

PROPOSED RECOMMENDATIONS

NORTH CENTRAL STUDY AREA

**LAND CONSERVATION COUNCIL, VICTORIA
MELBOURNE, JUNE 1980**

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GOVERNMENT OF VICTORIA

LAND CONSERVATION COUNCIL

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PROPOSED RECOMMENDATIONS

NORTH CENTRAL AREA

These recommendations are published to allow all who are interested in the use of public land the opportunity to comment by making written submissions to the Land Conservation Council.

All such submissions must reach the Secretary no later than Tuesday 26th August, 1980.

These submissions will be considered by the Council before Final Recommendations are made on the use of public land in the study area.

J. KUNARATNAM
Secretary
Land Conservation Council

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MELBOURNE, JUNE 1980**

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CONTENTS

	PAGE
Introduction	5
A. Parks	8
B. Reference Areas	18
C. Wildlife Reserves	20
D. Water Production	23
E. Hardwood Production	30
F. Softwood Production	33
G. Eucalyptus—Oil Production	34
H. Flora Reserves and Flora and Fauna Reserves	36
I. Bushland Reserves	39
J. Historic Areas and Reserves	45
K. Rivers and Streams	52
L. Roadside Conservation and Highway Parks	59
M. Education Areas and School Plantations	63
N. Geological Reserves	67
O. Recreation	68
P. Scenic Reserves	72
Q. Agriculture	73
R. Mineral and Stone Production	75
S. Utilities and Survey.. .. .	80
T. Township Land	83
U. Uncommitted Land	84
V. Military Training	85
W. Other Reserves and Public Land	86
Map A The Study Area 1 : 250,000	} Follow text
Map B The Study Area 1 : 250,000	
Maps 1-10 Supplementary Maps	

INTRODUCTION

The Land Conservation Council was established by the *Land Conservation Act 1970*. As one of its three functions, it makes recommendations to the Minister for Conservation with respect to the use of public land, in order to provide for the balanced use of land in Victoria. This report contains the Council's recommendations concerning the public land in the North Central study area. Notices showing the boundary of the study area and advising that an investigation was to be carried out were published in the *Victorian Government Gazette* of 4 February 1976, and in local and other Victorian newspapers in February 1976. A descriptive report was published on 19 October 1978. The Council received 288 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 most feasible forms of land use for the district. Extracts from the *Land Conservation Act 1970* covering the procedure to be followed in formulating recommendations were included in the descriptive report.

After considering the submissions and visiting the study area, the Council has prepared these proposed recommendations. They will be distributed to all who made submissions, and their publication will be followed by another 60-day period for further submissions. After this the Council will prepare final recommendations for presentation to the Minister and Parliament.

The recommendations in the text are grouped under major headings, such as Parks, Hardwood Production, and so on. The text is accompanied by 12 maps. Maps A and B, at the scale of 1 : 250 000, cover the whole study area and give a broad view of the recommended land uses. Other detailed maps show areas recommended for agriculture (by alienation) and the land within the proposed Whroo multi-purpose park (A6). More detailed information on many of the boundaries is held by the Land Conservation Council.

Land uses

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

The Council recommends the establishment of: five State, one multi-purpose and three regional parks in areas of particular importance for recreation and nature conservation; reference areas and education areas (covering the range of land types found in the study area); flora and fauna reserves for areas of importance for conservation of habitat and representative plant communities; and wildlife reserves for a number of sites (mostly lakes and swamps) containing valuable faunal habitats. A number of areas are recommended as historic areas and historic reserves and substantial areas are recommended for hardwood timber production.

In the preparation of recommendations, a major consideration has been the problem of salinity in the study area. One of the causes of dryland salting is increased infiltration and percolation of rainwater as a result of reduced evapotranspiration following the clearing of forests, and their replacement with pasture and crops. This has been and continues to be the subject of extensive research by various expert groups. The Council has recognized this when considering areas of public land that can be used for agriculture and believes that the recommendations do not change public land use in a way that would add to the problem of dry land salting.

Another important consideration in this study area has been the water erosion hazard existing on the sloping land with shallow soils. The land use and management of public land, especially on the higher slopes, are vital to minimize on-site and off-site effects of accelerated water run-off and consequent erosion. Unwise actions on these public lands could seriously affect the soil conservation effects on lower freehold lands, shire roads, and other public utilities.

Where demands from competing uses vie for a given area of land, it is not possible to satisfy them all. However, these recommendations attempt to achieve balance in providing for the present needs of most forms of use while retaining flexibility and the opportunity to adjust to future changes in such demands. They do so by placing as much of the public land as possible under forms of use that do not have a major impact on the natural ecosystem, and by placing areas into the 'uncommitted land' category. Flexibility in planning is essential. Our knowledge of many resources (for example, minerals) and of the distribution and ecology of plants is very imperfect. There must be many places in Victoria where special values still remain unrecognized and for which no special provision can be made in present planning. Furthermore, future demands for resources on public land may require alteration or modification of these recommendations, which are based on the best information presently available. The Council is aware that review will be necessary to ensure that future land use is in the best long-term interests of the community.

General Recommendations

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

The Council wishes to stress the need for adequate management and protection of public land, as it has made its recommendations on the assumption that sufficient manpower and finance will be provided for the appropriate managing authority. Unless these resources are provided, the Council's recommendations cannot be effectively implemented. There is an urgent need to make additional field staff and finance available and the Council therefore recommends:

- I That the authorities responsible for managing and protecting the public land be given the resources necessary for the task.
The Council has previously proposed certain additional arrangements for protecting the public land from fire. These arrangements have now been incorporated into an amendment to the *Forests Act 1958*. The amendment creates the designation 'protected public land', which may include public land that is not State forest or national park. The Forests Commission is now required to protect all three of these from fire. In national parks and protected public land, the Commission's fire-prevention works are subject to the agreement of the managing authority or, if agreement is not reached, to determination by the Governor in Council. In State forests, which comprise reserved forest and protected forest as defined in the *Forests Act 1958*, the Forests Commission is also responsible for the control and management of the vegetation. 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*.

Council recognizes that the North Central area is an area of gold mineralization and has particular significance with respect to future mining development.

The principles and guidelines for the exploration and extraction of minerals, outlined in the chapter on minerals and stone, apply to all the public land in the study area other than the proposed Reference areas. In the proposed historic areas and reserves, special provisions regarding exploration and mining apply (see Chapter J, Historic Areas and Reserves).

- III The Council recommends that mineral exploration licences held over the area continue.

The Council expects that, as a result of further study, many more areas with special values will be identified. Present planning cannot specifically provide for the conservation 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 features and on any measures that should be taken to conserve them. 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 volume. The Council is aware that this may result in a delay, in some cases of several years, before some of its recommendations can be implemented. It is concerned that, where implementation of the recommendations would involve a change of management authority, management efficiency could be reduced during the delay period. The Council believes that the government should direct departments that their responsibilities for management must continue in all areas presently under their control until such time as the recommendations are implemented. The Council therefore recommends:

- V That the present legal status and management of public land in each case be retained until the recommended authorities have the capacity to manage each area.

The Council further recommends:

- VI That, as many of them have not been precisely surveyed, the boundaries of the areas referred to in the recommendations be subject to minor modification, road excisions, easements, and other adjustments that may be necessary.
- VII That the recommendations in this publication do not change the status of roads passing through or abutting public land that are at present declared roads under the *Country Roads Act 1958*.
- VIII That, where areas of public land are not specifically referred to in these recommendations, present legal uses and tenure continue.

A. PARKS

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

A park is here defined 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 purpose for which each one is created, and will help planners, managers, and users of parks.

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

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

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

PARK CATEGORIES

National park

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

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

Regional park

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

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

Multi-purpose park

An area of public land set aside to provide recreation and education in natural surroundings, in which other activities such as water production, hardwood timber production, stone extraction, hunting or grazing, are permitted where these form a part of, do not substantially conflict with, or supplement the primary object.

Victoria contains areas where, although recreation is an appropriate primary use of land, it is not desirable, economically possible, or necessary to wholly exclude other uses that would be unacceptable in national or State parks.

STATE PARKS

Kara Kara State Park

This park is situated in the southern portion of the St. Arnaud range and comprises steeply dissected Cambrian–Ordovician sediments with a smaller area of gently sloping Tertiary sediments adjoining the North-western Highway.

It supports open forest and woodland associations of red stringybark, long-leaf box, red box, yellow gum, grey box, and red ironbark. A vegetation association that is a feature of this park is the mature open forest comprising blue gum, yellow box, and associated species, located above the Teddington reservoirs.

Wildlife values are high, especially for tree-nesting birds and arboreal mammals. Significant species include the tuan, koala, and yellow-footed antechinus.

Other features include the recreational attractions of the Upper Teddington Reservoir and the panoramic views from the higher ridge tops.

Recommendation

A1 That the area of 4250 ha shown on the map be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
- (b) conserve and protect natural ecosystems
- (c) supply water and protect catchments and that
- (d) honey production be permitted
- (e) grazing cease by 1985

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

Note:

Adjoining portion of the park's boundary is an area, comprising the lower Teddington reservoir and approximately 32 ha of adjacent land, owned by the Shire of Kara Kara. Council recognizes that this land is outside its jurisdiction; it suggests, however, that the Shire and the management authority of the park discuss the possibility of incorporating this land within the State park.

A management plan should be prepared by the management authority of the park, in consultation with the Shire of Kara Kara and the Soil Conservation Authority, for that part of the Kara Kara State Park within the catchment to the Teddington reservoirs.

Kooyoora State Park

Located west of Inglewood, this park contains examples of nearly all of the major open forest types found in the North Central area. It also contains a very important woodland community of Blakely's red gum that is at the western limit of its distribution in Victoria. These communities have developed on soils of primarily granitic origin.

A major feature of the park is the granitic outcrop that rises sharply from the surrounding countryside. The southern peak of this outcrop has large granite tors, which form the Melville 'caves' and provide a look-out with magnificent vistas. To the north is the less accessible but higher Mount Kooyoora.

Other features of the park include mining relics and a varied bird population.

Recommendation

A2 That the area of 3460 ha shown on the map be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
- (b) conserve and protect natural ecosystems that
- (c) grazing cease by 1985
- (d) the existing sand quarry not be extended outside its present boundaries, with all extraction to cease and reclamation to be commenced by not later than 1983

- (e) sites of historical and archaeological significance be preserved
 - (f) the park be developed so as to discourage more intensive use of the steeper, erosion-prone slopes
 - (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 National Parks Service.

Note:

Council recognizes the importance of management for fire protection in this park. It will be necessary to develop special techniques to reduce the fire hazard that can occur in the grassy woodlands in the western section of the park. The Council believes that the Forests Commission should give this matter a high priority.

Kamarooka State Park

This park contains the area's largest remaining remnant of the flora typical of Victoria's northern plains, most of which has now been cleared for agriculture. It consists primarily of grey box open forest, with its associated shrub understorey, that has developed on Palaeozoic and Quaternary alluvial sediments.

On the southern edge of the park, an area of mallee vegetation contains the four main mallee species—blue, green, bull, and Kamarooka—found in this study area.

The park is one of great floral diversity and more than 140 species have been recorded.

Recommendation

A3 That the area of 5780 ha shown on the map be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
- (b) conserve and protect the natural ecosystems that
- (c) the eucalyptus-oil leases be terminated by 1985 and relocated in the area recommended for eucalyptus-oil production (see recommendation G1)
- (d) the existing gravel pit, operated by the Shire of East Loddon, not be extended outside its present boundaries, with all extraction to cease and reclamation and landscaping to be commenced by no later than 1985
- (e) honey production be permitted
- (f) grazing cease by 1985

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

Note:

Council recognizes the importance of management for fire protection in this park. It will be necessary to develop special techniques to reduce the fire hazard that can occur in the open forest and woodland of the park. The Council believes that the Forests Commission should give this matter a high priority.

Fryers Ridge State Park

An adjoining area of 1400 ha was recommended as a State park in the final recommendations for Melbourne.

The section within the North Central area, in common with the section in the Melbourne area, contains examples of the land types found in the northern foothills of the Divide, where they have developed on Palaeozoic sediments. It supports open forest in which red stringybark, long-leaf box, red box, and their associated species predominate. Wildflowers typical of this auriferous country are a feature of the park.

The park includes many relics of past gold-mining activities. The most significant historical relic is a large water race and associated pipes and tunnel, constructed in 1865.

Recommendation

A4 That the area of 2970 ha shown on the map be used to:

- (a) provide opportunities for recreation and education associated with enjoyment and understanding of natural environments
- (b) conserve and protect natural ecosystems
- (c) supply water and protect catchments that
- (d) historic relics be preserved
- (e) honey production be permitted

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

Notes:

Due to their past use, the forests in this park are not in a natural condition. It is envisaged that, to change the vegetation to a form and composition closer to the original condition of the forests, some timber-harvesting will be necessary, and minor forest produce will be available.

In this park, where gold-mining has been an integral part of the land's history, consideration could be given to mining where this could be done without detrimentally affecting park values. A decision as to whether mining could take place should be subject to the approval of and to conditions imposed by, the Department of Minerals and Energy, such approval and conditions being subject to the agreement of the authority managing the park.

Whipstick State Park

This area north of the City of Bendigo and Borough of Eaglehawk has as its major vegetation community an open forest of red ironbark with some small areas of grey box and green mallee. During the spring, wildflowers such as whirrakee wattle, daisy-bush, rosy baeckea, pink bell, and grevilleas provide a colourful understorey. Birdlife is also abundant, with songsters such as the crested bell bird, grey thrush and Gilbert whistler being the most notable species.

Historically the area is also important, with relics of gold-mining, early settlement, and the eucalyptus-oil industry now operating on land to the north (see recommendation G1).

Recommendation

A5 That the area of 3800 ha shown on the map be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (b) conserve and protect the natural ecosystems
 - (c) protect historic relics
- that
- (d) on completion of the extraction of battery sand and hard rock from the 'moon dumps' (hard rock to be taken only from the southernmost heap), the land to revegetated with species native to the area
 - (e) honey production be permitted

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

Note:

In this park, where gold-mining has been an integral part of the land's history, consideration could be given to mining where this could be done without detrimentally affecting park values. A decision as to whether mining could take place should be subject to the approval of, and to conditions imposed by, the Department of Minerals and Energy, such approval and conditions being subject to the agreement of the authority managing the park.

MULTI-PURPOSE PARK

Whroo Multi-purpose Park

This park is centred on the site of the old mining settlement of Whroo where many relics of the gold-mining era remain, including the Balaclava open-cut mine. There is evidence of Aboriginal occupation in the form of rock wells. Also the park has historical associations, with forest utilization and management being part of the first of Victoria's forests for which a working plan was developed. The area has been used for the production of durable timbers since 1853 and continues to supply sawlogs to the mill at Rushworth as well as providing large numbers of poles and posts. For many years the area has also supported a eucalyptus-oil industry at Rushworth produced by harvesting the scattered patches of blue mallee.

The sedimentary soils—of predominantly Palaeozoic origin—support a range of vegetation types, the most important being good examples of box-ironbark open forests and scattered areas of Whipstick mallee. The area is also highly regarded for its wildflower displays, and the only known occurrence of the bald-tip beard orchid is at Whroo.

The area's high recreation potential is indicated by the increasing number of visitors it is attracting, primarily from in and around the major regional centre of Shepparton. The expanding interest in fossicking is likely to add further to the area's popularity.

Recommendation

A6 That the area of 5650 ha shown on the map be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
- (b) conserve and protect natural ecosystems that
- (c) historic relics be preserved
- (d) low-intensity hardwood production be permitted in certain areas
- (e) harvesting for eucalyptus oil be permitted only on those areas currently being utilized
- (f) fossicking and prospecting be permitted, but only under strict control in specified areas and using methods approved by the managing authority 'Prospecting' as defined by the *Mines Act* 1958 means operations conducted in the course of exploring for gold and minerals)
- (g) honey production be permitted that
- (h) land in the park be used as set out in the suggested zones described below and indicated on Map 10:

1. Conservation

The land within this zone be used to :

- (a) conserve and protect the natural ecosystems
- (b) provide opportunities for low-intensity recreation and education associated with the enjoyment and understanding of natural environments

2. Recreation and historic

The land within this zone be used to:

- (a) provide informal recreation
- (b) conserve and protect historic relics
- (c) conserve and protect the natural ecosystems to the extent that is consistent with (a) above

3. Recreation and forestry

The land within this zone be used to:

- (a) provide informal recreation
- (b) support low-intensity hardwood timber production
- (c) support harvesting for eucalyptus oil
- (d) provide opportunities for education associated with historical silvicultural practices
- (e) conserve and protect the natural ecosystems to the extent that is consistent with (a), (b), and (c), above

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

Note :

In this part, where gold-mining has been an integral part of the land's history, consideration could be given to mining where this could be done without detrimentally affecting park values. A decision as to whether mining could take place should be subject to the approval of, and to conditions imposed by, the Department of Minerals and Energy, such approval and conditions being subject to the agreement of the authority managing the park.

REGIONAL PARKS**Paddy's Ranges Regional Park**

Situated immediately south of Maryborough, this park contains typical examples of box-ironbark open forests growing on soils developed from Palaeozoic sediments. Wildflowers are a feature of the area, with acacias being particularly prominent, and the park is one of the few places where either the brilliant sun-orchid (*Thelymitra mackibbinii*) or slender mint-bush (*Prostanthera saxicola* var. *bracteolata*) have been recorded.

Other features of the park are the abundant bird population and well-preserved Aboriginal water-wells.

Recommendation

A7 That the area of 1740 ha shown on the map be used to :

- (a) provide opportunities for informal recreation for large numbers of people
 - (b) conserve and protect ecosystems to the extent that this is consistent with (a) above
- that
- (c) emphasis be placed on maintaining the rich birdlife and spectacular wildflower displays
 - (d) Aboriginal relics be preserved
 - (e) honey production be permitted

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

Note :

Adjoining portion of the park's northern boundary, within the City of Maryborough, is a public recreation reserve managed by the Maryborough City Council. The Land Conservation Council recognizes that this land is outside its jurisdiction : it suggests, however, that the City Council and the management authority of the park discuss the possibility of incorporating this land within the regional park.

Mount Alexander Regional Park

This park is located north-east of Castlemaine on the granitic intrusion that forms Mount Alexander. Weathering has resulted in Mount Alexander being the most prominent landscape feature in the region, rising sharply from and dominating the surrounding countryside. Consequently, magnificent views can be gained from many places within the park.

An open forest of messmate and manna gum has developed on the granitic soils. This vegetation type, which is typical of the study area, supports populations of koalas and tuans.

A koala park enclosure was established in 1939, and this area is periodically restocked from areas outside Mount Alexander.

Recommendation

A8 That the area of 1400 ha shown on the map be used to:

- (a) provide opportunities for informal recreation for large numbers of people
- (b) conserve and protect ecosystems to the extent that this is consistent with (a) above
- that
- (c) the small softwood plantations—once they are harvested—be replaced by species native to the area
- (d) honey production be permitted
- (e) the feasibility of relocating the granite quarries be investigated

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

Note :

As well as being a major landscape feature, Mt. Alexander has for many years been a popular tourist area. It is estimated that 20 000 visitors annually are attracted by its scenic and bushland values, and this number is increasing each year. It could be expected that visitor numbers will increase still further with the development of the area as a regional park.

Granite has been quarried continuously at Mt. Alexander for the past 100 years and is currently used extensively for monuments and for building purposes. As well as being the major suppliers of granite in Victoria, quarries in this area also supply significant interstate markets.

A number of these granite quarries are located on the exposed northern slopes of Mt. Alexander, adjacent to the main tourist road which forms the northern entrance to the proposed park. The quarry faces, associated plant, piles of waste rock and the large processing plant are very prominent from the tourist road and are quite out of character with the surrounding landscape. Some of these quarries have a visual impact, not only from the tourist road but also from vantage points many miles distant, including the Calder Highway.

The practice of stockpiling waste rock on steep slopes below the quarry face is also of concern. A number of these large granite blocks have already been dislodged and rolled down the hillside, with some being held back only by trees. With the increasing popularity of the area such a situation could constitute a hazard to public safety as well as threatening facilities at the base of the mountain such as the Coliban channel.

The continued operation of these quarries in their current location could pose undesirable restrictions on the development and use of the proposed park. Because of this Council considers that the quarries should not extend beyond their currently licenced areas. Initial indications suggest that the quality of stone on the lower slopes is suitable for quarrying. Should further investigation confirm that the quality of the stone is satisfactory, consideration should be given to relocation of the existing licencees on to the safer and less obtrusive sites at the base of the mountain.

One Tree Hill Regional Park

This area immediately south of the City of Bendigo is one of the major open-space recreation areas for the municipality. Features of the park include the open forests of red stringybark, red ironbark, yellow gum, red box, and long-leaf box, colourful wildflower displays, and the scenic lookout on One Tree Hill itself, which provides panoramas over Bendigo and surrounding land.

Recommendation

A9 That the area of 1090 ha shown on the map be used to :

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

that

- (c) 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 Crown Lands and Survey.

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 cause 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. For instance, measures to prevent fire and control vermin and noxious weeds will be required in that land immediately surrounding the reference areas.

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 nutrition. These studies are important in increasing our knowledge of the ecological laws and processes on which Man's survival may ultimately depend.

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

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

Notes :

Within this North Central area the fragmented nature of the public land, coupled with its long history of utilization, has meant the choice of reference areas that are undisturbed and can be adequately buffered is limited.

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

Recommendations

B1-B6 That the areas listed below and shown on the map :

- (a) be used to maintain natural ecosystems as a reference to which those concerned with studying land for particular comparative purposes may be permitted to refer, especially when attempting to solve problems arising from the use of land

(b) be surrounded by a buffer, and that delineation of the buffer be by joint agreement between the managing authorities of the area itself and of the land adjacent to the area and the advisory committee

and that

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

B1 Mount Separation (200 ha)

To be managed by the Department of Crown Lands and Survey

Ordovician sediments, strongly dissected; elevation 420–560 m; approximate average annual rainfall 600 mm; open forest I red stringybark, red box, long-leaf box.

B2 Kooyoora (325 ha)

To be managed by the National Parks Service

Devonian granite, gentle slopes; elevation 280–340 m; approximate average annual rainfall 475 mm; woodland I Blakely's red gum (hill gum), open forest II and woodland II grey box, yellow gum, open forest I red stringybark, red box, long-leaf box.

B3 Korong Vale (450 ha)

To be managed by the Forests Commission

Ordovician sediments, undulating; elevation 200–250 m; approximate annual rainfall 450 mm; open scrub blue mallee, melaleuca, open forest II and woodland II grey box, yellow gum.

B4 Kamarooka (225 ha)

To be managed by the National Parks Service

Ordovician sediments, Quaternary alluvial; flat; elevation 150 m; approximate annual rainfall 450 mm; open forest II and woodland II grey box, yellow gum, open scrub bull mallee, green mallee.

B5 Sandhurst (500 ha)

To be managed by the State Rivers and Water Supply Commission

Metamorphosed Ordovician sediments, Devonian granite; steep to moderate slopes; elevation 350–500 m; approximate annual rainfall 525 mm; open forest I red stringybark, red box, long-leaf box, open forest II and woodland II grey box, yellow gum.

B6 Rushworth forest (460 ha)

To be managed by the Forests Commission

Devonian sediments, undulating; elevation 200–240 m; approximate annual rainfall 550 mm; open forest I red ironbark, red stringybark, red box, open forest I red stringybark, red box, long-leaf box, open forest II red ironbark, grey box.

C. WILDLIFE RESERVES

While some of Australia's animals have adapted to the changes in the environment brought by European Man, the populations of many have seriously declined, and a few have become extinct.

The conservation of fauna depends on conservation of habitat, and in Victoria the public lands contain large areas of diverse natural habitats.

The Council believes that, in areas with particular wildlife values, the authorities managing public land should note the need for both research into and application of wildlife management techniques, and should actively collaborate with the Fisheries and Wildlife Division regarding these aspects of wildlife conservation.

Although some forms of land use do not have marked detrimental effects on habitat, it is necessary to set some areas aside specifically for conserving fish and wildlife, and for developing wildlife conservation techniques.

These areas may be selected for conservation of species that the community harvests or directly utilizes. They may contain the habitat of endangered species or they may have specialized breeding grounds or a high species diversity, or be of educational 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.

Recommendations

- C1-C13** That the areas indicated on the map and described below be used primarily to conserve native animals, particularly water birds, and for public education and recreation where this does not conflict with the primary aim and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978*, and be managed by the Fisheries and Wildlife Division.

Note:

Grazing may be permitted where it is not detrimental to wildlife values.

- C1** Wal Wal Swamp (18 ha), Parish of Warra Warra
A small swamp supporting scattered mature river red gum, which provides valuable habitat, particularly for water birds.
- C2** Greens Creek Swamp (39 ha), Parish of Malakoff
A swamp with dense thatch grass and surrounded by mature river red gum, which provides excellent habitat for ibis, spoonbill, other water birds, and swamp harriers.
- C3** Avons Plains Swamps (108 ha), Parish of Banyena
Two small open swamps surrounded by scattered river red gum, which provide valuable feeding areas for waterfowl.

Notes:

This reserve contains a memorial pavilion, which should be maintained and to which access should be ensured.

The third swamp in the Avon Plains group is within the Wimmera area.

- C4** Lake Cope Cope and adjoining swamps (290 ha), Parish of Swanwater
A series of lakes and swamps that support a diverse range of water birds, in particular hardhead and pink-eared duck. The surrounding woodlands also provide valuable habitat for other bird species.
- C5** Clunes Swamp (Merin Merin and Middle Swamp) (476 ha), Parish of Eglinton
These swamps form a valuable part of a chain of swamps used by waterfowl.
- C6** Frogmore Swamp (32 ha), Parish of Moolort
A small area that is one of a chain of swamps used by waterfowl.
- C7** Bells Swamp (10 ha), section 4, Parish of Neereman
A small swamp supporting good stands of river red gum, which provides valuable wildlife habitat and is one of a chain of swamps used by waterfowl.
- C8** Thunder Swamp (131 ha), Parish of Tandarra
An open swamp that is an important breeding and feeding area for the Australian shoveller and supports a variety of other wetland species.
- C9** Tang Tang Swamp (126 ha), Parish of Dingee
A swamp and associated woodlands used by brolgas.

Note:

This is one of a series of swamps, most of which are within the Murray Valley area.

- C10** Gaynor Swamp (422 ha), Parish of Burramboot East
A swamp that previously supported a river red gum forest and now provides a valuable feeding area for water birds.

Note:

At times this swamp supports considerable numbers of brolgas and management should endeavour to increase the habitat value of this area for brolgas.

- C11** Two Tree Swamp (168 ha), Parish of Burramboot East
An open swamp that is an important breeding area for brolgas and other birds.

Note:

Management should attempt to fully develop the potential of this area for the breeding of brolgas.

- C12** Wallenjoe Swamp (approximately 500 ha), Parish of Carag Carag
A river red gum swamp that provides breeding habitat for at least 90 bird species.
- C13** Mansfield Swamp (110 ha), Parish of Carag Carag
A swamp with both mature river red gum and dense stands of young regeneration, which provides habitat for a wide variety of bird life. To be managed in consultation with the State Rivers and Water Supply Commission.

C14 Doctors Swamp (263 ha), Parish of Murchison

A fresh-water swamp surrounded by river red gum that provides valuable habitat for waterfowl, and has, in the past, supported ibis colonies. To be managed in consultation with the State Rivers and Water Supply Commission.

C15 Reedy Lake (approximately 1400 ha), Parish of Baileston

Reedy Lake itself is a large lake that supports a variety of water birds. It is surrounded by an extensive woodland of river red gum and grey box, which provides an important nesting area for a number of bird species.

C16 Tabilk Lagoon (198 ha), Parish of Tabilk

A large lagoon of the Goulburn River that is a very valuable breeding and refuge area for platypus and a wide range of water birds.

D. WATER PRODUCTION

Due to the absence of large tracts of forested catchments and the relatively low rainfall, the study area does not generally produce reliable quantities of good-quality water. Most of the water stored and used within the study area is derived from catchments either wholly or partly outside the area. Such is the case for almost all water used in the major centres of population.

The State Rivers and Water Supply Commission (the major water supply authority) provides water for domestic purposes from three major storages within the study area (Lake Eppalock and Tullaroop and Laanecoorie reservoirs), and from two systems (the Coliban and Wimmera-Mallee stock and domestic), the principal storages for which are outside the study area. They also operate the important storage and distribution facilities for the Waranga-Mallee irrigation system.

Current management and use

None of the catchments in the study area is used solely for water production, although the immediate surrounds of some reservoirs have been closed to the public. The remainder of the catchments are subject to a wide range of land uses including primary production, residential development, and recreational activities.

Land use planning

The Council notes that the degree of land use planning varies between catchments. Detailed land use prescriptions exist only for the Avoca Waterworks Trust's catchments and for part of the Eppalock catchment. The other proclaimed catchments are in various stages of investigation by the Soil Conservation Authority in preparation for making the appropriate land use determinations.

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

A. Catchment land

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

The Council realises that the optimum combination of land uses for catchments will vary from one land type to another; a particular use that may not impair the quantity, distribution, or quality of water yield in one instance may have a profound effect in another. Changes in land use, which could detrimentally affect the quality, quantity, or distribution of water supplied from a catchment, should only be made following full consideration of the benefits and disadvantages associated with the various land use options. These considerations should take account of the interests of the groups likely to be affected by any changes as well as broader regional and State-wide issues.

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

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

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

B. Buffer zone

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

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

Each catchment and water supply system has individual characteristics and the determination of the buffer zone will need to take account of these differences. In determining the extent of the buffer zone, consideration should be given to factors such as ground slope, soil type, vegetative cover, adjoining land use, type of facilities available for treating the water, end-use of water, detention time in the storage, and the need to control public use of the storage and its immediate surrounds. The buffer zone should be large enough to reduce entry into the storage of most pollutants 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 authority to manage all or part of the buffer zone. In such cases agreement should be reached between the adjacent land management authority and the water supply authority at the time of a land use determination. The agreement may include leaving the management of the buffer zone with the adjacent land management authority on the basis that it would be managed with the prime object of protecting the water quality.

In those proclaimed catchments where land use determinations have been made prior to the publishing of recommendations, it may be necessary to review the buffer zones in accordance with the principles for defining buffer zones outlined above.

Water quality, yield and regulation

It is possible to improve the quality of water by partial or complete treatment—at a cost. It must, however, be recognized that the higher the original quality of the water, the cheaper and more efficient is the treatment and, in most cases, the more acceptable the end product. In many catchments it is already difficult to maintain existing water quality. This problem is likely to become even greater as pressures to allow various forms of land development and use of natural resources increases. Even with properly planned and controlled land use in catchments it is probable that many water supply authorities will consider it necessary to at least disinfect water supplied from their storages. Indeed, many authorities already employ such treatment. Council recognizes that a number of water supply systems need some form of treatment now and that 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 that provide for the progressive installation of facilities required to supply water of a satisfactory quality.

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

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

Recommendations

D1–D3 That in the case of the locations listed below and shown on the maps (all these locations being within catchments that have been proclaimed and for which land use determinations have been made), the following areas:

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

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

Notes:

The primary object of management of the buffer zone must be to protect water quality. Subject to this principle, the water supply authority may permit other secondary uses on the buffer zone. In such cases the principles of management must be agreed upon by that authority and any other authorities concerned.

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

- D1** Lake Eppalock, State Rivers and Water Supply Commission; the reserve to include all that land currently controlled by the State Rivers and Water Supply Commission, excluding that area covered by recommendation N4.

Note:

The existing land use determination is currently being reviewed.

- D2** Sugarloaf Reservoir, Avoca Water Trust; 100 m buffer; the reserve to include the northern portion of allotment 50, Parish of Yehrip.

- D3** Lead Reservoir, Avoca Water Trust; 100 m buffer.

- D4-D18** That in the case of the locations listed below and shown on the maps (all these locations being within catchments for which no land use determinations have been made) the present tenure and management of public land continue for the time being

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

- (i) the storage areas
- (ii) diversion works
- (iii) associated facilities
- (iv) the buffer zones around diversion works and storages, as defined in the land use determination
- (v) any other allotments considered necessary

be used for

- (a) water supply purposes
- (b) other activities permitted by the water supply authority after consultation with the Soil Conservation Authority and the Environment Protection Authority

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

Notes:

The primary object of management of the buffer zone must be to protect water quality. Subject to this principle, the water supply authority may permit other secondary uses on the buffer zone. In such cases the principles of management must be agreed upon by that authority and any other authorities concerned.

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

- D4** Landsborough Reservoir, Landsborough Water Trust.
- D5** Redbank Reservoir, Redbank Water Trust.
- D6** Bealiba Reservoir, Bealiba Water Trust; the reserve to include the water supply reserve, north of allotment 11, Parish of Archdale.
- D7** McCallum's Creek Reservoir, Maryborough Water Trust.
- D8** Mosquito Flat Reservoir, Shire of Tullaroop Water Trust.
- D9** Tullaroop Reservoir, State Rivers and Water Supply Commission.
- D10** Cairn Curran Reservoir, State Rivers and Water Supply Commission.
- D11** Laanecoorie Reservoir, State Rivers and Water Supply Commission.
- D12** Loddon River pumping station, Shire of Korong.
- D13** Campaspe River pumping station, Axedale Water Trust.
- D14** Caledonia Reservoir, Heathcote Water Trust.
- D15** Tooboora Reservoir, Heathcote Water Trust.
- D16** Campaspe River pumping station, Goornong Water Trust.
- D17** Goulburn River pumping station, Murchison Water Trust.
- D18** Loddon Weir, State Rivers and Water Supply Commission.
- D19** That in the case of off-river storages, water supply installations (D20–50) or channels (not individually listed), these and their associated reserves remain under existing tenure and control unless stated otherwise. In these cases no proclamation is necessary.
- D20** Crusoe, No. 7 and Big Hill Reservoirs, and the Sandhurst water reserve excluding those areas that have been recommended as the Sandhurst Reference Area (B5) and part of the bushland reserve (I115); State Rivers and Water Supply Commission.
- D21** Sandhurst storage (proposed); State Rivers and Water Supply Commission.
- D22** Spring Gully Reservoir; State Rivers and Water Supply Commission.
- D23** Specimen Hill Reservoir; State Rivers and Water Supply Commission.
- D24** Barkers Creek Reservoir; State Rivers and Water Supply Commission.
- D25** Golden Point Reservoir; State Rivers and Water Supply Commission.
- D26** Crocodile Reservoir; State Rivers and Water Supply Commission.
- D27** McKay Reservoir; State Rivers and Water Supply Commission.
- D28** Raywood Reservoir; State Rivers and Water Supply Commission.

- D29 Cockatoo Hill Reservoir; State Rivers and Water Supply Commission.
- D30 Sebastian Reservoir; State Rivers and Water Supply Commission.
- D31 Blue Jacket Reservoir; State Rivers and Water Supply Commission.
- D32 Lockwood–Marong Reservoir; State Rivers and Water Supply Commission.
- D33 Green Gully Reservoir; State Rivers and Water Supply Commission.
- D34 Lockwood pipe head basin; State Rivers and Water Supply Commission.
- D35 Lockwood Reservoir; State Rivers and Water Supply Commission.
- D36 Longlea Reservoir; State Rivers and Water Supply Commission.
- D37 Upper reservoirs and Maldon tank; State Rivers and Water Supply Commission.
- D38 Newstead Reservoirs; State Rivers and Water Supply Commission.
- D39 Taradale basins; State Rivers and Water Supply Commission.
- D40 Elphinstone tanks; State Rivers and Water Supply Commission.
- D41 Jackass Flat Reservoir; State Rivers and Water Supply Commission.
- D42 Harcourt basin; State Rivers and Water Supply Commission.
- D43 Marong basins; State Rivers and Water Supply Commission.
- D44 Volcano storage; St. Arnaud Water Trust.
- D45 Wedderburn Reservoir; Shire of Korong.
- D46 Pumping station; Colbinabbin Water Trust.
- D47 Groundwater bores; Elmore Water Trust.
- D48 Pumping station; Rushworth Water Trust.
- D49 Lake Batyo Catyo; State Rivers and Water Supply Commission.
- D50 Dunlop Hill and Growler’s Hill basins; Rushworth Water Trust.

Irrigation storages

Council recognizes that the storages listed below are important elements of the Waranga–Mallee irrigation system—the Goulburn Weir also services the Shepparton–Rodney irrigation system—and should be managed by the State Rivers and Water Supply Commission in conjunction with surrounding public land, unless stated otherwise.

Flood mitigation is an additional, but secondary role of these storages. These storages also have significant values for fish and wildlife conservation, and accordingly, in managing these areas, the Water Commission should consult the Fisheries and Wildlife Division.

Council also recognizes that these storages—especially the Waranga Basin and Goulburn Weir—are major attractions for water-based recreation involving such activities as fishing, shooting, water-skiing, rowing, and swimming.

Currently the public are allowed free pedestrian access around the storages' foreshore land, most of which is held under grazing licences by adjoining landholders. However, camping is not allowed on this foreshore land except in caravan parks at the Waranga Basin and Goulburn Weir. This does not cater for those people who prefer more informal camping at sites with few, if any, facilities. To meet this demand, if and where it exists, Council considers that the management authority should allow informal camping at selected locations around the storages where it does not conflict with conservation or water supply values.

Recommendations

D51-54 That the areas listed below and shown on the plan be used for:

- (a) storage and distribution of water for irrigation and flood mitigation
- (b) nature conservation and recreation to the extent consistent with (a) above that
- (c) further exclusive occupancies not be permitted on public land surrounding these storages

and that these areas be reserved under section 4 of the *Crown Land (Reserves) Act 1978*, and managed by the State Rivers and Water Supply Commission in consultation with the Fisheries and Wildlife Division.

D51 Waranga basin (5198 ha)

Notes:

The public caravan park, located on reserved Crown land abutting the storage, should continue to be managed by the Shire of Waranga.

Management of the storage should take account of the fisheries values (both commercial and recreational) and the island-based colony of silver gulls.

D52 Goulburn Weir (1840 ha)

Note:

Uses on and adjacent to the storage should be such that they do not adversely affect the water supply to the township of Nagambie, which is drawn from this storage.

D53 Lake Cooper (1194 ha)

D54 Green Lake (898 ha)

E. HARDWOOD PRODUCTION

Timber from the hardwood forests of the study area has played a significant part in the State's development since the earliest days of European settlement. The area has special significance as it contains the largest resource of high-density, durable timbers in the State and is an important source of firewood. The most important species are red ironbark, yellow gum, and grey box.

Other species, that in this study area occur almost exclusively in the Pyrenees Range include blue gum and messmate. The permissible cut of these species for sawlogs is currently held at about 4000 m per annum. These sawlogs are converted mainly at the mill situated at Avoca, with some being processed at mills outside the study area.

The box-ironbark forests that extend over much of the public land provide a number of timber products, including sawlogs, railway sleepers, farm fencing, and fuel-wood. The production of sawn timber is confined to the mill at Rushworth, while the remainder of the products are harvested by a large number of part- and full-time sleeper- and post-cutters and fuel-wood contractors. Of particular significance to the regional economy of the area is the provision of substantial part-time employment for local landholders in forest production activities and the availability of fencing and farm-building materials from forest areas in close proximity to farming areas.

State forests in the area have been intensively managed since the early part of the century when these areas, extensively denuded during the gold-mining era, were given over to Forests Commission control. The forests of the area have inherently low rates of growth and consequently substantial areas must be managed for timber production if future demands are to be met. As part of this management program a number of areas, not currently producing timber products, have been recommended for hardwood production as they contain the growing stocks necessary for sustained production. The current management plans prepared for the areas take into account the floral, faunal, recreational, water catchment, landscape, and apicultural values of the forest.

Apiculture is of particular importance, as the box-ironbark forests form one of Victoria's major sources of high-quality honey. The current management practices—of not harvesting certain areas of yellow box and summer-flowering red ironbark and of leaving a specific stocking of mature trees during timber utilization—should continue to protect this industry.

Recommendations

E1-E31 That the areas listed below and shown on the map be used:

- (a) primarily to produce hardwood timber in a manner having due regard for landscape values as seen from the main roads outside the forest that
- (b) major secondary uses be to:
 - (i) provide opportunities for open-space recreation and education
 - (ii) conserve native plants and animals, and provide opportunities for the development of wildlife conservation techniques
 - (iii) produce honey, forage, gravel, sand, and other forest produce as defined in the *Forests Act* 1958

- (c) water production values be recognized and protected
- (d) particular values as listed below be protected by means of reserves under section 50 of the *Forests Act* 1958, or by management prescriptions prepared (in the case of fauna) in consultation with the Fisheries and Wildlife Division and that the areas remain or become reserved forest under the provisions of the *Forests Act* 1958 and be managed by the Forests Commission.

- E1** Glynwylln (752 ha)
- E2** Big Tottington (2120 ha)
- E3** Wedderburn (416 ha).
- E4** St. Arnaud Range (10 410 ha)

In accordance with (d) above, the following values should be protected:

- (i) the stable population of tuans (*Phasogale tapoatafa*) should be protected by the maintenance of existing dead standing trees or mature trees (All proposed major changes in forest management should be referred to the Fisheries and Wildlife Division for comment before implementation)
- (ii) the scenic features of the West of England lookout should be preserved.

- E5** Pyrene Range (11 920 ha)
- E6** Mt. Hooghly (1730 ha)
- E7** Paddy Ranges (8481 ha)
- E8** Havelock/Timor (4990 ha)
- E9** Majorca (188 ha)
- E10** Eglington (1560 ha)
- E11** Castlemaine (668 ha)
- E12** Muckleford (3790 ha)
- E13** Dalynong (1117 ha)
- E14** Tunstalls (1640 ha)
- E15** Bealiba (15 930 ha)

In accordance with (d) above, the landscape values of the Bealiba Range should be protected.

- E16** Longbush (1280 ha)

In accordance with (d) above, the historic gold-mining area known as Longbush Potato Patch should be protected.

- E17** Dunolly (11 480 ha)

In accordance with (d) above

- (i) landscape and flora values of the Green Valley Ranges should be protected
- (ii) relics and sites associated with the early mining at Jones Creek, Waanyarra, and Tarnagulla should be protected.

E18 West Brenanah (600 ha)

E19 Glenalbyn (1037 ha)

E20 Shelbourne (790 ha)

E21 Lockwood South (1009 ha)

E22 Bendigo (2139 ha)

E23 Wellsford (10 710 ha)

In accordance with (d) above, the geological and landscape values of Mount Sugarloaf should be protected

The existing quarry located east of allotments 98D and 98R, Parish of Ellesmere, should continue to operate.

E24 Mandurang (1100 ha)

E25 Knowsley (1289 ha)

E26 Kimbolton (2054 ha)

E27 Heathcote (2980 ha)

E28 Crosbie (1300 ha)

E29 Whroo–Costerfield (25 880 ha)

F. SOFTWOOD PRODUCTION

The climate and soils of the area are not suited to extensive planting of public land for softwood production. Council has therefore recommended that existing plantations continue to be used for softwood production and a small adjustment be made to the boundary of the Castlemaine plantation (F3) to facilitate management and to provide approximately 50 ha of additional land for planting.

Recommendations

F1–F3 That the plantations of 853 ha gross shown on the map continue to be used for the production of softwoods and the provision of other goods and services compatible with the primary use, as well as providing opportunities for education and recreation

and that they be reserved forest under the provisions of the *Forests Act* 1958 and managed by the Forests Commission.

F1 Mount Beckworth (50 ha)

F2 Mount Alexander (548 ha)

F3 Castlemaine (255 ha)

G. EUCALYPTUS—OIL PRODUCTION

Some 50 tonnes of eucalyptus oil is produced annually in Victoria and about two-thirds of this quantity is derived from eucalyptus leaf harvested from public land in the North Central area.

The 16 distillers operating in the study area hold licences for 22 600 ha of public lands but only 3466 ha (15 per cent.) was being harvested in 1977.

The preferred species, blue mallee, grows in large pure stands on public land near Inglewood, Wedderburn, St. Arnaud, and Bendigo. Green mallee is less important partly because of poorer yields and partly because it tends to grow on the stony rises, which are unsuitable for the current system of mechanical harvesting. In the vicinity of Bendigo, however, half the oil produced comes from green mallee.

Future demand for eucalyptus oil

Until about 1950 Australia was virtually the only source of eucalyptus oil, producing some 1000 tonnes a year, but now the bulk is produced overseas. Of world production today, Australia contributes about 15 per cent. (approximately 300 tonnes) per annum.

Australia imports industrial grade oils, but exports pharmaceutical-grade oils. Pharmaceutical-grade oils are produced in the study area and with the expansion of mechanical harvesting the competitive position of these oils on the world market should improve. This fact, plus the local demand for oil, indicates that there will be a continuing demand for eucalyptus oil produced from the North Central area.

Land tenure

At present a dual system of tenure exists, with both the Department of Crown Lands and Survey and the Forests Commission issuing licences to occupy and/or harvest areas. Because of the respective areas of responsibility it is necessary, in some instances, for at least two and often three licences to be obtained in order to occupy and harvest an area, and operate a still. Council recognizes that this present situation is undesirable and considers that one authority should be responsible for the issuing of licences of all eucalyptus harvesting on public land.

Research

The Council believes that production should continue over much of the public land used at present; however, there is a need to establish information about the long-term productivity of areas of mallee and the ecological effects of harvesting. Therefore the Council recommends that research should be undertaken to measure the effects on the eucalypts and other associated plant species of:

- (a) frequency of harvest
- (b) methods of harvesting
- (c) height of cut
- (d) changes in the nutrient status and structure of soils, and fertilizer applications, particularly phosphorus and nitrogen
- (e) cultivation after harvest

Guidelines

Because it is already known that harvesting of mallee eucalypts for eucalyptus oil can cause erosion and increased run-off, the Council believes the guidelines listed below should apply to areas used for the production of eucalyptus oil. The criteria in italics should be defined for each harvested area, where soil erosion is occurring or is likely to occur, by the Soil Conservation Authority in consultation with the Forests Commission.

1. The harvesting of mallee eucalypts for use in oil production should be confined to *the lesser slopes* and should avoid *drainage lines*.
2. The *height* at which eucalypts are harvested and the equipment used should be such that the soil surface is not *unduly disturbed* by the harvesting process.
3. Contour ripping at *appropriate intervals* to a depth of *about* 15 cm should be undertaken, following suitable rain after leaf harvest, to improve water penetration in order to reduce erosion.
4. Access tracks should be designed and maintained in a condition to minimize erosion.

These guidelines may need amending after the research outlined above is completed. This applies particularly to the guidelines relating to the height at which the mallee eucalypts are cut.

Recommendations

G1–G5 That the areas listed below and shown on the map be used:

- (a) to produce eucalyptus oil in accordance with the guidelines given above that
- (b) a major secondary use be to
 - (i) provide opportunities for open-space recreation and education
 - (ii) protect water-production values

G1 Bendigo (2253 ha)

Notes:

The special values of this area for recreation and education use in association with the adjacent State parks should be recognized in management.

Some reallocation of presently uncut areas will be necessary to compensate licensees for the area lost to harvesting as a result of recommendation A3.

G2 Wedderburn (2970 ha)

G3 Inglewood (6390 ha)

G4 St. Arnaud (730 ha)

Note:

The area currently being used to produce eucalyptus oil and shown on the map should be not transferable and should be added to the proposed flora reserves (H3, H4) when the current licensee ceases to harvest the area.

G5 Rushworth (160 ha)

Note:

Those areas currently being harvested within the Whroo Multi-purpose Park should continue to be available but no new areas should be brought into production.

H. FLORA RESERVES AND FLORA AND FAUNA RESERVES

FLORA RESERVES

These reserves are significant because they contain examples of native vegetation with considerable floristic value in a natural or near-natural state. They are set aside primarily to conserve species that may be rare or endangered and associations of native plants that are poorly represented on public land.

Recommendations

H1–H9 That the areas indicated on the map and described below be used to conserve particular species or associations of native plants that

(a) honey production be permitted

(b) grazing not be permitted

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

H1 16 ha, being allotment 147c, Parish of Bolangum—to be managed by the Department of Crown Lands and Survey.

H2 16 ha in the north-east of allotment 100A, Parish of Dalyenong—to be managed by the Department of Crown Lands and Survey.

H3 58 ha, north of allotments 16, 17, Parish of St. Arnaud—to be managed by the Forests Commission.

Note:

The gilgai soil structures occurring on the Late Tertiary (Pliocene) land surface within this area are of particular note and should be adequately protected.

H4 120 ha, south of allotment 67, Parish of Gower—to be managed by the Forests Commission.

H5 228 ha, being allotment 27A, Parish of Wehla—to be managed by the Forests Commission.

H6 12.8 ha, in the south-west of allotment 22, Parish of Walmer—to be managed by the Department of Crown Lands and Survey.

H7 140 ha, south of allotment 7, Parish of Costerfield—to be managed by the Forests Commission.

H8 300 ha, west of allotment 54A, Parish of Gobarup, being in part the existing wildflower reserve—to be managed by the Forests Commission.

H9 238 ha, east of allotment 163, Parish of Runnymede—to be managed by the Department of Crown Lands and Survey.

Note:

Regeneration of native vegetation should be encouraged on the parts that have been stripped for gravel. No further gravel extraction should be permitted.

FLORA AND FAUNA RESERVES

These reserves are significant because they contain flora and fauna communities in natural or near-natural state.

Recommendations

H10-19 That the areas shown on the map and described below be used to conserve native plants and animals and provide opportunities for passive recreation such as nature study and walking that

(a) honey production be permitted

(b) grazing not be permitted

and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act* 1978 and be managed by the Forests Commission except where indicated in the schedule below.

H10 Deep Lead

Approximately 1237 ha to be used to preserve the area's only substantial open forest and woodland communities of red ironbark and yellow gum, which have developed on Tertiary sediments. Associated with these communities is a very diverse and colourful heathy understorey. The area is the known habitat of the rare squirrel glider.

Note:

Council considers that there are opportunities for obtaining firewood from the uncommitted land to the south of this reserve and other nearby areas of public land.

H11 Mount Bolangum

Approximately 2933 ha to be used to preserve the mature grey box forest, which provides excellent habitat trees for the barking owl.

Note:

Grazing to cease by 1985.

H12 Landsborough Hill

Approximately 6175 ha to be used to preserve open forest and woodland communities, which include at least 13 species of eucalypts; a distinctive feature is the ridge-top occurrence of mature yellow box. Significant mammal species include the tuan, fat-tailed dunnart, and koala. To be managed by the National Parks Service.

Note:

Council recognizes the potential fire hazard that could result from a build-up of fuel in this reserve. As a result, fire prevention measures may need to be employed from time to time.

H13 Dalyenong

Approximately 1445 ha to be used to preserve the area's only substantial grey box-buloke open woodland, which has developed on alluvial sediments. The reserve also includes open forest and woodland communities of yellow gum, red ironbark, and red stringybark. The mature forest provides good habitat for tree-nesting birds and arboreal mammals.

H14 Tarnagulla

Approximately 1885 ha to be used to preserve the green mallee and yellow gum communities.

H15 Inglewood

Approximately 1245 ha to be used to preserve the melaleuca and green mallee scrubs.

Note:

The historical relics associated with the mines and former township of Kurting should be preserved.

H16 Korong Vale

Approximately 584 ha to be used to protect areas of mature blue mallee and melaleuca scrub containing one of the known colonies of mallee fowl in the area.

H17 Wychitella

Approximately 2366 ha to be used to protect examples of green, blue, and bull mallee scrub types and stands of melaleuca scrub. These scrubs are the habitat of one of the known colonies of mallee fowl in the area, which is near the southern limit of the species in Victoria.

H18 Mount Ida

Approximately 1392 ha to be used to preserve the open forest, consisting primarily of red stringybark-red box and long-leaf box, and the associated varied understorey, which provides spectacular displays of wildflowers. This area also includes the former experimental Dargile plantation, which contains introduced hardwood and softwood species.

H19 Mount Black

Approximately 2377 ha to be used to preserve the open forest and woodland communities of red ironbark, grey box, yellow gum, red stringybark, and red box with the associated varied understorey, including the area's most extensive stand of grass-trees. Distinctive features include some of the area's few remaining stands of mature red ironbark and a yellow box open woodland that has developed on granite soils at the base of Mt. Black. Because of the relative maturity of the forest, habitat values are higher than elsewhere in the Rushworth Forest.

Note:

In the reserves H7, H12, H14, and H15, where gold-mining has been an integral part of the land's history, consideration should be given to mining, where this could be done without detrimentally affecting flora and fauna values. A decision as to whether mining could take place should be subject to the approval of and to conditions imposed by the Department of Minerals and Energy, such approval and conditions being subject to the agreement of the authority managing the reserves.

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 still remain, however, and these areas provide landscape diversity, particularly where more intensive agriculture is resulting in a gradual reduction in the numbers of trees on freehold land.

The Council recommends that many of these small remnants of the native vegetation should become bushland reserves. Their major uses are to maintain the distinctive Australian character of the country side and to provide diversity in the landscape. They may also provide some opportunities for passive recreation in relatively natural surroundings. The areas are generally too small to be significant for fauna conservation, although some may be important for migratory birds.

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

Recommendations

II-II52 That the areas indicated on the maps and described below be used to:

- (a) maintain the local character and quality of the landscape
 - (b) provide opportunities for passive recreation such as picnicking and walking that
 - (c) expansion of any existing facilities or new development be permitted only where this does not conflict with the primary aim
- and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the Department of Crown Lands and Survey except where indicated in the schedule below.

- I1** 9.2 ha west of allotment 156, Parish of Warranook.
- I2** 29 ha east of allotment 54c, Parish of Warra Warra.
- I3** 17 ha south of allotment 196, Parish of Riachella. Sand extraction should not extend beyond the area already disturbed.
- I4** 6 ha south of allotment 203 B1, Parish of Riachella.
- I5** 22 ha south-west of allotment 43, Parish of Ganbola.
- I6** 10 ha, being allotment 18B of section 8, Parish of Glenorchy.
- I7** 33 ha, being allotment 167c, Parish of Kirkella. Relics of the West Germanina mine should be preserved.
- I8** 9.2 ha east of allotment J1, Parish of Kirkella.

- I9 15 ha, being allotment 184A, Parish of Kirkella.
- I10 21 ha south of allotment 18x of section 2, Parish of Stawell.
- I11 13 ha west of allotment 20C of section 2, Parish of Stawell. Mining relics should be preserved.
- I12 12 ha south-west of allotment 22C, Parish of Concongella.
- I13 20 ha, being allotment 103, Parish of Watta Wella. Slate quarrying relics should be preserved.
- I14 247 ha, being the existing timber and gravel reserve south of allotments 105 and 106, Parish of Joel Joel.
- I15 12 ha, being allotment 29A of section 4, Parish of Landsborough. Grazing should not be permitted.
- I16 8 ha south of allotment 27, of section 4, Parish of Landsborough.
- I17 10 ha north of allotment 33 of section 1, Parish of Landsborough.
- I18 4 ha south of allotment 3K of section 5, Parish of Landsborough.
- I19 9.6 ha north of allotment 1A of section 1, Parish of Morrl Morrl.
- I20 4 ha north-east of allotment 88A, Parish of Winjallok.
- I21 22 ha east of allotment LB of section 1, Parish of Warngar.
- I22 56 ha, being allotment 104, Parish of Tottington.
- I23 57 ha north of allotment 24A of section A, Parish of Rich Avon East.
- I24 24 ha, being part of allotment 95 of section A, Parish of Darkbonee.
- I25 14 ha, being allotment 112 of section A, Parish of Darkbonee.
- I26 10 ha west of allotment 11B of section C, Parish of Gowar.
- I27 8 ha north of allotment 33A of section B, Parish of Berrimal.
- I28 5.6 ha east of allotment 19 of section G, Parish of St. Arnaud.
- I29 14 ha east of allotment 7D of section B, Parish of St. Arnaud. Regeneration of native vegetation should be encouraged on the parts that have been stripped for gravel. No further gravel extraction should be permitted.
- I30 18 ha west of allotments 3J and 3L of section B, Parish of St. Arnaud. Regeneration of native vegetation should be encouraged on the parts that have been stripped for gravel. No further gravel extraction should be permitted.
- I31 14 ha west of allotment 73A of section B, Parish of St. Arnaud. Regeneration of native vegetation should be encouraged on the parts that have been stripped for gravel. No further gravel extraction should be permitted.
- I32 22 ha east of allotment 3A of section 3, Parish of Moolerr.
- I33 22 ha west of allotment 3A of section 3, Parish of Moolerr.
- I34 67 ha east of allotment 48A of section 3, Parish of Moolerr. Regeneration of native vegetation should be encouraged on the parts that have been stripped for gravel. No further gravel extraction should be permitted.

- I35** 8 ha east of allotment 15 of section B, Parish of Moolerr. Regeneration of native vegetation should be encouraged on the parts that have been stripped for gravel. No further gravel extraction should be permitted.
- I36** 8 ha east of allotment 80A of section A, Parish of Carapooee.
- I37** 65 ha, being allotment 102A, Parish of Dalyenong.
- I38** 6 ha south of allotment 79A of section 2, Parish of Moyreisk.
- I39** 14 ha, being allotments 47 and 48 of section 11, Parish of Warrenmang.
- I40** 12 ha, being allotment 6A of section 3, Parish of Warrenmang.
- I41** 4 ha east of allotment 41 of section A, Parish of Barkly.
- I42** 12 ha, being allotment 27T, Parish of Yehrip.
- I43** 8 ha east of allotments 27H and 27E, Parish of Yehrip.
- I44** 125 ha north of allotments 25 and 26 of section H, Parish of Glenmona.
- I45** 39 ha south of allotment 39A of section 3, Parish of Rathscar.
- I46** 8 ha, being allotment 7A of section B, Parish of Rathscar.
- I47** 20 ha, being allotment 7 of section 2, Parish of Rathscar.
- I48** 12 ha south-east of allotment 15 of section A, Parish of Natte Yallock.
- I49** 29 ha east of allotment 81B, Parish of Archdale.
- I50** 10 ha east of allotment 81A, Parish of Archdale.
- I51** 60 ha east of allotment 29 of section 13, Parish of Bealiba.
- I52** 8 ha adjacent to allotment 14A of section 5, Parish of Kangderaar.
- I53** 8 ha, being allotment 24A of section B, Parish of Wehla,
- I54** 10 ha south of allotment 15 of section A, Parish of Kurraca.
- I55** 10 ha adjacent to allotment 39, Parish of Kurraca.
- I56** 80 ha, being allotment 111D, Parish of Barrakee.
- I57** 74 ha, being allotment 109B, Parish of Barrakee.
- I58** 66 ha north of allotment 105D and 108D, Parish of Barrakee.
- I59** 82 ha, being allotment 19 of section 3A, Parish of Wedderburn.
- I60** 142 ha, being allotments 18B, 18C, and 18D, of section 5, Parish of Borung.
- I61** 45 ha north of allotment 50 of section 4, Parish of Borung.
- I62** 17 ha, being allotment 171, Parish of Mysia.
- I63** 12 ha, being allotment 7C of section C, Parish of Kurting.
- I64** 12 ha west of allotments 13 and 14 of section 1, Parish of Glenalbyn.
- I65** 76 ha north of allotments 4C, 4D, 4K and 4H, of section 9, Parish of Inglewood.
- I66** 6 ha adjacent to allotment 1F of section C, Parish of Tarnagulla
- I67** 31 ha, being allotment 72A, Parish of Derby.

- I68** 12 ha west of allotment 45, of section G, Parish of Tarnagulla.
- I69** 5 ha south of allotment 36B of section G, Parish of Tarnagulla.
- I70** 12 ha, being allotment 19 of section 2, Parish of Moliagul.
- I71** 12 ha, being allotments 3 and 13 of section 1, Parish of Moliagul.
- I72** 17 ha west of allotment 143Q of section C, Parish of Tarnagulla.
- I73** 10 ha south of allotment 143 of section C, Parish of Tarnagulla.
- I74** 8 ha being north of allotment 36B of section 3, Parish of Dunolly.
- I75** 12 ha being north-east of allotment 36 of section 3, Parish of Dunolly.
- I76** 20 ha south-west of allotment 17G, Parish of Waanyarra.
- I77** 13 ha south-east of allotment 14 of section 19, Parish of Maryborough.
- I78** 4-8 ha, being allotment 1 of section 20, Parish of Maryborough.
- I79** 19 ha south-east of allotment 13E of section E, Parish of Carisbrook.
- I80** 68 ha west of allotment 75 of section 7, Parish of Craigie.
- I81** 26 ha west of allotment 13, Parish of Bung Bong.
- I82** 10 ha, being part of allotment 5C of section 2, Parish of Amherst.
- I83** 16 ha north of allotment 13C of section 2C, Parish of Amherst.
- I84** 10 ha, being allotment 49B of section 7, Parish of Talbot.
- I85** 16 ha south of allotment A19 of section F, Parish of Amherst.
- I86** 7 ha north of allotment 48 of section 7, Parish of Amherst.
- I87** 4 ha, being allotment 15C of section 6, Parish of Clunes.
- I88** 32 ha, north and east of allotment 14 of section 1, Parish of Tarrengower.
- I89** 14 ha, being allotment 9A of section 6A, Parish of Tarrengower.
- I90** 20 ha south-west of allotment 19 of section M, Parish of Maldon.
- I91** 19 ha, being allotment 45 of section 8, Parish of Muckleford.
- I92** 80 ha, being allotments 18 and 23 of section 9, Parish of Muckleford.
- I93** 12 ha west of allotment 17D of section 5, Parish of Guildford.
- I94** 50 ha, being north of allotment 17D of section 5, Parish of Guildford.
- I95** 225 ha, being in the Parish of Metcalfe.
- I96** 20 ha north of allotment 58 of section E1, Parish of Chewton.
- I97** 8 ha north-east of allotment 6 of section 6A, Parish of Walmer.
- I98** 8 ha south of allotment 3F of section 7, Parish of Walmer.
- I99** 16 ha, being allotment 6 of section 6, Parish of Walmer.
- I100** 4 ha, being allotment 12 of section 3A, Parish of Maldon.
- I101** 13 ha south of allotments 19 and 20 of section B, Parish of Maldon.

- I102** 2 ha north of allotment B of section B, Parish of Maldon.
- I103** 1 ha east of allotment 4 of section 5, Parish of Maldon.
- I104** 4 ha west of allotment 2A of section 2, Parish of Maldon.
- I105** 13 ha south of allotment 5 of section 4A, Parish of Woodstock.
- I106** 13 ha east of allotments 3 and 4B of section 25, Parish of Shelbourne.
- I107** 2 ha, being section 11, Township of Strathfieldsaye.
- I108** 8 ha north-west of allotment 1A, Parish of Marong.
- I109** 12 ha, being allotments 9, 7B and 2A of section 5, Parish of Marong.
- I110** 150 ha, being north of allotments 16 and 16A, Parish of Marong.
- I111** 200 ha east of allotment 64 of section L, Parish of Sandhurst.
- I112** 175 ha, being the reserve for the growth of timber for the manufacture of eucalyptus oil and adjacent Crown lands, Parishes of Nerring and Sandhurst.
- I113** 25 ha east of allotment 63 of section L, Parish of Sandhurst.
- I114** 24 ha, west of allotment 42L, section L, Parish of Sandhurst.
- I115** 192 ha north of the re-aligned Crusoe Road in the Parishes of Lockwood and Mandurang—to be managed by the Forests Commission.
- I116** 115 ha in the Parish of Mandurang, south of allotment 132A, Parish of Sandhurst—to be managed by the Forests Commission.
- I117** 100 ha east of allotment 27, Township of Glenorchy.
- I118** 50 ha north of allotment 1C of section 15, Parish of Strathfieldsaye.
- I119** 4 ha north of allotment 12 of section N1, Parish of Sandhurst.
- I120** 10 ha west of allotment 1C of section 26, Parish of Shelbourne.
- I121** 15 ha, being allotment 126B, Parish of Leichardt.
- I122** 16 ha, being allotment 12, Parish of Yarraberb.
- I123** 60 ha south of allotments 1A and 3A of section 15, Parish of Goornong.
- I124** 18 ha south of allotments 2 and 3A of section 4, Parish of Goornong.
- I125** 4.8 ha south of allotment 7 of section D, Parish of Crosbie.
- I126** 21 ha, being allotment 7 of section 6, Parish of Eppalock.
- I127** 1.6 ha in the Township of Heathcote.
- I128** 4.2 ha adjacent to allotment D9, Parish of Heathcote.
- I129** 20 ha south of allotment 15, Parish of Tooboorac. Management of this reserve should have regard for its role as a water supply catchment to the adjacent Tooboorac Reservoir.
- I130** 4 ha south of allotment 2A of section A, Parish of Glenhope.
- I131** 4 ha, being allotment 17G of section 6, Parish of Hawkestone.
- I132** 8 ha adjoining allotments 98 and 99, Parish of Wanalta.

- I133** 6.8 ha west of allotment 55, Parish of Waranga.
- I134** 14 ha adjacent to allotment 49A, Parish of Waranga.
- I135** 16 ha south of allotment 60, Parish of Murchison.
- I136** 35 ha being allotment 76A, Parish of Baileston.
- I137** 4 ha adjacent allotments 52 and 53C, Parish of Wormangal.
- I138** 16 ha south of allotment 3 of section B, Parish of Monea North.
- I139** 69 ha, being allotment 11 and part of allotment 10A of section F, Parish of Avenel. Gravel extraction, if required, should only be allowed from those areas stripped in the past.
- I140** 15 ha north of allotment 9G of section F, Parish of Avenel. Grazing should not be permitted.
- I141** 12 ha in the Township of Locksley.
- I142** 6 ha being allotment 1 of section 1A, Parish of Moolerr.
- I143** 8 ha east of allotments 10 and 11 of section E, Parish of Nerring.
- I144** 11 ha west of allotment 100D, Parish of Barrakee.
- I145** 10 ha east of allotment 54B of section B, Parish of Woosang.
- I146** 25 ha west of allotment 14, Parish of Barkly.
- I147** 50 ha in the Township of Stuart Mill.
- I148** 10 ha south of allotment 37A of section D, Parish of Boola Boloke.
- I149** 15 ha west of allotments 2 and 3 of section E, Parish of Carapooee.
- I150** 8 ha east of allotment 20, Parish of Dalyenong.
- I151** 6 ha, being allotments 31 and 32 of section 6, Parish of Wareek.
- I152** 4 ha, being allotment 29B of section A, Parish of Korong.

J. HISTORIC AREAS AND RESERVES

In the North Central area relics associated with the history of the past 130 years are still evident on both private and public land. Aspects or themes of Australian history found in the area include sites and relics relating to discovery and exploration, mining, transport, pastoral development, and education, and to the development of secondary industries and services. The discovery of gold in central Victoria had a major influence on the development of the region, however; and while many of the relics remaining today relate to the actual mining activities, they also relate to the social environment that developed around these activities.

Many people are interested in knowing more about the State's history, as evidenced by the success of historical parks, folk museums, and historical festivals. Further indications of public interest are embodied in the planning controls and ordinances that have evolved to protect the integrity of historical buildings and, in the case of Maldon, the whole township.

This interest is likely to increase, particularly as more becomes known about the historical relics located on public land. It will therefore be necessary to ensure that sites of historical interest are protected as far as possible, both from progressive deterioration due to exposure to weather and from damage by the public. It will also be important to ensure that sites can be safely visited before areas are promoted or are developed so that people are attracted to them.

Submissions provided information on many historical sites. In addition, the Council conducted a study to identify the historical aspects or themes represented on public land in the study area and to determine the areas of greatest historical significance.

To maintain the integrity and historical context of important relics, the Council believes that a number of areas, on which representative examples of important historical themes occur, should be reserved and managed.

Two types of reserve are proposed—Historic Areas and Historic Reserves. The Historic Areas are relatively large and include important relics that cover a range of historical themes. They are of sufficient size to allow the development of interpretative centres and recreational facilities such as picnic areas, walking trails, and car parks.

Also, all Historic Areas include portions of the major gold-fields of the region and there is still considerable commercial interest in the exploration and possible mining of these fields. Council has recommended that these activities be permitted provided care is taken to ensure preservation of the historical relics.

The Historic Reserves are smaller and, although they contain important relics, each generally has only one historical theme represented. While some interpretation aids would be provided, their size would in general preclude development of facilities for recreation.

For reasons of public safety and the vulnerability of relics to damage, the recommendations do not identify the locations of a number of sites. Authorities managing the surrounding land are aware of these locations however, and recommendations in various sections of the report provide for their protection.

The Historic Areas and Reserves recommended provide a network of areas that show many aspects of the region's history and, when developed, should attract many people.

The greatest value to the public will come from development of the reserved areas as a system, even though various parts may be managed by separate bodies. The Council believes that this co-ordination is desirable and can be achieved by establishing an advisory committee consisting of representatives of the land managing authorities, the Department of Minerals and Energy, and the Ministry for Planning. The Committee should have the power to co-opt individuals with particular expertise. Important aspects include the integrated development and promotion of the Historic Areas and Reserves, public safety, and guidelines for the protection of the integrity of the relics if exploration and mining take place.

HISTORIC AREAS

Recommendations

J1-J6 That the areas listed below be used to:

- (a) protect specific sites which carry or contain the remnants of buildings, equipment, construction works, and artifacts associated with the history of the locality
- (b) provide opportunities for safe recreation and education associated with the enjoyment and understanding of the history of the area
- (c) mineral exploration and mining be permitted
 - (i) where these activities do not conflict with the protection of the historical features
 - (ii) provided exploration for and extraction of 'gold' and 'minerals' on these areas (including operations under miner's rights) be subject to the approval of, and to the conditions required by, the Department of Minerals and Energy, in consultation with the authority managing the public land and the Soil Conservation Authority (These conditions should be designed to preserve the features associated with each site rather than to prohibit exploration and mining)
- (d) fossicking and prospecting be permitted using methods approved by the managing authority where this does not conflict with (a) and (b) above (Prospecting as defined by the *Mines Act* 1958 means operations conducted in the course of exploring for gold and minerals)
- (e) some timber products be available to maintain the quality of the forest in portion of J1 (see Map B); timber production be permitted in J3 (see note below); minor forest products such as firewood and round timber suitable for poles and posts be available from portion of J4 (that section north of the Maldon-Castlemaine road and east of the Maldon-Bendigo road)
- (f) honey production be permitted
- (g) grazing be permitted where this is considered appropriate by the managing authority

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

Notes:

Management of J4 should be in consultation with the Shire of Maldon and the Town and Country Planning Board.

Subject to thorough investigation and establishment of the location and historical features within J3, timber harvesting and subsequent regeneration could be permitted where this does not conflict with the object of preservation and management of the area as an historic area.

While some mineral exploration and mining may be permitted on these areas, extraction of gravel or material from mine dumps of tailings should not be permitted, other than in exceptional circumstances, and then only after agreement between the Department of Minerals and Energy and the management authority. Continued extraction from the hornfels quarry in J4 should be permitted.

J1 Castlemaine–Chewton (4131 ha)

This area contains the former Mount Alexander gold-field and surrounding areas. The alluvial workings were the richest in the world in the 1850s, and Specimen Gully is allegedly the site of the first surface gold discovery in Victoria. The area is notable for the many relics, including alluvial workings, extensive mine remains, mullock dumps, water-wheel foundations, water races, open-cut mines, and townships such as Spring Gully and Wattle Gully. To be managed by the National Parks Service.

Note:

Water distribution channels are excluded from the Historic Area, but abut portions of it. When management plans for these areas are prepared the State Rivers and Water Supply Commission should be consulted.

This area includes the Vaughan and Glenluce Mineral Springs Reserve. It is proposed that this area remain as presently reserved and be managed by the National Parks Service.

J2 Percydale–Warrenmang (2591 ha)

This area west of Avoca and situated in the Pyrene Range was opened up late in 1854. Gold was discovered on the fall to Middle Creek in October, and Fiddlers Creek was being worked by December. Slate and other minerals were also found and quarried in the area and many of the early miners were Cornish. Chinese also settled in the area and reports describe an elaborate Chinese Theatre, unrivalled anywhere in the Colony, being erected. The town of Percydale, once known as Fiddlers Creek, was a typical mining town, supporting 17 hotels at the height of the mining activity. A school was built in 1866 and early plans show reservations for swimming baths and an agricultural college. Mining activity declined and by the 1930s only the school and residence, church, and a few scattered houses remained. Relics of the mining era remaining include the school plantation, slate huts, puddling machines, and the sites of the slate, silver, and gold mines. To be managed by the National Parks Service.

J3 Stuart Mill (2552 ha)

The first gold discovery in the Stuart Mill area was reported at the head of Carapooee Creek in 1851. Five years later gold was discovered at Stuart Mill, and a rush occurred 4 miles from Rostron's Tottington Station. The original discoverers of gold in the alluvial fields of Stuart Mill—a party of Italians—worked there in 1859–1860. A rush of 4000 diggers at Stuart Mill (then known as Albert Town) opened up several alluvial gullies, and the township developed.

After the early alluvial workings were exhausted, a number of reef mines were opened, the Isis and Greenock mines being the major ones. Relics from this mining era include puddling machines, tunnels, dams and associated water races, and cultural structures used by the Chinese miners.

Relics of the forestry activities in the area are charcoal pits, bee-keepers' cottages, and sites of camps used to house unemployed workers. These workers, during the Great Depression of the 1930s, assisted in thinning the forests of the area. To be managed by the Forests Commission.

J4 Maldon (2653 ha)

The first settlers in the Maldon area were pastoralists who ranged sheep and cattle. 'Cairn Curran' was the run on which the town of Maldon is now situated. In 1848, E. and F. Bryant became partners with N. H. Simpson, who had taken over 'Cairn Curran' in 1840, and thus the area became known as Bryant's Ranges, or Tarrengower.

The pastoral nature of the area ended suddenly with the discovery of gold in 1853. The discovery was attributed to Captain John G. Mechosk, who eventually received the government reward for the discovery. Alluvial gold-miners led the initial rush, and by May 1854 the population had risen to between 18 000 and 20 000, with 1000–2000 ounces of gold produced per week. Lack of water, due to drought, and low yields compared with other fields, however, saw the population decrease to 2000 by November 1854.

The remaining population began quartz reef mining, and by 1857 quartz crushing was well established, with 1500 miners producing 2 000 ounces of gold per week. Maldon was proclaimed a municipality in August 1858. The population declined over the years, enjoying a revival in 1901. The last mine closed down in 1926 and by 1933 only 723 people remained. In 1966, the National Trust declared the town of Maldon a notable town. Many relics remain—including chimneys, mine, tunnels and the foundations of the mine buildings. To be managed by the Department of Crown Lands and Survey.

J5 Moliagul (1571 ha)

Gold was discovered here in 1852—the first find on what became known as the Dunolly gold-field. The Queens Gully open-cut mine was the first major working, but it was the Black Lead that yielded the Welcome Stranger nugget. This nugget, discovered by John Deason and Richard Oates in 1869, contained 2284 ounces of gold, one of the largest nuggets found in Victoria. To be managed by the Department of Crown Lands and Survey.

J6 Diamond Hill (Bendigo) (461 ha)

This area represents the southern extension of the Bendigo gold-fields and contains the alluvial workings of Golden Gully and the quartz mines in Diamond Hill. The area at the junction of Golden Gully and Bendigo Creek was the site of the first gold discovery in Bendigo. The township of Spring Gully once occupied part of the area, boasting at one stage a population in excess of 10 000 people. Relics of the school, hotel, and the associated mines are present throughout the area. To be managed by the Department of Crown Lands and Survey.

Notes:

The flora values of this area should also be taken into account when preparing management plans for the area.

The adjoining area inside the City of Bendigo is an integral part of this historic area and should be reserved accordingly.

HISTORIC RESERVES

Recommendations

J7–J27 That the areas listed below be used to:

- (a) protect specific sites that carry or contain the remnants of buildings, equipment, construction works, and artifacts associated with the history of the locality
- (b) provide opportunities for limited safe recreation and education associated with the enjoyment and understanding of the history of the area (development of recreational facilities would be minimal)

that

- (c) mineral exploration and mining be permitted
 - (i) where these activities do not conflict with the protection of the historic features
 - (ii) provided exploration for an extraction of ‘gold’ and ‘minerals’ on these areas (including operations under miner’s rights) be subject to the approval of, and to the conditions required by, the Department of Minerals and Energy, in consultation with the authority managing the public land and the Soil Conservation Authority (These conditions should be designed to preserve the features associated with each site rather than to prohibit exploration and mining)
- (d) fossicking and prospecting be permitted in J11, J14, J17, and J19, using methods approved by the managing authority and where this does not conflict with (a) and (b) above (Prospecting as defined by the *Mines Act* 1958 means operations conducted in the course of exploring for gold and minerals)
- (e) apiculture be permitted
- (f) grazing be permitted where this is considered appropriate by the management authority

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

Note:

While some mineral exploration and mining may be permitted on these reserves, extraction of gravel or material from mine dumps or tailings should not be permitted other than in exceptional circumstances, and then only after agreement between the Department of Minerals and Energy and the Management Authority.

J7 Landsborough (16 ha)

Site of Malakoff Lead, which was mined from the 1850s till the 1950s by various methods.

J8 Glendhu (40 ha)

Site of Glendhu Reef.

J9 Majorca (16 ha)

Land covering the public gardens and water reserves, which is an integral part of the historical township.

- J10** Craigie (20 ha)
Site of the Kong Meng Mine, one of the few deep-lead mines operated by a Chinese company.
- J11** Timor (7 ha)
Site of the Grand Duke Mine, containing the arch of the mine plus intact mine dumps. The cemetery located close by is strongly linked with this mine. Fossicking should be permitted subject to recommendation (d) above.
- J12** Tullaroop (5 ha)
The site of the Tipperary Riots.
- J13** McIntyre (38 ha)
This area is part of the Berlin gold-field, and gold was first discovered here in 1854. It is the site of the Matrix Reef Mine and opposite is the St. John's patch where many large nuggets were found.
- J14** Rheola (72 ha)
This area is part of the Berlin gold-field, and was the scene of a rush in 1858 to areas known as Glelland, Paper, and Tylers Gullies. Fossicking should be permitted subject to recommendation (d) above.
- J15** Nine Mile (12 ha)
Site of the Nine Mile Mine and battery.
- J16** New Bendigo (24 ha)
Gold-field opened first in 1855 and the scene of extensive Chinese workings and settlements.
- J17** Wild Dog Diggings (24 ha)
Site of the Wild Dog Lead, a shallow lead mined by both European and Chinese miners. Fossicking should be permitted subject to recommendation (d) above.
- J18** Baileston (158 ha)
The site of Coy's Diggings, which were opened in 1854. This mine was an example of narrow reef mining, being an extension of the Whroo-Rushworth reef.
- J19** Fosterville (98 ha)
The reefs at Fosterville, part of the Ellesmere gold-field, were discovered in 1852, but only became established in 1895. The main reef, known as Hunt's line, averaged 8 feet wide and was mined by open cut-methods. Fossicking should be permitted subject to recommendation (d) above.
- J20** Wehla (50 ha)
The site of an open-cut mine and the old township of Wehla.
- J21** Lower Homebush (1 ha)
The site of the Lower Homebush school.
- J22** Graytown (50 ha)
Site of an important gold-field and township that, at one time, was sufficiently large to be a borough. To be managed by the Forests Commission.

- J23** Kinipaniel Creek Weir (10 ha)
Weir built in 1885 by the Loddon United Waterworks Trust.
- J24** Wanalta Weir (5 ha)
Intact early timber weir built by Wanalta Weir Waterworks Trust.
- J25** Murchison Water Trust (1 ha)
The brick pumping cylinder and timber control gates erected by the United Echuca and Waranga Water Trust in 1882.
- J26** Goldsborough (7 ha)
The site of the Goldsborough gold-field; extensive relics remain including dams, machinery foundations, and mullock heaps. Also present is an old eucalyptus-oil distillery.
- J27** Taradale (2 ha)
The site containing the government battery.
- J28** That an advisory committee be formed consisting of a representative of each of the managing authorities, the Department of Minerals and Energy, and the Ministry of Planning.

Note:

The Committee should have power to co-opt individuals with particular expertise. Matters that the committee may consider include:

- (i) a co-ordinated approach to the management of areas
- (ii) the integrated development and promotion of areas
- (iii) public safety
- (iv) guidelines for the protection of the integrity of the relics if exploration and mining takes place.

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 frontages.

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

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

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

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

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

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

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

Public land water frontage reserves

Water frontage reserves are defined for the purposes 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 reserved forest) or for some special purpose (such as a flora, recreation, or streamside reserve).

Recommendations

K1 That the public land water frontages

(a) be used to

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

that

- (b) (i) where a licence has been issued for a public land water frontage as in (a) (v) above, restricted recreation use by the public be permitted (non-damaging activities such as walking, nature observation, fishing, or just relaxing should be allowed, while potentially damaging activities such as camping, lighting fires, or using motor or motorized recreation vehicles should be prohibited)
- (ii) licences be required to provide stiles in any fences erected across their licence area if requested to do so by the management authority

- (iii) cultivation not be permitted, except with the approval of the Department of Crown Lands and Survey, and that, in proclaimed water supply catchments, the Soil Conservation Authority be consulted to ensure that approval to cultivate is in accordance with land-use determinations affecting the water frontage made under the *Soil Conservation and Land Utilization Act 1958*
- (iv) in particular cases, licensees be required to fence off and exclude stock temporarily from some parts of the licence area where, in the opinion of the management authority, special measures are necessary to protect water supplies, to rehabilitate eroding areas, or to permit regeneration of native plants that have particular value for nature conservation

that

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

and that

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

RIVER IMPROVEMENT

River Improvement Trusts have been constituted under the *River Improvement Act 1958* for sections of the following rivers in the study area:

Bullock Creek

Bendigo Creek

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

The works carried out include:

- * erosion-preventing works on the banks for example, construction of wire-mesh fencing, 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
- * realignment and alteration of a stream by the use of wire-mesh fencing and log or concrete barriers

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

- * Clearing of vegetation has increased run-off and reduced time of concentration of storm flows. The situation is sometimes aggravated by overgrazing and unwise cultivation in the catchment and along the river banks, permitting soil erosion and transport of sediment to the stream. Increases in urban development—with disposal of storm water directly to streams—have also altered flow regimes.
- * Regulation of stream flow by water storages and use of streams to transport water for irrigation and domestic use also change the natural flow regime.
- * The construction of barriers such as road embankments and bridges, through which the river must pass, has often resulted in substantial modification of the bed and banks. Present policy, however, is that all proposed replacement or new structures across waterways, flood plains, and depressions are referred to the State Rivers and Water Supply Commission and to the River Improvement Trust, where one is involved, for approval.

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

Removal of snags from the centres of wide streams damages fish habitat, but the tethering of these snags against the banks may provide alternative fish habitat, as well as protecting the banks from erosion. Realignment and regrading of eroding beds and banks often removes holes and 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. The construction of mesh fencing or log barriers frequently make access to the river difficult, but it is an integral part of preventing stream erosion.

River improvement trusts are at present limited in their responsibility under the *River Improvement Act 1958* to the stream environs within the districts under their control. They are therefore frequently able to treat only the symptoms of problems, as the causes may lie in the catchments beyond the area of their responsibility. Works that they carry out are often limited by lack of funds and frequently amount to little more than stop-gap measures. There is thus little opportunity in the design and implementation of works for consideration for their likely impact on areas outside the trust's districts.

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 be applied 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.
- * Works designed primarily for flood control should aim at reducing the rate of run-off of the catchment.

- * The degree to which minor flooding can be tolerated by the community should be determined in each case. It may often be more appropriate to take action to minimize the consequences of flooding than to 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 of their effect on the flood pattern.
- * 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.

Recommendations

- K2** That the assessment of the need for and the planning and implementation of, any works involving changes to the beds and banks of streams be based on the principles set out above.
- K3** That plans for all works (other than those of a minor nature), together with an assessment of their environmental consequences, be submitted to all interested agencies for consideration prior to the commencement of works.
- K4** That detailed guidelines based on the principles set out above be prepared by the State Rivers and Water Supply Commission, following discussion with interested Departments and examination of submissions recommended to it by the Standing Consultative Committee on River Improvement to ensure that an optimum balance is achieved between the purpose and implementation of works on the one hand, and the maintenance or enhancement of the stream's landscape values and its value as a habitat for wildlife and for recreation on the other.

Note:

The above-mentioned Standing Consultative Committee on River Improvement is not a statutory authority, but was formed by the State Rivers and Water Supply Commission to advise it concerning river works. It comprises representatives from the following:

- Ministry for Conservation
- Conservation Council of Victoria
- Soil Conservation Authority
- Fisheries and Wildlife Division
- Forests Commission
- Department of Crown Lands and Survey
- Association of Victorian River Improvement Trusts

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

STREAMSIDE RESERVES

Throughout the study area, 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 of them 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 woodland to open grassland. Every effort should be made to conserve native trees on these reserves, where they exist, and to encourage regeneration or restoration where the vegetation has been depleted or destroyed.

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

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

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

Recommendations

K5-K42 That the areas shown on the map and described below be used to:

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

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

- K5** 24 ha, being the water reserve west of allotments 133B and 134, Parish of Warranook.
- K6** 8 ha on the Wimmera River, south of allotment 13 of section 8, Parish of Glenorchy.
- K7** 6 ha, being allotment 171A, Parish of Stawell.
- K8** 8 ha on Seven Mile Creek, being east of allotment 103A, Parish of Glynwylln.
- K9** 9 ha on the Wimmera River, west of allotment 68, Parish of Glenwylln.
- K10** 30 ha on the Richardson River, being south of allotment 72, Parish of Bolangum.
- K11** 4 ha, on the Avoca River, east of allotment, 3, Parish of Gowar.
- K12** 10 ha on the Avoca River, being east of allotment 54A, section C, Parish of Gowar.
- K13** 18 ha, adjacent to allotment 3 of section A, Parish of Kooreh.
- K14** 2 ha, west of allotment 44 of section 2, Parish of Moolerr.

- K15** 30 ha on the Avoca River, south of allotment 11, Parish of Dalyenong.
- K16** 4 ha east of allotment 25B, Parish of Boola Boloke.
- K17** 75 ha, being the water reserve adjoining Bet Bet Creek in section 2A, Township of Bung Bong.
- K18** 10 ha, being the recreation reserve north of allotment 3, Parish of Lillicur.
- K19** 2 ha, being the water reserve west of allotment C, of section 9, Parish of Glengower.
- K20** 12 ha, on McCallum Creek north of allotment 11, Parish of Carisbrook.
- K21** 8 ha, south of allotment 95 of section D, Parish of Tarnagulla.
- K22** 12 ha, being the water reserve adjacent to allotment 28, Parish of Powlett.
- K23** 6 ha, being the water and camping reserve west of allotment 153, Parish of Hayanmi.
- K24** 32 ha, being the camping and water reserve adjacent to allotment 25c, Parish of Neilborough.
- K25** 23 ha, being the water reserve adjacent to allotment 2c, Parish of Yarraberb.
- K26** 30 ha, being the water reserve south of allotment 107, Parish of Leichardt.
- K27** 220 ha being the public purposes reserve on the Bendigo Creek, Parish of Huntly.
- K28** 14 ha on the Campaspe River, being adjacent to allotments 90B, 90C, 90D, 90E, Parish of Campaspe.
- K29** 10 ha, being the water reserve adjoining allotment 6D and 6F, of section 1, Parish of Muskerry.
- K30** 12 ha. on the Campaspe River, being allotment 5 of section 10, Parish of Ellesmere.
- K31** 50 ha, on the Campaspe River, being south and east of allotment 16, Parish of Ellesmere.
- K32** 3 ha, on the Coliban River, adjoining allotment 14, Parish of Metcalfe.
- K33** 25 ha, on Major's Creek, being part of allotments 1, 3, and 24, Parish of Mitchell.
- K34** 3 ha, on the Goulburn River, west of allotment 57A, Parish of Tabilk.
- K35** 11 ha, being the water reserve north of allotment 2 of section A, Parish of Mitchell.
- K36** 3 ha, on the Goulburn River, west of allotment 2, Parish of Warring.
- K37** 3 ha, on the Goulburn River, north of allotment 15, Parish of Dargalong.
- K38** 200 ha, on the Goulburn River, being allotments 101, 105 and 109, adjacent Crown Land reserves and water frontages, Parish of Arcadia.
- K39** 15 ha, on the Coliban River and Back Creek, south and east of allotments 16 and 17, Township of Taradale.
- K40** 20 ha, being allotment 2A, and north and east of allotments 1 and 2 of section 3, Township of Eddington.
- K41** 20 ha, being allotments 1 and 2 of section 7, Township of Eddington.
- K42** 50 ha on Sheepwash Creek, north of the Township of Strathfieldsaye.

L. ROADSIDE CONSERVATION AND HIGHWAY PARKS

ROADSIDE CONSERVATION

The primary purpose of road reserves is obviously to provide for communication, transport, and access. However, vegetation along the road verges can have particularly high conservation, recreation, and landscape values, especially in agricultural districts where most of the native vegetation has been cleared.

Nature conservation

Vegetation on roads is important for nature conservation because it often contains the only remnants of the region's native plant associations. Such remnants are valuable for preserving species with restricted distribution, and genetically interesting 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 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. These include, for example, colourful heathlands on Tertiary capping in the Stawell and Stuart Mill districts and sand-dune flora north of Wychitella.

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

Recreation and landscape

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

Salinity prevention

In this area, where dryland salting is becoming an increasing problem, roadside trees play an important role in mitigating the effects and extent of salinization. These trees, often the only remaining trees in the area, play a vital part in 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 *Country Roads Act 1958* are completely under the control of the Country Roads Board (9000 km). Main roads (14 500 km) are also declared, but are controlled jointly by the

Country Roads Board and local municipal councils. Vegetation on unclassified roads (about 98 000 km of mostly minor roads) is under the care and management of municipal councils, although it is owned by the Crown. The Forests Commission has the control of vegetation on unclassified roads that pass through or adjoin State Forest. (Note: These figures are for all Victoria.)

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

Back Roads

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

Recommendations

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

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

- * When improvements to a road are being carried out, trees and shrubs on the road reserve should be disturbed to the minimum extent consistent with the safe and efficient design and use of the road.
- * Major works to re-align 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.
- * When widening or re-alignment of roads is proposed, geological and historical features that may be affected should be investigated and every effort made to retain or preserve those that are designated significant. Such geological features include
 - metamorphic aureoles at Fogarty's Gap north-west of Harcourt, and at Big Hill south of Bendigo
 - Permian tillites at Derrinal
 - selwynite at Heathcote
 - contorted cherts at Lady's Pass north of Heathcote.
- * Where re-alignment of a road results in a section of the old road being cut off, wherever possible that section should not be sold but used as a recreation and rest area or incorporated into an adjacent appropriate reserve.

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

L2 That the following guidelines be applied 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.

L3 That the land management authorities establish picnic areas in suitable locations adjacent to the road reserves.

HIGHWAY PARKS

L4 That the area of approximately 24 ha adjacent to the Calder highway being allotment 64 in the Township of Ravenswood be used:

- (a) for picnicking and to provide relaxation for the travelling public
 - (b) to maintain the local character and quality of the landscape
- that

(c) facilities in keeping with the nature of the reserve be provided and that it be reserved under section 4 of the *Crown Land (Reserves) Act 1978* and be managed by the Department of Crown Lands and Survey.

L5 That the area of approximately 10 ha adjacent to the Northern highway and adjoining allotment 3, Parish of Runnymede be used:

- (a) for picnicking and to provide relaxation for the travelling public
- (b) to maintain the local character and quality of the landscape

that

(c) facilities in keeping with the nature of the reserve be provided and that it be reserved under section 4 of the *Crown Land (Reserves) Act 1978* and be managed by the Department of Crown Lands and Survey.

M. EDUCATION AREAS AND SCHOOL PLANTATIONS

EDUCATION AREAS

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

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

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

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

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

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

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

Recommendations

M1–M5 That the areas of public land listed below and shown on the map be used to provide opportunities for students of all ages to:

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

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

M1 Faraday (100 ha)

Lower Ordovician sediments; undulating to hilly; open forest I of red stringybark, red box, long-leaved box, with lower shrub understorey; elevation 300 m; rainfall 550 mm; to be managed by the National Parks Service.

Note:

This area is to be used in conjunction with the school camp facilities in the old primary school at Faraday.

M2 Eppalock (1203 ha)

Lower Ordovician sediments; flat to undulating; open forest II of grey box and yellow gum with scattered understorey of wattles; elevation 220 m; rainfall 500 mm; to be managed by the Forests Commission in consultation with the State Rivers and Water Supply Commission.

Note:

This area is not to be developed with on-site accommodation, but should utilize the existing school camps and public accommodation already existing along the foreshore of Lake Eppalock. The erection of one building for day-visitor facilities and display purposes should be allowed.

This recommendation is made subject to the Land Conservation Council receiving advice from the Inter-departmental Committee that is investigating the factors affecting water quality in Lake Eppalock.

M3 Deep Lead (255 ha)

Tertiary sediments; flat; open forest II of yellow gum; elevation 220 m; rainfall 530 mm; to be managed by the Forests Commission.

Note:

This area is to be used in conjunction with the old school at Deep Lead, which the Education Department is developing as a school forestry study centre.

M4 Waranga (240 ha)

Silurian–Lower Devonian sediments; flat to undulating; open forest I of red box, red stringybark, and long-leaf box, and open forest–woodland II communities of grey box and red ironbark, red stringybark and red box; elevation 180 m; rainfall 550 mm; to be managed by the Forests Commission.

M5 Mt. Egbert (90 ha)

Lower Ordovician sediments and lower Devonian granite; undulating; open forest–woodland II of grey box, open scrub of green mallee, and open woodland of Blakely's red gum; elevation 180 m; rainfall 400 mm; to be managed by the Forests Commission.

SCHOOL PLANTATIONS

Throughout the study area, numerous areas of public land have been set aside as school endowment plantations as part of various schools' education resources. The plantations were initially established to instil through community involvement a love of forests and an appreciation of their value, and in fact many of them are well suited for regular use as a teaching resource of this nature. It is expected that this use will increase as courses embracing various aspects of environmental science are developed. Many school plantations have been planted to radiata pine and the revenue from the sale of produce has been used to provide amenities required by the school. In some cases, however, these plantations have not been very successful in providing revenue, as the sites are unsuitable for economic growth or the plantations are too small or the location too far from processing centres to allow economic harvesting. In some instances, radiata pine plantations have failed due to poor management.

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

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

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

Recommendations

- M6** 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.

- M7** That the value of each existing school plantation as a teaching resource or for revenue production be assessed by the Education Department—in consultation with the Forests Commission and the Department of Crown Lands and Survey, where appropriate—and that the use of those considered unsuitable or no longer required be terminated.
- M8** That new school plantations only be established on public land for education purposes and where their establishment allows the rehabilitation or reforestation of cleared or eroded areas.

N. GEOLOGICAL RESERVES

Geological reserves are areas that contain features of geological interest, and are reserved primarily to preserve these features for the public's education and enjoyment. Such areas often have recreation, nature conservation, scenic, and landscape values in addition to geological features.

Recommendations

N1–N6 That the areas indicated on the map and listed below be used to:

- (a) preserve features of geological interest
- (b) provide opportunities for recreation and education to the extent that this is consistent with (a) above

and that they be reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the Department of Crown Lands in consultation with the Department of Minerals and Energy except where otherwise indicated.

- N1** Mt. Greenock (120 ha) south of allotments 29 and 31 of section B, Parish of Amherst.
- N2** Amherst reef (8 ha) in reserved forest south-west of the Amherst township.
- N3** Permian outcrop (1 ha) east of allotment 88, Parish of Mandurang.
- N4** Moorabbee shoreline adjacent to the Lake Eppalock shoreline and including examples of glaciated pavements that occur below full-supply level of the lake—to be managed by the State Rivers and Water Supply Commission in consultation with the Department of Minerals and Energy.
- N5** Pink Cliffs (17 ha) adjacent to the south-western boundary of the Township of Heathcote.
- N6** Coliban Falls (4 ha) on the Coliban River adjacent to allotment 11, Parish of Hawkestone.

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 in which it is undertaken—activities (or inactivities) 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 recreation 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 absorbing the sights, sounds, and atmosphere of the surrounding environment while expending little physical effort. Examples are picnicking, nature observation, and strolling.
- * Active recreation covers situations where the individual must expend considerable physical effort to obtain some mastery of physical forces in order to satisfy his particular recreational needs. Examples are playing organized sport, bushwalking, and rock-climbing.
- * 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, areas such as picnic grounds and beaches along the shores of Lake Eppalock 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 much 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 bushwalking, rock-climbing, orienteering, canoeing, fishing, hunting, fossicking, picnicking, horse-riding, boating, trail-bike riding, and pleasure driving. Council believes that activities such as these can be accommodated, without detriment to other values, somewhere on public land. Consequently, Council points out that outdoor recreation in general is an acceptable primary or secondary use of much public land (except reference areas and some water storages and their buffers) and has left the details of recreational use to the land managers.

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

Council therefore believes that the land managers should aim at controlling the levels and patterns of recreational use according to the capability of the area to sustain such use without irreversible damage or significant conflict with the primary purposes of the area, while at the same time avoiding any 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 areas occurring on granite soils, and where the natural environment or special natural features are being preserved.

Three particular forms of recreation that may pose a problem for the land managers, whether now or in the future, are further discussed below.

Motorized recreation

Much outdoor recreation depends on motor vehicles. These may be conventional cars, four-wheel-drive vehicles, or motor-cycles. They may be used for touring and sightseeing, as a means of obtaining access to a particular area where other forms of recreation will be undertaken, or—when they are driven in competitive rallies or in adverse but challenging road conditions—as a source of recreation in themselves.

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

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

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

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

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

The demand exists for the provision of some areas of public land to accommodate and relocate the off-road activities of motor vehicles, particularly trail-bikes. Such areas could, for example, take the form of defined trails in some hardwood or softwood 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.

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 standard 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 this trend should be encouraged. While recognizing that a variety of types of camps may be needed, Council believes that any camps permitted on public land should be properly located, constructed, and maintained. For efficient management of camps, it may be necessary for a single organization to be given limited tenure over a minimum area at any individual camp site, under the control of the land management authority. Council believes, however, that these camps should still be used as fully as possible consistent with avoiding damage to the environment. The greater use of camps on public land is desirable in order to avoid proliferation of camp sites, and there is a need for co-ordination of information regarding the availability of those camps that could be used by groups who do not have tenure of their own.

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

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 throughout much of the North Central 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 either on public or private land. This may be obtained from the Department of Minerals and Energy and allows the holder to prospect on areas of public land that in this report are recommended as uncommitted land and land to be used for timber production. The recommendations also make specific provision for fossicking and prospecting to take place in Historic Areas, in some Historic Reserves, and in the Whroo Multi-purpose Park. In other areas of public land where reservation for various uses is proposed, it is recommended that prospecting for gold and other minerals be subject to the principles outlined in the chapter on Mineral and Stone Production. The recommendations do not permit prospecting or fossicking in reference areas and do not change the status of the bed and banks of streams, together with the associated public land frontages, which are currently exempt from prospecting or mining. Locations of these and other areas of public land exempt from prospecting or mining may be obtained from the Department of Minerals and Energy. Conditions that apply to prospecting on private land can also be obtained from the same Department.

It is also important to note that prospecting under a Miner's Right does not allow the disturbance of any land by machinery or explosives. Hand tools only, such as picks and shovels, can be used.

Recommendations

Recreation

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

Motorized recreation

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

Recreation reserves

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

that native trees be conserved where possible

(this is of particular significance for part of allotment 81E, Parish of Sandhurst, between the Grassy Flat Reservoir and Cousins Street including the trees on the northern side of Cousins Street)

and that these areas be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978*.

P. SCENIC RESERVES

These are set aside to preserve scenic features or look-outs of particular significance.

Recommendations

P1–P6 That the areas shown on the map and described below be used to preserve scenic features and look-outs

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

- P1** 470 ha, being Mount Korong and its surrounds including the public purposes reserve, allotment 26, Parish of Korong, and the land north and west of allotment 25B, Parish of Korong (the rehabilitation works will be completed on the former quarries)—to be managed by the Department of Crown Lands and Survey.
- P2** 330 ha, being the area (The Granites) south of allotments 65 and 67, Section 4, Parish of Borong—to be managed by the Forests Commission.
- P3** 580 ha, being the land on and surrounding Mount Beckworth, excluding that land used for softwood production (see recommendation F1), Parish of Beckworth—to be managed by the Forests Commission.
- P4** 900 ha, being the area west of allotment 1B, 2A, 2K. Parish of Heathcote—to be managed by the Forests Commission.
- P5** 7 ha in the Parish of Metcalfe, being the area surrounding Turpin's Falls—to be managed by the Department of Crown Lands and Survey.
- P6** 7.6 ha being allotment 43, section 8, Parish of Eglinton (the land on and surrounding Mount Glasgow)—to be managed by the Department of Crown Lands and Survey.

Q. AGRICULTURE

The Council recommends that, at this stage, no additional large areas of public land be developed for agriculture and that only small areas of suitable land on the perimeter of public land be made available to improve the viability of existing and adjoining farms (see Recommendations Q1-9).

In determining this policy a major consideration has been the problem of salinity in the study area. One of the causes of dryland salting is increased infiltration and percolation of rainwater as a result of reduced evapotranspiration following the clearing of forests, and their replacement with pasture and crops. This has been and continues to be the subject of extensive research by various expert groups. The Council has recognized this when considering areas of public land that can be used for agriculture and believes that the recommendations do not change public land use in a way that would add to the problem of dryland salting.

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 should be available to meet such emergency situations, and that such grazing could be controlled by the issue of either agistment rights or annual grazing licences.

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

There is thus a need for a committee comprising representatives of the Forests Commission, the Department of Crown Lands and Survey, the Department of Agriculture, the Soil Conservation Authority, and the graziers to advise the management authority with respect to the following matters:

- * selection and delineation of grazing areas, their allocation, and terms of grazing rights (Council's recommendations may necessitate some re-allocation of grazing areas)
- * grazing charges
- * exclusion of stock when and where necessary to provide for conservation of flora and fauna, prevention of soil erosion, protection of water catchment values, protection of forest regeneration works, or the reclamation of eroded areas
- * type of livestock and stocking rates
- * fencing and water supply

- * additional research necessary to monitor the effects of grazing on catchment hydrology and nature conservation values.

In advising the management authority, due consideration would need to be given to the financial implications of terms that may be attached to the licence. Some suggested terms and conditions are given below:

- * Provision should be made to allow the land managing authority to exercise general supervision of grazing management, especially with respect to times of grazing and stocking rates.
- * Grazing may be excluded from parts of the licence area, as determined by the managing authority.
- * No sub-leasing or assignment of grazing rights by a licensee should be permitted without the approval of the management authority.
- * Cultivation and clearing should not be permitted, except when this is necessary to control vermin and noxious weeds.
- * Grazing licences would not imply any form of exclusive use or control over the area by the licensee.
- * Licences should be subject to any other terms and conditions that the managing authority considers necessary.
- * Licences should be liable to cancellation for non-compliance with the conditions.

Recommendations

Agricultural land

Q1-9 That the land described in Schedule 1 below and shown on the maps be used for agriculture. It is intended that this land should form additions to present farms rather than be developed as new units.

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

- Q1** 1.2 ha west of allotments A20B, A21A, Parish of Knowsley.
- Q2** 4.4 ha, being allotment 50C, Parish of Winjallock.
- Q3** 1 ha on eastern edge of allotment 9, Parish of Strathfieldsaye.
- Q4** 1.6 ha between allotment 34 and 38 of section N1, Parish of Sandhurst.
- Q5** 4 ha north of allotment 3, section 11, Parish of Sedgwick.
- Q6** 0.8 ha south of allotment 16, section G, Parish of Dunolly.
- Q7** 0.2 ha north of allotment 4D, section 5, Parish of Wedderburn.
- Q8** 8 ha west of allotment 153, Parish of Mysia.
- Q9** 2 ha south of allotment 31, section 16, Parish of Guildford.

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.

Government has the responsibility to establish the existence and extent of the State's mineral resources. When a new deposit is discovered in an area where mineral extraction is not a currently approved land use, it may be of such importance that a change of the land use is required in the national 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 alternative sources of the particular mineral.

It is important therefore that the reservation of conservation areas should not automatically exclude exploration for mineral or fossil fuel resources, either by exploration companies under strict supervision or by the Department of Minerals and Energy itself. Attention should be directed towards ensuring that other values and interests are protected, rather than attempting to prevent exploration activities.

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

The Council is concerned by the complexity of legislation and procedures governing extraction of 'stone', and by the lack of control accompanying some of these procedures. (For example, the Country Roads Board and municipal councils are not bound by many provisions of the *Extractive Industries Act* 1966.) A substantial number of unwise excavations have been made upon public land, and in some instances the rehabilitation of excavated land is lagging. There is a need for review of existing legislation and procedures to enable more rational use of the 'stone' resource of the State.

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

The Council believes that:

- (i) All exploration for and extraction of 'gold', 'minerals', and/or 'petroleum' on public land (including operations under miner's rights) should be subject to the approval of, and to the conditions imposed by, the Department of Minerals and Energy, such approval and conditions being subject to the agreement of the authority managing the public land and the Soil Conservation Authority, and being in conformity with the guidelines outlined hereunder.

- (ii) There should be co-operation and consultation between the land managing authorities, the Department of Minerals and Energy, the Soil Conservation Authority, and the other relevant authorities with respect to the procedures to be adopted for the exploration and extraction of 'stone' on public land. Any operations on public land should continue to be subject to the approval of the appropriate managing authority.

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

- (iii) A system should be established that would guarantee, before work commences, the availability of funds for progressive and final reclamation for any excavation or operation. Provision should also be made to enable the acceleration of the rehabilitation of all existing extraction areas on public land.
- (iv) 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.
- (v) The following guidelines should apply to all extraction from public land:
- * No sites for the extraction of 'gold', 'minerals', and 'petroleum' should be opened in areas that the Department of Minerals and Energy and the land management authority in consultation consider to be of greater value for their aesthetic or nature conservation values.
 - * The Department of Minerals and Energy should not permit any extraction of 'gold', 'minerals', or 'petroleum', unless satisfied as to the reasonable economic viability of the proposed extraction. The Department should also require as far as is reasonably possible, the lodgment of mining plans that show the expected post-mining state of the land.
 - * No sites for the extraction of 'stone' should be opened in areas that the managing authority, in consultation with the Department of Minerals and Energy, considers to be of greater value for other uses including aesthetic or nature conservation values. The advice of the Department of Minerals and Energy should also be sought as to the desirability of proposed excavations having regard to alternative sources of 'stone'.
 - * Extraction of 'stone' should generally be concentrated on the fewest possible sites in an area, and any one site should be completely 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 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 granitic sand occurring as shallow deposits in the weathered profile should not be permitted until 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.

- * Where an application for the removal of 'stone' from a stream bed is considered, the land management authority should take particular care to ensure that the operations will not directly or indirectly cause erosion of the bed or banks, or undue pollution of the stream. In addition to the arrangements outlined above for 'stone', the land management authority should also consult with the relevant water supply and conservation authorities, and should consider the scenic and recreation values of the area. Alternative sources with a lower environmental impact should be used where they are available. The environmental effect of extraction may be reduced if alluvial stone is obtained from properly managed quarries on the river terraces, rather than from the present stream bed.
- * 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, re-vegetating the site with plantation forest, filling a quarry with water and developing the site as a park, using a gravel pit for off-road vehicles, using a quarry for garbage disposal prior to reclamation, or restoring the site as closely as possible to its original topography and revegetating it with species native to the site.

In addition to the above, the approval of the Soil Conservation Authority should continue to be sought for any exploration or extraction operations for 'gold', 'minerals', 'petroleum', or 'stone', where the subject land is:

- (a) at an elevation exceeding 1200 m
- (b) within a coastal foreshore reserve
- (c) within a proclaimed water supply catchment.

Recommendations

- R1** That public land in the study area continue to be available for exploration for 'gold', 'minerals', 'petroleum', and 'stone', subject to the principles and guidelines set out above.
- R2** That public land in the study area (other than land exempted or excepted from occupation for mining purposes under the *Mines Act 1958*) continue to be available for extraction of 'gold', 'minerals', and 'petroleum', subject to the principles and guidelines set out above.
- R3-41** That the areas listed below be used for the extraction of 'stone' in accordance with the principles and guidelines outlined above and, if not already reserved for this purpose, be temporarily reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the Department of Crown Lands and Survey.

Note:

Circumstances may arise where it can be established that areas of public land other than those listed below are necessary for 'stone' production. If such a case can be made, this use should be in accordance with the principles and guidelines outlined above. Areas currently reserved for 'stone' production that are not included in the following list should become uncommitted land.

- R3** 12 ha north of allotment 9A, Parish of Stawell.
- R4** 30 ha west of allotment 37, Parish of Concongella.
- R5** 4 ha, being the gravel reserve adjacent to allotment 21A, Parish of Landsborough.
- R6** 4 ha, being the gravel reserve south-west of allotment 12B, Parish of Glendhu.
- R7** 19 ha north of allotment 8, of section 2, Parish of Warngar.
- R8** 126 ha, being part of the reserves for gravel and the growth of timber for eucalyptus in the Parish of Gower.
- R9** 16 ha south east of allotment 39C of section 2, Parish of Moolerr.
- R10** 16 ha adjacent to allotment D1, Parish of Kooreh.
- R11** 54 ha, being allotment 57 of section 3, Parish of Borung.
- R12** 6 ha, being the gravel reserve adjacent to allotment 55 of section 4, Parish of Borung.
- R13** 2.4 ha, being the gravel reserve adjacent to allotment 5, of section 12, Parish of Moliagul.
- R14** 44 ha north of allotment 6C and 3D, Parish of Bealiba.
- R15** 12 ha east of allotment 21 of section K, Parish of Dunolly.
- R16** 17 ha, being the gravel reserve 1.5 km south east of Dunolly, Parish of Dunolly.
- R17** 15 ha, being the quarry reserve on allotment 1C of section 9, Parish of Neereman.
- R18** 8 ha in the south-west of the Township of Lower Homebush.
- R19** 13 ha, being the gravel reserve north-west of allotment 29 of section H, Parish of Glenmona.
- R20** 10 ha, being allotment 24 of section B, Parish of Strangways.
- R21** 10 ha, being the gravel reserve west of allotment 22 of section 7A, Parish of Guildford.
- R22** 8 ha, being the gravel reserve south and east of allotment 41 of section 5, Parish of Guildford.
- R23** 50 ha east of allotment 34 of section 8, Parish of Axedale.
- R24** 17 ha, being the gravel reserve on allotment 1F of section 20, Parish of Strathfieldsaye. When extraction is completed the pit may be considered for use as a garbage depot (see Recommendation S13).
- R25** 20 ha north of 240B, Parish of Sandhurst. Extraction should be confined to the lower slopes such that the profile of the hill will be preserved when viewed from the east. When extraction is completed the pit may be considered for use as a garbage depot (see Recommendation S12).
- R26** 53 ha south of 3A, 3, 4, 5 and 6 of section 15, Parish of Huntly. Heavy vehicular traffic to and from this reserve should not pass through the Whipstick State park.
- R27** 4 ha south of 4D of section 16, Parish of Goornong.
- R28** 6 ha adjoining allotment 62, Parish of Gobarup.

- R29** 6 ha adjoining allotment 38, Parish of Gobarup.
- R30** 20 ha adjoining allotment 21A and 22, Parish of Gobarup.
- R31** 32 ha adjoining allotment 81, Parish of Murchison.
- R32** 55 ha south of allotment 33, Parish of Heathcote.
- R33** 24 ha, being allotment 16E of section E, Parish of Inglewood.
- R34** 15 ha west of allotment 11 of section B, Parish of Weston.
- R35** 50 ha south of allotments 20 and 21 of section 19. Parish of Strathfieldsaye.
- R36** 8 ha, being the gravel reserve adjacent to allotment 91, Parish of Riachella.
- R37** 20 ha east of allotment 5BL of section 5, Parish of Shelbourne.
- R38** 35 ha south-west of allotment 10 of section 2A, Parish of Muckleford.
- R39** 2 ha, being the gravel reserve and quarry reserve within allotment 14 of section 9, Township of Carisbrook.
- R40** 8 ha, being the gravel reserve west of allotment 4 of section 19, Parish of Craigie.
- R41** 5 ha, being the road-making material reserve west of allotment 7D of section 1, Parish of Craigie.

S. UTILITIES AND SURVEY

Many utilities occupy public land. They include roads, pipelines, powerlines, power stations, hospitals, churches, public halls, shire offices and depots, garbage depots, sanitary depots, cemeteries, 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.

It is not possible at present to provide for future requirements of land for survey and utilities, in the absence of firm planning proposals accompanied by the necessary detailed information. The use of land for these purposes will need to be considered when particular projects are firmly purposes. The various recommendations in the report are not intended to preclude such use of the land, and would be subject to review at the appropriate time.

Council points out that government agencies concerned with provision and installation of communication equipment, transmission lines, pumped storage sites, power stations, port facilities, pipelines, roads, etc. are requested to submit to the management authority and, if in a water supply catchment, to the Soil Conservation Authority during the early planning stages any proposals that would involve occupation agreements or the setting aside of sites on public land. This would assist in achieving co-ordinated planning, and perhaps avoid the necessity for costly resurveys.

Recommendations

General utilities

- S1** That existing easements continue to be used to provide access and services.
- S2** That new power lines, pipelines, communications equipment, and other utilities be planned to minimize disturbance to public land and protect the values associated with this land, that they not be sited on public land without the agreement of the managing authority and, that new pipelines and power lines follow existing easements if possible (this may require widening of some easements).
- S3** That the Department of Crown Lands and Survey in consultation with the Forests Commission investigate the provision of legal access to the allotments listed below.
 - Allotments 5A and 6, section 10, Parish of Moliagul.
 - Allotments 3C, 3B, 23D, and 25, section C, Parish of Bealiba.

Garbage and sanitary depots

Council believes that sites on public land used for the disposal of garbage and sanitary material should be located to cause minimal conflict with nature conservation values. Facilities on public land should be shared by municipalities wherever practicable to minimize the number of sites required. At the same time, sites should be provided in reasonable proximity to users to minimize transport costs and illegal dumping of rubbish. Areas used on a temporary basis (such as garbage depots and sanitary depots) should 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.

Within areas reserved 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.

- S4** That 1 ha south of allotment 6A, section 5, Parish of Axedale, be used as a garbage depot and that adequate native vegetation be retained to screen the area from adjacent land.
- S5** That 4 ha south of allotment C7A, Parish of Heathcote, be used as a garbage depot and that adequate native vegetation be retained to screen the area from adjacent land.
- S6** That 3 ha south of allotment 7, section 1A, Parish of Fryers, be used as a garbage depot subject to the conditions contained in licence document No. 02774/138.
- S7** That 1 ha east of allotment 159A, section E, Parish of Chewton, be used as a garbage depot.
- S8** That 6 ha west of allotment 9, section 15, Township of Newbridge, be used as a garbage depot.
- S9** That 6 ha west of allotment 12F, Parish of Harcourt, be used as a garbage depot, and that adequate native vegetation be retained to screen the area from adjacent land.
- S10** That 8 ha north of allotment 7B of section 1B, Parish of Maldon, be used as a garbage depot, and that adequate native vegetation be retained to screen the area from adjacent land.
- S11** That 20 ha in the Parish of Sandhurst, west of the existing garbage depot, be used as an extension to this depot. The land is to be revegetated with species native to the area when rubbish dumping is completed and added to the bushland reserve I112.
- S12** That 20 ha in the Parish of Sandhurst, east of the existing garbage depot, be used as an extension to this depot after gravel extraction (see Recommendation R25) is completed.
- S13** That 17 ha, being allotment 1F, of section 20, Parish of Strathfieldsaye, be used as a garbage depot, after gravel extraction (see Recommendation R24) is completed.

Railway lines

- 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.
- S15** That disused railway land within the study area be retained as public land where it may have value for use as cycling or walking tracks or may eventually be needed again as routes for public transport (including roads).

Note:

This is of particular relevance to the disused railway between Maldon and Castlemaine, which should be retained as public land and used in conjunction with the historic areas recommended at each end of the line.

Trigonometrical stations

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

- S16** That the minimum area necessary for survey purposes be temporarily reserved around trigonometrical stations on public land where it would otherwise remain as unreserved Crown land and, where other forms of public land tenure apply, that the Department of Crown Lands and Survey have the right to occupy a minimum area around the station and provide lines of sight.

Other utility areas

- S17** That existing legal used and tenure continue for areas that are at present reserved and used for utility purposes such as public buildings, municipal depots, cemeteries, schools, etc.
- S18** The need for the relocation of the Bendigo Saleyards is the subject of discussions between the City of Bendigo, Shire of Strathfieldsaye and the Government. Council considers that any recommendation regarding land for this use should await the outcome of these discussions.

T. TOWNSHIP LAND

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

Recommendation

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

Note:

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

U. UNCOMMITTED LAND

In planning for balanced land use, known resources are allocated to meet known or predicted demands. The Council is aware that many changes in demand cannot be foreseen, and that the value of resources to the community will inevitably change. ■

Similarly, knowledge of resources will change as exploration, research, and technology progress. For these reasons, it is desirable that planning be reviewed periodically, and it must be expected that resources will be re-allocated or adapted to meet changed demands.

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

Land classed as uncommitted includes:

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

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

Recommendations

U1 That the land indicated on the map be used to:

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

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

V. MILITARY TRAINING

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

Recommendations

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

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

W. 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, 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 areas are sometimes cleared and, although their present value for recreation or conservation is limited, they may have considerable value in the future for as-yet-unknown public purposes.

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

Recommendation

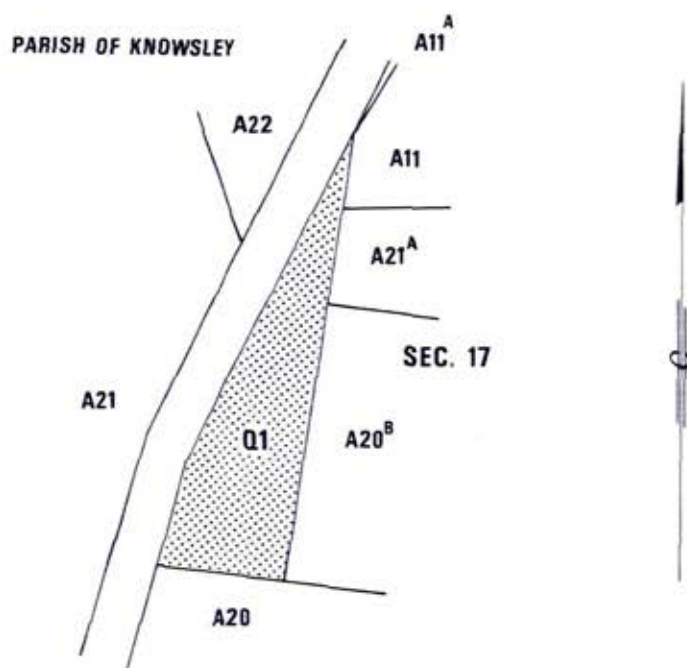
W1 That, for small areas of public land not specifically mentioned in these recommendations, existing legal use and tenure continue and that

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

AGRICULTURE Q1

KNOWSLEY

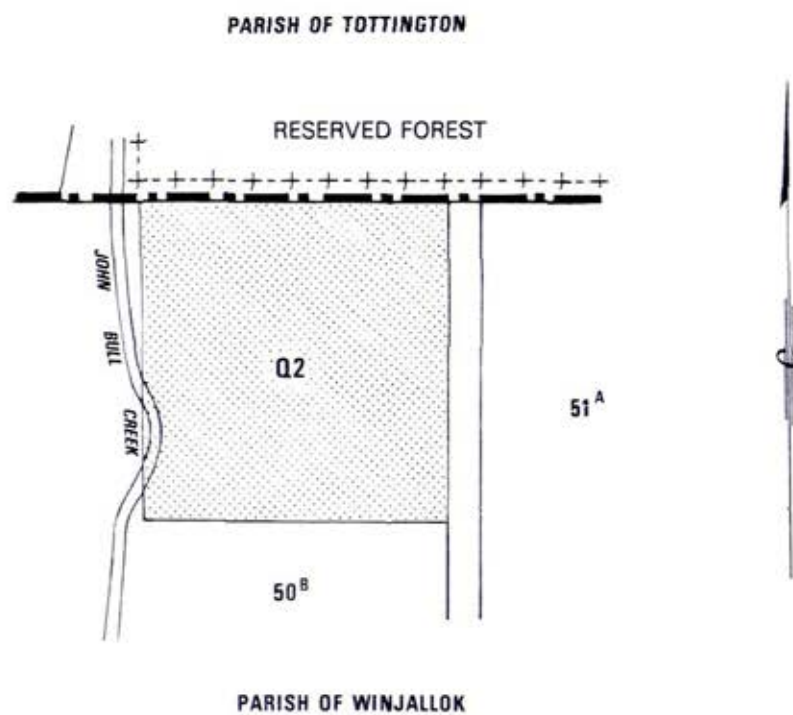
MAP 1



PUBLIC LAND RECOMMENDED FOR ALIENATION

SCALE 1:5000

WINJALLOK

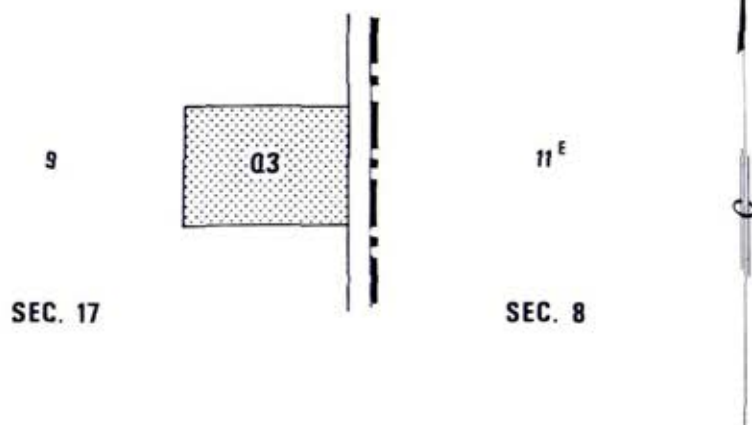


PUBLIC LAND RECOMMENDED FOR ALIENATION

STRATHFIELDSAYE

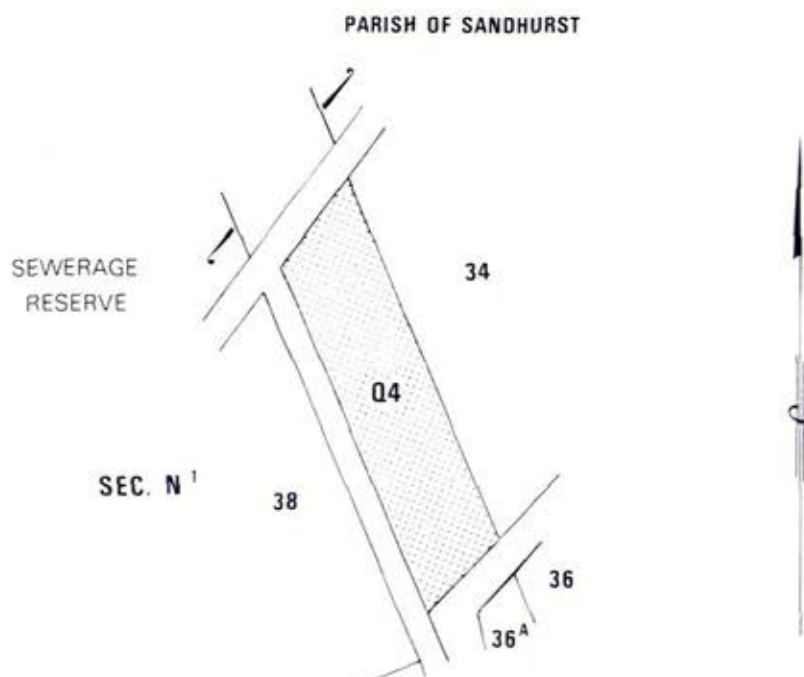
PARISH OF STRATHFIELDSAYE

PARISH OF AXEDALE



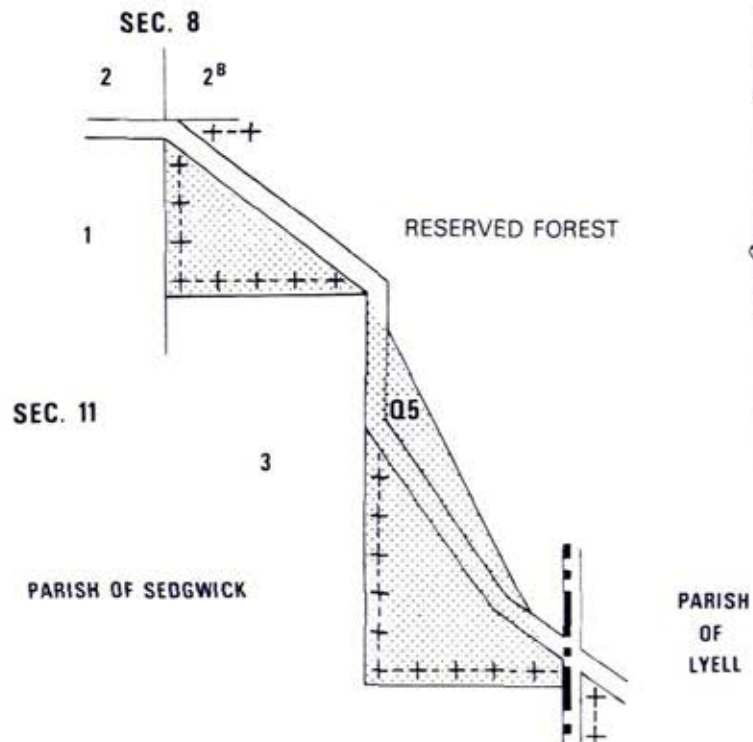
PUBLIC LAND RECOMMENDED FOR ALIENATION

SANDHURST



PUBLIC LAND RECOMMENDED FOR ALIENATION

SEDGWICK



PUBLIC LAND RECOMMENDED FOR ALIENATION

DUNOLLY

PARISH OF DUNOLLY

SEC G

13

14

16

17^B

17^A

2

SEC C

TOWNSHIP OF DUNOLLY

CLOSED ROAD

BURN

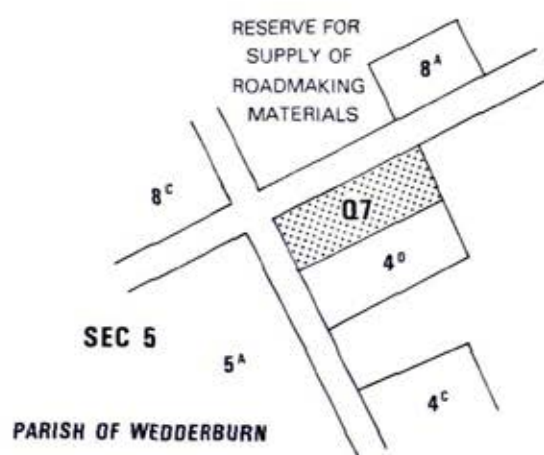
Q6

CREEK



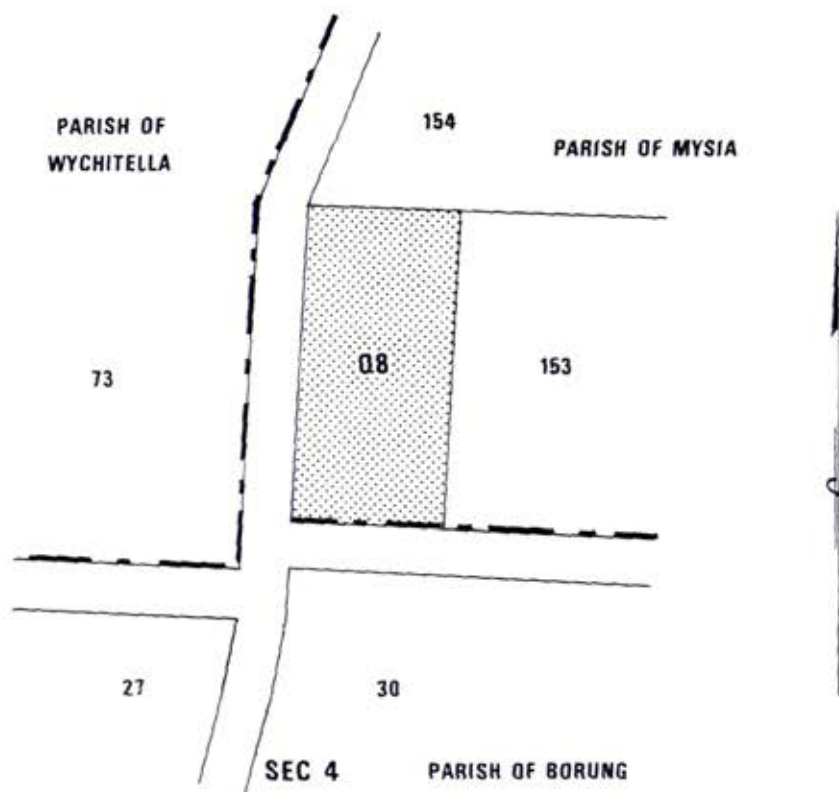
PUBLIC LAND RECOMMENDED FOR ALIENATION

WEDDERBURN



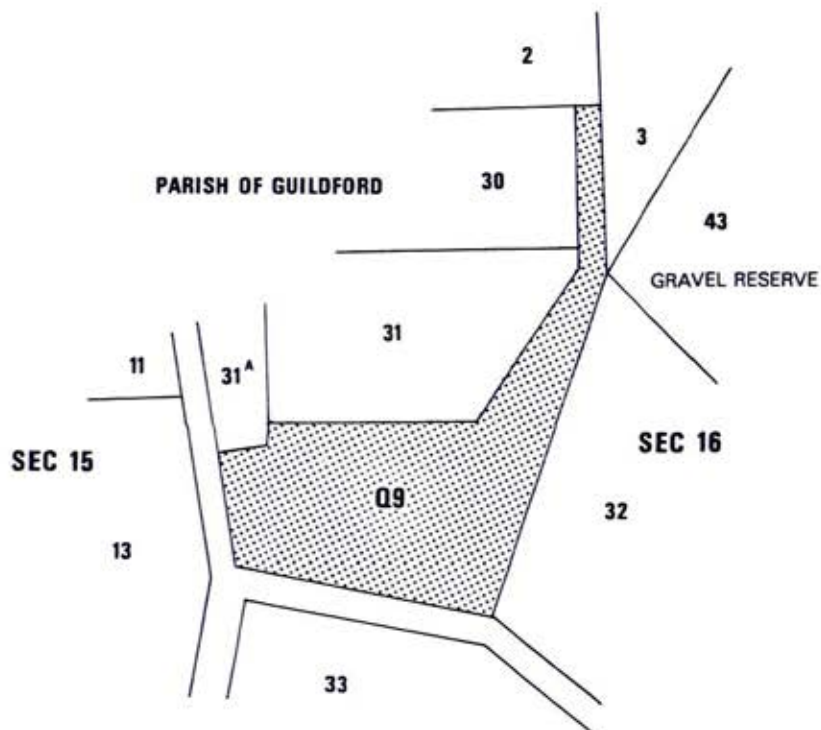
PUBLIC LAND RECOMMENDED FOR ALIENATION

MYSIA



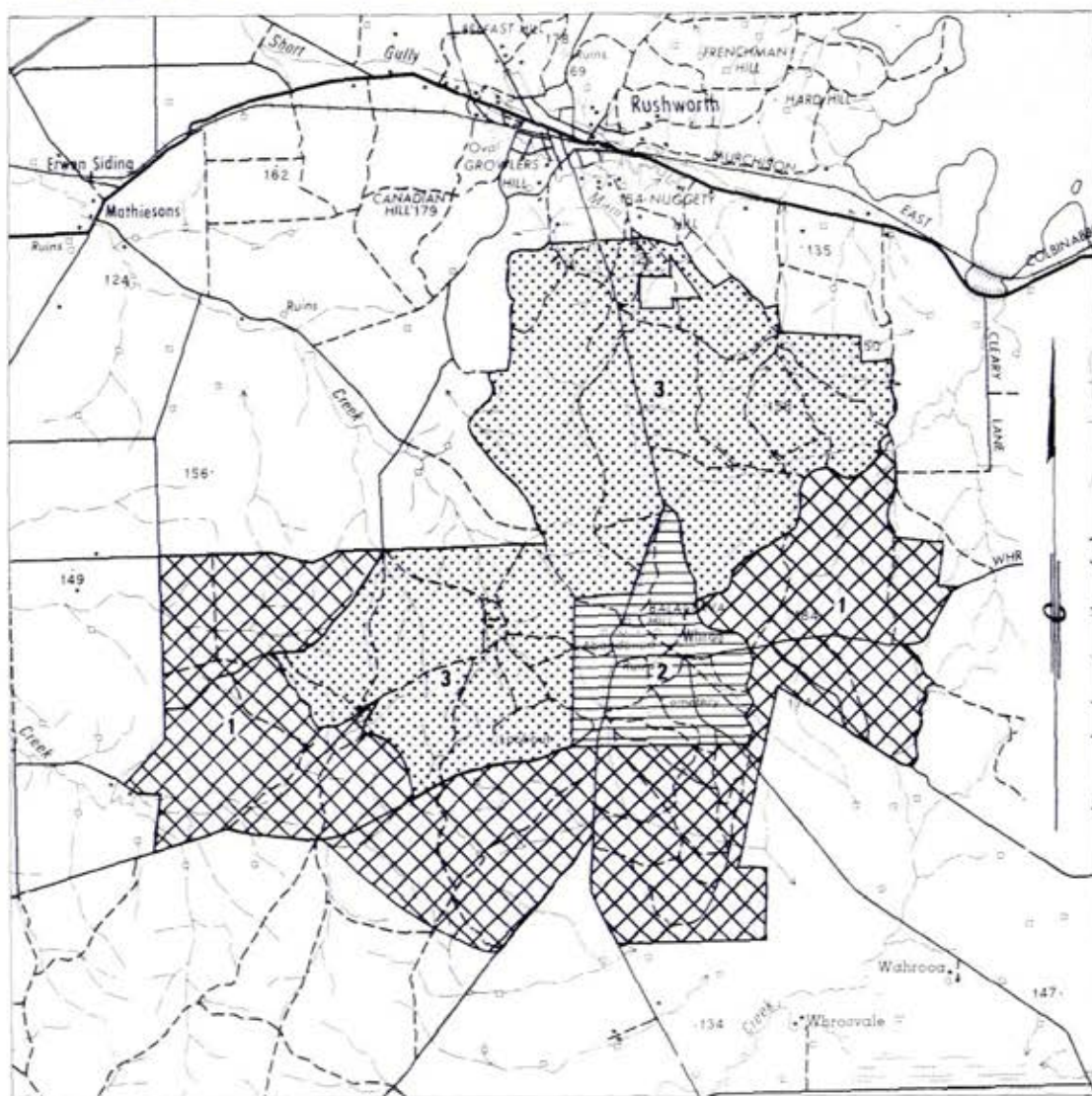
PUBLIC LAND RECOMMENDED FOR ALIENATION

GUILDFORD

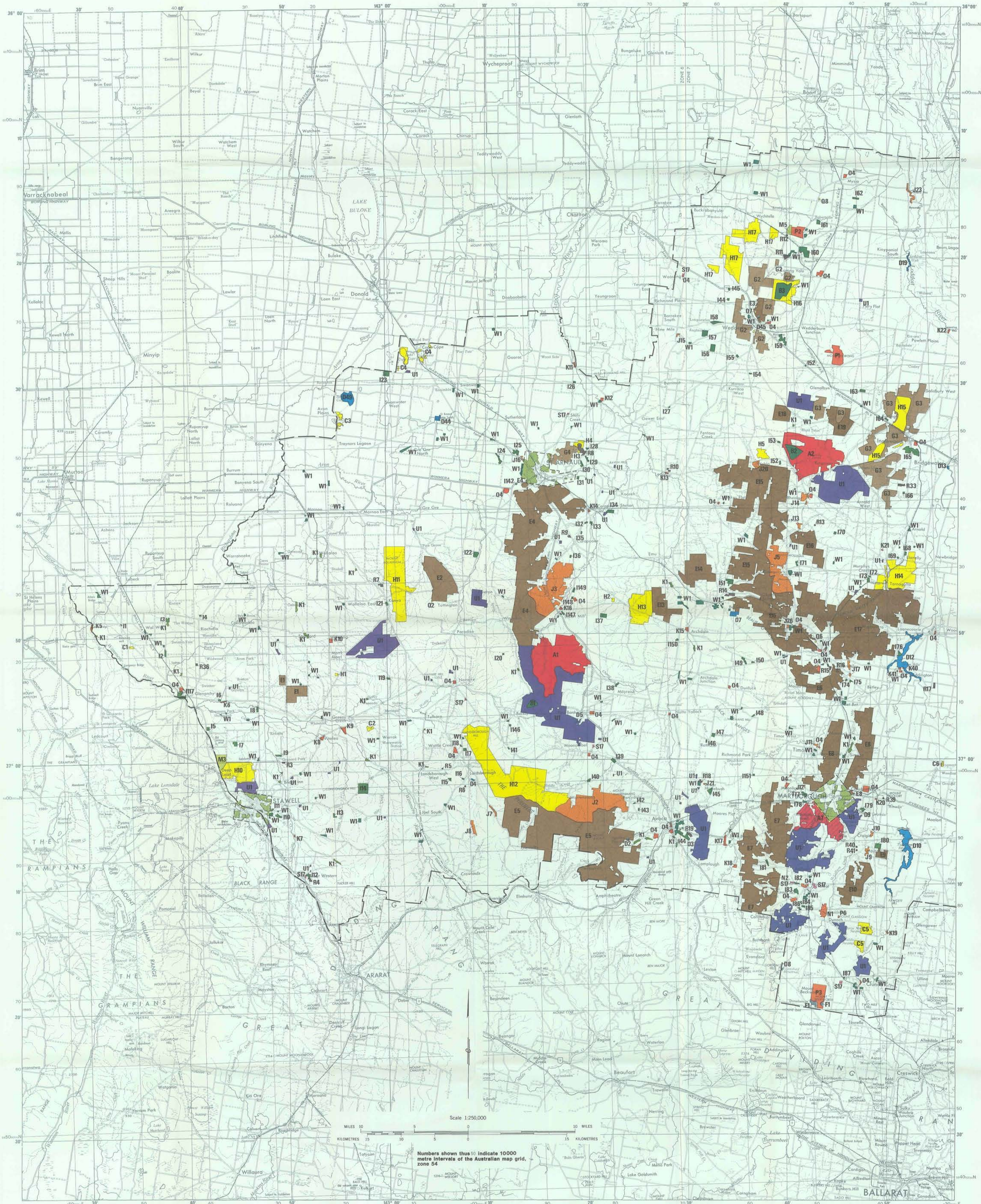


PUBLIC LAND RECOMMENDED FOR ALIENATION

PROPOSED MANAGEMENT ZONES



ZONE	RECOMMENDED PRIMARY USE	SECONDARY USES
1	<i>Conservation</i>	<i>Low-intensity recreation Honey production</i>
2	<i>Recreation and preservation of historic relics</i>	<i>Conservation Honey production</i>
3	<i>Recreation and education associated with forestry practices</i>	<i>Low-intensity hardwood production Eucalyptus oil harvesting Conservation Honey production</i>



PROPOSED RECOMMENDATIONS

LAND CONSERVATION COUNCIL
VICTORIA

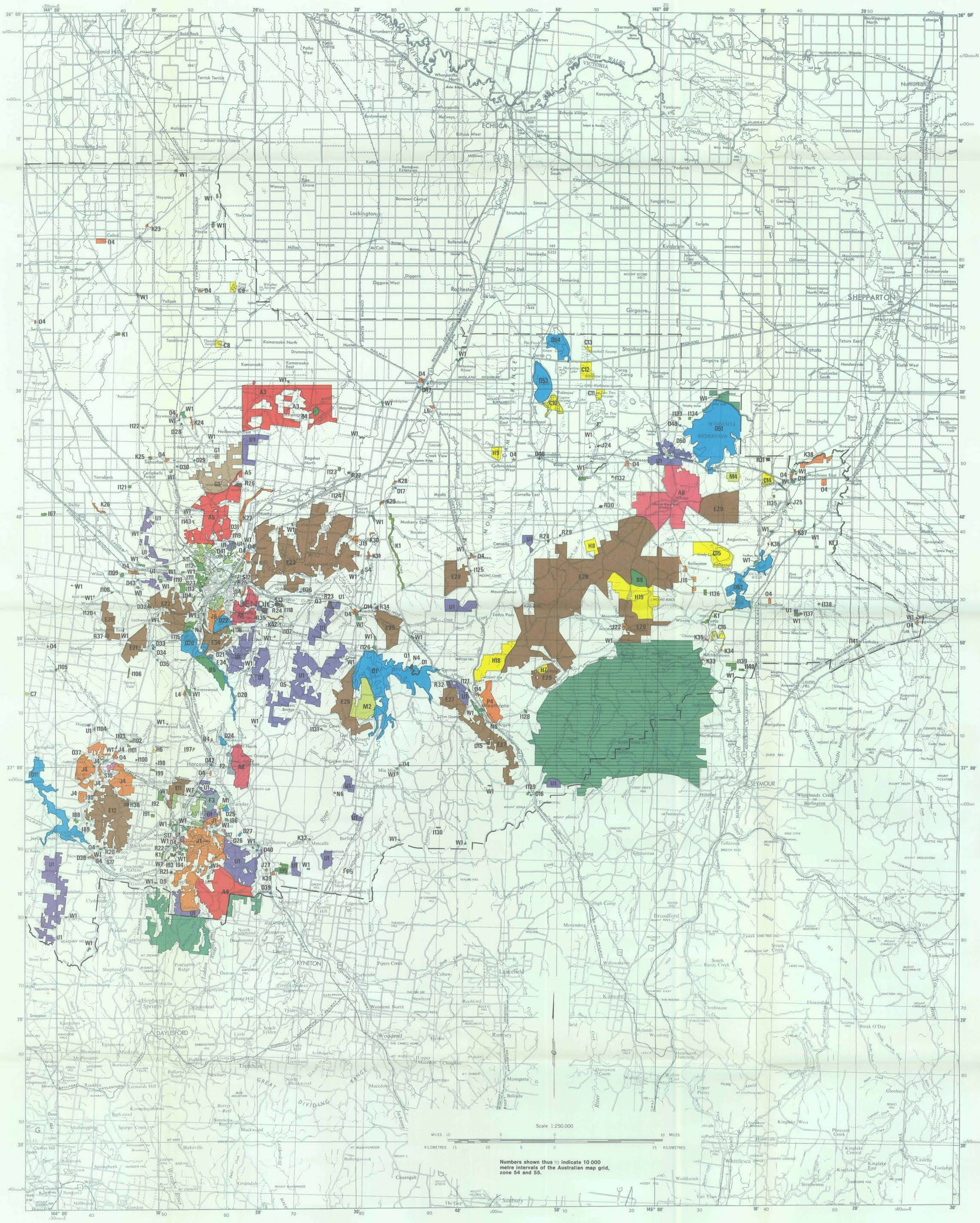
NORTH CENTRAL AREA

STATE PARKS	A1 Kara Kara A2 Koroora A3 Kamarooka	A4 Fryers Ridge A5 Whipstick
REGIONAL PARKS	A7 Paddy's Ranges	A8 Mt. Alexander
MULTIPURPOSE PARK	A6 Wroon	
REFERENCE AREAS	B1 Mt. Separation B2 Koroora B3 Koroora Vale	B4 Kamarooka B5 Sandhurst B6 Rushworth
WILDLIFE RESERVES	C1 C16 Various	
FLORA RESERVES	H1 H9 Various	
FLORA AND FAUNA RESERVES	H10 H19 Various	
WATER PRODUCTION	D1 D54 Various	
HARDWOOD PRODUCTION	E1 E29 Various	
SOFTWOOD PRODUCTION Existing Plantations	F1 Mt. Beckwith F2 Mt. Alexander	F3 Castlemaine
EUCALYPTUS OIL PRODUCTION	G1 Bendigo G2 Woddenburg G3 Ingwood	G4 St. Arnaud G5 Rushworth
HISTORIC Areas Reserves	J1 Castlemaine - Chewton J2 Porepore - Werrenang J3 Stuart Mill J7 J29 Various	J4 Maldon J5 Melbourn J6 Diamond Hill
GEOLOGICAL RESERVES	N1 N6 Various	
EDUCATION AREAS	M1 Faraday M2 Eppalock M3 Deep Lead	M4 Warrago M5 Mt. Egbert
BUSHLAND RESERVES	I1 I52 Various	
PUBLIC LAND WATER FRONTAGE RESERVES	K1 Various	NOTE: Public land water frontage reserves cannot be accurately defined at this mapping scale. Refer to the appropriate parish plan to determine the boundaries of the reserves and whether the reserve is on one side or both sides of the stream.
HIGHWAY PARKS	L4 Calder Highway near Ravenswood	L5 Northern Highway near Elmore
STREAMSIDE RESERVES	K5 K42 Various	
RECREATION	O4 Existing Recreation Reserves	
SCENIC RESERVES	P1 P6 Various	
AGRICULTURE Alienation	Q1 Q9 Various (refer maps 1-9)	
TOWNSHIP LAND	T1 Various	
MINERALS AND STONE	R3 R41 Various	
UTILITIES AND SURVEY	S3 S12 Various garbage tips S17 Existing utility areas	
UNCOMMITTED	U1 Various	
OTHER RESERVES AND PUBLIC LAND	W1 Various	
		Commonwealth Land ("not public land" as defined in the Land Conservation Act 1970)
		Public Land (as defined in the Land Conservation Act 1970) which is outside the North Central Study Area and referred to in the Melbourne Final Recommendations
		Crown Land within City, Town or Borough
		Area available for timber production
		Area to be used to produce eucalyptus oil. To be eventually added to the proposed flora reserves (see G4).

Some reserves cannot be accurately defined at this scale. These reserves are described in the text and approximate locations shown on this map by a coloured dot, e.g. - D2

Study area Boundary
City or Borough Boundary

MAP A
(WEST SHEET)



PROPOSED RECOMMENDATIONS

LAND CONSERVATION COUNCIL
VICTORIA

NORTH CENTRAL AREA

STATE PARKS	A1 Kara Kara A2 Koroore A3 Koroore	A4 Freres Ridge A5 Whipstick
REGIONAL PARKS	A7 Paddy's Ranges A8 Mt. Alexander	A9 One Tree Hill
MULTIPURPOSE PARK	A6 Whroo	
REFERENCE AREAS	B1 Mt. Separation B2 Koroore B3 Koroore Vale	B4 Koroore B5 Sandhurst B6 Rushworth
WILDLIFE RESERVES	C1-C16 Various	
FLORA RESERVES	H1-H9 Various	
FLORA AND FAUNA RESERVES	H10-H19 Various	
WATER PRODUCTION	D1-D54 Various	
HARDWOOD PRODUCTION	E1-E29 Various	
SOFTWOOD PRODUCTION Existing Plantations	F1 Mt. Beckwith F2 Mt. Alexander	F3 Castlemaine
EUCALYPTUS OIL PRODUCTION	G1 Bendigo G2 Wodonga G3 Inglewood	G4 St. Arnaud G5 Rushworth
HISTORIC Areas Reserves	J1 Castlemaine - Chewton J2 Percival - Warman J3 Stuart Mill J7-J29 Various	J4 Melton J5 Maitland J6 Diamond Hill
GEOLOGICAL RESERVES	N1-N6 Various	
EDUCATION AREAS	M1 Faraday M2 Epsom M3 Deep Lead	M4 Warrag M5 Mt. Egbert
BUSHLAND RESERVES	I1-I52 Various	
PUBLIC LAND WATER FRONTAGE RESERVES	K1 Various	NOTE: Public land water frontage reserves cannot be accurately defined at this map scale. Refer to the appropriate parish plan to determine the boundaries of the reserve and whether the reserve is on one side or both sides of the stream.
HIGHWAY PARKS	L4 Calder Highway near Ravenswood	L5 Northern Highway near Elmore
STREAMSIDE RESERVES	K5-K42 Various	
RECREATION	O4 Existing Recreation Reserves	
SCENIC RESERVES	P1-P6 Various	
AGRICULTURE Alienation	Q1-Q9 Various (refer maps 1-9)	
TOWNSHIP LAND	T1 Various	
MINERALS AND STONE	R3-R41 Various	
UTILITIES AND SURVEY	S3-S13 Various garbage tips S17 Existing utility areas	
UNCOMMITTED	U1 Various	
OTHER RESERVES AND PUBLIC LAND	W1 Various	
		Commonwealth Land ("not public land" as defined in the Land Conservation Act 1970)
		Public Land (as defined in the Land Conservation Act 1970) which is outside the North Central Study Area and referred to in the Melbourne Final Recommendations
		Crown Land within City, Town or Borough
		Area available for timber production
		Area to be used to produce eucalyptus oil. To be eventually added to the proposed flora reserves (see G4)

Some reserves cannot be accurately defined at this scale. These reserves are described in the text and approximate locations shown on this map by a coloured dot, e.g. =D2

Study area Boundary
City or Borough Boundary

MAP B
(EAST SHEET)