5. Glenbrae Unit

This complex unit on basalt in the eastern regions of the study areas essentially comprises a gently undulating plain formed by lava flows from numerous volcanoes. The plain is now variously eroded by stream dissection. The volcanic hills have been mapped separately in the Volcanic Hills Unit, and the poorer-drained lower-lying areas of the plain have been mapped into the East Mt Mitchell-Carinya and Grandview Units. The narrow valleys have been mapped as the Entrenched Valley Units.

The soils vary greatly and largely reflect their hydromorphic condition: red to brown gradational soils frequently occur on the better-drained rises and colluvial slopes flanking the volcanic hills; uniform soils occupy the lower-lying and poorer drained areas; and yellow-brown duplex soils, often containing buckshot in the upper horizons, are found on the plain. Soil depth is also variable, with occasional surface stone on the gentle slopes, but more common on the scarps.

The native vegetation has been removed, and land use is predominantly grazing.

Geology: Quaternary olivine basalt

Slope: Average 1-3%

Landforms: 60% Gently undulating plain
40% Rocky rises, broad drainage depression, scarp, closed drainage depression

Soils:
Dominant: Ug5.1, Ug5.2, Ug4, Ug5.3. Grey, brown or less commonly black uniform clay soils on poorer parts of the plain and in the depressions; relatively impermeable, these frequently crack during the summer months, causing a gilgaied relief in some areas: they are usually whole-coloured, although reddish brown rootline mottling is common, especially in the upper horizons: soil depth is extremely variable, and occasionally basalt stones occur at the soil surface. In some soils an A_2 horizon with buckshot is present.

Gn 3.21, Gn3.31, Gn3.22, Gn3.31. Brown gradational soils, common throughout the plain, are moderately deep and well structured with silty loam to clay loam surface textures and clayey subsoils; in some instances the B horizons are mottled and an A_2 horizons present; buckshot is common in the upper horizons: the brown gradational soils appear to be slightly poorer-drained variants of the red gradational soils, which are restricted to the better-drained crests, the slopes flanking the volcanic hills and the scarps.

Dy3.21, Dy3.12, Dy3.32, Db. Yellowish grey, yellowish brown and brown duplex soils are common on the flatter parts of the plain, with the topsoils typically brown loams to silty clay loams, and a pale to sporadically bleached silty clay loam A_2 horizon often present; the upper horizons usually contain abundant buckshot: subsoils are neutral and often mottled.

Minor: Gn3.72, Gn3.95. Deep, well-structured, yellowish gradational soils, with brown, silty loam topsoils containing buckshot in the lower part, occasionally occur on the plain: subsoil colour reflects the soil's hydromorphic condition, with grey colours predominating in poorer-drained areas, and yellowish-brown to reddish-yellow colours in better-drained.

Gn3.1, Gn4.12, Gn4.11. Red gradational soils, often with buckshot in the upper horizons, on the better-drained slopes crests; they are usually well structured and, on steeper slopes such as scarps, may be shallow and stony.

Uf6.3. Shallow, stony, well-structured, dark uniform clay soils occasionally occur on the scarps.

Uf6.1. Strongly-structured, black, cracking clays are sometimes found in the depressions.

See appendices 8 and 9 for typical soil profile descriptions from this unit.

Stone rock outcrop: Average 1%

Pan: Nil

Land use: Grazing on introduced pastures dominates, limited cropping occurs, especially on the better-drained and well-structured red gradational soils: soil conditions that frequently limit productivity include rock outcrops, shallow soils, poor drainage, and disruption of plant roots by the seasonally cracking clays.

Observed land deterioration: The little deterioration observed consists largely of compaction of the silty clay loam topsoils of the plain, with slight gully erosion in the more dissected areas.

Susceptibility to land deterioration:
Compaction (moderate to high)
Gully erosion (low)

Sheet erosion (low to moderate on scarps)

Land capability classification:

The land capability classes within this Unit are determinant on soil type (see Table 1). The uniform clay soils (Ug5.1, Ug5.2, Ug4, Ug5.3) are in class 3, the brown gradational soils (Gn3.32, Gn3.22) are generally in class 2 sometimes in class 3 – depending upon the drainage), whilst the yellow-brown duplex soils (Dy3.22, Dy3.12, Dy3.32, Db) and the yellowish gradational soils (Gn3.72, Gn3.95) are in class 3 due to their poor drainage. The red gradational soils found flanking the Volcanic Hills Unit and located on the better-drained crests and slopes, are in class 1 unless shallowness dictates that they be put into either class 2 or 3 (see Table 1).