

SOIL CONSERVATION AUTHORITY

**REPORT ON THE
GELLIBRAND RIVER CATCHMENT**

Prepared for consideration by the
Land Utilization Advisory Council
At its 82nd Meeting on the
2nd October, 1968



LEGEND

- APPROX. CATCHMENT BOUNDARY
- ROADS
- STREAMS



Drawn	D.J.L.	SOIL CONSERVATION AUTHORITY	Sketch No.
Date	5. 8. 68	LOCALITY PLAN	207
Scale	1 IN. TO 4 M.	GELLIBRAND RIVER CATCHMENT	
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REPORT ON GELLIBRAND RIVER CATCHMENT

1. INTRODUCTION

A brief investigation has been made into land-use and land tenure in the Gellibrand River Catchment which is tapped for the water supply of the State Rivers and Water Supply Commission's Otway Waterworks District, the Colac Waterworks Trust and most recently, the Geelong Waterworks Trust to augment their Barwon system.

The information contained in this report is for consideration by the Land Utilization Advisory Council, to make recommendations to the Soil Conservation Authority in relation to the constitution of this catchment under the provisions of Part III of the *Soil Conservation and Land Utilization Act, 1958*.

2. GENERAL DESCRIPTION OF THE CATCHMENT

(a) Area, Locality, Access:

The area of the catchment down to the State Rivers and Water Supply Commission's pumping station on the Gellibrand River located about ½ mile below the confluence of the Carlisle and the Gellibrand Rivers and about 1½ miles west of the township of Carlisle River, is 196.5 mile². Part of its eastern boundary is common with that of the proclaimed Upper Barwon Catchment.

This area includes the Colac Waterworks Trust Catchment on the Olangolah and West Gellibrand Rivers covering approximately 6,000 acres and the 1450 acre Barramunga Creek Catchment to the Geelong Water Trust's new weir, about 1¼ miles south of Barramunga township.

The parishes involved in the catchment are Barongrook in the Shire of Colac, and Barramunga, Moorabanool, Moowroong, Natte Murrang, Gerangamete, Newlingrook, Olangolah, Weeaproinah and Yaugher in the Shire of Otway.

The boundaries of the catchment consist of well-defined, often steep ridges, along which roads have been made, but some of these, mainly along the west and north-west and partly on the north-eastern ridge are not useable except in the dry part of the year.

Some sealed roads traverse the catchment from south to north, like the Ferguson-Gellibrand-Colac Road, the Beech Forest-Gellibrand Road and Black's Bridge Road in the west leading to the township of Carlisle River. The main south-north running, loose surface all weather roads are Lardner's Track (between Olangolah and Gellibrand), Charley Creek Road (between Gellibrand and Charley Creek) and Roadknights Creek Road running off the Colac-Forrest road towards Upper Gellibrand.

The catchment is less well served by east-west running roads. The few that exist are unsealed, such as the Carlisle-Gellibrand Road and White Peg Road from Burrangarook to Wonga Wonga, and the Barramunga-Upper Gellibrand Road.

The tracks which take off from these roads can, in winter only be traversed by four-wheel drive vehicles.

(b) Climate:

Temperature Conditions

February is the warmest month of the year. Average maximum temperatures during this month are probably around 75°F. Over the highest parts of this catchment under 65°F. During the winter months, June to August, over the ranges the maximum may be under 50°F.

Frosts may be expected from May to mid-September.

Rainfall

The catchment contains one of the wettest parts of the State. The average annual rainfall ranges from 27 inches to Colac to over 70 inches on the Otway Ranges. From Colac to Gellibrand the increase is 0.86 inches per mile, while over the section Gellibrand-Weeaproinah the increase is at the rate of 4.38 inches per mile. The average annual rainfall at Beech Forest for the period 1931-1967 is 73.85 inches. The year 1967 with 42.17 inches being the driest and 1952 with 114.73 inches the wettest. At Gellibrand for the period 1957-1967 the average annual rainfall is 40.44 inches, the 1967 rainfall was 22.77 inches. Barramunga has an average annual rainfall of 53.7 inches.

The distribution of the rainfall is very regular, and the only relatively "dry" period is during January and February.

Length of Growing Season

Length of the growing season in the northern half of the catchment is about nine months. Over the elevated southern sections the influence of the topography and soil types become more pronounced in bringing about a summer "dry" period which with the cold, wet winter conditions could shorten the growing season to less than six months

(c) Geology and Topography

The main geological features of the catchment are the upwarped Jurassic rocks of the Otway Ranges with the Tertiary sedimentary areas to the north-west and south-west and the Quaternary sands and gravels capping many of the southern slopes of the Otways.

The south boundary of the catchment is formed by the east trending section of the main dividing range of the Otways at heights of 1700 feet and 1800 feet generally, reaching the highest point at Mt Sabine (1914 feet). The northern most point of the catchment in the vicinity of Barongarook, about 14.5 m from Beech Forest, is at 800 feet above sea level.

The Gellibrand River drains the north and west flanks of the Otways. From Mt Sabine, a main spur drops to the north-north-west, dividing the waters of the Barwon River from those of the Gellibrand River.

The main tributaries of the Gellibrand River flowing off the flanks of the Otways are the Barramunga, Olangolah, Asplins, Lardner's, Charley's and Arkins Creeks, and the Carlisle River. The main northern tributaries within this catchment are the Ten Mile, Loves and Gum Creeks.

The land is further deeply dissected by a maze of tributary systems resulting in a very close-texture drainage pattern with a complex system of spurs from gently sloping sides to slopes up to 80%.

The extent of the flat, croppable land is limited. It consists of the Gellibrand and Carlisle River flats and the rolling plateau country along the ridge from Olangolah to Weeaprounah. The rest of the catchment is generally hilly to steep.

(d) Soils and Erosion Hazard

Soils on Jurassic Sandstone

The common profile of these soils in the ranges shows a brown to dark brown clay loam, friable near the surface with a gradual change to a yellowish brown clay subsoil still retaining a good structure. The subsoil passes to a decomposing rock at variable depth.

The soils are stable under native vegetation or pasture, unless cleared on steep slopes where it becomes slip prone. Slip scars were noticed on many of the early cleared areas which are now reverted back to bracken and scrub cover.

Construction of roads, logging and any utilization activities which may be considered at any future time will have to be planned along sound soil conservation principles.

The farms are used for grazing, dairying and potato growing.

Soils on Tertiary Sediments

The parent materials of these podsollic soils are Tertiary clay sediments, these seem to vary considerably and are very sandy in appreciable areas. Some farms with good pastures were seen in these areas.

The more sandy sediments, with 4 to 5 inches of sandy loams over deep grey and white sands, seem to offer difficulties to pasture establishment and revert rapidly to bracken. Large tracts of these soils are in the Crown lands extending mainly southward from the Carlisle River-Gellibrand Road under a grass tree and stunted brown stringybark cover. Within this area, two small Forests Commission and fertiliser trial plots of *Pinus radiata* plantings were seen. The response to the fertiliser treatment is excellent.

Also noted some clearing operations on freehold land, where watercourses have been bulldozed clear and are now filling up with sand.

Alluvial Soils

Pockets of fertile alluvial soils adjoin some streams, their combined area in relation to the size of the catchment is not important.

(e) Vegetation

The range of the elements of each factor of the environment, i.e. climate, topography, geology, soil, land-use is so wide in this catchment that the vegetation varies from the forest climax community, dominated by mountain ash, through mixed forest regrowth stands, the aftermath of 1919 and 1939 fires, the wattle acacia shrubs and bracken clothes areas of abandoned holdings and the many still struggling farms to the small number of well grassed, fully improved properties.

In the high rainfall areas the principal forest species are mountain ash, manna gum, mountain grey gum, messmate, blackwoods with luxuriant undergrowth of tree fern, hazel, blanket-wood, etc, shrubs.

On the drier foothills the principal species are messmate, brown stringybark, peppermint.

The low quality sands are occupied by stunted stringybarks and grass tree.

3. LAND TENURE AND LAND MANAGEMENT

(a) State Forest Area: 41.8 mile²

The composition of the forests and the distribution of the component species have been already described in part 2(e) of this report.

There are eight sawmills in the catchment. Some of these operated on part-time basis.

In 1963 the Commission started pine planting in the catchment in the Webster's Hill area, in the Asplin's and Lardner's Creek subcatchment. 1200 acres have been planted since increasing by about 200 acres yearly.

(b) Crown Land Area: 50.8 mile²

The 2020 acre Olangolah Water Supply Reserve in the south-east corner of the catchment is of primary importance. It was originally part of a 2800 acre Agricultural College Reserve. In 1907 at the request of the Minister for Water Supply all logging operations were discontinued and in 1944 the area become vested in the Department of Lands and Survey and since 1945 it is controlled by a Committee of Management, as an area temporarily reserved for water supply purposes. The existing Mountain Ash forest, interspersed with Messmate, Mountain Grey Gum and Blackwoods with Tree ferns is the replacement of the original forest destroyed in 1851.

This area represents the catchment to the 30 million gals Olangolah storage dam of the Colac Waterworks Trust.

Another 977 acres of Crown Land, north-west of the described area, is also under the control of a Committee of Management comprising three members representing the Colac Waterworks Trust and one member representing each of the following:

State Rivers and Water Supply Commission, Forests Commission, Soil Conservation Authority.

This area represents part of the catchment area of the Colac Waterworks Trust Weir on the Gellibrand River. (The balance of this catchment about 4 mile² is owned by the Colac Waterworks Trust).

The largest homogeneous area of Crown land is in the parishes of Newlingrook and Moorbambool, traversed by the Carlisle River-Gellibrand Road. These are the sandy soils on Tertiary sediments, poor in plant foods with high erosion hazard.

The remainder of the Crown lands is in various size blocked dotted all over the catchment. A great number of these occupy headwater areas of tributary streams and are mostly on steep slopes. For these two reasons alienation of these blocks, if at all, has to proceed with great caution.

(c) Freehold land Area: 97.6 mile²

The number of highly improved farms is small. Most holdings are characterised by uncleared timber lots and pastures in many stages of development with areas reverted to scrub and bracken. Improvements are generally poor, the best buildings seen on the farms were the dairy buildings which were built to replace the sheds condemned by the Department of Agriculture. Excepting the larger river flat farms and about 15 well-established potato farms in the Beech Forest-Ferguson area the area appears to have been bypassed by the prosperity of the post-war years. This is possibly explained by the short growing season, the steepness of the better class land, the poorness of the topographically more favourable land and the strong tendency of both types to revert to scrub and bracken which greatly affects pasture maintenance costs.

Potatoes are grown on about 900 acres mainly along the ridge between Olangolah and Weeaprounah, on the ridge between Lardner's and Charley Creeks and along the Ferguson-Gellibrand Road.

4. WATER USE

(a) Otway Waterworks District

That the State Rivers and Water Supply Commission operates a pumping station on the Gellibrand River to supplement the gravity supply from the three concrete diversion weirs on Arkins Creek. 80 miles of main pipeline extends from Arkins Creek to Warrnambool. Pipe reticulation supplies the townships of Allansford, Camperdown, Cobden, Terang, Noorat-Glenormiston, Simpson and the rural area of Choclyn, Gnotuk and Boorcan. Water is sold in bulk to the City of Warrnambool which in 1966-67 used 570 million gallons. The City's water use shows an annual increase of 4%.

The total quantity of water discharged through the Otway Main Pipeline during 1966-67 was 1224 million gallons to an estimated population of 32,000.

(b) Colac Waterworks Trust

The Trust operates the Olangolah River dam and the West Gellibrand River weir. The 20 mile long pipeline discharges into four service basins situated three miles south of Colac.

From here the City of Colac and the townships of Alvie, Beeac, Coragula, Cororooke, Cressy, Elliminyt and Warrion are supplied. Stock and domestic supplies are given to some 300 farms.

The population supplied is estimated at 13,500.

(c) Geelong Waterworks Trust

This Trust received permission to divert 600 million gallons per year from the winter flow of the Barramunga Creek. The weir about 1¼ miles south of Barramunga township is under construction.

Based on the assumption that the per capita water is similar to that in Melbourne, i.e. 80 gallons per day, the 600 million gallons would supply a population of 20,000.

(d) Authorised Diversions

The number of permit holders is 41, with a total entitlement of 1,400 acre feet of water.

5. CONCLUSION

In part 2(d) of this report, reference was made to some difficulties of land-use caused by the soil-types and the topography.

Some of the clearing operations, logging practices, road constructions and sites occupied by piggeries and stock-yards are objectionable within an urban water supply catchment.

The reliance of so large a population, 65,500 persons, on a catchment with large forestry resources and potential for re-forestation, and where half of the area is already alienated present a combination where, in the interest of the water supply, proclamation and determination of land-use seem to be desirable.

Soil Conservation and Land Utilization Act 1958
GELLIBRAND WATER SUPPLY CATCHMENT

PROCLAMATION

By His Excellency the Governor of the State of Victoria and its Dependencies in the Commonwealth of Australia; &c., &c., &c.

I, THE Governor of the State of Victoria in the Commonwealth of Australia, by and with the advice of the Executive Council of the said State and in pursuance of the provisions contained in Section 22 of the *Soil Conservation and Land Utilization Act 1958* (No. 6372), do by this Proclamation define the water supply catchment area to be known as the Gellibrand River Water Supply Catchment.

The area to be proclaimed is the catchment to that part of the Gellibrand River and its tributaries which lie upstream of the State Rivers and Water Supply Commission's pumping station in Crown Allotment 34B, Parish of Newlingbrook, County of Polwarth.

The use of land within this catchment is subject to determination by the Soil Conservation Authority, acting under the provisions of Section 23 (1) (a) of the *Soil Conservation and Land Act 1958* (No. 6372).

The area described is indicated on Plan No. 2297 hereunder, the original of which is lodged at the Head Office of the Soil Conservation Authority, 378 Cotham Road, Kew 3101.



Given under my Hand and the seal of the State of Victoria aforesaid, at Melbourne, this fifth day of November in the year of our Lord One thousand nine hundred and sixty-nine, and in the eighteenth year of the reign of Her Majesty Queen Elizabeth II.
(L.S.)

By His Excellency's Command

ROHAN DELACOMBE

W. J. F. McDONALD
Minister for Conservation

GOD SAVE THE QUEEN!

By Authority: A. C. Brooks, Government Printer, Melbourne