22. BRIMPAEN LAND-SYSTEM

Most of the land between the Grampians and the western Black Range is flat 1 gently undulating with gum and box woodlands growing in soils which have medium textured topsoils overlying clay subsoils. This type of land extends around the northern end of the Black Range and along its western side. Also, there are two small, separate areas along Norton's Creek and on the eastern side of the Grampians near Pomonal.

These areas have been named the Brimpaen land-system and they cover 15 square miles. The main feature which distinguishes Brimpaen land-system from the surrounding land-systems is its solodic and solonetzic soils. The other land-systems have gilgaied clays and nomopodzols. In Figure 26 the land-system is illustrated and its features of environment and land-use are summarized.

Brimpaen land-system is linked with Dundas land-system through it geomorphology because both mapping units are areas of lateritized materials. 0: his geological map of the Grampians Area, Spencer-Jones (1965) has shown that area of the land-system to be continuous with and a part of the laterites of that Dundas Tablelands. However, unlike the Tablelands, there is little stream dissection and few exposures of laterite except in the small sections of that land-system along Norton's Creek and near Pomonal.

The separate areas within the land-system are sufficiently different from each other to warrant their recognition as land-units.

Land-Units

Brimpaen land-unit is the most extensive land-unit and it occupies the areas o~ higher rainfall in the central and southern parts of the land-system, from that Rosebrook-Brimpaen area south to Glenisla. The topography is gently undulating in the north near Rosebrook but is much flatter in the south around Glenisla.

Yellow and brown solodic soils are predominant. They have sandy loams in the A horizon, usually with a layer of small buckshot, and yellow or brown clay subsoils at depths between 9 and 17 inches below the surface of the ground. A savannah woodland of red gum and yellow box is associated with these soils. Another combination of vegetation and soil occurs in the land-unit, namely, shrub woodlands of yellow box and yellow gum which grow in solonetzic soils. The A horizons of these soils are shallower and sandier than the A horizons of the solodic soils. This combination is a narrow zone of transition between the land-unit and the stringybark forests of the Grampians Plains land-system. Good examples of it occur between Cherrypool and Glenisla.

Throughout Brimpaen land-unit, native and introduced annual pastures support a wool-growing industry. Most areas are still under native pastures and there is considerable scope for development by sowing introduced species. The average annual rainfall across the land-unit is 25 inches to 27 inches and perennial grasses such as phalaris and perennial ryegrass should grow in addition to the mid-season varieties of subterranean clover.

The gentle topography gives a low erosion hazard and erosion generally is slight, particularly where introduced pastures are sown. Sheet erosion is present to a moderate degree on gently undulating slopes under sparse, native pastures in the parishes of Knaawing, Burrong North and Wartook.

Mockinya land-unit takes in a narrow strip of land along Norton's Creek and another strip along the foot of Mt. Zero Range in the Grampians. The only land-form is the flat plain although in the area along Norton's Creek there is a low, gentle scarp where the plain dips to the narrow valley. Outcrops of lateritic ironstone are exposed along the scarp.

Solonetzic soils support a woodland of yellow gum, yellow box and grey box. Textures varying from sand to sandy loam are found in the A horizon and its thickness above the clay subsoil is usually between 6 and 18 inches. Yellow gum tends to predominate over the other eucalypts in the deeper A horizons whilst grey box is dominant in the shallowest A horizons. Red gums grow on the narrow flood plain of Norton's Creek. A minor soil type occurs on the outcrops of lateritic ironstone. It is a reddish brown gravelly sandy loam, with many small stones of ironstone, which overlies a red lateritic clay.

The average annual rainfall across Mockinya land-unit varies from 19 to 22 inches so that the introduced species available for sowing are annuals and also possibly phalaris. Mt. Barker and Bacchus Marsh subterranean clovers and Wimmera ryegrass make a suitable pasture.

Pomonal land-unit differs in a number of ways from the rest of the land-system and requires some description.

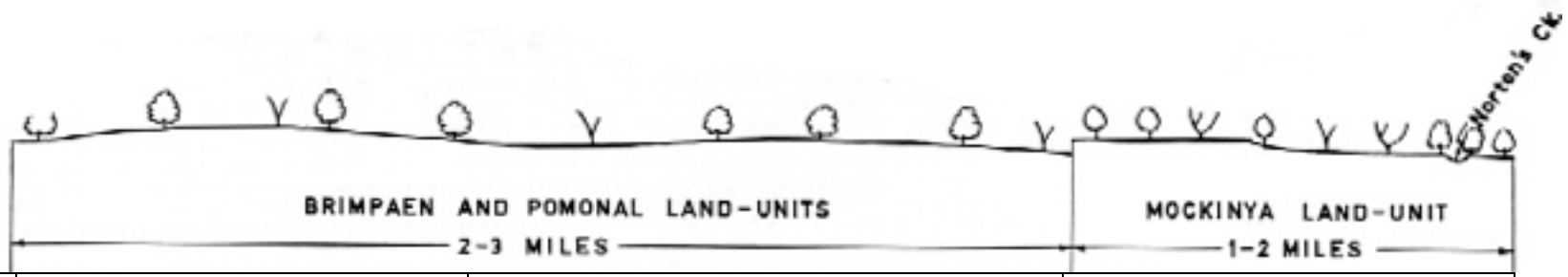
The land-unit of 41 square miles is located near Pomonal at the foot of “The Terraces” range of the Grampians. Its gentle north-easterly slope is dissected slightly by a number of small creeks which has given rise to a gently undulating cross-sectional topography seen when travelling along the Pomonal-Halls Gap road.

The dominant group of soils has formed on the mottled zone of laterite. All these soils have an A horizon of light brown loamy sand over sand, with varying amounts of small ironstone stones believed to be the remnants of the indurated zone of laterite. At depths of 12 to 18 inches, an orange light clay forms the B, horizon, changing to a mottled red and white clay underneath.

Some variation occurs within the land-unit. In the northern half, the lateritic soils are restricted to low rises which are separated by flat land at lower positions. The flat land is built up of deposits of siliceous sand in which iron nomopodzols have developed. In effect, the areas of flat land are narrow tongues of the Grampians Plains land-system traversing the Pomonal land-unit but the broad scale of the survey does not allow them to be delineated on the land-system map accompanying the report.

Most of the Pomonal land-unit is uncleared and carries dry sclerophyll forests of brown stringybark, messmate and manna gum, with a short, open heath understorey on the lateritic soils, and a taller, denser heath understorey on the podzols of the flat land. The lateritic soils when cleared can support a vigorous pasture of subterranean clover and grasses provided that molybdated superphosphate is applied. Perennial species, particularly perennial grasses like phalaris and perennial ryegrass, should also be suitable because the average annual rainfall is 26 to 28 inches. The podzols in the northern half of the land-unit are marginal for pastures because they lack most of the nutrients required by the plants and their reserves of moisture are low.

BRIMPAEN LAND SYSTEM



Land Unit		Pomonal	Brimpaen		Mockinya
Land Form		Severely undulating plain	Slightly to gently undulating plain		Flat plain
Climate		Average annual rainfall 24-28 inches : growing season April to October			Average annual rainfall 19-22 inches
Geology		Lateritised Pliocene sediments			
Topography		Moderate slopes 3-6%	Long, gentle slopes 1-4%		Flat with low scarps
Soil		Sand/lateritic clay (dominant) Nomopodzol (minor)	Solodic soils (dominant) Solonetzic soils (minor)		Red and brown solonetzic soils
Land Class		2A and 2B (occasional cropping with broad rotation of mainly pasture)			
Land Use	Present	Mostly uncleared, some wool growing	Fine wool grown on native and introduced pastures		
	Problems	Pasture establishment	Waterlogging on flat areas in wet seasons		
Water Erosion	Hazard	Moderate	Low		
	Actual	None	Slight sheet erosion on the steepest slopes		
Native Vegetation	Structure	Dry sclerophyll forest	Savannah woodland	Shrub woodland	Tall woodland
	Species	Messmate, brown stringy bark, apple box	Red gum, yellow box	Yellow gum, yellow box, black wattle	Grey box, yellow box, yellow gum

Figure 26 – Brimpaen Land System