

**SOIL CONSERVATION AUTHORITY**  
**Report on Billy's Creek Catchment - Morwell Waterworks Trust**

To accompany SCA Plan No. 1747

## **A. INTRODUCTION**

On the 7<sup>th</sup>, 1965, the Morwell Waterworks Trust applied to the Soil Conservation Authority for proclamation of the catchment to a pipe offtake weir on Billy's Creek. The catchment has been used for the water supply for Yinnar and the Hazelwood area. With the development of the new town of Churchill (formerly Hazelwood) which is estimated to reach a population of between 4,000 and 5,000 in ten years, the demand for water will increase markedly.

The request from the Trust is concerned with quality rather than quantity of water. The area is one of high rainfall, and good storage facilities exist for future development of the stream as a source of water supply.

## **B. DESCRIPTION OF CATCHMENT**

### **1. Location of Area, Land Tenure**

The catchment is situated in adjoining parts of the Parishes of Jeeralang and Jumbuk in the eastern Strzelecki Ranges. The pipe offtake weir is situated on Billy's Creek between Crown Allotment, 4, Parish of Jeeralang and Crown Allotment 13, Parish of Jumbuk. The whole area forms part of the Latrobe Valley Sub-Regional Planning Scheme 1949, Extension "A" 1964. At present the land is subject to an Interim Development Order of the Town and Country Planning Board which is preparing a Land-use Zoning Plan.

The area of the catchment is 7.9 square miles, or approximately 5,000 acres. Approximately 1,350 acres are State Forest affected by the *Forests (Wood Pulp Agreement) Act* 1961. The remainder of approximately 3,650 acres is freehold land.

### **2. Environment of the Catchment**

#### **a. Climate**

Available rainfall figures in this part of the Strzelecki Ranges indicate a mean annual figure of between 45" and 50". The following table shows the mean figure and the mean number of wet days per month at Jumbuk, situated at the south-eastern corner of the catchment. This station was the closest to the catchment until it was closed in 1952. Its readings were carried out over 27 years.

**Table 1 - Mean Rainfall (Points) and Mean Number of Wet Days**

<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sept</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Year</b>
295	207	318	399	407	517	342	449	387	354	324	303	4300
10	11	12	16	16	17	15	16	15	17	14	12	171

It can be seen that the area is one of relatively high rainfall and good distribution including a relatively high number of wet days in summer months.

Temperatures during the months of May to September may be too low for significant plant growth; however, because of the dominantly northerly and westerly aspects winter cold may not be as severe as on and south of the Central Ridge of the Strzelecki Ranges. Some snow is known to fall in most winters.

**b. Geology and Topography**

The area is based completely on the Jurassic<sup>1</sup> mudstones and shales common to the Strzelecki Ranges.

The catchment being used for this water supply scheme relies on Billy's Creek alone, the offtake being upstream from the junction with the first main tributary. The creek bed is deeply entrenched into the Jurassic sediments, and the outstanding feature of the valley is the steepness and sharply defined system of secondary ridges, spurs and drainage lines at right angles to the narrow floor of the valley. The land has steep slopes, ranging commonly from 40% to over 70%. These slopes are long and unbroken down to the stream bed, and the difference in elevation between the top and floor of the valley is commonly up to 1,300 feet. The highest part of the catchment is a point named Hooghly, at 2,300 feet, and the offtake weir is situated at approximately 600 feet. The tops of the ridges are more gently sloping but generally narrow, not exceeding a few chains in width. It is on the tops and the more gently sloping parts that most of the improved pastures are found.

**c. Soils and Erosion Hazard**

There is remarkable uniformity of soils over the whole catchment, irrespective of aspect or slope. The dominant soil type is the brown or reddish-brown clay loam on clay profile developed on the Jurassic sediments. It is commonly a brown loam or light clay loam changing with 12 inches to a light brown medium clay which changes to a heavy clay between 24 and 36 inches. This is then found to merge with decomposing rock. In all parts of the catchment the soils show good structure which leads to good permeability and viability. In the highest part of the catchment, on ridge-tops and particularly on "Hooghly", the soil is shallower and is found among outcrops of boulders and floaters just under the ground surface.

Because of good soils and favourable climate the erosion hazard can be considered as moderate. However, extremely steep slopes allow little of the catchment to be rated as suitable for cultivation. Its most stable use is probably hardwood or softwood forest, which uses moisture at depth and prevents a common type of erosion in this country, namely land-slides. However, even under pasture, conditions are most favourable towards rapid natural stabilisation of land-slides.

Some gullies exist in deep drainage lines on the northern side of Billy's Creek, on westerly aspects. These would stabilise under improved pasture or forest cover in the land above the heads.

**d. Vegetation**

The native vegetation of the areas is a wet sclerophyll forest of Mountain Ash (*E. regnans*) with Blue Gum (*E. bicostata*) and messmate (*E. obliqua*) on the higher, more exposed position. While there are some low-lying patches of natural regeneration of Mountain Ash following fires in the 1930's most of the land is either cleared and developed for farming purposes or has reverted to low useless vegetation; mainly bracken, blackberry, ragwort and native grasses. This cover is safe for catchment purposes, but unproductive in any other way.

Replanting by APM Forests Pty Ltd with forest species on many allotments in the upper reaches of the creek is discussed in the next section on land use.

---

<sup>1</sup> Has since been designated as Cretaceous

## **C. PRESENT LAND-USE IN RELATION TO WATER SUPPLY**

The present condition of the higher parts of this catchment is related to the history of farming in the Strzelecki Ranges. While dairying has been a successful form of land-use in the lower more sheltered parts of the Ranges, the higher land did not yield success because of the harsh climate and difficult terrain, isolation and finally the low prices of the depression years. Much of this higher land has been bought by the Forests Commission or is held in the name of the Crown, and it is intended that most or all will be replanted with hardwood or softwood forest.

In 1961, the *Forests (Wood Pulp Agreement) Act 1961* was ratified. This incorporated an agreement between the Crown, Forests Commission and APM Forests Pty Ltd, which allows that company to extract pulpwood from State Forest. The management of many allotments in the upper part of the catchment is therefore in the hands of the company in conjunction with the Forests Commission. Most of this higher land has been under scattered trees and scrub or bracken. The Company is replanting the land with Mountain Ash, mainly on the southerly and easterly aspects, and Pine on the northerly and westerly aspects. A brief comment about the associated activities is justified. Because of the steepness of much of the terrain, the procedure being followed is to cut out parallel or near-parallel bulldozer tracks, and clear the remaining scrub or trees from the area within the ball and chain techniques. The areas between the tracks are then replanted, and the tracks themselves are also planted with a double row of seedlings.

The main cause for concern with this procedure is the effect of a large number of freshly worked tracks on the run off from the area. In the past year, the Morwell Waterworks Trust has noted a marked deterioration in water quality and it is almost certain that this can be related to the formation of the tracks. Particular concern must be expressed over the parts where the tracks cross drainage lines and deep depressions flowing down to Billy's Creek. Several instances of slumping have been found on these crossings, and it will be necessary to make more satisfactory provision for run off disposal on these steep areas. Sowing down with pasture species on the track surface also appears to be necessary to stabilise the approaches to the drainage lines. The tracks will ultimately be used for extraction purposes. Buffer strips along streams are specified at 2 chains width from the stream provisionally, but in practice they would be wider than this as even APM techniques are unable to reach the lowest parts of the valleys where slopes were generally very steep down to the stream.

Land use on the freehold land consists largely of grazing sheep or cattle. Several properties appear to be thriving concerns, and the areas of improved pastures often go well down into the valley. The lower one-quarter or one-third of the slopes is generally under bracken, scrub or scattered trees. On some Allotments (13A, 16A, 16B, 19 Parish of Jeeralang and 10A Parish of Jumbuk) no use has been made of the land for many years, and regrowth is general and profuse. The nature of the land prevents cultivation for cropping being carried out on the narrow tops of ridges.

At present an application for alienation of two Crown allotments in the lower part of the catchment is being considered by the Lands Department and the Authority. Both these areas have been leased from the Lands Department, in recent years on an annual basis. The land is considered to be partly suitable for grazing, but will be examined in relation to a land-use determination for the whole catchment.

## **D. RELATIONSHIP OF THIS CATCHMENT TO LATROBE VALLEY SUB-REGIONAL PLANNING SCHEME**

The Billy's Creek catchment is part of the Town and Country Planning Board's Planning scheme for the Latrobe Valley; the area comes under the part of the Scheme known as Extension "A", 1964 covering parts of the Shires of Morwell and Traralgon. Because of the need to ensure that the Board's proposed Land-use Zoning and the Authority's interests do not clash, it will be necessary to maintain close liaison with the Board and to indicate the form and application of a land-use determination for the area when it is proclaimed.

## **E. CONCLUSION**

The Morwell Waterworks Trust's aim in requesting proclamation is to ensure continuity of sound management in the catchment and to prevent exploitation of the land and the stream to the detriment of the water supply. While there are no records of water quality available to compare the change, there appears to have been a marked increase in turbidity over the last year. This sudden change is assumed to be related to earthworks connected with forestry activities in the upper part of the catchment. Some gullyng on freehold land also contributes to the cloudiness of the water, but cannot be considered to be the main contributor to the recent change.

The Soil Conservation Authority will need to establish liaison with APM Forests Pty Ltd, the Forests Commission, Town and Country Planning Board, Shire Councils and probably other organisations, regarding land-use in this catchment. It will also need to consider the future of certain areas of freehold land in the catchment.

For these reasons, it is recommended that the Council consider the Billy's Creek Catchment for proclamation under Section 22 of the *Soil Conservation and Land Utilisation Act*.

(W.R. Rothols)

(N. R. Wilkinson)