

## 26. DARRACOURT LAND-SYSTEM

The older geological maps place the northern plains of the survey within the one category, namely, flat depositional plains of Pliocene and Post-Pliocene unconsolidated sediments. However, certain sections of the plains have an undulating topography with what appears to be the underlying rock exposed in a few erosion gullies. It is thought more likely that these areas have developed by the advanced erosion of deeply weathered basement rocks (Spencer-Jones priv. comm.) and that they should be separated from those land-systems covering the depositional plains. Five areas are involved and they are located in the parishes of Ledcourt, Gampola, Bellellen and Bellaura in the north-east of the survey and the parishes of Darragan and Lowan towards the north-west.



*Plate 38 – Mallee-broombush vegetation is characteristic of Darragan Mallee land-unit and is indicative of solonetzic soils which have a sandy A horizon overlying a clay subsoil at shallow depths.*

Similarities of topography, soil, vegetation, land-use and erosion hazard have enabled the five areas to be grouped into the Darracourt land-system which is an undulating plain with gentle slopes of one to five per cent. (Figure 30). It covers 131 square miles and is distinguished from surrounding mapping units by its land-form and soils. Mt. William Creek land-system has similar soils but is built up of the flat plain land-form. East Wonwondah and Horsham land-systems are flat plains with gilgaied clays. Ullswater, land-system also has similar soils but they are found on N.N.W-S.S.E. ridges and sand sheets.

The dominant soils are solonetzic soils which have sandy loams and loamy sands in the A horizon and heavy clays in the B horizon. The clay has an undulating surface generally between three and ten inches below the ground and it is usually deeper on the sloping land than on the flats between the slopes. In some localities the clay has clearly defined domes. These soils are described in more detail in Chapter Five as the Darracourt series of brown solonetzic soils. Minor soil types in the land-system are mentioned later under each of the land-units.

Tall woodlands of yellow box, yellow gum, grey box and red gum in various associations are found throughout the land-system. In the two northern parishes of Darragan and Lowan, grey box is the dominant species and yellow gum is of minor occurrence wherever the soils have deeper and sandier A horizons. Red gums are restricted to the creeks. In the north-eastern parishes, yellow box, yellow gum and grey box predominate and red gum is found in low lying flats where the soils are wetter and heavier than those on the slopes.

Fine wool grown on native and introduced pastures is the main form of land-use. The introduced pastures are commonly composed of Mt. Barker subterranean clover and Wimmera ryegrass. The potential for using other species varies across the land-system with the rainfall which ranges from eighteen inches in the northern parts to 23 inches between Lake Lonsdale and Lake Fyans. Under the lower rainfall phalaris should thrive but species like Yarloop subterranean clover and perennial ryegrass may succeed only in wetter sites at the base of slopes. Perennial grasses and clovers are more likely to find a place in the pasture programme under 23 inches of rainfall and should be considered along with the mid-season annuals.

The soils of the land-system lend themselves to a limited cropping programme for hay and grain reserves, particularly as a cover crop when pastures are being sown for the first time and as a means of renovating old pastures where the increase in soil nitrogen has encouraged an invasion of annual weeds.

A combination of long gentle slopes, light textured topsoils and alternating wet and dry seasons gives the land-system a moderate erosion hazard. Mild sheet erosion is widespread under native pasture and gullies are present in a number of localities, but generally water erosion is not a great problem and it can be reduced adequately by sowing introduced pastures and working the land on the contour whenever cultivation is undertaken.

## ***Land-Units***

Five land-units are recognized within Darracourt land-system to take into account differences of rainfall, soil, vegetation and erosion.

***Ledcourt land-unit*** is the largest and includes parts of the parishes of Ledcourt and Gampola. Its rainfall averages 21 inches per year. A noticeable feature is the short woodlands of long leaf box on the crests of many of the gentle undulations. These resemble the heath woodlands of long leaf box in the neighbouring Illawarra land-unit of Ararat land-system however, they differ in having no heath species or only a poor development of them, and soils other than the clay leptopodzols. The ground flora are native annual grasses and a tussock sedge (*Lepidosperma carphoides*).

The soils under the long leaf box woodlands are both solonetzic soils and light clays. The solonetzic soils have a fine sandy loam over a red heavy clay subsoil which is less than nine inches below the surface. The light clays are friable, sandy and generally yellowish red. Gilgaied brown heavy clays supporting red gum woodlands are found on some of the broad flat areas between the slopes.

Until recent years, some parts of the land-unit were still undeveloped or underdeveloped. Most of the long leaf box woodlands were uncleared and many farms consisted of partially cleared paddocks carrying inferior native pastures of grasses and sedges and supporting less than one sheep per acre. Now, however, extensive areas have been cleared for the first time to establish new farms, and existing farms have been developed further by clearing dead trees and sowing introduced, pastures of mid-season subterranean clovers.

***Bellaura land-unit***, between Lake Lonsdale and Lake Fyans, has a rainfall of about 23 inches, the highest in Darracourt land-system. The soils have a subsoil of heavy clay between five and twelve inches beneath a topsoil of loamy sand. They support a woodland of mainly yellow box with yellow gum and red gum of lesser occurrence. A minor but distinctive feature of this land-unit is the few sandy areas, each covering less than an acre, where a deep podzol supports a heath woodland of apple box and yellow box. The species in the heath layer are tea-tree, daphne heath and a tussock sedge.

Most of Bellaura land-unit is sown down to pastures of Bacchus Marsh subterranean clover. The comparatively high rainfall gives the land-unit a greater potential for perennial species, such as perennial ryegrass and strawberry clover, than the rest of the land-system although they may be successful only in the wettest places.

***Darragan land-unit*** encloses the catchments of several small streams to the south and south-east of Natimuk. In the Parish of Lowan it takes in the upper catchment of Natimuk Creek, and in the Parish of Darragan it includes some creeks flowing into the Wimmera River, the biggest being Darragan Creek and its tributaries.

Apart from the solonetzic soils on the undulating plain, a minor soil type occurs along the flood plains of Wimmera River, Norton's Creek and Natimuk Creek. It is a clay which in some parts is gilgaied with self-mulching puffs and in other parts is lacking in gilgais but has a clay loam at the surface.

In the creek valleys below the mallee vegetation there are woodlands of yellow gum, grey box and black wattles with red gum fringing the creeks. Here also are solonetzic soils but they are a better class of soil than those under the mallee. The texture of the A horizon is heavier, a sandy loam, and there are higher levels of organic matter and a better structure and consistence.

Nearly all the land-unit is cleared and farmed and is used both for wool growing and wheat cropping, the latter assuming a more important place in the farm economy than elsewhere in Darracourt land-system.

Erosion is a problem as in Darragan land-unit. Gullies are numerous in the valleys and incipient tunnel-erosion is seen occasionally. Over the mallee area, erosion has been accelerated by continual cropping of the loose, sandy topsoils. Sheet erosion and wind scalding are widespread and these forms of erosion are accentuated by the combined effect of a cultivation hardpan lying above a shallow clay subsoil.

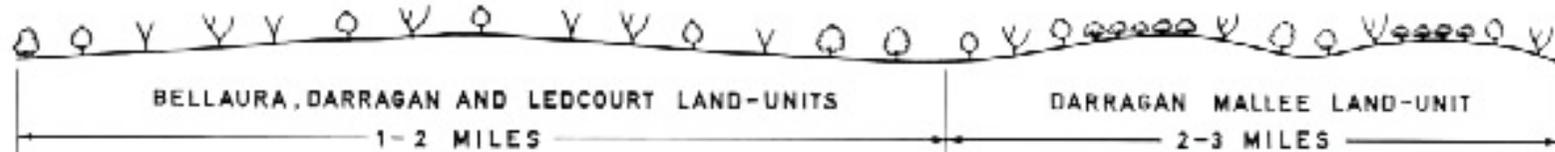
The entire land-unit is more suited to wool growing with an accompanying programme of pasture improvement. Cropping should be limited to occasional pasture renovation and the building up of fodder reserves. A necessary task when establishing introduced pastures is to break the cultivation hardpan and improve the permeability of the clay by contour ripping. Until this is done, erosion on the wheat paddocks can be reduced or eliminated by contour ploughing and cultivation and by building contour banks.

***Quantong land-unit*** is flat instead of undulating and in this way it does not agree with the general description of the land-system. The land-unit is south and south-west of Horsham, between Quantong and Haven, and is adjacent to Darragan land-unit. It makes up the areas of flat plain that surround and separate some of the sand dunes and sand sheets of Warratong land-system.

The soils in the land-unit are solonetzic soils but they differ in minor respects from those in the other four land-units. The predominant soil type has dark colours throughout the profile instead of light browns, yellows and reds, and it has a shallow sandy loam, usually two inches deep, overlying a massive sandy heavy clay which lacks domes or undulations on its surface. Some patches of gilgaied clays occur as they also do in Darragan land-unit just across Norton's Creek and Wimmera River.

Most of the land-unit is used for wool growing on native and introduced pastures. The remaining parts of the land-unit are in the Quantong and Haven irrigation settlements where there are orchards and dairy farms.

## DARRACOURT LAND SYSTEM



Climate		Average annual rainfall 17½ - 23 inches : growing season May to September and April to October		
Land-Form		Gently undulating plain		
Geology		Uncertain, possibly deeply weather basement rocks		
Topography		Long, gentle slopes 1-5%		
Soil		Brown solonetzic soils (Darracourt series, dominant), gilgaied brown clays (minor)		
Land-Class		Generally 2A and 2B (suitable for cropping with broad rotations of mainly pasture)		
Land-Use	Present	Fine wool grown on native and introduced pastures		
	Problems	To overcome the serious sheet and gully erosion in Darragan and Darragan Mallee land-units.		
Water Erosion	Hazard	Generally moderate, a high hazard on the steepest slopes and lightest soils		
	Actual	Mild sheet erosion in parts, serious sheet and gully erosion in Darragan and Darragan Mallee land-units		
Native Vegetation	Structure	Tall woodland	Dry mallee on upper slopes	Tall woodland
	Species	Yellow box, yellow gum and grey box are the dominant species, red gum is restricted to wet sites, grass understorey	Peppermint box, blue mallee, Kamarooka mallee, broombush	Yellow gum, grey box, red gum

*Figure 30 – Darracourt Land System*