HOWQUA LAND SYSTEM

Plate 25 – The Howqua land system ranges with long, steep slopes covered with forests of narrow-leaved peppermint and gum

The wet sclerophyll forests, comprising mainly narrow-leaved peppermint and candlebark, characterise the headwaters of streams in a repeated ridge and valley topography which reaches up to an altitude of about 1200 metres. These constitute the Howqua land system.

The average annual rainfall ranges from 1150-1400 millimetres and the incidence is higher during winter. As a result, the forests are similar to those of the Jamieson land system but broad-leaved peppermint is replaced by narrow-leaved peppermint, the floor cover is more luxuriant and a notable gully flora is developed, particularly on the wetter southern and eastern aspects. Also the steep slopes are not as long, being located in higher areas where the headwaters of the streams rise steeply. The boundary between the two land systems is arbitrary because of the frequent changes of aspect.

In detail, the forest of broad-leaved peppermint and candlebark gives way, with increasing rainfall and altitude, to a wet sclerophyll forest of narrow-leaved peppermint and candlebark. The change is at first marked by the appearance of narrow-leaved peppermint on southern and eastern aspects, whilst broad-leaved peppermint may persist on western ridge tops for some distance into the wetter Howqua land system. The form of the trees improves concomitantly, particularly that of candlebark, which becomes taller and straighter with a higher crown. The community as a whole becomes shadier and denser. A lower tree layer, of silver wattles and blackwoods (*Acacia dealbata* and *A. melanoxylon*), is usually present in wetter situations. A gully flora of hazel (*Pomaderris aspera*), blanket leaf (*Bedfordia salcina*) and curry bush (*Cassina aculeata*) is well developed. Ferns are common in gullies, for example *Blechnum sp*. And, in the actual drainage line, tree ferns (*Dicksonia antartica*) occur. Many of the gullies have lost the original densely and shaded flora, because of fires, and rows of blackened tree fern stems and patches of curry bash are all that remain. In some places bitter peas (*Davesia spp.)*, more typical of the higher rainfall forests, may occur, particularly after fires. Bracken is common.

The floor cover is closed; the grasses, small herbs and shrubs grow strongly enough to heal fire scars and erosion openings quickly. The soil therefore is generally covered, in contrast to the lower rainfall areas. The main floor covering is of fine *Poa spp*., with many small herbs contributing to the layer. In places there is evidence of grazing, both by native animals and cattle, resulting in a shorter, carpet like floor, giving a park-like appearance. Cattle grazing has also introduced a number of foreign plants, and a rough pasture has evolved in regularly grazed places. For example, white clover (*Trifolium repens*) has become established along stock routes, St. John's worst has become a problem to graziers, and tutsan (*Hypericum andorcaemum*), a broad-leaved bushy plant, dominates the ground cover in moist places. The total area markedly affected is small, and the incidence is confined mainly to valleys.

A valley phase of the peppermint-candlebark forest is often developed in major gullies and valley floors, where candlebark is replaced by manna gum. The latter usually forms a palisade of taller,

straighter, white trees along the water courses, and their presence is prominent from a distance, because of the lighter yellow- green crown.

In enclosed flat areas on valley bottoms, open woodlands of snowy gum with a grassy floor occur in frost hollows, caused by ponding of cold air drainage. There is also a local inversion of the normal altitudinal sequences of vegetation. In the lower rainfall fringe at lower altitudes, and on the moist southern and eastern sides, candlebark is more common on wet sites such as gullies. At higher altitudes, it is more common on better drained sites such as ridges, the gullies being occupied by *Pomaderris sp., Bedfordia sp.,* etc. and messmate, which mark the beginning of higher rainfall forests. On ridge tops at the highest altitudes in the land system gnarled candlebarks, with their higher altitude variant, the mountain gum, together with snow gum, mark the more stringent climate.

This wet sclerophyll forest of narrow-leaved peppermint and candlebark is a major vegetation type in the catchment. Some areas in the 100-1250 millimetres rainfall zone show a transition between the Jamieson and Howqua land systems. They are covered by a mixed forest containing the species of both land systems, viz. Narrow-leaved peppermint and blue gum in gullies with narrow-leaved peppermints and candlebark on the ridges and manna gum along the flatter creek lines. One example is found to the north of Buttercup Creek.

Several rock types are present, but the range does not affect the classification of soils at the soil group level. Cryptopodols are found on moist aspects and in gullies, red amphipodsols on north-western aspects, and brown mountain soils on the higher and wetter fringes.

The land system is a significant source of water. Forty-five percent of precipitation is estimated to reach Lake Eildon, making up about one-fifth of the total in flow.

Because of the shorter slopes and the moister environment, with less seasonal fluctuation, the erosion hazard after fire is considerably less than in the adjacent Jamieson land system. In fact, fire probably damages the Howqua land system less than any other in the catchment, as scrub growth after wildfire is prolific. The re-establishment of herbs and grasses on the floor is also sufficiently rapid for erosion to be checked within a few years of burning. Consequently the hazards of sheet erosion resulting from controlled burning are less than in the Jamieson and Maintongoon land systems. The effect of controlled burning on the nutrient status of the soil, however, may be more severe because of the greater concentration of nutrients in the topsoil.

Almost all of the area is still forested but there is only limited use of the narrow-leaved peppermint and candlebark as milling logs. A large quantity of lower grade timber is suitable for processed wood products, but large scale extraction would detract from the water production value of the land system.

There is some grazing potential in this country but little grazing occurs, mainly because of prolific scrub growth. Light grazing by cattle seems to do no appreciable damage. It may even be beneficial in keeping down the quantity of scrub and fuel and prove to be an acceptable alternative to controlled burning. At the lower altitudes, the spread of weeds, notably St. Johns wort and tutsan would present a further problem.

As a result of this low intensity of use for both forestry and agriculture, and because of the characteristic shorter slopes and the higher regenerative powers of the vegetation after fire, the hazards of damage to catchment values are less than for the other land systems. The actual damage from fire is lower.

The Howqua land system is a major source of water and a minor source of timber, with a lower erosion hazard than in the other forested areas. The best use of the Howqua land system is as a water catchment and there should be as littler interference as possible in its management for that purpose.

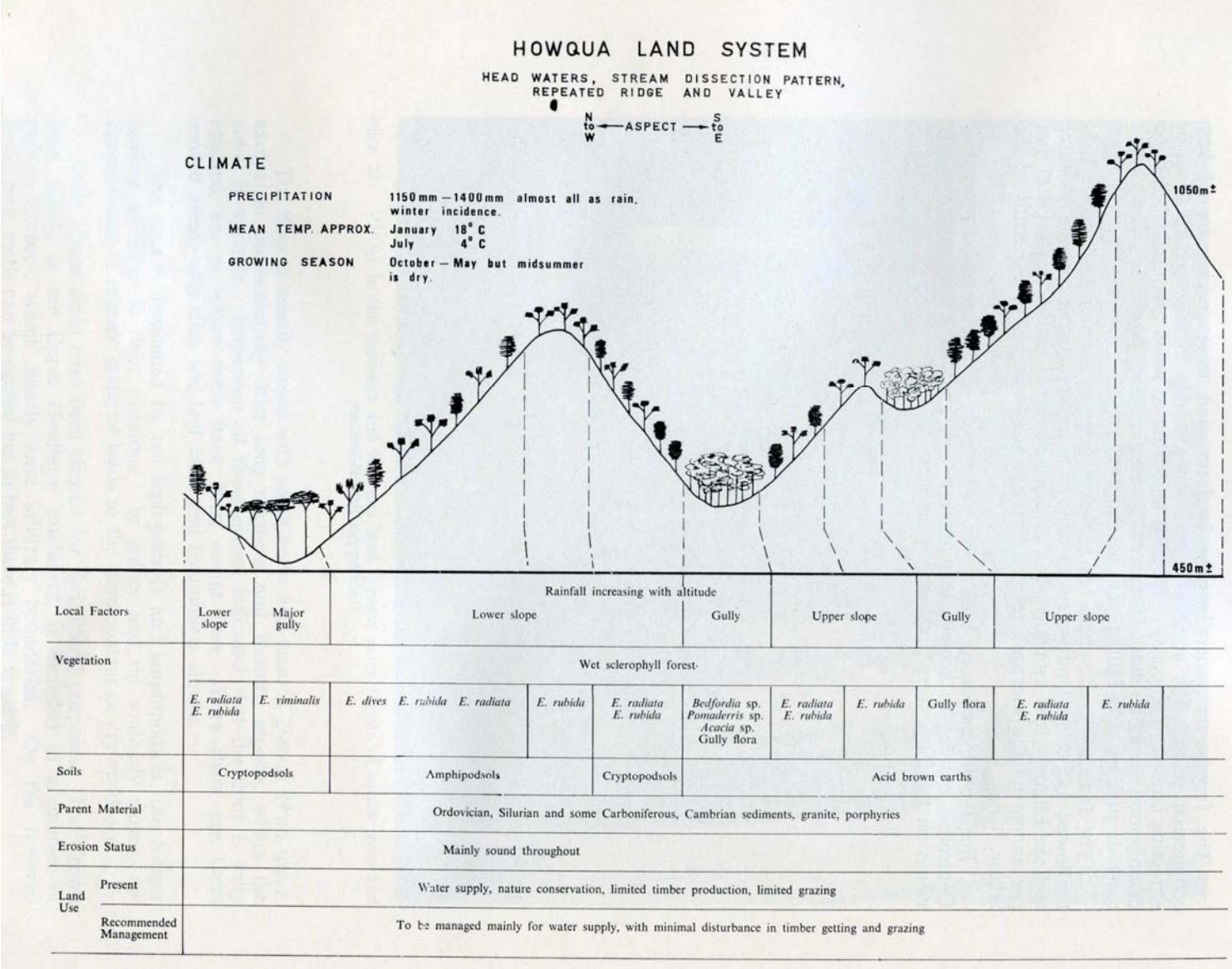

Figure 20 – Howqua land system