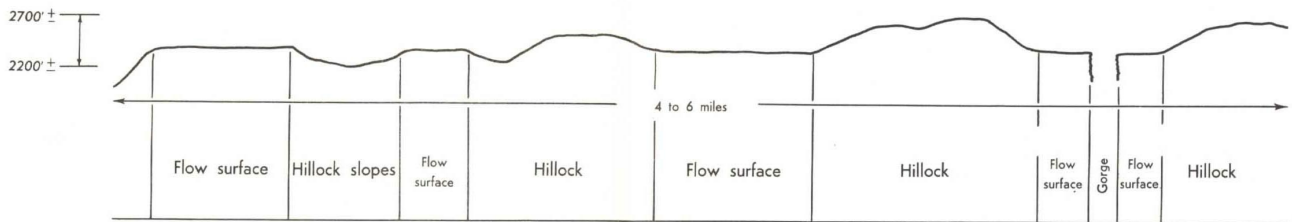


MOWAMBA LAND SYSTEM

MOWAMBA LAND SYSTEM

Area: 13 square miles 0.3% of catchment

(a) Distribution of land forms



(b) Land system diagram

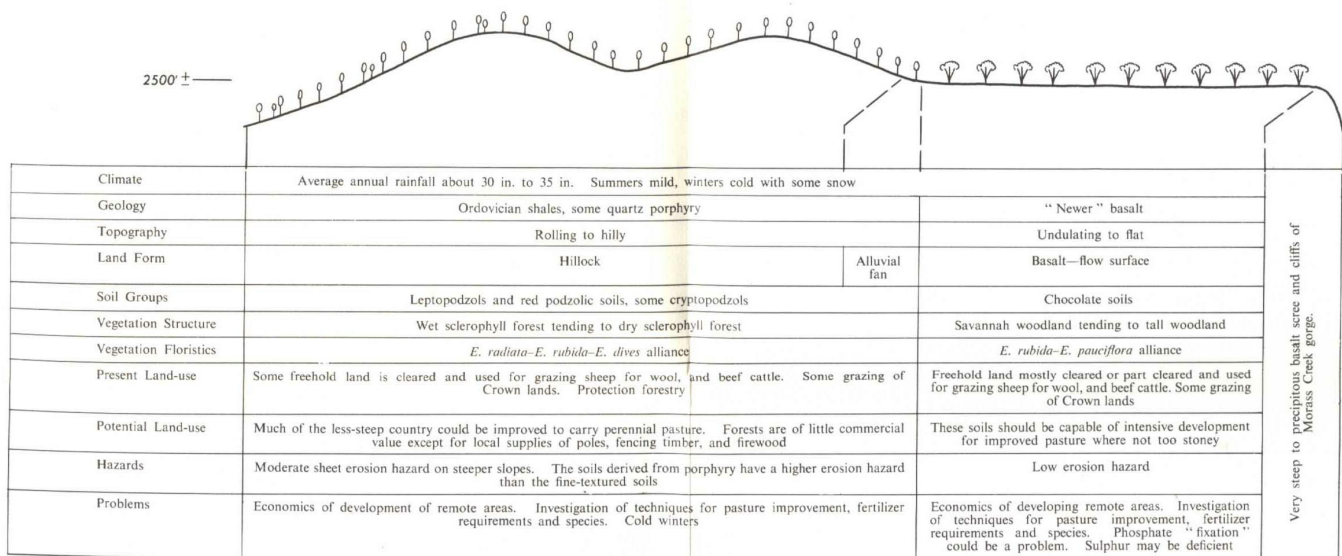


Fig. 37 – Mowamba Land System

This land system is the smallest recognised in the survey area. It is located along the lower reaches of the Morass Creek and Deep Creek in the south of the catchment and extends into the Tablelands country to the west of Morass Creek. The area involved is a little more than 13 square miles, which is less than half of one per cent. of the total catchment area. About 50 per cent of the Mowamba land system is Crown lands, and the remainder is freehold.

The most distinctive feature of this land system is the flow of "Newer" basalt which makes up some 40 per cent of the area (Figure 37). This flow has a relatively flat to undulating surface. Deep dissection of the basalt by Morass and Deep Creeks has resulted in very steep, and in places precipitous slopes from the flow surface to the present stream levels. Bordering the flow, the topography is rolling to hilly, with some undulating plateau surface between Morass Creek and the Mitta Mitta River.

In places, alluvial outwash fans from the hillocks have overlain the basalt with a mixture of material derived from sedimentary and igneous rocks. Except for the basalt and a small area of quartz porphyry to the east, the rocks are shales and mudstones, mostly of Ordovician age.

There are no official rainfall recording stations in this land system although Gibbo Park, where average annual rainfall is 46 inches, is just to the north. It seems probable that there is an increase in average annual rainfall from the south to the north over this area, perhaps from 30 inches to about 40 inches. It certainly receives more rainfall than does Benambra township (25 inches per annum) to the south. Because of the elevation, temperatures are milder in summer and much cooler in winter, than in areas with similar rainfall in the northern valleys. Snow may fall occasionally during winter but is generally not a serious land-use hazard in this area.

The soils on the "Newer" basalt are chocolate soils of irregular depth. Undecomposed basalt sometimes occurs at the surface, but may be as deep as 10 feet, and floaters of undecomposed basalt frequently occur in the profile. Soils of the quartz porphyry and sedimentary rocks are podzolics. Some belong to the weakly differentiated leptopodzol group and others have a moderately differentiated profile with a moderately well-structured light clay subsoil. These latter soils are classified as red podzolics, and sometimes yellow podzolic soils are found where drainage is restricted. Soils on the steep to precipitous sides of Deep and Morass Creeks are lithosols or are unstable scree.

On the basaltic soils, the vegetation is usually a savannah woodland, tending to tall woodland of the *E. rubida-E. pauciflora* alliance. The remainder of the area supports wet sclerophyll forest, tending to dry sclerophyll forest of the *E. radiata-E. rubida-E. dives* alliance, which is rarely of adequate quality for sawn-timber production. There apparently has not been much burning of the vegetation of this land system and there is generally not very much undergrowth. Scattered low shrubs of *Platylobium formosum*, *Pultenaea juniperina* and *Daviesia latifolia* and the native grasses, *Poa australis* in the forest areas and *Themeda australis* in woodland areas, are the most common ground-flora species.

Erosion is not a problem in this land system at present. It is doubtful if there is any erosion hazard on the chocolate soils, but the steeper slopes with podzolic soils could become sheet eroded and perhaps gully eroded if misused.

The freehold land in this land system is to a large extent farmed at a low level of development. The grazing of sheep for wool, and of beef cattle are the main enterprises. The chocolate soils, where not too stony, should be capable of supporting a high productivity pasture, possibly based on perennial species. Sulphur may be deficient, and phosphate "fixation", which may be high, could result in low phosphate availability on the chocolate soils. These nutrition problems should be the subject of specific study as the haphazard application of the superphosphate to these soils could be economically unsound, particularly as costs are high. With dressings of superphosphate, the podzolic soils should be capable of supporting perennial pastures.

The Crown lands do not appear to be used very much either for forestry or grazing. The open nature of the understorey in both the woodland and forest vegetations should permit a moderate amount of controlled grazing. Some of the Crown land along the Nariel-Benambra road would be suitable for agricultural development, however each application for alienation should be considered individually.

The main factors operating against effective use of land in this land system are the long distance from a rail-head, and a general lack of knowledge of the soil-plant relationships, particularly on the chocolate soils. Whilst research work could solve the problems of how to grow better pastures, the isolation factor is important and there seems to be little hope of overcoming it. Subsidised road transport of items for developmental purposes, such as farm equipment and fertilizers would probably help.