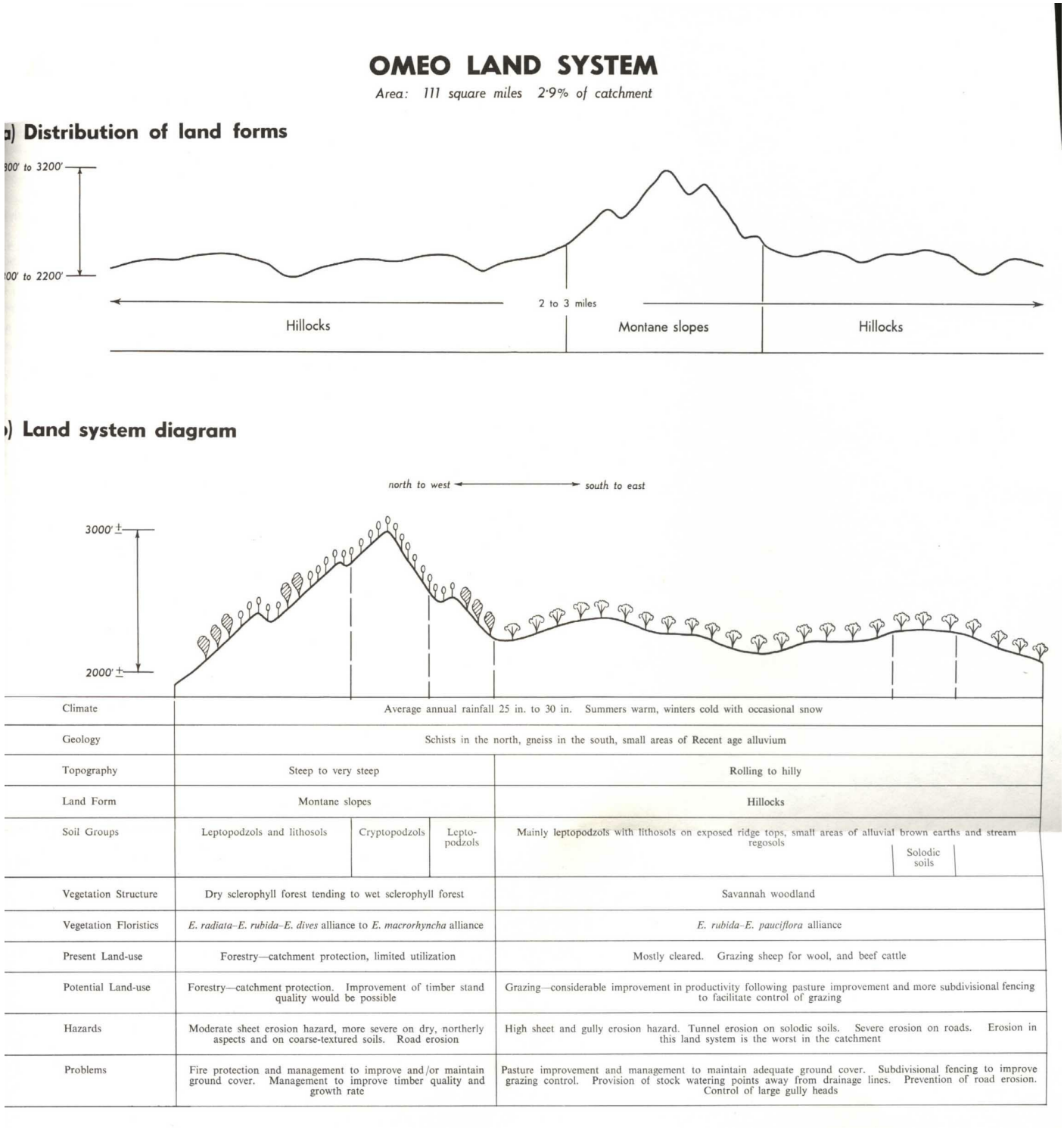
OMEO LAND SYSTEM



Climate	Average annual rainfall 25 in. to 30 in. Summers warm, winters cold with occasional snow			
Geology	Schists in the north, gneiss in the south, small areas of Recent age alluvium			
Topography	Steep to very steep			Rolling to hilly
Land Form	Montane slopes			Hillocks
Soil Groups	Leptopodzols and lithosols	Cryptopodzols	Lepto-podzols	Mainly leptopodzols with lithosols on exposed ridge tops, small areas of alluvial brown earths and stream regosols; Solodic soils
Vegetation Structure	Dry sclerophyll forest tending to wet sclerophyll forest			Savannah woodland
Vegetation Floristics	*E. radiata–E. rubida–E. dives* alliance to *E. macrorhyncha* alliance			*E. rubida–E. pauciflora* alliance
Present Land-use	Forestry—catchment protection, limited utilization			Mostly cleared. Grazing sheep for wool, and beef cattle
Potential Land-use	Forestry—catchment protection. Improvement of timber stand quality would be possible			Grazing—considerable improvement in productivity following pasture improvement and more subdivisional fencing to facilitate control of grazing
Hazards	Moderate sheet erosion hazard, more severe on dry, northerly aspects and on coarse-textured soils. Road erosion			High sheet and gully erosion hazard. Tunnel erosion on solodic soils. Severe erosion on roads. Erosion in this land system is the worst in the catchment
Problems	Fire protection and management to improve and/or maintain ground cover. Management to improve timber quality and growth rate			Pasture improvement and management to maintain adequate ground cover. Subdivisional fencing to improve grazing control. Provision of stock watering points away from drainage lines. Prevention of road erosion. Control of large gully heads

Fig. 29 – Omeo Land Systems

Most of the eastern side of the catchment of Livingstone Creek is in this land system. It extends from just north of the Mt. Delusion Permanent Forest, down to the junction of the Livingstone Creek with the Mitta Mitta River, and further down the eastern side of the river to opposite its confluence with the Four Mile Creek. The area is 111 square miles, which is just under 3 per cent. of the total catchment. The greater part of the area is freehold land. Some small areas along the Dividing Range and some of the country in the north are Crown land. There is also an area of Timber Reserve and a small area of Permanent Forest along the Dividing Range.

Plate 33. Omeo land system with remnants of the savannah woodland revegetation.
The catchment of Reedy Creek.

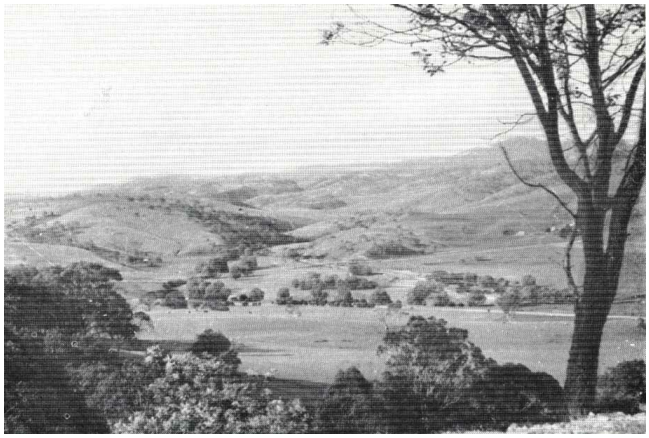


Plate 34. Omeo Valley, part of the Omeo land system.
Livingstone Creek is eroding its banks in the section near the centre of the plate.

The land forms involved in the Omeo land system are hillocks, which make up about 90 per cent of the area, and montane slopes (Figure 29) (Plate 33). The land system appears to have been an area of fairly subdued relief which has suffered mild dissection. Crohn (1951, unpublished report to S.C.A.) suggests that the Tongio and Cassilis gaps on the Divide, may have been the valleys of ancient streams which flowed south before the drainage was reversed by the Kosciusko uplift. The elevation ranges from about 1,800 feet to 2,200 feet in the valleys, up to 2,800 feet to 3,200 feet on the higher ridges. The general upper level of the tops of the hillocks is about 2,400 feet. The more important streams draining this land system, as well as the Livingstone Creek, are Days, Wilsons, Red Gap and Reedy Creeks (Plate 34).

The geology of the area is relatively simple, being almost entirely schist with some gneiss at the southern end.

There is a meteorological station at Omeo township which is within the Omeo land system so that the climate is fairly well recorded. Details will be found in the climate section. The average annual rainfall

at Omeo is 26 inches and this may be taken as the rainfall over most of the land system. The distribution through the year is fairly uniform but autumn is slightly drier than the other seasons. Average rain per wet day is highest during the summer months. Summer maximum temperatures are lower than those in the northern valleys, and nights are cooler. Winter temperatures are very cool to cold and the mean monthly temperature in July is just below 42°F. Light frosts may occur at any time of the year, but heavy frosts usually occur between late March and early November. The lower temperatures somewhat offset the low rainfall, so that if only 5 inches of stored soil moisture is available to plants, water is not a limiting factor for plant growth in average or better years.

The most widespread soils in the Omeo land system are the leptopodzols which occur on most of the steeper country as well as on some of the less-steep hillock slopes. Solodic soils occur on higher undulating country in the south and scattered through the rest of the land system. Elevated country with a higher rainfall may have cryptopodzols. Regosols occur sporadically, and red or grey well-structured clay relic horizons sometimes occur below the leptopodzols. Alluvial brown earths and stream regosols occur on the limited stream flats of Livingstone and Reedy Creeks.

The hillocks and areas of montane slopes with lower rainfall support savannah woodland of the *E. rubida-E. pauciflora* alliance, a good deal of which has now been cleared. *Themeda australis is* the dominant ground-flora species, and on unimproved cleared land, forms a fairly good pasture, but it must be carefully grazed. *T. australis* is a summer growing plant and it dries off after the first heavy frosts. Where rainfall is slightly higher, such as along the Divide, the vegetation is a wet sclerophyll forest tending to dry sclerophyll forest of the *E. radiata-E. rubida-E. dives* alliance in which *E. obliqua* occurs in some sheltered localities.

The worst gully erosion in the catchment occurs in this land system. Many of the gullies probably started about 40 to 50 years ago, but their heads are still working back. Gullies up to 30 feet deep occur on Black Camp Creek, a tributary of Days Creek (Plate 23). Where Days Creek enters the Livingstone Creek, the bed is aggrading with coarse sand, indicating that a great deal of finer soil material must have been carried on by the Livingstone Creek and eventually found its way into Lake Hume. Severe tunnel erosion also occurs in parts of the Black Camp Creek catchment where solodic soils are common (Plate 24).

Roadside sheet erosion and gully erosion are severe, and particularly so on unused and abandoned roads on steep grades. Incipient to moderate sheet erosion occurs from many areas where the unimproved native pastures of *Themeda australis* and *Danthonia spp.* are over-grazed.

Stream-bank erosion along Livingstone Creek is a serious problem which can be attributed to the poor condition of its catchment.

Extensive pasture improvement and better management aided by closer internal subdivision would considerably improve the condition of this country and reduce surface run-off. Mechanical works will be required to prevent extension of gully-heads. It may be possible to dam some gullies to both stabilise the floor and provide valuable farm-water storage. The climate is such that a good supply of stored water is needed to carry stock through the dry years.

The main agricultural activity is grazing of sheep for wool, and of beef cattle. Little pasture improvement has been carried out. The economics of pasture improvement in this area, where transport costs are high, are always questioned. An economic survey of the problem would be a valuable aid to extension workers.

Areas of forested land along the Divide and elsewhere should be left under forest. These areas can supply some of the local requirements for fencing timbers, poles and firewood and thus have a definite value. Elimination of fire from the forested areas will help to ensure that good ground cover is maintained and surface run-off from these areas is kept to a minimum.