

### **3. DESCRIPTION OF THE ENVIRONMENT**

#### **3.1 Physical environment and land use**

The use of an area of land and the condition of the land (physical environment) are interdependent.

Firstly, various features of the physical environment may limit or adversely effect the land use. Secondly, the land use may alter the physical environment in such a manner as to affect that or other land uses.

An understanding of the physical environment is fundamental to consideration of these two aspects of land capability assessment.

#### **3.2 Location**

The catchments which comprise the study area lie largely within the Shire of Creswick, but with a small area in the Shire of Bungaree. The area of the catchment to the Cosgrave Reservoir is approximately 3150 ha, Dean Reservoir 165 ha and Russell Reservoir 230 ha. The Cosgrave Reservoir is supplied by the Creswick, Fleming and Adekate Creeks, Dean Reservoir by Birches Creek and Russell Reservoir is supplied by a water race which takes water from Slaty Creek.

#### **3.3 Climate**

The following climatic data were recorded at the School of Forestry, Creswick:

mean annual rainfall	787 mm
mean summer rainfall	154 mm
mean winter rainfall	236 mm
mean annual number of rainy days	147
mean daily maximum temperature	18.3 C
mean daily minimum temperature	6.4 C

As the study area is at a slightly higher elevation than the School of Forestry, it may be assumed that the rainfall will be slightly higher and the temperature slightly lower than recorded at Creswick (Osborn, 1978).

#### **3.4 Landforms, geology and soils**

The northern, eastern and southern portions of the catchment to the Cosgrave and Russell Reservoirs are comprised of an undulating plateau of Quaternary basalt, with a number of volcanic cones at the periphery. The catchment to Dean Reservoir consists largely of low hills and volcanic cones of Quaternary basalt and scoria. Well drained, strongly structured, friable, red gradational soils of variable depth have developed from this parent material. There is relatively large area of swampy land to the north of the study area. This basaltic area occupies approximately 70% of the study area.

The central portion of the western half of the study area is comprised of well dissected Ordovician sedimentary rocks with a small area of remnant caps of Quaternary basalt. Yellow duplex and red gradational soils have developed from this Ordovician parent material. This area occupies about 21% of the study area.

To the north of the Cosgrave Reservoir catchment, there is a single occurrence of Tertiary sediments associated with deep lead material. Yellow duplex soils have developed from this material, which occupies only 1% of the study area.

#### **3.5 Existing vegetation**

The basaltic land was, with the exception of isolated areas of road reserves, completely cleared of the native Manna Gum forest in the 1860s to supply timber to the gold diggings around Creswick. Exotics such as Hawthorn have been planted as hedges and windbreaks in many parts of the catchments. Uncultivated, cleared areas now support a variety of annual and perennial pasture and volunteer herbs.

The escarpments have few trees, although the original vegetation was probably similar to that of the basaltic areas.

The cleared parts of the Ordovician country support a variety of annual and perennial pasture species. Native forests on the remainder consist of Broadleaf Peppermint, Messmate and Candlebark Gum on the slopes and Swamp Gum in the drainage lines.

Manna Gum and other Eucalypts occur on the Tertiary sediments.

### **3.6 Existing land use**

The basalt plateau is intensively farmed under a potato/ cereal/grazing rotation, with potato production being the major enterprise. The poorer drained areas to the north are farmed under a cereal/pasture rotation while the slopes and crests of the volcanic cones are restricted to grazing.

The major use of the escarpments is for grazing, although gentler slopes are used for limited potato/cereal cropping.

Much of the country underlain by Ordovician rocks is uncleared and supports a forest of native Eucalypts. Some of this is freehold, the remainder is controlled by the School of Forestry and the Creswick Waterworks Trust. The cleared freehold areas are used for grazing.

The land underlain by Tertiary sediments is used only for grazing.

There are many large irrigation storages (up to 40 MI) on the Fleming, Adekate and Slaty Creeks. The water stored is used for summer irrigation of potatoes.

### **3.7 Existing erosion**

There is little obvious erosion of the soils on the basalt; slumping of batters and minor erosion of table drains and unsealed road surfaces occurring sporadically throughout the catchment. There have been occasional problems with erosion of cultivated soil following heavy rainstorms or malfunctions of travelling irrigators.

Soils derived from Ordovician rocks are more prone to erosion, the major problems being associated with roading and dam spillways.

Seasonal erosional problems are associated with construction sites. Any subsoil exposed in roadside batters, by dam construction or during levelling of sites for house construction is prone to erosion.

Significant erosion of the escarpments is limited to small areas of cultivated soil.