

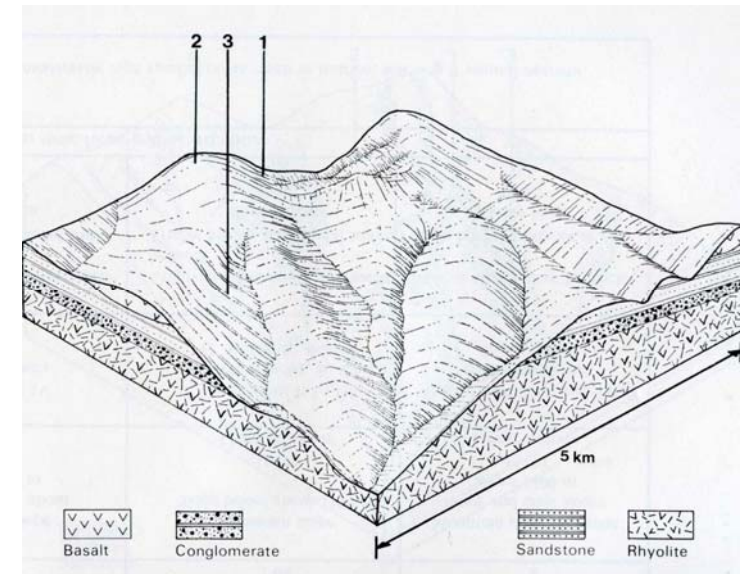
### 7.14 Mahaakah land system

In a number of small upland areas in the south-west of the study area, low hills of Tertiary basalt merge with the undulating plateau surface of Lower Devonian rhyolite and rhyodacite or the Carboniferous sedimentary rocks. Annual rainfall is high, with occasional winter snow. Summers are mild and winters cold, with severe frosts from autumn through to spring.

Red gradational soils on basalt dominate, with friable brown gradational soils most common on non-basaltic parent material.

The soils on coarse sediments support open forest of *Eucalyptus dives* and *E. rubida*, and on firmer-textured materials *E. radiata*, *E. rubida* and *E. st-johnii* are dominants. *E. viminalis* and *E. obliqua* occur on deep soils in sheltered areas.

Most of the basaltic areas are cleared and used for grazing, although some are used for potato-cropping. The non-basaltic areas usually remain uncleared, but may be grazed. Cold winters and relative isolation provide two limitations to the use of these areas. No significant erosion hazard applies except where the steeper slopes are used for continuous potato-cropping, when sheet erosion is likely to occur.



**MAHAAKAH LAND SYSTEM** Area 33 sq km

<b>CLIMATE</b> Rainfall, mean (mm) Temperature, mean (°C) Seasonal growth limitations	Annual 1150-1350; lowest January (60), highest July (175); occasional winter snow Annual 10; lowest July (4), highest January (17) Temperature – less than 10°C (av): lowest areas May-September, highest areas May-October Precipitation – months less than 50% frequency of effective rain: January – February		
<b>GEOLOGY</b> Age, lithology	Lower Carboniferous conglomerate, sandstone, siltstone, shale or Upper Devonian rhyolite and rhyodacite with Tertiary basalt capping		
<b>PHYSIOGRAPHY</b> Landscape Elevation range (m) Relative relief (m)	Rolling to low hilly plateau 800-1000 80		
<b>LAND COMPONENT</b> Percentage of land system	1 25	2 50	3 25
<b>PHYSIOGRAPHY</b> Land form Position on land form Slope range (%) Slope shape	Low hill (basaltic residual) Exposed lower slope 8-12 Linear-Concave	Low hill (basaltic residual) Crest 2-15 Convex	Low hill (basaltic residual) Sheltered lower slope 8-12 Linear-Concave
<b>NATIVE VEGETATION</b> Structure Dominant species	Open forest II <i>E. radiata, E. dives, E. rubida</i>	Open forest III <i>E. viminalis, E. radiata, Acacia melanoxylon</i>	Open forest III <i>E. obliqua, E. radiata, E. rubida, E. viminalis</i>
<b>SOIL</b> Parent material Description Surface texture Permeability Depth (m)	<i>In situ</i> weathered bedrock with basaltic influence Friable brown gradational soils Sandy loam High 1.5	<i>In situ</i> weathered basalt Red gradational soils on basalt Clay loam High >2.0	<i>In situ</i> weathered rock with basaltic influence Friable brown gradational soils Sandy loam High 2.0
<b>LAND USE</b>	Mostly cleared; grazing, mainly beef cattle; potato-, strawberry- and vegetable Uncleared areas: limited timber production, forest grazing		
<b>SOIL DETERIORATION HAZARD</b> Critical land features, processes, forms	Relatively short growing season and severe frosts; non-basaltic soils compact readily in intensive-use areas and cause surface run-off; intensive cultivation leads to loss of soil structure; sheet and rill-erosion		