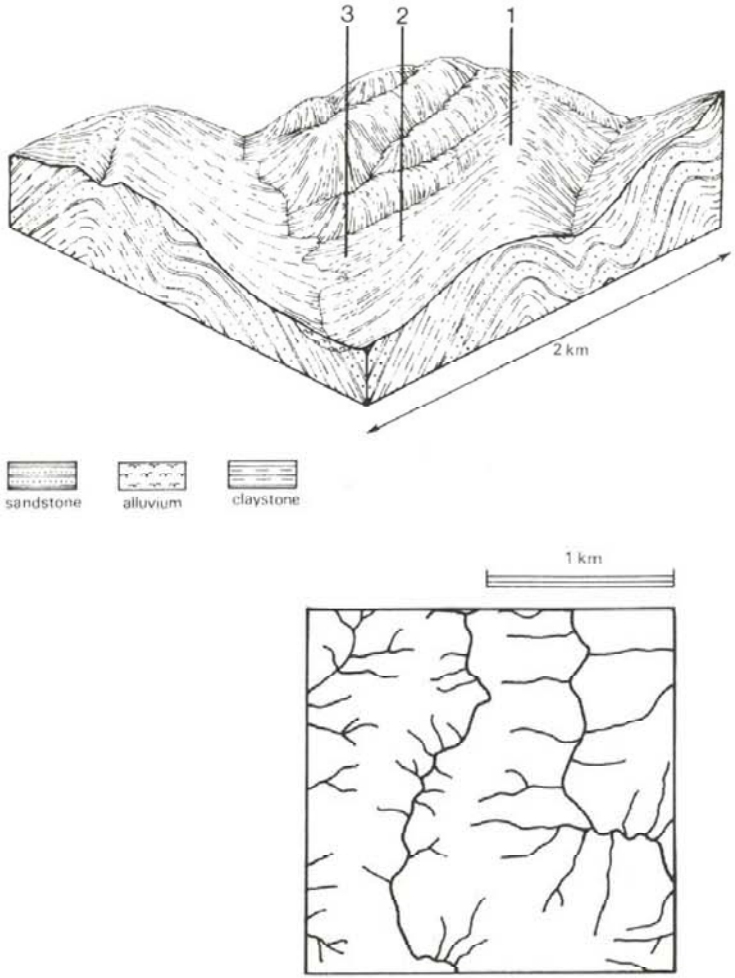
7.1 Aire Land System

The steeply dissected spurs and ridges in the wetter parts of the Otway Range comprise the Aire Land System, the largest land system in the study area. Rapid downcutting of streams following uplift of the Range has been responsible for forming this rugged landscape, with many slopes more than 60% and cliffs and bluffs in the central part north of Apollo Bay.

The soils are young and moderately fertile. Tall open forests of Eucalyptus regnans reach heights approaching 100 m in the Calder River catchment, but most of the tallest trees have now been milled. *E. obliqua* and *E. cypellocarpa* are also common, while *E. viminalis* occurs in the west and *E. globulus* is found close to the coast.

Pine forests cover large areas of this land system and other parts have been cleared for agriculture. The main hazards to land use are landslips and sheet erosion. Losses in organic matter and soil structure are often apparent following clearing.

Some areas of the Aire land system have been cleared for agriculture, but the terrain is difficult to manage and many areas have become covered in bracken an non-productive scrub.



AIRE Area: 762 km^2	Component and its proportion of land system		
	1 10%	2 80%	3 10%
CLIMATE Rainfall, mm	**Annual:** 1,100 – 1,750, lowest January (60), highest August (170)		
Temperature, 0°C	**Annual:** 11, lowest July (7), highest February (16)		
Seasonal growth limitations	**Temperature:** less than 10°C (av.) May – September		
	Precipitation: less than potential evapotranspiration December – February		
GEOLOGY Age, lithology	Lower Cretaceous feldspathic sandstone and mudstone		
TOPOGRAPHY Landscape Elevation, m Local relief, m Drainage pattern Drainage density, km/km^2 Land form Land form element Slope (and range), % Slope shape	Deeply dissected hills of the Otway Range 90 – 560 165 Trellis pattern with isolated radial areas 4.7 Hill Crest 20 (5-30) Convex	Upper and middle slope 40 (25-80) Linear	Lower slope, drainage line 25 (5-40) Concave
NATIVE VEGETATION Structure Dominant species	Tall open forest *E. obliqua, E. cypellocarpa, E. regnans, E. ovata, E. globulus, E. viminalis, Acacia melanoxylon*	Tall open forest *E. regnans, E. cypellocarpa, E. obliqua, E. ovata, E. viminalis, E. globulus*	Tall open forest to tall closed forest *E. regnans, E. obliqua, Acacia melanoxylon, Nothofagus cunninghamii, E. cypellocarpa, E. ovata, E. viminalis, E. globulus*
SOIL Parent material Description Surface texture Permeability Depth, m	In-situ weathered rock Brown gradational soils Loam Moderate 1.4	In-situ weathered rock Brown gradational soils Loam Moderate 1.2	Alluvium and colluvium Dark brown gradational soils Loam High >2
LAND USE	**Uncleared areas:** Hardwood forestry for scantlings, posts, pole and pulpwood; softwood plantations for sawlogs and pulpwood; nature conservation; water supply; passive recreation. **Minor cleared areas:** Beef cattle grazing and dairy farming on mainly improved pastures; row cropping on gentler slopes.		
SOIL DETERIORATION HAZARD Critical land features, processes, forms	High rainfall, moderate permeability and leaching plus loss of organic matter and soil structure upon disturbance lead to nutrient decline and soil compaction, also sheet erosion on steeper slopes.	Clay subsoils on steep slopes subject to periodic saturation are prone to landslips. Steep slopes are prone to sheet and rill erosion. High rainfall, moderate permeability and leaching plus loss of organic matters and soil structure upon disturbance lead to nutrient decline and soil compaction.	Rapid surface run-off from adjacent hills lead to scour gullying, siltation and flooding. High rainfall, high permeability and leaching plus loss of organic matter and soil structure upon disturbance lead to nutrient decline and soil compaction.