

FINAL RECOMMENDATIONS

**GIPPSLAND LAKES
HINTERLAND AREA**

**LAND CONSERVATION COUNCIL, VICTORIA
MELBOURNE, FEBRUARY 1983**

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INTRODUCTION

The Land Conservation Council was established by the *Land Conservation Act* 1970. As one of its three functions, it makes recommendations to the Minister for Conservation with respect to the use of public land, in order to provide for the balanced use of land in Victoria. This report contains the Council's recommendations concerning the public land in the Gippsland Lakes hinterland study area. Notices showing the boundary of the study area and advising that the investigation was to be carried out were published in the *Victoria Government Gazette* of 30 April 1980, and in local and other Victorian newspapers in April and May 1980. A descriptive report was published on 27 April 1982. Extracts from the *Land Conservation Act* 1970 covering the procedure to be followed in formulating recommendations were included in the descriptive report. The Council received 211 submissions on the future use of public land. Individuals, associations, companies, and local and State government bodies, representing a wide cross-section of the community, made helpful submissions covering the most feasible forms of land use for the district.

After considering these submissions and having visited the study area, the Council formulated its proposed recommendations, which were published on 22 September 1982. The Council subsequently received 345 submissions commenting on these proposals. After due consideration the Council now presents its final recommendations.

The recommendations in the text are grouped under major headings, such as Parks, Hardwood Production, and so on. The text is accompanied by a map at the scale of 1:250,000 which covers the whole study area and gives a broad view of the recommended land uses. Other detailed maps show areas recommended for agriculture (by alienation), and the suggested zoning for the Gippsland Lakes reserve. More detailed information on boundaries is held by the Land Conservation Council.

Availability of submissions

All submissions received by the Council will be available for inspection at the Council's offices, 464 St. Kilda Road, Melbourne, 10 days after the closure of the submission period.

Land uses

It is important to realize that each primary use has a number of compatible secondary uses. In addition to nominating the best uses for the land, the recommendations indicate what is considered to be the most appropriate form of tenure for the land and the most appropriate management authority.

The Council recommends the establishment of five parks in areas of particular importance for recreation and nature conservation: reference areas and education areas (covering part of the range of land types found in the study area); cave reserves for the area's unique limestone features; and flora reserves, and flora and fauna reserves for areas of value for conservation of habitat and/or representative plant communities. Other conservation areas include a wilderness and six natural features and scenic reserves. The Gippsland Lakes reserve contains most of the study area's important wetlands, many important recreational sites and other areas of conservation significance. Substantial areas have also been recommended for hardwood production.

Where demands from competing uses vie for a given area of land, it is not possible to satisfy them all. However, these recommendations attempt to achieve balance in providing for the present needs of most forms of use while retaining flexibility and the opportunity to adjust to future changes in such demands. They do so by placing as much of the public land as possible under forms of use that do not have a major impact on the natural ecosystem, and by placing areas into the 'uncommitted land' category.

Flexibility in planning is essential. Our knowledge of many resources (for example, minerals) and of the distribution and ecology of plants is very imperfect. There must be many places in Victoria where special values remain unrecognized and for which no special provision can be made in present planning. Furthermore, future demands for resources on public land may require alteration or modification of these recommendations, which are based on the best information presently available. The Council is aware that review will be necessary to ensure that future land use is in the best long-term interests of the community.

Table 1 summarizes the final recommendations in terms of the major land uses.

TABLE 1
RECOMMENDED PUBLIC LAND USE

Major recommended land use	Area (ha)	Percentage of all land covered by these recommendations	Percentage of all public land covered by these recommendations
National Parks	2 250	<1	<1
State Parks	17 300	2	3
Regional Parks	4 320	<1	<1
Gippsland Lakes Reserve	10 200	1	2
Wilderness	12 200	1	2
Reference Areas	2 060	<1	<1
Water Production	1 700	<1	<1
Hardwood Production	157 000	18	31
Softwood Production	2 050	<1	<1
Flora Reserves and Flora and Fauna Reserves	3 460	<1	<1
Bushland Reserves	120	<1	<1
Coastal Reserve and Gippsland Lakes Foreshore Reserve	400	<1	<1
Streamside Reserves	60	<1	<1
Highway Parks	70	<1	<1
Education Areas	610	<1	<1
Cave Reserves	410	<1	<1
Natural Features and Scenic Reserves	8 400	<1	2
Mineral and Stone Production	120	<1	<1
Uncommitted Land	250 000	28	49

All other land uses collectively make up the balance. Figures are rounded off.

Public Land and the Aboriginal People

The public land in the study area has been used by the Aboriginal people for perhaps as long as 30 000 to 40 000 years. Available evidence suggests that this occupation was centred around the lakes and river systems and along the coast, as most of the Aboriginal sites have been found in these areas to date. However, further studies are needed in order to prepare a comprehensive register of sites.

The Aboriginal community regard the preparation of such a register as an important prerequisite to determining the way in which public land in the area should be managed. The Council is aware that funding is being sought to conduct a thorough investigation and recognises that further sites on public land will probably be identified in the future. Council endorses the views of the Aboriginal people that those sites identified to date should be protected, and considers that the managing authorities should consult with Aboriginal groups regarding the management of these sites.

Aboriginal people have strong emotional and cultural ties to public land in the area, although the extent to which they are dependent on it for food and shelter has diminished. Nevertheless they still wish to use public land for a variety of purposes associated with traditional activities such as hunting, gathering of herbs and the manufacture of artefacts from timber and stone.

For the last 100 years or so Lake Tyers and public land in the vicinity of Lake Tyers Station, now owned and managed by the Lake Tyers Aboriginal Trust, has been particularly significant to the Aboriginal people of the region. Some of this land has been recommended as a State Park (recommendation A2), some as a regional park (recommendation A5), while some other areas are proposed for hardwood production (F7) or included in the coastal reserve (J1).

The Council considers that the local Aboriginal community should be consulted when the managing authorities are preparing management plans for the areas (see recommendations A2, A5, F7 and J1).

General Recommendations

The following recommendations qualify those in the body of the text.

The Council wishes to stress the need for adequate management and protection of public land, as it has made its recommendations on the assumption that sufficient manpower and finance will be provided for the appropriate managing authority. Unless these resources are provided the Council's recommendations cannot be effectively implemented. Council recognizes that vermin and noxious weeds pose problems in the management of public land in the Gippsland Lakes hinterland area. Finance and staff are required to research and implement methods for control of these pest species. Council therefore recommends:

- I That the authorities responsible for managing and protecting the public land be given the resources necessary for the task.

The Council has previously proposed certain additional arrangements for protecting public land from fire. These arrangements have now been incorporated into an amendment to the *Forests Act* 1958. The amendment creates the designation 'protected public land', which may include public land that is not State forest or national park. The Forests Commission is now required to protect all three of these from fire. The following statement outlines the responsibilities for fire protection on public land:

- (a) Under the provisions of the *Forests Act* 1958 and notwithstanding anything to the contrary in any other Act, it is the duty of the Forests Commission to suppress fires in every State forest and national park, and on all protected public land. This includes, for example, all land under the management and control of the National Parks Service.
- (b) In the event of fire in any area for which the Forests Commission has fire-suppression responsibility, the Forests Commission has powers of entry under both the *Forests Act* 1958 and the *Country Fire Authority Act* 1958. Decisions as to the most appropriate course of action required to suppress the fire and as to the most appropriate equipment to be used, are the responsibility of the Forests Commission alone.
- (c) The Forests Commission provides the State with an efficient fire-prevention and suppression organization. The fire-fighting resources of the National Parks Service are available to the Commission for fire suppression operations, and are used as such under the direction of the Forests Commission. They are used in conjunction with, and not as a replacement for, the resources of the Commission.
- (d) Fire-prevention works in State forests are the sole responsibility of the Forests Commission. In parks, on land reserved under section 4 of the *Crown Land (Reserves) Act* 1978, and on protected public land, however, fire-prevention works are undertaken only with the agreement of the person or body managing the land.
- (e) To facilitate co-operative arrangements for fire-prevention in areas under the management and control of the National Parks Service, the Service and the Forests Commission have established a joint fire-protection committee.
- (f) In addition, under the *National Parks Act* 1975, the Director of National Parks shall ensure that proper and sufficient measures are taken to protect each national park, and other parks managed by the National Parks Service, from injury by fire.

- (g) The two organizations which share the duty of fire-prevention and suppression in rural Victoria, namely, the Forests Commission and the Country Fire Authority, have excellent arrangements for mutual co-operation which have operated successfully for many years.

Accordingly, the Council recommends:

- II** That, for fire-protection purposes, public land that is not State forest or national park be examined, and appropriate areas be declared protected public land under the *Forests Act* 1958.
- III** The Council recommends that mineral exploration licences held over the area continue except in so far as they affect reference areas.

The Council expects that, as a result of further study and investigation, many more areas with special values will be identified. Present planning cannot specifically provide for the conservation or utilization of these values. The Council therefore recommends:

- IV** That, when significant new discoveries are made on land within their administration, government agencies enlist the best advice available on the importance of such discoveries and how they should be managed. Advice from organizations other than government authorities and academic institutions should be sought whenever appropriate.

The Council also recognizes that in some cases, existing legislation will have to be amended in order to effectively implement the recommendations in this report. It is aware that this may result in a delay, in some cases of several years, before some of its recommendations can be implemented. It is concerned that, where implementation of the recommendations would involve a change of management authority, management efficiency could be reduced during the delay period. The Council believes that the Government should direct departments that their responsibilities for management must continue in all areas presently under their control until such time as the recommendations are implemented. It therefore recommends:

- V** That the present legal status and management of public land in each case be retained until the recommended authorities have the capacity to manage each area.
- VI** That, as the boundaries of many areas have not been precisely surveyed, they be subject to minor modification, road excisions, easements, and other adjustments that may be necessary.
- VII** That in cases where occupation does not agree with title, the Department of Crown Lands and Survey may at its discretion make adjustments to boundaries of public land, when implementing these recommendations.
- VIII** That the recommendations in this publication do not change the status of roads passing through or abutting public land that are at present declared roads under the *Country Roads Act* 1958.
- IX** That, where areas of public land are not specifically referred to in these recommendations, present legal uses and tenure continue.

A. PARKS AND GIPPSLAND LAKES RESERVE

Victoria contains substantial areas of public land that have been retained in a relatively natural state. The number of people using these areas for recreation is increasing and will probably continue to do so. Pressures for the use of public land in ways that would change its condition are also increasing. Council believes that it is essential to reserve, now, viable samples of the various land and vegetation types, together with the outstanding natural features, that occur on public land. These areas can best be reserved in a system of parks.

The Gippsland Lakes hinterland area has several areas left that can remind us of the earlier landscape, flora, and fauna. Such lands are a valuable part of our heritage and must be protected for the benefit, education, and enjoyment of present and future generations. This principle of land use is a major consideration in determining that areas should be reserved as parks.

A park is defined here as 'an area of land in a natural or semi-natural condition reserved because of its scenery, floral and faunal content, historical interest, or other features, which is used by the public primarily for open-space recreation and education'. This definition encompasses many different types of parks; they vary mainly in size and content and in the types and intensity of uses to which they are subjected. Definitions of different types of parks are needed to clarify the main purposes for which each one is created, and will help planners, managers, and users of parks.

It is necessary to establish the management aims that apply to areas or zones within parks. Among these, the conservation of native flora, fauna, and other natural features would be an essential part of national and State park management. This should include the identification and strict protection of significant ecological systems as well as the development and use of techniques (including husbandry techniques and population manipulation) to enable species of particular interest to be studied and special values associated with flora and fauna to be maintained or enhanced. Management policies for the conservation of wildlife values in parks should be developed jointly by the managing authority and the Fisheries and Wildlife Division.

The location and management of areas zoned for intensive recreation will require special care to prevent damage to the environment.

This publication presents recommendations concerning parks in terms of the uses to which the land should be put. Parks have also been placed into categories, according to the scheme of classification suggested below.

The categories are not to be confused with the existing terminology of national park, forest park, etc., which mainly denotes tenure and the managing body rather than the intended uses. For instance, some of the present national parks are more akin in character to a State or regional park than to the national park of nation-wide significance outlined in the classification.

PARK CATEGORIES

National park

An extensive area of public land of nation-wide significance because of its outstanding natural features and diverse land types, set aside primarily to provide public enjoyment, education, and inspiration in natural environments.

The conservation of native flora, and other natural features would be an essential part of national park management. Interpretative services would be provided. Development of facilities would be confined to a very small portion of the park. Activities would largely consist of sightseeing and the observation of natural features. Wilderness zones, which are relatively undisturbed tracts of land used for solitude and wide-ranging forms of recreation, could be designated within a national park.

State park

An area of public land, containing one or more land types, set aside primarily to provide public enjoyment, education and inspiration in natural environments.

State parks should include samples of major land types not already represented in national parks and, as in national parks, the conservation of native flora and fauna would be an essential feature of management. Interpretative services would be provided. Development of facilities would be limited to a very small portion of the park. Activities would largely consist of sightseeing and the observation of flora, fauna and other natural features. Regardless of which authority is the manager, the State parks recommended by the Council are intended to complement the national parks so that together they form a State-wide system.

Regional park

An area of public land, readily accessible from urban centres or a major tourist route, set aside primarily to provide recreation for large numbers of people in natural or semi-natural surroundings.

These parks would be intensively developed for informal recreation and could include road systems. Although natural beauty would enhance their value, closeness to an urban centre is more important than natural attributes. Other uses — such as timber-harvesting, fossicking, and stone extraction — may be permitted where they are compatible with the primary use.

PARK MANAGEMENT

It should be emphasized that the parks recommended below will be available for public use. An essential aim in their reservation is to provide for the enjoyment of the public, and therefore public access will be maintained. Indeed, additional access may be provided to interesting areas by way of nature trails and walking tracks.

Council recognizes that wildfires, however caused, must be prevented from threatening life, property, and natural resources in the State. The measures necessary to control wildfires must be taken in parks as in other areas.

In the event of fire in any park, decisions as to the most appropriate course of action required to suppress the fire, and the most appropriate equipment to be used, are the responsibility of the Forests Commission alone. The fire-fighting resources of the park managing authority are available to the Commission for fire-suppression operations, and are used under the direction of the Forests Commission in conjunction with, and not as a replacement for, the resources of the Commission.

The classification of land as a park does not restrict the use of any necessary fire-suppression measures.

Fire-prevention measures such as maintenance of fire-access tracks and protective burning will also be required in those areas of parks that have strategic importance for fire control.

The particular measures to be taken in individual parks will be incorporated in the protection plans prepared by the Forests Commission in consultation with the park managing authority.

In all parks the suppression of fires remains the responsibility of the Forests Commission, even in those parks where the Commission is not the managing authority.

The two organizations that share the duty of fire prevention and suppression in rural Victoria — namely, the Forests Commission and the Country Fire Authority — have excellent arrangements for mutual co-operation that have operated successfully for many years.

Vermin and noxious weeds within parks will be controlled. This will remain the responsibility of the Department of Crown Lands and Survey. Under the terms of an agreement ratified by both the Department and the National Parks Service, control measures will be taken by both the park managers and the Department, using methods decided upon jointly by the two parties.

Public land in this study area includes several areas of regional importance for the production of honey. Where these areas are recommended as part of parks, honey production should be permitted and the number of apiary sites maintained.

Current legal access will continue to be available to freehold land enclosed by any of the recommended parks.

NATIONAL PARK

Snowy River National Park

The Snowy River forms one of the most distinctive and spectacular valleys in south-eastern Australia. For much of its length this valley remains substantially undisturbed and forms a major feature of the Snowy River and Cobberas-Tingaringy National Parks to the north and east. These parks, which extend to the New South Wales border, enclose approximately 70 km of the Snowy River. Within New South Wales much of the river is in the Kosciusko National Park, including its headwaters on Mount Kosciusko itself.

Council believes that on the Snowy River there exists the unique opportunity of enclosing the majority of one of Australia's great rivers within a system of national parks. The extension of the Snowy River National Park into the Gippsland Lakes hinterland area supplements the existing park system and facilitates the adoption of a unified management philosophy for the important natural, scenic and recreational features of the Snowy River valley.

This section of the park within the Gippsland Lakes hinterland, has outstanding scenic values and provides opportunities for activities that include canoeing, bushwalking, and picnicking.

Dry open forest of red stringybark-red box is the predominant vegetation type. Other vegetation types include taller open forests of mountain grey gum and white stringybark, and red wattle scrub.

The area includes frontage to the Buchan River and adjoining attractive limestone formations, as well as the popular camping and picnic area at the confluence of the Buchan and Snowy Rivers.

Recommendation

A1 Snowy River National Park

That the area of 2 250 ha shown on the map be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (b) conserve and protect natural ecosystems
 - (c) supply water and protect catchments and streams
- that
- (d) the Fisheries and Wildlife Division prepare plans for the conservation of wildlife in conjunction with the management authority and that, after agreement, these be incorporated into the management plan
 - (e) grazing be phased out by no later than 1988

- (f) hunting and use of firearms not be permitted
 - (g) honey production continue
 - (h) legal access continue to be available to that freehold land located within the park.
- and that it be reserved under the *National Parks Act* 1978 and managed by the National Parks Service.

Notes:

1. Council is aware of the continuing problem wild dogs pose to graziers in this general area. The adequate control of such animals, and indeed, all vermin and noxious weeds is essential, both inside and outside the park. While the destruction and suppression of vermin and noxious weeds within the park will remain the responsibility of the Department of Crown Lands and Survey, the terms of a broad agreement between the Department and the National Parks Service will ensure that control measures are undertaken jointly.
2. All public land water frontages to the Snowy River should be managed by the park management authority as part of the park.
3. Council recognizes that in the future there may be a need to provide additional or upgraded vehicular access to suitable sites on the Snowy River.
4. Council recognizes the mineral potential of the Lower Devonian Snowy River Volcanics sequence of this area and believes that its exploration should be permitted, subject to guidelines outlined in the section on mineral and stone production.

STATE PARKS

Lake Tyers — Nowa Nowa State Park

Council's final recommendations for the East Gippsland area included one for a State park of 2,000 ha adjacent to the Gippsland Lakes hinterland. The addition of 5,100 ha to the park, recommended here, will bring the total area to 7,100 ha.

The State park includes the existing forest park and, as its name suggests, is centred on Lake Tyers, which constitutes the park's recreational focus. It provides opportunities for most forms of water sports including boating, fishing, swimming, and canoeing. The park already has a number of developed picnic and short walking tracks. The lookout on Mt. Nowa Nowa provides panoramic views over the surrounding bushland and coast.

Excellent samples of coastal forest types are represented, primarily silvertop-white stringybark open forests, but also including stands of warm-temperate rainforest and the distinctive and now-restricted Gippsland grey box. Seventeen eucalypt species have been recorded in the park, and understoreys vary from bracken to saw banksias to species characteristic of wet gullies.

The scenic Boggy Creek gorge forms the major feature of the northern section of the park. Excavated in the Snowy River Volcanic sequence, the gorge has considerable botanical significance containing areas of rainforest, the rare species *Pittosporum revolutum* and *Callistemon subulatus*, and attractive streamside stands of kanooka.

Lake Tyers is one of a string of estuaries and marshes along the coast of Gippsland that are important for water-birds, including transequatorial migrants such as grey plover, lesser golden plover, and ruddy turnstone. The park also contains a varied population of forest birds, ranging from superb lyrebirds to nectivorous species such as honeyeaters and parrots. The latter species, as well as gliding possums such as the yellow-bellied glider, feed on the blossoms of red ironbark that are a feature of the open forests.

Recommendation

A2 Lake Tyers-Nowa Nowa State Park

That the area of 5,100 ha shown on the map be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
- (b) conserve and protect natural ecosystems that
- (c) honey production be permitted
- (d) legal access continue to be available to that freehold land located within the park and that it be reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the Forests Commission.

Notes:

1. Council recognizes the mineral potential of the Lower Devonian Snowy River Volcanics sequence in portion of this park, and believes that its exploration should be permitted, subject to guidelines outlined in the section on mineral and stone production.
2. The park management authority should consult with the local Aboriginal community when preparing management plans for the area.

Mitchell River State Park

This park is centred on the Mitchell River gorge, which provides some of Gippsland's most spectacular scenery, is renowned for its special floral and geological features, and attracts many visitors each year. It includes the existing Glenaladale National Park.

Important geological features of the Mitchell River gorge are the spectacular sandstone cliffs, excellent exposures of the Avon River group, and several fossil sites.

Woolshed Creek, a tributary of the Mitchell River, flows through a 'gorge' containing the well-known Den of Nargun — a large semi-circular cavern that was formed by the undercutting and backwash of water eroding soft mudstone beneath a 'roof' of more resistant sandstone. Stalactites decorate the rim of the cavern.

An unusual juxtaposition of moist and dry floristic elements occurs on the Mitchell River and its tributaries. In the shelter of the gorges, where lianes and epiphytic ferns and bryophytes are abundant, are well-developed stands of warm-temperate rainforest dominated by lilly pilly, kanooka, mutton wood, yellow wood, and sweet pittosporum. Exposed rocky sites and some of the gorges support a drier and more open community containing kurrajong, a tree species characteristic of relatively low rainfall areas much further inland. The presence of these disjunct southerly populations is of biogeographic interest.

The park also contains excellent representations of a range of vegetation types found in the foothill forests of the study area, and a number of rare plant species. The latter include the shrub *Bertya cunninghamii*, a semi-shrub *Muehlenbeckia rhyticarya*, and the fern *Polystichum formosum*.

Peregrine falcons are known to nest at a number of localities in the park, which also contains several of the study area's most significant recreational features. These include the popular Mitchell River walking track, some of the best white-water canoeing waters in Victoria, and the Glenaladale National Park, which attracts approximately 16,000 visitors annually. The old sandstone Mitchell River weir, downstream of the Glenaladale National Park, adds historical interest.

Recommendation

A3 Mitchell River State Park

That the area of 12,200 ha shown on the map be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (b) conserve and protect natural ecosystems
 - (c) supply water and protect catchments
- that
- (d) honey production be permitted
 - (e) legal access continue to be available to that freehold land located within the park
 - (f) grazing be phased out by no later than 1988
 - (g) historical features be preserved
 - (h) deer-hunting by stalking be permitted seasonally in selected areas east of the river, the areas and timing and length of season to be determined by the management authority in consultation with the Fisheries and Wildlife Division, and hunting with hounds not be permitted

and that it be reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the National Parks Service.

Notes:

1. Management of the park should be such that it does not cause any reduction in water quality at the Bairnsdale Waterworks Trust's offtake, currently being constructed on the Mitchell River.
2. The area shown on the map by crosshatching is land purchased by the State Rivers and Water Supply Commission as part of the now-deferred Mitchell River dam project. While Council considers this land is ideally suited for the development of recreational and interpretative facilities associated with the park, it recognizes that in the long term some form of water storage may be required on this site. Consequently, Council believes that this land should be managed as part of the park (by the park management authority) in such a way as to realize its recreational potential without reducing the options for its possible future use for water-supply purposes.

The land should retain its current tenure. However, if, at some future time, plans for a dam on the site are finally abandoned, then this land should be reserved permanently as part of the park.

3. Council recognizes that there may be a need to continue grazing the former farmland discussed in Note 2.
4. The area shown on the map by a dot pattern is land that would be inundated, plus a marginal strip, if a large dam was to be constructed on the site of the now-deferred Mitchell River dam. Council believes that this land should be managed as part of the park (by the park management authority) without reducing the options for its possible future use for water-supply purposes. For the time being the land should be temporarily reserved for the conservation of an area of natural interest. However, if at some future time, plans for a dam on the site are finally abandoned, then this land should be reserved permanently as part of the park.

5. The newly constructed road to the site of the now-deferred Mitchell River dam is not part of the park. For part of its length it forms a section of the park boundary. At its eastern end, where it is enclosed by the park, the road should be maintained by the management authority by agreement with the State Rivers and Water Supply Commission.

REGIONAL PARKS

Glenmaggie Regional Park

This park is situated on the shores of Lake Glenmaggie, one of the region's most popular recreational venues, which offers opportunities for a variety of water sports including fishing, swimming, water-skiing, and boating. It is located immediately north of Heyfield and less than an hour's drive from the City of Sale and the growing industrial population of the Latrobe Valley.

The park will provide an invaluable adjunct to the existing major recreational focus of Lake Glenmaggie. Its open forests have great potential for the development of picnic and camping facilities, walking tracks, bridle trails, and self-guided nature trails. The park's existing system of vehicular tracks could be extended and upgraded to provide opportunities for pleasure driving, and some of its more elevated sites could be developed into scenic lookouts over the lake and surrounding countryside.

It contains a mixture of low open forest species, including the distinctive red ironbark. Other species well represented include red box and red stringybark and an interesting low woodland of but but. The area is noted for its colourful wildflower displays in spring and its varied bird population.

Recommendation

A4 Glenmaggie Regional Park

That the area of 720 ha shown on the map be used to:

- (a) provide opportunities for informal recreation for large numbers of people
- (b) conserve and protect ecosystems to the extent that this is consistent with (a) above that
- (c) minor timber products be available
- (d) the small school pine plantations — when harvested — be replaced by species native to the area

and that it be permanently reserved under section 4 of the *Crown Land (Reserves) Act* 1978 and managed by the National Parks Service.

Notes:

1. A management plan for the park should be prepared by the managing authority, in consultation with the State Rivers and Water Supply Commission and the Soil Conservation Authority. No development should take place on land currently owned by the State Rivers and Water Supply Commission — nor on other public land within 200 m of full supply level — without its prior consent, and the Commission should retain the right to undertake any foreshore erosion works considered necessary.
2. A local advisory committee — which includes members of the existing Lake Glenmaggie committee of management — could be formed to advise the managing authority on the development and management of the park.

3. The Sale Technical School could continue to utilise the area and facilities currently used as an education centre.
4. Areas stripped for gravel in the past should eventually be revegetated with species native to the area.
5. This recommendation should not be implemented until such time as the National Parks Service has the resources necessary to manage the park adequately.

Colquhoun Regional Park

This park, with a frontage to the Princes Highway, is located immediately north of the major tourist town of Lakes Entrance and only some 25 km from Bairnsdale.

The area is already heavily used for recreation, being particularly popular as an alternative to the coast and lakes on days when weather conditions are not conducive to water-based recreation. It is estimated that the well-developed picnic facilities at Log Crossing attract around 4,000 visitors annually. Other existing recreational features include portion of a scenic forest drive along Log Crossing and Uncles Roads, and a circuit walking track following, in part, an old tramline that was originally used to transport rock from a quarry (the site of which is also within the park) to Lakes Entrance for use in the construction of breakwaters.

The park's relatively gentle slopes, pleasant open forest (consisting primarily of silvertop, white stringybark and mountain grey gum) and network of vehicular tracks, provide the potential for increased recreational use.

Recommendation

A5 Colquhoun Regional Park

That the area of 3,600 ha shown on the map be used to:

- (a) provide opportunities for informal recreation for large numbers of people
- (b) conserve and protect ecosystems to the extent consistent with (a) above that
- (c) timber production be permitted

and that it be permanently reserved under section 4 of the *Crown Land (Reserves) Act* 1978 and managed by the Forest Commission.

Notes:

1. Council is aware of the importance to apiarists of round-leaf box (*Eucalyptus bauerana*) and believes that this species should be preserved for honey production wherever possible.
2. The park management authority should consult with the local Aboriginal community when preparing management plans for the area.

GIPPSLAND LAKES RESERVE

The Gippsland Lakes comprise the single most important natural feature in the study area. This interconnected group of coastal lagoons covers approximately 30,000 ha and, together with surrounding land, has very high values for recreation and nature conservation.

The Lakes' broad expanses of relatively shallow water are ideal for nearly all forms of water sports, including boating, yachting, swimming, and water skiing. They are among the most popular recreational fishing venues in the State and also provide some of Victoria's best duck-shooting. The Gippsland Lakes attract approximately 400,000 visitors annually and as such must be included in the State's major recreational resources. These visitors help support the local tourist industry, which represents a significant part of the region's economy.

The Gippsland Lakes and surrounding low-lying land constitute one of Victoria's most important wetland areas. The large expanses and wide variety of wetlands — ranging from deep fresh-water marshes to salt flats — have particular significance as water-bird habitat. Indeed, they constitute a crucial Australian drought refuge for water-birds.

Around the Lakes, a number of sites have geological or geomorphological significance. The most important of these, the Mitchell River silt jetties, form an example of a digitate delta that is internationally recognized.

The Lakes also support a viable estuarine fishing industry and Lakes Entrance provides the home port for Victoria's largest fishing fleet.

It is recognized that different sections of the Gippsland Lakes have distinctive features that can result in differing existing or potential uses. Nevertheless, each section forms part of an interconnected, water-based complex that, to a large extent, can be considered an integrated natural system. Future use of the water and surrounding land should be based on this broad concept of a Gippsland Lakes system.

Public Land

The lake beds and almost all of their surrounds are public land, being permanently reserved for public purposes. Although broader in places, the reserve around the lakes and their islands' foreshores is mostly only about 30 m wide. At various locations around the lakes, also, more extensive areas of public land adjoin the foreshore reserve — some reserved for particular purposes such as wildlife conservation and national parks, others unreserved.

Management

Currently, a number of management authorities have responsibilities on public land around the lakes. Most of the foreshore reserve is controlled by the Department of Crown Lands and Survey, with some sections being under local committees of management. The Fisheries and Wildlife Division manages considerable areas of State game reserves, and the National Parks Service manages Nyerimilang Park, the Lakes National Park, and the large Gippsland Lakes Coastal Park. On unreserved Crown land the Forests Commission has a management role in protection of the vegetation.

This multiplicity of management authorities could lead to the unco-ordinated use and development of the important public lands surrounding the lakes. While recognizing that this land is used for — and has the potential to fulfil — a number of different purposes, Council believes that a unified approach to management should apply for all of the public land around the Gippsland Lakes and that most of it should be managed by a single management group.

This is consistent with Council's final recommendations for the South Gippsland area, district 1, wherein it is proposed that almost all the public land between the Gippsland Lakes and the coast should be included in a single reserve — zoned to accommodate different uses — to be managed by one agency of the Ministry for Conservation in consultation with its other agencies. The following recommendation adopts a similar approach in that most of the public land is placed within a single reserve, which should be managed as a unit according to a zoning that takes account of the particular values associated with specific areas.

The reserve includes all the public land surrounding the lakes and on the islands, with the exception of sections of the public land foreshore reserve at the major centres of population — that is, Lakes Entrance, Metung, Eagle Point, Paynesville, and the township of Raymond Island. It also includes shallow sections of the lakes that have particular importance for water-birds — that is, Poddy Bay, Tucker Swamp and the Dardenelles in Lake Wellington, Jones Bay and Blond Bay in Lake Victoria, and Jones Bay at the head of Lake King.

Its great diversity of habitat types ranges from dry open woodland to some of Victoria's most important wetlands. These wetlands, which include existing State game reserves at Macleod Morass, Jones Bay, Clydebank Morass, Heart Morass, and Blond Bay, support large numbers of a wide variety of water-birds. They contain resident populations of many species, and in time of drought provide a permanent refuge for nomadic species of the inland. They are also used by intercontinental migrants, including many species of wader, during their non-breeding season. The reserve includes important breeding colonies of little tern, pied cormorant and straw-necked ibis.

Important dryland habitat occupies a number of locations, including an area north of Lake Victoria, with a large population of terrestrial mammals, and Raymond Island, which supports a wide variety of birdlife and a substantial koala population.

Vegetation communities represented in the reserve range from saltmarsh to open banksia woodlands. Among the more significant of these communities are the study area's only southern mahogany open forests on Raymond Island, rainforest remnants on the former sea cliff between Metung and Lakes Entrance, and stands of Gippsland grey box at Nyerimilang Park and Eagle Point.

The reserve offers outstanding opportunities for a range of recreational activities, most of which are water-based. It contains a number of sites that have already-developed picnic and boat-launching facilities, such as the popular sandy beaches at Wattle Point. Moreover, other areas within it have the potential for further development of this kind, in addition to bush camping, nature trails, and interpretative facilities. Another important recreation component of the reserve is the Nyerimilang Park. Situated on the northern shore of the Reeve Channel, the park features a large homestead set in attractive gardens with spectacular views across the Gippsland Lakes and Bass Strait. Large numbers of duck on the reserve's wetlands and hog deer, which range throughout the woodlands, provide some of Victoria's best hunting opportunities. The reserve's diverse birdlife also attracts many birdwatchers.

Because of these outstanding recreation and nature conservation values, Council believes the reserve should be managed jointly by the National Parks Service and the Fisheries and Wildlife Division.

Recommendation

A6 Gippsland Lakes Reserve

That the area of approximately 10,200 ha shown on the map be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (b) conserve and protect natural ecosystems and geomorphological and historical features
 - (c) ensure the conservation of both aquatic and terrestrial flora and fauna
- that
- (d) any measures necessary to ensure the stability of the land be undertaken
 - (e) legal access continue to be available to freehold land located within the reserve
 - (f) existing navigation aids be retained

- (g) honey production be permitted
- (h) existing water-frontage grazing licences continue where this does not conflict with the primary aims of the reserve
- (i) existing legal occupation by private individuals or organizations continue until and unless they conflict with public use of the reserve
- (j) rights of access be retained, from Wattle Point Road to the Gas and Fuel Corporation's property, by officers of the Corporation or other authorized personnel
- (k) any further areas of land purchased by the Crown on the Mitchell River silt jetties be added to the reserve
- (l) residential permissive occupancies be phased out by 1980, in accordance with Government policy

and that it be reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed jointly by the National Parks Service and the Fisheries and Wildlife Division.

Council further recommends that a management plan be prepared for the reserve based on the following suggested zones (which are shown on Maps 9a and 9b).

Zone I should be used primarily to conserve and enhance the habitat of wildlife, especially water-birds. Appropriate forms of recreation should be permitted, as should the seasonal hunting of game (except on Raymond Island, Maringa Creek and Point Fullarton).

This zone includes important wetlands around Lake Wellington, on Roseneath peninsula, north-west of Lake Victoria and north of Lake King, and at Point Fullarton, some of which are existing State game reserves.

Zone II should be used primarily to conserve and protect important dryland vegetation communities and their associated faunal populations. Passive recreation should be allowed where this does not conflict with the primary aim. Seasonal hunting of game, including hog deer, should be permitted — except on Raymond Island and the coastal strip between Waddy Point and Storm Point (below the road). This zone includes land at Dishers Bay, Swell Point, north of Storm Point and Raymond Island.

Zone III should be used primarily to provide informal recreational opportunities such as picnicking, walking, fishing, swimming, and boating. In general, hunting of game should not be permitted, however, at the discretion of the management authorities it could be allowed at certain locations between Newlands Backwater and Wattle Point (excluding Banksia peninsula).

Natural ecosystems should be protected to the extent that this is consistent with the primary aim. This zone includes land at Marley Point, Wattle Point, Point Scott, Eagle Point, Kalimna Jetty, Nyerimilang, Duck Bay, Holland's Landing and Rigby Island.

Zone IV should be used primarily to conserve native flora and fauna, and to ensure the stability of the former sea cliff between Metung and Lakes Entrance. Restricted recreational use could be permitted where this does not conflict with the above uses.

Zone V should be used primarily for maintaining the stability of the fragile river deltas. Public access should be regulated, consistent with this primary aim. This zone includes the deltas of the Latrobe, Avon, and Tambo Rivers, and the renowned Mitchell River silt jetties. Fishing is a popular pastime on the southern silt jetty and should be allowed to continue.

Zone VI should be used primarily to conserve and protect native flora and fauna, with emphasis on preserving the nesting sites of little tern. Passive recreation should be allowed where this does not conflict with the primary aim. Shooting of game should not be permitted. This zone includes public land on Rigby and Baxter Islands.

The management plan should also recognize the following points:

- * There is potential for increased recreational use of public land north of Dishers Bay, at Swell Point, north of Storm Point, and on Raymond Island; this applies particularly to the sandy beaches on the eastern shores of Lake Wellington, east of Storm Point and Waddy Point, and on the southern and eastern shores of Raymond Island. While current recreational use in these areas is generally low, they could be further developed if and when a requirement for additional recreational areas arises.
- * Portion of the area between Blond Bay and Steel Bay could be used for educational purposes in line with the provisions of recommendations M1-M3. Any arrangements for the use of this area for educational purposes during the hunting season should be such as to ensure public safety.
- * It is important to prevent erosion on all land surrounding the lakes.
- * All the lakeside vegetation makes an important contribution to the local landscape.
- * Public land north of the lakes forms an important wildlife corridor.

Notes:

1. With the exception of the shallow areas of the lakes included within the reserve, the lakeside boundary of the reserve should be low-water mark.
2. In preparing the management plan for the reserve, the managing authorities should consult with the Department of Crown Lands and Survey, Ports and Harbors Division, Soil Conservation Authority, State Rivers and Water Supply Commission, Department of Planning, Forests Commission, local Shire Councils, and interested community groups.
3. Adjoining portion of the reserve is part of the existing Macleod Morass State game reserve within the town of Bairnsdale. While Council recognizes that this land is outside its jurisdiction, it suggests that it be included within the Gippsland Lakes Reserve.
4. On that section of the reserve north of Dishers Bay and east of the Perry River, bow-hunting should be the only permitted method of hunting for hog deer.
5. The role and responsibilities of the Ports and Harbors Division, as port authority, should be maintained over those sections of the reserve that fall within the gazetted port of Gippsland Lakes.

B. WILDERNESS

The concept of wilderness ('an uncultivated and uninhabited tract' *Oxford English Dictionary*) has received attention in Australia for many years, particularly since the early 1960s. The need to set aside areas because of their value as wilderness has been recognized by some Australian states.

The wilderness experience involves the perception of being part of nature, of an environment unaltered by human intervention, of isolation, and of being exposed to the challenge of the elements.

As the main elements of its appeal, wilderness provides:

- * spiritual refreshment and an awareness of solitude arising from close contact with the uninhabited, substantially undisturbed, natural environment
- * the knowledge that there still exists a large natural area in which plants, animals, and soils can survive and interact, with minimal interference by Man
- * refuge from the pressures, sights, and sounds of modern urban life
- * the adventure and challenge of putting one's powers of endurance and self-reliance to the test in substantially undisturbed natural environments

Council recognizes that the perception of wilderness areas and the requirements necessary to provide wilderness experience vary throughout the community. For some people, a short walk in a part of a State park (or even a regional park) may provide it. Others seek areas of scenic grandeur providing extensive views and, to some, man-modified components in what is an essentially natural landscape do not appear to detract significantly from the wilderness experience.

Avon Wilderness

This area contains portion of the Avon River catchment including reaches of the Avon and Turton Rivers and McColl Creek, and the headwater catchments to Ben Cruachan Creek. Its deeply dissected, rugged terrain remains substantially unaltered, with environments ranging from dry foothill forests and taller wetter forest types on protected aspects to riparian vegetation forms along the major streams.

This area expands and complements the 29,500 ha recommended as wilderness in the alpine area immediately to the north. It extends the bushwalking routes along the Avon and Turton Rivers, and Purgatory Spur, and offers an additional route along the Ben Cruachan Creek. The addition of this area to the existing wilderness increases the total area of the Avon wilderness by more than 40%, thus allowing for a greater carrying capacity.

When considered in conjunction, the two areas offer opportunities for solitude and for a range of challenging activities. Because they will probably attract only the more hardy wilderness-user, they are likely to retain the main elements of the appeal of wilderness.

Uses and management

Recreation activities such as hiking, rock-climbing, bow-hunting, fishing, cross-country skiing, and nature observation would be permitted within this area. Timber production, grazing, and mining would be excluded, as would the use of firearms. Motorized vehicles, other than those essential for management, would also be excluded.

In order to maintain the value of the wilderness for solitude and unconfined types of recreation, it may ultimately be necessary to control the number of people using the area at any one time. Experience in the United States has shown that tourism and the more conventional forms of outdoor recreation commonly associated with parks are among the greatest threats to wilderness, and should not be accommodated in such an area. It may also be necessary to place restrictions on some activities so that conflict between wilderness-users is minimized.

Wildfires, however caused, must be prevented from threatening life, property, and natural resources in the State, and the measures necessary to control them must be taken in a wilderness area as in any other. Some pre-suppression measures, such as maintenance of fire-access tracks and protective burning, will be required, at least in areas of strategic importance for fire control. A carefully designed and managed fire-prevention program in the adjacent areas may reduce the requirement for such activities in some areas of the wilderness. Prevention and suppression of fires will remain the responsibility of the Forests Commission.

When tracks are maintained for essential management operations, their use other than for these specific purposes will not be permitted. Careful maintenance can ensure that many tracks continue to be passable for fire-fighting, rescue, and management vehicles, without the clearing of all vegetation. Construction of helipads may be an alternative to maintaining all of an extensive track system.

It will be necessary to control vermin and noxious weeds within the wilderness area, and particularly in the land immediately surrounding it, to ensure that the area itself is protected and that adjoining land is not threatened by pest species from within it.

Users of wilderness must be prepared to face difficult and challenging conditions, and Council stresses the need to bring to the attention of the public the potential hazards associated with the use of these areas. In general, it is expected that the lack of vehicle access, the topography, and the location of this wilderness area will tend to discourage the inexperienced.

Recommendation

B1 Avon Wilderness

That the area shown on the map (12,200 ha) be used to:

- (a) provide opportunities for solitude and unconfined forms of recreation in substantially unmodified natural environments
- that
- (b) its value for providing solitude be maintained
- (c) construction of roads or tracks and the entry of vehicles not be permitted, other than for management purposes
- (d) grazing within it be terminated as soon as practicable but not later than 1991

and that it be permanently reserved under section 4 of the *Crown Land (Reserves) Act* 1978 and managed by the Forests Commission.

Note:

Council is aware of the history of fire in this general area; it therefore believes that, within the wide belt of public land adjoining the proposed wilderness on its eastern, southern and western borders, and in the wilderness zone itself, all measures necessary for fire protection and control should be taken. Adequate control of pest plants and animals is also essential.

C. REFERENCE AREAS

Reference areas are tracts of public land containing viable samples of one or more land types that are relatively undisturbed and that are reserved in perpetuity. Those concerned with studying land for particular comparative purposes may then refer to such areas, especially when attempting to solve problems arising from the use of land. Reference areas include typical examples of land types that have been modified elsewhere for productive uses such as agriculture, mining, or intensive timber production. The course and effects of human alteration and utilization can be measured against these relatively stable natural areas.

In common with references and standards used in other fields, these areas must not be tampered with, and natural processes should be allowed to continue undisturbed. Reference areas should be sufficiently large to be viable and should be surrounded by a buffer, the width of which would vary according to the activity occurring on the adjacent land. The role of the buffer is to protect the area from damaging or potentially damaging activities nearby. It will also protect important values in the surrounding land from potentially damaging natural processes occurring within the reference area.

Access should be restricted, and experimental manipulation should not be permitted. Setting aside such areas will enable continued study of natural features and processes: for example, fauna, hydrology and nutrient cycling. These studies are important in increasing our knowledge of the ecological laws and processes on which man's survival may ultimately depend.

The preservation of some species in the long term requires the setting aside of areas free from human interference (in the form of productive or recreational use of the land). These areas preserve a valuable pool of genetic material. Man often uses wild species to genetically strengthen inbred races of domestic plants and animals — and the future use of gene pools will probably expand far beyond this.

The Reference Areas Act 1978 provides for reference areas to be proclaimed by the Governor-in-Council, and for the Minister to issue directives for their protection, control, and management. An advisory committee, established under the Act, will assist the Minister.

The selection of the reference areas listed here is based on current knowledge of the land types in the study area, and additional areas may be needed as better information on ecology and land use problems becomes available.

Recommendations

C1-C3 That the areas listed below and shown on the map:

- (a) be used to maintain natural ecosystems as a reference to which those concerned with studying land for particular comparative purposes may be permitted to refer, especially when attempting to solve problems arising from the use of land
- (b) be surrounded by a buffer and that delineation of the buffer be by joint agreement between the advisory committee and the managing authorities of the areas itself and of the land adjacent to the area

and that

- (c) activities — such as grazing, exploration for minerals and gold, mining, logging, and beekeeping — that conflict with the purposes of a reference area not be permitted, and any such activities in the reference areas listed below cease when these recommendations are adopted

C1 Twenty Acre Creek (930 ha)

To be managed by the Department of Crown Lands and Survey.

Silurian-Lower Devonian sediments; steep slopes; elevation 430-700 m; approximate annual rainfall 700mm; open forest III mountain grey gum, white stringybark, and messmate, open forest II silvertop, open forest II red box and red ironbark.

C2 Stringybark Creek (620 ha)

To be managed by the Department of Crown Lands and Survey.

Lower Carboniferous siltstone, sandstones, and conglomerate, and Silurian-Lower Devonian sediments; very steep slopes; elevation 150-500 m; approximate annual rainfall 700 mm; open forest I red stringybark and red box, open forest II silvertop.

C3 Tambo River (490 ha)

To be managed by the Department of Crown Lands and Survey.

Ordovician sediments; moderate slopes; elevation 100-280 m; approximate annual rainfall 800 mm; open forest II red stringybark and red box, open forest III mountain grey gum and white stringybark.

D. NATURAL FEATURES AND SCENIC RESERVES

These reserves set aside land containing outstanding landscapes, geological formations, significant plant communities, or other natural features that warrant special protection. The maintenance of these features would be the main aim of management. Levels of permitted activities such as recreation and grazing may need close control in some areas, where protection of features such as significant plants may require special measures. Any road construction would be minimal and carefully planned in each reserve. Logging would not be permitted. The management authority for each reserve has been designated with the aim of facilitating the management of both the reserve itself and the adjacent land.

Recommendations

D1-D6 That the areas listed below and shown on the map be used to:

- (a) maintain natural landscapes and features
 - (b) provide opportunities for recreation and education
 - (c) supply water and protect catchments and streams
 - (d) conserve native plants and animals
- that
- (e) the Fisheries and Wildlife Division prepare plans for the conservation of wildlife in consultation with the management authority and that, after mutual agreement, these be incorporated into the management plan
 - (f) apiculture be permitted
 - (g) any new roading be constructed only where essential for management and protection purposes and be designed to minimize effects on scenic and nature conservation values

and that the areas be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the authority indicated in the schedule below.

D1 Mt Useful (30 ha)

This small area on the southern slopes of Mt Useful completes the reserve, most of which lies within the Alpine area.

To be managed by the Forests Commission.

Note:

Grazing should be permitted subject to the policies and guidelines specified in the corresponding recommendation in the Alpine area (D1)

D2 4 ha south of allotment 89 K3, Parish of Glenmaggie

This hill-top block adjacent to the Heyfield-Licola road provides significant views over the Macalister River flats and Lake Glenmaggie.

To be managed by the Department of Crown Lands and Survey.

D3 Ben Cruachan (300 ha)

This reserve incorporates the highest sections of Ben Cruachan — a dominating feature in the local landscape — the summit of which commands views into the Avon Wilderness and beyond and back towards the Gippsland Plains in the south. Other features of the

reserve include steep cliff-faces of Carboniferous sedimentary rocks, and displays of wildflowers, which are among the most colorful in the study area.

To be managed by the Forests Commission.

Note:

Council is aware of a proposal to erect a radio transmitting station on the summit of Ben Cruachan. It believes that alternative sites elsewhere in Gippsland should be investigated.

D4 Avon-Mt Hedrick (5,700 ha)

This reserve contains a number of viewing points, which provide scenic vistas over Lake Glenmaggie and the agricultural plains to the south as well as into the mountainous alpine regions to the north. These include Pearson Point, Green Hill, and Huggett Lookout. Features of geological interest include the Channels — a gorge excavated in Carboniferous siltstones and sandstones by the Avon River — steep conglomerate escarpments, and the existing Nicholson Rocks reserve.

The reserve's predominantly dry open forests exhibit great floristic diversity, with areas of special significance at Mt Hedrick and the Channels. The former area contains a number of restricted species including *Dodonaea boroniifolia*, *Grevillea chrysophaea*, *Lepidosperma semiteres*, *L. viscidum*, and *Prostanthera saxicola*, and 187 species including many colorful wildflowers, have been recorded at the latter site.

A popular walking track and picnic sites are located along the Avon River.

To be managed by the Forests Commission.

Notes:

1. Grazing should be restricted to that area already held under licence in the south-western portion of the reserve.
2. Council is aware that the State Rivers and Water Supply Commission, in assessing long-term water requirements for the Latrobe Valley, has identified a potential dam site on the Avon River within the reserve. Construction of this storage is not expected in the foreseeable future.
3. Existing vehicular tracks should remain open for public use except where the management authority considers they should be closed (temporarily or permanently) for erosion or safety reasons.

D5 Mt Elizabeth (2,300 ha)

The plateau remnant that comprises Mt Elizabeth supports a wide variety of vegetation communities, ranging from wattle scrub to dry, low, open forests to fine stands of tall mountain ash regrowth. The mountain ash forests here represent an outlying population of extensive even-aged forests that extend from the slopes of the Baw Baws to Toolangi. Riparian communities, including attractive stands of kanooka, along the Tambo and Timbarra Rivers provide another element of the reserve's great floral diversity.

The reserve also contains three significant understorey species — *Hibbertia hermanniifolia*, which has been recorded at only one other locality in the State, *Phebalium squameum* subsp. *coriaceum*, a Victorian endemic otherwise known only in the Macalister River headwaters, and the showy *Boronia ledifolia*.

A small picnic site is located at one end of a walking track leading to the summit of Mt Elizabeth, from where panoramic views of the surrounding countryside can be gained. The scenic Tambo and Timbarra River valleys, and in particular their confluence at the Playgrounds, provides a recreational focus at the southern end of the reserve.

The site of the old Collins sawmill and associated relics add historical interest to the reserve.

To be managed by the Forests Commission.

Notes:

1. Portion of this reserve was burnt during a wildfire which swept through the area in November, 1982. Council considers that salvage logging of trees killed by the fire should be permitted following consultation with the Fisheries and Wildlife Division. Areas so logged should be regenerated.
2. Council recognizes the mineral potential of the Lower Devonian Snowy River Volcanic sequence in portion of this reserve, and believes that its exploration should be permitted subject to guidelines outlined in the chapter on mineral and stone production.

D6 W Tree Falls (55 ha)

The major feature of this reserve are the waterfalls in the W Tree Creek gorge. These occur in two steps — the first, just below the Gelantipy road, of some 10 metres, and the second, further downstream, of more than 30 metres. The reserve is also of considerable botanical interest, more than 150 species of native plants having been recorded in this relatively small area.

To be managed by the Forests Commission.

E. WATER PRODUCTION

Most of the major streams that flow through the Gippsland Lakes hinterland area have their headwaters in the alpine area to the north. While not as productive as their alpine counterparts, water catchments in the study area make an important contribution to the region's relatively abundant and good quality surface water resources. This water supplies a population of more than 26,000 in urban centres throughout the study area as well as being used extensively for irrigation purposes, especially in the Macalister Irrigation Area and on the Mitchell and Tambo River flats.

The area also has a significant groundwater resource, from which more than 14,000 people (including the residents of the City of Sale) draw their domestic supplies. The use of groundwater for irrigation is concentrated on the Mitchell River flats.

Catchment management and use

None of the catchments in the Gippsland Lakes hinterland area is used solely for water production. The catchments are subject to a variety of land uses, including recreational activities, timber production, and agriculture on open farmlands.

Land use planning

The Council notes that the degree of land use planning varies between catchments. There are only three proclaimed catchments in the study area — the Macalister River catchment to Lake Glenmaggie, the Mitchell River catchment to the Bairnsdale Waterworks Trust's new offtake, and the Nicholson River catchment to the Lakes Entrance Waterworks Trust's diversion weir. The Soil Conservation Authority is currently investigating the Tambo River catchment to the Bruthen Waterworks Trust's offtake, the Buchan River catchment to the Buchan Waterworks Trust's offtake, and the Boggy Creek catchment to the Lakes Entrance Waterworks Trust's offtake, with a view to eventual proclamation by the Land Conservation Council.

No land use determinations have been made for any catchment in the study area, although the Soil Conservation Authority is currently preparing such a determination for the proclaimed Nicholson River catchment.

The Council maintains that the Authority should investigate all domestic water supply catchments within the study area and, where appropriate, these will be recommended for proclamation by this Council, in order to ensure a uniform procedure for land use planning within these areas.

A. Catchment land

Recognizing that the prime water-producing areas of the State coincide with the principal mountain and forested areas, and that these areas together with inland water bodies form major attractions for recreation, the Council believes that, in many areas, catchments can be managed for a range of uses consistent with the provision of adequate protection of the water resources. Recreational use of storages where it is permitted, must be carefully controlled to ensure adequate protection of water quality, and responsibility for this must remain with the water supply authority.

The Council realizes that the optimum combination of land uses for catchments will vary from one land type to another; a particular use that may not impair the quantity, distribution, or quality of water yield in one instance may have a profound effect in another. Changes in land use, which could detrimentally affect the quality, quantity, or distribution of water supplied from a catchment, should only be made following full consideration of the benefits and

disadvantages associated with the various land use options. These considerations should take account of the interests of the groups likely to be affected by any changes as well as broader regional and State-wide issues.

Where there is a multiplicity of uses in a catchment supplying water used for power generation or for domestic, industrial, or irrigation purposes, the catchment should be proclaimed under section 5(1) of the *Land Conservation Act* 1970 and section 22(1) of the *Soil Conservation and Land Utilization Act* 1958.

After proclamation, and following consultation with the Land Conservation Council, the Soil Conservation Authority may make a land use determination for a catchment. This specifies the most suitable uses of all land in the catchment, and includes delineation of protective strips around storages and along major watercourses.

Council believes that in most situations it is not necessary for a water supply authority to control and manage all land in its water catchment. Public authorities managing land within a proclaimed catchment should be conscious of the implications of management decisions on water production and should consult, co-operate, and reach agreement with the water supply authority and the Soil Conservation Authority regarding the type, location, and timing of management activities.

B. Buffer zone

The water supply authority should control and manage a buffer zone (defined in the land use determination) around storages and diversion works. This buffer zone is separate from the protective strips along watercourses, which, although important for water supply protection, would not by themselves form a manageable unit.

In addition the water supply authority should control and manage the storages and the areas on which capital works are situated, together with any other areas that may be needed for efficient management.

Each catchment and water supply system has individual characteristics and the determination of the buffer zone will need to take account of these differences. In determining the extent of the buffer zone, consideration should be given to factors such as ground slope, soil type, vegetative cover, adjoining land use, type of facilities available for treating the water, end-use of water, detention time in the storage, and the need to control public use of the storage and its immediate surrounds. The buffer zone should be large enough to reduce entry of most pollutants into the storage by way of filtration of overland flow, absorption through the soil, and assimilation in watercourses. The desirability of the buffer zone being a practical management unit should also be taken into account.

In some instances it may not be practical for the water supply authority to manage all, or part, of the buffer zone. In such cases agreement should be reached between the adjacent land management authority and the water supply authority at the time of a land use determination. The agreement may include leaving the management of the buffer zone with the adjacent land management authority on the basis that it would be managed with the prime object of protecting the water quality.

Water quality, yield and regulation

It is possible to improve the quality of water by partial or complete treatment — at a cost. It must, however, be recognized that the higher the original quality of the water, the cheaper and more efficient is the treatment and, in most cases, the more acceptable the end product. In many catchments it is already difficult to maintain existing water quality. This problem is likely to become even greater as pressures to allow various forms of land development and

use of natural resources increases. Even with properly planned and controlled land use in catchments it is probable that many water supply authorities will consider it necessary to at least disinfect water supplied from their storages. Indeed, many authorities already employ such treatment. Council recognizes that a number of water supply systems need some form of treatment now and that the others will need to consider some form of treatment in the future. In order to provide for this requirement Council believes it is important for the government to establish long-term policies to maintain water supply of a satisfactory quality.

It is also vital to safeguard the quantity and timing of yield. Catchments must be protected from loss of infiltration capacity, damage to other hydrologic properties, soil erosion, and contamination from chemical or biological sources.

Proper management of land uses within catchments is extremely important and recognition must be given to the need for high levels of protection, particularly in the ecologically sensitive areas. Values such as water yield, quality, and flow regime must be of major concern when implementing recommendations for public land within catchments. The Council recognizes the need for research to provide additional information that can be used in formulating management guidelines.

Additional water needs

Future water needs for domestic, stock and irrigation purposes, and for the production of electricity, may require the construction of additional water storages. In the planning for these, the possible effects of the storages and their water releases on the ecosystems in the vicinity (in particular the effects on fish and wildlife habitat downstream) should be determined and taken into account.

The Council appreciates that it will probably be necessary to develop additional facilities associated with such schemes, but cannot make specific provision for those developments until definite proposals are made. Their environmental effects should be assessed before proceeding. In most cases an Environment Effects Statement is now required as part of the planning of any new major storage.

Recommendations

E1-E10 That in the case of the locations listed below and shown on the map (all these locations being within catchments for which no land use determinations have been made) the present tenure and management of public land continue for the time being

and that, once a land use determination has been made, the following areas:

- (i) the storage areas
 - (ii) diversion works
 - (iii) associated facilities
 - (iv) the buffer zones around diversion works and storages, as defined in the land use determination
 - (v) any other allotments considered necessary
- be used for
- (a) water supply purposes
 - (b) other activities permitted by the water supply authority after consultation with the Soil Conservation Authority and the Environment Protection Authority

and that these areas be permanently reserved under section 4 of the *Crown Lands (Reserves) Act 1978* for water supply purposes, and be managed by the water supply authority named.

Notes:

1. The primary object of management of the buffer zone must be to protect water quality. Subject to this principle, the water supply authority may permit other secondary uses in the buffer zone. In such cases the principles of management must be agreed upon by that authority and any other authorities concerned.
2. In some instances it may not be practicable for the water supply authority to manage all or part of the buffer zone. In such cases agreement should be reached between the adjacent land management authority and the water supply authority at the time of a land use determination. The agreement may include leaving the management of the buffer zone with the adjacent land management authority on the basis that it would be managed with the prime object of protecting the water quality.
3. The Council considers that fossicking, and prospecting under a Miner's Right should not be permitted on land under the control of water supply authorities, around storages and facilities, etc.

E1 Lake Glenmaggie, State Rivers and Water Supply Commission.

Note:

Some of the land currently owned by the State Rivers and Water Supply Commission at Lake Glenmaggie should be reserved and managed as a regional park (see Recommendation A4).

E2 Thomson River offtake, Heyfield Waterworks Trust.**E3 Macalister River offtake, Maffra Waterworks Trust.****E4 Mitchell River diversion weir (under construction), Bairnsdale Waterworks Trust.****E5 Mitchell River offtake, Bairnsdale Waterworks Trust.****E6 Mitchell River offtake, Lindenow Waterworks Trust.****E7 Nicholson River diversion weir, Lakes Entrance Waterworks Trust.****E8 Tambo River offtake, Bruthen Waterworks Trust.****E9 Buchan River offtake, Buchan Waterworks Trust.****E10 Boggy Creek offtake, Lakes Entrance Waterworks Trust.****E11 That, in the case of off-river storages, groundwater bores, water supply installations, and channels (none of which are individually listed), these and their associated reserves remain under existing tenure and control. In these cases no land use determination is necessary.**

F. HARDWOOD PRODUCTION

Utilization of the study area's forests began in the gold-mining era. Subsequently the pattern of timber production has generally been influenced by fluctuating requirements, both locally and from outside the region. For instance, reduced production during the depression of the 1930s was succeeded in the 1940s by increased sawmilling, largely to meet the demands imposed by World War II. The post-war building boom, which continued into the early 1960s, also resulted in heavy cutting of the area's forests. In more recent times a relatively stable pattern of extensive utilization has been established, with timber production more closely allied to long-term levels of supply.

The hinterland forests supply about 46,000 m³ of sawlogs annually (representing approximately 4% of the State output) to 19 sawmills. While not a large producer when compared with adjoining parts of Gippsland (in the Melbourne, Alpine, and East Gippsland study areas), this study area is an important source of logs and pulpwood during the winter months, when logging in the more productive but wetter mountain forests ceases. The availability of lower-altitude forests is very important in providing an extended logging season, thus ensuring continuity of supply and employment.

Employment in the sawmilling industry makes an important contribution to the economic prosperity and social fabric of a number of towns in the study area, such as Heyfield and Nowa Nowa. In 1979/80, sawmills operating within the area directly employed 562 persons in log procurement and sawn-timber production. As many of these sawmills draw most of their supplies from outside the study area, however, the number of people reliant for their employment on timber drawn from within the area would be much less. Furthermore, the current downturn in the sawn-timber market has resulted in retrenchments and a net reduction in employment within the industry.

The forests in the study area form part of the zone from which Australian Paper Manufacturers Ltd draws supplies of hardwood pulpwood for its Maryvale paper mill. The supply of this pulpwood is effected under the terms of the *Forests (Wood Pulp Agreements) Act*, 1974, which guarantees minimum annual supplies ranging from 525,000 m³ in 1981/82 to 765,000 m³ in 2004. While the Gippsland Lakes hinterland is not currently a major supply area for the mill (actual volume during 1980/81 was about 34,000 m³), it will become more significant in future years.

Council considers that production of hardwood sawlogs should continue to be the primary goal in harvesting operations and that pulpwood should be obtained only as a by-product from sawlog operations, except for pulpwood cut in the course of salvage operations or silvicultural treatments, such as thinning. This means that, in most cases, pulpwood would be obtained from the same site as sawlogs.

Although the licensed allocation of sleepers is 34,000, actual production in the 5 years 1975/76 to 1979/80 averaged only about 23,000 pieces. Fourteen part-time cutters operate in the area, mainly in foothill and coastal forests.

Other timber products drawn from the study area include: piles and transmission poles, of which in recent years about 29,000 lineal metres have been supplied annually; fence posts, which continue to find a ready market, with production averaging around 53,000 pieces annually; and firewood, production of which has remained steady over the last few years at 1,700 m³ per annum.

The Council realizes that the recommended hardwood production areas contain a mosaic of forests of varying productivity, including some parts that are unsuitable for timber production. These are nevertheless included for ease of management. Areas of significance for other values, such as water production, landscape, conservation, recreation, and apiculture may also be included in recommended hardwood production areas. Council has referred to some of the particular non-timber values that should be protected when management plans are being prepared.

Recommendations

F1-F8 That the areas listed below and shown on the map be used:

- (a) primarily to produce hardwood timber in a manner having due regard for landscape values as seen from the main roads outside the forest

that

- (b) major secondary uses be to:

- (i) provide opportunities for open-space recreation and education
- (ii) conserve native plants and animals, and provide opportunities for the development of wildlife conservation techniques
- (iii) produce honey, forage, gravel, sand, and other forest products as defined in the *Forests Act* 1958

- (c) water production values be recognized and protected

- (d) the special values located in portions of some of the hardwood areas listed below be protected (the values should be protected by the creation of reserves under section 50 of the *Forests Act* 1958 or by management prescriptions; where faunal values are of importance the Fisheries and Wildlife Division should be consulted).

and that the areas remain or become reserved forest under the provisions of the *Forests Act* 1958 and be managed by the Forests Commission.

Note:

When water supply catchments are included in hardwood production areas, management should conform to the policies outlined in the *Water Production* chapter.

F1 Barkly–Goulburn (3700 ha)

In accordance with (d) above, the environs of McEvoy's Track and any sites associated with its use by miners last century should be protected by management prescription.

F2 Heyfield (650 ha).

F3 Briagolong (120 ha).

F4 Nicholson–Mt Alfred (94,000 ha).

In accordance with (d) above, the following area should become a section 50 reserve, under the *Forests Act* 1958:

- (i) the former mining settlement of Stirling
and the following should be protected by management prescription:
- (ii) *Eriostemon verrucosus* at Mt Dow
- (iii) *Boronia pilosa* at Argus Gap

F5 Nunniong–Timbarra–Tambo (31,000 ha).

F6 Black Satin Creek (3,700 ha).

In accordance with (d) above,

the environs of the Basin Creek waterfalls should be protected by management prescription.

F7 Colquhoun (20,000 ha)

In accordance with (d) above, Nargun cave, which contains the largest Victorian maternity colonies of common bent-wing bat and eastern horseshoe bat, should be protected by management prescription

and management of these forests north of Lakes Entrance should be aimed at protecting and enhancing the high recreational values of the area.

Notes:

1. Council is aware of the importance to apiarists of round-leaf box (*Eucalyptus bauerana*) and believes that this species should be preserved for honey production wherever possible.
2. The Forests Commission should consult with the local Aboriginal community when preparing management plans for the area.

F8 New Place (3,800 ha).

G. SOFTWOOD PRODUCTION

With the exception of a number of trial plots and small school plantations totalling 70 ha, no softwood plantations have been established on public land in the study area. There are, however, plantations of approximately 6,750 ha on private land, most of which have been planted by Australian Paper Manufacturers Ltd in the Stockdale-Glenaladale area.

All the softwood plantations on public land in the Latrobe Softwood Plantation Development Zone (Central Gippsland) are currently located in parts of Council's Melbourne area and South Gippsland area districts 1 and 2. Final recommendations for the first two of these areas were published in January 1977 and October 1973 respectively and provision for softwood production in both these areas was made. Council has recently published its final recommendations for South Gippsland area, district 2, and the Hill End special investigation (part of the Melbourne study area).

Existing Plantations

Forests Commission, Victoria

A net total of 12,670 ha of softwoods (including 1981 plantings) has already been established by the Forests Commission in the Latrobe Softwood Plantation Development Zone, but as indicated above no commercial plantations have been established in this study area.

Australian Paper Manufacturers Ltd

A.P.M. Forests Pty Ltd, a subsidiary company of Australian Paper Manufacturers Ltd, has a softwood plantation resource in Gippsland totalling in excess of 40,000 ha net. Of this total, 2,975 ha net is established on leased Crown land. A further estimated 1,500 ha net suitable for softwoods remains to be planted on land where leases are still to be finalized.

Land Requirements

Forests Commission, Victoria

The Forests Commission, at the direction of the previous Government, has increased its planting rate for the Latrobe Softwood Plantation Development Zone from 600 to 1,300 ha net per annum. This direction to the Forests Commission results from the need to supply wood in the future for expansion of pulpwood processing facilities at Maryvale. To meet this target for the zone, the Commission considers a further 27,300 ha net will be needed. This would result in a total net area of approximately 40,000 ha of Forests Commission plantations for the zone.

Taking into account the area of public land already allocated for softwood production in the Melbourne study area to 1983, but not yet planted (845 ha net), a further net 26,485 ha of land suitable for plantation establishment would be required to permit the zone target to be achieved.

Australian Paper Manufacturers Ltd

It is the company's long-term object to have a net total of 40,000 ha of established softwood plantation at any one time, with additional areas in the process of re-establishment following clear-felling. However, the company has extensive plantation holdings on land that could be required for coalfield developments over the next 50 years. Some of these fields have been reserved for future power generation projects of the State Electricity Commission, Victoria. Others could be used for non-S.E.C. projects, such as the production of oil from coal. Should

these fields be brought into production, the plantation resource on the affected land will have to be harvested. Premature harvesting of existing plantations will disrupt supply schedules to processing plants, and the net softwood plantation estate will be reduced with regard to future crops.

In January 1981, the then Government indicated that, where A.P.M. forested land is required for coal extraction, power station, and other purposes, suitable other land will be made available to the company.

The Council notes that A.P.M. Forests Pty Ltd on present indications, could lose as much as 12,000 to 13,000 ha of plantation lands, net, to coal-fields and associated developments over the next 50 years. Of this area, 1,200 to 1,300 ha is leased land or land that has been recommended to be leased. Land required for the proposed S.E.C. Driffield project is reasonably well defined. The established plantations that will be required to be harvested as this project and associated works proceed will probably not exceed 1,100 ha net over the next 10-15 years.

Currently, there are no firm proposals for the development of coal-field resources associated with private projects. Should proposals be approved in the near future, however, it is unlikely that they would involve the loss of more than 900 ha of plantation owned or leased by A.P.M. Forests Pty Ltd. Thus it is possible over the next 10 to 15 years that about 2,000 ha net could be required to replace land carrying plantations established by A.P.M. Forests Pty Ltd.

Land for Softwood Production

The land requirements discussed below apply not just to the Gippsland Lakes hinterland area, but to the Latrobe Softwood Development Zone as a whole. This zone stretches from west to south Gippsland encompassing the Land Conservation Council study areas referred to above.

At the planned planting rate of 1,300 ha net per year, some 13,000 ha net would be required for planting by the Forests Commission over the 10-year period 1983-92 inclusive.

Coupled with the possible loss of up to about 2,000 ha net of A.P.M. plantation due to coal-associated development, there could be a maximum requirement of 15,000 ha net for softwood production within the Latrobe Softwood Development Zone over the 10-year period.

The government has expressed concern about the extent to which native forest is being cleared in order to establish pine plantations and has indicated its intention to review the State's softwood establishment program.

As an alternative to using forested public land, the government will also investigate strategies whereby softwood supply commitments may be met by plantations on freehold land by private companies, private farm forestry, and the purchase or lease of suitable private land by the State for plantation establishment.

Until these investigations have been completed, the extent to which land either private or public within this study area would be required for softwood plantation is uncertain.

Information obtained by the Council, however, indicates that sufficient areas of suitable private land are likely to be available for purchase in the future to provide for a substantial portion of the current planting program to be met from within the study area should this be necessary.

In order to meet supply commitments and until alternative strategies can be implemented, the government may in the short term decide that it is necessary to use some areas of public land in the Latrobe Softwood Development Zone for the establishment of softwoods.

Should the government so determine, and in the event that such land is to be provided from the Gippsland Lakes hinterland area, Council has delineated an area of public land in the vicinity of existing A.P.M. softwood plantations that would be suitable for softwood production and could be used for this purpose.

Plantation Planting Guidelines

The Council believes that the impact of large softwood plantations on the natural environment can be reduced by retaining selected areas of native vegetation, and by adhering to catchment prescriptions prepared by the relevant management authorities after consultation with the Soil Conservation Authority, where applicable. The guidelines set out below apply to the establishment of plantations on public land in this study area.

No continuous plantation unit should exceed 1400 ha without obvious break-up areas retained as native forest. Samples (100-200 ha) of all vegetation types in the area should be retained. Where possible, several types should be combined in one unit. The unit may be sited to improve the appearance of the plantation, or to combine with land unsuitable for planting to form a range of habitats for wildlife. Units may also include stands of native hardwood managed for timber production. While logging and fuel-reduction burning need not be prohibited in areas where native vegetation is retained, it is important to protect their functions in relation to soil conservation, water quality, and nature conservation. Any utilization, including that carried out prior to clearing, should be carefully controlled, and slash, snig tracks, and landings cleaned up. No retained areas should be fuel-reduced in entirety in any one year.

Native vegetation should be retained for at least 80 m from each bank along major streams and 40 m from each bank along minor streams. In order to maintain soil stability and water quality it may be necessary to retain a strip of native vegetation of at least 20 m from the centreline along some other watercourses. This is in line with other Council recommendations that all wetlands on public land should be conserved. These strips of native vegetation should be kept free of exotic vegetation, and bulldozed material and windrows should be swept back to protect them from hot burns. The importance of ground cover and surface soil conditions in reducing the amount of sediment reaching streams should be recognized.

Landscape values of areas visible from main roads and major vantage points should be maintained or enhanced, with preference given to landscapes carrying native forests. The aim should be to avoid as far as practicable views of continuous swaths of cleared country, during both the establishment phase and the final felling of the mature crop.

This may be achieved by:

- * retaining uncleared foreground reserves
- * breaking up areas to be cleared with strategically located strips or blocks of vegetation
- * retaining native forests as a backdrop on higher slopes and ridges.

On minor through-roads, an interesting environment should be maintained by amenity plantings (preferably of native and local species). Where plantations are to be established adjacent to private property, consideration should be given to reasonable requests by the landholders for the retention of native vegetation along boundaries.

Clearing prior to planting makes the soil more liable to erosion until a new vegetation cover forms. Special care must be taken to ensure that soil erosion does not begin or increase during this period, and that water catchment values are not impaired. Clearing is to be confined to areas with a ground slope generally less than 20 degrees. Other factors that influence the extent of erosion hazard — such as aspect, soil type and parent material, length of slope, and the amount of rainfall — should also be considered prior to clearing operations.

Roading is a major cause of concentration of water flows and a major source of sediment. In some plantations special criteria in respect of road location, design, and maintenance may be necessary.

Prior to the commencement of clearing operations, the Forests Commission should consult with the Soil Conservation Authority in relation to matters affecting soil stability and water quality, and with the Fisheries and Wildlife Division on matters concerning wildlife conservation.

Recommendation

G1 That, should the government decide that forested public land is to be used for softwood establishment, this could be allocated from the 2,050 ha shown on the map (by a tree pattern) and used in accordance with the guidelines in these recommendations

and that

until and unless such land is required for softwood establishment it remain or become uncommitted land — with the exception of that land referred to in the following note, which should retain its present tenure and management.

Note:

Part of this area, totalling 280 ha (being allotments 9B, 14 and 17A in the Parish of Narrang), is being considered for future exchange for land currently held by A.P.M. Forests Pty Ltd at Mt Donna Buang.

H. FLORA RESERVES AND FLORA AND FAUNA RESERVES

In addition to the floristic and wildlife values of the parks that have been recommended in the Gippsland Lakes hinterland area, there are a number of areas that contain native vegetation with considerable floristic importance. Other areas are of importance not only for their floral values but also because of the significance of wildlife populations and habitat.

Council has recognized the special conservation significance of these areas and has accordingly recommended their reservation as flora reserves and flora and fauna reserves. They are set aside primarily to conserve species that may be rare or endangered, and also other plant associations and animals that have particular conservation significance. Timber production from these areas would not be permitted.

In all such reserves, suppression of fires remains the responsibility of the Forests Commission. Appropriate fire-prevention measures such as maintenance of fire access tracks and protective burning will be carried out where necessary.

Vermin and noxious weeds within flora, and flora and fauna reserves will be controlled and will remain the responsibility of the Department of Crown Lands and Survey.

FLORA RESERVES

These reserves are significant because they contain examples of native vegetation with considerable floristic value in a natural or relatively natural state. They are set aside primarily to conserve species that may be rare or endangered, and other plant associations that are of particular conservation significance.

Recommendations

H1-H8 That the areas indicated on the map and described below be used to:

- (a) conserve particular species or associations of native plants that
- (b) honey production be permitted
- (c) passive recreation such as nature study and picnicking be permitted
- (d) grazing not be permitted

and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act* 1978 and managed as indicated below.

H1 Heyfield (25 ha)

Interesting low open forests here, dominated by but but, red ironbark, and red box, have a very diverse understorey that provides some of the study area's best wildflower displays. Significant species include *Eriostemon verrucosus*, *Dillwynia sericea*, and *Grevillea chrysophaea*.

To be managed by the Forests Commission.

H2 Glenmaggie (138 ha)

This reserve contains the study area's best preserved examples of the red box-red ironbark forest type.

To be managed by the National Parks Service.

H3 Mt Moornapa (65 ha)

The small but significant example of the warm-temperate rainforest community is here at its westernmost limit in East Gippsland.

To be managed by the Forests Commission.

H4 Fairy Dell (90 ha)

This area incorporates the existing Fairy Dell Scenic Reserve and protects a significant stand of warm-temperate rainforest, which includes Victoria's westernmost occurrence of prickly tree-fern (*Cyathea leichhardtiana*) — the only tree fern which is strictly limited to rainforest.

To be managed by the Forests Commission.

H5 The Glen (10 ha)

A well-developed example of the warm-temperate rainforest community here contains the rare vine, *Marsdenia flavescent*.

To be managed by the Department of Crown Lands and Survey.

H6 Plum Gully (250 ha)

This reserve contains a well-preserved example of warm-temperate rainforest.

To be managed by the Forests Commission.

H7 Murrindal (200 ha)

This reserve contains a well-preserved example of warm-temperate rainforest.

To be managed by the Forests Commission.

H8 Kanni (45 ha)

A good example of the distinctive silver-leaf stringybark woodlands, a community of restricted distribution in Gippsland, occurs here. Colourful flowering shrub species such as crimson bottlebrush and silver banksia add to the reserve's appeal.

To be managed by the Department of Crown Lands and Survey.

FLORA AND FAUNA RESERVES

These reserves are significant because they provide habitat for populations of native fauna and contain examples of native vegetation with considerable floristic value in a natural or relatively natural state.

H9-H12 That the areas indicated on the map and described below be used to:

(a) conserve native plants and animals

that

(b) honey production be permitted

(c) passive recreation such as nature study and picnicking be permitted

(d) grazing be phased out within 3 years of the adoption of these recommendations

and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act* 1978 and managed as indicated below:

H9 Providence Ponds (1650 ha)

The reserve's essentially east-west trending Quaternary sand dunes support good representations of open forest and woodlands of white stringybark, shining peppermint, and yertchuk over a colorful, heathy understorey.

Other vegetation communities include small stands of forest red gum and inter-dune swamps dominated by pithy sword-sedge.

Approximately 100 native plant species are represented in the reserve, including the State's only record of *Eragrostis trachycarpa*, one of only two known Victorian occurrences of *Isopogon anemonifolium* var. *tenuifolia*, and one of only two Gippsland records of *Zieria veronicea*, a species otherwise confined to the Mallee.

More than 100 species of mammals, birds, and reptiles have been recorded in the area, ranging from the koala to the lace monitor. The reserve contains dense populations of black wallaby and the only known inland occurrence of the rare New Holland mouse.

To be managed by the National Parks Service.

Notes:

1. The existing gravel pit, operated by the Shire of Bairnsdale, should not be extended outside its present boundaries, and all extraction should cease and reclamation be commenced by no later than 1985.
2. Council is aware that the State Electricity Commission is investigating possible routes between Sale and Bairnsdale for the construction of 220 kV and 66 kV transmission lines. Council believes that these transmission lines should not pass through the reserve.

H10 Moormurng (950 ha)

This reserve contains remnants of vegetation communities that once used to cover most of the Gippsland plain but have now been largely cleared for agriculture. The study area's largest remaining stand of forest red gum occurs on the heavy soils in the flatter sections of the reserve. By contrast, the sandy soils support open forests and woodlands of white stringybark, shining peppermint, and saw banksia with a heathy understorey. There are also smaller areas of fresh-water swamp communities.

The structural and floristic diversity of the vegetation provides a variety of habitat types, which in turn support a diverse native fauna population. More than 90 bird species alone have been recorded.

To be managed by the National Parks Service.

Notes:

1. Council considers that existing low levels of recreational use, such as picnicking, orienteering, and horse-riding, could continue.
2. Defined tracks within the reserve may be used from time to time for the movement of livestock between adjoining freehold properties.

H11 The Billabong (20 ha)

A large permanent waterhole here, which provides good wetland habitat for water-birds, is surrounded by a white stringybark open forest-woodland.

To be managed by the National Parks Service.

Note:

Water can continue to be drawn from the waterhole in this reserve for use at the adjacent roadhouse.

H12 Saplings Morass (14 ha)

This contains portion of a large open swamp thick with sedges and rushes, and fringed by a stand of forest red gum.

To be managed by the Department of Crown Lands and Survey.

I. BUSHLAND RESERVES

Throughout the predominantly agricultural regions of the study area, a number of blocks of public land carry remnants of native vegetation. The vegetation, particularly the ground flora, has often been modified from the original by grazing and invasion of weeds. The native tree species still remain, however, and these areas provide landscape diversity, particularly where more intensive agriculture is resulting in a gradual reduction in the numbers of trees on freehold land.

The Council recommends that many of these small remnants of the native vegetation should become bushland reserves. Their major uses are to maintain the character of the countryside and to provide diversity in the landscape. They may also provide some opportunities for passive recreation in relatively natural surroundings, but it is not intended that they be developed for recreation. In some instances the only access is via an unused road covered by an unused-road licence, which should continue subject to the approval of the Department of Crown Lands and Survey. These bushland reserves are generally too small to be of major significance for fauna conservation, although some may be important for migratory birds.

Management should aim at the maintenance of the native flora, particularly the tree species. Low-intensity grazing, limited gravel extraction, and the cutting of small amounts of firewood and an occasional post and pole are not necessarily incompatible with this primary aim, provided they are carefully planned and controlled and do not spoil the appearance of the reserves, particularly as viewed from roads, railway lines, and lookout points. These uses may not be appropriate to all reserves. In some instances, the management authority may have to exclude them, at least temporarily, in order to permit regeneration of tree species.

In all bushland reserves the suppression of fires remains the responsibility of the Forests Commission. Appropriate fire-prevention measures will be carried out where necessary.

Vermin and noxious weeds within bushland reserves will be controlled by and will remain the responsibility of the Department of Crown Lands and Survey.

Recommendations

I1-I28 That the areas indicated on the map and described below be used to:

- (a) maintain the character and quality of the local landscape that
 - (b) passive recreation such as picnicking and walking be permitted
 - (c) honey production be permitted
 - (d) grazing be permitted subject to the approval of the management authority
- and that they be permanently reserved under section 4 of the *Crown Lands (Reserves) Act 1978* and be managed by the Department of Crown Lands and Survey.

I1 3.6 ha south of allotment 109 A, Parish of Glenmaggie.

I2 1.6 ha south of allotment 90 A, Parish of Glenmaggie.

I3 5.2 ha north of allotment 25, Township of Seaton.

I4 3.0 ha west of allotment 38 D, Parish of Glenmaggie.

I5 14 ha south of allotment 18 of section C, Parish of Buchan.

I6 6.0 ha north of allotment 33 B of section C, Parish of Coongulla.

- I7** 3.6 ha south of allotment 3 of section C, Parish of Coongulla.
- I8** 9.6 ha north of allotment 68, Parish of Briagolong.
- I9** 4 ha, being allotment 12A of section A, Parish of Woolenook, and allotment 126A, Parish of Briagolong.
- I10** 16 ha west of allotment 12 of section A, Parish of Woolenook.
- I11** 23 ha east of allotment 16A of section D, Parish of Bow-Worrung.
- I12** 16 ha, being allotment 4 A2, Parish of Stratford.

Note:

Portion of this reserve contains a gravel resource, the use of which could be considered in the future.

- I13** 2.0 ha north of allotment 9A, Parish of Stratford.
- I14** 9.2 ha north of allotment 31C, Parish of Yeerung.
- I15** 128 ha, being allotment 12A, Parish of Meerlieu.
- I16** 4.0 ha south of allotment 6 of section 57, Parish of Meerlieu.
- I17** 208 ha west of allotment 8 of section 6, Parish of Wy Yung.
- I18** 6.8 ha east of allotment 65N, Parish of Wy Yung.
- I19** 21 ha, being allotment 27C, Parish of Wy Yung.
- I20** 2.0 ha, being allotment 243A, Parish of Bairnsdale.
- I21** 3.2 ha south of allotment 3, Parish of Tambo.

Note:

Portion of this reserve contains a gravel resource, the use of which could be considered in the future.

- I22** 2.0 ha east of allotment 14 of section B, Parish of Tambo.
- I23** 7.6 ha north of allotment 1E of section C, Parish of Tambo.
- I24** 14 ha north of allotment 55, Parish of Tambo.
- I25** 1.6 ha, being allotment 89C, Parish of Bumberrah.
- I26** 3.4 ha south of allotment 8 of section L, Township of Metung.
- I27** 4.0 ha south of allotment 22, Township of Nungurner.
- I28** 12 ha east of allotment 6 of section 36, Parish of Budgee Budgee.

J. THE COAST AND GIPPSLAND LAKES FORESHORE

The coastline of the State is a resource of great value for recreation, for nature conservation, and for the preservation of features of historical interest.

In formulating recommendations for public land along the coast, Council is aware that coasts represent a dynamic zone of interaction between land and sea, encompassing fragile environments. The various management authorities of coastal land should take steps to ensure that management is co-ordinated.

All works to be implemented by committees of management or government agencies on the coastal reserve should be conducted in accordance with plans approved by the Coastal Management and Co-ordination Committee.

COASTAL RESERVE

A coastal reserve is an area of public land on the coast set aside primarily for public recreation, education, and inspiration in coastal environments.

The coastline included in these recommendations stretches from Lakes Entrance eastwards to Lake Tyers. It contains a number of popular and well-developed recreational areas, including surf beaches at Lakes Entrance, Lake Bunga, Shelly Beach, and Lake Tyers. More protected conditions for swimming and boating are available in the Cunninghame Arm and at Lake Bunga. At the latter site the Department of Crown Lands and Survey has developed picnic facilities and a self-guided nature trail. The Lakes Entrance golf course occupies portion of the reserve.

In contrast to the heavy recreational use of the coastal reserve between Lakes Entrance and Lake Bunga, the reserve east of Lake Bunga is substantially untouched, with recreational use being localized to Shelly Beach and Lake Tyers. This eastern section of the reserve contains important natural features, including a wide variety of vegetation types such as open forests, woodlands, heaths, rainforest, and fore-dune and swamp communities. The range of habitats represented supports a diverse faunal population, including significant numbers of potoroos.

The sand and mud islands near the sand barrier which separates Lake Tyers from the ocean, are important for water-birds, especially the seasonal population of migratory waders. The sand barrier itself supports a nesting colony of little tern.

Features of geomorphological interest within the reserve include the segmented coastal lagoon at the eastern end of the Cunninghame Arm (which was once the original channel that joined the Gippsland Lakes to the former natural entrance), the active marine cliff at Red Bluff, and the bluff at Lake Bunga.

Recommendation

J1 That the area described below and shown on the map:

- (a) be used to
 - (i) provide opportunities for informal recreation for large numbers of people, and also for recreation related to enjoying and understanding nature
 - (ii) protect and conserve natural landscapes and ecosystems (and geomorphological, archaeological, and historical features), special emphasis being placed on the areas noted in (b) below, for public enjoyment and inspiration and for education and scientific study
 - (iii) ensure the conservation of both aquatic and terrestrial fauna and flora

- (iv) provide facilities for fishing and boating (including harbor facilities) together with the necessary navigation aids

that

- (b) the area be zoned in order to provide for the range of uses outlined above, and in particular:
 - i. the area between Lake Bunga and Lake Tyers township should be zoned for conservation purposes
 - ii. power-boating and shooting should not be permitted on Lake Bunga
 - iii. nesting colonies of little tern on the Lake Tyers sand barrier and on the ocean beach east of the entrance should be protected.
- (c) the area be managed according to the policies developed by the Coastal Management and Co-ordination Committee
- (d) in its policies for the coastal reserve, the Committee recognize the following principles:
 - (i) new roads should not be sited along the coast, but rather should be located far enough back in the hinterland to avoid damaging sensitive environments or impairing the scenic qualities of the coastal landscape
 - (ii) any major coastal development projects should be subject to a detailed environmental study prior to commencement by the body proposing such developments (examples of such projects would include proposals for jetties, marinas, mining, sea walls, etc.)
 - (iii) existing legal occupation by private individuals or organizations of the coastal reserve could be continued until and unless they conflict with public use of the area; the only new such occupations that should be considered are for water-orientated uses such as yacht clubs and surf clubs
 - (iv) when camp sites and car parks are to be established on the coastal reserve, the management authority should avoid locating these on sensitive areas or areas of importance for nature conservation or of archaeological significance
 - (v) any structure obstructing legitimate public use should be removed

and that the area be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* as coastal reserve, the seaward boundary being low-water mark, and be managed by the Department of Crown Lands and Survey.

Notes:

1. Council is aware that the Lakes Entrance Sewerage Authority is actively investigating several options for the future disposal of treated sewage effluent. Currently effluent is disposed of by spray irrigation onto the Lakes Entrance golf course and the adjoining sand dune which separates the golf course from the 90-Mile Beach. Council is opposed to the option that involves spraying of effluent onto the Coastal Reserve between the golf course and Lake Bunga.
2. The policy of the government is to terminate all residential permissive occupancies by 1990. It has been suggested in submissions, however, that cottages in the New Works area — east of the entrance to the Gippsland Lakes — are of historic significance. These claims should be investigated.
3. The management authority should consult with the local Aboriginal community when preparing management plans for the area.

FORESHORE RESERVE

The bulk of the Gippsland Lakes foreshore reserve is included within the Gippsland Lakes reserve (see Recommendation A5).

Not included in that area are stretches of foreshore reserve at Lakes Entrance, Metung, Paynesville, Eagle Point, and the township of Raymond Island, which are the subject of this recommendation. Being adjacent to major centres of population, these stretches receive very heavy use. One of their most important functions is to provide public access to the lakes' shore, and they contain many sites where recreational facilities such as picnic areas, boat-launching ramps, toilet blocks, and car parks are provided.

Public boat marinas and port facilities have been established at Paynesville, Metung, and Lakes Entrance, using the foreshore reserve. Jetties, both private and public, and boat moorings have also been constructed.

Council recognizes the increased demand for boat storage facilities around the lakes. It believes that if public land is to be used for marinas then it should be on those stretches of foreshore reserve adjacent to existing urban infrastructures.

Recommendation

J2 That the area defined below and shown on the map:

(a) be used to

- (i) provide opportunities for informal recreation for large numbers of people
- (ii) provide facilities for fishing and boating (including harbor facilities) together with the necessary navigation aids
- (iii) protect and conserve natural landscapes and ecosystems to the extent that this is consistent with (i) and (ii) above, special emphasis being placed on the protection of a nesting colony of little tern on the beach facing the Cunninghame Arm at the western end of Lakes Entrance township.

and that the management authority

- (b) manage the area according to the policies developed by the Coastal Management and Co-ordination Committee
- (c) in its policies for the foreshore reserve, recognize the following principles:
 - (i) any major foreshore development projects should be subject to a detailed environmental study prior to commencement by the body proposing such developments (examples of such projects would include proposals for jetties, marinas, retaining walls, etc.)
 - (ii) existing legal occupation of the foreshore reserve by private individuals or organizations could be continued until and unless they conflict with public use of the area; the only new such occupations that should be considered are for water-orientated uses such as yacht clubs
 - (iii) any structure obstructing legitimate public use should be removed

and that the area be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* as foreshore reserve, the lakeside boundary being low-water mark, and be managed by the Department of Crown Lands and Survey.

K. RIVERS AND STREAMS

PUBLIC LAND WATER FRONTAGES

Along a number of rivers and streams in the study area, a strip of public land has been reserved between the water and adjacent public land or alienated land. No public land strip adjoins land alienated before 1881, and some properties in the study area have titles that extend to the banks or even incorporate the bed and banks of a stream. Thus some streams and rivers have either no public land water frontage or a discontinuous one. The recommendations that follow do not apply to privately owned frontage.

The locations of public land water frontages are shown on parish plans, which are available to the public from the Central Plan Office in the Department of Crown Lands and Survey. These frontages may have a surveyed boundary of short irregular lines or be of specified width (varying in particular instances from 20 m to 60 m) along each bank. In some cases this land has been reserved for public purposes under the *Land Act* 1958 and in others it is unreserved. The land usually comes under the control of the Department of Crown Lands and Survey, while in all cases the State Rivers and Water Supply Commission controls the water.

Each of these authorities may delegate some of its responsibility to local bodies. The Department of Crown Lands and Survey may form committees of management for public purposes, while river improvement or drainage trusts under the guidance of the State Rivers and Water Supply Commission may be formed in certain areas. The Forests Commission controls forest produce on public land water frontages, except where a committee of management has been formed. Public land frontages alongside artificial water storages and aqueducts are often controlled by the water supply authority that controls the water.

Adjoining occupiers often hold public land water frontages under licence for grazing purposes. Special conditions may apply to the licences — for example, to permit cultivation. The licence system has advantages in that licence-holders are required to control noxious weeds and vermin on the frontage. This control would be extremely difficult and expensive to achieve in any other way. When a frontage is held under licence, boundary fences are normally extended to the water's edge, and legal public use is limited to through travel. The licensee often discourages public access because of an understandable fear of damage, intentional or otherwise, to his property. Vandalism and littering are problems in many areas open to the public, and firm action by management authorities is often required. Control is obtained through the normal exercise of fire, litter, firearms, and other regulations, although it is evident that more effective policing is required, particularly at weekends. Education of the public to understand the rural environment is perhaps the best solution in the long run.

These licensed river frontages are, however, public land; they are often valuable for low-intensity forms of recreation such as walking, fishing, and observing nature, and provide access to extensive lengths of streams and lake shores. As mentioned above, members of the public are legally entitled to walk through a licensed frontage. Licences for previously unlicensed public water frontages, now being issued by the Department of Crown Lands and Survey, require the licensee to erect a stile or gate in any fence erected across the frontage, where appropriate to facilitate public access.

This condition has not been applied to the majority of existing licences and Council believes that in some situations, for example along popular fishing streams, the provision of stiles would facilitate pedestrian access along public land water frontages and would reduce damage to fences and avoid gates being left open.

Public land frontages that are unlicensed have no restriction on public access, although use of vehicles is controlled by the *Land Conservation (Vehicle Control) Act* 1973. They are, however, normally fenced off from adjacent freehold land. The landholder has no obligation to provide access through freehold land to the frontage, and nothing in these recommendations suggests that this situation should change.

The maintenance of a vegetation cover along stream banks is important in preventing soil erosion and in preserving the local landscape. Public land water frontages are sometimes valuable for nature conservation as well, as they may provide corridors for movement of nomadic and migratory species, or support native plants and animals that are no longer found in surrounding areas. In too many cases, however, the provisions of the relevant *Acts* have not been enforced effectively, and such public land water frontages have been progressively cleared of native vegetation.

Public land water frontage reserves

Water frontage reserves are defined for the purpose of these recommendations as being all existing water frontages and other reserves or unreserved public land adjoining streams except for those areas, not currently reserved as a water frontage, that have been set aside elsewhere in these recommendations whether as part of a large reserve (such as a State park or reserved forest) or for some special purpose (such as a flora, recreation or streamside reserve).

Recommendation

K1 That the public land water frontages:

- (a) be used to
 - (i) protect adjoining land from erosion by the maintenance of adequate vegetation cover
 - (ii) maintain the character and quality of the local landscape
 - (iii) conserve native flora and fauna
 - (iv) provide opportunities for low-intensity recreation
 - (v) allow access to water and for grazing of stock by adjoining landholders under licence where appropriate

that

- (b)
 - (i) where a licence has been issued for a public land water frontage as in (a) (v) above, restricted recreation use by the public be permitted (non-damaging activities such as walking, nature observation, fishing, or just relaxing should be allowed, while potentially damaging activities such as camping, lighting fires, or using motor or motorized recreation vehicles should be prohibited)
 - (ii) licensees be required to provide stiles in any fences erected across their licence area if requested to do so by the management authority
 - (iii) cultivation not be permitted, except with the approval of the Department of Crown Lands and Survey, and that, in proclaimed water supply catchments, the Soil Conservation Authority be consulted to ensure that approval to cultivate is in accordance with land-use determinations affecting the water frontage made under the *Soil Conservation and Land Utilization Act 1958*
 - (iv) in particular cases, licensees be required to fence off and exclude stock temporarily from some parts of the licence area where, in the opinion of the management authority, special measures are necessary to protect water supplies, to rehabilitate eroding areas, or to permit regeneration of native plants that have particular value for nature conservation

that

- (c) the Department of Crown Lands and Survey be consulted prior to the proclamation of roads, the construction of roadways, or the creation of buildings on public land water frontages

and that

- (d) (i) public land water frontages be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978*
- (ii) where an area currently reserved as a water frontage is adjacent to or within a national, State park, regional park or other reserve, it be managed by the authority responsible for the adjoining or surrounding land
- (iii) where it is not within or adjacent to a reserve or park as described in (d) (ii) above, it be managed by the Department of Crown Lands and Survey or by a committee of management where one is appointed.

Note:

Public land water frontage reserves cannot be accurately defined at the scale used on Map A (1:250 000). However, some of the larger reserves have been shown on the map. The appropriate Parish plan should be referred to in order to determine the precise boundaries of these reserves.

STREAMSIDE RESERVES

In many instances, small blocks of public land adjoin streams but are not included in the public land water frontage.

These blocks have, where appropriate, been designated streamside reserves. Some are currently reserved under section 4 of the *Crown Land (Reserves) Act 1978*; others are unreserved Crown land, although they may be licensed for grazing. Vegetation on these areas varies from open woodland to grassland. Every effort should be made to conserve native trees on these reserves, where they exist, and to encourage regeneration or restoration where the vegetation has been depleted or destroyed.

Blocks of public land such as this have values for nature conservation and recreation. They allow public access to the river or stream, especially where access along the public land water frontage is difficult. The management authority may provide facilities for activities such as camping on streamside reserves in areas where conflict with nature conservation values are minimal.

It is intended that public land water frontages adjacent to or within a streamside reserve be managed by the authority responsible for that reserve.

Streamside reserves are separate and distinct from the public land water frontages described earlier in these recommendations.

Recommendations

K2-K7 That the areas shown on the map and described below be used to:

- (a) provide passive recreation such as picnicking, walking and angling
- (b) provide opportunities for camping at the discretion of the management authority if this does not conflict with the maintenance of the water quality of the adjacent stream
- (c) conserve flora and fauna
- (d) maintain the quality and character of the local landscape
- (e) provide grazing, at the discretion of the management authority, if this use does not conflict with the maintenance of the water quality of the adjacent stream or with (a), (b) and (c) above.

and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and be managed by the Department of Crown Lands and Survey.

- K2** 3.2 ha north-west of 127H of section A, Parish of Tinamba.
- K3** 2.0 ha east of allotment 91C, Parish of Tinamba.
- K4** 8.0 ha south of allotment 97A, Parish of Briagolong.
- K5** 58 ha east of allotment 62C, Parish of Briagolong.
- K6** 1.6 ha west of allotment 28A of section XI, Parish of Stratford.
- K7** 2.4 ha south of allotment 12A¹ of section 5, Parish of Yeerung.

NATURAL FEATURES ZONE

Most of the study area's public land is contained within the relatively dry foothills to the Eastern Highlands. In general, this land lacks the outstanding natural values that characterize surrounding areas. The relatively uniform and unexceptional nature of much of this public land highlights the significance of the area's major river valleys, which contain many of its most important natural, scenic, and recreational features.

The major rivers and streams invariably constitute one of the most significant scenic elements in the landscape as well as providing a natural focus for recreation. For example, one of the area's most scenic drives follows the Freestone Creek along the Briagolong-Cobbannah Road. A number of picnic spots have been sited along the creek, the most notable of which are the Quarries reserve and Blue Pool. Picnic areas are located on many other streams, including the Avon River and Mississippi Creek, both of which also feature popular walking tracks.

Some of the larger streams, such as the Tambo and Thomson Rivers, are renowned for their white-water canoeing, while others, such as the Haunted Stream and Wentworth River, provide opportunities for fresh-water angling. Furthermore, some of the area's most important historical features are located around streams. For example, the old gold-mining settlements of Deptford and Stirling are on the Nicholson River and Haunted Stream respectively.

Deep incision of many of the streams has resulted in the exposure and/or creation of interesting geological features. The Channels on the Avon River is such a feature, as are the steep limestone cliffs along stretches of the Buchan and Murrindal Rivers.

The variety and nature of the flora and fauna in the riparian zone often give it a greater environmental significance than the surrounding relatively dry, uniform forests. The riverine environment exhibits the typical focusing effect of a vegetation strip that is well suited to wildlife passing through a drier environment of less-favoured plant species. Also, the zone where the drier foothill and wetter riverine forests overlap contains the greatest variety of plant species and, therefore, the greatest diversity of faunal habitat types.

Often the river valleys contain some of the more significant and attractive vegetation. Examples include the stands of kanooka that fringe sections of the Timbarra River and the colourful wildflower displays along the Freestone Creek valley. The outstanding nature of the conservation, scenic, and recreational values associated with the Snowy and Mitchell Rivers have been recognized in the recommendations for the Snowy River National Park and the Mitchell River State Park. While it is not practical to create parks along each of the study area's major streams, Council considers the importance of these streamside areas warrants the adoption of management practices that have as their major aim the protection of these areas' special natural features. Council also believes there is further scope for the sympathetic development of recreational and interpretative facilities that would increase people's enjoyment and understanding of the area's river systems.

Recommendation

K8 That, for those areas indicated on the map by a dot pattern, management be primarily aimed at:

- (a) protection of natural and scenic values
- (b) provision of recreational and interpretative facilities where this does not conflict with (a) above

that

- (c) timber harvesting and gravel extraction not be permitted
- (d) any new roading be constructed only where essential for the purposes of management, protection, and transport of timber and be designed to minimize effects on scenic and natural conservation values

and that management be the responsibility of the authority managing the adjacent public land.

Note:

The hatching on the map should not be taken as delineating exact boundaries to the natural features zones. It is intended that these zones should include both the visual corridor (comprising those parts of the valley that can be seen from the stream) and the environmental sequence from relatively dry foothill country, through the species-rich intermediate zone, to the riverine section. In many areas the visual corridor will include this sequence and as such will determine the width of the zone. In other places, however, not all of the environmental sequence will be visible from the stream and in these cases the natural features zone will extend beyond the visual corridor. While the extent of these zones will vary according to local circumstances, it is expected that in most cases it will not be not less than 100 m and not greater than 300 m from the bank on either side of the stream. These zones should be delineated on management plans where appropriate.

RIVER IMPROVEMENT

River Improvement Trusts are constituted under the *River Improvement Act* 1958 for sections of the Latrobe, Thomson, Macalister, Avon, Mitchell and Tambo Rivers.

Improvement works in rivers are designed to maintain the carrying capacity (for water supply or drainage purposes), to protect adjoining land from flooding and erosion, to maintain the security of structures such as bridges on the flood plain, and to prevent siltation of the lower reaches by control of upstream erosion.

The works carried out include:

- * erosion-preventing works on the banks — for example, planting of trees, the use of various materials for bank protection and the felling of trees that may be undermined (to prevent loss of bank material)
- * clearance of waterways, by removal of snags within the bed of the channel, to maintain or improve discharge capacity.

Such work is often made necessary by the changes that man has made to land use in the river catchments and on the flood plain. The following changes have generally reduced the value of the rivers for nature conservation:

- * Clearing of vegetation has increased run-off and reduced time of concentration of storm flows. The situation is sometimes aggravated by overgrazing and unwise cultivation in the catchment and along the river banks, accelerating soil erosion and transport of sediment to the stream. Increases in urban development — with disposal of storm water directly to streams — have also altered flow regimes.

- * Regulation of stream flow by water storages and use of streams to transport water for irrigation and domestic use also change the natural flow regime.
- * The construction of barriers such as road embankments and bridges, through which the river must pass, has often resulted in substantial modification of the bed and banks. Present legislation requires that all proposed replacement or new structures across waterways, flood plains, and depressions are referred to the State Rivers and Water Supply Commission and to the River Improvement Trust, where one is involved, for approval.

River improvement authorities, in attempting to cope with the consequences of these changes, carry out works that sometimes adversely affect landscape and nature conservation values, but sometimes ultimately enhance these values.

Removal of snags from the centres of wide streams damages fish habitat, but the tethering of these snags against the banks may provide alternative fish habitat, as well as protecting the banks from erosion. Realignment and regrading of eroding beds and banks often removes holes and back waters of value as fish habitat and for angling and swimming in a particular location. On the other hand, these operations, in preventing erosion, reduce transportation of silt.

River improvement works are sometimes aesthetically displeasing, particularly during construction and in the early stages after completion, but their ultimate aim is to prevent erosion and to allow re-establishment of vegetative cover along the stream banks.

River improvement trusts are required to act within the District as defined under the *River Improvement Act 1958*. Where such Districts encompass only the stream environs, or part only of the stream, they may be able to treat only the symptoms of problems, as the causes may lie in the catchments beyond the area of their responsibility. Works that they carry out are often limited by lack of funds. There is thus little opportunity in the design and implementation of works for consideration of their likely impact on areas outside the Trust's districts. However, the Standing Consultative Committee on River Improvement, an advisory committee formed by the State Rivers and Water Supply Commission, in examining a Trust's works program, has regard for the effects of such works on the upstream and downstream regime.

The flow regimes of some rivers must of course be modified and flood plains used for agriculture, but it is appropriate to look at the principles of the natural system in seeking solutions to the problems that thus arise rather than to move further from those principles. The Council believes that the following principles should apply in determining the need for and design of river improvement works.

- * Where problems in river management arise, the whole catchment should be considered in seeking a solution.
- * Where flood control in a catchment is necessary, planning strategies should include consideration of ways of reducing run-off from the catchment.
- * Total flood control is seldom practicable. In the case of minor flooding it may often be more appropriate to take action to minimize the consequences of flooding rather than attempt to prevent it.
- * An adequate vegetation cover should be maintained along stream frontages to stabilize the banks and to reduce the velocity of flood-waters as they leave and re-enter the stream course.
- * Structures such as road embankments and bridges on flood plains are a variation of the natural situation, and consideration should be given in their design to their effect on the flood pattern (see note 3).
- * Works carried out within the bed and banks of a stream to change the alignment, gradient, or cross-section should be kept to the minimum necessary.
- * Consideration should be given in the design of works to maintaining or enhancing landscape values and the value of the stream for recreation and as a habitat for wildlife.

Recommendation

- K9** That the assessment of the need for, and the planning and implementation of, any works involving changes to the beds and banks of streams be based on the principles set out above.

Notes:

1. The State Rivers and Water Supply Commission has formed a Standing Consultative Committee to advise the Commission on river works. This committee comprises representatives from the following:

State Rivers and Water Supply Commission
 Ministry for Conservation
 Conservation Council of Victoria
 Soil Conservation Authority
 Fisheries and Wildlife Division
 Forests Commission, Victoria
 Department of Crown Lands and Survey
 Association of Victorian River Improvement Trusts

The Committee is convened by a representative of the State Rivers and Water Supply Commission.

2. The State Rivers and Water Supply Commission, with the assistance of the Standing Consultative Committee, has prepared a document, 'Guidelines for River Management, 1979', that expands on the principles set out above. These guidelines require plans for all works (other than those of a minor nature), together with an assessment of their environmental consequences, to be submitted to all relevant agencies for consideration prior to the commencement of works. The aim of the guidelines is to ensure that an optimum balance is achieved between structural improvements on the one hand, and the maintenance or enhancement of the stream's landscape values and its value as a habitat for wildlife and for recreation on the other.
3. Information relating to the works that may be undertaken on flood plains is included in the report 'Flood Plain Management in Victoria', produced by the Victorian Water Resources Council.

L. ROADSIDE CONSERVATION AND HIGHWAY PARKS

ROADSIDE CONSERVATION

The primary purpose of road reserves is obviously to provide for communication, transport, and access. However, vegetation along the road verges can have particularly high conservation, recreation, and landscape values, especially in agricultural districts where most of the native vegetation has been cleared. Geological features exposed in roadside cuttings are a useful adjunct to more detailed work involved in mapping the geology of an area and are often used as an educational resource.

Nature conservation

Vegetation on roads is important for nature conservation because it often contains the only remnants of the region's native plant associations. Such remnants are valuable for preserving species with restricted distribution and genetically interesting variance of widespread species. They are often useful in land studies, as they may permit the original pattern of the vegetation to be pieced together. They also provide habitat for some native animals, and have special significance as pathways permitting birds to move through the countryside on annual migration, or in search of food or nesting sites. While some roads retain wide strips of native vegetation, many are mostly cleared or otherwise greatly altered. Valuable remnants of native vegetation growing on the verges of some roads should be protected where possible. Of particular note is the vegetation along roadsides on the agricultural Gippsland plains, where the loss of mature trees is becoming an increasing problem. On these open plains roads and road reserves contain the great majority of trees in the landscape.

Accumulation of fuel along roadsides is a fire hazard of concern to fire-control authorities and it must often be reduced by burning off during cool weather. This burning off sometimes conflicts with scenic and conservation values and the Council believes that such burning should be restricted to strategically important areas and kept to the minimum consistent with efficient fire protection.

Recreation and landscape

In rural districts, vegetation along roads is often a major component of the landscape, breaking the monotony of cleared paddocks and accentuating the contours of the land. It provides a pleasant, variable road environment for motorists, and shady areas for rest and relaxation. The Council believes that as much roadside vegetation as possible should be retained when roads are being upgraded. If a major upgrading is being planned, the feasibility of purchasing a strip of private land should be considered in order to preserve good stands of roadside vegetation.

Management

Responsibility for the management of roadside vegetation is vested in various authorities, depending on the status of the road. The most important roads of the State (State highways, tourist and forest roads, and freeways) declared under the *Country Roads Act* 1958 are completely under the control of the Country Roads Board (9000 km). Main roads (14 500 km) are also declared, but are controlled jointly by the Country Roads Board and local municipal councils. Vegetation on unclassified roads (about 98 000 km of mostly minor roads) is under the care and management of municipal councils, although it is owned by the Crown. The Forests Commission has the control of vegetation on unclassified roads that pass through or adjoin State forests. (Note: these figures are for all Victoria.)

Unused roads constitute another category. When the State was being settled, surveyors provided access to blocks by means of surveyed Crown roads. Many of these have never been used as roads, and they are usually held by the occupiers of the adjoining land under unused-road licences. The Forests Commission controls the vegetation on unused roads that have been formally declared as such.

Back roads

With increasing population and use of cars, a tendency has developed for through-roads in the study area to be continually upgraded. Tree-lined back roads with gravel surfaces on narrow winding alignments are becoming increasingly uncommon. Yet for many people such roads best fulfil their need for contact with rural environments. The Council believes that a conscious effort must be made to maintain the character of these roads, particularly when upgrading or realignment is being considered.

Recommendations

- L1** That road reserves throughout the study area continue to be used for communication, transport, access, surveys and utilities.

Landscape, recreation, and conservation values can best be protected by observing the following guidelines. The Council recognizes that many of these are already being implemented by the bodies responsible for the construction and maintenance of roads.

- * When improvements to a road are being carried out, trees and shrubs on the road reserve should be disturbed to the minimum extent consistent with the safe and efficient design and use of the road.
- * Major works to realign minor roads carrying trees and shrubs should not be undertaken unless clearly warranted by the nature and volume of the traffic carried, and the managers of adjacent public land should be consulted regarding such works.
- * Where re-alignment of a road results in a section of the old road being cut off, wherever possible that section should not be sold but used as a recreation and rest area or incorporated into an adjacent appropriate reserve.
- * Where a pipeline or overhead wires are to follow a road carrying trees and shrubs in a rural district, every effort should be made to locate the easements on private land alongside the road if this is already cleared, rather than clearing roadside vegetation to accommodate them.
- * While recognizing the need for clearing or pruning vegetation close to power lines to reduce the associated fire risk, the State Electricity Commission should consult with the Forests Commission regarding the manner in which the risk posed by vegetation can be reduced, while at the same time reducing the environmental impact to a minimum.
- * Road-making materials should not be taken from road reserves unless no suitable alternative sources are available. Any such removal should be done so as to ensure a minimum disturbance of the native vegetation, and the disturbed area should be rehabilitated, where possible, with vegetation native to the area.
- * Burning off, slashing, or clearing of roadside vegetation should be kept to a minimum consistent with providing adequate fire protection.
- * Weeds and vermin on roads should be controlled by means that do not conflict with the uses given above.
- * The various road management authorities, when planning to upgrade roads that have heavy recreational use, should give due consideration to recreational requirements, and give priority along such roads (when funds are available) to the development of roadside recreation facilities.
- * On soils of moderate to high erosion hazard, road management authorities should ensure that pre-planning, design, construction, and funding of roads cater adequately for erosion prevention and control. Advice should be sought from the Soil Conservation Authority.

L2-L11 That, when widening or re-alignment of roads is proposed, sites of geological, historical, habitat, or botanical significance that may be affected be investigated and every effort made to retain and preserve them.

A number of important sites along road reserves should be protected, and these are listed below.

Sites of geological significance

- L2** Road cuttings on the Bairnsdale-Paynesville Road, 8 km south of Bairnsdale, expose a clear section of approximately 10 m of Haunted Hills Gravels.
- L3** Road cutting on the Swan Reach-Metung Road, 200 m south of the Princes Highway, exposes the type locality of the Tambo River Formation.
- L4** Road cutting on the Bruthen-Buchan Road, 500 m east of the railway crossing, displays the angular unconformity of Haunted Hills Gravels resting on steeply dipping Ordovician sandstones and slates.
- L5** Road cutting on the Coongulmerang-Walpa Road, at Walpa, exposes the Coongulmerang Formation.
- L6** Road cuttings in the valley-side bluffs on Soldiers Road, 7 km west of Bairnsdale, expose Wuk Wuk Marl, Bairnsdale Limestone, and Haunted Hills Gravels.
- L7** Limestone cave entrances and sinkholes are located at a number of places on the Buchan-Gelantipy Road reserve.

Sites of habitat and/or botanical significance

- L8** Small stand of snow gum south of Bairnsdale on the Forge Creek Road.
- L9** Attractive stands of manna gum and yellow box that line the Buchan-Murrindal Road.
- L10** Colorful displays of *Callistemon citrinus* on the Bruthen-Buchan Road.
- L11** Many roads on the Gippsland Plains between Bairnsdale and Heyfield, especially those lined with forest red gum. On the predominantly agricultural plains, roadside areas can contain up to 80% of the trees in the landscape.
- L12** That the following guidelines be applied to unused roads:
 - (1) The clearing of native trees and shrubs other than noxious weeds should continue to be clearly prohibited in the conditions of unused-road licences.
 - (2) A condition permitting public use of licensed unused roads should be written into unused-road licences where necessary to provide practical access to public land.
 - (3) Unused roads or easements should not be alienated if there is any likelihood that they will have value for future traffic, nature conservation, recreation, or other public use.

Highway Park

Along some of the roads, the reserve carries picnic areas and wayside stops, but along major tourist routes there is an additional need for areas sufficiently large to allow travellers to be isolated from the road environment and to allow dispersion of picnickers. These areas should

have scenic qualities, perhaps incorporating a stream, and be sufficiently stable to withstand intensive use. They would be used by travellers for relaxation and picnicking and should be adequately developed with picnic and rest facilities (fireplaces, tables, etc.).

Recommendation

L13 That the area of 72 ha, being the existing Stratford Highway Park, be used:

(a) for picnicking and to provide relaxation for the travelling public

(b) to maintain the local character and quality of the landscape

that

(c) facilities in keeping with the nature of the reserve be provided

and that it be permanently reserved under section 4 of the *Crown Land (Reserves) Act* 1978 and be managed by the Department of Crown Lands and Survey.

Roadside Picnic Areas

Smaller less-developed picnic areas should supplement the system of highway parks and major reserves. Unlike highway parks, these would not be sufficiently large, nor developed to the high standards necessary, to cater for large numbers of people. They should be in attractive locations off the road reserve, and some picnic facilities should be provided.

Recommendation

L14 That the land management authorities establish picnic areas in suitable locations adjacent to the road reserves.

M. EDUCATION AREAS AND SCHOOL PLANTATIONS

EDUCATION AREAS

Environmental education is a fundamental step in the conservation of natural resources; it has become an important part of school curricula, and forms the basis of courses for tertiary and adult students.

Environmental education is indispensably linked with field studies. It is concerned with studying and appreciating all sorts of environments — natural ones undisturbed by man's activities, natural ones manipulated to produce particular products such as hardwood timber, or drastically altered ones such as are found in urban and agricultural areas. One of its basic requirements is access to land.

Council, realizing that public land provides excellent opportunities for studies of a wide range of environments, has recommended that almost all public land (including parks, wildlife reserves, and hardwood production areas) be available for educational uses. Council believes that in most situations educational studies can take place without conflicting with the primary use for which an area is set aside. Indeed in some cases it is the manipulation of the land for the primary use that makes the area of value for environmental education. Council believes, however, that it is necessary for some relatively undisturbed land to be set aside specifically for educational uses as, unless this is consciously done, such environments will tend to be changed by other uses. In these areas education would be the primary use and other uses would only be permitted when not in conflict with the educational use. Activities permitted in education areas that may not be appropriate elsewhere would include long-term studies, collection of biological material, biomass studies, and the establishment of growth plots. They may also provide opportunities to demonstrate techniques of erosion control and the restoration of native vegetation and stream conditions to a more natural state.

In selecting land for education areas, the Council has sought to provide areas:

- * giving examples of major land types
- * with maximum diversity of vegetation types, soils, etc., and with natural boundaries
- * located with consideration of ready access by users
- * located so as to minimize the danger that wildfires present to users
- * located in proximity to other land types and to a variety of other land uses
- * large enough to prevent over-use and to allow for zoning to protect areas of special value
- * selected so as to minimize erosion and pollution hazard

No one organization should have the exclusive right to use a particular education area, as it is important that students have the opportunity to visit a number of education areas in various land types throughout the State rather than visiting the one site several times. Minimum facilities such as toilets and shelters would be required at each education area, and it would be desirable to have accommodation either on the area or at some nearby locality. Whether or not accommodation facilities are located on the education area will depend on its proximity to other areas of educational value in the region and also on the availability and location of existing accommodation. In forested areas accommodation and other permanent facilities should only be provided where adequate safeguards against fire can be made.

Council believes that the land management of education areas should be the responsibility of the authority managing the adjacent or surrounding public land, while the Ministry for Conservation (in consultation with representatives of the Education Department, other user organizations, and the land manager) should be responsible for implementing educational aspects, and for co-ordinating usage of the areas.

Recommendations

M1-M3 That the areas of public land listed below and shown on the map be used to provide opportunities for students of all ages to:

- (a) study the nature and functioning of reasonably natural ecosystems in a manner such that the integrity of these ecosystems is maintained as far as is practicable
- (b) compare the ecosystems within education areas with other nearby natural and modified systems
- (c) observe and practise methods of environmental analysis, and the field techniques of the natural sciences
- (d) conduct simple long-term experiments aimed at giving an understanding of the changes occurring in an area with time

and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act* 1978 and managed as indicated in the schedule below:

Note:

In addition to the areas listed below, Council believes portion of the Gippsland Lakes Reserve, between Blond Bay and Steel Bay, could be used for educational purposes in line with the provisions of M1-M3.

M1 Seaton (110 ha)

Tertiary and Quaternary sediments; flat to undulating; open forest II of red ironbark, red box, white stringybark, and yellow stringybark; elevation 100 m; rainfall 700 mm per annum.

To be managed by the Forests Commission.

M2 Melwood (200 ha)

Carboniferous sediments; hilly; open forest III of white stringybark, red stringybark, and mountain grey gum, closed forest II of warm-temperate rainforest; elevation 200-300 m; rainfall 800 mm per annum.

To be managed by the Forests Commission.

M3 Cutfinger (300 ha)

Snowy River Volcanics; undulating to hilly; open forest III of white stringybark, silvertop and mountain grey gum, open forest II of red stringybark and yertchuk, and woodland I of silver-leaf stringybark; elevation 160-240 m; rainfall 800 mm per annum.

To be managed by the Department of Crown Lands and Survey.

Note:

Council recognizes the mineral potential of the Lower Devonian Snowy River Volcanics sequence in this area, and believes that its exploration should be permitted subject to guidelines outlined in the section on mineral and stone production.

SCHOOL PLANTATIONS

Throughout the study area, a number of areas of public land have been set aside as school endowment plantations as part of various schools' educational resources. The plantations were initially established to instil through community involvement a love of forests and an appreciation of their value, and in fact many of them are well suited for regular use as a teaching resource of this nature. It is expected that this use will increase as courses embracing various aspects of environmental science are developed. Many school plantations have been planted

to radiata pine and revenue from the sale of produce has been used to provide amenities required by the schools. In some cases, however, these plantations have not been very successful in providing revenue, as the sites are unsuitable for economic growth or the plantations are too small or the location too far from processing centres to allow economic harvesting. In some instances, radiata pine plantations have failed due to poor management.

Council believes that all the existing plantations should be assessed in order to establish their value as a teaching resource. The use of those that are not now needed or that are unsuitable for teaching purposes for some reason, such as their location, should be terminated. Those planted to radiata pine that have limited value as a teaching resource although satisfactory for wood production may continue to be used for such production, but should be reviewed when the pines are harvested.

Unused sand or gravel pits, or cleared areas such as former school sites, require rehabilitation or revegetation. Council considers that, in some instances, such areas could be used as school plantations. Their rehabilitation not only could be used to demonstrate various aspects of environmental science but also could provide an opportunity to involve pupils in projects that are clearly in the public interest.

It should be realized that most of the public land in the State is available for some form of educational use, and education areas have been recommended specifically for this purpose. While, as indicated in the section on youth camps the Council is not in favour of setting aside land exclusively for the use of any one organization, schools wishing to use an area of nearby bushland for teaching purposes should consult with the appropriate managing authority. Their use of such an area should be in harmony with the manner in which the surrounding public land is used.

Recommendations

M4 That areas set aside for school plantations be primarily used as a teaching resource and utilized to foster awareness and knowledge of the trees and other living organisms that comprise a forest.

Note:

This recommendation does not exclude the use of school plantations as a means of raising revenue for schools. Such use, however, should be secondary to the educational use.

M5 That the value of each existing school plantation as a teaching resource or for revenue production be assessed by the Education Department — in consultation with the Forests Commission and the Department of Crown Lands and Survey, where appropriate — and that the use of those considered unsuitable or no longer required be terminated.

M6 That new school plantations only be established on public land for education purposes and where their establishment allows the rehabilitation or reforestation of cleared or eroded areas.

N. CAVE RESERVES

Australia is relatively poorly endowed with limestone in outcrop and consequently has few karst landscapes and cave areas. The outcrop of Devonian limestones in the Buchan-Murrindal area represents the largest outcrop of cave and karst-forming limestone in south-eastern Australia and contains some of the best examples of surface karst and cave development anywhere in the country.

The Buchan-Murrindal limestone basin contains hundreds of caves, ranging from vertical to horizontal. Most can be placed into one of three main groups: potholes, which are predominantly vertical caves; stream-passage caves, which have been formed by perennial or intermittent streams; and collapse caves, which have developed by collapse into pre-existing passages. The area contains both the longest and deepest cave systems in the State. These are among the most important natural features in the study area. For example, both Anticline Cave, with its spectacular anticlinal ceiling, and Scrubby Creek cave, with its tufa terraces, are rated as being of national significance. Caves of the district support bat populations of three species, with at least two caves being known maternity sites. The rich invertebrate cave fauna includes some species as yet undescribed. Several of the caves have produced evidence of Aboriginal occupation, dating back as far as 17,000 years. Others have sub-fossil material, including the remains of now-extinct species of mammal.

Many of the caves feature spectacular limestone formations, the best known of which are at the Buchan Caves Reserve. Approximately 80,000 people each year take the guided tours conducted through some of the more decorative limestone formations within the reserve.

In addition to recreational use by tourists, this area provides the most important venue in Victoria for the sport of caving. Indeed, speleologists rate it as among the best in Australia.

Besides the caves, a number of interesting surface karst features occur in this limestone basin. These include the Potholes with its many sinkholes, which constitute probably the finest karst landscape in Australia. The spectacular Pyramids, as well as exhibiting important karst formations, also has Victoria's best example of underground stream drainage where the Murrindal River flows underground.

Thus the limestone caves of the Buchan-Murrindal area are important for a variety of purposes ranging from tourism to scientific study. While considerable exploratory work has been done in some of the area's cave systems and many of their individual values are well recorded, there has as yet been no attempt at general assessment and classification of all the caves. Such a classification should aim at designating the most appropriate uses for each cave; for example, those that could be open for guided tours by large numbers of people, those more suitable for experienced cavers, those that should not be open to the public because of their scientific and/or nature conservation values, and those that should be closed to all because of their dangerous nature.

Council considers that such an assessment should be undertaken with a view to developing management prescriptions for each cave locality as well as a broad co-ordinated plan of management for the region's limestone features. While many of the area's most significant caves have entrances located on public land, in a number of instances they extend under adjoining private property. Most surface land uses will have no effect on them; however, any large-scale excavation or any development that will cause ground vibration or interfere with air or water flows through caverns may damage or destroy caves. There may also be legal problems associated with the public use of caves that extend under freehold land held under unrestricted depth title. These aspects should be included in the regional assessment of the caves.

Recommendations

N1-N7 That the areas indicated on the map and described below be used to:

- (a) conserve and protect important geological, archaeological, and biological features
- (b) provide opportunities for recreation and education and scientific study where appropriate

that

- (c) where caves are open for public inspection, safety measures be undertaken to the standard required by the Department of Minerals and Energy

and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act* 1978 and be managed by the Department of Crown Lands and Survey.

Notes:

1. The entrances to a number of caves are located on stream frontages. While it is not considered necessary to specifically reserve these as above, they should be subject to the same provisions as for N1-N7.
2. The Fisheries and Wildlife Division should be consulted regarding the management of caves with significant bat populations.

N1 340 ha west of allotment 5 of section D, Parish of Buchan.

N2 5.0 ha west of allotment 5 of section F, Parish of Buchan.

N3 10 ha east of allotment 18D of section B, Parish of Buchan.

N4 50 ha east of allotment 23 of section B, Parish of Buchan.

N5 1 ha adjoining allotment 29 of section B, Parish of Buchan.

N6 4 ha west of allotment 26A of section B, Parish of Buchan.

N7 3.6 ha west of allotment 47 of section F, Parish of Buchan.

O. RECREATION

The term recreation includes the multitude of different activities that people undertake during their leisure time. In fact, the distinguishing characteristic of recreation is not the activity itself so much as the attitude with which it is undertaken — activities undertaken with little or no feeling of compulsion are almost certainly recreation.

Outdoor recreation is of particular interest to Council, as the public land of the study area provides important opportunities for it. Throughout, these recommendations refer to the countless forms of outdoor recreation in a number of ways:

- * Formal recreational activities include all organized sports and other group activities, while activities such as picnicking, fishing and hiking are grouped as informal.
- * Passive recreation covers situations where the individual obtains his recreation through enjoying the sights, sounds, and atmosphere of the surrounding environment while expending little physical effort. Examples are picnicking, nature observation, and strolling.
- * Active recreation covers situations where the individual must expend considerable physical effort to obtain some mastery of physical forces in order to satisfy his particular recreational needs. Examples are playing organized sport, bushwalking, and water-skiing.
- * Open-space recreation includes all recreational activities that require spacious outdoor surroundings, whether the activities be active or passive, formal or informal.
- * Intensive recreation involves large numbers of people per unit area. For example, the camping areas at Lake Glenmaggie and the beach at Lakes Entrance would be considered to be intensively used.

In view of the predicted increase in demand for outdoor recreation and the high capability of some public land to meet this demand, the Council, in making its recommendations, has suggested that the majority of public land should be available for recreational uses of some sort. Accordingly, it has set aside a variety of reserves that will provide for a wide range of opportunities. Council could not, however, make recommendations covering in detail all the forms of recreation currently pursued on public land. These include activities such as swimming, bushwalking, rock-climbing, orienteering, canoeing, fishing, hunting, fossicking, picnicking, horse-riding, boating, trail-bike riding, and pleasure driving. Council believes that activities such as these can be accommodated, without detriment to other values, somewhere on public land. Consequently, Council points out that outdoor recreation in general is an acceptable primary or secondary use of much public land (except reference areas and some water storages and their buffers) and has left the details of recreational use to the land managers.

The various recreation activities differ in their requirements for types of land, size of area, and site location. They also differ in their impact on the land and on other activities (including other forms of recreation). Generally, any one activity pursued at a low level of intensity poses little threat to the environment and seldom conflicts with other activities. With increasing intensity, conflicts and problems can arise. There is always the problem of recreation damaging the environment it seeks to use.

Council therefore believes that the land managers should aim at controlling the levels and patterns of recreational use according to the capability of the area to sustain such use without irreversible damage or significant conflict with the primary purposes of the area, while at the same time avoiding unnecessary restrictions on usage. Special care will be required in the location and management of areas zoned for intensive recreation, to prevent environmental damage. Thus, more stringent restrictions can be expected in areas where the vegetation and soils are sensitive to damage (such as those occurring on sandy soils), and where the natural environment or special natural features are being preserved.

Three particular forms of recreation that may require consideration by the land managers, whether now or in the future, are further discussed below.

Motorized Recreation

Much outdoor recreation depends on motor vehicles. These may be conventional cars, four-wheel-drive vehicles, or motor-cycles.

They may be used for touring and sightseeing, as a means of obtaining access to a particular area where other forms of recreation will be undertaken, or — when they are driven in competitive rallies or in adverse but challenging road conditions — as a source of recreation in themselves.

Most visitors to the area use conventional two-wheel-drive vehicles and keep to the major through routes. Others use four-wheel-drive vehicles or motor-cycles to gain access to the more isolated areas via the secondary system of roads that supplement the major ones. This system was constructed mainly for timber harvesting, forest management, and fire protection. The roads are frequently rough and sometimes steep and have not been designed to cope with increasing use by recreation vehicles.

Consequently, even legal use of roads can pose maintenance problems for the land managers. Authorities responsible for their construction and maintenance on public land may close roads temporarily or permanently when traffic exceeds their physical capacity, for safety reasons, or when use by vehicles is in unacceptable conflict with the area's primary uses. Erosion hazard areas may be proclaimed according to the provisions of the *Land Conservation (Vehicle Control) Act 1972* and regulations, enabling strict control to be enforced.

If the increased recreational use of roads is to be catered for, adequate funding should be provided for road maintenance, otherwise deterioration leading to erosion is inevitable.

A number of four-wheel-drive clubs have acknowledged the need for restrictions on motorized recreation in certain areas and during some periods of the year, and generally support the use of existing legislation to control undesirable activities. Clubs also recognize the need to inform and educate participants in motorized recreation of the environmental consequences of improper use of four-wheel-drive vehicles. The management authorities should continue to promote responsible attitudes to the use of four-wheel-drive vehicles and trail-bikes.

A significant and growing proportion of the population is becoming involved in recreational touring, which depends on the use of roads on public land. Drivers of motor vehicles, including motor-cycles, who leave the roads on public land contravene the provisions of the above *Act*. (Limited exceptions are given in the *Act*).

The demand exists for the provision of some areas of public land to accommodate and relocate the off-road activities of motor vehicles, particularly trail-bikes. Such areas could, for example, take the form of defined trails in some hardwood forests or could include disused quarries or parts of some recreation reserves close to urban centres. Where possible, the alternative use of suitable private land should be considered. Areas chosen, whether public land or freehold, would have to be in situations where damage to soil and vegetation would be minimal, and where noise would not cause undue disturbance to other people using, or living in, nearby areas. Council points out that there is a serious and growing problem of damage to soils and vegetation by spectators attracted to these activities.

Hunting

The Gippsland Lakes hinterland area offers excellent opportunities for the hunting of a range of game species. Hunting of game can be classified into two basic categories — deer and game birds — both of which have special management requirements.

Deer

Deer-hunting has been a traditional use over much of the public land in the study area — the two most important species being the Sambar deer and the Hog deer.

Sambar occur in varying concentrations throughout the area's mountain region, where they have been hunted for more than 50 years. The two methods of hunting Sambar deer are stalking using either guns or bows, and trailing using hounds. Under the *Wildlife (Game) Regulations 1976*, No. 2 hunting of Sambar is permitted year-round.

In contrast, Hog deer occur only in the south of the area, mainly around the Gippsland Lakes where they inhabit thick cover adjacent to swampy areas. Hog deer can only be hunted during one month of the year (April) and then only by stalking using bows or rifles of a specific calibre. The use of hounds is prohibited.

For the bulk of the Gippsland Lakes hinterland, no restrictions on deer-hunting other than existing legal requirements are proposed by Council. For instance, all land recommended as hardwood production and uncommitted areas and almost all of the proposed Gippsland Lakes reserve would still be available for deer-hunting. This constitutes approximately 90% of all public land (excluding that covered by water in the Gippsland Lakes and Lake Glenmaggie) in the study area. Furthermore, the stalking of deer would be permitted seasonally in selected areas of the Mitchell River State Park (see Recommendation A3).

Game birds

The Gippsland Lakes and associated wetlands are among the most important duck-shooting areas in the State. It has been estimated that around 10,000 licensed hunters visit the study area's wetlands each year during the 3-month Victorian duck-hunting season. Japanese snipe and stubble quail are also hunted in swampy and open country within the study area.

Hunting of game birds will not be significantly affected as a result of Council's recommendations. Other than existing legal requirements, the only restrictions on such hunting in the Gippsland Lakes area apply on public land on Raymond, Rigby, and Baxter Islands where it would not be permitted. For the remainder of the Gippsland Lakes and the Gippsland Lakes reserve, hunting can continue where it is currently permitted.

Youth Camps

Currently the study area contains few permanent youth camp sites. Demand is likely to increase, however, for sites for use by scouts, schools, church groups, and the like. Users have generally preferred sites situated in pleasant bushland, close to a permanent stream, readily accessible by road, and in areas where the safety of the camp and its occupants can be ensured during periods of high fire danger. Such sites are relatively scarce and their use for youth camps is in direct competition with their use for less-restrictive public activities, such as picnicking and general camping.

Camps on public land vary greatly — in the purpose for which they are constructed, in their standards of maintenance, and in the degree to which they are used. Some are designed to provide full accommodation, with campers living in huts that have electricity and hot water provided; others have only minimal facilities, with campers living in tents. Some have considerable amounts of money and volunteers' time and effort put into their construction and maintenance; others have been built and are maintained at very low standards. Some are used for much of the year, with the owner organization allowing use by other groups. Others are used only occasionally and exclusively by one group.

User groups have an increasing tendency to acquire freehold land for their actual camp site, while using adjacent public land for their outdoor activities, and Council believes that this trend should be encouraged. While recognizing that a variety of types of camps may be needed, Council believes that any camps permitted on public land should be properly located, constructed, and maintained. For efficient management of camps, it may be necessary for a single organization to be given limited tenure over a minimum area at any individual camp site, under the control of the land management authority. Council believes, however, that these camps should still be used as fully as possible consistent with avoiding damage to the environment.

The greater use of existing camps on public land is desirable in order to avoid proliferation of camp sites, and there is a need for co-ordination of information regarding the availability of those camps that could be used by groups who do not have tenure of their own.

It is likely that, in some cases, the land management authority may need to phase out or relocate existing camps if these conflict with the primary use of the surrounding land, or if they are in particularly hazardous areas from the point of view of pollution, erosion, or wildfire.

Recommendations

Recreation

- O1** That public land continue to be available for a wide range of recreational uses where these can be accommodated without detriment to other values and that land management authorities aim at controlling the types, levels and patterns of recreational use according to the capability of particular areas to sustain such use without irreversible change or significant conflict with the primary purpose of the area.

Motorized recreation

- O2** That vehicular use of roads within the meaning of the Land Conservation (Vehicle Control) Regulations continue to be permitted on public land except where closure is necessary because of erodible soils, seasonal conditions, excessive maintenance, or conflict with the primary use of the area.
- O3** That the land management authorities endeavour to provide some areas for off-road vehicular use within land under their control.

Recreation reserves

- O4-O5** That the areas described below and shown on the map be used for organized sports (football, horse-racing, golf, etc.) and informal recreation (picnicking, camping, etc.) as permitted by the managing authority

that native trees be conserved where possible

and that these areas be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and, managed by the Department of Crown Lands and Survey.

- O4** Existing recreational reserves.

- O5** 25 ha, north of allotments 12C and 13, Parish of Wa-de-lock.

Note:

The significant orchid species — *Pterostylis concinna* and *P. reflexa* — within this reserve should be protected.

P. MILITARY TRAINING

Council believes that military training is a legitimate use of public land, but is aware of the possibility of conflicts arising with some forms of recreation. It is Council's view that military training should not occur in reference areas or wilderness areas, and only under special circumstances in parks and other areas of recreation and conservation significance.

Recommendation

P1 That, where military training is conducted on public land:

- (a) the types of activities, and their timing and location, be subject to agreement between the appropriate defence department, the management authority, and other relevant bodies such as the Soil Conservation Authority
- (b) the training activities be carried out under conditions specified by the management and relevant authorities, to minimize any detrimental effects
- (c) the Forests Commission be consulted (for fire-protection purposes) with respect to training activities in protected forest and protected public land
- (d) it be excluded from reference areas, the Avon Wilderness, and, except under special circumstances, from parks and other areas of recreation and conservation significance.

Q. AGRICULTURE

The Council recommends that, at this stage, no additional large areas of public land be developed for agriculture and that only relatively small areas of suitable land on the perimeter of public land be made available.

Grazing on public land

Licensed grazing on public land is practised throughout the study area, both as forest grazing and grazing on public land water frontages (see Chapter K). The availability of this public land is not of great significance in the economy of the grazing industry in the region. It can, however, be of considerable importance to the individual licensees, for whom the forest grazing often forms an integral part of their enterprise.

Situations also arise where graziers who do not normally depend on forest grazing do require additional areas to provide short-term feed for livestock. These situations include drought, fire and flooding. Council believes that areas of public land could be available to meet such emergency situations, and that such grazing could be controlled by the issue of agistment rights commensurate with the management goals of the particular areas of public land.

The Council believes that, for the areas available for grazing, an important management goal must be to maintain the vegetative cover and, where the cover is inadequate, to ensure its recovery.

Forest grazing is presently controlled by the land management authority responsible for each particular area, and Council believes that there could be a greater degree of co-ordination between the land management authorities and the formulation of a common policy in the selection and management of areas on which grazing will be permitted.

Apiculture

The Council considers that apiary sites should continue to be permitted on public land other than in reference areas and the Avon wilderness.

Recommendations

Q1-Q6 That the land described below and shown on Map A (and in greater detail on Maps 1-6) be used for agriculture. It is intended that this land should form additions to present farms rather than be developed as new units.

with reference to section 5(3) of the *Land Conservation Act* 1970, the Council recommends that land described below be made available for agriculture in accordance with the provisions of the *Land Act* 1958.

Q1 4 ha, being allotment 30C, Parish of Marlooh.

Q2 8 ha, being allotment 12, section C, Parish of Bow-Worrung.

Q3 59 ha north of allotment 4, section A, Parish of Kaerwut.

Q4 5 ha north-west of allotment 3 of section 4, Parish of Wy Yung.

Q5 75 ha, being portion of allotment 9, Parish of Timbarra.

Q6 18 ha north of allotment 58 of section A, Parish of Buchan.

Q7-Q8 That the possible land exchanges listed below be investigated.

- Q7** All or part of an area of approximately 55 ha (shown on Map 7), being portion of allotment 22 of section C, Parish of Glenaladale, be made available for agriculture in exchange for freehold land adjacent to the recommended Mitchell River State Park, being allotment 24B of section C, Parish of Glenaladale, and/or allotments 18C, 18E, and 23 of section C, Parish of Glenaladale, and/or allotment 17 of section 7, Parish of Cobbannah. If such an exchange should take place, the freehold land so exchanged should be added to the Mitchell River State Park.
- Q8** All or part of an area of approximately 220 ha (shown on Map 8) be made available for agriculture in exchange for freehold land, being portion of allotment 2 of section A, Parish of Kaerwut.

R. MINERAL AND STONE PRODUCTION

The continued existence of our technological society will depend on the availability of minerals. The study area contains known deposits of 'gold' and 'minerals' as defined in the *Mines Act* 1958 and as subsequently gazetted (metallic minerals, coal, etc.). Nevertheless, knowledge of the location of our mineral resources is far from complete and new deposits of commercial significance will undoubtedly be found. Furthermore, currently uneconomic deposits of important minerals may become economically exploitable, and other minerals that are not used at present may become important.

Exploration for gold and minerals

The government has the responsibility to establish the existence and extent of the State's mineral resources. The government, in the main, meets this responsibility through the provisions in the *Mines Act* 1958 that provide the tenure under which private enterprise is encouraged at its own cost to locate new deposits of gold or minerals. When a new deposit is discovered in an area where mining is not a currently approved land use, it may be of such importance that a change of the land use is required in the State interest. The decision on whether such a change is in fact necessary can only be made against a background of the best available knowledge of the location and extent of the particular mineral deposit. It is important therefore that the reservation of conservation areas should not automatically exclude exploration for mineral or fossil fuel resources. Attention should be directed towards ensuring that other values and interests are protected, rather than preventing exploration activities.

The protection of other values — particularly those historical values round old mine sites — should never be enforced to the point that it places human life at risk. In relation to public safety, nothing in the recommendations affects the powers of Inspectors under the *Mines Act* 1958 and the *Extractive Industries Act* 1966.

Gold

Since 1977, sharp rises in the price of gold have resulted in a significant upturn in exploration activity. The interest of individual prospectors has also increased, as seen by the increased number of claims being registered. A number of attempts are being made to re-open previously uneconomic mines on existing leases.

The substantial rise in the gold price has also stimulated a renewed interest in general prospecting (fossicking), evidenced by the increased number of Miner's Rights issued.

This increased interest in prospecting and mining has not been confined to the large-scale operations being planned and undertaken by the corporate sector. Many individual miners and prospectors are operating in Victoria — some professionally (that is, they rely on these activities for their sole source of income), some on a part-time, semi-professional basis, but many as a form of recreation encouraged by the possibility of 'striking it rich'. In terms of the number of people involved, this latter group has experienced the most substantial growth, especially since the increased use of the metal detector.

Fossicking and prospecting

Fossicking and prospecting are often taken to mean one and the same thing. In mining terms a fossicker is a person who casually works over old mine workings and waste rock heaps in the hope of finding small amounts of gold and minerals. Unlike prospecting, the term 'fossicking' has no basis in legislation under the *Mines Act* 1958. Fossicking is also accepted as a wider term that embraces not only the search for gold and minerals, but also for other items such as bottles or coins.

Prospecting is a systematic activity, defined in the *Mines Act 1958* as 'all operations conducted in the course of exploring for gold and minerals' (including gemstones). It is necessary to hold either an exploration or search licence, or a Miner's Right, before prospecting may be undertaken. Most individual miners and prospectors operate under a Miner's Right, which does not permit prospecting on private land.

Under current legislation there is a small percentage of public land in the State where prospecting under a Miner's Right is not permitted. This includes areas used for various community purposes such as golf courses, cemeteries, and flora reserves.

Council considers fossicking and prospecting to be legitimate uses of public land and as such should not be unduly restricted or regulated. There are some areas, however, where these activities may not be permitted or may require limitation and these have been specifically nominated in the recommendations (see Chapters C and E — Reference Areas and Water Production).

In addition to these, there may be other limited areas of land surface that, because of their special public importance or inherent instability, warrant either permanent or temporary exclusion from fossicking and prospecting. These areas may include, for example:

- * land that, if disturbed, may detrimentally affect water quality, especially where the water is used for domestic consumption
- * important habitats for plant species or fauna
- * important historic relics that could be damaged
- * sites of high erosion hazard
- * community assets such as recreation areas and water or sewerage installations
- * important geological formations.

These limited areas of land surface have not been specified in the recommendations, but will be determined by the management authority and the Department of Minerals and Energy together. Fossicking and prospecting, where they involve minimal disturbance to soil or vegetation, will be permitted on public land other than these limited areas and those specifically nominated in the recommendations. Areas currently exempted or excepted under existing legislation should remain so, unless otherwise specified in these recommendations or unless the land manager and the Department of Minerals and Energy together determine that such exemptions or exceptions should no longer apply.

With the exception of the land referred to in the Water Production chapter (Recommendations E1-E11), the areas specifically excluded in these recommendations amount to less than 1 per cent of the public land in the study area, and are recommended as reference areas. These are set aside to maintain natural ecosystems as a standard that may be used by those concerned with studying the land for particular comparative purposes. Within these areas all human interference, including fossicking and prospecting as well as all other forms of productive or recreational use, is prohibited.

Stone

Materials covered by the definition of 'stone' in the *Extractive Industries Act 1966* (including rock, gravel, clay, sand, and soil) are widespread in the area. There is a strong community demand for new and better roads and buildings, and so for the materials necessary for their construction. Most of these materials are provided from private land, but public land is also an important source.

The requirements of the shires with regard to their needs for 'stone' production have been determined by a process of consultation and investigation, involving the shires, the Department of Minerals and Energy and this Council.

Public land is a significant source of road-making material for some shires. Although resources remain on areas of public land, they are not unlimited and Council believes that shires should be investigating now the extent to which private land could be used as a source of 'stone'.

The Council is concerned by the complexity of legislation and procedures governing extraction of 'stone'. (For example, the Country Roads Board and municipal councils are not bound by many provisions of the *Extractive Industries Act 1966*).

A substantial number of unwise excavations have been made upon public land, and in many instances, particularly with older excavation sites, the rehabilitation of excavated land is lagging.

There is need for:

- * review of existing legislation and procedures to enable more rational use of the 'stone' resource of the State
- * provision of adequate resources for the reclamation of old extraction sites on public land

Poorly planned and located excavations can affect surrounding lands through noise, dust, unsightliness, and erosion and can diminish the value of the land. With care, however, these effects can be avoided or minimized.

Principles and guidelines

The terms 'exploration and extraction', referred to below, do not relate to the forms of these activities described above under fossicking and prospecting.

The Council believes that the following principles should apply.

1. Some areas of land surface — because of their inherent instability or special public significance (for example, community assets or areas with important scenic, archaeological, historical, recreation, or nature conservation values) — warrant permanent or temporary exclusion from exploration and/or extraction of 'gold' and 'minerals'. The Department of Minerals and Energy and the managing authority should together determine these areas. An inter-departmental committee convened by the Department of Minerals and Energy is currently establishing the procedures to be followed by the Departments involved.
2. When tenure is issued for operations under the *Mines Act 1958* on public land, the managing authority should be consulted regarding the conditions to apply and the supervision should be in accordance with the agreed conditions as specified in the claim, licence, or lease and with the requirements of the *Act*.
3. Consultation should continue between the land managing authorities, the Department of Minerals and Energy, the Soil Conservation Authority, and the other relevant authorities with respect to the procedures to be adopted for the exploration and extraction of 'stone' on public land. Any operations on public land should continue to be subject to the approval of the appropriate managing authority.

In all cases, the procedures that are established should apply to municipal councils, the Country Roads Board, and other public authorities as well as to commercial operators. To ensure this, the relevant *Acts* may have to be amended.

4. A system should be established that would ensure, before work commences, the availability of funds for progressive and final reclamation of any excavation or operation. Provision should also be made to enable the acceleration of the rehabilitation of all existing extraction areas on public land.
5. Royalties for materials extracted from public land, including site rental when appropriate, should be more closely related to the market value of the material. This would eliminate the temptation to use public land purely on the grounds of the nominal royalties often levied in the past.
6. The following guidelines should apply to all extraction from public land:

- (a) The Department of Minerals and Energy should not issue leases for mining of 'gold', 'minerals', or 'petroleum' unless satisfied with the program submitted by the applicant. In the case of Miner's Right claims, prior assessment is impractical and the Department should require the lodgment of a bond as surety for adequate rehabilitation. Wherever practical, the Department should seek the lodgment of mining plans that show the expected post-mining state of the land and should state operating conditions to achieve an appropriate standard of rehabilitation acceptable to the land manager.
- (b) No sites for the extraction of 'stone' should be opened in areas that the managing authority, in consultation with the Department of Minerals and Energy, considers to be of greater value for other uses, including aesthetic or nature conservation values. The advice of the Department of Minerals and Energy should also be sought as to the desirability of proposed excavations, having regard to alternative sources of 'stone'.
- (c) Extraction of 'stone' should generally be concentrated on the fewest possible sites in an area, and any one site should be substantially worked out and where possible reclamation ensured before a new site is exploited. The type of excavation to be carried out should be that with the lowest environmental impact consistent with the effective use of the resource. In general, and where the nature of the resource permits, excavations for 'stone' should be deep and limited in area in preference to shallow excavations over a wide area. The extraction of granite sand occurring as shallow deposits in the weathered profile should be discouraged unless it has been established that no suitable alternatives are available. In the special circumstances where approval is given for this form of extraction, particular attention should be given to the prevention of soil erosion.
- (d) Where an application for the removal of 'stone' from a stream-bed is considered, the land management authority should take particular care to ensure that the operations will not directly or indirectly cause erosion of the bed or banks, or undue pollution of the stream. In addition to the arrangements outlined above for 'stone', the land management authority should also consult with the relevant water supply and conservation authorities, and should consider the scenic and recreation values of the area.

Alternative sources with a lower environmental impact should be used where they are available. The environmental effect of extraction may be reduced if alluvial stone is obtained from properly managed quarries on the river terraces, rather than from the present stream-bed.

- (e) All extraction sites should be fully reclaimed where possible. Reclamation should follow extraction progressively when possible, but otherwise should begin immediately extraction is completed. The requirements for reclamation should be included in the conditions of the lease or licence before any approval to extract is granted. The reclamation may include, for example, replacing topsoil, revegetating the site with plantation forest, allowing a quarry to fill with water and developing the site as a park, using a gravel pit for off-road vehicles, using a quarry for garbage disposal prior to reclamation, or restoring the site as closely as possible to its original topography and revegetating it with species native to the site.

In addition to the above, the approval of the Soil Conservation Authority should continue to be sought for the exploration or extraction operations for 'gold', 'minerals', 'petroleum', or 'stone', where the subject land is within a proclaimed water supply catchment.

Recommendations

- R1** That fossicking and prospecting under Miner's Right, involving minimal disturbance of soil or vegetation, be permitted on public land other than:
- (i) those areas specifically excluded in the recommendations (see the chapters on Reference Areas and Water Production)
 - (ii) those areas that the management authority and the Department of Minerals and Energy together may determine (see the guidelines in the section on fossicking and prospecting)
 - (iii) the areas referred to in R2 below.

Note:

The Council is aware that some changes to existing legislation will probably be necessary to give effect to this and the following recommendation.

- R2** That those areas of public land currently exempted or excepted from occupation for mining purposes under a Miner's Right or from being leased under a mining lease, remain so exempted unless the land manager and the Department of Minerals and Energy together determine that such exemption or exception should no longer apply.
- R3** That public land in the study area (other than reference areas) continue to be available for exploration under licence and for extraction of 'gold', 'minerals' and 'petroleum', subject to Recommendation R2 and the principles and guidelines set out above.

Note:

This recommendation does not refer to exploration under a Miner's Right, which is covered by Recommendation R1.

- R4** That public land in the study area (other than reference areas) continue to be available for exploration for 'stone' subject to the principles and guidelines set out above.
- R5-R21** That the areas listed below and shown on the map be used for the extraction of 'stone' in accordance with the principles and guidelines outlined above and, if not already reserved for this purpose, be temporarily reserved under section 4 of the *Crown Land (Reserves) Act 1978* and be managed by the Department of Crown Lands and Survey. (These areas are additional to sites on larger blocks of public land that have gravel extraction as one of the recommended uses.)

Portions of some of these areas are currently used for extraction of stone under an Extractive Industries Lease and those portions would not be reserved under section 4 of the *Crown Land Reserves Act 1978*.

- R5** 8.0 ha west of allotments 3 and 4B of section 12, Parish of Stratford.
- R6** 1.0 ha, being allotment 11C of section 6, Parish of Stratford.
- R7** 6.0 ha north of allotment 13E of section C, Parish of Wy-Yung. Portion of this reserve is used as a rubbish tip.
- R8** 14 ha east of allotment 27A, Parish of Wuk Wuk.

R9 20 ha, being allotment 27D of section 1, Parish of Sarsfield. Portion of this reserve is used by the Country Roads Board as a compound for bitumen-sealing equipment.

Note:

The current buffer of trees along the Omeo Highway should be maintained to screen any gravel workings.

R10 19 ha, being allotment 47D of section E, Parish of Nindoo.

R11 2.0 ha, being allotment 38C of section B, Parish of Nindoo.

R12 6.5 ha south of allotment 46A, Parish of Wa-de-lock.

R13 20 ha south of allotment 19B of section 6, Parish of Wa-de-lock. Portion of this reserve is used as a rubbish tip.

R14 1.0 ha north of allotment 1B, Parish of Wa-de-lock.

R15 2.0 ha abutting allotment 14 of section A, Parish of Tinamba.

R16 4.0 ha south of allotment 73, Parish of Glenmaggie.

R17 6.0 ha north of allotment 73, Parish of Glenmaggie.

R18 2.6 ha abutting allotment 4, Parish of Numbie-Munjie.

R19 6.4 ha being allotment 55F, Parish of Tambo. Portion of this reserve is used as a rubbish tip.

R20 2.0 ha, being allotment 89B, Parish of Bumberrah.

R21 2.0 ha north of the Forge Creek-Eagle Point Road, Parish of Bairnsdale.

R22 That sites for the extraction of 'stone' be made available in accordance with the principles and guidelines outlined above, within the areas generally described below:

1. The Mia Mia and Mt Taylor pits operated by the Shire of Bairnsdale within an area recommended for hardwood production (Recommendation F4).
2. Pits in the Davey Knob area operated by the Shire of Bairnsdale and the C.R.B. within an area recommended as uncommitted land (Recommendation U1).
3. The Collins Road pit operated by the Shire of Omeo within an area recommended for hardwood production land (Recommendation F5).
4. Pits operated by the Shire of Tambo and the C.R.B. in the Colquhoun forest, an area recommended for hardwood production (Recommendation F7).
5. Pits operated by the C.R.B. near Mt. Nowa Nowa, within an area recommended for hardwood production (Recommendation F7).

R23 That the areas currently reserved for 'stone' production that are not listed under Recommendations R5-21 or recommended for some other use remain as currently reserved. In the future, consideration could be given to using these areas if the need to do so can be established. (At the scale of mapping used, it has not been possible to show all these areas.)

Note:

In relation to public safety, nothing in the recommendations affects the powers of Inspectors under the *Mines Act 1958* and *Extractive Industries Act 1966*. It is understood that these powers would be exercised in consultation with the management authority.

S. UTILITIES AND SURVEY

Many utilities occupy public land. They include roads, pipelines, power lines, power stations, hospitals, churches, cemeteries, public halls, shire offices and depots, garbage depots, sanitary depots, and sewage-treatment works. These recommendations do not specifically refer to many of the small areas used for the purposes listed above, as no change of use is proposed. It is intended that for such areas existing legal uses and tenure should continue.

In the absence of firm planning proposals, accompanied by the necessary detailed information, it is not possible for the Council to provide for future requirements of land for survey and utilities. The use of land for these purposes will be considered when the need arises.

Government agencies concerned with provision and installation of communications equipment, transmission lines, pumped storage sites, power stations, port facilities, pipelines, roads, etc. are requested to submit proposals involving occupation agreements or the setting aside of sites on public land to the appropriate land managers at an early planning stage. This would assist in achieving co-ordinated planning, and perhaps avoid the necessity for costly resurveys.

Recommendations

General utilities

- S1** That existing easements continue to be used to provide access and services.
- S2** That new power lines, pipelines, communications equipment, and other utilities be planned to minimize disturbance to public land and protect the values associated with this land, that they not be sited on public land without the agreement of the management authority, and that new pipelines and power lines follow existing easements if possible (this may require widening of some easements).

Garbage and sanitary depots

Council considers that sites on public land used for the disposal of garbage and sanitary materials should be located so as to cause minimal conflict with conservation values.

Facilities on public land should be shared by municipalities wherever practicable to minimize the number of sites required. At the same time, it is appreciated that locating sites reasonably close to users minimizes transport costs and the illegal dumping of rubbish. Areas used on a temporary basis (such as garbage depots and sanitary depots) should be fully rehabilitated at the operator's expense.

Within areas used as garbage depots, disposal of waste should be confined to small sections of the site at any one time, and there should be tighter supervision to ensure that garbage is dumped only in the designated areas.

- S3** That existing legal garbage depots (including those approved by the relevant authorities but not yet operating) continue to be available for garbage disposal.
- S4** That areas used on a temporary basis (such as garbage depots and sanitary depots) be fully rehabilitated. This should apply to sites used illegally as well as those used legally. Where the user or users are known, rehabilitation should be at their expense.
- S5** That, within areas reserved as garbage depots, disposal of waste be confined to small sections of the site at any one time, and that steps be taken to prevent the dumping of garbage other than in the designated areas.

- S6 That in areas recommended as uncommitted land and for hardwood production, and unless covered by some other recommendations, existing — licensed — waste-disposal depots may continue to operate.
- S7 That in portion of the following areas recommended for 'stone' production (R7, R14, and R19), waste disposal continue to be permitted.
- S8 That in the gravel reserve south of allotment 170B of section A, Parish of Tinamba, waste disposal continue to be permitted.
- S9 That the Raymond Island rubbish tip continue to operate on Crown land east of allotment 54A, Parish of Bairnsdale, and that this area be reserved as a garbage depot.

Railway lines

- S10 That, where isolated remnants of the original vegetation remains on land associated with railways, every effort be made to protect that vegetation consistent with management practices.

Note:

Special emphasis should be placed on the protection of a number of significant plant species along the railway line west of Fernbank.

Land owned by the Gas and Fuel Corporation

- S11 That the land shown on the map east of Wattle Point remain under its current tenure and management until and unless the Gas and Fuel Corporation decide upon its disposal.

Trigonometrical stations

The Council recognizes the necessity to reserve sites for new trigonometrical stations in the future.

- S12 That the minimum area necessary for survey purposes be temporarily reserved around trigonometrical stations on public land where it would otherwise remain as unreserved Crown land; and, where other forms of public land tenure apply, that the Department of Crown Lands and Survey have the right to occupy a minimum area around the station and provide lines of sight.

Navigation aids and communications towers

- S13 That the minimum area necessary for access to and maintenance of navigation aids and communications towers be temporarily reserved on public land where it would otherwise remain as unreserved Crown land and, where other forms of public land tenure apply, that the government utility have the right to occupy a minimum area around the aid and provide lines of sight.

Other utility areas

- S14 That existing legal use and tenure continue for areas that are at present reserved and used for utility purposes such as ports, public buildings, municipal depots, cemeteries, schools, etc.

T. TOWNSHIP LAND

Public land in townships is currently used for a wide range of purposes. The Council has not proposed any change of use for such public land where the present use is for schools, public halls, sports grounds, and the like. In general, public land in townships, other than those areas that have been specifically reserved, should remain as unreserved Crown land to be used, if required, for township purposes in the future.

Recommendations

- T1** That public land in townships, other than those areas that have been specifically reserved, should remain as unreserved Crown land to meet future requirements.

Note:

At the mapping scale used (1:250 000), it is generally not possible to define accurately the boundaries of public land in townships. Reference should be made to the appropriate township plan to determine the accurate boundaries and form of reservation for those townships where public land is not shown on the map or referred to in these recommendations.

Bullumwaal

In this former gold-mining township, the population has steadily diminished over the years, such that the township now has less than 100 residents, while still retaining its original boundaries. It is completely surrounded by forested public land.

- T2** Consideration should be given to defining a township boundary that would include the existing dwellings at Bullumwaal. Any land not included within the new boundary should be managed by the Forests Commission in conjunction with the adjoining Hardwood Production area (F4).

Note:

The boundaries of this township would be defined by the Department of Crown Lands and Survey.

U. UNCOMMITTED LAND

In planning for balanced land use, known resources are allocated to meet known or predicted demands. The Council is aware that many changes in demand cannot be foreseen, and that the value of resources to the community will inevitably change. Similarly, knowledge of resources will change as exploration, research, and technology progress. For these reasons, it is desirable that planning be reviewed periodically, and it must be expected that resources will be reallocated or adapted to meet changed demands.

In addition, to satisfy such future requirements, it is desirable that land not be committed unnecessarily to relatively inflexible forms of land use. The Council therefore considers it necessary to recommend that areas of public land remain uncommitted to any primary use at this stage.

Land classed as uncommitted (U1) includes:

- * areas that, although not needed to satisfy any known demand, are retained to meet future demands as yet undefined
- * land known to have a high capability to satisfy one or more particular demands, but not at present committed to any one use, as foreseeable requirements can readily be met from other areas
- * areas on which further study is required to determine the capability of the land to satisfy particular present or future demands.

The Council realizes that the recommended uncommitted areas contain a mosaic of forests of varying productivity, including some parts that have a high suitability for timber production. These are nevertheless included for ease of management.

Uncommitted land is to be securely retained as public land, although changes in its status may be required if these are recommended following a review by this Council. It may be used to satisfy present needs, provided this does not cause changes that would be difficult to reverse.

Recommendations

U1 That the area of approximately 250,000 ha shown on the map be used to:

- (a) maintain the capability of the land to meet future demands
- (b) produce those goods and services required by the community (such as forest produce, grazing and honey) that can be supplied without seriously reducing the long-term ability of the land to meet future demands

that

(d) the following special features be protected:

- * the environs of McEvoy's Track and any sites associated with its use by miners last century
- * colorful wildflower areas near the Insolvent Track containing, among other species, *Boronia muelleri* and *Eriostemon verrucosus*
- * stands of yellow box and brittle gum and associated orchids on the Timbarra Road
- * stands of brittle gum east of Cobbannah
- * fairy wax flower and sticky wattle at Mt Steve

and that the land be Crown land withheld from sale and be protected forest under the provisions of the *Forests Act* 1958.

U2 That the area of 850 ha shown on the map, which is land purchased by the State Rivers and Water Supply Commission in association with the now-deferred Mitchell River dam project, be used to:

(a) maintain the stability of the land and its usefulness for all possible future uses

(b) supply water and protect catchments

that

(c) grazing be permitted

and that it be uncommitted land and remain under present tenure and management.

Note:

If, at some time in the future, this land is no longer required by the State Rivers and Water Supply Commission, it should then become unreserved Crown land and efforts be made, where appropriate, to revegetate the former farmland.

V. OTHER RESERVES AND PUBLIC LAND

Some small areas of public land in the study area that are used for various purposes, such as water production, grazing, camping, public utilities, and so on, have not been specifically mentioned in these recommendations. Others (both reserved and unreserved) receive little active use at present, even though they may once have been reserved for some specific purpose.

The Council intends that existing legal uses and tenure of these small areas of public land should continue, and that those not currently used for any particular purpose be used in a way that will not preclude their commitment in the future to some specific public use.

Recommendation

V1 That, for small areas of public land not specifically mentioned in these recommendations, existing legal use and tenure continue,

and that

where the land is not reserved for a specific purpose at present, such areas be used in a way that will not preclude their reservation in the future, for as-yet-unknown public purposes, and be managed as if they were uncommitted land.

Railway purposes reserve — Providence Ponds

A 153-ha Railway purposes reserve forms part of the Providence Ponds forest, a remnant of native vegetation on the Gippsland Plain, most of which Council has recommended as a flora and fauna reserve (see Recommendation H9).

In 1977 the Victorian Railways Board, which controls this reserve, granted a nearby landholder a 30-year lease over the land. Under the terms of the lease, which still has 25 years to run, there are no restrictions on the clearing and agricultural development of the land. In other words the lessee, if he so desires, can legally completely clear the native vegetation from the reserve.

It is regrettable that such a lease was issued especially in view of the important floral and habitat values of the reserve's vegetation. The Council believes that if the Railways Board proposes to offer similar leases over vegetated areas of public land under their control it should first establish, through the appropriate government departments, whether the land has any particular values that could be adversely affected under the terms of the lease.

Because of its special nature conservation values, Council considers the railway purposes reserve should be included in the proposed Providence Ponds flora and fauna reserve. However, the leasing arrangement entered into by the Railways Board precludes such a recommendation.

Council believes that the government should investigate the possibility of some form of agreement being reached with the lessee that would result in the cancellation of the lease. In this regard, two of the options the government might pursue are the provision of monetary compensation to the lessee for the residual value of the lease and any improvements on the land, or granting of freehold title to an area of public land in exchange for the lessee relinquishing his lease.

If such an agreement were to be reached, the desirable aim of a large, contiguous Providence Ponds flora and fauna reserve could be achieved.

Recommendation

V2 That for the area of 153 ha shown on the map, existing legal use and tenure continue, but that negotiations be commenced with a view to including this area in the Providence Ponds flora and fauna reserve.

Revegetation of areas

The deterioration of tree cover in some of the rural areas of the State is causing increased and widespread concern. Clearing — to establish pasture and crop lands — has been the initial cause of this deterioration and continues in some areas. The gradual decline, and ultimate death, of the remaining trees, however, is emerging as the major problem.

Soil compaction by stock, exploitation for timber, attacks by insects, parasites, and other pathogens, exposure to winds, salting of the soil, erosion, and natural senescence among aging trees are all possible causes of the decline. The prevention of natural regeneration by grazing or other practices is exacerbating the problem.

Increasing soil salinity resulting in the degradation of grazing and crop country, loss of shelter for stock and for wildlife, and diminished aesthetic value are all consequences of this decline, which, although difficult to express in monetary terms, results in economic loss.

Throughout the study area, a number of small parcels of public land carry little or no natural vegetation.

A recent amendment to the *Forests Act* 1958 has introduced a tree-growing assistance scheme to encourage tree-planting and tree-fostering projects — where these are in the community interest.

To complement this scheme, in areas where tree decline is becoming a problem and in areas where native trees are greatly reduced in number, Council recommends that some of the small areas of public land be used as pilot schemes or nuclei for the re-establishment of tree species native to the area.

Following successful revegetation, some of these areas could serve as examples to the rural community of the effectiveness of such revegetation schemes, and consideration could be given to reserving them for various public uses.

Recommendation

V3 That the areas indicated on the map and described in the schedule below be used to foster the re-establishment of tree species native to the area.

that

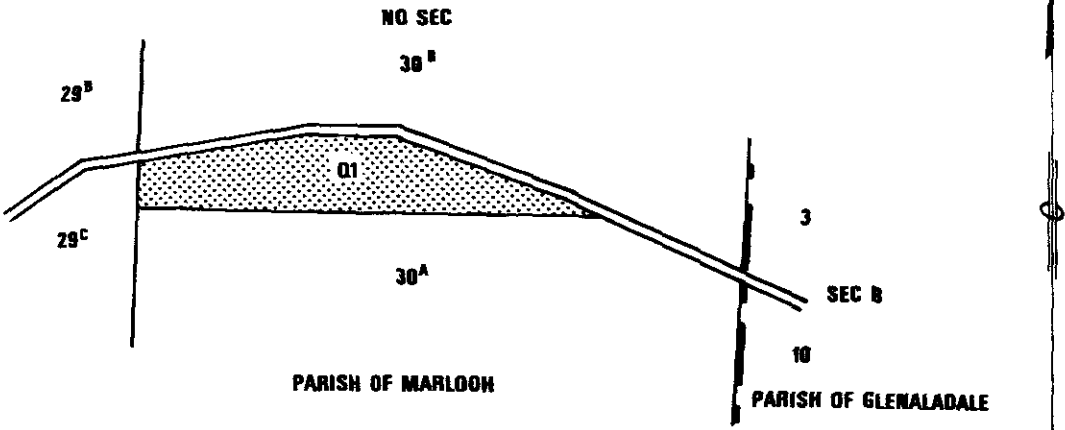
when revegetation is completed, consideration be given to reserving them for various public uses

and that they be managed by the Department of Crown Lands and Survey.

1. 13 ha, south-west of allotment 44A, Parish of Wa De Lock
2. 2 ha, north of allotment 31, Parish of Yeerung
3. 12 ha adjacent to allotment 1A, section 2, Parish of Bengworden South
4. 24 ha being the 102nd section reserve adjacent to allotment 16B, section 1, Parish of Bengworden

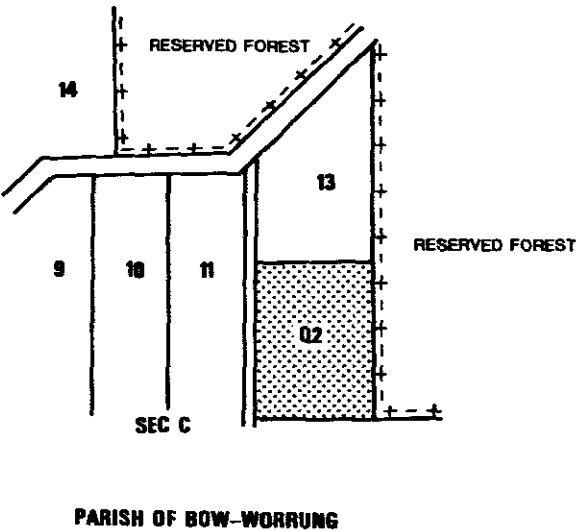
**AGRICULTURE Q1
MARLOOH**

MAP 1



**AGRICULTURE Q2
BOW-WORRUNG**

MAP 2

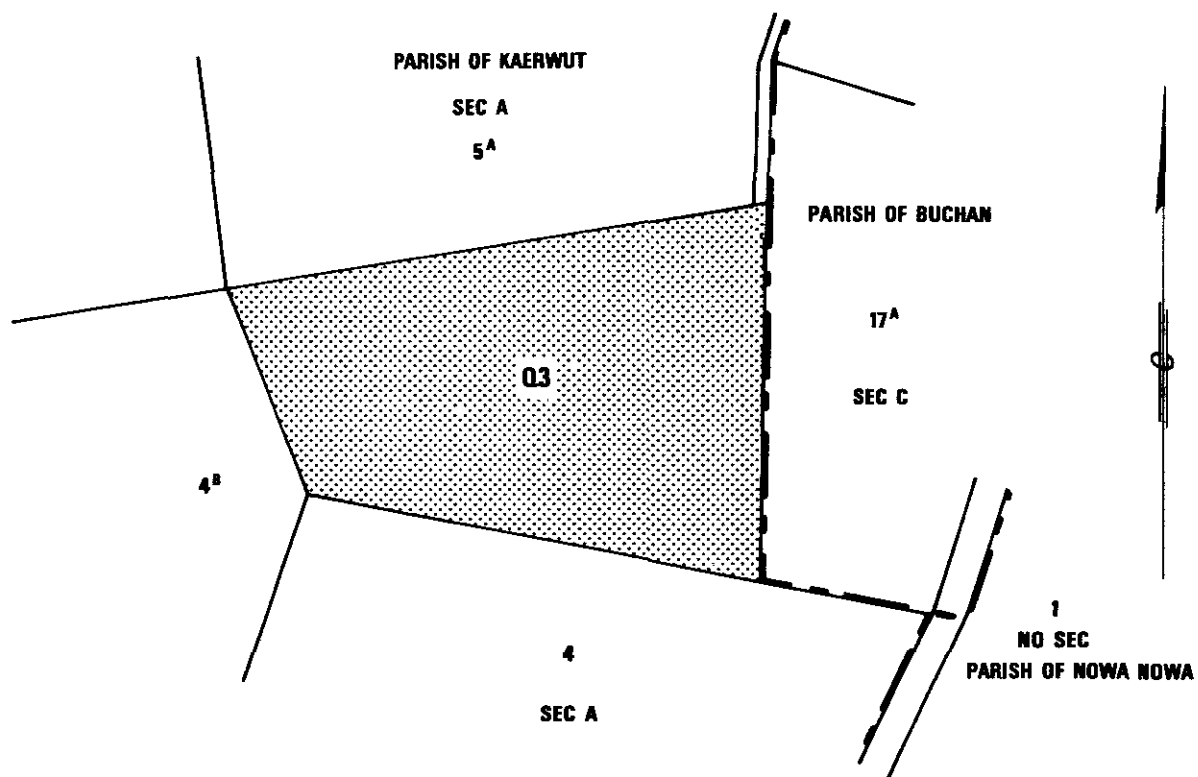


PUBLIC LAND RECOMMENDED FOR ALIENATION



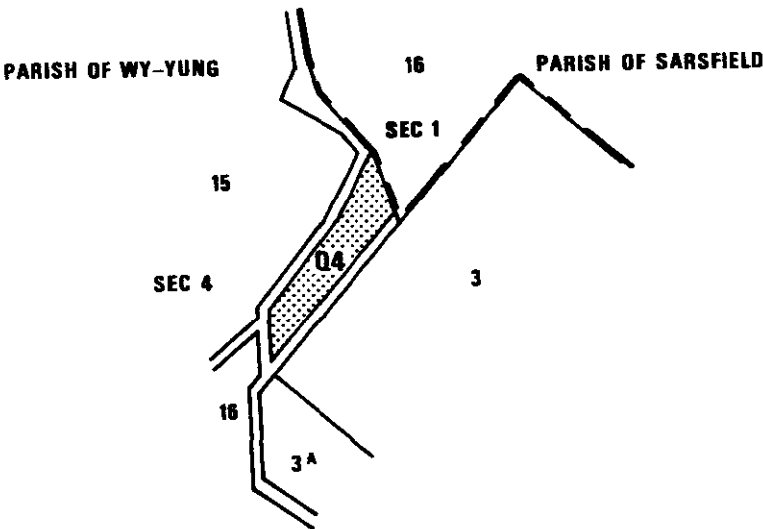
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KAERWUT



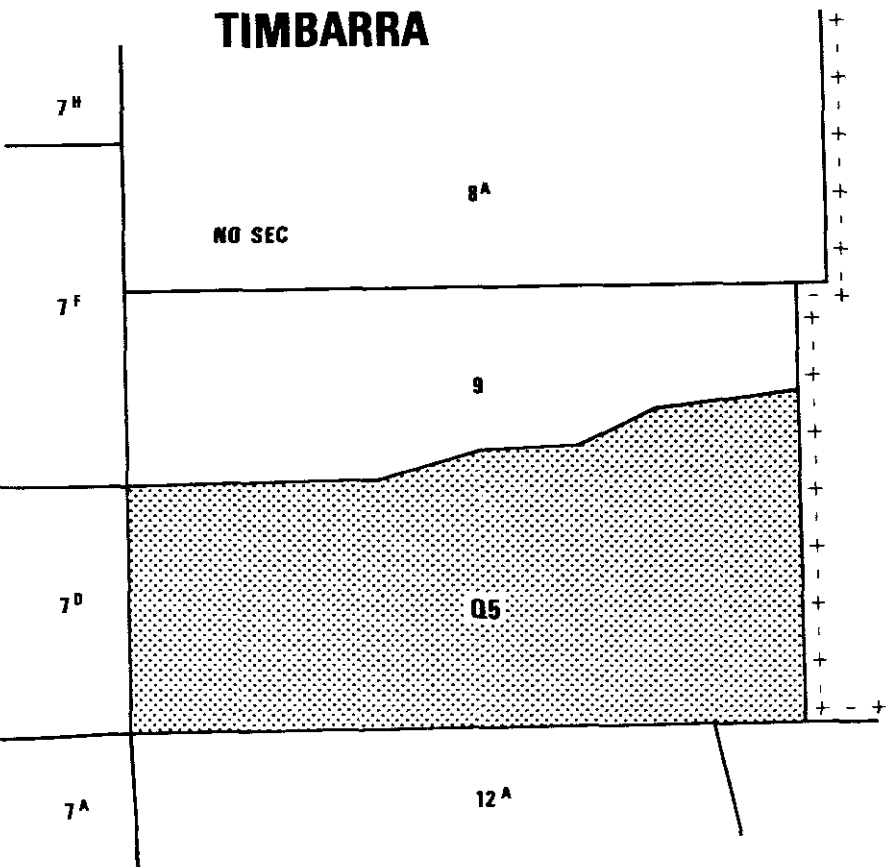
AGRICULTURE Q4
WY-YUNG

MAP 4



AGRICULTURE Q5
TIMBARRA

MAP 5



RESERVED

FOREST



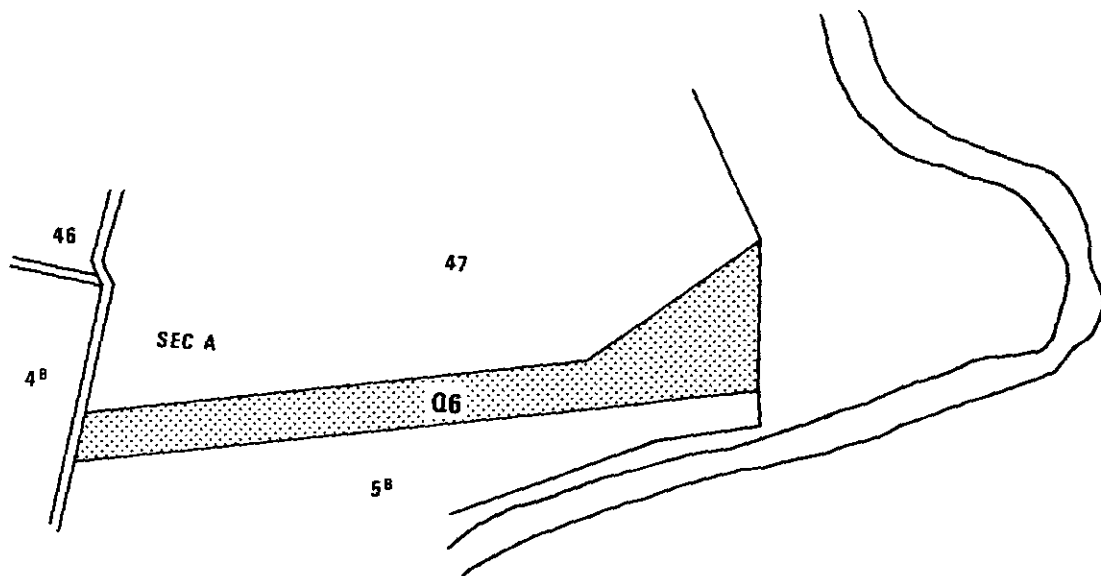
PUBLIC LAND RECOMMENDED FOR ALIENATION



SCALE 1 : 15,840

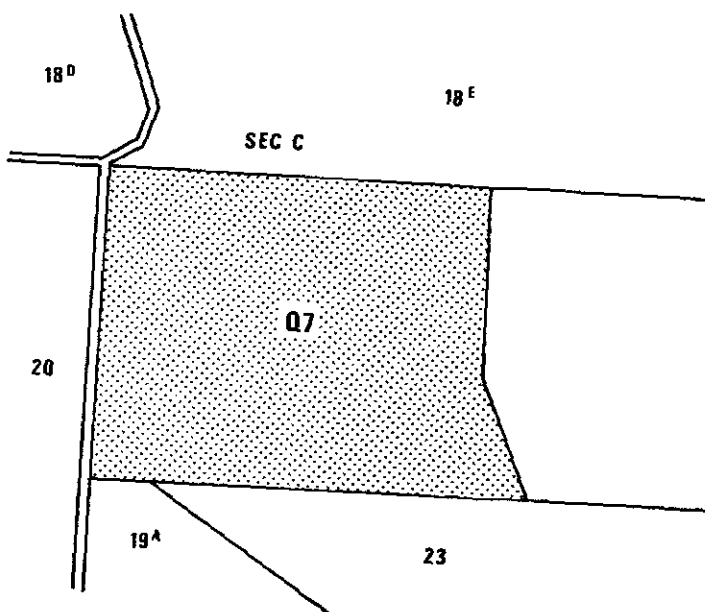
**AGRICULTURE Q6
BUCHAN**

MAP 6



**AGRICULTURE Q7
GLENALADALE**

MAP 7



PUBLIC LAND RECOMMENDED FOR ALIENATION

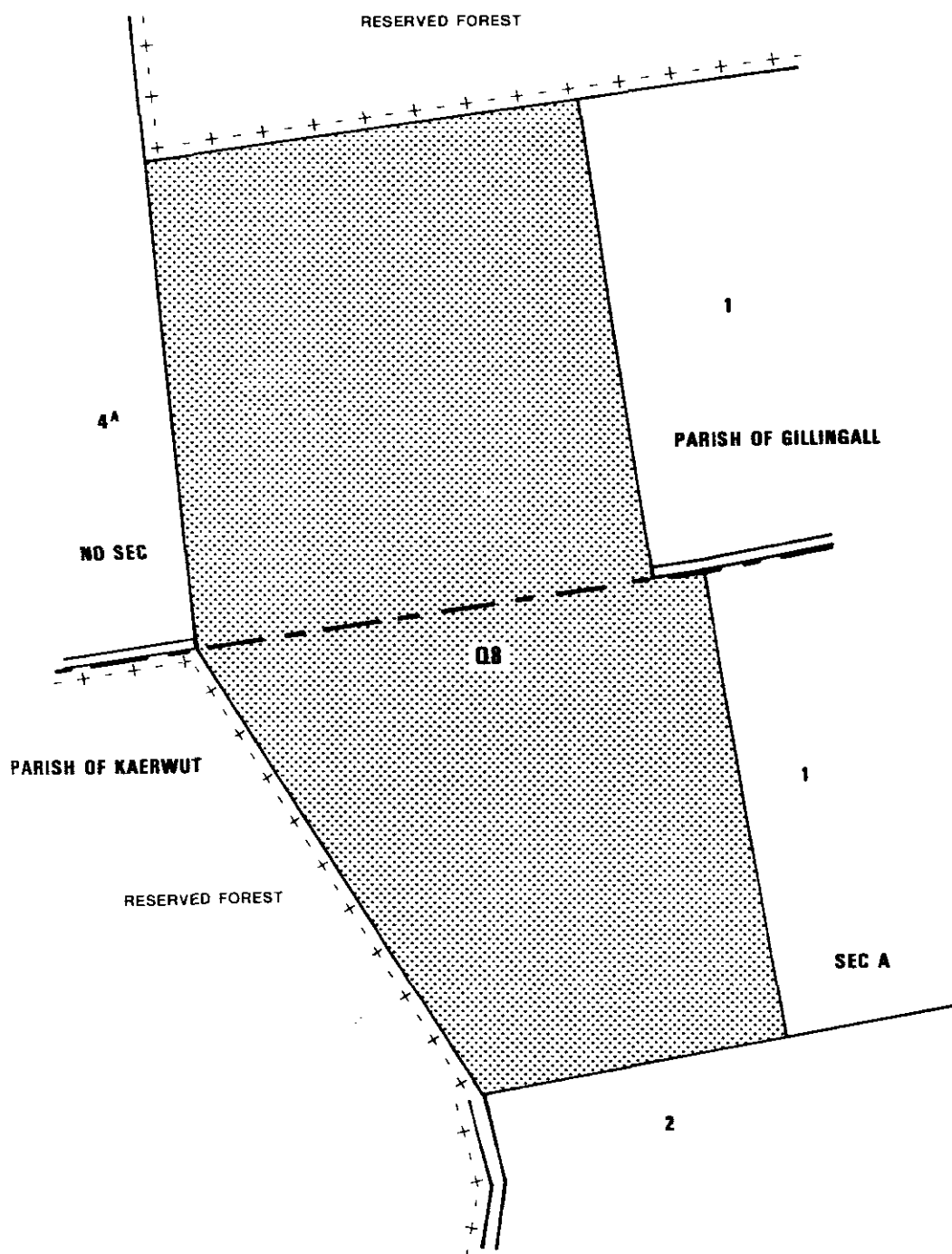


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AGRICULTURE Q8

GILLINGALL AND KAERWUT

MAP 8

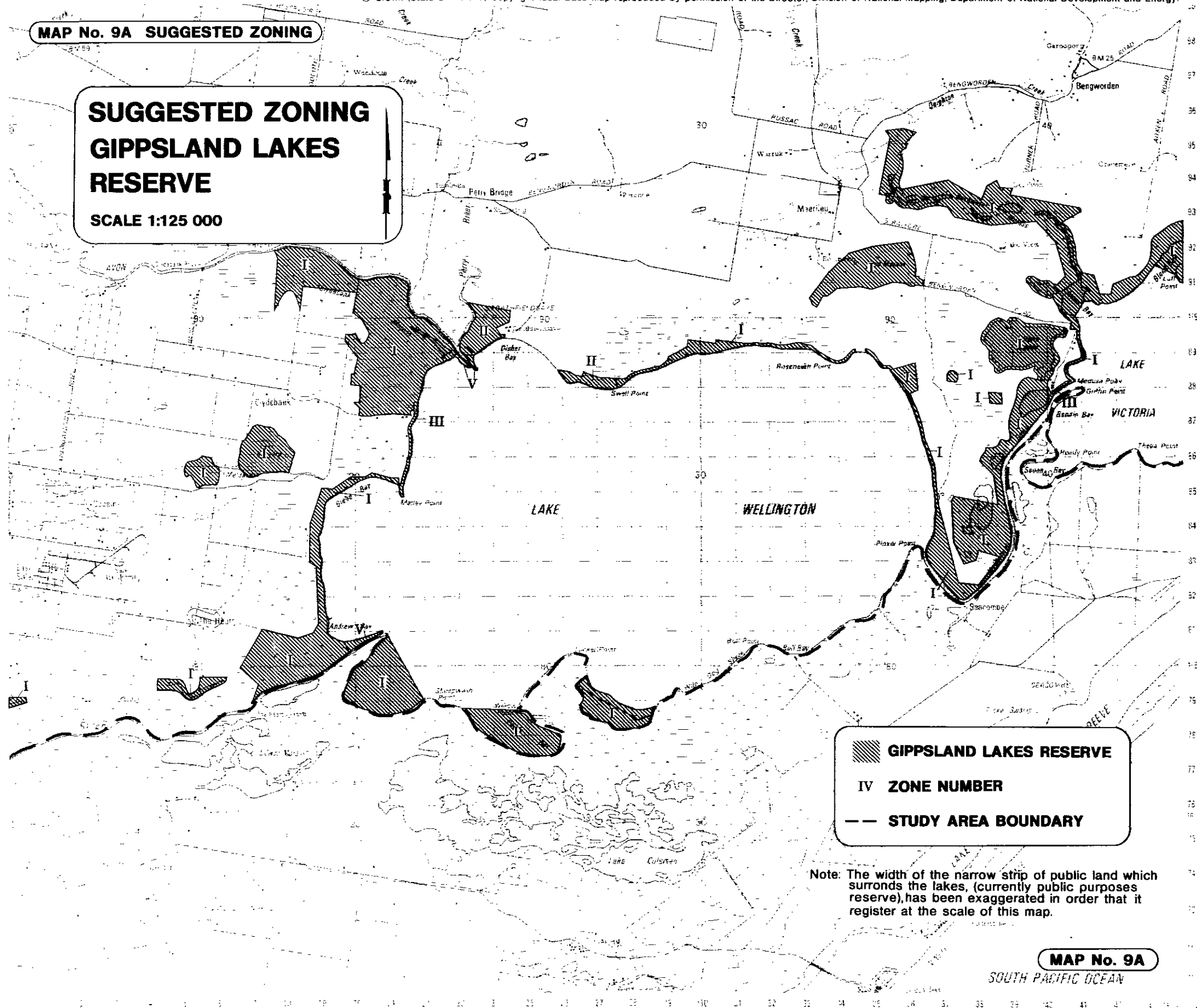


PUBLIC LAND RECOMMENDED FOR ALIENATION



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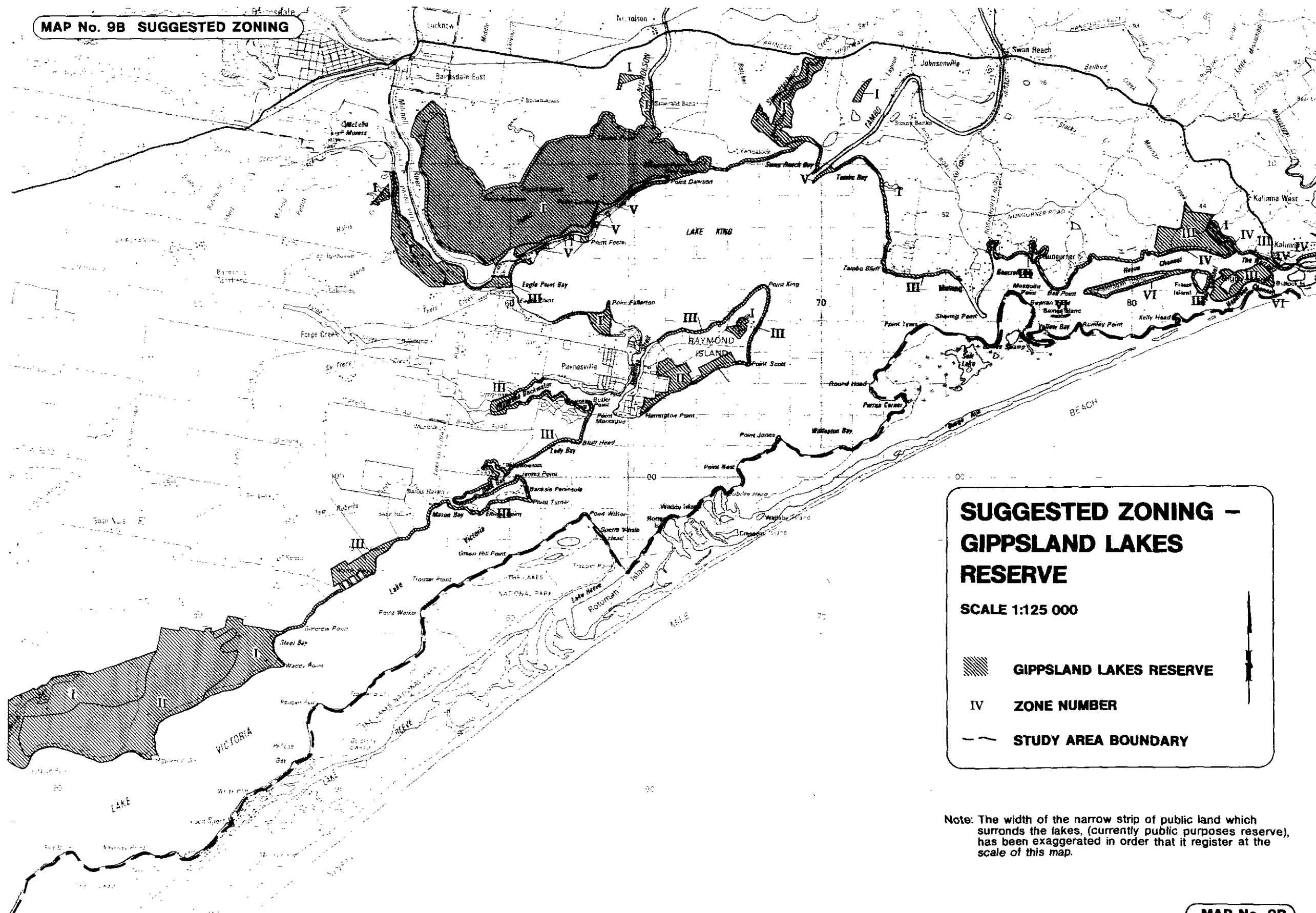
SCALE 1:125 000



Note: The width of the narrow strip of public land which surrounds the lakes, (currently public purposes reserve), has been exaggerated in order that it register at the scale of this map.

MAP No. 9A

SOUTH PACIFIC OCEAN

MAP No. 9B SUGGESTED ZONING

Note: The width of the narrow strip of public land which surrounds the lakes, (currently public purposes reserve), has been exaggerated in order that it register at the scale of this map.