PROPOSAL FOR
THE PROCLOMATION OF THE BEMM RIVER AND THE BRODRIBB RIVER (ORBOST) WATER SUPPLY CATCHMENTS

A proposal form proclamation
prepared for consideration
by the Land Conservation Council

May, 1986

Land Protection Service
Department of Conservation Forests and Lands
378 Cotham Road, Kew, 3101

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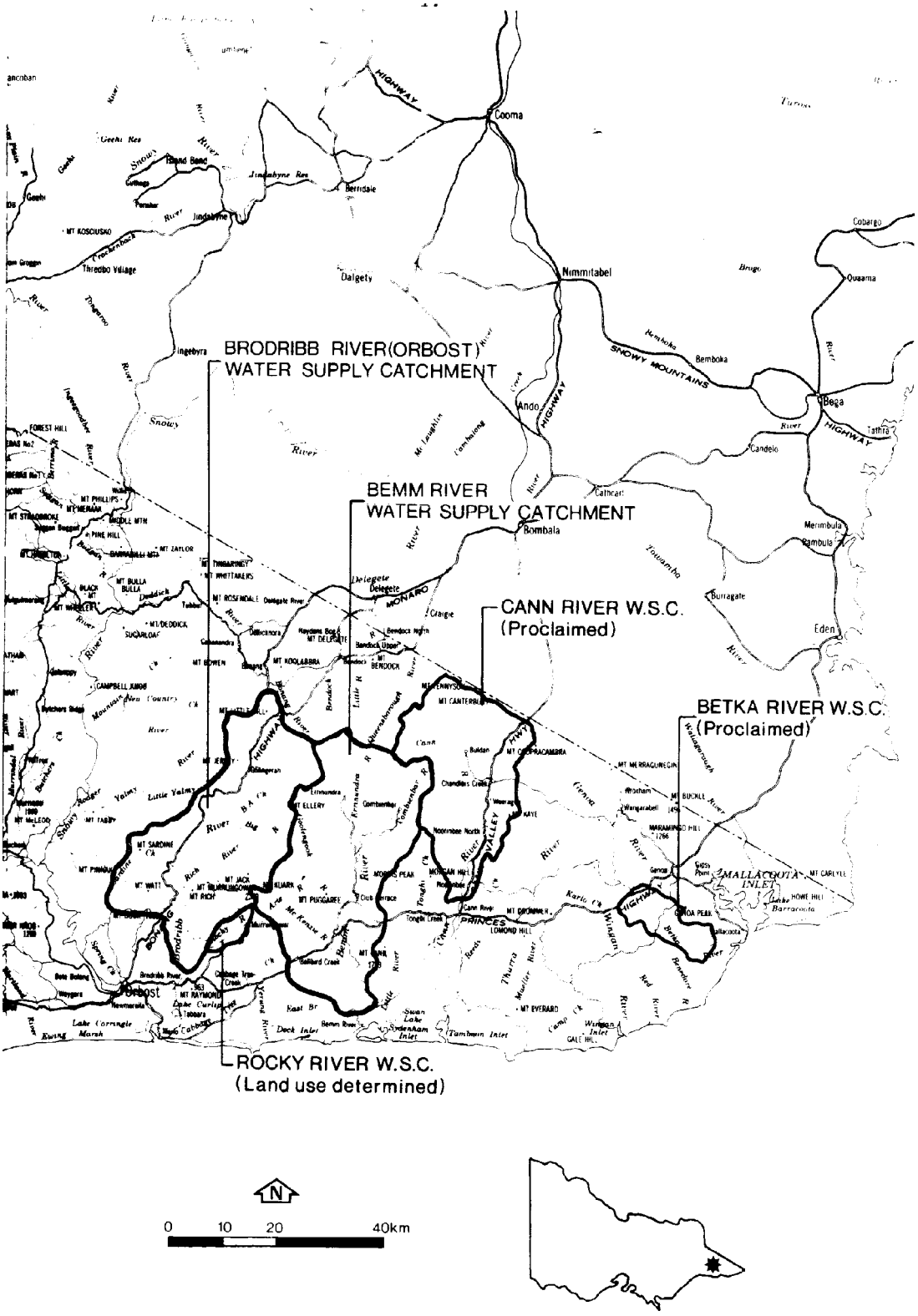


1. INTRODUCTION

This report summarises results of preliminary investigations into the catchments of the Brobribb and Bemm Rivers in East Gippsland.

These catchments (see Figure 1.1), with a combined area of nearly 1900 sq km (Bemm River: 939 sq km, Brodribb River: 925 sq km), drain southern slopes of the Victorian Highlands in East Gippsland. Water from these catchments supplies stock and domestic requirements through private diversions along the rivers and their tributaries, and domestic supply to the townships of Orbost, Marlo, Newmerella and Bemm River.

Proclamation will emphasise the importance of the catchments for water supply purposes, enable a consistent approach to the planning and management of the catchments to protect water supply values and bring to the attention of planning and management bodies and private landholders the need for careful management of land.

Proclamation will also require that during the process of considering applications for subdivision, extractive industry leases and licences, and some mining tenements by the relevant bodies, the proposals be given preliminary assessment relevant to water catchment interests.

Under the provisions of the *Soil Conservation and land Utilisation Act* 1958, proclamation is the first step of a three stage procedure involving the planning and implementation of land use/land management controls for the protection of water catchment areas. The second step, a Determination of Land Use, is considered, on present indications, to be low priority for the Brodribb and Bemm River catchments.

2. THE BRODRIBB RIVER (ORBOST) WATER SUPPLY CATCHMENT

2.1 The water resource and supply system

The Orbost Water Board operates an offtake on the Brodribb River to supplement supplies for Orbost taken from the Rocky River Water Supply Catchment. The Rocky River Catchment for which a Determination of Land Use was made in 1977, is the preferred source for Orbost's water supply, but stream flow during the Summer/Autumn period is often insufficient to meet the higher demand.

River water is pumped from the Brodribb River to service basins (capacity: 50 ML) near Orbost where detention is the only treatment the water receives. The supply services a resident population of some 3000 people in Orbost, Marlo and Newmerella, and an additional 5-600 people during the holiday season.

Annual consumption is around 600 ML. Approximately 210 ML is drawn from the Brodribb River, with the balance from the Rocky River Catchment. Water quality is known to deteriorate markedly after periods of high rainfall in the catchment, however diversion from the Brodribb River can usually be managed so as to avoid taking the lower quality water.

The dominant streams in the catchment are the Brodribb River, Big River, Rocky River and Rich River and the Goongerah Creek.

2.2 Climate

Much of the catchment is subject to a cool temperature climate, however sub-alpine conditions and intermittent snow cover prevail at higher altitudes.

The only meteorological station close to the catchment is at Orbost, however there are a number of rainfall recording stations in and around the catchment. The following data have been extracted from meteorological records.

Temperature:

Orbost: Mean daily maximum: 25.6° C (February), 14.7°C (July)
Mean daily minimum: 13.7° C (February), 4.4°C (July)

Errindundra Plateau (forest camp):
Mean daily maximum: 20.5° C (February), 6.4°C (July)
Mean daily minimum: 9.4° C (February), 0.3°C (August)

Rainfall:

Errindundra Plateau (Forest Camp)	1 770 mm	Elevation:	1 050 m
Bonang P.O.: 931 mm	650 m		
Murrungowar:	1 021 m		350 m
Goongerah Lower:	1 022 m		250 m
Sardine Creek:	971m		95 m
Orbost: 839 mm	45 m		
Brodribb River:	882 mm		20 m

Rainfall is relatively evenly distributed throughout the year (particularly in comparison with catchments north of the Great Dividing Range where summer rainfall is less reliable and substantially less than winter rainfall). The growing period is, however, restricted by low temperatures, generally during the period June to August in the lowland and foothill areas, and during the period April to September in the higher altitudes.

2.3 Physiography, soils and native vegetation

The catchment lies between elevations of 40 m and 1,291 m above sea level; Mt Ellery is the highest peak. The terrain of the catchment is largely ridge-and-ravine, dominated by dissected highlands and foothills and with few alluvial plains along the river valleys.

The landscape has developed primarily on granitic and sedimentary rock types.

Throughout the catchment the soils and the vegetation types vary widely, reflecting the interactions of rock lithology, climate and landform.

The broad pattern of dominant soil and vegetation types is as follows:

SOILS

Central and Southern areas:

Moderately stable yellow duplex gradational soils, unstable shallow soils (steeper, often north facing slopes or low swampy areas on Tertiary sands).

Central and Northern areas:

Moderately stable red and brown gradational soils moderately strongly structured

Higher altitudes:

Moderately stable and stable red and brown gradational and uniform soils, moderately and strongly structured.

Valley floors:

Deep loamy alluvial soils

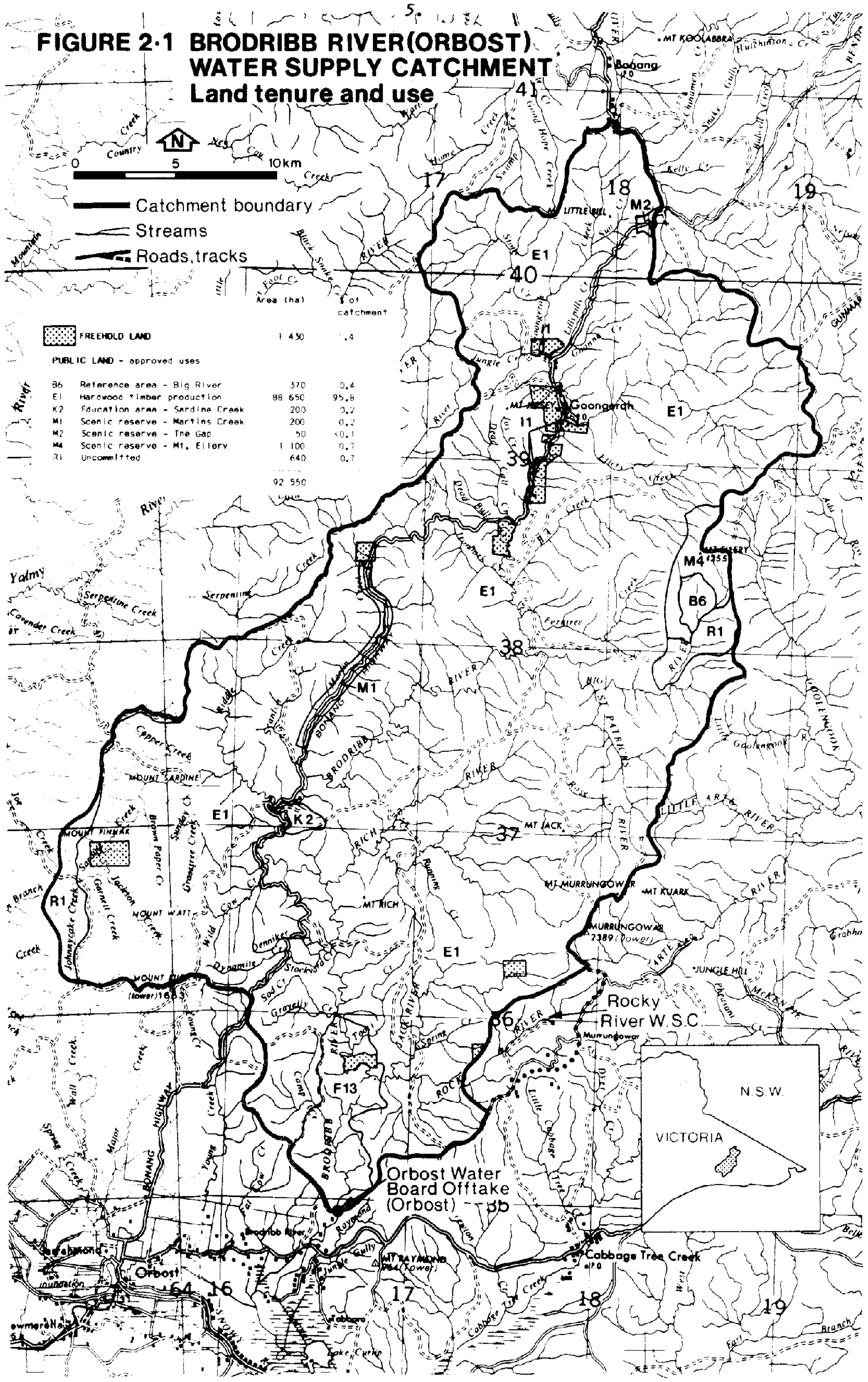


FIGURE 2·1 BRODRIBB RIVER(ORBOST) WATER SUPPLY CATCHMENT
Land tenure and use
0 5 10km
Catchment boundary
Streams
Roads, tracks
Area (ha)
% of catchment
FREEHOLD LAND 1 430 .4
PUBLIC LAND - approved uses
B6 Reference area - Big River 370 0.4
E1 Hardwood timber production 88 650 95.8
K2 Education area - Sardine Creek 200 0.2
M1 Scenic reserve - Martins Creek 200 0.2
M2 Scenic reserve - The Gap 50 <0.1
M4 Scenic reserve - Mt. Ellery 1 100 0.7
R1 Uncommitted 640 0.7
92 550
Goongerah
Bonang
MT KOOLABBRA
MT ELLERY
MOUNT SARDINE
MOUNT FINNAK
MOUNT WATT
MT JACK
MT RICH
MT MURRUNGOWER
MT KUARK
MURRUNGOWAR 2389 (Tower)
JUNGLE HILL
Rocky River W.S.C.
Orbost Water Board Offtake (Orbost)
Orbost
Cabbage Tree Creek
MT RAYMOND
BRODRIBB RIVER
BONANG HIGHWAY
E1
M1
M2
M4
B6
R1
K2
F13
N.S.W.
VICTORIA

VEGETATION

Central and Southern areas:

Yertchuk and red stringybark (low open forest, woodland), silvertop, white, yellow and brown stringybark (open forest)

Central and Northern areas:

Messmate, mountain grey gum (tall open forest), red stringybark, red box and silvertop (open forest)

Higher altitudes:

Brown barrel, alpine ash and shining gum (tall open forest)

Valley floors:

Variable, depending upon climate and source of sediment

2.4 Land tenure, use and management.

Some basic information and statistics about public and freehold land in the catchment are given on the map and table of Figure 2.1.

Approximately 1.5% of the catchment is freehold land, largely along the river valley at Goongerah. Much of this land is cleared of native forest and now supports semi-improved pasture, primarily for beef cattle production.

The public land is controlled and managed by the Department of Conservation, Forests and Lands, primarily for timber production (96% of the catchment). Public land in the catchment falls within the Land Conservation Council's East Gippsland Area which is currently undergoing review by Council. Approved uses of public land given in Figure 2.1, reflect Council's Final Recommendations published in 1977.

Forest harvesting operations are currently centred on the Martin Creek, Ferntree Creek, BA Creek, Rich River and St Patrick's River sub catchments. Winter logging is confined to the latter two areas. Current operations produce some 67 000 cu m of timber.

Much of the catchment is or has been the subject of mineral exploration. There are a number of stone or road material quarries in the catchment.

Development on freehold land in the catchment is regulated by an Interim Development Order administered by the Shire of Orbost. The major provision of the Order is that subdivision of land requires a permit from the Responsible Planning Authority.

2.5 Hazards to water supply

The natural turbidity, sediment and bacterial levels could be increased by activities such as:

(1) Road construction and maintenance;

(2) Clearing of vegetation, eg. On public land for recreational development or on private land for agricultural developments;

(3) Timber harvesting operations on public and private land;

(4) Stock access to streams;

(5) Mineral or stone exploration or extraction.

Activities on public land will be controlled by the **Code of Forest Practice** and are currently controlled by prescriptions which set standards and guidelines for such activities as road

construction and timber harvesting. These controls include provision for suspension of operations during periods of wet weather, when the risk of increased turbidity and sedimentation is highest.

Mining activities must be authorised under the *Mines Act* 1958 and controls can be imposed as conditions of authorisation. The Department of Conservation, Forest and Lands is required to advise the Department of Industry, Technology and Resources of conditions appropriate to a specific proposal where it involves Crown land.

3. THE BEMM RIVER WATER SUPPLY CATCHMENT

3.1 The water resource and water supply

The Orbost Water Board operates an offtake on the Bemm River to service the water needs of the township of Bemm River (permanent population: 50, seasonal population: 750). Water is pumped to a 6.8 ML service basin before reticulation. Annual consumption is approximately 115 ML.

Detention is the only form of treatment the water receives, and water stagnation between diversion and reticulation is regarded as a problem. The quality of water in the river deteriorates markedly after heavy rain, however diversion can usually be delayed until the quality improves.

The dominant streams in the catchments are the Bemm River, Errinundra River, Goolengook River, Combienbar River, and the Arte River.

3.2 Climate

Much of the catchment is subject to a cool temperate climate, with sub-alpine conditions and intermittent snow cover prevailing at higher altitudes.

The only meteorological station close to the catchment is at Orbost, however there are a number of rainfall recording stations in or close to the catchment.

The following data have been extracted from meteorological records:

Temperature:

Orbost:	Mean daily maximum: 25.6°C (February),	14.2°C (July)
	Mean daily minimum: 13.7°C (February),	4.4°C (July)
Errinundra Plateau (forest camp):		
	Mean daily maximum: 20.5°C (February),	6.4°C (July)
	Mean daily minimum: 9.4°C (February),	0.3°C (August)

Rainfall:

Errinundra Plateau (Forest camp)	1 770 mm	Elevation:	1 050 m
Bonang PO:	931 mm		680 m
Murrungowar:	1 020 mm		350 m
Combienbar:	1 138 mm		250 m
Goongerah Lower:	1 022 mm		250 m
Club Terrace:	1 104 mm		100 m
Cabbage Tree Ck.:	1 101 mm		40 m
Bemm River:	950 mm		10 m

Rainfall is relatively evenly distributed throughout the year (particularly in comparison with catchments north of the Great Dividing Range where summer rainfall is less reliable and substantially less than winter rainfall). The growing period is, however, restricted by low temperatures, generally

during the period June to August in the lowland and foothill areas, and during the period April to September in the higher altitudes.

3.3 Physiography, soils and native vegetation

The catchment lies between elevations of 35 and 1 291 m above sea level. Mt. Ellery is the highest peak. The terrain of the catchment is largely ridge-and-ravine, dominated by dissected highlands and foothills, and with narrow alluvial flood plains at Combienbar and Club Terrace.

The landscape has developed primarily on sedimentary and granitic rocks.

Throughout the catchment the soils and the vegetation types vary widely reflecting the interactions of rock lithology, climate and landform.

The broad patten of dominant soil and vegetation types is as follows;

SOILS

Central and Southern areas:

Moderately stable yellow duplex and gradational soils, unstable shallow soils (steeper, often north facing slopes or low swampy areas on Tertiary sands)

Central and Northern areas:

Moderately stable red and brown gradational soils moderately strongly structured

Higher altitudes:

Moderately stable and stable red and brown gradational and uniform soils, moderately and strongly structured.

Valley floors:

Deep loamy alluvial soils

VEGETATION

Central and Southern areas:

Yertchuk and red stringybark (low open forest, woodland), silvertop, white, yellow and brown stringybark (open forest)

Central and Northern areas:

Messmate, mountain grey gum (tall open forest), red stringybark, red box and silvertop (open forest)

Higher altitudes:

Brown barrel, alpine ash and shining gum (tall open forest)

Valley floors:

Variable, depending upon climate and source of sediment

3.4 Land tenure, use and management

Some basic information and statistics about public and freehold land in the catchment are given on the map and table of Figure 3.1.

Approximately 4.5% of the catchment is freehold land, primarily along the river valleys, and largely cleared of native timber. This land now supports native and semi-improved pasture for grazing for beef production. The rural community of Combienbar and the sawmill town of Club Terrace are located within the catchment.

The public land is controlled and managed by the Department of Conservation, Forests and Lands, primarily for timber production (93% of the catchment). Public land in the catchment falls within the Land Conservation Council's East Gippsland Area which is currently undergoing review by Council. Approved uses of public land given in Figure 3.1, reflect Council's Final Recommendations published in 1977.

Major forest harvesting operations are centred on the West Errinundra area, the Crabhole Creek, Little Arte River, Goolengook River, Shady Creek, Ada River, and Cabon Creek sub-catchments, and the Tiger Snake Creek sub-catchment (north-east of Combienbar). Minor operations are scattered throughout the eastern half of the catchment. Operations continue through winter in the Tiger Snake Creek, Ada River, Crabhole Creek and Shady Creek sub-catchment. Approximately 82,500 cu m of timber are produced annually.

Much of the catchment is or has been the subject of mineral explorations. There are a number of stone or road material quarries in the catchment.

The catchment is covered by the State Environment Protection Policy No. W-21 (The Waters of Far East Gippsland). The policy identifies beneficial uses to be protected and places the catchment in the General Potable Water Segment.

The catchment is totally within the Shire of Orbost. Development on freehold land is regulated by a Planning Scheme for Club Terrace and an Interim Development order for the remainder of the Shire. Within Club Terrace, areas are zoned for residential use, industrial (sawmill) use and public open space. In the remainder of the catchment Shire approval for subdivision is the principal planning control.

3.5 Hazards to water supply

The natural turbidity, sediment and bacterial levels could be increased by activities such as:

(1) Road construction and maintenance;

(2) Clearing of vegetation, eg., on public land for recreational development or on private land for agricultural development;

(3) Timber harvesting operations on public or private land;

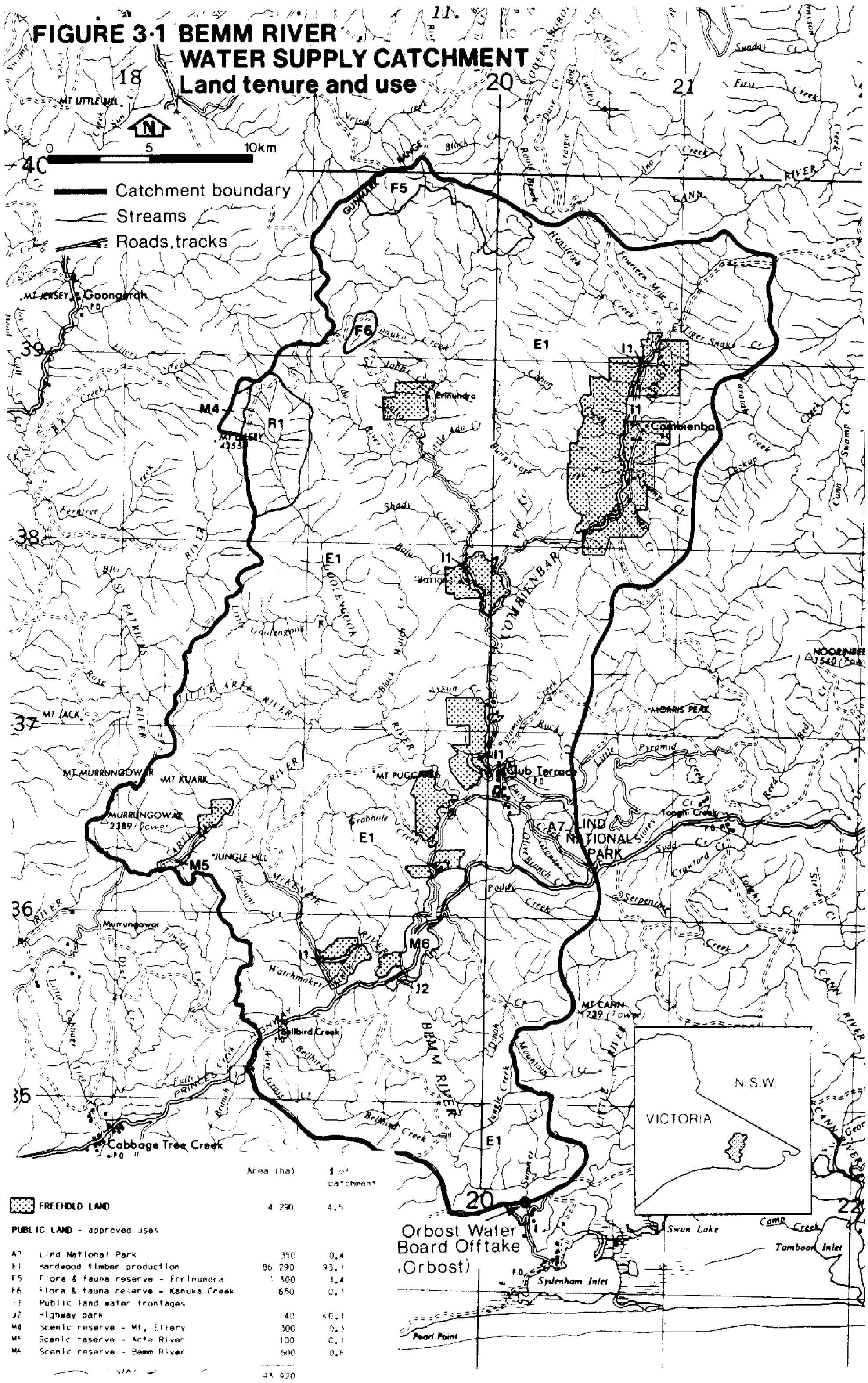
(4) Stock access to streams;

(5) Mineral or stone exploration or extraction.

Activities on public land will be controlled by the **Code of Forest Practice** and are currently controlled by prescriptions which set standards and guidelines for such activities as road construction and timber harvesting. These controls include provision for suspension of operations during periods of wet weather, when the risk of increased turbidity and sedimentation is highest.

Mining activities must be authorised under the *Mines Act* 1958 and controls can be imposed as conditions of authorisation. The Department of Conservation, Forest and Lands is required to advise the Department of Industry, Technology and Resources of conditions appropriate to a specific proposal where it involves Crown land.

Figure 3.1 - Bemm River Water Supply Catchment - Land Tenure And Use



RECOMMENDATION

As a result of this investigation, it is recommended that:-

The Land conservation Council, under section 5(1)(b) of the *Land Conservation Act* 1970, recommend to the Governor-in-Council that the following catchments be proclaimed under section 22(1) of the *Soil Conservation and Land Utilization Act* 1958:

a) the Brodribb River (Orbost) Water Supply Catchment as shown on Plan No. S-1419 Figure 4.1); and
b) the Bemm River Water Supply Catchment as shown on Plan No. S-1420 (Figure 4.2).

FIGURE 4·1 BRODRIBB RIVER (ORBOST) WATER SUPPLY CATCHMENT
Proclamation plan

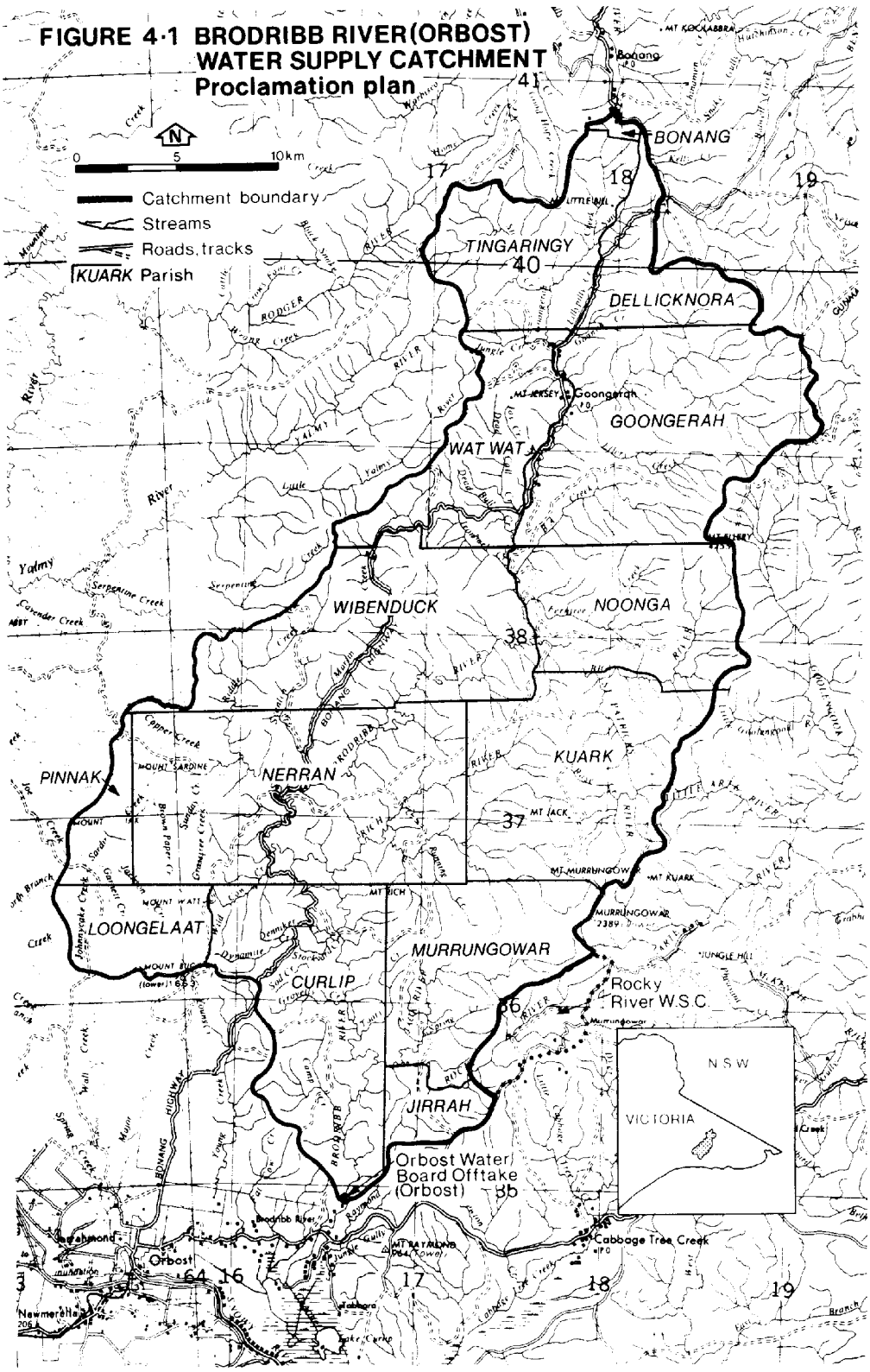
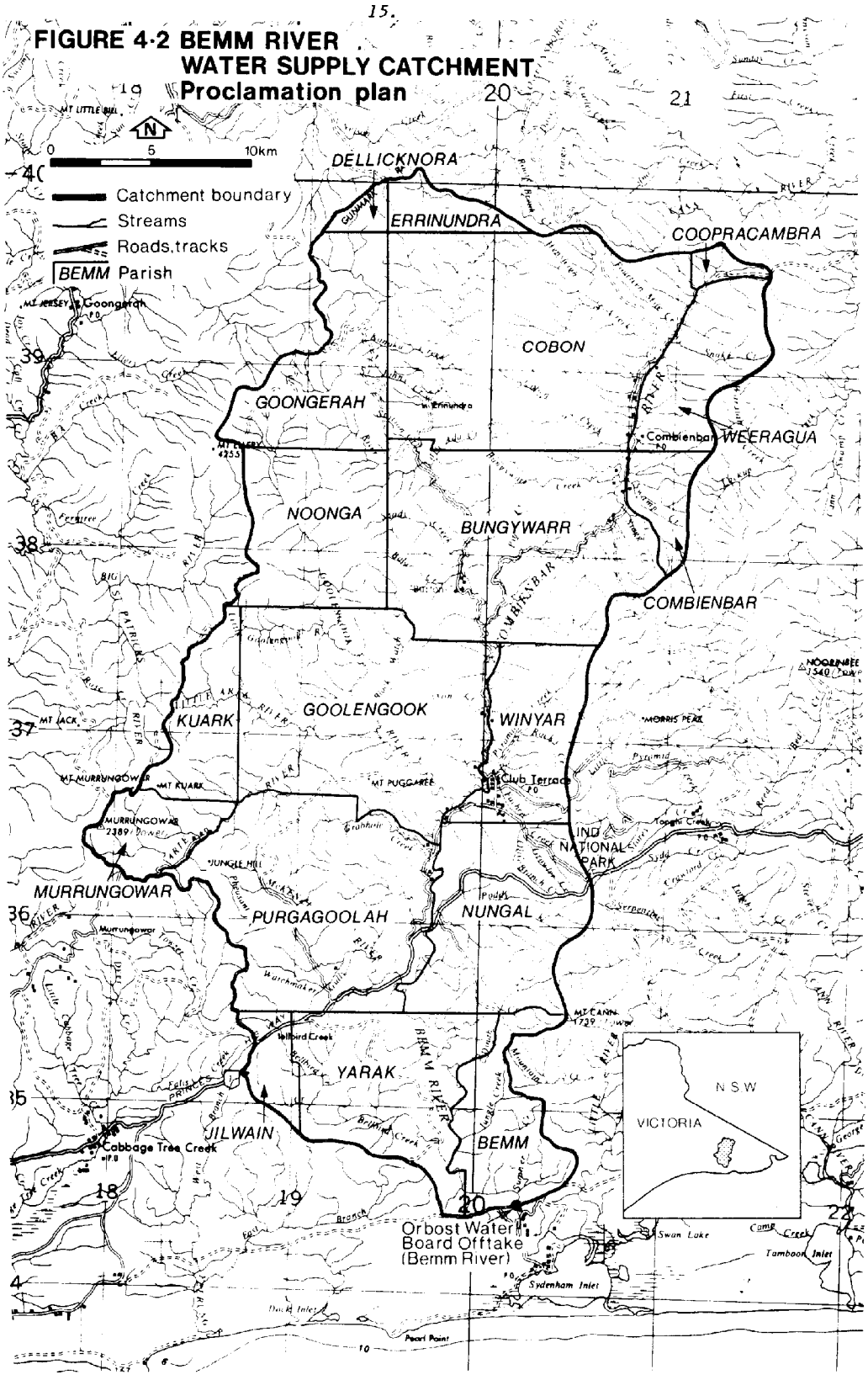


Figure 4.2 - Bemm River Water Supply Catchment - Proclamation Plan



SOURCES OF INFORMATION

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Discussions with officers of: -

Orbost Water Board;
Department of Conservation, Forests and Lands;
Bureau of Meteorology.