

Report on Tyers River Catchment

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Dates of Inspection: 17 - 18 April, 21 May 1962.

The aims of these inspections were -

1. to define the catchment boundary to be proclaimed by the Authority;
2. to inspect the catchment generally;
3. to inspect those areas which the Latrobe Valley Water and Sewerage Board consider to be hazards to the water supply.

1. AREA TO BE PROCLAIMED

The area to be proclaimed as water supply catchment is upstream from the Board's pumping station on the Tyers River in the parish of Tanjil East. It covers 123 square miles on which the land tenure is made up as follows:

Area acquired by Board	9.5	Square miles
Permanent Forest	85.0	Square miles
Protected Forest	5.6	Square miles
Crown Land	1.2	Square miles
Alienated	18.6	Square miles
SEC	3.3	Square miles
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	123.2	Square miles

2. Description of the Catchment

The report prepared by the Board covers most aspects, and there is little which can be added to the sections on the natural environment until a more detailed investigation is made. However, for ease of reference, the following information is included in this report, partly as summary of sections of the Board report, and partly based on the recent field work.

The Catchment Environment

There are two distinct areas:

- Mountainous - The northern portion is dominated by Mt Erica and the high plateau to Mt Baw Baw, rising to approximately 5000 ft. Gradients of streams are steep and the flows are permanent. The area is generally forested and largely inaccessible.
 - Foothills - This consists mostly of rolling topography, with some steep sections to over 50%. Gradients of streams are more gently. Much of this land is cleared, and in many other areas heavy logging has caused removal of most tall forest cover.
- D. CLIMATE - The rainfall range is between 30" in the southern part of the catchment and over 70" in the mountainous northern part. The catchment receives heavy snowfalls in this northern part. The growing season throughout the catchment is at least ten months, with reliable useful rains in at least one of two "dry" months, January and February.

- E. **SOILS** - The dominant soil type appears to be red to yellow podsollic soils with greyish brown loams overlying yellowish clays with gradual, rather sharp boundaries between A and B horizons. These soils appear in conjunction with the sedimentary rocks in which the Tyers River valley is cut. Red Kraznozems are found on residual basalt formations forming ridges in the eastern part of the catchment, mainly between Jacob's Creek and Tyers River. Clay loams are found on the creek and river flats.

The soils in the mountainous part of the catchment are derived from granite. These areas and the high "plains" part of the catchment have not been examined but presumably show a similar sequence of environment and soils as in the alpine areas further north.

Present Land Use

In part "C" of the report prepared by the Board, land use is discussed in considerable detail. In brief, the discussion covers the following aspects -

1. Alienated land:
 - (a) Agriculture and pasture are found on
 - i. farms along the alluvial flats of the Tyers River immediately downstream of Tyers Junction;
 - ii. farms on red "basaltic" soils between Parker's Junction and Moondarra;
 - iii. farms near Latrobe River Flats at southern end and adjacent to pumping station.
 - (b) Forested land:
 - i. owned by APM Forests Pty Ltd;
 - ii. owned by Timber Milling Interests
 - iii. others
 - (c) Saw Mills - four instances as discussed.
 - (d) Urban Development - referring to Erica and Moondarra Reservoir township.
 - (e) Quarries - three commercial quarries are active, but only one presents a definite hazard.

2. CROWN LANDS AND SEMI-GOVERNMENT LANDS OTHER THAN STATE FOREST

- a. SEC
- b. Latrobe Valley Water and Sewerage board
- c. Crown Lands and Other Semi-government Land
- d. Water frontages

3. State Forests

4. Roads and Tracks

The Board report gives a good basis for further planning work in the catchment, and for the preparation of a land-use determination. However, the following comments are aimed to cover the problems which appear in need of immediately attention, and which should be brought to the notice of the Board, Forests Commission landholders, and quarry owners in the catchment.

(a) Regulation of quarry activities

The Latrobe Valley Bluestone Quarry on Jacob's Creek is the only quarry whose activities present a definite hazard to the water supply. The placing of overburden near the creek must be regulated, as there is a distinct risk of slipping and undercutting with probable loss of much soil. The disposal of

run-off from the cuttings, tracks and roads above the quarry will require attention. This should be dealt with in a subsequent inspection in conjunction with a quarry representative.

(b) Cultivation in the Moondarra-Erica Area

Many of the farms in this area are used for potato growing, and intensive cultivation is practised on the krasnozemic soils. Cultivation on many areas along Jacob's Creek was noted to be along the slopes, and in some instances to the creek banks. Further inspections will be necessary to survey the extent of such cultivation, and it is suggested that this should be done before the end of the present winter to enable contact with those landholders, whose practices present a distinct hazard to the water supply. Contour cultivation should not be difficult on most of the land as the slopes generally do not exceed 20%. However, where steeper slopes are involved, as near the Latrobe Valley Quarries, it may still not be necessary to exclude all contour works are provided in areas near the stream, and provided at least one chain on each side of the stream is left undisturbed for anything other than necessary works for weed and vermin control.

The proximity to the streams will at all times be used as an important factor in deciding whether cropping should be curtailed. It is realised that the farmers in the area rely considerably on crops such as potatoes, oats and turnips for cash returns and fodder supplies. It would therefore be unreasonable to insist on strict limits without considering each area on its merit. A joint inspection with the DAO at Warragul is to be arranged to discuss cropping practices to fit in with catchment requirements.

(c) Land along Streams

A minimum of one chain should be reserved along all main streams and other streams where necessary. Where the land adjoining the stream is cleared, no cultivation should be permitted except for essential weed and vermin control, no felling of trees should be practised except for removal of obstructions or dangerous trees. This should apply to State Forests as well as privately owned forests.

(d) Land along the Reservoirs

A minimum of ten chains of land should be reserved above the fully supply level of the Moondarra Reservoir. In this area, felling of trees should be restricted to the minimum necessary for maintaining good forest cover. The Forests Commission has already specified ten chains in their management prescriptions for the Catchment.

(e) Management of Forests

(State and Privately owned). The Forests Commission has drawn up satisfactory management prescriptions for the catchment. The only point which could be made at this stage is that earthworks operations within certain distances of the main streams and reservoir should be referred to the Soil Conservation Authority before their commencement. The Commission has partly covered this aspect with their condition No. 2 -

" No operations shall be undertaken within 40 chains of the high water level of the Moondarra Reservoir without prior consultation with the Latrobe Valley Water and Sewerage Board."

It is suggested that any earthworks operations or roadworks within two chains of the main streams should be referred to the Authority for prior inspection.

Utilisation activities in State Forests are under licence from the Forests Commission. In privately owned forests, such as those owned by APM, extraction and other operations are being done in conjunction with the Commission. At this stage, much land has not yet been fully covered, but it is felt that some old tracks and heavily logged areas in the Jacob's Creek area of the catchment require remedial treatment to improve their cover and control run-off from the roads.

A similar set of conditions as those applied by the Forests Commission should be formulated for private forests. This should be done in conjunction with the work on a land-use determination.

The upper mountainous parts of the catchment are nearly completely covered by dense forest, but there are some areas which were cleared in the past and are under bracken, scrub, or stunted tree cover. The most notable example is Buckler Spur on which slopes between 35 and 50% are common. This area is

under bracken, and drains direct to the Middle Tyers River. Under its present cover it is probably quite stable, but the area is prone to land slipping and will be more stable under forest cover.

(g) *Stream bank erosion in Tyers River*

Some active undercutting is occurring along the river banks near Tyers Junction where the stream flows through the alluvial flats. Because of the valuable nature of this land, some protection of the bends should be provided in the form of trees and temporary groyne work.

(h) *Protection of earthworks and structures along pipe conduit from Reservoir to Pumping Station*

The Board has requested that the catchment be proclaimed down to the Pumping Station on the Tyers River. Because of this, the area below the Reservoir has also been inspected. It is considered that modifications will be required in the disposal of road drainage, and on the spill section of the scour outlets. Such modifications will probably need to include:-

- a) additional concrete aprons to bring water to a stable level. At present a number of spill sections are in danger of being undercut by headward action from below -
- b) protection of table drains - silt traps and concrete inlet sections are required at foot of slopes. Additional culverts are not recommended because of the steep slopes on the disposal sections over fill batters.
- c) regrading of outer parts of earth fill over and along pipe conduit, to prevent excessive run-off feeding on roads.

The pipe conduit area is subject of a separate report by the DCO for the area, Dr A P Fisher. Further inspections would be required with a conservation engineer.

(i) *Future Earthworks*

It is recommended that future Constructional works, especially roads, in the area be done in Consultation with the Authority.

Copies of the recommendations, if approved, should be sent to the Latrobe Water and Sewerage Board.

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