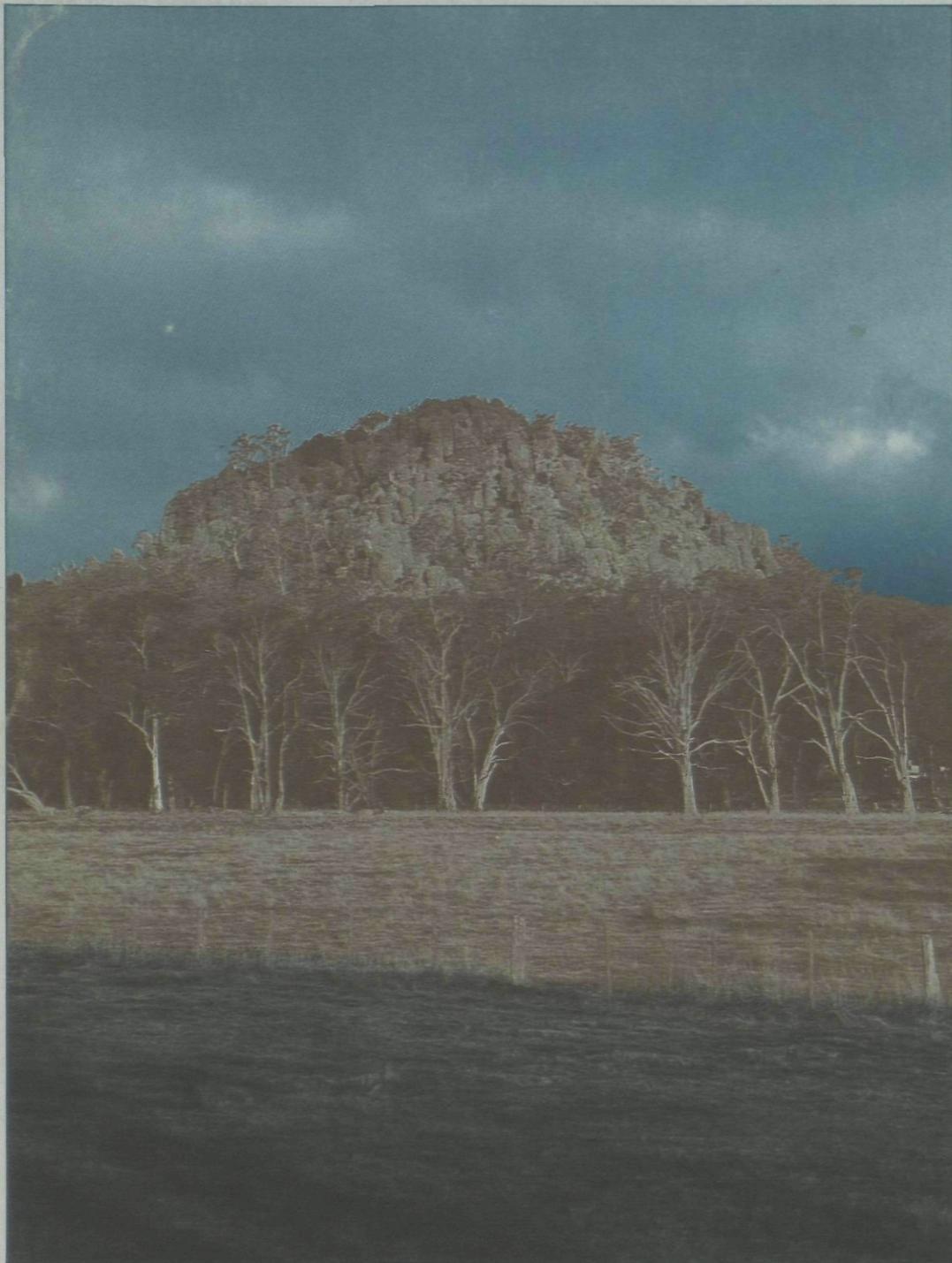


# MELBOURNE AREA

DISTRICT 1 REVIEW

## FINAL RECOMMENDATIONS



LAND CONSERVATION COUNCIL

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## FINAL RECOMMENDATIONS

JUNE 1987



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Government of Victoria

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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 Planning and Environment with respect to the use of public land, in order to provide for the balanced use of land in Victoria. Notices showing the boundary of the Melbourne area, District 1, and advising that a review of the earlier investigation was to be carried out were published in the *Victorian Government Gazette* of 27 June 1984 and in local and other Victorian newspapers in June 1984. A descriptive resources report was published on 17 June 1985.

## Submissions

Following the publication of the report, the Council received 80 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 possible forms of land use for the district. In addition, discussions have taken place with many individuals and groups prior to the formulation of recommendations.

After considering these submissions, and having visited the study area, the Council formulated its proposed recommendations, which were published in June 1986. The Council subsequently received 192 submissions commenting on these proposals and had further input from various groups and individuals. After due consideration, the Council now presents its final recommendations.

## Availability of submissions

All submissions received by the Council are available for inspection at the Council's offices, 464 St. Kilda Road, Melbourne.

## Report contents

This report contains the Council's final recommendations concerning the use of public land in the Melbourne area, District 1. The recommendations in the text are grouped under major headings, such as Parks, State Forest, and so on. Accompanying the text is 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. More detailed maps show areas recommended for agriculture (by alienation) and the Anglesea lease area. Additional information on boundaries is held by the Land Conservation Council.

## Land uses

The Council recommends the continued use or establishment of: 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); flora reserves and flora and fauna reserves for areas of value for conservation of representative plant communities and habitat; and wildlife reserves for several sites containing valuable faunal habitats. Other areas are recommended as bushland reserves and substantial areas are recommended as State forest.

Where demands from competing uses vie for a given area of land, it is not possible to satisfy them all. Wherever possible, 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.

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.

Table 1 summarises the recommendations in terms of the major forms of use.

It is important to realize that each primary use has a number of compatible secondary uses. In

**Table 1: Public land use.**

<i>Land use categories</i>	<i>Area (ha)</i>	<i>Percentage of all public land covered by these recommendations</i>
National park .. .. .	7 740	< 1
State park .. .. .	19 000	14
Marine reserves .. .. .	2 210	N.A.
Regional parks .. .. .	8 020	6
Reference areas .. .. .	8 360	6
Wildlife reserves .. .. .	2 120	2
Flora and flora and fauna reserves .. .. .	5 095	4
State forest .. .. .	60 000	44
Water production .. .. .	4 860	4
Coastal reserve .. .. .	2 100	1
Education areas .. .. .	1 150	1
Mineral and stone .. .. .	5 000	3
Historic areas .. .. .	200	< 1
Agriculture .. .. .	916	< 1

Other land uses, such as scenic, bushland, streamside, and recreation reserves collectively make up the balance.

Figures are rounded.

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 Department of Conservation, Forests and Lands**

The Department of Conservation, Forests and Lands was formed in 1984 by amalgamating the Forests Commission, National Parks Service, Fisheries and Wildlife Division, Department of Crown Lands and Survey, Soil Conservation Authority, and part of the central administration of the Ministry for Conservation.

The primary role of the Department is to manage Victoria's public land so as to ensure that its resources are protected and used properly, and to care for the State's water catchments and assist landholders to conserve soil, fauna and flora, and general amenity.

Head Office, located in Melbourne, consists of six Divisions, four of which are the functional arms—now known as the National Parks and Wildlife Division, Fisheries Division, Public Land Management and Forests Division and the Land Protection Division. This last

Division comprises staff formerly in the Soil Conservation Authority and Vermin and Noxious Weeds Destruction Board, and the tree-growing extension group within the Forests Commission.

The functional arms are responsible for policy development and the preparation of State-wide plans and programs, technical standards, guidelines, and prescriptions, and for monitoring implementation in the regions.

Public land management is implemented by the Regional Management Division in accordance with the approved annual programs and the guidelines and technical standards provided by the Head Office functional groups.

The State has been divided into 16 regions and each regional group is responsible for the management of public land in that region, irrespective of whether an area is national or State park, State forest, or some other reserve set aside for a particular form of community use. Management plans will be prepared by staff from the regions and functional arms working together.

Particular attention has been given to fire-prevention and suppression. Fire-protection services for public land are provided and co-ordinated by the Regional Management

Division. The amalgamation provides significant additional benefits: direct involvement of much larger forces of staff and employees in prevention and suppression; and better co-ordinated and more readily available support forces of manpower and equipment. All these elements collectively enable more effective fire-prevention and fire-suppression programs to be achieved on the public lands of the State.

Under legislation soon to be introduced in the State parliament, the Director-General of the Department of Conservation, Forests and Lands will assume the statutory responsibilities of such bodies as the Forests Commission (under the *Forests Act* 1958), the Soil Conservation Authority (under the *Soil Conservation and Land Utilization Act* 1958), and the Vermin and Noxious Weeds Destruction Board (under the *Vermin and Noxious Weeds Act* 1958). Although the various functional arms of the Department exercise particular responsibilities, their roles in the administration, planning, and management of public land are closely interwoven and consequently reference in the text will be to the Department rather than to specific sections.

## 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 management. Unless these resources are provided, the Council's recommendations cannot be effectively implemented. Council emphasizes that vermin and noxious weeds pose problems in the management of public land in the Melbourne area, District 1. Finance and staff are required to research and implement methods of control of 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.

Following Council's proposal that additional arrangements be made for protecting public land from fire, an amendment to the *Forests*

*Act* 1958 has created the designation "protected public land", which may include public land that is not State forest or national park. The amended Act provides for the protection from fire of all three categories. The role of providing fire-prevention and fire-protection services has now been assumed by the Department of Conservation, Forests and Lands.

Under the provisions of the *Forests Act* 1958 and notwithstanding anything to the contrary in any other Act, fires in every State forest and national park, and on all protected public land, must be suppressed. This includes, for example, all areas included in the schedules to the *National Parks Act* 1975.

In the event of fire in any State forest, national park, or area of protected public land, powers of entry are provided 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 Department of Conservation, Forests and Lands.

Plans for fire prevention in areas reserved under the *National Parks Act* 1975 will be developed by regional management together with the National Parks and Wildlife Division.

The two organizations that carry out fire prevention and suppression in rural Victoria—namely, the Department of Conservation, Forests and Lands and the Country Fire Authority—have closely co-ordinated arrangements for mutual co-operation.

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 or under any future Acts that replace it.

Council recognizes that parts of the Melbourne area, District 1, have potential with respect to future mineral exploration and mining operations.

The Council recommends:

- III 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, perhaps 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 land tenure, management efficiency could be reduced during the delay period. The Council believes that the government should direct that the intent of the recommendations should be followed until they are implemented.

The following recommendations concern the implementation of recommendations:

- V** That the present legal status and management responsibilities for public land continue until the resources required to implement the recommendations are available.
- VI** That, as the boundaries of many areas have not been precisely surveyed, they be subject to minor modifications, road excisions, easements, and other adjustments that may be necessary.
- VII** That in cases where occupation does not agree with title, the Department of Conservation, Forests and Lands 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 *Transport Act 1983*.
- IX** That, where areas of public land are not specifically referred to in these recommendations, present legal uses and tenure continue.

# A. Parks and marine reserves

## Parks

Victoria contains substantial area 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 Melbourne area District 1 has several parcels of land left that can remind us of earlier landscape, flora, and fauna. Such lands are a valuable part of our heritage and must be dedicated for nature conservation and 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.

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.

## Park categories

### National park

An extensive area of public land of nationwide 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. 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—may be permitted where they are compatible with the primary use.

### **Park management**

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 all parks the suppression of fires remains the responsibility of the Department of Conservation, Forests and Lands.

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 Department of Conservation, Forests and Lands.

The two organizations that share the duty of fire-prevention in rural Victoria—namely, the Department of Conservation, Forests and Lands and the Country Fire Authority—have closely co-ordinated arrangements for mutual co-operation.

The control of vermin and noxious weeds within parks will continue to be the responsibility of the Department of Conservation, Forests and Lands, and will be carried out in accordance with plans prepared by the Department.

With sensitive and responsive planning and management, the Council believes, a park should be able to cater for a broad spectrum of public recreation activities without prejudicing its other major functions—namely, long-term conservation and protection of the area's special natural features.

An essential aim in the reservation of an area as a park 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. In some parks, such as Hepburn Regional Park, timber products for local use may become available from time to time as a result of developing and managing the park for recreation.

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.

Under its current management policies, the Department of Conservation, Forests and Lands makes provision for community participation in the operation and management of parks, and community involvement such as this will be encouraged in the parks recommended below.

### **Brisbane Ranges and Organ Pipes**

Both Brisbane Ranges and Organ Pipes were reserved as national parks before the Council developed a comprehensive reserve classification system based on scientific assessment and representation of land systems. Under this system, Council considers that some of the parks listed in Schedule 2 of the *National Parks Act 1975* are more appropriately classified as other types of reserve the type depending upon their inherent characteristics.

The Organ Pipes and Brisbane Ranges do not strictly meet the Land Conservation Council requirements of the national park classification. However, the Council recognizes the concerns that many people have expressed about the proposal to reclassify two areas recognized as national parks for a number of years.

Council has therefore decided to amend its proposed recommendations and will continue to identify these two areas as the Organ Pipes and Brisbane Ranges National Parks.

However, it is important to note that, irrespective of whether an area is called a national or a State park, its conservation values or features will be permanently protected in a way that only an Act of Parliament can change.

# National parks

## Brisbane Ranges National Park

### Recommendation

A1 That the area of 7 500 ha, shown on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977

that hunting and use of firearms not be permitted

that significant historical relics of past mining activity be preserved

and that the area continue to be included in Schedule 2 of the *National Parks Act 1975*.

### Notes:

1. Portion of the Brisbane Ranges was proclaimed a national park in August 1973, with substantial enlargement in 1979.

2. Council is recommending a minor amendment of the boundary between this park and Steiglitz Regional Park, which is deemed necessary for management and administration purposes. The amended boundary is indicated on Map A and involves a small area of the regional park being included in the national park.

## Addition to Brisbane Ranges National Park

This area contains a number of sites supporting plant species of high conservation value, including: a large stand of *Eucalyptus yarraensis* (yarra gum), a rare and endangered Victorian endemic eucalypt: *Olearia* sp. aff. *pannosa* (velvet daisy bush); *Pultenaea graveolens* (scented bush-pea); and *Prostanthera decussata* (dense mint-bush). All of these are rare plant species with disjunct occurrences. In addition, the area includes the building ruins, foundations, and rubble associated with South Mariners engine shaft, which are of historic significance.

### Recommendation

A2 That the area totalling 155 ha, shown on Map A, be included with the Brisbane

Ranges National Park and be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977

and that it be included in Schedule 2 of the *National Parks Act 1975*.

### Note:

This area was previously included in the Steiglitz Regional Park.

## Organ Pipes National Park

The main feature of this area—the 'Organ Pipes'—offers a particularly good example of columns in Pliocene–Pleistocene basalt, which have been exposed in the valley cut by Jacksons Creek. In addition, the area includes some of the best remnants of the native flora that formerly covered the basaltic plains and gorges west of Melbourne—a land type that is poorly represented on public land.

### Recommendation

A3 That the area of 85 ha shown on Map A continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977 and that the park continue to be included in Schedule 2 of the *National Parks Act 1975*.

### Note:

This park was reserved as a national park in 1972. At that time, about 90% of the area was covered with at least 24 species of noxious weeds. However, since then management programs, significantly assisted by volunteer groups, have greatly reduced the extent of noxious weeds and have partially restored the native flora.

# State parks

## Angahook State Park

### Recommendation

A4 That the area of 3750 ha, shown on Map A, continue to be used for those purposes approved by the government following

publication of the final recommendations for the Melbourne area in January 1977 (see Appendix I)

and that hunting and use of firearms not be permitted.

that hunting and use of firearms not be permitted

and that significant historical relics of past mining activity be preserved.

#### Notes:

1. This park includes some 90 ha of land transferred to the Crown, being portions of allotments 2211 and 2212, Parish of Angahook.

2. Council wishes to reiterate its recommendation made in 1977 for the continued use of the dimension stone quarry on Bambra Road.

Council notes that the quarry site on Bambra Road is not being kept tidy and a program of planting local native plants has not been undertaken to screen the quarry from the road as recommended in 1977. This situation should be rectified.

## Lerderderg State Park

### Recommendation

**A5** That the area of 12 700 ha, shown on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977 (see Appendix I)

that hunting and use of firearms not be permitted

and that significant historical relics of past mining activity be preserved.

## Addition to Lerderderg State Park

This 750 ha parcel of land lies between the existing park boundary and the Mount Blackwood road, and carries predominantly an open forest II of messmate in association with broadleaf peppermint and manna gum. Council is proposing that it be added to the existing State park in order to rationalize park boundaries and to facilitate park planning.

### Recommendation

**A6** That the area of 750 ha shown on Map A be added to the Lerderderg State Park and be used as outlined in Appendix I for Recommendation A5

## Additional State park

### Werribee Gorge State Park

Located some 8 kilometres west of Bacchus Marsh, this park features the impressive Werribee Gorge, contains spectacular views, and provides opportunities for bushwalking and rock-climbing.

Because of its ruggedness and steep slopes, the Werribee Gorge has remained in a relatively natural state. This has enhanced its value for flora and fauna conservation, since most of the surrounding land has been cleared for many years.

Vegetation in the park includes red ironbark, grey box, manna gum, and varnish and golden wattles. White cypress pine, usually found north of the Divide, also occurs here. Other plants here are wedge-leaf hop-bush, snowy mintbush, bush peas, and groundsels, while several species of fern are found in the shaded gullies.

Bird life is prolific—two notable species being the wedge-tailed eagle and the peregrine falcon.

In January 1977 final recommendations for the Melbourne area, Council recommended that Werribee Gorge be included in the Brisbane Ranges State Park. Subsequently the Werribee Gorge Park was listed separately in a schedule to the *National Parks Act 1975* on 26 April 1979. The Council is now proposing to recommend that the Werribee Gorge Park be a State park in its own right.

### Recommendation

**A7** That the area of 600 ha shown on Map A continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977 (see Appendix I, Recommendation A7)

and that hunting and use of firearms not be permitted.

Note:

Werribee Gorge State Park includes allotments 2A, 2B, 2C, 2D, 2E, and 3A, section 1, Parish of Korkuperrimul, which have been recently purchased by the government.

## Regional parks

### You Yangs Regional Park

#### Recommendation

- A8 That the area of 2025 ha, shown on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977 (see Appendix I) and that hunting and use of firearms not be permitted.

### Steiglitz Regional Park

#### Recommendation

- A9 That the area of 650 ha, shown on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977 (see Appendix I).

Note:

Council is recommending a minor amendment of the boundary between Brisbane Ranges National Park and Steiglitz Regional Park for management purposes. The boundary is shown on Map A and involves a small area of the regional park being included in the national park.

### Hepburn Regional Park

#### Recommendation

- A10 That the area of 2250 ha, shown on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977 (see Appendix I) except that
- (a) minor hardwood timber products be available from time to time as a result of developing and managing the park for recreation

and that

- (b) hunting and use of firearms not be permitted
- (c) significant historical relics of past mining activity should be preserved.

### Additions to Hepburn Regional Park

Council is proposing to add a number of areas of public land to this park, in order to rationalize the existing park boundaries to facilitate park management, and to incorporate into the park various historical relics and features

#### Recommendation

- A11 That the areas totalling 250 ha, shown on Map A and described below, be added to Hepburn Regional Park and be used as outlined in Appendix I for Recommendation A10:
- the area west of Midland Highway in the vicinity of Dry Diggings, previously designated as uncommitted land
  - public land, linking Spring Creek, Doctor's Gully, and Cobblers Gully, Township of Hepburn
  - the area west of the existing park, previously designated as G1, Forest Area.

### Macedon Regional Park

#### Recommendation

- A12 That the area of 2560 ha shown on Map A be used to:
- (a) provide opportunities for informal recreation for large numbers of people
  - (b) conserve and protect the natural ecosystems to the extent that this is consistent with (a) above
  - (c) supply water and protect catchments
- and that
- (d) preparation of a management plan for the park take account of the particular values referred to below (the areas to which they apply are broadly indicated on Map 3).

## Macedon Regional Park values

Since the disastrous bushfires of 1983, considerable effort has been put into planning strategies for the redevelopment of the Macedon area. Of particular interest in this regard has been work done by the Macedon Ranges Redevelopment Advisory Committee, the Macedon Ranges Conservation Society, and the School of Environmental Planning at Melbourne University. Council has paid due regard to this work in the formulation of its final recommendations for the Macedon Regional Park and believes that its proposals are compatible with and complementary to the redevelopment strategies.

The most directly relevant planning for the recommended Macedon Regional Park is that currently being undertaken by the Department of Conservation, Forests and Lands. As part of the direct planning for the park, the Department, in association with the Country Fire Authority and the local community, will be developing a fire-prevention plan.

Council believes that in preparing its management plan for this area the Department of Conservation, Forests and Lands should take account of the following values:

- water supply
- recreation
- conservation
- timber
- landscape

## Water supply

The park contains the water catchments for 18 separate reservoirs and offtakes. Water from these facilities is provided untreated to the townships of Woodend, Lancefield, Sunbury, Riddells Creek, Gisborne, Macedon and Mount Macedon. It is therefore important that the park be managed in a way that ensures the maintenance of adequate stream flows and appropriate water quality.

- Accordingly, developments in the park (especially recreation and softwood) should be designed so as to have minimum impact on catchment values and be excluded from areas in the immediate vicinity of water storages or diversions.
- In view of such developments, and of the area's importance for water supply purposes,

all water supply catchments that fall partly or wholly within the park should be proclaimed. In addition, existing Land Use Determinations should be reviewed and those proclaimed catchments that have not been investigated should have Land Use Determinations prepared as a matter of priority.

## Recreation

The park is one of the study area's most important recreation assets. It attracts some 250 000 visitors per year and the number is increasing. This level of visitation already leads to overcrowding at the main attractions of the Memorial Cross and the Camel's Hump. Consideration needs to be given to increasing the number of facilities (particularly picnic sites) both at the popularly visited areas and at other locations within the park.

- The development of recreational facilities to cater for large numbers of people should therefore be expanded in areas such as on the mountain top and adjacent to the Calder Highway.
- A suggested expansion of the network of walking tracks through the park has received considerable support. In particular, a trans-range track, following the spine of the Macedon Range from Macedon to Riddells Creek, has been strongly supported, including recognition in the Government Tourism Strategy. Council endorses the creation of such a track, but recognizes that in order to achieve continuity it may be necessary to purchase some private land at the eastern end of the range.
- The network of walking tracks and nature trails within the park should be extended, including a trans-range track that traverses the length of the Macedon Range.

## Conservation

Macedon Range contains a wide diversity of natural environments. These vary from foothill mixed-species forests through mountain and alpine ash forests to sub-alpine woodland. More than 400 plant species have been recorded in the area—including some, such as alpine ash, at the western limit of its range. The park also contains important wildlife habitats with an interesting range of local fauna, including more than 160 bird species.

- Particular attention should therefore be given to protecting the remnant fern gullies, significant plant communities (such as the alpine and mountain ash forests, and snow gum woodlands), and the important habitat areas along Barringo Creek.
- The area of ash forests (especially mountain ash, which has been reduced to very small stands) should be expanded by the replanting of appropriate sites that have previously been planted to softwoods.

### Timber

With the exception of salvage logging following the 1983 fires, very little hardwood timber has been taken from the Macedon region for many years. By far the most important areas for hardwood production are the Wombat Forest to the west and the Cobaw Ranges to the north.

- Accordingly, commercial hardwood timber harvesting should not be permitted within the park.

Softwoods have been a feature of the Macedon Ranges from the earliest days of European settlement. The first planting commenced about 1850, and by 1880 softwoods were being planted commercially.

Mount Macedon contains some very high-quality softwood sites that have supported extremely high-quality softwood plantings.

It is important to retain these sites for the production of specialist products, and for plantation species such as Douglas fir, which are very site-specific.

The 1983 fires destroyed all the Macedon plantations and so have offered the opportunity to consolidate and rationalize softwood planting in the area. The Department of Conservation, Forests and Lands is currently planning such a rationalization, which will reduce the total area of plantations from the pre-1983 figure of 230 ha to approximately 140 ha, and Council supports this replanting of softwoods at a reduced level.

- Softwood timber production should be permitted, provided the re-planting program:
  - does not involve clearing of native forest
  - does not occur on areas capable of supporting ash forest
  - only involves land that carried softwood plantation prior to the 1983 fire
  - avoids steep sites that are visually intrusive.

### Landscape

Macedon Range forms the dominant landscape feature of the region. Its skyline provides a dramatic contrast to the surrounding relatively flat plains.

The 1983 fires and subsequent salvage logging had a major impact on the park's landscape. The visual scars will remain for many years. However, it is important to plan the park in such a way as to enhance the visual resource of the park.

- The landscape values of the park as viewed from the surrounding lowlands, and from major lookouts and tourist routes within the park, should be protected.

#### Notes:

1. While Council is not empowered to recommend uses for privately owned land, it recognizes that the values associated with the Macedon Regional Park could be substantially enhanced if strategic blocks of freehold land could be added to the public land estate. These additions would be of value for:

- protecting landscape values of the range
- increasing recreational opportunities
- providing linking corridors with other areas of public land
- fire-prevention works

2. The following areas of freehold land have, since 1977, been purchased and included in this park:

- allotments 182 and 209, Parish of Kerrie
- allotments 49 and 51, Parish of Macedon
- allotments 10, 11, and 12, section C, Parish of Newham
- allotments 7 and 17, section B, Parish of Newham

## Addition to Macedon Regional Park

### Recommendation

- A13** That the area of 9 ha shown on Map A, comprising allotment 1, sections 74, 75, 76, and 80, Township of Macedon, be added to the Macedon Regional Park and be used as outlined in recommendation A12 above.

## Additional regional park

### Gellibrand Hill

In the late 1960s the Shire of Bulla became interested in reserving this area for conservation and public recreation. After considerable negotiations with the owners, co-operation between the North Western Regional Organization of Councils and the State and Commonwealth governments brought about the stage-by-stage purchase, from 1977, of Gellibrand Hill Park.

The park is situated just north of Melbourne Airport, only 20 kilometres north-west of the city. It consists of grassy slopes, woodlands, and creek frontages that provide space for relaxation, picnics, and walking, and the hilltops afford extensive views towards the Dandenongs, Port Phillip Bay, the You Yangs, Mount Macedon, and the Great Dividing Range.

The old 'Woodlands' homestead and associated outbuildings are historically significant. In fact, 'Woodlands' represents the first pre-fabricated wooden house brought to Victoria.

Current usage includes picnicking, walking, and nature study, and there are proposals to develop horse-riding and bicycle tracks and a fauna park, and to continue the restoration of the 'Woodlands' complex.

### Recommendation

**A14** That the area of 646 ha shown on the map be used for:

- (a) provide opportunities for informal recreation for large numbers of people
- (b) conserve, protect, and enhance the natural ecosystem to the extent that this is consistent with (a) above
- (c) protect the historical values of the Woodlands homestead

that

- (d) grazing be permitted at the discretion of the managing authority where it is consistent with (a), (b), and (c) above and where it is necessary for park management
- (e) hunting and use of firearms not be permitted

and that the park be included in a schedule to the *National Parks Act 1975*,

and be managed by the Department of Conservation, Forests and Lands.

Note:

This park includes some 46 ha comprising allotment 1, section 1, Parish of Yuroke. The area has recreational value and its inclusion will be of value for relieving existing recreational pressure on the park, especially horse-riding activities.

## Marine reserves

A marine reserve is an area of offshore underwater terrain and the waters above it, together with the associated flora and fauna, set aside to conserve and protect marine and/or estuarine ecosystems.

Marine reserves should include examples of the major ecosystems making up the Victorian marine environment.

Uses within the reserve would be controlled to ensure that all ecosystems are conserved and reserves would be zoned to achieve this aim.

### Existing marine reserves

**A15-** That the areas listed below and shown **A20** on Map A continue to be used as approved by the government following the publication of the final recommendations, Melbourne area, 1977 except that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978*.

**A15** Point Cook

### Harold Holt Complex

**A16** Swan Bay

**A17** Mud Islands

**A18** Popes Eye

**A19** Point Lonsdale

**A20** Point Nepean

Note:

All of the above marine reserves have been proclaimed under section 79 of the *Fisheries Act 1968*.

### Additional marine reserve

#### Williamstown

This relatively small area contains an unusually diverse array of habitats. It includes saltmarsh,

rocky reef, seagrass beds, intertidal flats, and sandy beaches, as well as a scientifically important relic population of the white mangrove (*Avicennia marina*), which is found at only one other site around Port Phillip Bay. The occurrence of mangroves on a rocky shore platform is unusual for the Victorian coastline, where most mangrove swamps occupy sites dominated by silt or mud. The basalt shore platform itself has geomorphological interest, displaying the typical columnar jointing pattern, and it has been suggested that the platform provides evidence of a slightly higher sea level in Port Phillip Bay in the relatively recent past.

The significance of the area is enhanced by its essentially undisturbed nature, which in turn is due to its relative inaccessibility—access being restricted by the operation of the Merrett Rifle Range, which includes a notified danger area offshore.

Although Council has no power under the *Land Conservation Act 1970* to make recommendations on land within a city, it believes that the area of land containing saltmarsh vegetation between the existing rifle butts and high water mark should be included in this reserve.

### **Recommendation**

**A21** That the area of 17 ha (extending 100 m seaward from high water mark) shown on map A be used to:

- (a) primarily to conserve and protect significant intertidal and marine habitats
- (b) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments

that

- (c) the managing authority determine uses for the reserve in consultation with other interested parties such as education groups and recreational and commercial fishermen

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

Note:

The Council is aware that the Merrett Rifle Range, within the City of Williamstown, has recently been purchased by the State government.

### **Other protected marine areas**

It has been suggested to Council that in Port Phillip Bay, adjacent to Victoria's major population centres, setting aside marine areas for recreational and educational purposes is just as important as doing so for biological purposes.

In the past, no systematic attempt has been made to establish marine protected areas at strategic locations around the Bay, specifically for recreational and educational purposes.

In its proposed recommendations the Council indicated that it would investigate the prospect of setting aside such areas, but having considered the question the Council has determined that it has insufficient information on which to make definite recommendations.

The Council believes that a State-wide survey of marine ecosystems should be undertaken as a matter of priority to identify those that are significant. This survey should also include an assessment of the value of such areas for educational and recreational purposes.

Council is also concerned that little research has been done on the effects of commercial and recreational fishing on marine ecosystems, although some information is available on the impact that commercial fishing has on the larger species while surveys have been undertaken on the impact of scallop dredging and recreational fishing. Further, the Fisheries Division is currently assessing the impact of habitat changes on the fish stocks in Port Phillip Bay.

### **Recommendations**

**A22** That a State-wide survey of marine ecosystems be undertaken as a matter of priority to identify representative and significant marine environments, including those suitable for educational or recreational purposes.

**A23** That additional research be conducted into commercial and amateur fishing to ascertain whether harvesting levels are environmentally acceptable and sustainable in the long term.

## B. 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 humanity'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 land). These areas preserve a valuable pool of genetic material. Wild species are often used 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*, assists 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.

### Existing reference areas

#### Recommendations

- B1– B6** That the areas listed below and indicated on Map A continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977.
- B1** Durdidwarrah (125 ha)
- B2** Stony Creek (270 ha)
- B3** Musk Creek (125 ha)
- B4** Ruths Gully (200 ha)
- B5** Ah Kows Gully (440 ha)
- B6** Pyrete Range (360 ha)

Notes:

1. All of the above reference areas have been proclaimed under the *Reference Areas Act* 1978.
2. Council is aware that the Tertiary marine and non-marine sands found in the eastern portion of the Otway Ranges are not represented in the reference area system. Council will give consideration to establishing a reference area for this land type in its review of the Corangamite area.

## C. Wildlife

Wildlife conservation—a land use in its own right—cannot always be separated from other land uses such as timber production, forest grazing, water production, and recreation. These types of use often require large areas of land, much of which can be managed to retain its value as wildlife habitat. In the long term, wildlife conservation depends upon conservation of habitat covering areas that are sufficiently large and diverse to support *genetically viable populations of species*.

Animal habitats are generally described in terms of vegetation communities, although other characteristics—such as vegetation structure, ground cover, water depth, salinity, rock outcrops, and hollow trees—are also important.

The vegetation map of the district illustrates the diversity of habitats and shows that no single community covers an extensive uninterrupted area, but rather that each community or habitat tends to be repeated over a wide area as part of a complex mosaic. This pattern is largely determined by the diversity of climate, soils, physiography, and aspect.

The distribution of an animal species depends on its behavioural and physical requirements for food, shelter, and breeding sites. Many species can utilize a range of habitats and consequently are widely distributed throughout the area. Some occupy their environmental range as residents. Others, such as certain bird species, are not year-round residents but migrate in and out of the area at regular intervals. Other birds visit the area infrequently in nomadic movements, while yet other species move between high and low altitudes with the seasons. It is obvious therefore that the conservation of fauna presents many difficulties, even for those relatively few species whose life history and behaviour are understood.

Council considers that wildlife conservation is an important consideration in the management of the entire area and that management plans should make provision for the conservation of wildlife. This is especially important for animals that are essentially restricted to a particular habitat for feeding and breeding. The orange-bellied parrot, for instance, is restricted to saltmarsh areas near the coast.

The activities of man in modifying the natural environment have resulted in changes in the distribution and abundance of many species and some species have become extinct. These changes have depended upon the nature and severity of the modification, the particular habitat requirements of the species, and its adaptability to change.

The precise effects on many species, however, are not well documented. Council has recommended elsewhere in this report that principles relating to the conservation of fauna be adopted for land uses that could significantly affect wildlife values. The Council considers that further research into the ecological requirements of species is necessary to determine the effects of various land management practices, particularly those where management is oriented towards more competitive uses such as timber production, forest grazing, and *intensive recreation*. The results of such research may mean the modification of management practices in some areas if wildlife values are to be adequately considered.

The many streams and wetlands of the study area provide specialized habitat for a large group of birds, fish, and crustaceans, and some mammals. They also form important elements of the scenery of the region.

Although some forms of land use are compatible with fish and wildlife conservation, it is necessary to set some areas aside specifically for their conservation, and for developing wildlife conservation techniques.

These areas may be selected for conservation of species that the community harvests. They may contain the habitat of endangered species or they may have specialized breeding grounds or a high species diversity, or be of educational, recreational, or scientific interest. They may also be selected because of their ecological significance for (or regional representation of) a species or faunal association, or for their value as a stop-over for migratory or nomadic species.

In all wildlife reserves the responsibility for the suppression of fires remains with the Department of Conservation, Forests and Lands, and fire-prevention measures will be carried out where necessary.

## Existing wildlife reserves

### Recommendations

- C1-** That the areas indicated on Map A and  
**C8** listed below continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area, January 1977.

- C1** Browns Swamp (30 ha)  
**C2** Reedy Lake (Connewarre) (730 ha)  
**C3** Lonsdale Lakes (150 ha)  
**C4** Swan Bay-Edwards Point (250 ha)  
**C5** Mud Islands (56 ha)  
**C6** St. Leonards (24 ha)  
**C7** The Spit (300 ha)  
**C8** Serendip (250 ha)

## D. Water production

Local catchments are very important for water production, both for domestic consumption and for irrigation water supply. Catchments wholly or partly in the study area provide domestic supply for the major centres of Geelong, Melton, and Bacchus Marsh and for many smaller townships.

### Current management and use

None of the catchments is used solely for water production, although restrictions limit the type of activity permitted in some of them and on some of the reservoirs. The catchments are subject to a variety of land uses, including recreational activities, timber production, and agriculture on open farmlands.

### Land use planning

Council notes that the degree of land use planning varies between catchments. There are 22 proclaimed water supply catchments partly or wholly within the District, and Land Use Determinations have been prepared for 15 of them.

Council maintains that all domestic water supply catchments should be investigated and, where appropriate, recommended for proclamation in order to ensure a uniform procedure for land use planning within these areas.

### 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, a land use determination may be made for a catchment under section 23 of the *Soil Conservation and Land Utilization Act 1958*. This specifies the most suitable uses of all land in the catchment, and includes delineation of protective strips around storages and along major watercourses.

The Council anticipates that controls over land use in water supply catchments will be incorporated in new land protection legislation currently under discussion.

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. Authorities with land management responsibilities 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.

### 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, types 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 manager 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 manager 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 increase. 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.

The report "Victoria—State of the Environment" (April 1986) noted, however, that only 7% of town water supplies comply with World Health Organization bacteriological standards all the time. 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, and notes that the Department of Water Resources' discussion paper—"Strategy Plan to Upgrade Drinking Water Quality"—addresses these issues.

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 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**

**D1-** That the areas shown on Map A, **D99** continue to be used for those purposes approved by the Government following publication of the final recommendations for the Melbourne area in January 1977.

Note:

Merrimu Reservoir, D17, is being enlarged to meet increasing urban water demand from the Melton and Bacchus Marsh Shires, and consequently the historic Coimadai Lime Kilns situated on the eastern bank of the reservoir will be inundated. Discussions are continuing between the Rural Water Commission, the Historic Buildings Council, the National Trust, and the Shire of Bacchus Marsh as to how the kilns may best be preserved or, failing preservation, recorded.

### **Recommendation**

**D100** That in the case of off-river storages, water supply installations, and weirs—such as the one shown on the map and described below—these and their associated reserves remain under existing tenure and control.  
Bacchus Marsh Weir, Werribee River.  
Rural Water Commission.

### **Additional water storage facilities**

#### **Recommendation**

**D101** Inverleigh storage basin  
That some 2 ha as shown on Map A could be used as a site for a service basin for the Inverleigh township should no other suitable alternative be available and that should the site be required, the facility be screened from Common Road by tree plantings with species native to the area.

# E. State forest and timber production

## State forest

The larger areas of forested public land in the State that were not incorporated into parks, or set aside in various reserves or for softwood production, were in the past designated by the Council either as areas for hardwood timber production or as uncommitted land. In the Council's final recommendations for the Alpine Area—Special Investigation, published in November 1983, it was proposed that such forested land be managed as a single unit.

The Council decided to refer to this land as 'State forest', because it believes that term best describes public land in timber production areas and uncommitted land, even though this may contain a range of vegetation types—from tall mountain forests through to woodlands, mallee scrub, heathlands, and swamplands. The name is used only in a descriptive sense rather than as a term defined in the *Forests Act* 1958.

State forest comprises a mosaic of forests of varying productivity, and the separation of land into timber production areas and uncommitted land has tended to reinforce the belief that the State's commercially productive hardwood forest is entirely located within hardwood production areas and that timber production is the sole object of management there. In fact, a significant volume of commercial timber is extracted, in conformity with Council's recommendations, from uncommitted land; at the same time, hardwood production areas are managed for a range of uses as well as for wood production.

Although many of the outstanding natural features and values occurring on public land are included in parks and reserves, the hardwood production areas and uncommitted land contain significant water production, landscape, historical, and conservation values. Many rare plants are found in State forest and, considering it occupies about two-thirds of all public land, it is of major significance as faunal habitat. The term 'hardwood production' implies quite erroneously that such areas have few values other than for timber production, while the term 'uncommitted land' belies the significance of this land for many different uses including timber production.

The Council has defined the area of State forest within the study district and, in line with the concept of unified and co-ordinated management, believes it would be appropriate for all State forest to be administered under one Act and be securely reserved under a single land tenure incorporating provisions similar to those currently applying to land administered under the *Forest Act* 1958. The formation of the Department of Conservation, Forests and Lands and the policies and practices established as a result of the Timber Industry Strategy have overcome many of the anomalies associated with the use of State forest.

## Timber Industry Strategy

The government released a Timber Industry Strategy in August 1986. This sets new directions for forest management and timber production in Victoria and is the culmination of a process that commenced in 1984 with the appointment of Professor Ian Ferguson to conduct a Board of Inquiry into the Victorian Timber Industry.

Central to the Strategy is the need to make best use of timber in a way that will strengthen the dependent industries and protect the environment. A major initiative of the Strategy is the decision to introduce regional sustainable yield within the next 10 years. Other major policies include: development of a legislated code of forest practice; public participation in the preparation of forest management plans; and the introduction of trials of alternatives to clearfelling.

The Strategy includes a commitment to a sawlog-driven forest industry, with an emphasis on manufacturing value-added products, and to the maximum productive use of wood residues. Royalties will be set, with the aim of achieving at least 4% return to government on funds invested. The government is establishing accounting systems to monitor this aim.

The study area falls within the Midlands Sawlog Management Area and the move to regional sustainable yield for sawlogs will mean a slight reduction in the level of output, while the availability of residual roundwood as a by-product of sustainable sawlog production will increase marginally over the the next 30 years.

## Timber production

The hardwood forests of this district have been used as a source of wood since early settlement. They currently supply up to 60 000 cu. m of sawlogs annually, which is about 5% of Victoria's annual production from State forests. Most of the timber produced is messmate, narrow-leaf peppermint, or candlebark and is sold locally or in Melbourne for general construction purposes. Hardwood sawmilling directly employs about 160 persons in the study area. Altogether, 10 individual sawmills draw supplies from here and are located at Daylesford, Leonards Hill, Bullarto, Lyonville, Ballarat, Woodend, Kyneton, and Korweinguboorra. It should be noted that the mills at Woodend, Daylesford, and Ballarat also draw supplies from outside the area.

The other major timber product derived from the area's forests is hardboard manufactured from forest and mill residues at the Hardboards Australia Ltd Plant at Bacchus Marsh. Approximately 50 000 tonnes of pulpwood have been harvested annually for more than 20 years from these forests, and the mill and forest operations provide employment for 240 persons together.

Minor forest products such as fencing materials, poles, and firewood are also obtained from the hardwood forests and service the local demand for these products.

## Impact of final recommendations

Council recognizes the importance of timber production based here, but also recognizes the need to set aside areas of particular conservation significance; as a result, some stands of productive timber are included in parks and other reserves where timber-harvesting is not proposed.

The 1977 recommendations allocated areas of public land for hardwood production. Council believes that these areas should continue to be used for hardwood and they have been included in the State forests category. Where variations have been made to previous recommendations that will affect timber availability, such as the addition to the *Lerderberg State Park*, the effect on sawlog production capability has been slight.

## Land use goals

State forest throughout the district has a multiplicity of uses. It is important for the

protection of water supply catchments including groundwater recharge areas, conservation of plants and animals, and timber production and provides many opportunities for outdoor recreation. The forests also provide honey, forage, road-making materials, and other forest produce to satisfy various community needs. In addition they provide opportunities for mineral exploration and mining where appropriate and play a role in groundwater intake particularly in 'recharge areas'.

Management of State forest should take into account these various values and should ensure that they can be maintained and that the range of forest products can continue to be supplied in the future. The Timber Industry Strategy has now established a framework for the management of State forest. This framework includes the provision of forest management plans and a code of forest practice that is intended to—

- protect forests and their associated vegetation and fauna from damage by wildfire and from injury by biological or other agents
- conserve landscape values, wildlife habitats, and floral, historical, and other natural values
- provide a continuing supply of hardwood timber on a sustained-yield basis
- provide opportunities and facilities for public recreation and education
- protect water supply catchments and stream environment in general
- protect adjacent softwood plantations from fire
- provide for apiculture, forest grazing, extraction of road-making materials, defence training, and mineral exploration and mining etc. where appropriate

In relation to the goals, the Council has referred below to a number of principles that should be incorporated into management plans for State forest. The principles are based on harvesting prescriptions used by the Department of Conservation, Forests and Lands.

## Soil conservation and catchment protection

- Adequate buffer strips of at least 40 metres width along major streams and 20 metres along ephemeral watercourses and hydrologically sensitive areas should not be

logged, and where possible other operations that cause soil disturbance should not take place in the buffer strips. They should, as far as practicable, be protected from fire. The width of the buffer should be determined after consideration of the sensitivity of the particular stream environment.

- All roads and snig tracks, log landings, and dumps should be designed and constructed to minimize erosion. These should be adequately drained, breached, and barred when not required, and ripped to encourage rapid regeneration.
- Intensive utilization operations should be excluded from areas of high erosion hazard and from slopes generally greater than 30°.
- Except in some mixed-species forests at lower elevations, logging operations should be restricted during winter and during and following periods of heavy rainfall; consideration should be given to closing unsurfaced logging roads during these periods. Seasonal closure of other roads will continue to be necessary because of excessive damage, erosion, or cost of maintenance, or because of extreme fire hazard.
- Plans for forest roading and harvesting operations be discussed between the Public Land Management and Forests Division, the Land Protection Division, and Regional Management Division prior to implementation, so that the aims outlined in the above principles can be achieved.
- Forestry operations in water supply catchments should be undertaken in accordance with a 'Code of Forest Practice' and/or prescriptions and with the agreement of the Department of Water Resources or the delegated water authority.

### **Recreation and aesthetics**

- Special consideration should be given to road location, size and shape of logging coupes, and other activities carried out in the forest in areas of high landscape value.
- Specific prescriptions should be applied to logging and other activities involving disturbance to the natural environment near major roads and walking tracks.
- All refuse associated with logging, mining, or quarrying operations (such as tyres, drums, and disused huts) should be removed at the end of the operations.

- Activities involving disturbance to the natural environment should not occur in buffer zones around popular recreation sites and beauty spots.

### **Nature conservation**

- Significant vegetation communities and colonies of rare or endangered plants and animals should be protected. Management plans should include details as to how they might best be protected, following consultation with specialist groups such as the National Herbarium. Some species or communities may require long-term monitoring in order to assess their habitat requirements and the most appropriate methods of management to ensure their survival. The managing authority may, in some cases, need to:
  - create and manage buffer zones of adequate size
  - erect protective fencing
  - provide additional weed and vermin control
  - manipulate fire regimes to maintain or enhance the viability of certain species
  - collect and store seed for use in planting and re-establishment programs.

It may be appropriate for the management authority to involve local field naturalist groups or other interested parties in some of these management operations.

- Protection strips along streams and water-courses in logging coupes should be linked to other areas in which timber harvesting does not occur, in order to provide wildlife corridors.
- Some mature and veteran trees in logging areas should be retained for fauna habitat.
- All logged areas should be regenerated with forest tree species native to the area.
- Aerially applied pesticides and fertilizers should be used with caution; no compounds that may significantly affect native animals should be used; any compounds should be carefully applied so as to avoid damage to retained native vegetation.

### **Historic sites**

- Sites of historical significance or interest (such as relics of mining, logging, or early settlement) should be identified, and the sites

and their environs should be protected by special prescriptions.

- When such sites are identified, the desirability or otherwise of providing or upgrading vehicular access to each one should be considered when logging roads are being designed.

### Recommendation

E1 That the areas shown on Map A be used in accordance with the principles outlined above to:

- (a) supply water and protect catchments and streams
- (b) produce hardwood timber
- (c) conserve native plants and animals, and provide opportunities for the development of wildlife conservation techniques
- (d) provide opportunities for open-space recreation (including hunting) and education
- (e) produce honey, forage, gravel, sand, road-making materials, and other forest produce
- (f) protect adjacent areas recommended for softwood production
- (g) provide opportunities for mineral exploration and mining, subject to the principles and guidelines outlined in Chapter R, Mineral and stone production
- (h) protect the values in the areas described in the following sections by the implementation of management prescriptions

and that they become State forest and be managed by the Department of Conservation, Forests and Lands.

Note:

This recommendation covers land previously recommended for hardwood production and uncommitted land, with the exception of areas for which other recommendations have been made in this review.

### Pyrete Range

The Pyrete Range occurs on Ordovician sandstone, which has been eroded to form a complex topography of deep gullies and steep hills and

lies between the Mount Bullengarook and Mount Gisborne basalt flows. This has resulted in the range forming a significant landscape feature when viewed from a number of vantage points such as Mount Macedon and the Gisborne-Bacchus Marsh road.

Though only some 50 kilometres from Melbourne, the range's topography has ensured that the area has remained virtually untracked, except for a number of fire-access tracks, while access into the range itself is extremely limited.

Vegetation in the range is predominantly open forest-woodland I of red stringybark, red box, peppermints, and long-leaf box while, in some northern sections, open forest-woodland II of the same *Eucalyptus* species can be found. Some 250 native vascular plants have been recorded, including the rare *Boronia pilosa*, *Bossiaea obcordata*, *Lepidium pseudotasmanicum*, and *Prostanthera saxicola*. In addition, silvertop (*Eucalyptus sieberi*), and long pink bells (*Tetratheca stenocarpa*) all have their westernmost occurrence in the Pyrete Range.

The native fauna of the area have not yet been systematically recorded, but preliminary surveys by local conservation groups indicate a significant assemblage of native fauna, with the tuan (*Phascogale tapoatafa*) being of particular interest. In addition, some 32 species of native birds have been recorded.

In its southern section, the range contains the relics of an old antimony mine, which are of historical significance. The area was also subject to gold-mining during the early gold-mining days of the State, but only a few shafts were sunk and they yielded little.

The range also forms part of the Merrimu Reservoir catchment area and supplies water for domestic use in Melton and Bacchus Marsh.

While the Pyrete Range has value for nature conservation, water production, and future recreation potential, the land system and vegetation communities found here resemble those in the Lerderderg State Park. However, the area has special significance due to its location, its relatively undisturbed nature, and its conservation and water production values; the land managing authority should ensure maintenance of these values and land use options so that consideration can be given in the future to the inclusion of this area in the State's system of conservation reserves.

## Recreation and landscape

Council considers that the area described below contains scenic qualities or recreational values that warrant particular attention.

- the natural environment of the Blue Mountain Lookout should be preserved.

## Nature conservation

A number of important plant and animal species occur in State forest as listed below, and these should be protected in accordance with the principles previously outlined:

- *Brachycome debilis*, in the western portion of the Cobaw State Forest
- *Pultenaea weindorferi*, along Fingerpost Road and Campaspe Road, Wombat State Forest
- *Pultenaea muelleri* var. *reflexifolia*, Mount Barker Road and Paradise Road, Wombat State Forest
- *Grevillea repens*, along the following roads in Wombat State Forest:
  - along Werona Road, (Shepherds Flat)
  - Rocklyn Road
  - Mount Barker Road
  - Langdons Hill Road
  - Star Track and Specimen Hill Road
  - Hell Hole Track
  - McGee Road
- *Acacia langina*, along Werona Road, (Shepherds Flat)
- *Grevillea obtecta*, along the Vaughan forest road, Upper Loddon State Forest
- *Phascogale tapoatafa* (tuan), in the Cobaw State Forest and Pyrete Range
- Arboreal mammals such as the greater glider and mountain possum, in the Blakeville area, where particular attention should be given to their conservation.

## Historic sites

The following sites of historic interest should be protected in accordance with the principles previously outlined.

- Paradise Mill sawdust heap, Korjamunip Creek, Wombat State Forest
- Anderson's tramway site, Wombat State Forest. The remaining bed of Anderson's tramway is an important relic of works built

for substantial timber mills during the latter half of the 19th century. The line of the tramway can be followed for much of its length here.

- Wombat Railway Station site and cuttings, Wombat State Forest
- Wheelers Hill site and tramway remains, Lerderderg River, Wombat State Forest. The site of this mill at the junction of the Lerderderg River and Nolan Creek is marked by tramway and other relics.
- Firth Park, Wombat State Forest, has significance because of its early establishment for distilling eucalyptus oil and its later development as a horticultural garden.
- Tryconnel Tunnel, Barry's Reef. This long tunnel evidently constructed to drain several shafts at Barry's Reef is significant because of its length and the reason for its construction, and as one of the few surviving tunnels in the area. Council notes that the tunnel is currently being used as access to a gold-mining operation.
- Water channel, Upper Loddon State Forest. The remains of this water channel, occurring on both public and freehold land, show the ingenuity and scale of some 19th century mining works.
- Povey's Grave, Blackwood. Isaac Povey, an early miner at Blackwood, died in 1855 and was buried on his claim. A bronze tombstone marks the site.
- Poppet-head and adjacent open-cut mine, Simmons Reef. This site illustrates two types of gold-mining—shafts and open cut. The Poppet-head is the last surviving one in the area, possibly because of its more recent construction, while the open cut is either the Imperial or the Amalgamated.
- Water races, Blackwood. Within the general proximity of Blackwood, a gold-mining centre of the 1850s, extensive intact lines of water races, often one above the other, are found traversing the steep hills along the Lerderderg River and its tributaries.

## Natural features along streams

The Council believes that all streams in State forest should be protected in accordance with the principles previously outlined.

## F. Softwood production

The district includes part of the Ballarat Softwood Management Area, which is centred on plantations in the Ballarat-Creswick-Beaufort area, but also includes the softwoods in the vicinity of Daylesford and Macedon.

The bulk of the district plantations lie near Daylesford. Output from these plantations is currently at a low level because they are still young; an exception is the small area at Mount Franklin, which yields some sawlogs and pulpwood.

The government's Timber Industry Strategy, published in August 1986, provides for a small increase in the area of softwood plantation in the Ballarat Softwood Management Area from the present 12 700 ha to a target of 13 100 ha. This will be achieved by replanting where forests have been felled or burned (as in the case of the Macedon area) and by planting other land that has been acquired for plantation establishment.

### Existing plantations

Some 3000 ha of plantation have already been established or are in the process of being established by the Department of Conservation, Forests and Lands in the Melbourne area, District 1. In addition private individuals and companies and other government agencies have established some 2200 ha of plantation within the district.

### Land for softwood production

The government has expressed concern about the extent to which native forest is being cleared in order to establish pine plantations.

As an alternative to using forested public land, the government is investigating strategies whereby softwood supply commitments may be met by plantations on freehold land by private companies, private farm forestry, and the purchase of suitable private land by the State for plantation establishment. The Council supports such proposals in appropriate areas.

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

policy that no further areas of public land carrying native forest be made available for softwood production.

Council believes that the areas previously allocated for softwood production in the 1977 recommendations and the areas of private land purchased by the Department but not yet planted should continue to be available for softwood production.

These recommendations include only a small addition to the existing area set aside for softwood plantations.

### Plantation planting guidelines

The Council believes that the impact large plantations of softwood have on the natural environment can be reduced by retaining selected areas of native vegetation, and by adhering to catchment prescriptions prepared by the relevant authorities after consultation with the Land Protection Division where applicable. The guidelines set out below apply to the establishment of plantations on public land in Victoria.

No continuous plantation units 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 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 area should be fuel-reduced in its 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 centre line 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 swathes 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 *Land Protection Division* should be consulted on matters affecting soil stability and water quality.

## Existing plantation

### Recommendation

- F1 That the present plantation area, shown on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977.

## Plantation extension

The following recommendation covers an area of cleared land specifically purchased for plantation establishment.

### Recommendation

- F2 That the area of 327 ha, Parish of Bungal and shown on Map A be used for softwood production in accordance with the above plantation guidelines. and that it be reserved forest under the provisions of the *Forests Act* 1958 and be managed by the Department of Conservation, Forests and Lands.

Note:

Plantation establishment on this block commenced in 1986.

# G. Flora reserves

In addition to the floristic values of the parks that have been recommended in this study area, a number of areas contain native vegetation of considerable floristic importance and in a relatively natural state.

Council has recognized the special conservation significance of these areas and has accordingly recommended their reservation as flora reserves. They are set aside primarily to conserve species that may be rare or endangered, and also other plant associations 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 Department of Conservation, Forests and Lands. Appropriate fire-prevention measures such as maintenance of fire access tracks and protective burning will be carried out where necessary as will the control of vermin and noxious weeds.

During the review of the Melbourne area, District I, areas and sites of special botanical value and significance were identified by consulting botanists. Some of these have been recommended for inclusion in the State's system of conservation reserves, where appropriate. Others have been recommended to be included in broader land use categories such as State forest. In such cases attention has been drawn to the existence of these sites so that the land management can make suitable provision for the protection and maintenance of the sites' botanical values.

## Existing flora reserves

### Recommendations

G1- That the flora reserves shown on Map A  
G8, continue to be used for those purposes  
G10- approved by the government following  
G15 publication of the final  
recommendations for the Melbourne  
area in January 1977.

Note:

Following the publication of Final Recommendations for the North Central area (1981) Fryers Ridge was accepted as a Flora reserve.

## Additional flora reserves

### Recommendations

G16- That the areas shown on Map A and  
G19 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

(e) hunting and use of firearms not be permitted

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

G16 Upper Loddon Flora Reserve (820 ha)  
To be used to preserve the open forests and woodlands of red stringybark, red box, long-leaf box, and narrow-leaf peppermint, the extensive stands of the rare *Pultenaea graveolens*, the occurrence of the recently described and rare *Grevillea obtecta*, and the scattered areas comprising *Eucalyptus melliodora*, *E. rubida*, and *E. radiata* forests and woodlands.

The understorey here is particularly species-rich and includes examples of understoreies atypical of the area, such as open heath with sub-dominant *Lomandra* spp. rather than wallaby or tussock grass. The extensive stands of *Pultenaea graveolens* (scented bush-pea) are of particular importance in the total distribution of this rare species.

The open forests of narrow-leaf peppermint, yellow box, and candlebark here mainly occur along the drainage lines, where individual trees have attained impressive size. In addition, this alliance of eucalypts, which represents a transition from the woodlands to the forests, is not well represented on public land, mainly having been cleared for agriculture.

**G17** Gisborne  
53 ha, being allotment 190: Parish of  
Gisborne

To be used to preserve the marshland  
community dominated by *Juncus* spp.  
and associated flora including native  
grasses such as swamp wallaby and  
wallaby grasses. In addition, two  
significant species—*Urticularia*  
*dichotoma* (fairies' aprons) and *Eryngium*  
*vesiculosum* (prickfoot)—are found here.  
The conservation significance of the  
reserve is further enhanced as it contains  
one of the few relatively intact  
marshlands occurring on basalt in the  
area.

**G18** Mount Charlie (360 ha)

To be used to preserve one of the largest  
areas of undisturbed peppermint  
messmate forests found in the Macedon  
area. Some 191 species of native plants

have been recorded here, including  
*Eucalyptus cinerea* (silver-leaf  
stringybark) and a number of other  
species that have their only known  
occurrence in these regions.

**G19** T Hill (80 ha)

T Hill has similar vegetation  
characteristics to those of Mount Charlie  
and some 82 species of native flora have  
been recorded, including three species—  
*Convolvulus erubescens* (pink bindweed),  
*Cotula coronopifolia* (water buttons), and  
*Vittadinia gracilis* (woolly New Holland  
daisy)—that have not been recorded  
elsewhere in the Macedon Range area.

Note:

Both Mount Charlie and T Hill were previously  
recommended by Council to be part of the  
Macedon Regional Park and were zoned for  
nature conservation.

## H. Flora and fauna reserves

Throughout the study area, a number of locations provide valuable habitat for populations of native fauna and contain examples of native vegetation with considerable floristic importance.

Council has recognized the special conservation significance of two of these areas and has accordingly recommended their reservation as flora and fauna reserves.

In all such reserves, suppression of fires remains the responsibility of the Department of Conservation, Forests and Lands. Appropriate fire-prevention measures such as maintenance of fire access tracks and protective burning will be carried out where necessary as will the control of vermin and noxious weeds.

### Existing flora and fauna reserves

#### Recommendations

- H1- That the flora and fauna reserves shown  
H2 on Map A continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977.

### Additional flora and fauna reserve

#### Long Forest

This reserve consists of a number of small dispersed parcels of government-purchased public land, which contain portions of the only occurrence of bull mallee (*Eucalyptus behriana*) south of the Divide—the closest mallee scrubs to here being in the Whipstick State Park near Bendigo. Associated with the bull mallee are yellow box, yellow gum, longleaf box, grey gum, and a species normally found in East Gippsland, blue box. Some 200 bird species have been observed in the area, a number of which are common in the Victorian mallee. Mammals include kangaroos, wallabies, koalas, echidnas, possums, and gliders. The white-footed dunnart has recently been recorded here. In addition, there is a wide range of insects. Of the 12 species of bull ants found here, two occur nowhere else in Victoria.

#### Recommendation

- H3 That the area of 240 ha shown on Map A 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 not be permitted
  - (e) hunting and use of firearms not be permitted
- and that current tenure continue and be managed by the Department of Conservation, Forests and Lands.

### Inverleigh

The 1050 ha block of public land at Inverleigh supports the only viable remnant of the region's original vegetation of manna gum (*Eucalyptus viminalis*) and river red gum (*E. camaldulensis*) woodlands. At least 24 orchid and 13 lily species, as well as the little sword sedge (a very uncommon and localized Victorian plant) occur here.

The fauna includes the eastern grey kangaroo, swamp wallaby, and the koala. All three species are now restricted to remnant blocks of native vegetation that are found on the western plains. In addition, arboreal mammals such as the brushtail possum and sugar glider occur here while 10 species of bats have also been recorded in the area. The short-beaked echidna is another resident. Native birds recorded here comprise some 140 species, including a number of parrots, honeyeaters, tree creepers, and wattle birds.

The block has a high value for conserving the natural character of the landscape in addition to its floral and faunal values, as it is surrounded by cleared agricultural land. Recreational potential lies mainly in passive nature study—viewing the wildlife displays in spring, and native fauna.

#### Recommendation

- H4 That the 1050 ha shown on Map A, being the temporary reserve for preservation of species of native plants comprising

allotments 15E and 15F Parish of Carrah, be used to:

- (a) conserve native plants and animals that
- (b) the eucalypt plantations occurring on areas previously stripped for gravel be used for timber products and eventually be revegetated with local native species
- (c) timber harvesting not be permitted
- (d) grazing not be permitted
- (e) passive recreation such as nature study and picnicking be permitted
- (f) hunting and use of firearms not be permitted

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

Notes:

1. Council is recommending that a 2 ha site on the southern boundary of the reserve could be made available for water production purposes—see Recommendation D101.
2. Portion of this reserve occurs in the Council's Ballarat study area, for which recommendations were approved by government in 1983.

# I. Bushland reserves

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

Council recommends that several of these small remnants of the native vegetation should become bushland reserves. Their major uses are to maintain the distinctive Australian character of the countryside and to provide diversity in the landscape. When accessible, they may also provide some opportunities for passive recreation in relatively natural surroundings, but it is not intended that they be developed for recreation. For some 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 Conservation, Forests and Lands. These bushland reserves are generally too small to have 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. Limited gravel extraction, low-intensity grazing, 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 and lookout points. These uses may not be appropriate to all reserves. In some instances the land manager 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 Department of Conservation, Forests and Lands. Appropriate fire-prevention measures will be carried out where necessary.

## Existing bushland reserves

### Recommendations

- I1-** That the bushland reserves shown on **I80**, Map A continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area, January 1977.

Note:

Council has made a subsequent recommendation for bushland reserves **I81**— see Recommendation 07.

## Additional bushland reserves

### Recommendations

- I83-** That the areas indicated on map A and **I112** described below be used to:
- (a) maintain the local character and quality of the 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 land manager and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the Department of Conservation, Forests and Lands.
- I83** 5 ha, comprising the areas south of allotments 7A and 12, section 1A, Parish of Yandoit
- I84** 3 ha north of allotment 2, section 4, Parish of Holcombe
- I85** 4 ha north of allotment 2D, section 4, Parish of Holcombe
- I86** 2 ha being allotment 41, section 6, Parish of Glenlyon
- I87** 2 ha west of allotment 12M, section 4, Parish of Burke
- I88** 6 ha adjacent to allotment 1C, section 6, Parish of Burke

- 189** 4 ha, being the Recreation and Watering Purposes Reserve adjoining allotment 3A, section 2, Parish of Burke
- 190** 5 ha, north of allotment 4, section 2, Parish of Burke
- 191** 5 ha, being allotment 53E, section 3, Parish of Burke
- 192** 163 ha, being the Timber Reserve south of allotment 10S, section 3, Parish of Burke
- 193** 1 ha, being the Stone Reserve within allotment 2B, section 6, Parish of Burke
- 194** 1 ha, being the Water Reserve, north of allotment 42A, Parish of Carlsruhe
- 195** 2 ha south of the Cemetery Reserve, Parish of Woodend
- 196** 80 ha, being allotment S24, section A, Parish of Langley
- 197** 32 ha, west of allotment 28, Parish of Langley
- 198** 2 ha, comprising the temporary Railway Reserve and State School Reserve, adjoining allotment 10D, section B, Parish of Tooborac
- 199** 2 ha, being the Water Reserve, adjoining allotment 8P, Parish of Tooborac
- I100** 4 ha, being the Water Reserve, south of allotment 155, Parish of Moranding
- I101** 3 ha, being the Water Reserve, north of allotment 134B, Parish of Moranding
- I102** 1 ha north of allotment 137A, Parish of Moranding
- I103** 3 ha, being allotment 20G, Parish of Glenburnie
- I104** 4 ha, south of allotment 15N, Parish of Glenburnie
- I105** 3 ha, being allotment 4E, section 5, Parish of Moorarbool West
- I106** 4 ha, being the Public Purposes Reserve, allotment 2A, section 13, Parish of Gorong
- I107** 1 ha, being allotment 69A, Parish of Coimadai
- I108** 60 ha, being the Timber Reserve north of allotments 81B and 81A, Parish of Yangardook
- I109** 0.5 ha, being the Departmental Water Reserve adjacent to allotment 1A of section 173, Parish of Bellarine
- I110** 2 ha south-west of allotment 6, section B, Parish of Bellarine
- I111** 4 ha in the north-east of allotment 44A, section 2, Parish of Bellarine
- I112** 25 ha west of the Hume Freeway, comprising allotment 11, section 9 and adjoining unreserved Crown land, Township of Tallarook

## J. The coast

Victoria's coastline in particular the coastline associated with Port Phillip Bay, forms a significant public resource, having value for utility, recreation, and the conservation of natural, cultural, and historical values and sites.

The coastal reserve found along Port Phillip Bay is one of the State's primary coastal recreation resources, being readily available to some three million people. The Bay receives about 14 million separate visits to the available sites along the shoreline—about 47% of all day-trip activity generated by the Melbourne population. Major associated recreation uses include swimming, fishing, boating, sailing, scuba-diving, picnicking, sightseeing, relaxing, and camping and caravanning.

The Bass Strait coastline is popular for sightseeing throughout the year, with the landscape values found along the Great Ocean Road being of particular attraction. In addition the surf beaches of national and international significance found along this coastline experience major influxes of day visitors and holiday-makers during the summer months.

Use of the coastal reserve for these and other recreational activities can be expected to increase in the future.

The coastal reserve of Port Phillip Bay also provides habitat for a large and diverse array of birds that depend on its coastal wetlands and sheltered waters. Up to 65 000 international migratory wading birds spend the months from spring to autumn feeding on the shores of Port Phillip Bay before returning to the Northern Hemisphere to breed. Most are found along the western side, particularly in the Altona, Werribee, Avalon, and Swan Bay areas. These are considered of international significance and as such are listed by the Ramsar Convention as 'Wetlands of International Importance especially as Waterfowl Habitat'. [The International Union for Conservation of Nature and Natural Resources (ICUN) convention on 'Wetlands of International Importance Especially as Waterfowl Habitat' is commonly termed the "Ramsar Convention" as it was first conducted at Ramsar, Iran in 1971.] In addition, Port Phillip Bay is rated as the sixth most important area of migratory waders in Australia and the most important in Victoria.

Council believes that those sections of the coastal reserve that have identified values for wildlife conservation, particularly birds, should be recognized in management plans prepared for such sections and protection afforded these values.

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. In some instances where coastal engineering works such as breakwaters and sea walls have been deemed necessary, beaches are often deprived of sand, while other works produce other effects. For example the continual dredging of the Queenscliff Creek Cut Channel has resulted in the formation of a 40-ha shifting sand island, which is being colonized by native plants and provides habitat for birds.

The Council recognizes that current land tenure of coastal lands is fragmented, with sections being vested in the Port of Geelong Authority and the Port of Melbourne Authority, while others are public purposes reserves or have been permanently reserved for the protection of coastline.

A coastal city, town, or borough generally has the highwater mark as part of its boundary, as described in section 12 (4) of the *Local Government Act* 1958. Hence the intertidal zone between low water mark and high water mark is public land under the *Land Conservation Act* 1970 and should be included in the coastal reserve. The Council believe its recommendations for the coastal reserve should also apply to the coastal Crown land foreshore reserves usually found above high water mark within the cities and boroughs found along the District's coastline.

The Department of Conservation, Forests and Lands is responsible for managing coastal reserves except for those areas vested in the Port of Geelong Authority and Port of Melbourne Authority. Council believes that those areas identified as coastal reserve that are not currently required for port purposes should be managed as part of the coastal reserve until they are required for developments associated with the ports.

The Ministry for Planning and Environment is responsible for overseeing the preparation of management plans and the issue of consents for the coastal reserve within Port Phillip Bay. This currently occurs in accordance with the *Port Phillip Coastal Planning and Management Act 1966*, where proposals to carry out works, change uses, or plant and remove vegetation within the coastal reserve of Port Phillip Bay require the approval of that Ministry, which should consult with the Department of Conservation, Forests and Lands and other relevant agencies to ensure, as far as practicable, that their views are reflected in any consent.

Through the Coastal Management and Co-ordination Committee, the Department of Conservation, Forests and Lands has responsibility for overseeing the preparation of management plans and the issue of consents on the coastal reserve from Lorne to Queenscliff. In addition, the Department and the various Committees of Management responsible for the coastal reserve here are required to ensure that their management is consistent with the State-wide coastal strategies currently being prepared by the Ministry for Planning and Environment.

In order to improve the effectiveness of coastal management in Victoria, the newly established Natural Resources and Environment Committee of Cabinet will oversee and co-ordinate coastal planning and management issues.

## 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. Coastal areas specifically reserved for some other purposes (parks, wildlife reserves, sites for navigational aids, or major ports) would not be included in the coastal reserve.

Aboriginal middens occur frequently along the coastline.

## Existing coastal reserves

### Recommendations

J1-J2 That the areas indicated on Map A and listed below continue to be used for those purposes approved by the government

following publication of the final recommendations for the Melbourne area, January 1977.

- J1 Lorne to Queenscliff
- J2 Port Phillip Bay

## Additions to the coastal reserve

### Recommendations

- J3 That 14 ha, being the southern portion of a parcel of unreserved Crown land, east of the Sewage Treatment Works Reserve, Township of Anglesea, should be added to the existing adjacent Coastal Reserve and used accordingly.
- J4 That 36 ha, being portion of allotment 20A, Parish of Angahook, should be added to the existing coastal reserve and used accordingly.

### Notes:

1. Council is aware that an area of freehold land near Anglesea, known as the Ironbark Basin, is currently the subject of negotiations between the Department of Conservation, Forests and Lands and the Shire of Barrabool. It is envisaged that these negotiations will result in the inclusion of the Ironbark Basin in the public land estate.
2. Appendix II lists sites of special conservation significance on the coast which the land manager should take particular care to protect for their geological, floral, faunal, archaeological, historical or landscape significance.

## Scenic coasts

A scenic coast is defined for the purpose of these recommendations as a coastline of outstanding beauty that remains in a relatively unspoilt state. This quality is derived primarily from natural attributes, but may be supplemented or enhanced by man-made features such as lighthouses that serve to dramatize the landscape, or by pleasant rural-landscape elements.

Some of the coastline in this area fits this description, and is an important component in the State's coastal landscape heritage. The Council believes that it is important to protect the landscape qualities of such coastlines, and that such areas should be used primarily for

public enjoyment, education, and inspiration in coastal surroundings in manner that will leave landscape values unimpaired.

**Recommendations**

**J5-J6** That those portions of the coastline indicated on Map A continue to be

designated scenic coast and that planning and management be carried out in these areas as approved by the government following publication of the final recommendations for the Melbourne area, January 1977.

**J5** Lorne to Point Roadknight.

**J6** Point Addis to Bells Beach.

## 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 of the Department of Property and Services. These frontages may have a surveyed boundary of short irregular lines or be of a 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 Conservation, Forests and Lands while in all cases the Rural Water Commission controls the water.

Each of these authorities may delegate some of its responsibility to local bodies. The Department of Conservation, Forests and Lands may form committees of management for public purposes, while Management Boards or drainage trusts under the guidance of the Rural Water Commission may be formed in certain areas. The Department 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. In the past, licensees often discourage public access because of an understandable fear of damage, intentional or otherwise, to property. Vandalism and littering are problems in many areas open to the public, and firm action by authorities with management responsibilities 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 streambank. Following the *Land (Amendment) Act* 1983, members of the public may 'enter and remain for recreational purposes' onto licensed frontages. Licensees are required to erect and maintain a suitable means of pedestrian access to the water frontage.

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* 1972. 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 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 national park or State forest) or for some special purpose (such as a flora, recreation or streamside reserve).

#### Recommendation

**K1** That public land water frontage reserves continue to be used for those purposes approved by the government following publication of the final recommendation for the Melbourne area, January 1977.

### 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 woodlands 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 land manager 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 for that reserve.

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

### Existing streamside reserves

#### Recommendations

**K5**– That the streamside reserves shown on **K32**, Map A continue to be used for those **K34**– purposes approved by the government **K46** following publication of the final recommendation for the Melbourne area in January 1977.

Note:

The reference numbers used here are the same as those used in the 1977 recommendations for the Melbourne area, hence the absence of recommendations K2–K4.

### Additional streamside reserves

#### Recommendations

**K47**– That the areas shown on Map A and **K56** described below to be used to:

- (a) provide passive recreation such as picnicking, walking, and angling
- (b) provide opportunities for camping at the discretion of the land manager if this use does not conflict with the maintenance of the water quality or 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 land manager, if this use does not conflict with the maintenance of the water quality of the adjacent stream or with the protection of riparian vegetation, bank stability and areas identified as having special values in need of protection

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

**K47** 1 ha, being the Departmental Water Reserve adjoining allotment 11, section 2A, Parish of Yandoit

**K48** 4 ha, being the Water Reserve west of allotment 14, no section, Parish of Edgecombe

- K49** 4 ha, being the Departmental Reserve, west of allotment 18, Parish of Glenarou
- K50** 3 ha south-east of allotment 12A, Parish of Chintin
- K51** 2 ha south of allotment 27, Parish of Chintin
- K52** 2 ha adjoining allotments A and B, section 7, Parish of Bulla Bulla
- K53** 2 ha east of allotment 15A, section C, Parish of Monegetta
- K54** Gallaghers Ford—10 ha north of allotment 1, section B, Parish of Monegetta
- K55** 4 ha adjoining allotments 1 and 11, section 10, and allotments 7 and 2, section 11, Parish of Moorarbool West

Note:

This reserve requires revegetation with tree species native to the area.

- K56** 10 ha adjoining allotments 112T and 112Q, Parish of Coolebarchurk

## River management

A River Management Board (previously known as a river improvement trust) is constituted under the *River Improvement Act 1958*, as amended by the *Water Acts (Amendment) Act 1985*, for a section of the Goulburn River.

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-prevention 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 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 rivers 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 Rural Water Commission and to the River Management Board, where one is involved, for approval.

River management authorities, in attempting to cope with the consequences of these changes, carry out works that sometimes adversely affect landscape and nature conservation values, but ultimately could 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. Realigning and regrading of eroding beds and banks often removes holes and backwaters 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 management boards are required to act within their 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. There is thus little

opportunity in the design and implementation of works for consideration of their likely impact on areas outside the Boards' Districts.

The Minister for Water Resources recently established two task forces to investigate and make recommendations on stream and catchment management throughout Victoria. The first of these was appointed to review those recommendations of the Public Bodies Review Committee's Eighth Report (May 1983) that related to restructuring of River Improvement and Drainage Trusts. The report of this task force, now accepted by the Minister, recommended adoption or modification of the Review Committee's various proposals, to provide for the formation of River Management Boards with Districts embracing the whole or at least substantial parts of complete catchments. The report also recommended the establishment of Catchment Co-ordinating Groups, representing local interests and all appropriate agencies, to strengthen consultation and co-ordination between the numerous interests in stream management, with respect to catchment land use activities with impact on stream management. These recommendations are now open to implementation if acceptable to the local community. The *Water Acts (Amendment) Act 1985* enables implementation of these recommendations.

The second, known as the 'State of the Rivers Task Force', was established (August 1984) to examine and recommend the future technical and financial arrangements for an effective, regionally based river management system. This task force has now completed its work and its report was recently published. It examines the requirements and costs and funding arrangements for an effective accelerated program of catchment improvement and for a program of effective management of Crown river frontages.

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 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 below).
- 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**

- K57** 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 policies and principles set out above.

#### **Notes:**

1. The Rural Water Commission has formed a Standing Consultative Committee to advise the Commission on river works. This Committee comprises representatives from the following: Rural Water Commission; Department of Water Resources; Conservation Council of Victoria; Department of Conservation, Forests and Lands; and Association of Victorian River Improvement Trusts. The Committee is convened by a representative of the Rural Water Commission.
2. The Standing Consultative Committee has prepared three documents that expand on the principles set out above. The first of

these documents, 'Guidelines for River Management, 1979', requires plans for all works other than minor ones, 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 an optimum balance between structural improvements on the one hand and the maintenance or enhancement of the stream's landscape values and its value as habitat for wildlife and for recreation on the other.

In 1982 the Committee prepared 'Revegetating Victorian Streams', to provide government, semi-government and local government bodies, community groups and land-owners with information on the vegetation of stream systems, and to encourage maintenance and enhancement on the environment.

More recently (November 1983) the Committee produced 'The State of the Rivers' report in which it recommended the establishment of the second task force referred to above. This presents a general review of the state of Victoria's rivers, drawing attention to the undesirable changes in the river environment that have occurred over the past century. It develops the concept that river management works should be based on a whole catchment philosophy.

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.
4. The Rural Water Commission recently released a fourth publication 'River Management—a Glossary of Terms' to help explain the terminology of river management.

### **Eductor dredging**

Eductor dredging for alluvial gold in streambeds has become a popular activity, particularly with current high gold prices. An eductor dredge is a floating device designed to treat gold-bearing sediment from the bed of streams. It is powered by a small internal combustion engine and comprises a suction nozzle and hose attached to a small floating

platform carrying a riffle or sluice box. Gravel and finer sediment are pumped from the stream-bed, passed through the riffle or sluice box—which traps any gold—and discharged back into the stream. The process is essentially small-scale, normally involving only two operators—one working in the water to shift large rocks and guide the nozzle, the other assisting at the dredge or from the stream bank. The device is usually collapsible and can be transported by a conventional vehicle.

Eductor Dredge Licences are issued for a period of 1 year under the provisions of section 66A of the *Mines Act* 1958 and part 6 and Schedule 15 of the *Mines (Mining Titles) Regulations* 1983. Part 6 of the Regulations details restrictions on dredge design and operation while Schedule 15 lists prescribed zones and streams available for eductor dredge use. Schedule 15 is reviewed and revised on an annual basis following consideration by the Mining Consultative Committee of recommendations from an Interdepartmental Committee on Eductor Dredges. This Committee comprises representatives from: the Department of Industry, Technology and Resources; the Department of Conservation, Forests and Lands; the Ministry for Planning and Environment; and the Rural Water Commission. Following consideration of such factors as the presence of gold, domestic water supply offtakes, parks, and reference areas, the Committee annually prepares a list, which must be approved by both the Mining Consultative Committee and the Minister of Water Supply (who has power of veto over the recommended streams) before being ratified by the Governor-in-Council. The list then becomes effective as Schedule 15 for a period of 1 year from 1 November of the year of issue.

While eductor dredging has low establishment and operational costs, and is an effective means of recovering gold, some concern has been expressed over the possible effects of dredging on stream-bed structure, the mobilization of mercury, macro invertebrate communities, and stream-bank stability.

Elevation in levels of suspended solids or alterations of the bed or flow characteristics of rivers resulting from eductor dredge use may degrade invertebrate habitat, leading to reductions in species composition and diversity. While the banks of streams are excluded from

dredging activity, the construction of access points into streams is a potential cause of erosion and water-quality degradation.

To date only limited studies of eductor dredging have been carried out. Results indicate that coarse stream-bed material suspended by passage through a dredge settles back only a short distance downstream. Finer, silt-size particles remain suspended for a greater distance. An increase in turbidity has been observed to result from dredges where algal growth or stream-banks are disturbed. Further studies are required, however, before general conclusions can be drawn.

In some rivers where mercury occurs, either naturally or as a result of ore treatment during past gold-mining, this metal has been recovered by eductor dredging.

For 1986/87 the streams available for eductor dredging in Melbourne area, District 1, are: Loddon River and tributaries upstream of Lake Cairn Curran, excluding Jim Crow Creek; Werribee River and tributaries, excluding the Lerderderg River and that section of the Werribee River that lies in the Werribee Gorge State Park; Barwon River downstream of West Barwon Dam; and Moorabool River downstream from Bungal Dam, not including the eastern branch.

Some river and tributary catchments have been identified as being in an essentially natural condition. Some of the streams in Melbourne area, District 1, are known to contain important viable populations of native fish species whose status is vulnerable or endangered. Following detailed surveys, some others may be found to have significant aquatic values, such as a high diversity of invertebrate fauna. The Council considers that, in accordance with its principles and guidelines for mineral production, some streams with values of special public importance should be excluded from eductor dredging. These streams should be determined by the Department of Industry, Technology and Resources, the land manager, and the Department of Water Resources. Any such determination should also take into account that streams may be used for domestic water supply purposes.

#### **Recommendation**

**K58** That rivers and streams in Melbourne area, District 1, be assessed with respect to their nature conservation, recreation and scenic values, bed and bank stability and that those streams or parts of streams that are of special significance be excluded from allocations for eductor dredging.

# L. 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 in some parts of the State 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 variants 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 (particularly in tree hollows) 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.

The *Arthur Rylah Institute for Environmental Research, Technical Report Series No. 11, September 1984, 'Conservation of Roadsides and Roadside Vegetation'*, gives a comprehensive review of values, methods of assessment, and management of roadsides for the purposes of nature conservation.

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.

The Roadsides Conservation Committee, which comprises representatives from various interest groups and government departments, has prepared a set of guidelines that provide for both conservation and 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.

## Salinity prevention

Dryland salting is becoming an increasing problem in the State. Vegetation found along roadsides can play an important role in mitigating the effects and extent of salinization through the interception of saline subsurface moisture.

## 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 *Transport Act 1983* are completely under the control of the Road Construction Authority (9000 km). Main roads (14 500 km) are also declared, but are controlled jointly by the Road Construction Authority 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 Department of Conservation, Forests and Lands has the control of vegetation on classified roads that pass through or adjoin State forests. (Note: these figures are for all Victoria.)

## Back roads

With increasing population and use of cars, a tendency has developed for through-roads in

the State to be continually upgraded. Treelined 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 realigning is being considered.

### **Recommendation**

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 the Department of Conservation, Forests and Lands 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.
- When road engineering works are being proposed by a local authority or others, the regional office of the Department of Conservation, Forests and Lands should be consulted.
- 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 recreational 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 Land Protection Division.
- The purchase of cleared freehold for road construction purposes should be considered as an option to avoid clearing stands of native vegetation.

Note:

The Road Construction Authority has indicated to Council that at some time in the future the alignment of the following declared roads may be altered:

- Greendale-Trentham road
- Drummond-Vaughan road
- Midland Highway-Daylesford
- Cameron Drive tourist's road
- Daylesford-Trentham road
- Ballan-Daylesford road

Council believes that should these road alignments be changed then the above guidelines should be followed.

## Roadside sites of botanical importance or historical significance

### Recommendations

- L2- That, when widening or re-alignment of roads is proposed, sites of historical, habitat, or botanical significance that may be affected be investigated and every effort made to retain and preserve them.
- L9

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

- L2 Glenluce road  
The occurrence of the small-leaved form of *Grevillea obtecta* here should be protected.
- L3 Hume Freeway; Broadford-Seymour  
Scenic and substantive stands of river red gum, red box, red stringybark, and yellow box, with their associated understory floras, occur both along the highway and on the median strip.
- L4 The various occurrences of *Eucalyptus aggregata* in the vicinity of Woodend
- L5 Road bridge  
Sunbury road over Jackson's Creek, Bulla
- L6 Djerriwarrh Creek bridge, Western Highway, Bacchus Marsh  
A sandstone bridge, still intact, built in 1858 by the Road and Bridges Department of the Board of Land and Works.
- L7 Memorial avenue of trees, Bacchus Marsh  
This avenue of elm trees is one of the finest in the State.
- L8 Mumfords Road, Shire of Romsey  
A stand of *Eucalyptus pauciflora*, *E. viminalis*, and *E. ovata* with associated understory species.
- L9 Kyneton-Lancefield Road, Shire of Newham-Woodend  
A stand of *Eucalyptus pauciflora*, *E. rubida*, and *E. radiata* with associated understory species.

## Unused roads

When the State was being settled, surveyors provided access to every block by means of a surveyed Crown road. Many of these have never been used as roads, and they are usually held by the occupiers of the adjoining land under an unused-road licence.

### Recommendation

- L10 That the following guidelines, approved by the government following publication of the final recommendations for the Melbourne area, January 1977, continue to apply to unused roads:

- The clearing of native trees and shrubs other than noxious weeds should continue to be clearly prohibited in the conditions of unused-road licences.
- 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.
- 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.

Note:

The Department of Conservation, Forests and Lands is encouraging the re-forestation of unused roads by providing incentives to licence-holders who conduct tree-planting programs.

## Roadside picnic areas

Along some roads, the reserve carries picnic areas and wayside stops. Council considers there is a need for additional areas in attractive locations off the road reserves, that could be used for relaxation and picnicking. Some picnic facilities should be provided.

### Recommendation

- L11 That the land management authorities establish picnic areas in suitable locations adjacent to the road reserves. One such suggested site is the 4-ha recreation reserve and adjoining public land south of allotment 3D, Parish of Franklin, which abuts the Castlemaine-Daylesford road.

# 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 State forest) 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 should 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.

The Council believes that management plans for education areas should be prepared by the Service within the Department of Conservation, Forests and Lands with planning responsibilities for the adjacent or surrounding public land. Planning and implementing the education aspects together with co-ordinating the use of areas should be done in consultation with the Education Department, other user groups in the education system, and with community bodies with an interest in environmental education.

## Existing education areas

### Recommendations

- M1**– That the areas indicated on Map A and **M3**, listed below continue to be used for those purposes approved by the government
- M5**– following publication of the final recommendations for the Melbourne area in January 1977
- M6**
- M1** Eumeralla (313 ha)

Note:

Council is aware that the rare *Thelymitra matthewsii* (spiral sun-orchid) has recently been recorded here. The Department of Conservation, Forests and Lands should ensure that the use of this area is consistent with the protection of this species.

**M2** Ocean Grove (143 ha)

**M3** Meredith (236 ha)

**M5** Tylden South (115 ha)

**M6** Mount Piper (45 ha)

Notes:

1. Council notes the presence of historical mine tunnels on Mount Piper (M6), and they should be preserved for educational purposes. In addition, use of these tunnels should be such as to ensure the safety of visitors (in matters of public safety nothing in these recommendations affects the powers of Inspectors under the *Mines Act* 1958 and the *Extractive Industries Act* 1966; it is understood that in exercising these powers the land manager would be consulted).
2. The former M4, Korjamunip education area. The Council now proposes to recommend that this education area become State forest (recommendation E1). Council believes that its location, access, and particularly the steep topography detract from its value as an education area.

## Additional education area

### Recommendation

- M7** That area of public land described below and shown on Map A 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 practicable;
  - (b) compare the ecosystems within education areas with other nearby natural and modified systems;
  - (c) observe and practise the 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 it be permanently reserved under section 4 of the *Crown Land (Reserves) Act* 1978, and be managed by the Department of Conservation, Forests and Lands.

**M7** Spargo Creek (290 ha)

Ordovician shale and sandstone, newer volcanic basalt; low hills; some steep; open forest II-III messmate stringybark in association with broad-leaf and narrow-leaf peppermint and manna gum; elevation approximately 600 m; annual rainfall approximately 1000 mm.

Notes:

1. Council is aware that a number of plant species of conservation significance have recently been reported within part of the creek flat adjacent to McGee Road. The greater glider has also been recorded here. The Department of Conservation, Forests and Lands should ensure that use of this portion of the education area is consistent with the protection of these values.
2. This area does not include any part of the Blakeville fire-effects study area, but its proximity to the reserve adds educational value.

## School plantations

Throughout the study area, numerous areas of public land have been set aside as school endowment plantations as part of various school's educational resources. The plantations were initially established to instill, 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 schools have planted their plantations to radiata pine, and used revenue from the sale of produce to provide amenities they required. In some cases, however, these plantations have not been very successful in providing revenue, as the sites proved unsuitable for economic growth or the plantations were too small or the location too far from processing centres to allow economic harvesting. In some instances, radiata pine plantations have failed because of 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 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 area is used.

### **Recommendations**

**M8** 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.

**M9** 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 Department of Conservation, Forests and Lands

and that the use of those considered unsuitable or no longer required be terminated.

**M10** That new school plantations only be established on public land for educational purposes and where their establishment allows the rehabilitation or reforestation of cleared or eroded areas.

## N. Historic areas

In the Melbourne area, District 1, relics associated with the history of the area occur on many sites on both public and private land. Aspects or themes of Australian history found include sites and relics related to early exploration, pastoral development, mining, transport and education and to the development of secondary industries and services.

The discovery of gold in Central Victoria had a major influence on development there. The study area contains a large number of gold-mining sites that provide examples of different mining techniques, ranging from small alluvial hand workings to large deep lead mines. The relics of the settlements and developments associated with the goldfields also provide information on the social environment of that period.

There is considerable interest in the community about the State's history. This interest is likely to increase, particularly as more becomes known about historical relics located on public land. Council considers that sites of historical interest should be protected as far as possible from progressive deterioration due to exposure to the weather and from damage by the public.

Council conducted a study to identify the major historical themes representative of past uses of the sites and areas of greatest historical significance. Information on historical sites was also provided in submissions received. Where sites were identified that are not currently protected by reservation or mentioned in the following recommendations, their location has been drawn to the attention of the land managers for appropriate protection by prescriptions and in management plans. Such sites occur in State forest, bushland reserves, township land, recreation reserves, and public land water frontages.

One area of particular interest occurs in the vicinity of the township of Blackwood, where significant gold-mining activity occurred during the 1850s and where significant gold-yielding potential still remains. Here, evidence of past mining occupation includes features such as water races, adits, tunnels, mining sites, cottages, cemeteries, and grave sites. Council believes that, where these sites have been identified, the land manager should include

their conservation and protection in the management plans prepared for each relevant land use category.

### Management of historic areas

The recommended historic areas include portions of the major goldfields of the region. Council recognizes that there is interest in the exploration and possible mining of these goldfields. Council believes that such activities should be permitted in historic areas, as specified in the recommendations below, and that a balance should be achieved between these activities and the protection of historical relics. Areas to be excluded from exploration and mining should be agreed upon jointly by the Department of Industry, Technology and Resources and the land manager.

The management of historic areas should take into account the need for public safety in the vicinity of old mines and other relics. The Department of Industry, Technology and Resources has a statutory function with respect to the safety of mines, and nothing in these recommendations affects the powers of Inspectors of Mines as defined under the *Mines Act 1958* and *Extractive Industries Act 1966*.

### Existing historic area

#### Recommendation

- N1 That the Bungal Historic Area continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977.

### Additional historic area

#### Recommendation

- N2 That the area of 180 ha indicated on Map A and described below be used to:
- (a) protect specific sites that carry or contain relics of buildings, equipment, construction works, and artefacts associated with the history of the locality
  - (b) provide opportunities for recreation and education associated with the enjoyment and understanding of their history

that

- (c) use of this area be such as to ensure the safety of visitors (in matters of public safety nothing in these recommendations affects the powers of Inspectors under the *Mines Act 1958* and the *Extractive Industries Act 1966*; it is understood that in exercising these powers the land manager would be consulted)
- (d) exploration for and the extraction of 'gold' and 'minerals'—including fossicking and prospecting under a Miner's Right—be permitted in accordance with Recommendations R1-R4 and the principles and guidelines contained in the Mineral and stone chapter
- (e) low-intensity harvesting of timber be permitted except where this would have an impact on the historic features or their surroundings
- (f) removal and treatment of material from mine dumps only be permitted in areas agreed to by the Department of Industry,

Technology and Resources and the land manager (safety, the availability and material from other sources, and the historical importance of the dump should be taken into account)

- (g) honey production be permitted and that it be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the Department of Conservation, Forests and Lands.

**N2** Castlemaine-Chewton (Sebastopol Diggings)

The majority of the Sebastopol Creek diggings are located here. These diggings contain examples of a variety of goldmining techniques, the remains of engineering works such as water races, dams, and mining structures. They have not been worked since early this century. Council has previously suggested, in the North Central area final recommendations, that this parcel of land should be considered as part of the Castlemaine-Chewton Historic Area.

# 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 more 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, parts of coastal foreshore 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, 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 manager.

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 manager 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 granite soils), and where the natural environment or special nature features are being preserved.

Four particular forms of recreation that may require consideration by the land manager, 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—where 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 manager. 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 consequence of improper use of four-wheel-drive vehicles. Authorities with management responsibilities 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 State 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

Public land in the Melbourne District 1 offers opportunities for the hunting of water-fowl game species and vermin such as rabbits, foxes, and goats.

These recommendations provide for hunting on most of the public land subject to various legal requirements. Hunting would not, however, be permitted in State parks, regional parks, flora or flora and fauna reserves, reference areas, and education areas. Some small areas such as licenced water frontages would also be unavailable for hunting.

Hunters both individually and collectively, through organizations like the Victoria Field and Game Association, have contributed significantly to the conservation of wildlife habitats in the area by tree planting programs and erection of nesting boxes, and through their support for the preservation of swamps and wetlands. These activities have benefited not only water-fowl game species but also non-game species.

Hunters also exert pressure on vermin and feral animal populations.

## 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 manager. 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.

### **Fossicking or prospecting**

Fossicking, or prospecting (prospecting as defined by the *Mines Act* 1958 means operations conducted in the course of exploring for gold

or minerals), is a popular recreational activity in parts of the study area. Most people are seeking gold, but there is also an interest in gemstones.

It is necessary to obtain a Miner's Right before prospecting for gold or other minerals (including gemstones) can be undertaken on public land.

Guidelines and recommendations relating to fossicking and prospecting are given in Chapter R, Mineral and stone production.

### **Recommendations**

- 01** 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 managing 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.
- 02** That vehicular use of roads within the meaning of the *Land Conservation (Vehicle Control) Regulations* 1972 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.
- 03** That land managers endeavour to provide some areas for off-road vehicular use for land under their control.

Note:

One such site that could be made available is a gravel-stripped area of some 6 ha in the immediate vicinity of Hobbs Road, Bullengarook. Use of this area for off-road recreational vehicles would need to be confined to the gravel-stripped portions, and the land manager should prepare a management plan for the area.

### **Existing recreation reserves**

#### **Recommendations**

- 04–** That the areas indicated on Map A and
- 06** listed below continue to be used for those purposes approved by government following publication of the final

recommendations for the Melbourne area in January 1977.

- 04 Various recreation reserves
- 05 Inverleigh
- 06 Bannockburn

Notes:

1. The existing recreation reserve, Parish of Newham, encompasses Hanging Rock. The significant geological, scenic, historical and floristic values of Hanging Rock should be protected.
2. The existing recreation reserve and parks and gardens reserve, Township of Woodend, encompass significant floristic and scenic values. In particular, the occurrence of *Themeda australis* grasslands within the racecourse, the scattered occurrence of *Eucalyptus aggregata* along Five Mile Creek, and the narrow-leaf peppermint forest in the east of the reserve should be protected.
3. The existing public park and gardens reserve (Final Recommendation O9, Melbourne area, January 1977) includes an area of native forest known locally as the 'Monument Bush'. Council believes that any

use and management plan prepared for the area should make provision for conservation of the Monument Bush bushland values.

## **Additional recreation reserve**

### **Recommendation**

- O7** That the area described below and shown on Map A be used for organized sports (football, horse-racing, golf, etc.) and informal recreation (picnicking, camping, etc.) as permitted by the land manager that native vegetation be conserved where possible and that the area be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978*.
- O7** 1.6 ha east of allotment 19F, Parish of Angahook

Note:

This area, previously recommended in 1977 as a Bushland Reserve (I81), is one of a number of sites being considered for a community recreation area for the Airey's Inlet township. Should it be determined that it not be required, present tenure and use are to continue.

## P. Scenic reserves

These are set aside to preserve scenic features and lookouts of a particular significance.

Aims of management of these areas should be to maintain the character and quality of the landscape and to maintain native vegetation.

### Existing scenic reserves

#### Recommendations

**P1-** That the areas listed below and shown on Map A continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area January 1977.

- P1** 13 ha adjoining the Loddon River, adjacent to allotments A40 and 16H, Parish of Holcombe, and the adjoining 18.6 ha public park, Parish of Glenlyon.
- P2** 3.7 ha adjoining Dyers Creek, south of allotment A10, Parish of Holcombe.
- P3** 17.4 ha adjoining the Coliban River, being allotment 73A1, Parish of Coliban, and the adjacent 6.8 ha, allotment 12A, Parish of Trentham.
- P6** 0.8 ha, adjacent to allotment 12B of section A, Parish of Moorarbool East.
- P7** 24 ha, being allotment 86, Parish of Anakie.

## Q. Agriculture

The Council recommends that, at this stage, no additional large areas of public land be developed for agriculture and that only a small area 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 is, however, 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.

### Apiculture

The Council considers that apiary sites should continue to be permitted on public land other than in Reference Areas.

### Recommendations

#### Agricultural land

**Q1-** That the land described below and **Q2** shown on the map 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 the land described below be made available for agriculture in accordance of the *Land Act* 1958.

#### Q1 Areas previously recommended for agriculture

- 0.4 ha, being allotment 2A of section 17, Township of Egerton
- 1.6 ha south of allotment 21, section 33, Township of Malmsbury
- 4.0 ha, being allotment 2, section A, Township of Leonards Hill

#### Q2 Additional area recommended for agriculture

- 0.45 ha north-east of Allotment 1A, section 3, Parish of Lara

#### Agricultural research

##### Recommendation

- Q3** That the area listed below and shown on Map A continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area, January 1977
- Q3** Attwood Veterinary Research Station, Westmeadows (60 ha)

## 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 and fossil fuel resources. Attention should be directed towards ensuring that other values and interest are protected, rather than preventing exploration activities.

The protection of other values—particularly those historical values around 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

Increases in the price of gold have resulted in an upturn in mineral exploration and mining

in recent years. This trend was particularly strong in 1986 which saw a marked demand for Miner's Rights, Miner's Right Claims, Exploration Licences, Mining Leases, Tailings Removal Licences and Tailing Treatment Licences. Known historic goldfields, such as those found at Blackwood, have been the focus of most activity and several former mines have been re-opened. Those involved range from the part-time hobby prospector to large mining companies, but in numerical terms, it is the former group which has experienced the most substantial growth. To a large extent, this is due to the ready availability of modern, low-cost, technology in the form of metal detectors and eductor dredges which have enhanced the prospects of small operators.

### 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 for the purpose of discovering or establishing the presence or extent of mineralization of a mineral'. 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 Chapter B—Reference areas and Chapter D—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 sewage installations
- important geological formations

These limited areas of land surface have not been specified in the recommendations, but will be determined by the land manager and the Department of Industry, Technology and Resources 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 Industry, Technology and Resources together determine that such exemptions or exceptions should no longer apply.

## 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 State. 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—particularly for road-making material.

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

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 of the reclamation of old extraction sites on public land.

Poorly planned and located excavations can affect surrounding land 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 Industry, Technology and Resources and the land manager should together determine these areas. Consultations take place as required between officers of the Department of Industry, Technology and Resources and the Department of Conservation, Forests and Lands to determine those areas that should be excluded and the conditions under which particular areas of public land are used for exploration for and production of, minerals and stone.
2. When tenure is issued for operations under the *Mines Act 1958* on public land, the land manager 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 manager, the Department of Industry, Technology and Resources, the Land Protection Division, 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 land manager.

In all cases, the procedures that are established should apply to municipal councils, the Road Construction Authority, 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 Industry, Technology and Resources 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 lodgement of a bond as surety for adequate rehabilitation. Wherever practical, the Department should seek the lodgement 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 land manager, in consultation with the Department of Industry, Technology and Resources, considers to be of greater value for other uses including aesthetic or nature conservation values. The advice of the Department 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 streambed is considered, the land manager 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 manager 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, approval under the *Soil Conservation and Land Utilization Act 1958* should continue to be sought for the exploration or extraction operations for '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 land manager and the Department of Industry, Technology and Resources together may determine (see the guidelines in the section on fossicking and prospecting)
  - (iii) the areas referred to in R2 below.

- 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 excepted or exempted unless the land manager and the Department of Industry, Technology and Resources together determine that such exemption or exception should no longer apply.

- R3** That public land in the study area (other than reference areas and other areas as determined by the government) continue to be available for exploration under licence and for extraction of 'gold', 'mineral', 'petroleum' and groundwater, 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 and other areas as determined by the government) continue to be available for exploration for 'stone' subject to the principle and guidelines set out above.

### Stone production areas

#### Recommendation

- R5** That the areas shown on Map A continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area in January 1977.

Note:

Stingaree Bay (Previously recommendation R17, Melbourne area Final Recommendations January 1977). This area is leased for salt extraction, and the extraction process results in the provision of suitable habitat for many migratory waders. Council believes that the Department of Conservation, Forests and Lands should be consulted regarding the management of the area and the continuation of the resulting habitat values.

### Anglesea lease area

Immediately north-west of Anglesea a 7350-ha block of public land is leased under the

provisions of the *Mines (Aluminium Agreement) Act* 1961, which grants Alcoa of Australia Ltd exclusive right to search for and mine all coal found within the area for 50 years, until 2011, with the right of renewal as specified in the Agreement.

Alcoa mines brown coal here by the open-cut method to fuel its 150-Mw Anglesea power station located within the lease area. The electrical energy produced is transmitted via a 35-km high-voltage line to the company's aluminium smelter and semi-fabricating facilities at Point Henry, near Geelong. The power station supplies some 42% of Point Henry's requirements.

The company employs about 130 people and some 20 contractors in the mining and power-generation operations of Anglesea.

### The lease area

The 7350 ha lease area is dominated by the Bald Hills, a prominent and distinctive landscape feature. The vegetation consists of dry heathlands and heathy open forests and woodlands on marine and non-marine Tertiary sands and gravels. The Anglesea River—also known as Marshy Creek south of Gum Flats—and Salt Creek flow south and east respectively through the area and are characterized by broad swampy tracts dominated by shrublands of scented paperbark (*Melaleuca squarrosa*).

Three main land systems comprise the lease area: the Bald Hills land system occupies 85% of it, while the Anglesea (12%) and Moggs Creek (3%) land systems make up the remainder. The land use capabilities of these land systems are limited due to low inherent soil fertility, while the sand, clay, and gravelly soils found within each are prone to sheet, rill, and gully erosion.

### Land use

#### Brown coal

Exploration for brown coal here commenced in the later 1950s to supplement dwindling brown coal reserves from mines in the Barwon region to the north-west.

Results of exploratory drilling by the then Mines Department, Roche Brothers, and Western Mining Corporation indicated a large economically viable field in the Salt Creek–Marshy Creek area immediately to the

north of Anglesea. Roche Brothers commenced open-cut mining operations on the western limb of this field in 1959. Later, control of the field passed to Western Mining Corporation—an associate of Alcoa of Australia Ltd—and in 1961 Alcoa was granted a long-term lease over the field, including a considerable tract of country to the north and west.

Alcoa commenced open-cut mining operations in 1969 on a substantially larger basis than the Roche Brothers open cut, where output had dwindled from 169 000 tons in 1959 to 14 300 tons in 1968.

Since 1969 the company has mined some 1.1 million tonnes of brown coal each year from its established colliery located in the south-east of the lease area. The colliery lies approximately in the centre of a proved coalfield that contains reserves to last about 75 years at the current rate of extraction.

Initially, the company commenced open-cut mining in the central-eastern portion of the field, and the open cut has progressively advanced west. Back filling and rehabilitation have taken place in areas that have been mined. The open cut will be extended southwards and northwards to the economic limits of the uppermost seam, while mining of the lower seams is not being proposed at present. The remaining portions of the lease area are known to contain brown coal, but the extent of these reserves has not yet been fully determined.

### Softwood production

Based on experience elsewhere, it was thought that portions of the lease area had capabilities for softwood production and during the 1920s and 30s some 1500 ha of it were converted to softwood production. Initially the main species planted were *Pinus insignis* (now *P. radiata*). However, this species was found to be inappropriate for the site and was subsequently replaced with plantings of *P. pinaster*. A number of other conifer species were also planted as well as golden and black wattle, but generally the plantations proved unsuccessful. The areas involved in the attempted establishment of the softwood plantations, and in the subsequent establishment of small softwood fertilizer and provenance trials during the early 1950s, have more or less reverted to their characteristic native vegetation cover (Map 1: Anglesea Lease Area—Floristic

Vegetation). Nevertheless, clumps of pines can still be found within the area and indications are that they may become a nuisance species.

### Other uses

Use of the lease area for recreational purposes is also significant. People are attracted here for a variety of purposes, including nature observation and photography and viewing the impressive and showy wildflower displays each spring.

Considerable use is made of the lease area for motor-vehicle touring, including trail-bike-riding, along the extensive road and track network. In addition, many of the gravel-stripped and informal trails found within it are popular with motor-bike-riders seeking rough off-road conditions. Also, a number of sites are used for informal camping. This activity is usually associated with motor touring.

Several public utilities occur within or adjacent to the lease area. These include the waste-disposal site operated by the Shire of Barrabool and a number of water-supply facilities, including an underground pipeline, operated and maintained by the Geelong Water Board.

Licensed firewood-gathering occurs within several portions of the lease area and adjoining public land, while the northern portion is currently being used to supply some 18 500 cu m of road-making materials a year for local use. A rifle range currently operates near Gum Flat in the northern section of the lease.

Its location, and the types of vegetation found within it, make the lease area important with regard to fire-protection and protection of the Township of Anglesea. It contains an extensive road and track network suitable for access to carry out fire-protection and suppression operations.

### Conservation values

In the proposed recommendations for Melbourne Area, District 1, the Council indicated that it would further investigate the conservation values of the lease area. Dr C. Meredith, a botanical consultant, was employed during spring 1986 to classify and map the vegetation of the lease area, collate existing information about the vegetation, and prepare a report on the botanical significance of the area.

His report to the Council indicates that some 500 native plant species have been recorded here. These represent about one-sixth of the State's complement of native plant species. In addition, 14 of these species are classified as rare or very localized in Victoria, 27 are uncommon, 16 are unusual or have disjunct occurrences, seven are at the limit of their range, and one (*Grevillea infecunda*—Anglesea grevillea) is endemic to the area.

The lease area also contains 79 species of orchids and 8 hybrids, which represent about half of the State's orchid flora.

The number of plant species, including those of conservation significance, that occur within the 7350-ha lease area is thus impressive. It reflects the very high species diversity of some of the plant communities present. Several communities occurring here have been largely cleared from the rest of their range, or are naturally restricted to the lease area.

The report also established that several of these identified vegetation communities have significant botanical importance.

The heathy woodlands community, which occupies some 40% of the lease area, appears to be the richest and most diverse found in Victoria. Further, the report indicates that its high level of local diversity is probably only exceeded in some heathy communities in south-western Western Australia. It is also significant in being the most orchid-rich community found within the lease area and for its exceptional wildflower displays each spring.

Other vegetation communities identified in the report were also ranked as botanically significant. The Bald Hills heathland, which occupies some 26% of the lease area, represents the only remaining coastal dry heathland in western Victoria, and as such has significance. Although limited occurrences of it are found in the Angahook State Park, the best and most extensive examples occur in the lease area.

The closed shrublands dominated by scented paperbark that occur along Marshy and Salt Creek have been rated as regionally significant, because this community is now rare in western Victoria, especially in large contiguous stands such as those found along the creeks. It has also been identified as important because of the number of rare and restricted species found within it.

In addition, the report indicated that the lease area supports a rich small-mammal fauna, including the rare New Holland mouse.

In view of the new information collected about this area since 1977, particularly on the floristic values, the Council believes that its previous recommendations for the lease area should be revised.

## Lease area

### Recommendations

**R6** That the 5960 ha comprising areas A, B, and C and shown on Map B, continue to be available to Alcoa of Australia Ltd as specified in the *Mines (Aluminium Agreement) Act 1961* for the mining of brown coal, exploration and associated works.

Notes:

1. The area marked A on Map B includes the present works area and is known to contain coal reserves sufficient to last some 75 years at the current rate of extraction.
  2. The Council realizes that part of the lease area lies outside the arbitrarily established boundary of the Council's Melbourne Area, District 1, but must consider this land in order to adopt a balanced view of land use within the lease area.
- R7** That mining, where it is to proceed on part of the lease area outside the area marked A on Map B, should be subject of negotiated conditions between Alcoa of Australia Ltd and the government in order to minimize the impact on significant conservation values.
- R8** That, most importantly, in view of the high fire hazard that exists in the lease area and its location immediately to the north and west of the Anglesea township, the land manager and the Country Fire Authority continue to implement an adequate fire-protection policy for this area.
- R9** That, subject to the rights conferred by the *Mines (Aluminium Agreement) Act 1961*, the Anglesea lease area continue to be managed by the Department of Conservation, Forests and Lands.
- R10** That, in recognition of the area's capabilities for nature conservation

(particularly floral values), gravel and sand production, and outdoor recreation, the government enter into negotiations with Alcoa of Australia Ltd to provide for the following uses within those portions of the lease area described below:

### Area A

In view of the large volume of known reserves of sand and gravel in the overburden covering the brown coal deposits found within the area marked A on Map B and the favourable location of these reserves in relation to the growth centre of Geelong, it is suggested that, while safeguarding the rights of Alcoa of Australia Ltd under the Agreement, sand and gravel extraction continue to be permitted, if required, prior to working the area for coal. If sand and gravel are taken from an area that is not to be mined for coal in the near future, then the area should be rehabilitated according to the principles and guidelines contained in the Mineral and Stone chapter.

### Area B

The above refers to the extraction of sand and gravel associated with mining for brown coal. However, the area marked B on Map B has been previously investigated and identified as one from which sand and gravel may be permitted to be extracted, not necessarily as a preliminary to mining it for brown coal. Those portions of the area used for this purpose should be rehabilitated according to the principles and guidelines contained in the Mineral and Stone chapter.

In addition, the area marked B on Map B contains sites where native plant species of identified conservation significance occur. Such sites should be delineated and their floristic values maintained by the land manager.

### Area C

The remainder of the lease area, marked C on Map B, should be used to maintain land capability and existing values and to produce goods and services required by the community that can be supplied without seriously reducing the long-term ability of the land to meet future needs or until required for coal production as specified in the *Mines (Aluminium Agreement) Act 1961*.

Further, the Council considers that the company, if commencing to mine in the Mount Ingoldsby area, should take into account the locality's scenic, landscape, and floristic values.

Note:

Council is aware of a proposal by the Airey's Inlet Water Board for the establishment of a sewage facility in the south-west portion of the lease area.

### **Motorized recreation**

In view of its extensive network of roads and tracks, the lease area has particular value for motorized recreation. The Council considers that it should continue to contain a series of linked roads, mainly of four-wheel-drive standard, available for use by licensed vehicles in order to cater for access and motorized recreation. Further, Council believes that the land manager should rationalize this road and track network. In addition, the land manager should make provision for some sections of the lease area to accommodate the off-road activities of motor vehicles, particularly trail-bikes. Such provision could, for example, take the form of defined trails and could include disused gravel-production pits. The Council suggests that the land manager, in consultation with various interest groups, could attempt to make such provision north of the Gum Flats Road, including those portions of the lease area proposed to be made available for the production of sand and gravel (area B).

The Council wishes to emphasize that even legal use of roads can pose maintenance problems, and 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 other values and uses. Erosion hazard areas may be proclaimed according to the provisions on the *Land Conservation (Vehicle Control) Act 1972* and regulations, enabling strict control to be enforced. 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*).

### **Rehabilitation**

It is the intention of Alcoa to continue to progressively rehabilitate areas from which brown coal has been removed. Council notes

the company's research and development of effective techniques for the re-establishment of native plant species on mined-over areas, which include the use of topsoil containing seed of native plant species and the use of trees and shrubs mostly grown from seed collected around Anglesea.

### **Anglesea township**

Alcoa should continue to minimize the intrusive effects of mining operations near the township of Anglesea. In addition, due to the proximity of the lease area to the township of Anglesea, consideration should be given to making available some sites for urban recreation.

### **Site of special conservation significance— Area D**

In view of the lease area's significant value for nature conservation—particularly its floristic values, which have been investigated and identified following the publication of the proposed recommendations for the district in June 1986—the Council believes that it is important to identify a portion of the lease area for nature conservation, which contains:

- a representative sample of the significant floristic communities found here
- natural environments not represented in the Angahook State Park
- identified localities where a variety of plant species of conservation significance occur

The Council considers that the area marked D on Map B should be used to conserve particular species or associations of native plants. It includes portions of the Anglesea land system, which is at present only poorly represented in conservation reserves, and the Bald Hills land system, which dominates the lease area. It also contains the Marshy Creek swamp, which is a significant landscape feature.

Vegetation communities found here include heathy woodland, in what has been identified as one of two areas where this community is best developed. The heathy woodlands are characterized by a high degree of species richness and diversity and available information suggests that within one hectare it is possible to find up to some 160 individual native plant species. Further it has been suggested that these heathy woodlands would rank among the richest and most diverse vegetation

communities in Victoria and are possibly of national significance. The community has also been identified as containing the majority of orchid species found within the lease area and it is also noted for the exceptional wildflower display produced each spring.

The scented paperbark shrubland found along Marshy Creek is a large continuous stand classified as rare in western Victoria and thus has regional significance. In addition, this shrubland is significant because of the number of rare and restricted species it contains. A sphagnum bog occurs in the northern portion of Marshy Creek.

Area D contains other communities—of heathy forest and the Bald Hills heathland—of regional significance.

Some 17 species of native plants classified as being of conservation significance grow within area D. These include the occurrences of *Tetrarrhena acuminata* (pointed rice grass), *Chorizandra* sp. (bristle rush), *Corybas fordhamii* (helmet orchid), and *Burnettia cuneata* (lizard orchid), all being rare plants found along Marshy Creek. Other rare species found in Area D include the sun orchid (*Thelymitra mucida*) and *Eucalyptus* sp. nov. aff. *cypellocarpa*, a new species of eucalypt.

Plants of conservation significance occurring here also include seven orchids (plain-lip, spider, bronze caledonia, large duck, variable-midge, Austral leek, and scented sun orchids), *Leptorhynchos linearis* (shiny buttons),

*Opercularia scabrida* (stalked stinkweed), *Melaleuca squamea* (swamp honey myrtle) and *Grevillea infecunda* (Anglesea grevillea), which is endemic to the lease area.

Area D also contains habitat for native faunal species to—the rare New Holland mouse (*Pseudomys novaehollandiae*) occurs along Forest Road.

The Council recognizes that area D is prospective for coal; but, because of the high conservation values found here, Council believes the area warrants permanent protection.

### Recommendations

**R11** That the government enter into negotiations with Alcoa of Australia Ltd with the aim of reaching agreement to excise the area of some 1390 ha marked D on Map B from the Anglesea lease area and that this land be included in the State's system of conservation reserves as a flora reserve to be managed by the Department of Conservation, Forests and Lands.

Note:

The area does not include existing utility easements.

**R12** In the event that negotiations outlined in Recommendation R11 are not entered into or are unsuccessful, the area marked D on Map B be subject to Recommendation R7.

## S. Utilities and survey

Many utilities occupy public land. They include roads, pipelines, power lines, 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.

### Existing utilities

#### Recommendations

**S1- S9** That the areas listed below, some being indicated on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the Melbourne area January 1977.

**S1** Various existing utilities

**S2** Werribee sewage farm

Note:

Werribee sewage farm is recognized as an internationally important wetland for the conservation of waterfowl and migrating waders. It has been accepted by the Ramsar Convention as a wetland of international significance. Portions of the farm have particular value for the survival of the endangered orange-bellied parrot.

Council endorses the Board's participation in the establishment of the Murtcaim Wildlife Management Area established to ensure conservation of habitat and the protection of wildlife, including the orange-bellied parrot, and the Board's current action to form a consultative committee of expert and interested government, local government, conservation, and wildlife groups in order to ensure the effectiveness of wildlife management in the future. Development of a management plan for the conservation of wildlife found on the farm will be the prime goal of the committee.

**S3-** Hospitals

**S4**

**S5** Social welfare, Sunbury

**S6** Garbage tip

**S7** Navigation aids

**S8** Trigonometrical stations

**S9** Other utility areas

### Garbage and sanitary depots

Council considers that sites on public land 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.

#### Recommendations

**S10** That existing legal garbage depots (including those approved by the relevant authorities but not yet operating) continue to be available for garbage disposal.

**S11** 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.

**S12** 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.

**S13** That existing licensed waste-disposal depots in State forest continue to operate.

### Railway land

Disused railway lines and other railway land often carry significant remnants of native vegetation, contain buildings and structures of historical importance, or may be suitable for walking, horse-riding, or cycling tracks. Accordingly the potential of railway land for uses such as these should be carefully examined before arrangements are made for its disposal.

Railway land often supports remnants of native grassland vegetation and arrangements should be made to protect such occurrences wherever this is possible.

### Recommendation

**S14** That, where isolated remnants of the original vegetation remain on land associated with railway lines, every effort be made to protect that vegetation consistent with management practices. Such sites are broadly indicated on the schedule below.

- Bendigo line between Calder raceway and Sunbury: species-rich *Themeda* grasslands here include such significant species as *Senecio macrocarpus*, *Rutidosia leptohynchoides*, *Myoporum insulare*, and *Comesperma polygaloides*.
- Bendigo line between Clarkefield and Riddells Creek: *Themeda* grasslands occur and of particular importance is the occurrence of *Diuris punctata* var. *punctata*, which is believed to be the last stand of this species in the study area.
- Seymour line, north of Seymour, where *Themeda* grasslands occur

- Melbourne-Geelong line
  - relict *Themeda* grasslands containing *Rutidosia leptohynchoides*
  - relict *Themeda* grasslands between Werribee and Lara contain many species of significance
- Ballarat-Geelong line—relict *Themeda* grasslands
- Port Fairy-Geelong line—*Themeda* grasslands north of Lake Melbourne
- Melbourne-Ballarat line—relict *Themeda* grasslands between Sunshine and Bacchus Marsh, Ballan and Werribee Gorge, and Wallace and Ballan
- Melbourne-Bendigo line—some 1.5 km south of Woodend—the occurrence of *Eucalyptus aggregata* (black gum)
- Geelong-Ballarat line—some kilometres north-west of Bannockburn railway station. Here a colony of the endangered *Rutidosia leptorhynchoides* (button wrinklewort) occurs with *Senecio macrocarpus* (groundsel), a recently described species considered endangered.
- Melbourne-Ballarat line—east of Parwan railway station. Here a colony of endangered *Pterostylis mutica* (midget greenhood) occurs.

In addition, sites of historical significance occur in land associated with railways, and every effort should be made to protect these sites. Such sites are indicated on the schedule below.

- Moorabool viaduct—Ballarat-Geelong railway line, Moorabool River—one of the largest 19th century railway bridges in Victoria
- Kismet Creek Railway viaduct—Melbourne-Bendigo railway line
- Malmsbury viaduct—Melbourne-Bendigo railway line, Coliban River—almost certainly the finest arched bluestone bridge in the State
- Melton viaduct—Melbourne-Ballarat railway line, Werribee River—one of four important large 19th century railway viaducts in Victoria and the most significant because of its all-iron construction.

**S15** That disused railway land within the study area be retained as public land where it may have historical, recreational, or educational value

## **Proposed utilities**

### **Recommendation**

- S16** 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 land manager, and

that new pipelines and power lines follow existing easements if possible (this may require widening of some easements).

## **Lara prison site**

### **Recommendation**

- S17** That the area shown on Map A be permanently reserved for social welfare purposes.

# 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 some cases, however, Council has made specific recommendations for township land to be set aside as bushland reserves and recreation reserves; these recommendations are included in the appropriate sections. Other areas of public land in townships should remain as unreserved Crown land—to be used, if required, for township purposes in the future.

## **Recommendation**

- 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 the boundaries of public land in townships accurately. 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.

## U. Military training

Council believes that military training is a legitimate use for 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

U1 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 Department of Defence, the land manager, and the Department of Conservation, Forests and Lands
- (b) the Department of Conservation, Forests and Lands be consulted (for

fire-protection purposes) with respect to training activities in protected public land

- (c) it be excluded from reference areas, and except under special circumstances, from parks and other areas of recreation and conservation significance.

### Note:

Three recognized Army training areas lie in the District:

Cobaw Forest

Wombat Forest (Saltwater Creek area)

Pyrete Range (northern section)

Their current uses include communication, navigation and tactical exercises, and adventure training. They are used intermittently and the Army does not currently expect that the usage rate will increase in the future.

## 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 purposes be used in a way that will not preclude their commitments in the future to some specific public use.

### Recommendation

**VI** 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.

### Soil conservation area

In 1979, the Crown purchased 222 ha of land in the Parish of Yaloak and reserved it for soil conservation purposes.

Extremely severe tunnel, sheet, and gully erosion—together with siltation, landslips, and an extensive, highly erodible clay quarry—occur within this denuded ridge of land, which is also prone to rabbit and weed infestation. It is known locally as the White Elephant because of the predominance of exposed subsoil.

The area is used as a reference and educational resource with respect to soil erosion and techniques of reclamation.

### Recommendation

**V2** White Elephant Soil Conservation Area (222 ha)

That the area shown on the map be used to:

- (a) demonstrate the consequence of land mismanagement as well as the types and process of erosion
- (b) support research into agronomic, afforestation, engineering and soil stability aspects of erosion control and reclamation
- (c) maintain the Parwan Hydrological Research Station, which is located within the reserve, including all-weather access.

### Mineral springs

A large number of mineral springs are found in the Melbourne area, District 1, chiefly in the north-west. Of those located on public land here, 22 (listed below) are considered to be suitable for tourist development and nearly all of these areas are managed by Committees of Management.

Many of the springs shown on the list are located within reserves set aside for mineral springs, while others fall within other Crown land reserves such as recreation reserves.

### Recommendation

**V3** That, for those mineral springs shown on the list, existing legal uses and tenure of the reserve in which they are located should continue, and that if no specific reserve yet exists, a small area of a size sufficient to fulfil management requirements be set aside.

Argyle	Locarno
Blackwood	Lyonville
Central (Hard Hills)	Lyonville Township
Central No. 2	Pavilion
Glenlyon	Sailors Falls
Golden	Spargo Creek
Jubilee Lake (Soda Spring)	Sulphur
Kyneton	Suttons
Leitches Creek	Tipperary
Liberty	Wagga
Lithia	Wyuna

Note:

Other springs are only minimally developed or have not been subject to modification. Many of these are in the Hepburn Regional Park or State forest. Works in and around these springs should be kept to a minimum to maintain their natural surroundings.

## Port Phillip Bay and coastal waters

Port Phillip Bay occupies an area of some 192 000 ha. The Bay and its sea-bed, soil, and waters together with the underwater terrain and coastal waters from Point Nepean to Lorne and extending 5.5 km seaward, forms a significant public resource.

The sea-bed below low water mark is unreserved Crown land and managed by the Department of Conservation, Forests and Lands, except for those portions of the Bay vested in the Port of Geelong Authority and the Port of Melbourne Authority for port purposes. In addition, the waters of the Bay fall within the three proclaimed ports of Geelong, Melbourne, and Port Phillip.

The inshore waters of the Bay, being the waters and sea-bed 600 m seawards of low water mark, form part of the Port Phillip area and for planning purposes are subject to the provisions of the *Port Phillip Coastal Planning and Management Act 1966*, under which the Minister for Planning and Environment may carry out investigations and prepare reports and management plans for the protection of the Port Phillip area and its hinterland.

Its water quality is the subject of the State Environment Protection Policy: 'The Waters of Port Phillip Bay (1975)'. Under this policy, the Bay has been divided into a number of water-quality segments and, with more than 300 drains entering it, the risks of pollution necessitate the continued need for pollution monitoring.

Port Phillip Bay is an important commercial fishing area, with some 24% of Victoria's commercial fish catch coming from or through Port Phillip. The Bay itself supports commercial fishing of various fish species, squid, scallops, abalone, and mussels. It is also a major recreational fishing resource: preliminary estimates indicate that during peak periods up to 190 000 anglers per month fish in Port Phillip. In addition, the Marine Science Laboratories at Queenscliff are investigating the feasibility of developing a new mariculture industry in Port Phillip based on the native mud oyster, while a mussel culture industry has been established, with 23 mussel farms producing an estimated 1000 tonnes.

Other utility, commercial, and Defence Department uses of Port Phillip Bay include various navigation aids, piers, jetties, and

marinas, spoil grounds, and explosive anchorages.

In association with the coastal reserve and other areas such as the Werribee farm and various wildlife reserves, Port Phillip Bay also provides important habitat for a wide and diverse array of water birds, including international migratory waders. The Bay is the sixth most important area for migratory waders in Australia and the most important in Victoria. Sea-birds such as shearwaters, skuas, albatrosses, prions, and petrels also inhabit it. The Bay is of great importance to species such as the white-faced storm petrel, as about half of the Victorian population breeds on Mud Islands and South Channel Fort. In addition, two of the five breeding colonies of Australian gannets in Australia are situated on Wedge Light and Popes Eye, while a few penguins nest at South Channel Fort and at St Kilda Pier breakwater.

Port Phillip Bay also contains many sites of historical or cultural significance. Some 200 shipwrecks have occurred there, and less than half of the sites have been located. Of these, five wrecks have been afforded protection under the *Historic Shipwrecks Act 1981*, being the 'City of Launceston', 'William Salthouse', 'Mountain Maid', 'Clarence', and 'Empress of the Seas'. Other sites of historical interest within Port Phillip Bay include South Channel Fort, which was built in the early 1880s to defend the Colony of Victoria and remains in a relatively intact condition.

Council believes that sites of conservation, educational, historical or cultural significance should be protected and their values maintained as part of any management plan prepared for Port Phillip Bay.

### Recommendations

**V4-** That, for the area shown on Map A,  
**V5** existing legal tenure continue  
and that

where the sea-bed is not reserved for a specific purpose, it be used and managed in a way that will protect identified values and does not preclude reservation in the future for as-yet-unknown public purposes.

**V4** Port Phillip Bay

**V5** Coastal waters

## Commonwealth land

Within the Melbourne area, District 1, various parcels of land are controlled or owned by the Commonwealth of Australia. These parcels, while not public land as defined in the *Land Conservation Act 1970*, do have floristic values of conservation significance. Although it has no power under the 1970 Act to make recommendations on Commonwealth land the Council believes that the conservation values of these areas should be recognized and the areas managed so that these values are protected. The swamp at Laverton RAAF Base is one such area.

This 2 ha lignum (*Muehlenbeckia cunninghamii*) swamp is one of the few remaining lignum swamps in the district and has vegetation affinities with swamps found in the Wimmera and Murray Valley area. It

contains a number of significant species, such as *Panicum decompositum*, *Goodenia gracilis*, *Marsilea drummondii*, *Eryngium vesiculosum*, *Juncus* sp. 'O' and *Eragrostis infecunda*.

## Point Nepean

An agreement in principle has been reached between the Commonwealth and State governments to transfer part of the Commonwealth land at Point Nepean to State ownership.

The Council wishes to endorse this agreement and believes that the area will make a welcome addition to the state's system of park reserves. It is intended that this land will form part of the Cape Schanck Park. A Commonwealth-State working group has been formed to facilitate the land transfer.

# Final recommendations for parks in the previous Melbourne area investigation— January 1977

## Park recommendations

### State parks

#### A4 Angahook State Park

That the land (3750 ha) shown on the maps 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 that

- (c) the following roads in the park remain open to traffic—Breakfast Creek No. 2, Distillery Creek, and Bambra
- (d) the stone quarry on Bambra Road be permitted to continue operating at the present level of production, that it be kept tidy, and that a programme of planting local native plants be undertaken to screen the quarry from the road.

#### A5 Lerderderg State Park

That the land (12 700 ha) shown on the maps be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
- (b) conserve and protect the natural ecosystems
- (c) supply water and protect catchments

and that

- (d) special emphasis be placed on maintaining this area's diverse mammal fauna

- (e) the slate quarry near the south-eastern boundary of the park be permitted to continue operating at its present level of production until the present licensee ceases operations.

#### A7 Werribee Gorge State Park

That the land (600 ha) shown on the maps be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
- (b) conserve and protect the natural ecosystems
- (c) supply water and protect catchments

and that

- (d) emphasis be given to the conservation of the park's rich flora.

### Regional parks

#### A8 You Yangs Regional Park

That the land (1900 ha) shown on the maps be used to:

- (a) provide opportunities for informal recreation for large numbers of people
- (b) conserve and protect the natural ecosystems to the extent that this is consistent with (a) above

and that

- (c) honey production be permitted in the park
- (d) emphasis be placed on maintaining the present rich avifauna and protecting the remaining colonies of the brittle greenhood (*Pterostylis truncata*)

- (e) production of poles, fencing material, firewood, and other minor forest produce be permitted where this does not conflict with (a), (b) and (d)
- (f) sand and gravel extraction be restricted to the areas currently zones for this purpose
- (g) control of boneseed be given urgent attention by the management authority
- (h) reclaimed gravel and sand pits be revegetated, preferably with local native species.

**A9 Steiglitz Regional Park**

That the land (800 ha) shown on the maps be used to:

- (a) provide opportunities for informal recreation for large numbers of people
- (b) conserve and protect the natural ecosystems to the extent that this is consistent with (a) above

and that

- (c) buildings and other features of historic interest be preserved

- (d) fossicking in the areas used at present be permitted to continue, after consultation with the relevant authorities.

**A10 Hepburn Regional Park**

That the land (2900 ha) shown on the maps be used to:

- (a) provide opportunities for informal recreation for large numbers of people
- (b) conserve and protect the natural ecosystems to the extent that this is consistent with (a) above
- (c) supply water and protect catchments

and that

- (d) timber harvesting be permitted in the hardwood forests, in order to enhance the recreational value of the area by creating a diversity of age classes within these forests
- (e) utilization of timber from existing softwood plantations be permitted
- (f) special prescriptions for fire protection be drawn up for this park because of its location.

## Appendix II

# Sites of special conservation significance on the coast

The following list contains known sites of special conservation significance on the coast between Lorne and Point Nepean. Many of these are included in the coastal reserve, wildlife reserves, and flora and fauna reserves. As well as sites on public land (as defined in

the *Land Conservation Act* 1970), the list includes those on private land, Commonwealth land, and land within cities and boroughs. The latter are included for the sake of completeness. The right-hand column of the list gives the recommended status of the sites.

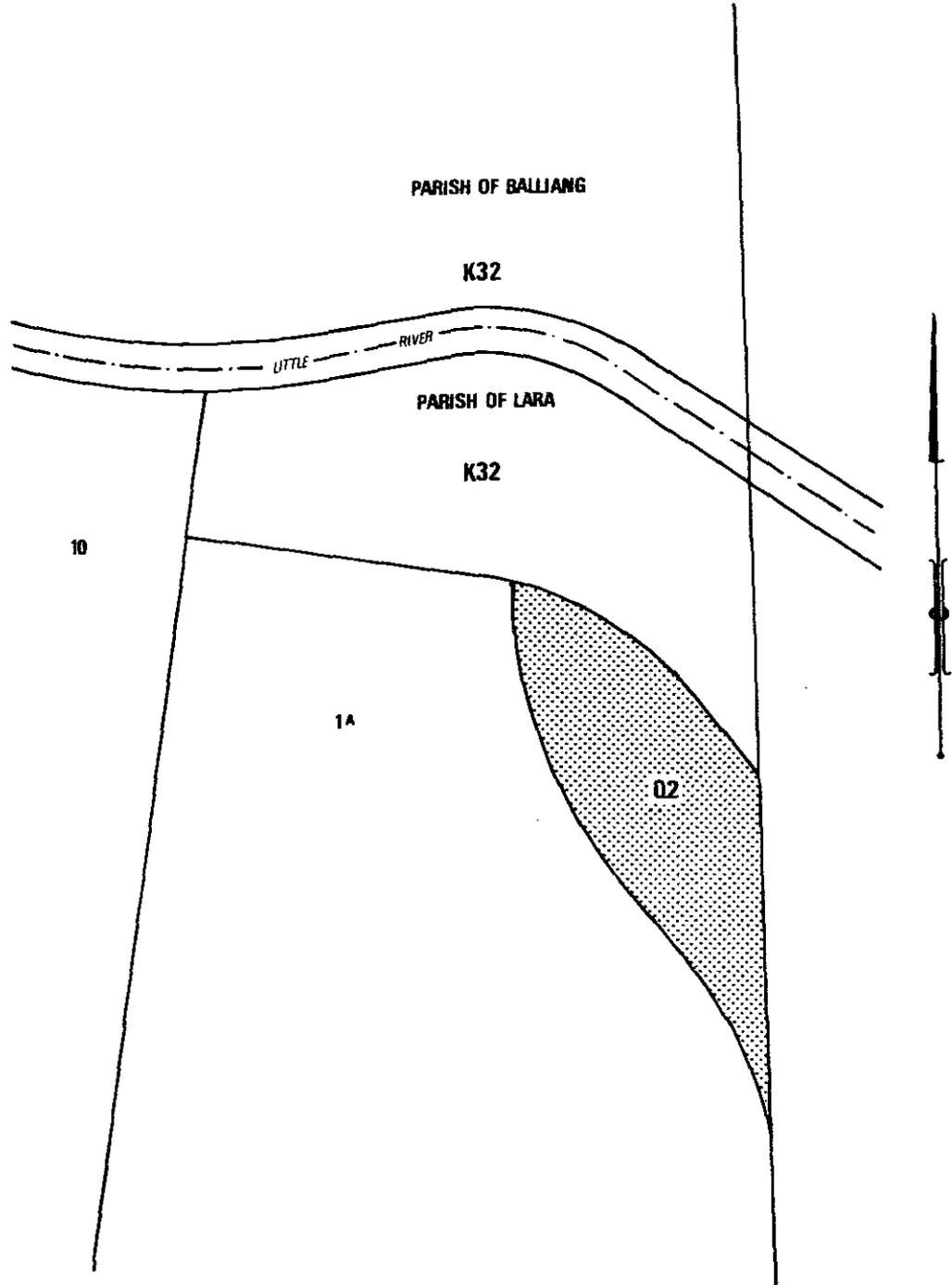
LOCALITY AND SIGNIFICANCE	STATUS
Eastern View ..... The geological contact of the Otways Mesozoic rocks with the Tertiary rocks to the east.	Coastal Reserve (J1)
Moggs Creek ..... The coastal heathland habitat of the rufous bristle-bird (near the eastern limit of its restricted range) and the uncommon beautiful firetail (confined to a restricted range of coastal habitats)	Coastal Reserve (J1)
Aireys Inlet to Eagles Nest ..... The cliffs exposing a volcanic structure overlain by limestone; the rare ramphobranch polychaete worm on the intertidal rocks; and the distinctive landscape of the rocky promontory, cliffs, and sea stacks.	Coastal Reserve (J1)
Urquharts Bluff ..... The moonah trees on the bluff and the rare fungus <i>Underwoodia beatonii</i> , which occurs beneath them	Coastal Reserve (J1)
Hutt Gully ..... The coastal heathland habitat of <i>Antechinus minimus</i> (this locality is one of very few Victorian records for this species)	Coastal Reserve (J1)
Point Roadknight ..... The calcarenite headland, with its well-developed shore platforms and other interesting geomorphic features.	Coastal Reserve (J1)
Anglesea River mouth ..... The grove of moonah trees beside the river and the rare fungus <i>Underwoodia beatonii</i> , which occurs beneath the trees.	Coastal Reserve (J1)
Demons Bluff ..... The receding cliffs in carbonaceous clays, and the breeding site of the rather rare peregrine falcon.	Coastal Reserve (J1)

Point Addis..... The cliffs, the fossils they contain (particularly molluscs), and the coastal heathland habitat of the rufous bristle-bird (at the eastern limit of its range), together with the distinctive landscape of the headland and sheltered crescent beaches backed by cliffs.	Coastal Reserve (J1)
Half Moon Bay..... The fossil locality in the cliffs and the rich littoral communities of its waters.	Coastal Reserve (J1)
Breamlea..... Coastal wetland habitat of international migratory waders and water birds.	Flora and Fauna Reserve—City of South Barwon
Point Flinders..... The basalt and calcarenite bluff, and the uncommon metallic skink that inhabits it.	Coastal Reserve—City of South Barwon
Barwon River estuary..... The white mangrove (westernmost occurrence) and saltmarsh vegetation; international migratory waders and water birds; and aquatic fauna adapted to extremes of estuaries salinity.	Wildlife Reserve—City of South Barwon
Ocean Grove to Point Lonsdale..... The sand dune vegetation with moonah and tea tree, and the Aboriginal middens.	Coastal Reserve (J1)
Salt Lakes..... Habitat of waders, shrimps, and shellfish.	Wildlife Reserve (C3)
Point Lonsdale..... Calcarenite cliffs with well-developed stone platform and other coastal land forms; rich marine algae; rich littoral fauna, particularly opisthobranch molluscs; and a distinctive cliff and headland landscape.	Borough of Queenscliff and Harold Holt Marine Reserve (A19)
Mud Island..... Coastal saltmarsh and shrub vegetation; one of few breeding areas of the white-faced storm petrel; and feeding grounds of international migratory waders.	Wildlife Reserve (C5) and Harold Holt Marine Reserve (A17)
Swan Island..... A highly dynamic sandy shore with excellent examples of sandy coast land forms; saltmarsh, moonah, and tea tree.	Commonwealth land (not public land)
Swan Bay..... The extensive shell beds; saltmarsh, marine angiosperms and algae; fish, shellfish, and other fauna of sheltered marine environments; international migratory waders and water birds.	Wildlife Reserve (C4) and Harold Holt Marine Reserve (A16) and Borough of Queenscliff.

LOCALITY AND SIGNIFICANCE	STATUS
Edwards Point..... The complex sand spit; saltmarsh, dune, and strand-line flora; international migratory waders, water birds, and the endangered orange-bellied parrot.	Wildlife Reserve (C4)
St Leonards Lagoon..... International migratory waders, and water birds.	Wildlife Reserve (C6)
Point Richards ..... Short-nosed bandicoot, in grassland	Flora and Fauna Reserve (H2)
Point Henry ..... The saltmarsh habitat of international migratory waders and water birds	Coastal Reserve (J2)
Stingaree Bay ..... The saltmarsh habitat of international migratory waders and water birds.	Coastal Reserve (J2)
Limeburner's Bay ..... The white mangroves, and saltmarsh habitat of international migratory waders and water birds.	Flora and Fauna Reserve (H1) and Coastal Reserve (J2)
The Spit ..... Saltmarsh and tidal flats habitat of international migratory waders and water birds; the endangered orange-bellied parrot.	Wildlife Reserve (C7)
Point Cook ..... King quail and Aboriginal middens.	Point Cook Park
Williamstown ..... Lava blister in foreshore basalts.	City
Point Nepean..... Calcarene cliffs, extensive shore platforms and offshore reefs; marine algae, sand dune flora, and the rare <i>Adriana quadripartita</i> ; rich littoral fauna and Aboriginal middens.	Commonwealth land (not public land)

**AGRICULTURE Q2  
LARA**

**MAP 2**



 PUBLIC LAND RECOMMENDED FOR ALIENATION

73 75 80 85 90 95

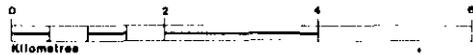
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# MACEDON REGIONAL PARK LOCATION OF FEATURES

## Melbourne Area District 1 - Review

1:100 000



Land Conservation Council  
Victoria

60

60

### LEGEND

( See note 1 )

-  Macedon Regional Park
-  Water supply purposes
-  Softwood production ( approximate )
-  Areas for recreational development
-  Location of mountain ash, alpine ash and snow gum stands.

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Note 1: Refer to the text for a detailed description of features.  
Location of areas shown on this map are approximate.

MAP No. 3

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273000E 75 80 85 90 95