced pastures	
	Problems	Developing a modified clover-ley rotation	Flooding and drainage, cultivating clay soils		Win erosion, pasture establishment	Developing modified clover-ley rotation
Water and Wind Erosion	Hazard	Moderate (water erosion) Very low (wind erosion)	Very low		High (wind erosion) Low (water erosion)	Low
	Actual	Some gullying and sheet erosion (not serious)	None		Some sand drift	None
Native Vegetation	Structure	Tall woodland				
	Species	Grey box (dominant) Yellow gum (sub-dominant)	Grey box, black box and buloke co-dominant Red gum (minor)	Red gum around swamp	Yellow gum (dominant) Red gum (minor)	Yellow gum and grey box co-dominant

Figure 17 – Ullswater Land System