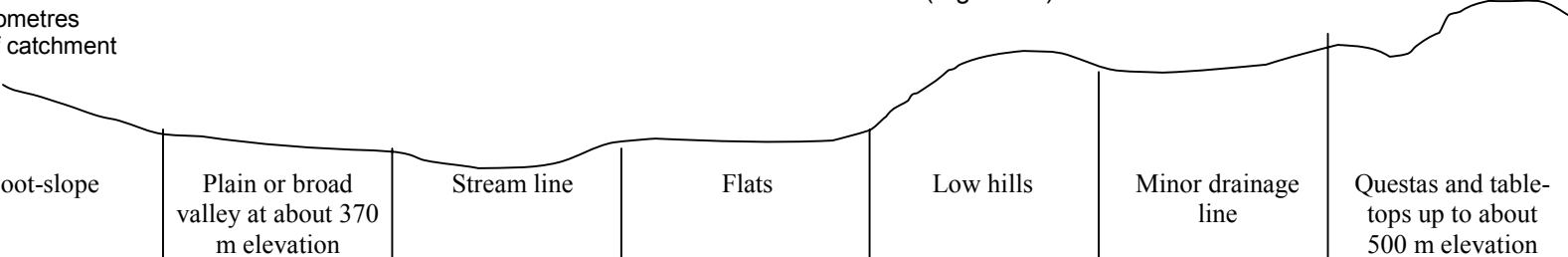


MANSFIELD LAND SYSTEM (Figure 22)

Area: 143 square kilometres
6 percent of catchment



Topography	Foot-slope	Plain or broad valley at about 370 m elevation	Stream line	Flats	Low hills	Minor drainage line	Questas and table-tops up to about 500 m elevation
Climate	Average annual rainfall about 640 mm to 760 mm evenly distributed except for dry summers. Growing season: April-May and September-November. Estimated average temperatures: Jan 21°C; July 7°C; Year 14°C. Estimated evapotranspiration: Jan 125 mm; July 18 mm; Year 700 mm.						
Parent Materials	Carboniferous age sedimentary rocks and material derived from them						
	Rock and hill-wash	Deep alluvial deposits, re-deposited soil materials	Alluvial deposits, re-deposited soil material	Redeposited soil material	Rock and hill-wash	Mostly hill-slope detritus	Rock and hill-slope detritus.
Soils	Yellowish duplex soils	Gilgaied yellowish duplex soils and weakly bleached gradational soils.	Pale gradational soils.	Reddish weakly bleached gradational soils.	Non-calcareous dark clays	Friable brown or reddish gradational soils, stony loams and bleached gradational soils.	
Vegetation	Woodland of open forest of yellow box	Woodland of red gum	Woodland of red gum	Woodland of red gum and yellow box	Woodland or open forest of yellow box	Woodland or open forest of red gum.	Woodland or open forest of yellow box, red stringybark with red gum on the flat areas.
Land Use	Grazing of sheep and cattle, mainly on native pasture with volunteer subterranean clover.						
Erosion Hazard	Moderate	Moderate to low	Moderate	Low	Moderate	Moderate	Moderate to High
Erosion Status	Sound	Most drainage lines are gullied	Stream erosion common	Mainly sound	Mainly sound, some sheet erosion	Sound	Mild to severe sheet erosion and gully erosion.
Potential Land Use	Grazing on permanent improved pastures; fencing according to land classes to facilitate grazing management. Control of gully erosion may require structures; tree planting may suffice for some.						

MANSFIELD LAND SYSTEM

(See Fig. 22)

The Mansfield Plain and associated flat-topped and quenda-form hills, together with the adjacent broad, low-gradient valleys cut in sedimentary rocks of Carboniferous Age, have been mapped as the Mansfield land system. (Plates 17, 18). It occupies 143 square kilometres (6 per cent) within the Broken River catchment and is contiguous with the Mansfield land system of the Eildon catchment. There are no other adjacent similar areas but the plains have much in common with the red gum tablelands of south-western Victoria.

The topography consists of gently undulating plains with adjacent low hills, questas and tabletops. The plain has a general elevation of about 370 m. The rocks of the land system are flat or gently dipping, thickly bedded Carboniferous Age mudstones and sandstones, although the plains consist of more recent alluvium overlying these beds.

The present land use is mainly the grazing of cattle and sheep on predominantly native pastures with volunteer subterranean clover.

Considerable improvement in pastures would be possible. Grazing on the steeper hills needs careful management, and where practicable the hills should be grazed mainly in winter and the flats in summer in order to maintain a grass cover on the hills in late summer.

The erosion hazard on the flat country is low but most drainage lines are gullied as a result of storm runoff from the adjacent hilly catchments. There is some sheet erosion in the hills but it is seldom severe. The steep hills present a problem because of the build-up of nitrogen fertility on their tops and particularly around stock camps. Cultivation to introduce improved pasture species is generally not possible because of the steepness. These areas are particularly a hazard in summer when the annual pasture species have dried off and the runoff from thunderstorms may be extreme.

Mechanical erosion control measures would be necessary to stabilize the larger gullies. Some tree planting may be necessary to assist in maintaining stability of drainage lines. Fencing according to land capabilities would facilitate pasture management. Most of the paddocks are now much too large.

Because of the lack of a rainfall peak in winter, and the fairly high evaporation in summer, the area is not a significant water source. However much of the silt which is at present reaching the drainage system originates in this area, and from the point of view of catchment efficiency it is important to prevent excessive storm runoff and the resultant gully and sheet erosion.



Plate 17. The Mansfield land system consists of undulating plains and low quenda-form hills in Carboniferous age sediments. The main land-use is grazing. Note arrested gullyheads in the mid-left of the photo and well vegetated creek bank indicating sound land use.

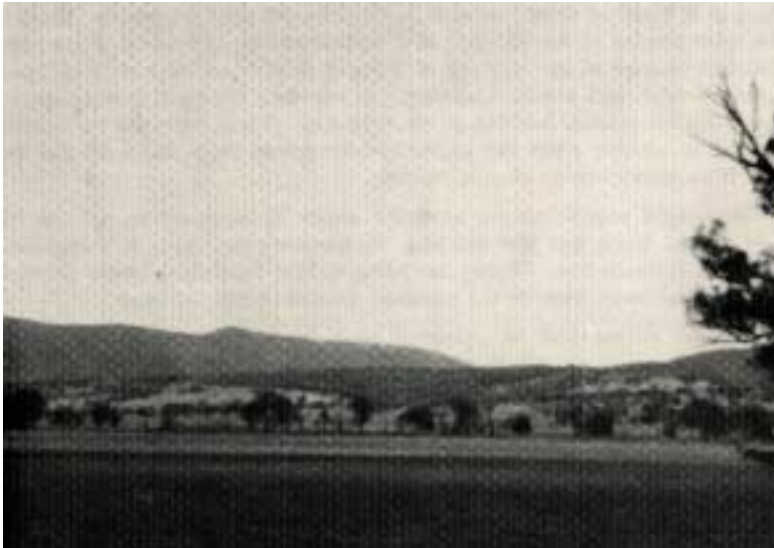


Plate 18. The long gentle slopes in mid-photo are part of the Table-Top land system. The steep forested slopes in the background are part of the Moonee-Moonee land system on the Blue Range and the foreground is part of the Mansfield land system.

The climate is more uniform than the more mountainous land systems. Rainfall is between 640 mm and 760 mm per annum and is fairly evenly distributed through the year, except for a dry period in mid-summer. The growing season is approximately from September to November and from April to May, and is limited by lack of moisture in summer and by low temperatures in winter.

The native vegetation is a woodland of red gum with some yellow box and grey box which gives way to a woodland of yellow box, red stringybark and some red gum on the rising foothill slopes. Although much of the land system is cleared many of the original trees remain and the general appearance of much of the area is probably not very different from that at the time of settlement.

The plains have gilgaied yellowish duplex soils, with pale gradational soils; weakly-bleached gradational soils, and calcareous dark clays along depressions and stream lines. On the foothill slopes, reddish weakly-bleached gradational soils have developed on the red mudstones, and non-calcareous dark clays occur along the stream lines. A complex of uniform and gradational soils, some very stony, occurs on the quasta-form hills.

Although most of the soils are deep, the heavy clay soils hold little water available for plant use in proportion to their depth, so that in summer pastures may show signs of moisture stress. The deep alluvial material of the drainage lines in which the pale gradational soils are developed has a higher available moisture capacity than the clay soils and the stony soils of the rises.

The duplex soils are reasonably well supplied with plant nutrients, whereas the pale gradational soils, although having much better moisture holding characteristics, are relatively infertile and need fairly heavy dressings of superphosphate before successful pasture establishment can be attained.