BURROWA LAND SYSTEM

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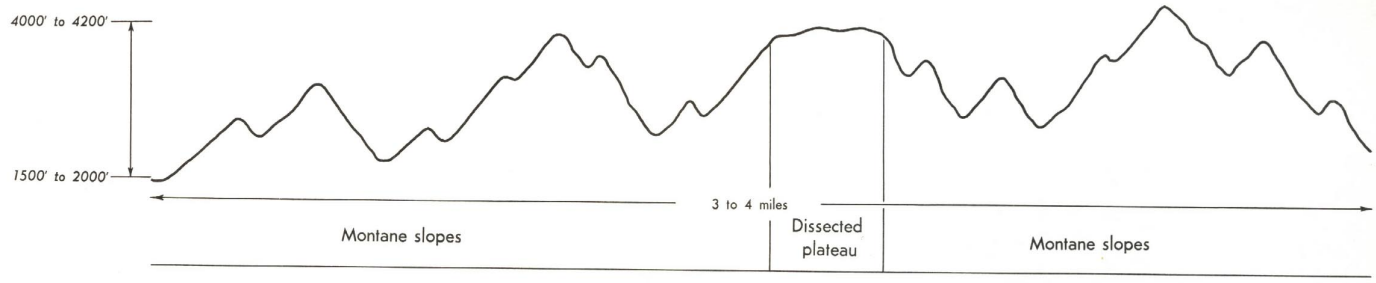
Area: 75 square miles 2·0% of catchment

Comprising two sub-systems

(b) (i) Jemba sub-system

(b) (ii) Mittamatite sub-system

(a) Distribution of land forms



(b) Sub-system diagram

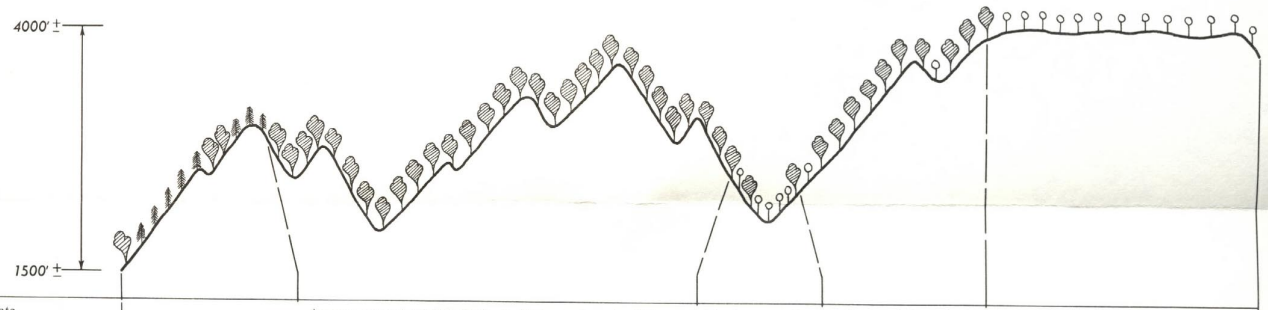
(i) JEMBA SUB-SYSTEM

Area: 38 square miles 1·0% of catchment

(ii) MITTAMATITE SUB-SYSTEM

Area: 37 square miles 1·0% of catchment

north to west ← → *south to east*



Climate	Average annual rainfall 30 in. to 40 in. and up to 45 in. on highest areas. Summers hot and dry, winters cool and wet				
Geology	(i) Jemba quartz porphyry (ii) Mittamatite — red granite, some Ordovician sandstone and shale				
Topography	Very steep	Steep to very steep			Rolling to somewhat hilly
Land Form	Montane slopes				Dissected plateau
Soil Groups	Bare rock Lithosols Regosols	Leptopodzols Occasional regosols and amphipodzols	Tending to cryptopodzols	Occasional regosols and amphipodzols	Amphipodzols ; some leptopodzols
Vegetation Structure	Tending to dry scrub	Dry sclerophyll forest			Wet sclerophyll forest
Vegetation Floristics	*Eucalyptus macrorhyncha* alliance				*E. radiata–E. rubida–E. dives* alliance
	Callitris endlicheri association		*E. radiata– E. rubida– E. dives* alliance		
Present Land-use	Forestry—limited utilization, mainly protection forestry. Some areas around the margins of the land system are cleared and used for grazing, chiefly of sheep				
Potential Land-use	Forestry—management to develop and/or maintain a good ground cover Limited and carefully controlled utilization of timber Cleared areas used for grazing should be well subdivided to provide efficient control of grazing				Forestry—timber quality and growth rate could be improved to yield scantling-quality logs, poles, fencing timbers and firewood
Hazards	High sheet erosion hazard	Moderate to high sheet erosion hazard			Low erosion hazard
Problems	Fire protection. Provision of access for fire protection and management. Road design, construction and maintenance require special attention Management techniques to improve the proportion of useful species and improve quality and growth rate of productive stands. Improvement of ground cover				

Fig 35 – Burrowa Land System

The Burrowa land system consists of two sub-systems, Jemba and Mittamatite, both of which are in the north-east of the catchment. The area of the whole land system is about 75 square miles which is 2 per cent of the catchment. The main differences between the sub-systems are in geology and climate.

Jemba Sub-System

The Jemba sub-system, which consists mainly of the Mt. Burrowa massif, is a fairly compact area occupying a little under 38 square miles which is about one per cent of the total survey area. The greater part of the area is Timber Reserve which is bordered by Crown lands. A small proportion of the sub-system is freehold, mainly to the north-cast, in the Parish of Cudgewa.

The sub-system is composed almost entirely of steep montane slopes with occasional perched basins and small high-level plateaux (Figure 35). Mt. Burrowa, with an elevation of 4,194 feet is the highest point in the sub-system. Lower ridges with elevations of around 2,000 feet are more common in the cast and south of the sub-system, and valley elevations are about 1,500 feet or less.

Most of the sub-system is of quartz porphyry, however a small area of grey granite is included on the eastern side and some schistose and indurated sandstone rocks occur in the south and west.

Because of the range in elevation of this land system, the climate is variable, increasing elevation generally resulting in higher precipitation arid cooler temperatures. From limited meteorological information it appears that the average annual precipitation would be in the vicinity of 30 inches to 40 inches. Summers generally are hot and relatively dry, and winters are cool and wet.

Steep slopes, and the slow-weathering nature of most of the parent rock, result in most of the soils being lithosols or, in many cases, bare rock faces with sandy soil material which has accumulated in depressions and cracks. Sandy regosols occur at the break of slope at the foot of the steep slopes. On more level ground, at higher elevations, such as in the basins and on the plateaux, amphipodzol soils are to be found. Elsewhere, soils are coarse sandy leptopodzols with some regosols.

Where slopes are dry and the soils are lithosols or regosols, the vegetation is a dry sclerophyll forest tending to dry scrub of the *Callitris endlicheri* association or a short dry sclerophyll forest of *E. macrorhyncha* alliance.

In moister situations and on the amphipodzols, the vegetation is a dry sclerophyll forest tending towards wet sclerophyll forest of the *E. macrorhyncha* alliance. Dry sclerophyll forest of *E. macrorhyncha* alliance also occurs on the leptopodzols and regosols. *Pteridium esculentum* occurs as an understory species on the moister but well-drained sites, and *Leptospermum scoparium* usually grows on poorly-drained soils with *E. camphora.*

Areas where vegetation is sparse and soils are shallow suffered serious sheet erosion following a fire which burned most of this sub-system early in 1952. The erosion hazard is fairly high where leptopodzols and regosols occur, and where vegetation is sparse. Because of the permeable nature of the amphipodzols, and the generally gentle slopes of the areas where these occur, they are regarded as having a relatively low erosion hazard.

As most of the sub-system is Timber Reserve or Crown lands, only a small proportion of it is used for agriculture, mainly for grazing of sheep for wool on native pastures. The quality of the timber in the forested areas is not high. Some of the timber of the plateaux may be utilized for scantling-quality mill-logs, though fencing timbers, poles and firewood would be the most common produce.

The protection of the area from fire is of the utmost importance as severe sheet erosion may occur on the areas with sparse vegetation and shallow soils following the destruction of protective litter and ground vegetation. Soil development and recovery of vegetation in such areas would be very slow.

The provision of roads in the area as an aid to fire protection is desirable, but care must be taken to ensure that erosion is not caused during road construction. Particular care must be exercised where roads cross shallow drainage lines or basins where soils are leptopodzols or regosols (Plate 29).

The utilization of the timber for local use, mainly fuel, fencing and shed timbers, is probably the best that can be expected of the forested areas. Management to increase the proportion of useful species may be possible.

The cleared agricultural land could be improved by applications of superphosphate, and the introduction of improved pasture species. Steep, cleared country may need specialised treatment such as aerial dropping of seed and fertilizer.

Mittamatite Sub-System

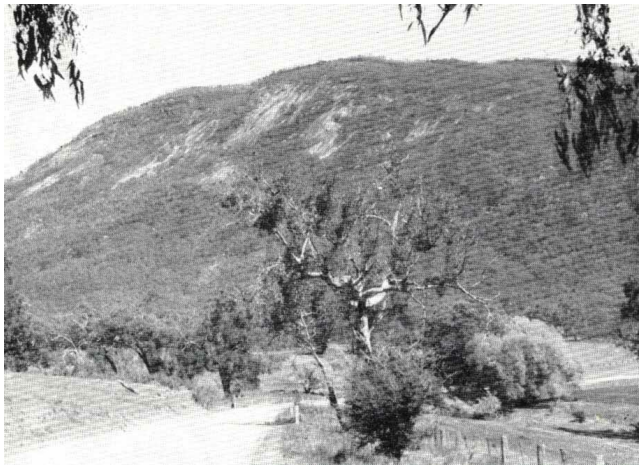


Plate 38. The Murray Valley slopes of Pine Mountain, within the Burrowa land system, steep montane slopes with bare rock.

The Mittamatite sub-system consists of two main areas separated by the Cudgewa Valley. In all, an area of 37 square miles is involved, and this is about one per cent. of the survey area. The bulk of the area is Crown land, but some of the lower and less-steep country, and the north-western part of the Pine Mountain block are freehold.

The pattern of the land forms is the same as for the Jemba sub-system (Figure 35). Prominent peaks in the sub-system are Mt. Mittamatite at the southern end, and Pine Mountain in the north overlooking the Murray River (Plate 38).

Red and grey granite are the dominant rocks and dykes of porphyry and quartz are common in the older grey granite. Grey granite occurs mainly in the northwestern part of the Pine Mountain block.

The average annual rainfall is generally less than in the Jemba sub-system, about 30 inches per annum, and is lower along the Murray River and at lower elevations, and slightly higher on Mt. Mittamatite. Summers are hot and dry, and winters are cool and wet.

The soils and vegetation of this sub-system are similar to those of the Jemba sub-system, however there are more extensive areas of the drier forms of vegetation. Comments on land-use and potential, made for the Jemba sub-system, apply also to this sub-system.