

FINAL RECOMMENDATIONS

BALLARAT STUDY AREA

**LAND CONSERVATION COUNCIL, VICTORIA
MELBOURNE, APRIL 1982**

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INTRODUCTION

The Land Conservation Council was established by the *Land Conservation Act* 1970. As one of its three functions, it makes recommendations to the Minister for Conservation with respect to the use of public land, in order to provide for the balanced use of land in Victoria. This report contains the Council's recommendations concerning the public land in the Ballarat study area. Notices showing the boundary of the study area and advising that an investigation was to be carried out were published in the *Victoria Government Gazette* of 24 May 1978, and in local and other Victorian newspapers in May 1978. A descriptive report was published on 5 August 1980. The Council received 155 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 these submissions and having visited the study area, the Council formulated its proposed recommendations, which were published on 1 October 1981. The Council subsequently received 80 submissions commenting on these proposals. After due consideration the Council now presents its final recommendations.

The recommendations in the text are grouped under major headings, such as Parks, Hardwood Production, and so on. The text is accompanied by 20 maps. Map A covers the whole study area at the scale of 1:250 000 and gives a broad view of the recommended land use. Other detailed maps show areas recommended for agriculture (by alienation), the proposed zoning of the Ballarat Common and adjoining public land, and the proposed buffer areas around Wilson's and Moorabool Reservoirs. 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: three State parks and one regional park in areas of particular importance for recreation and nature conservation; reference areas and education areas (covering a 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 and softwood production.

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

TABLE 1
RECOMMENDED PUBLIC LAND USE

<i>Major recommended land use</i>	<i>Area (ha)</i>	<i>Percentage of all land covered by these recommendations</i>	<i>Percentage of all public land covered by these recommendations</i>
State parks	8 980	1	12
Regional parks	1 250	<1	2
Reference areas	170	<1	<1
Wildlife reserves	1 505	<1	2
Water production	5 200	<1	7
Hardwood production	30 910	4	42
Softwood production	11 240	1	15
Flora, and flora and fauna reserves	1 960	<1	3
Bushland reserves	530	<1	<1
Historic areas and reserves	670	<1	<1
Streamside reserves	230	<1	<1
Highway parks	30	<1	<1
Education areas	270	<1	<1
Lake reserves	4 820	<1	6
Geological reserve	60	<1	<1
Scenic reserves	245	<1	<1
Agriculture	40	<1	<1
Mineral and stone reserves	480	<1	<1
Uncommitted land	4 490	<1	6
Utilities and survey	105	<1	<1

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

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 recommendations qualify those in the body of the text.

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

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

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

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

Accordingly, the Council recommends:

- II That, for fire-protection purposes, public land that is not State forest or national park be examined, and appropriate areas be declared protected public land under the *Forests Act* 1958.

Council recognizes that the Ballarat area includes a major gold province and as such has particular significance with respect to future mining operations. The principles and guidelines for the exploration and extraction of gold and minerals (including operations under Miner's Right), are outlined in the chapter on Mineral and Stone Production.

The Council recommends:

- III That mineral exploration licences held over the area continue except in so far as they affect reference areas.

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

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

The Council also recognizes that in some cases existing legislation will have to be amended in order to effectively implement the recommendations in this report. 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.
- VI That, as the boundaries of many areas have not been precisely surveyed, they be subject to minor modification, road excisions, easements, and other adjustments that may be necessary.
- VII That in cases where occupation does not agree with title, the Department of Crown Lands and Survey may at its discretion make adjustments to boundaries of public land, when implementing these recommendations.
- VIII That the recommendations in this publication do not change the status of roads passing through or abutting public land that are at present declared roads under the *Country Roads Act* 1958.
- IX That, where areas of public land are not specifically referred to in these recommendations, present legal uses and tenure continue.

A. PARKS

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

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

A park is 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 of areas zoned for intensive recreation will require special care to prevent damage to the environment.

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

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

PARK CATEGORIES

National park

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

The conservation of native flora, 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 natural features. Wilderness zones, which are relatively undisturbed tracts of land used for solitude and wide-ranging forms of recreation, could be designated within a national park.

State park

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

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

Regional park

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

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

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.

STATE PARKS

The Ballarat area contains a variety of land forms that are the results of different geological processes. The flat volcanic plains with emergent hills and volcanoes are contrasted with the granitic peaks and rolling midlands of the Great Dividing Range.

Characteristic vegetation communities include the messmate stringybark-blue gum forests of the high rainfall areas of the Mount Cole Range, the messmate stringybark-box forests developed on Ordovician sediments and Devonian granites, and the gum-box forests developed on the lower slopes of the gently undulating plains and on granite sands.

If a State-wide system of parks is to be developed to preserve Victoria's major land types, there is a need to include the distinctive land types found in the Ballarat area. The State parks recommended below contain representative examples of those land types.

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

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

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

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

Fire-prevention measures such as maintenance of fire-access tracks and protective burning will also be required in those areas of parks that have strategic importance for fire control. The particular measures to be taken in individual parks will be incorporated in fire-protection plans prepared by the Forests Commission in consultation with the park management authority.

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

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

Vermin and noxious weeds within parks will be controlled. This will remain the responsibility of the Department of Crown Lands and Survey. Control measures will be taken by both the park managers and the Department, using methods decided upon jointly by the two parties.

Part of the Ballarat area is a major gold province where the exploration for and extraction of gold has been an integral part of the land's history. Recommendations covering exploration and mining as well as fossicking and prospecting on public land, including State parks, are outlined in the chapter on Mineral and Stone Production. However, specific reference is made to fossicking and prospecting in the Enfield State Park, as this overlies an area of known gold mineralization.

Some of the recommended State parks contain mining relics, which may in some cases constitute a hazard to public safety. With regard to such relics the park managers should comply with the public safety requirements of the Department of Minerals and Energy. Public land in the Ballarat area is an important source of honey. Honey production should be permitted in all State parks and the number of apiary sites maintained.

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

Recommendations

A1–A3 That the areas indicated on the map and described below be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (b) conserve and protect natural ecosystems
- and that
- (c) honey production be permitted
 - (d) legal access continue to be available to any freehold land located within these parks.

Langi Ghiran State Park

Mounts Langi Ghiran and Gorrin and the linking saddle comprise a distinctive landscape feature seen from many roads and vantage points in the Beaufort–Ararat area. The land types include rocky peaks, giant tors, and broad rock sheets of granite, which support stunted red stringybark, long-leaf box, and shrubs. A number of plant species typical of the Grampians area—for example veined beard-heath and shining tea-tree—occur on the exposed rocky slopes of Mount Langi Ghiran. Elevated gullies and saddles support forests of messmate stringybark and manna gum, while the western slopes fan out to a plain containing an attractive open woodland of river red gum and yellow box.

The park is renowned for its relatively pristine character in a region that retains few large areas of undisturbed native forest. It contains few tracks and no logging has occurred for more than 50 years. Other features of the park include the rugged mountain summits of Mounts Langi Ghiran and Gorrin, a diverse and abundant population of native birds and mammals, and Aboriginal cave paintings.

The park is used for a variety of outdoor recreational activities, although the area has not been intensively developed for recreation. The spectacular view from the summit of Mount Langi Ghiran, which extends unobstructed in all directions, and the opportunity to walk in predominantly untracked country attract bushwalkers. The park is also used for picnicking, nature study, and viewing the Aboriginal cave paintings. Archery tournaments are occasionally held on a site adjacent to the small picnic ground.

Recommendation

A1 That the area of 2400 ha, shown on the map be used in accordance with the general recommendations for State parks and

- (a) to supply water and protect the catchment of the Langi Ghiran Reservoir (see Recommendation D1)
- that
- (b) the City of Ararat be permitted to carry out all necessary works associated with the supply of water to and from the Langi Ghiran Reservoir
 - (c) the management authority prepare a management plan for that part of the catchment within the park in consultation with the water supply authority; this plan is to conform with the policies outlined in the chapter on Water Production and provide for those aspects of catchment management considered necessary by the water supply authority

- (d) sites of historic and archaeological significance be preserved and that it be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and be managed by the National Parks Service.

Note:

The adjoining uncommitted land, together with deposits on freehold land, contains sufficient resources of granitic sand to last for many years at the current rate of extraction. Extraction of granitic sand from the uncommitted land should be in accordance with the conditions specified in the section on uncommitted land (Recommendation U1).

Mount Buangor State Park

This park is situated on the southern edge of a large granitic plateau and includes a number of peaks along the Great Dividing Range—Mount Buangor, Sugarloaf, and Cave Hill—and the steep southerly fall into the valleys of Middle Creek and McLeod Creek.

Features of the park include a spectacular rock overhang or 'cave', high rock-faces of granite, and a series of waterfalls and associated wet-gully vegetation in the headwaters of Middle Creek. The flora includes impressive stands of mature messmate stringybark and blue gum, the latter being at the westerly limit of its range in Australia. Sub-alpine snow gum communities occur on the most elevated areas and some components of the flora typical of the Grampians area occur on north-facing rocky escarpments, in the vicinity of Mount Buangor and the Ararat Reservoir.

Other forest types present include candlebark and manna gum on the lower slopes, and red stringybark and yellow box on the westerly side. An undescribed *Grevillea* sp., which is endemic to the plateau, also occurs within the park.

The park is a very popular area for outdoor recreation and has been extensively developed for recreation. A number of picnic areas have been developed and walking tracks lead to features such as waterfalls, fern gullies, the rock overhang, and an old log chute used for timber extraction in the past. The park is close to the Western Highway and attracts many passing visitors as well as people from the nearby towns of Ararat and Beaufort.

Recommendation

- A2** That the area of 2330 ha, shown on the map and described below be used in accordance with the general recommendations for State Parks and
- (a) to supply and protect the catchment of the Ararat Reservoir (see Recommendation D2)
- that
- (b) the City of Ararat be permitted to carry out all necessary works to maintain or improve the water supply from the Ararat Reservoir
 - (c) the management authority should prepare a management plan for that part of the catchment within the park in consultation with the water supply authority; this plan should conform with the policies outlined in the chapter on Water Production and provide for those aspects of catchment management considered necessary by the water supply authority

- (d) sand extraction be confined to the existing pit and the immediate area, and be used only for works in the park and adjacent public land
- (e) sites of historical interest be preserved

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

Notes:

1. The Council is aware that it may be necessary for an area within this park to be used as a small storage basin, a pipeline easement, and other facilities required to supply water for domestic use to Buangor.
2. This park lies within an area gazetted for military training. It is currently used for up to 6 days per year for field training exercises and for training in the use of pyrotechnics. Council believes that the current level of military training should not be increased and that it should be gradually phased out of the park. Discussions should take place between the managing authority and the Department of Defence to determine whether military training could be confined to those portions of the gazetted area located outside the park or be located on alternative areas not currently gazetted.

Enfield State Park

Enfield State Park is located on the southern slopes of the Palaeozoic hills that extend to the south of Ballarat, and encompasses the headwaters of Mount Misery Creek. The western part of this park consists of dry dissected hills and ridges, which contrast with the undulating and swampy eastern part. Major vegetation types represented are red and brown stringybark, messmate stringybark and scent-bark, with manna gum and swamp gum along drainage lines.

The park is known particularly for its diverse understorey flora, including 61 species of orchids and the endemic Enfield grevillea. It is also the major location, west of Melbourne, of Yarra gum (*Eucalyptus yarraensis*). The fauna includes such mammals as grey kangaroo, yellow-footed antechinus, and the arboreal feather-tailed glider and sugar glider.

Popular forms of outdoor recreation undertaken in this park include fossicking, camping, walking, and nature study. Walking tracks have been constructed that provide a link from the edge of the park to historic sites associated with the Mount Misery Creek gold-field, and picnicking and camping areas within the park.

Recommendation

- A3** That the area of 4250 ha shown on the map be used in accordance with the general recommendations on State Parks

that

- (a) sites of historical significance be protected
- (b) fossicking and prospecting be permitted in accordance with the recommendations in the chapter on Mineral and Stone Production, and existing mining tenements be permitted to continue with review in accordance with the provisions of the *Mines Act 1958*

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

Notes:

1. The Council notes this park overlies an area of known gold mineralization.
2. This park lies within an area gazetted for military training. It is currently used for up to 6 days per year for field training exercises and for training in the use of pyrotechnics. Council believes that the current level of military training should not be increased and that it should be gradually phased out of the park. Discussions should take place between the managing authority and the Department of Defence to determine whether military training could be confined to those portions of the gazetted area located outside the park or be located on alternative areas not currently gazetted.
3. The Rokewood Waterworks Trust should continue to have access to the easement for the Enfield Service Basin.

REGIONAL PARK

In recommending the following regional park, Council has attempted to provide for some of the informal recreation requirements of the area's major urban centre, Ballarat.

The City of Ballarat and the adjoining urban area is the third-largest population concentration in Victoria and as such generates considerable demand for recreation in a bushland environment. The Council has therefore recommended that an area of forested public land north of the City in the vicinity of Creswick become a Regional Park.

The other large urban centre in the study area is the City of Ararat. Council will consider the provision of a Regional Park for this centre when making recommendations for the adjoining South-western area, District 2.

Similar provisions to those applying in State parks for the prevention and suppression of fires, the control of vermin and noxious weeds, and ensuring public safety will apply in regional parks. Honey production and fossicking and prospecting will be permitted, and current legal access will continue to be available to freehold land enclosed within the park.

Ballarat-Creswick Regional Park

This park is situated in undulating forested land and encompasses one of the major areas for open-space recreation in the Ballarat and Creswick districts. These districts have a combined population in excess of 70 000 people. Many of the features of this park are to a large extent the result of activities associated with settlement, gold-mining, and forestry.

Vegetation types present include messmate stringybark, scent-bark, peppermint, and candlebark and important areas for orchids and wildflowers occur at White Hills and along Slatey Creek. The park also includes some areas planted to softwoods that enhance the picnic areas at St Georges Lake and Creswick Creek.

Recreational attractions include St Georges Lake, Koala Park, Blue Waters, Eatons Dam, and the picnicking areas along Slatey Creek. The park is intensively used for activities such as nature study, walking, fossicking, horse-riding, orienteering, cycling, and picnicking. School groups use it for educational studies and for recreation.

The park also includes the Creswick Nursery Demonstration Reserve. This contains a number of trial plantations of several species of pines such as canary pine (*Pinus canariensis*) and western yellow pine (*P. ponderosa*) as well as various other conifers and oaks. Part of the area was burnt in the Creswick fires in 1977 and the Forests Commission plans to develop an attractive arboretum here by planting a wide range of tree species. In the future this area will provide an important landscape feature for the township of Creswick and will also be used to provide information for the public and for educational purposes associated with the Victorian School of Forestry.

Recommendation

A4 That the area of 1250 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
 - (d) fossicking and prospecting be permitted in accordance with the recommendations in the chapter on Mineral and Stone Production and existing mining tenements be permitted to continue with review accordance with the provisions of the *Mines Act* 1958

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

Notes:

1. The softwood plantations along Creswick Creek and around St Georges Lake are important landscape and recreational features and should be managed to protect these values.
2. The Creswick Nursery Demonstration Reserve includes stands of well-established softwoods as well as other areas that are currently being planted for demonstration purposes. In the future it will be necessary to carry out thinning and other silvicultural practices to maintain these stands in a healthy condition.
3. This park includes part of the Demonstration Forest of the Victorian School of Forestry. This area should continue to be available for research and teaching associated with courses conducted at the School.
4. Council notes this park overlies an area of known gold mineralization and that existing mining tenements cover part of the area.
5. The Shire of Creswick should continue to have access to an easement along the pipeline linking Cosgrave Reservoir to the Township of Creswick.
6. This park lies within an area gazetted for military training. It is currently used for up to 6 days per year for field training exercises and for training in the use of pyrotechnics. Council believes that the current level of military training should not be increased and that it should be gradually phased out of the park. Discussions should take place between the managing authority and the Department of Defence to determine whether military training could be confined to those portions of the gazetted area located outside the park or be located on alternative areas not currently gazetted.
7. Some minor forest products could become available associated with management to improve park values. The orchid areas near Humbug Hill, along Slatey Creek track, and at White Hills should be protected.

B. REFERENCE AREAS

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

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

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

Within the Ballarat 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–B2 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, except where bounded by privately owned land, and that delineation of the buffer be by joint agreement between the advisory committee and the managing authorities of the area itself and of the land adjacent to the area

and that

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

Note:

Reference areas constitute the only public land from which apiary sites are excluded. Council believes that alternative provisions can and should be made for beekeepers affected by these recommendations.

B1 Buangor (70 ha)

Devonian granite; steep to moderate slopes; elevation 600–900 m; approximate annual rainfall 1000 mm; open forest II–III messmate stringybark, blue gum.

Note:

This reference area does not include the track running along the main ridge of Mount Buangor.

To be managed by the Forests Commission.

B2 Enfield (100 ha)

Cambrian–Ordovician sediments; undulating slopes; elevation 380–460 m; approximate annual rainfall 700 mm; open forest II messmate stringybark, red stringybark, scent-bark.

To be managed by the Forests Commission.

C. WILDLIFE RESERVES

The conservation of fauna depends upon the conservation of habitat. Public land in the Ballarat area is important for the conservation of fauna as it contains a diverse range of natural habitats, some of which do not occur elsewhere in Victoria. Council believes that in areas with particular wildlife values the authorities managing public land should note the need for both research into and the 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 have specialized breeding grounds or a high species diversity, or they may 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.

The basalt plains of the study area support many species of birds including the plains wanderer, bustard, elegant parrot, and brolga (in association with the wetlands throughout the basalt plains). There is only a very small area of public land remaining on the basalt plains and it is important that the management of this land takes into account its value as wildlife habitat. It is also important to note that most of the species found on the basalt plains depend on private property to meet their habitat requirements for nesting and shelter.

In all wildlife reserves the responsibility for the suppression of fires remains the responsibility of the Forests Commission. Fire-prevention measures will be carried out where necessary.

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

Recommendations

C1-C8 That the areas indicated on the map and described below be used:

- (a) primarily to conserve that habitat of native animals, particularly water birds,
and
- (b) for public recreation and education where this does not conflict with the
primary aim
- that
- (c) grazing be permitted at the discretion of the managing authority

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.

C1 Rossbridge (60 ha)

Open tussocky swamp adjacent to the Hopkins River that offers considerable potential for the restoration of excellent water-bird habitat.

C2 Lakes Turangmoroke, Yuangmania, Gunjal, Gnarimara, and Parupa (180 ha)

A group of saline lakes east of Lake Bolac that provide important feeding areas for a variety of waterfowl and a traditional hunting area for duck-shooters.

C3 Salt Lake (20 ha)

A permanent salt lake that is a good refuge area for waterfowl during the open hunting season.

C4 Lake Wongan (230 ha)

A large saline wetland that is an important feeding area for waterfowl, migratory waders, and other water birds. Brolgas also frequent this lake.

Note:

Aboriginal relics should be protected.

C5 Black Lake (80 ha)

The maar at Stockyard Hill contains an open brackish wetland that is used by waterfowl in conjunction with nearby Lake Goldsmith.

C6 Lake Goldsmith (870 ha)

A semi-permanent and brackish wetland, fringed with native grassland and planted trees and shrubs. It provides excellent feeding and breeding habitat for a variety of waterfowl and is frequented by migratory waders from the Northern Hemisphere.

C7 Flax Mill Swamp (5 ha)

This fresh-water marsh provides a diversity of habitats for wildlife and is currently used by a wide variety of birds. There is potential to improve the wildlife habitat of this area by a tree-planting program around the margins of the swamp.

C8 Dereel Lagoon (60 ha)

A heavily vegetated fresh-water swamp, which is surrounded by a woodland of rough-barked manna gum developed on Tertiary sands that provides good habitat for a range of water birds.

Note:

Access should continue to be provided along the track on the southern side of the lagoon.

D. WATER PRODUCTION

Catchments situated in the higher rainfall areas along the Great Dividing Range supply a large percentage of the surface water used for domestic and industrial consumption in the Ballarat area. These catchments supply the major urban regions—Ballarat, Creswick, and Ararat. For example, water harvested in seven storages east of Ballarat, is supplied to Ballarat and is also distributed to five adjacent waterworks trusts.

In other parts of the study area, particularly on the basalt plains, water is harvested in small storages on rivers and streams and from the groundwater resource.

Current management and use

None of the catchments in the Ballarat area is used solely for water production, although the immediate surrounds of some reservoirs have been closed to the public. Catchment areas are subject to a wide range of land uses including softwood production, hardwood production, recreation, and other uses on the public land, as well as agricultural pursuits and other developments on the substantial portions of freehold land contained in them.

Land use planning

The Council notes that the degree of land use planning varies between catchments. Land use controls (in the form of a Land Use Notice) exist only for a portion of the catchment of the Lal Lal Reservoir. Further investigations are being carried out by the Soil Conservation Authority in the Lal Lal and other proclaimed catchments to decide whether the preparation of land use determinations is necessary.

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

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

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

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

B. Buffer zone

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

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

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

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

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 the others will need to consider some form of treatment in the future. In order to provide for this requirement Council believes it is important for the government to establish long-term policies 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.

Additional water needs

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

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

Recommendations

D1–D25 That in the case of the locations listed below and shown on the map (all these locations being within catchments for which no land use determinations have been made) the present tenure and management of public land continue for the time being

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

- (i) the storage areas
- (ii) diversion works
- (iii) associated facilities

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

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

Notes:

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

D1 Langi Ghiran Reservoir, Ararat City Council.

Note:

The catchment to this reservoir lies within the Langi Ghiran State Park (see Recommendation A1 (b) and (c)).

D2 Hickmans Creek offtake, Shire of Ararat Waterworks Trust.

D3 Mount Cole Reservoir, Ararat City Council.

Note:

Part of the catchment to this reservoir lies within the Mount Buangor State Park (see Recommendation A2 (b) and (c)). The remainder of the catchment falls within the Mount Cole Hardwood Production area, covered by Recommendations E1-18 (c).

D4 Fiery Creek offtake, Beaufort Waterworks Trust.

D5 Doctors Creek Reservoir, Lexton Waterworks Trust.

D6 Talbot Reservoir, Shire of Talbot and Clunes.

D7 Evansford Reservoir, Maryborough Waterworks Trust.

Note:

This reservoir falls partly within the North Central area and is identified as D7 in the final recommendations for that area.

D8 Musical Gully Reservoir, Beaufort Waterworks Trust.

D9 Troys Reservoir, Beaufort Waterworks Trust.

D10 Waterloo Reservoir, Shire of Ripon.

D11 Hepburn Lagoon, State Rivers and Water Supply Commission.

D12 Newlyn Reservoir, State Rivers and Water Supply Commission.

D13 Cosgrave Reservoir, Creswick Shire Council.

Note:

The north-eastern boundary of a water supply reserve to encompass this reservoir should be located to allow for the inclusion of Eatons Dam in the adjacent Ballarat-Creswick Regional Park (Recommendation A4).

D14 Russells Reservoir, Creswick Shire Council.

D15 Dean Reservoir, Creswick Shire Council.

D16 White Swan Reservoir, Ballarat Water Commissioners.

Note:

The catchment of the White Swan Reservoir lies partly within the Creswick Hardwood Production area (see Recommendations E1-18 (c)).

D17 Gong Gong Reservoir, Ballarat Water Commissioners.

Notes:

1. The octagonal brick pump-house and other brick and stone works of historical importance date from about 1877, and should be protected.

2. The Ballarat Water Commissioners should give consideration to development of further picnicking and walking facilities downstream from Gong Gong Reservoir.

D18 Kirks Reservoir, Ballarat Water Commissioners.

Notes:

1. The historical features associated with this reservoir, which commenced service in 1862, should be protected.

2. The Ballarat Water Commissioners should give consideration to development of further picnicking and walking facilities around Kirks Reservoir.

D19 Pincotts Reservoir, Ballarat Water Commissioners.

D20 Beales Reservoir, Ballarat Water Commissioners.

Note:

The basalt wall, built in about 1863, is historically important and should be protected.

D21 Wilsons Reservoir, Ballarat Water Commissioners.

D22 Moorabool Reservoir, Ballarat Water Commissioners.

D23 Korweinguboorra Reservoir, Geelong Waterworks and Sewerage Trust.

Note:

Korweinguboorra Reservoir lies adjacent to Mineral Springs Reserve Rs. 4203, which should continue to be managed by the Department of Crown Lands and Survey.

D24 St. Enocks Reservoir, Skipton Waterworks Trust.

D25 Lal Lal Reservoir, West Moorabool Water Board.

Note:

Lal Lal Reservoir is adjacent to the Lal Lal Falls Scenic Reserve. See Recommendation P4 regarding involvement of the Board in the management of this reserve.

D26–D54 That in the case of off-river storages, water supply installations, groundwater bores, and storages not used for domestic consumption, these and their associated reserves remain under existing tenure and control unless otherwise stated. In these cases, proclamation is not necessary.

The Council is aware that the Ballarat Water Commissioners have plans for future service basins, pipehead basins, break pressure tanks, and pipelines within the Yarrowee plantation and Canadian plantation south of Ballarat. Provision should be made for these installations as they are required.

D26 Elmhurst service basin, Shire of Ararat.

D27 Lexton service basin, Shire of Lexton.

D28 Waubra bore, Shire of Lexton.

D29 Jacksons Reservoir, Shire of Ripon.

D30 Learmonth bores, Learmonth Waterworks Trust.

D31 Smeaton service basin, Creswick Shire Council.

D32 Forest Hill and Spring Hill service basins, Creswick Shire Council.

D33 Creswick service tank, Creswick Shire Council.

D34 Lincoln service basin, Creswick Shire Council.

D35 Wallace service basin, Bungaree–Wallace Waterworks Trust.

D36 Sago Hill service basin, Smythesdale–Scarsdale Waterworks Trust.

D37 Haddon service basin, Smythesdale–Scarsdale Waterworks Trust.

D38 Smythesdale service basin, Smythesdale–Scarsdale Waterworks Trust.

D39 Mount Helen service basin, Buninyong Waterworks Trust.

D40 Linton Reservoir, Linton Waterworks Trust.

D41 Linton service basin, Linton Waterworks Trust.

D42 Happy Valley Reservoir, Shire of Grenville.

Note:

The vegetation on this reserve is a landscape feature and should be preserved.

D43 Illabarook Reservoir, Shire of Grenville.

D44 Rokewood Junction Reservoir, Shire of Grenville.

D45 Enfield service basin, Rokewood Waterworks Trust.

D46 Corindhap Reservoir, Shire of Leigh.

D47 Rokewood Reservoir, Shire of Leigh.

Note:

This reserve does not include the cemetery and school plantation.

D48 Shelford service basin, Bannockburn Waterworks Trust.

D49 Teesdale service basin, Bannockburn Waterworks Trust.

D50 Willaura Reservoir, Shire of Ararat Waterworks Trust.

D51 Mount Pleasant Reservoir, Shire of Ararat Waterworks Trust.

D52 Wickcliffe Reservoir, Shire of Ararat Waterworks Trust.

D53 Streatham bore, Shire of Ararat Waterworks Trust.

D54–D61 That the following areas be used to provide watering points for travelling stock and they be reserved under section 4 of the *Crown Land (Reserves) Act* 1958 as Water Reserves and be managed by the Department of Crown Lands and Survey. These areas include springs and waterholes in predominantly grazing districts.

D54 18 ha, being the Water Reserve south of allotment 23B, Parish of Kiora.

D55 4 ha, being the temporary Water Reserve west of allotment 9A, Parish of Kerrit Bareet.

D56 7 ha, being the Water Reserve north of allotment 12 of Section 28, Parish of Scarsdale.

D57 5 ha, being allotment 25K of Section G, Parish of Clarkesdale.

D58 8 ha, adjacent to allotment 44, Parish of Mannibadar.

D59 22 ha, being allotment 113A the State School Reserve, and the Camping and Watering Reserve adjacent to Warrambine Creek in Section A, Parish of Shelford West.

D60 6 ha, being the Watering and Camping Reserve adjacent to allotment 68, Parish of Shelford.

D61 7 ha, being the Water Reserve (allotments 51 and 52) in the Township of Teesdale.

Ballarat Water Commission

The land controlled by the Ballarat Water Commissioners includes protective strips of varying widths around storages and adjacent to some channels and streams. Native vegetation has been retained on some sections of these, while others have been planted with softwoods. These plantations and areas of native forest provide an essential protection between water bodies and adjoining farmland, both privately owned and in some cases leased for agriculture by the Commissioners. As well as protecting water quality, careful harvesting of the plantations provides wood that the Commissioners use in their case factory or sell to wood-processing companies in Ballarat.

In some areas the protective strips are considered to be too narrow to provide consistent safeguards for water quality. Council is concerned about the possible effects on water quality of some of the agricultural usage of the land leased by the Commissioners where only a very narrow protective strip of pines or native vegetation adjoins the storages.

Council therefore believes the water quality would be better protected if cropping and cultivation were to be phased out in the more sensitive areas. Consideration should also be given to revegetating these areas with either softwoods or native species to further protect the water quality.

The areas delineated by the Council cover only portion of the land that the Commissioners believe should form a Reservoir Protective Zone. In delineating the boundaries shown on maps 17 and 18 the Council has endeavoured to minimize the impact on the current lessees while at the same time providing a more consistent protection of the water quality in the storages.

As further information is gathered from continuing research on water quality, it may be necessary to adjust the areas on which cultivation is permitted and to provide additional protection along the major tributaries to the storages. For example, some sections along Donovan's Creek (within the land managed by the Ballarat Water Commissioners) currently have no protective strip, cropping and cultivation occur in close proximity to the Creek, or stock have access to the Creek itself. Council is concerned about practices such as this occurring on public land where the primary use should be the protection and supply of water for domestic purposes. Council therefore believes that, within the land under their control, the Ballarat Water Commissioners should investigate alternative methods for stock-watering and consider excluding cropping and cultivation from a distance of at least 20 m on either side of major streams.

Recommendation

D62 That an area of approximately 25 ha, within the water production areas shown as D21 and D22 on map A and also shown on maps 17 and 18 be managed so as to provide additional protection of the water quality of the Wilsons and Moorabool Reservoirs.

and that

cropping and cultivation of the protective strips be phased out by 1987.

E. HARDWOOD PRODUCTION

Native forests in the Ballarat area have had a continuing role in the development of the region, commencing with European settlement in the 1840s. Today the forests are mostly regrowth following virtual clear-felling in the mining era, and in the case of Mount Cole, very heavy cutting early this century.

Currently, hardwood production yields some 22 000 m³ of sawlogs annually (representing approximately 2% of the State output), and 3600 m³ of pulpwood. There is a continuing demand for farm timbers and domestic firewood, and a declining demand for transmission poles. Most of the pulpwood harvested in the study area comes from the Wombat forest and partly services an agreement to supply pulpwood according to the *Forests (Pulpwood Agreement) Act 1959*. The Forests Commission calculates that, while a much higher level of pulpwood could be harvested from the study area, sawlogs will be harvested at an annually sustainable rate.

Areas of highest productivity occur on the Mount Cole plateau and the Wombat forest, where the most important species are messmate stringybark and blue gum (Mount Cole only). Durable hardwood species such as river red gum and yellow gum, occur only at Dunneworthy, although this forest is not of merchantable age, having been heavily cut late last century.

The areas recommended for timber production include some from which timber products are not currently available, as they contain the growing stocks necessary for sustained production in the future. They also include some areas of productive forest with significant water production, landscape, conservation, recreational, and apicultural values. Constraints are therefore necessary and the Council has defined below areas where particular non-timber values should be protected when management plans are prepared.

Recommendations

E1-E18 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) the special values located in portions of some of the hardwood areas listed below be protected (These values should be protected by the creation of reserves under section 50 of the *Forests Act* 1958 or by management prescriptions. Where faunal values are of importance the Fisheries and Wildlife Division should be consulted.)

Note:

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

E1 Dunneworthy (2550 ha)

In accordance with (d) above, the fenced plot containing the fairy wax flower (*Eriostomen verrucosus*) should be protected by management prescription.

Notes:

1. Portion of this area has been cleared in the past and should be revegetated.
2. The distribution of the fairy wax flower (*Eriostomen verrucosus*) outside the fenced plot is limited. Grazing should be closely controlled.

E2 Pyrenees Ranges (520 ha)

E3 Mount Cole (8770 ha)

In accordance with (d) above, the following areas should remain or become section 50 reserves, under the *Forests Act* 1958.

- (i) Victoria Mill Scenic Reserve
- (ii) Glut Scenic Reserve and proposed extension to include additional scenic, historical, and recreational features (see map 19)
- (iii) the scenic, floristic, and recreational features associated with Richards picnic ground, Ditchfield picnic ground, Cave Hill Creek and the area of the Mount Cole grevillea near Sandersons Road (see Map 19)
- (iv) Ben Nevis

Notes:

1. It is likely that water will be drawn from the catchment of Sandy Pinch Creek in the future for domestic supply to Ararat. Water may also be required in the future to supply the townships of Eversley and Crowlands from the creek flowing north of Mount Ben Nevis.
2. Management of this area should conform to the policies outlined in the Water Production chapter.

E4 Mount Lonarch (1150 ha)

E5 Ben Major (1970 ha)

In accordance with (d) above, the community of austral grass-tree (*Xanthorrhoea australis*) in the vicinity of Ben Major Track should be protected by management prescription.

E6 Waterloo (1650 ha)

In accordance with (d) above, the wildlife habitat values should be protected by management prescriptions.

E7 Trawalla (850 ha)**E8 Paddy Ranges (600 ha)****E9 Creswick (2020 ha)**

In accordance with (d) above, the orchid reserve north of 'The Freeway' should be protected by management prescriptions.

Notes:

1. Orienteering is a popular form of outdoor recreation in the area. Use of the area for this purpose should be taken into account when management plans are prepared.
2. The area includes part of the Demonstration Forest of the Victorian School of Forestry, which should continue to be available for research and teaching associated with courses conducted at the school.
3. The following allotments are to be added to reserved forest:
 - (i) 17A of Section Y, Parish of Ballarat
 - (ii) east of allotment 16 of Section Y, Parish of Ballarat.

E10 Eganstown (90 ha)**E11 Wombat (3160 ha)**

In accordance with (d) above, examples of the tramways sidings and bridges associated with timber extraction during the last century, and the route and sidings of the former Creswick–Daylesford railway, should be protected by management prescription.

E12 Linton (310 ha)**Note:**

Council believes that this area, while supplying small quantities of forest produce, should be managed to protect the values of the flora and fauna reserve to the south (see Recommendation G5).

E13 Ross Creek (4750 ha)

In accordance with (d) above, the following areas should be protected by management prescription:

- (i) Argyle dam and surrounds.
This dam formerly supplied domestic water to Smythesdale and is now used for passive recreation and to supply water to an adjacent sand-washing plant.
- (ii) Corio Dam and surrounds.
This dam was originally constructed by a dredging company and was subsequently used to water the former Smythesdale and Browns Commons. It is now used for passive recreation and a source of water for fire-fighting.
- (iii) Ross Creek Swamp, used for passive recreation and a source of water for fire-fighting.

E14 Canadian (170 ha)**E15 Enfield (1170 ha)**

In accordance with (d) above, the wildlife habitat values should be protected by management prescriptions.

E16 Shepherds Flat (80 ha)

E17 Lal Lal (170 ha)

E18 Mount Doran (1090 ha)

Note:

Part of this area could be used to provide an area for off-road vehicles (see Recommendation 03).

F. SOFTWOOD PRODUCTION

The study area includes a large part of the Ballarat Softwood Development Zone. Plantations in this Zone are required in order to provide raw material for a particle-board plant, sawlog and veneer mills, and preservative-treatment plants.

The remainder of the Ballarat Plantation Development Zone lies within the Melbourne and North Central Study Areas. The Land Conservation Council published final recommendations for the Melbourne Study Area in January 1977 and for the North Central Study Area in February 1981. Provisions for softwood plantations were made in both of these sets of recommendations.

A net total of 12 545 ha of softwoods (including 1981 plantings) has already been established by the Forests Commission in the Ballarat Plantation Development Zone. The Commission plans to establish a further 11 455 ha to meet its target, for this Zone, of a net area of 24 000 ha of softwood plantations.

Planning Period

The current net planting rate for the Ballarat Plantation Development Zone is 440 ha per annum. Provision is made in these recommendations for land for planting of softwoods in the Ballarat Study Area until 1992.

Prior to the preparation of these recommendations, Council commissioned two studies of softwood production in the Ballarat Plantation Development Zone. The first of these examined the economics of using public land and purchased private land—of various productivity classes—for softwood production. The second study investigated the availability of private land suitable for softwood production in the Ballarat Plantation Development Zone. Council has taken into account the findings of these studies in preparing these recommendations.

These recommendations allocate sufficient public land to plant a further 2559 ha to softwoods. It should be noted that the areas recommended for softwood production include two blocks of land purchased by the Forests Commission for softwood plantations (Recommendations F2 and F4), a cleared area that is currently being stripped of gravel and that will be progressively rehabilitated with softwoods (Recommendations F10/R30), and several other areas of non-timbered public land (Recommendations F9, F11 and F12). Of the total net area of 2559 ha allocated for softwood production, these areas represent 951 ha or 37% of the public land so allocated. The remaining 1608 ha would be met from forested public land. This represents only 37% of the Commission's total net requirement over the next ten years of 4400 ha.

Taking into account the area of public land already allocated for softwood production in the Melbourne Area, but not yet planted (560 ha), Council believes that the balance of the plantation requirements for the Zone, until 1992 (a net area of 1281 ha) should be met from private land. The studies commissioned by the Council indicate that, within the Zone, areas of suitable private land are available and that the use of this land for softwood production is economically viable. Council believes that sufficient funds should be allocated to the Forests Commission for the purchase of suitable private land for softwood production. There may also be scope for a portion of the requirement to be met by plantations established by private companies on freehold land and from farm forestry plantings.

The final recommendations for the Melbourne Study Area allocated sufficient land for softwood production until 1983. In accordance with these recommendations, Council will consider making further land available for softwood production for that part of the Ballarat Plantation Development Zone that lies within the Melbourne Study Area—after 1983. It will also consider making further land available—after 1992—for that part of the Zone that lies within the Ballarat Study Area.

Council notes, however, that, subject to the acceptance of these recommendations, there would be a limited amount of suitable public land remaining in the Ballarat Softwood Development Zone that could be allocated for softwood production. If the target for this Zone—of 24 000 ha—is to be reached, then after 1992, the great majority of softwood plantations will need to be established on purchased freehold land.

Plantation Planting Guidelines

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

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

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

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

This may be achieved by:

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

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

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

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

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

Recommendations

F1 That the present plantations of 8160 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 recreation and other uses

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

Notes:

1. The existing softwood plantations around Creswick include part of the Demonstration Forest of the Victorian School of Forestry. This area should continue to be available for research and teaching associated with courses conducted at the School.
2. The Forests Commission is establishing an area for the use of young trail bike riders in the south of the Yarrowee plantations and a similar area may also be found in the plantations near Creswick.

F2–F14 That the areas indicated on the map and described below (totalling 3073 ha gross) be used for softwood production in accordance with the above plantation planning guidelines

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

F2 Raglan

80 ha, within which an area of 73 ha net may be planted to softwoods.

- F3 Chute**
500 ha, within which an area of 400 ha net may be planted to softwoods.
- F4 Carngham**
460 ha, within which an area of 440 ha net may be planted to softwoods.
- F5 Buninyong**
5 ha, within which an area of 4 ha net may be planted to softwoods.
- F6 Watson's Hill**
55 ha, within which an area of 50 ha net may be planted to softwoods.
- F7 Newtown**
175 ha, within which an area of 140 ha net may be planted to softwoods.

Note:

The dumps and the other historical relics associated with the New Jubilee mine should be protected.

- F8 Enfield**
640 ha, within which an area of 510 ha net may be planted to softwoods.
- F9 Cape Clear**
155 ha, within which an area of 140 ha net may be planted to softwoods.

Note:

Provision should be made for the continued use of an airstrip within this area.

- F10/R30 Illabarook North**
130 ha, within which an area of 115 ha net may be planted to softwoods.

Note:

This area is currently used by the Shire of Grenville for stripping of surface gravels, and this use may continue. Extraction should proceed such that areas can be systematically stripped of gravel and revegetated with softwoods. Certain portions of this area are no longer required for gravel stripping and are therefore now available for planting with softwoods (see also Recommendation R30 in the chapter on Mineral and Stone Production).

- F11 Illabarook South**
140 ha, within which an area of 125 ha net may be planted to softwoods.

Note:

The Illabarook railway station and treed environs are of historical interest and should be protected.

- F12 Rokewood Junction**
64 ha, within which an area of 58 ha net may be planted to softwoods.

Note:

The area of the former School Reserves adjacent to Mount Misery Creek would be suitable for development as a picnicking area.

F13 Snake Valley, Cherry Tree Hill

445 ha, within which an area of 320 ha net may be planted to softwoods.

F14 Linton

230 ha, within which an area of 184 ha net may be planted to softwoods.

G. FLORA RESERVES AND FLORA AND FAUNA RESERVES

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

Council has recognized the special conservation significance of these areas and has accordingly recommended their reservation as Flora Reserves and Flora and Fauna Reserves.

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

Vermin and noxious weeds within Flora, and Flora and Fauna Reserves will be controlled and will remain the responsibility of the Department of Crown Lands and Survey.

Part of the Ballarat area is a major gold province where exploration for, and extraction of gold has been an integral part of the land's history. Because of this past use and gold-yielding potential, Council has provided for fossicking and prospecting on most of the public land, including the recommended Flora and Flora and Fauna Reserves. It is recommended that fossicking and prospecting, involving minimal disturbance, be permitted in these reserves with the exception of any areas that the management authority and the Department of Minerals and Energy together may determine. The principles and guidelines under which other forms of exploration and mining may be permitted are given in the chapter on Mineral and Stone Production.

FLORA RESERVES

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

Recommendations

G1-G4 That the areas indicated on the map and described below be used to:

- (a) conserve particular species or associations of native plants that
- (b) honey production be permitted
- (c) passive recreation such as nature study and picnicking be permitted
- (d) grazing be phased out within three years following the adoption of these recommendations

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

G1 Ben Major (740 ha)

This reserve includes a newly described holly-leaf grevillea (*Grevillea floripendula*), which is endemic to the Ben Major region. (The type locality is also included.) Attractive stands of candlebark grow in open-woodland formation along the broad drainage lines, as do scattered specimens of Yarra gum (*Eucalyptus yarraensis*). The slopes and ridges support a number of plant associations involving the following species: scent-bark, long-leaf box, red stringybark, messmate stringybark, and a number of acacias, bush-peas, and epacrids.

To be managed by the Forest Commission.

G2 Mount Erip (260 ha)

This reserve is established to preserve an unusual range of vegetation types—river red gum, yellow box, broad-leaf peppermint, red stringybark, and red ironbark—occurring on dissected Cambrian–Ordovician hills adjacent to the Woody Yaloak River.

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

G3 Inverleigh (620 ha)

This reserve forms part of the former Inverleigh Common recommended as a Flora Reserve in the final recommendations for the Melbourne Area. It contains a good example of the original vegetation of the region—namely, manna gum and river red gum woodlands.

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

G4 Mount Warrenheip (70 ha)

This volcanic cone contains a good example of messmate stringybark–mannagum open forest II growing on volcanic gradational soils. This vegetation type has been extensively cleared in the past and is very poorly represented on public land in the study area. The grassy understorey has not been grazed for many years and rare species present include mountain psoralea and cinnamon bells.

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

FLORA AND FAUNA RESERVES

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

Recommendation

G5 That the area indicated on the map and described below be used to:

(a) conserve native plants and animals

that

(b) honey production be permitted

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

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

and that it be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and be managed by the Forests Commission. A management plan for this reserve should be prepared by the management authority in consultation with the Fisheries and Wildlife Division.

G5 Linton (270 ha)

Over the last 40 years Mr G. Clarke of Linton has purchased various parcels of land and donated 128 ha to the Victorian Conservation Trust and the Bird Observers Club. This land contains examples of the indigenous vegetation and provides areas that are managed to maintain and improve their value as habitat for wildlife. Mr Clarke has also established a trust to finance the management and development of this land.

Council recommends that a Flora and Fauna Reserve be established on public land to the north of and adjacent to some of the areas donated by Mr Clarke. Together, the donated land and this proposed reserve support a range of vegetation types—including an open forest of candlebark, Yarra gum (*E. yarraensis*), and peppermint—with a grassy understorey along Springdallah Creek, and an open forest of red stringybark, messmate stringybark, and scent-bark on the drier ridges. Over 140 species of birds have been recorded in the area, including the powerful owl and the quail thrush, and a large lagoon has been constructed to provide habitat for a range of water birds. The recommended Flora and Fauna Reserve provides a link between the various parcels of land donated by Mr Clarke, and thus makes an important contribution to the conservation value of the area as a whole.

Council believes that consideration should be given to the management of the Flora and Fauna Reserve and the areas donated by Mr Clarke as a single unit—under the control of a committee consisting of representatives of the Victorian Conservation Trust, the Birds Observers Club, and the management authority of the Flora and Fauna Reserve.

H. BUSHLAND RESERVES

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

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

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

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

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

Recommendations

H1-H28 That the areas indicated on the map and described below be used to:

- (a) maintain the local character and quality of the landscape that
 - (b) passive recreation such as picnicking and walking be permitted
 - (c) honey production be permitted
 - (d) grazing be permitted subject to the approval of the management authority
 - (e) gravel extraction could be considered in the future for portions of those reserves listed below, where reference to gravel extraction is made
- and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act* 1978 and be managed by the Department of Crown Lands and Survey.

Note:

A number of dams located within Bushland Reserves are used for fire-protection and Shire purposes and these uses should continue.

- H1** 12 ha, being the Public Purpose Reserve south of allotment 38 of Section 3A, Parish of Ararat.
- H2** 13 ha north of allotments 29 and 30 of Section 2, Parish of Glenpatrick.
- H3** 28 ha, being part of the former rifle range south of allotments 27A and 17D, Parish of Yalong South.
- H4** 118 ha, being land adjacent to allotment 18, Parish of Yalong South.
- H5** 20 ha, being portion of the former rifle range adjacent to allotments 34A and 34B, of Section B1, Parish of Lexton.
- H6** 8 ha, being allotment 28 of Section B1, Parish of Lexton.
- H7** 5 ha, being the Water Reserve adjacent to allotment 30A1, Parish of Woodnaggerak.
- H8** 15 ha, being the Water Reserve adjoining allotment 24 of Section 1, Parish of Raglan.
- H9** 12 ha north of allotment 11B of Section L, Parish of Beaufort.

Note:

Historical relics associated with the shallow deep lead mining on this reserve should be protected.

- H10** 8 ha, being the Water Reserve comprising allotment 33C of Section 5, Parish of Beaufort.

Note:

Extraction of gravel from the wash dump may continue.

- H11** 28 ha, being the Sanitary Depot adjacent to allotment 18 of Section 5, Parish of Beaufort.

Notes:

1. The area of *Eucalyptus pauciflora* in the north-east of this reserve should be protected.
2. Council believes that dumping of sewage sludge should not continue in this reserve, but may be accommodated by an extension to the adjacent Sewerage Authority Purposes Reserve.

- H12** 7 ha, being allotment 73P, Parish of Trawalla.
- H13** 18 ha, being the night soil depot in the Township of Ballarat North and adjacent land in Section 6 of the Township of Nerrina.
- H14** 7 ha, being allotment 28C of Section 31, Parish of Carngham.
- H15** 4 ha, being part of the Water Reserve, adjacent to allotment D9, Parish of Smythesdale.

- H16** 12 ha north of allotment D4, Parish of Smythesdale.
- H17** 150 ha, being allotment 20C in the Parish of Haddon. Council notes that this reserve may be considered for recreational purposes in the future.
- H18** 9 ha adjacent to allotment 6A of Section 24 Parish of Buninyong.
- H19** 2 ha adjacent to allotment 9 of Section 5, Parish of Scarsdale.
- H20** 2 ha adjacent to allotment A50, Parish of Yarrowee.
- H21** 6 ha, being the Water Reserve, Quarry Reserve, and adjacent Crown land south of allotments 99, 100 and 101, of Section 29, Parish of Buninyong.
- H22** 33 ha, being allotment 10A of Section 4, Parish of Clarkesdale.
- H23** 22 ha, being allotment 3B of Section 4, 15A of no section and adjacent public land in the Parish of Clarkesdale.

Note:

This reserve was the site of a coach stop near Scarsdale. It is also the site of a bushranging incident, which is marked by a tree and monument. These values and the cutting of the former Newtown–Cressy railway, which forms the eastern edge of this reserve, should be protected.

- H24** 10 ha, being allotments A70 and A66B, Parish of Dereel.
- H25** 16 ha, being allotment A68A and adjacent public land in the Parish of Dereel.

Note:

The management authority should give consideration to replanting the cleared areas of this reserve with native trees.

- H26** 24 ha, being allotment A23B, Parish of Dereel.
- H27** 8 ha, being Gravel Reserve Rs. 3546 and the adjoining Crown land to the west, Parish of Dereel.
- H28** 30 ha, being allotment A29N, Parish of Dereel.

I. HISTORIC AREAS AND RESERVES

In the Ballarat area, relics associated with the history of the past 145 years occur on many sites on both public and private land. Aspects or themes of Australian history found in the area include sites and relics related to early exploration, pastoral development, mining, transport, and education, and to the development of secondary industries and services.

The exploration of the western half of Victoria by Major Thomas Mitchell in 1836, subsequent settlement by pastoralists, and the discovery of gold at Buninyong and Ballarat in 1851, were the events that had major influence on the development of the region. Relics of early exploration are rare today and the remains of pastoral development are mainly confined to freehold land. On public land, however, there are a number of goldmining sites that provide examples of small-scale alluvial mining, reef mining, and deep-lead mining. The Lal Lal blast furnace and associated iron-ore mines are examples of significant historical sites on public land.

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

Council conducted a study to identify the major historical themes represented on public land in the study area and also to identify the sites and areas of greatest historical significance. Information on historical sites was also provided in submissions to Council. For reasons of public safety, and as some relics are vulnerable to damage, these recommendations do not identify the locations of a number of sites. Authorities managing the land where the relics are situated are aware of their location, however, and recommendations in various sections of this report provide for their protection. Council believes that a number of areas should be reserved and managed to protect representative examples of historical themes. Two types of reserve are proposed—Historic Areas and Historic Reserves.

Historic Areas

Historic Areas are relatively large areas of land that contain historical relics covering a range of historical themes. They are large enough to permit the development of interpretative centres and recreational facilities such as picnic areas and walking tracks.

Historic Reserves

Historic Reserves are small areas that contain important relics, but generally have only one historical theme represented. The size of Historic Reserves will generally preclude the development of recreational facilities, although some aids to interpretation could be provided.

Management of Historic Areas and Reserves

The recommended Historic Areas and Reserves include portions of the major goldfields of the region. Council recognizes that there is considerable interest in the exploration and possible mining of these goldfields. Council believes that exploration and

mining activities should be permitted in Historic Areas and Reserves, as specified in the recommendations below, and that a balance should be achieved between exploration and mining activities and the protection of historical relics. Areas to be excluded from exploration and mining should be agreed upon jointly by the Department of Minerals and Energy and the land managing authority.

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

A number of the recommended Historic Areas are noted for their wildflower displays and have important landscape values. Council believes that these values should be considered when management plans for these areas are prepared.

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

In the event of a fire in or near any Historic Area or Reserve, decisions as to the most appropriate course of action required to suppress the fire—including the type of equipment to be used—are the responsibility of the Forests Commission alone.

The fire-fighting resources of the management authority, where this is not the Forests Commission, are available to the Commission for fire-suppression operations and are used under the direction of the Forests Commission in conjunction with, and not as a replacement for, the resources of the Commission.

Fire-prevention measures such as maintenance of fire-access tracks and protective burning will also be required in those areas of strategic importance for fire control. In all Historic Areas the suppression of fires remains the responsibility of the Forests Commission, even in those areas where the Commission is not the management authority.

Vermin and noxious weeds within Historic Areas and Reserves will be controlled, and their control will remain the responsibility of the Department of Crown Lands and Survey. Where that Department is not the managing authority, control measures will be taken by both the managers and the Department, using methods decided upon jointly by the two parties.

The recommended Historic Areas and Reserves provide a network containing sites and relics that illustrate different aspects of the area's history. Council believes it is important that the Historic Areas and Reserves should be developed as a system, even though different parts may be managed by separate bodies. Also important is the need for an advisory committee—consisting of the land managing authorities, the Department of Minerals and Energy, and the Department of Planning—to co-ordinate the development of the areas reserved. The committee should consider such aspects as a co-ordinated approach to the management, development and promotion of the Historic Areas and Reserves.

HISTORIC AREAS

Recommendations

II-B3 That the areas indicated on the map and listed below be used to:

- (a) protect specific sites that carry or contain relics of buildings, equipment, construction works, and artefacts associated with the history of the locality
- (b) provide opportunities for recreation and education associated with the enjoyment and understanding of their history

that

- (c) use of these areas be such as to ensure the safety of visitors, (in matters of public safety nothing in these recommendations affects the powers of Inspectors under the *Mines Act* 1958 and the *Extractive Industries Act* 1966; it is understood that in exercising these powers and managing authority would be consulted)
- (d) exploration for and the extraction of 'gold' and 'minerals',—including fossicking and prospecting under a Miner's Right—be permitted in accordance with Recommendations R1-R3.
- (e) timber production be permitted where this would not conflict with protection and management of historical features
- (f) removal and treatment of material from mine dumps only be permitted in areas agreed to by the Department of Minerals and Energy and the managing authority (safety, the availability of material from other sources, and the historical importance of the dump should be taken into account)
- (g) honey production be permitted

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

II Nerrina (150 ha)

The Nerrina or "Little Bendigo" goldfield was believed to have been one of the richest alluvial fields on the Ballarat diggings. Gold-bearing gravels were sluiced over broad areas and from drainage lines that formed the headwaters of the famous Eureka Lead. Mining of quartz reefs took place almost concurrently, and mining in various forms continued until the 1940s. A series of dams and races supplied water to these ventures, to Chinese market gardens, and to works around Nerrina township and Black Hill.

The relics of this site are concentrated in a relatively small area, which lies on the outskirts of the City of Ballarat. They include the shaft-sites, engine sites, battery site, and mullock dumps of the Grey Horse Mines, the Grey Horse Dams, Nuggety Dam, and associated water races. The deeply sluiced gullies and open-cuts are also evident, as are the sites of some of the Chinese gardens, and numerous small-scale mining operations.

Note:

School endowment plantations, the Water Supply Reserve (Rs. 10454), and transmission line easements are excluded from this Historic Area.

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

I2 Jubilee (180 ha)

This reserve encompasses the above-ground workings of the Jubilee gold mine, which commenced operations in 1887. It was a large-scale reef mining operation that was worked to 605 m at the seventeenth level underground. In 1913 the mine employed some 300 men taken from the surrounding districts, including the adjacent, but now defunct, townships of Italian Gully and Staffordshire Reef. Gold-bearing ore was crushed at the mine's own 40-head stamp battery, producing a total yield of 4170 kg of gold and a huge sand heap.

Today the footings of the engine works, winding gear, and stamp battery remain, as well as the slimes heap and a small part of the sand heap. Also within the reserve is the site of a government stamp battery, a public baths reserve, the Jubilee dam, and a deep-lead mine that worked the Long Gully Lead.

Note:

Sand and gravel extraction are not permitted within this reserve except to complete the removal of sand from the Jubilee sand heap.

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

I3 Lal Lal-Bungal (290 ha)

In the Lal Lal region, a diversity of early mining activities, reflecting the unusual geology of the area, took place in the 1860s–1880s. Limonite, kaolin, sandstone, and gold were mined. Limonite was smelted to produce pig iron; and adjacent areas were mined for lignite (brown coal).

Remnants of all these mining industries can be found in the proposed Lal Lal Historic Area. Other historical themes represented on adjacent land include the bluestone station building at Lal Lal, the Lal Lal Falls, and the former Lal Lal racecourse.

Iron-ore production is the major historical theme and the ruin of the blast furnace, located on a steeply sloping hillside above the West Moorabool River, is considered an industrial relic of world importance. The sites of limonite extraction are evident, as are sections of the track-bed of the iron-mine tramway that carted pig iron from the blast furnace to a siding at Lal Lal. Charcoal burning sites, still evident today, were established adjacent to the track, and charcoal was then carried by the tramway to fuel the blast furnace.

South of the iron mine, a hand-cut miners' track follows along Argyle Gully and beside the West Moorabool River. Near the river, are the remains of a small settlement and a swing-bridge that provided access to Bungal.

In its final recommendations for the Melbourne area, Council recommended that public land adjacent to the West Moorabool River, beside the swing-bridge, be an Historic Area (Bungal Historic Area); this and the proposed Lal Lal Historic Area should be combined and the two managed as a single unit.

To be managed by the Forests Commission.

HISTORIC RESERVES**Recommendations**

I4–I9 That the areas listed below and shown on the map be used to:

- (a) protect specific sites that carry or contain the relics of buildings, equipment, construction works, and artefacts associated with the history of the locality

- (b) provide opportunities for recreation and education associated with the history of the locality (development of recreational facilities would be minimal)

that

- (c) use of these areas be such as to ensure the safety of visitors (in matters of public safety nothing in these recommendations affects the powers of Inspectors under the *Mines Act* 1958 and the *Extractive Industries Act* 1966; it is understood that in exercising these powers the managing authority would be consulted)
- (d) exploration for and the extraction of 'gold', and 'minerals'—including fossicking and prospecting under a Miner's Right—be permitted in accordance with Recommendations R1–R3
- (e) removal and treatment of material from mine dumps only be permitted in areas agreed to by the Department of Minerals and Energy and the managing authority (safety, the availability of material from alternative sources, and the historical importance of the dump should be taken into account)
- (f) honey production be permitted
- (g) timber production be permitted where this would not conflict with protection and management of historical features

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

I4 Australasian No. 2 Deep Lead Mine (3 ha)

This includes the mullock and wash dumps of the New Australasian Company's No. 2 shaft located south of allotment 10 of Section L, Parish of Creswick. The site is historically important as the scene of one of the worst mining disasters in Australian history—22 miners were drowned when water flooded the underground working in 1882. The mine was one of a series of deep lead mines extracting gold from the Australasian Lead, a tributary of the famous Berry Lead.

Crown land adjacent to the railway line and allotment 11 of Section L, Parish of Creswick, is also included in this reserve. This area is to be used to provide access to the mine relics and to provide opportunities for recreation and education associated with the history of the mine.

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

I5 Golden Stream (4 ha)

Mullock and wash dumps of the Golden Stream deep-lead mine, being the Quarry Reserve and river frontage south of allotment 10 of Section 45, Parish of Scarsdale. These dumps provide a good example of deep-lead mining and a vantage point overlooking the Woody Yaloak River valley.

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

I6 Happy Valley School (1 ha)

This reserve (Public Hall and Recreation Reserve, Rs 4494) contains a substantially intact building that was constructed of brick and cement render in about 1883. The original school on the site was opened in 1860 under the local name "Lucky Womans", and by 1863 had an enrolment of 89 pupils. The name was changed following the establishment of the Happy Valley township. It served the population

of the mining district situated along the Scarsdale–Pitfield Trunk Lead adjacent to Springdallah Creek and the Woody Yaloak River. As mining ceased, enrolments declined until the school finally closed in 1940.

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

I7 Piggoreet (1 ha)

This reserve includes the site of the Common School and Sugarloaf Hill, an adjacent landmark, in the former gold-mining township of Piggoreet. A cairn on the site testifies that the school was built in 1863. Piggoreet represents a component of the attractive Woody Yaloak River valley that has had a history of pastoral and mining occupation since the mid-1850s.

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

I8 Berringa (26 ha)

This reserve contains relics of reef mining associated with the Birthday Tunnel Mine, including extensive footings, a mullock dump, and several quarries from which gold-bearing ore was extracted.

To be managed by the Forests Commission.

I9 Bulldog (16 ha)

This reserve marks the site of Bulldog Common School and adjacent mining areas that once formed part of the Rokewood Goldfields Common. The Common School commenced in 1861 and was attended by children of miners from the thriving goldmining township of Bulldog, now Illabarook. In 1864, the school was bodily removed by miners to a new location. Today, the site is marked by a large old river red gum.

The reserve encompasses Bulldog Hill (a local landmark) and the eroded gullies and stone heaps that were part of early gold-sluicing ventures.

Notes:

1. The reserve includes Public Purposes (Historic Monument) Reserve Rs 8769, which surrounds the old river red gum.

2. Management of this reserve should seek to protect the altered landscape formed as a result of intensive sluicing and other works carried out when the area was mined last century. The mining activities have also provided interesting geological exposures of the structure and lithology of the basement sediments and these exposures should also be protected.

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

J. 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 specified width (varying in particular instances from 20 m to 60 m) along each bank. In some cases this land has been reserved for public purposes under the *Land Act* 1958 and in others it is unreserved. The land usually comes under the control of the Department of Crown Lands and Survey, while in all cases the State Rivers and Water Supply Commission controls the water.

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

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

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

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

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

Maintenance of a stable vegetative cover on frontages can contribute significantly to water quality by filtering overland flow and by reducing soil contamination of water. Public land water frontages are frequently valuable for preserving local landscapes. They may also be important for nature reservations, as they may provide corridors for movement of nomadic and migratory species, or support native plants and animals that are no longer found in surrounding areas. In too many cases, however, the provisions of the relevant *Acts* have not been enforced effectively, and such public land water frontages have been progressively cleared of native vegetation.

Public land water frontage reserves

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

Recommendation

J1 That the public land water frontages :

(a) be used to

- (i) protect adjoining land from erosion by the maintenance of adequate vegetation cover
- (ii) maintain the 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) licensees be required to provide stiles in any fences erected across their licence area if requested to do so by the management authority

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

that

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

and that

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

Note:

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

STREAMSIDE RESERVES

Throughout the study area, small blocks of public land adjoin streams but are not included in the public land water frontage.

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

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

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

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

Recommendations

J2–J15 That the areas shown on the map and described below be used to:

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

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

- J2** 20 ha, being the Watering and Camping Reserve (Rs 2084) beside the Wimmera River adjacent to portion C of no section, Parish of Eversley.
- J3** 10 ha along Sandy Creek, adjacent to allotments 18 and 19 of Section 2, Parish of Glenpatrick. Extraction of sand should not be permitted.
- J4** 5 ha along Burbank Creek, adjacent to allotment 8, Parish of Lexton.
- J5** 2 ha, being the Stone and Water Reserve, allotment 9A of Section 3, Parish of Tourello. The stone resource contained in this reserve may be required in the future by the Shire of Ballarat.
- J6** 4 ha, being the Public Purposes Reserves (Rs 3835, Rs 3985) adjacent to Bullarook Creek in the Parishes of Spring Hill and Smeaton.
- J7** 26 ha, being the Public Purposes Reserve adjacent to Deep Creek, allotments 94H and 94JI and public land west of allotment 94DI, Parish of Bullarook.

Note:

The area encompassing the Deep Creek Spa should continue to be leased in accordance with the *Crown Land (Mineral Springs) Act, 1980*.

- J8** 25 ha, being part of Public Purposes Reserve (Rs 9565) and public land adjacent to the Woody Yaloak River in the Parish of Smythesdale and Township of Smythesdale. Pink-coloured cliffs form an attractive backdrop to this reserve and should not be mined for gravel. However, the Shire of Grenville should be permitted to remove tailings previously sluiced from the cliff and be consulted in the management of this reserve.
- J9** 16 ha, being the Camping and Recreation Reserve Rs 9432, on the Woody Yaloak River, Parishes of Mindai, Clarkesdale, and Mannibadar.

- J10** 24 ha, along Karuc-a-ruc Creek adjacent to allotments A45 and 5 of Section 12, Parish of Warrambine.
- J11** 6 ha, being the reserve adjacent to the Woody Yaloak River and the Geelong-Skipton Road and the Gravel Reserve in the Township of Pitfield, Parish of Mindai.
- J12** 21 ha, being part of Public Purposes Reserve (Rs 8574) immediately adjacent to the Hopkins River, Parish of Wickcliffe North. This reserve contains a remnant of grassland plants, once common on the basalt plains, that should be protected.
- J13** 36 ha, being allotment 254 of Section 4, Parish of Ballyrogan, adjacent to Fiery Creek.
- J14** 22 ha, adjacent to the Hopkins River at Wickcliffe, south of allotment 1A of Section 7, Parish of Wickcliffe South.
- J15** 16 ha, being the Camping Reserve (Rs 9904) and adjacent public land on the west side of Fiery Creek in the Parish of Streatham.

RIVER IMPROVEMENT

River Improvement Trusts are constituted under the *River Improvement Act 1958*. There are currently no Trusts operating in the study area. However, the policies and recommendations outlined below should apply to any Trust that may be formed in the future.

The works carried out include:

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

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

- * Clearing of vegetation has increased run-off and reduced time of concentration of storm flows. The situation is sometimes aggravated by overgrazing and unwise cultivation in the catchment and along the river banks, accelerating soil erosion and transport of sediment to the stream. Increases in urban development—with disposal of storm water directly to streams—have also altered flow regimes.
- * Regulation of stream flow by water storages and use of streams to transport water for irrigation and domestic use also change the natural flow regime.
- * The construction of barriers such as road embankments and bridges, through which the river must pass, has often resulted in substantial modification of the bed and banks. Present legislation requires that all proposed replacement or new structure across waterways or other interference with the bed and banks 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. Realigning and regrading of eroding beds and banks often removes holes and backwaters of value as fish habitat and for angling and swimming in a particular location. On the other hand, these operations, in preventing erosion, reduce transportation of silt.

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

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

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

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

Recommendation

J16 That the assessment of the need for, and the planning and implementation of, any works involving changes to the beds and banks of streams be based on the principles set out above.

Notes:

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

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

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

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

3. Information relating to the works that may be undertaken on flood plains is included in the report 'Flood Plain Management in Victoria', produced by the Victorian Water Resources Council.

K. ROADSIDE CONSERVATION AND HIGHWAY PARKS

ROADSIDE CONSERVATION

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

Nature conservation

Vegetation on roads is important for nature conservation because it often contains the only remnants of the region's native plant associations. Such remnants are valuable for preserving species with restricted distribution and genetically interesting variance of widespread species. They are often useful in land studies, as they may permit the original pattern of the vegetation to be pieced together. They also provide habitat for some native animals, and have special significance as pathways permitting birds to move through the countryside on annual migration, or in search of food or nesting sites. While some roads retain wide strips of native vegetation, many are mostly cleared or otherwise greatly altered. Valuable remnants of native vegetation growing on the verges of some roads should be protected where possible, and this is of particular importance on the basalt plains, where only small and disjunct areas of the original grassland flora remain.

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

Recreation and landscape

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

Management

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

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

Back roads

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

Recommendations

K1 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.
- * 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.

K2–K6 That when widening or re-alignment of roads is proposed, sites of geological, historical, or habitat significance that may be affected be investigated and every effort made to retain or preserve them.

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

Sites of geological significance

- K2** Road cuttings on the Creswick–Newlyn Road, west of Springmount, showing the relationship of Ordovician and Tertiary sediments as well as an anticline, a syncline, and faulting.
- K3** Road cutting on the Gong Gong Reservoir Road, showing Late Tertiary basalt overlying kaolinized Devonian granite.
- K4** A series of road cuttings between Linton and Cherry Tree Hill, showing bedding and cleavage in Cambrian–Ordovician sediments.
- K5** Road cutting on the Piggoreet–Happy Valley Road near Springdallah Creek, displaying regionally metamorphosed sediments of Cambrian age, overlain by basalt.
- K6** A series of cuttings along the Mount Mercer–Cargerie Road in the Leigh River Valley that show the relationship of Ordovician sediments, Tertiary basalts, and gravels of Miocene–Pliocene age.

Sites of habitat significance

- K7–K9** The following roadsides support good examples of native vegetation in predominantly cleared agricultural land and are important landscape features. Species present include candlebark, narrow-leaf peppermint, red stringybark, long-leaf box and yellow box.
- K7** Raglan–Ditchfield Road
To be managed by the Shire of Ripon.
- K8** Beaufort–Stockyard Hill Road
To be managed by the Shire of Ripon.
- K9** Beaufort–Nerring Road
To be managed by the Shire of Ripon.

K10–K15 As a result of modern agricultural practices on the basalt plains, it is now difficult to find areas containing examples of the original flora of the basalt land systems. Following a survey of roadside reserves, a number of relatively extensive areas containing grasses and forbs not common to the basalt plains were discovered. Species common to these roadside reserves include *Themeda australis*, *Helichrysum apiculatum*, *Pelargonium rodneyanum*, *Danthonia* spp., *Eryngium rostratum*, and *Convolvulus erubescens*. These roadside reserves (shown on the map) should be protected and managed by the authority nominated.

K10 Blackbottom Road, north of the Western Highway
To be managed by the Shire of Lexton.

K11 Ullina Road
To be managed by the Shire of Creswick.

K12 Pittong–Mount Kinross Road
To be managed by the Shire of Grenville.

K13 Linton–Pitfield Road
To be managed by the Shire of Grenville.

K14 Illabarook Road, north of the township following the former railway
To be managed by the Shire of Grenville.

K15 Mount Mercer–Shelford Road
To be managed by the Shire of Leigh.

Note:

It will be necessary for fire protection measures carried out on these roadside reserves to continue, but due regard should be paid to floral values.

K16 That the following guidelines be applied to unused roads:

- (1) The clearing of native trees and shrubs other than noxious weeds should continue to be clearly prohibited in the conditions of unused-road licences.
- (2) A condition permitting public use of licensed unused roads should be written into unused-road licences where necessary to provide practical access to public land.
- (3) Unused roads or easements should not be alienated if there is any likelihood that they will have value for future traffic, nature conservation, recreation, or other public use.

Highway parks

Along some of the roads, the reserve carries picnic areas and wayside stops, but along major tourist routes there is an additional need for areas sufficiently large to allow travellers to be isolated from the road environment and to allow dispersion of picnickers. These areas should have scenic qualities, perhaps incorporating a stream, and be sufficiently stable to withstand intensive use. They would be used by travellers for relaxation and picnicking and should be adequately developed with picnic and rest facilities (fireplaces, tables, etc.)

Recommendations

K17–K18 That the areas shown on the map and described below 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 they be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and be managed by the Department of Crown Lands and Survey.

K17 being the existing Dobie Highway Park adjacent to the Hopkins River and Western Highway, Parish of Langi Ghiran.

K18 9 ha, being land between the Glenelg Highway, the cemetery, and Lake Bolac in Section A of the Parish of Parupa.

Roadside picnic areas

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

Recommendation

K19 That the land management authorities establish picnic areas in suitable locations adjacent to the road reserves.

L. EDUCATION AREAS AND SCHOOL PLANTATIONS

EDUCATION AREAS

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

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

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

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

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

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

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

Recommendations

L1-L2 That the areas of public land listed below and shown on the map be used to provide opportunities for students of all ages to:

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

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

L1 Jenny Clayton (200 ha)

Devonian granite; flat to hilly; open forest II of candlebark and messmate stringybark; elevation 480 m; rainfall 700 mm per annum.

To be managed by the Forests Commission.

L2 Union Jack (70 ha)

Ordovician sediments; flat to undulating; open forest II messmate stringybark, broad- and narrow-leaf peppermint, scent bark, candlebark; elevation 500 m; rainfall 800 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' educational resources. The plantations were initially established to instil through community involvement a love of forests and an appreciation of their value, and in fact many of them are well suited for regular use as a teaching resource of this nature. It is expected that this use will increase as courses embracing various aspects of environmental science are developed. Many school plantations have been planted to radiata pine, and revenue from the sale of produce has been used to provide amenities required by the schools. In some cases, however, these plantations have not been very successful in providing revenue, as the sites are unsuitable for economic growth or the plantations are too small or the location too far from processing centres to allow economic harvesting. In some instances, radiata pine plantations have failed due to poor management.

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

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

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

Recommendations

- L3** 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.

- L4** 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.
- L5** 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.

M. LAKE RESERVES

The study area contains part of the volcanic plains of western Victoria, which extend into the Land Conservation Council Corangamite, Melbourne, and South-western area, District 2, study areas. The formation of the plains, by lava flows from Tertiary volcanoes, also resulted in the formation of a lake system that is unique within Australia.

Some of the public land lakes are reserved for 'public purposes', but others are simply unreserved Crown land. The Council considers that, while 'public purposes' reservations have in the past served to protect particular lakes, the value of the whole system has not been recognized.

In the Ballarat area, both capability and current use of the individual lakes vary widely. Scenic quality varies from picturesque to barren and unattractive, and similar quality variations occur for uses such as recreation (mainly boating and angling), wildlife conservation (particularly waterfowl), eel fisheries, water supply, and drainage.

Public access to parts of some lake frontages can only be gained by entry through freehold land or from the water itself. In other cases there is legal public access along unmade roads that are cleared and grazed under licence by adjoining landholders. Availability of public access through freehold land is presently determined by the owners of the land, and nothing in these recommendations suggest that this situation should change.

The Council nevertheless considers that, although in some cases legal access should be facilitated, sufficient public access is available to meet the present and foreseeable recreation demand. The isolation of some lakes enhances their value for waterfowl conservation and scientific study through a reduction in competing pressures.

Form of Reservation

In preparing its recommendations the Council has considered the various competing uses for and the capabilities of each lake separately as well as considering the system as a whole. Those lakes with high wildlife values and where wildlife conservation is the prime use have been recommended as Wildlife Reserves (see Chapter C.)

Other lakes have been recommended as Lake Reserves; this establishes a secure form of tenure and gives the managing authority flexibility to introduce those controls necessary to protect the values both of specific lakes, (where no one value may predominate) and of the system as a whole, while providing for existing legal uses to continue. The managing authority will be able to set up local committees of management and can frame and enforce regulations that are specific to a particular lake. This will ensure that proposals for use can be evaluated in relation to the capabilities of the particular lake and to the impact on the system as a whole.

Recommendations

M1-M5 That the lakes described in the schedule below and shown on the map be used, according to their particular capabilities, for:

- (a) recreation
- (b) wildlife conservation

- (c) scientific study
- (d) water supply
- (e) drainage

that

- (f) current legal use for low-intensity grazing be permitted under the control of the managing authority (such control may involve exclusion of grazing, at least temporarily, from some reserves)
- (g) commercial eel-fishing be permitted in Lake Reserves at the discretion of the managing authority after consultation with the Fisheries and Wildlife Division and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and be managed by the Department of Crown Lands and Survey.

M1 Cockajemmy Lakes (90 ha), Parish of Lalkaldarno

Notes:

1. A portion of this area may continue to be used for the disposal of sewage effluent.
2. The Shire of Ararat may continue to use its current site for rubbish disposal in the short term, but an alternative site should be found in the future.

M2 Salt Lakes (230 ha), Parish of Parupa

Note:

The Shire of Ararat may continue to use its current site for rubbish disposal in the short term, but an alternative site should be found in the future.

M3 Lake Bolac (1340 ha), Parish of Parupa.

M4 Lake Burrumbeet (2670 ha), adjacent to the Parishes of Burrumbeet, Brewster, and Chepstowe.

Note:

The management authority should investigate the perimeter of this lake with a view to determining suitable areas for the re-establishment of native plant species, particularly river red gum (*Eucalyptus camaldulensis*).

M5 Lake Learmonth (500 ha) adjacent to the Township of Learmonth, Parish of Burrumbeet.

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.

Recommendation

N1 That the area indicated on the map and described 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 it be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and be managed by the Department of Crown Lands and Survey.

N1 Devils Kitchen (60 ha)

Devils Kitchen is the name given to a natural amphitheatre of high basalt cliffs bordering the Woody Yaloak River at Piggoreet. The amphitheatre has been caused by the river re-establishing a course through a valley filled with lava flowing from volcanoes active in the late Tertiary. The basalt cliffs contain evidence of a number of separate lava flows that filled the valley. Some flows exhibit hexagonal columns that developed during the cooling process.

Alluvial deposits in the former stream-bed (deep leads) were mined from beneath the basalt, and the remains of this venture are still in evidence.

The Devils Kitchen Reserve encompasses public land along the Woody Yaloak River south of the West Piggoreet Pre-emptive Right, including the Recreation and Camping Reserve (Rs 8289), 'Devils Kitchen', Quarry Reserve, Recreation Reserve (Rs 8623) and the frontage north of allotment 37G, and public land north of allotments 37D and 37H as well as public land along Springdallah Creek from the trestle bridge to its junction with the Woody Yaloak River, Parish of Clarkesdale.

O. RECREATION

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

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

- * Formal recreational activities include all organized sports and other group activities, while activities such as picnicking, fishing, and hiking are grouped as informal.
- * Passive recreation covers situations where the individual obtains his recreation through enjoying the sights, sounds, and atmosphere of the surrounding environment while expending little physical effort. Examples are picnicking, nature observation, and strolling.
- * Active recreation covers situations where the individual must expend considerable physical effort to obtain some mastery of physical forces in order to satisfy his particular recreational needs. Examples are playing organized sport, bushwalking, and 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.

In view of the predicted increase in demand for outdoor recreation and the high capability of some public land to meet this demand, the Council, in making its recommendations, has suggested that the bulk of public land should be available for recreational uses of some sort. Accordingly, it has set aside a variety of reserves that will provide for a wide range of opportunities. Council could not, however, make recommendations covering in detail all the forms of recreation currently pursued on public land. These include activities such as 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 recreational activities differ in their requirements for types of land, size of area, and site location. They also differ in their impact on the land and on other activities (including other forms of recreation). Generally, any one activity pursued at a low level of intensity poses little threat to the environment and seldom conflicts with other activities. With increasing intensity, conflicts and problems can arise. There is always the problem of recreation damaging the environment it seeks to use.

Council therefore believes that the land managers should aim at controlling the levels and patterns of recreational use according to the capability of the area to sustain such use without irreversible damage or significant conflict with the primary purposes of

the area, while at the same time avoiding unnecessary restrictions on usage. Special care will be required in the location and management of areas zoned for intensive recreation to prevent environmental damage. Thus, more stringent restrictions can be expected in areas where the vegetation and soils are sensitive to damage (such as those occurring on granite soils), where water quality might be affected 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, and 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 an 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 standards of maintenance, and in the degree to which they are used. Some are designed to provide full accommodation, with campers living in huts that have electricity and hot water provided; others have only minimal facilities, with campers living in tents. Some have considerable amounts of money and volunteers' time and effort put into their construction and maintenance; others have been built and are maintained at very low standards. Some are used for much of the year, with the owner organization allowing use by other groups. Others are used only occasionally and exclusively by one group.

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

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

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 Ballarat area. Most people are seeking gold, but there is also an interest in gemstones.

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

Guidelines and recommendations relating to fossicking and prospecting are given in the chapter on Mineral and Stone Production.

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

The use of off-road vehicles, particularly trailbikes, is a popular form of outdoor recreation in the Ballarat area and there is a considerable demand to provide suitable areas of public land for this purpose. The Forests Commission is currently developing an area for young trailbike riders in the Yarrowee softwood plantations south of Ballarat and Council believes that this area should continue to be developed to cater for the needs of young riders from Ballarat and the surrounding areas.

There is also a need for a larger area to service the needs of riders for general trail and enduro riding. Council believes that the area of public land at Mount Doran recommended for hardwood production (Recommendation E18) could be used for this purpose: trailbike riders are currently using it on a regular basis. Council would have no objection to a small portion of this area being developed to provide picnicking and other facilities associated with this use.

- 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/E18** That an area within the Mount Doran forest be made available for off-road vehicular use.

Recreation reserves

- O4–O10** That the areas described below and shown in the map be used for organized sports (football, horse-racing, golf, etc.) and informal recreation (picnicking, camping, etc.) as permitted by the managing authority.

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

- O4** Existing recreation reserves.
- O5** 15 ha, being allotment 37, known as the Main Lead Common, Parish of Beaufort.
- O6** an area encompassing the existing gun club north of the Sewage Authority Purposes Reserve (Rs 9967), in the Parish of Beaufort.
- O7** 3 ha, being land south of allotment 45 of Section 15 in the Township of Snake Valley, Parish of Carngham.

- O8** 16 ha, being allotment 20B, Parish of Haddon. To be used as a shooting range.
- O9** 26 ha, being the areas covering allotments 1, 2, 3, 4 and 5 of Section B in the Township of Teesdale.

P. SCENIC RESERVES

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

An aim of management of these areas should be to maintain the character and quality of the landscape, to maintain the native vegetation, and where necessary to protect water quality.

Recommendations

P1–P5 That the areas shown on the map and described below be used to preserve scenic features and lookouts

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

P1 Granite Hill

8 ha west of allotment 13, Parish of Lexton.

P2 Brown Hill

4 ha, being the Stone Reserve adjacent to allotment 9 of Section B, Parish of Burrumbeet.

P3 Mount Buninyong

98 ha in Section 21, Parish of Buninyong.

Note:

This reserve is one of the few volcanic cones that contains examples of relatively undisturbed native vegetation, and management should seek to protect these values.

P4 Lal Lal Falls

This reserve, which covers 90 ha, is situated on the top of the basalt escarpment adjacent to the north-western edge of the Lal Lal Reservoir. Lal Lal Falls, on Lal Lal Creek, cascade over the edge of the escarpment and are a popular attraction. The action of water erosion has exposed the structure of the lava flows that comprise the escarpment, including hexagonal basalt columns. As well as the features of geological importance, the reserve contains a small colony of rare Australian anchor plant (*Discaria pubescens*), which was once common along the watercourses of the basalt plains.

To ensure maintenance of water quality, the managing authority may need to control access to this reserve, particularly to Lal Lal Creek and Falls, while ensuring that observation points and the picnic ground are retained. Access to the picnic ground should be restricted to pedestrians, in order to lessen the risk of water pollution caused by vehicle use of the area. Vehicles could be parked in the former Racecourse Reserve adjacent to the picnic area.

Notes:

1. The West Moorabool Water Board should be represented on the Committee of Management for this reserve.
2. The managing authority should give consideration to the establishment of car-parking facilities and any new recreation facilities on the former Racecourse Reserve.

3. The Australian anchor plant (*Discaria pubescens*) should be protected.
4. Cultivation should not be permitted, but portions of the area can continue to be grazed where this does not conflict with the protection of the Australian anchor plant.
5. Should the managing authority undertake to revegetate the portion of this reserve north of the existing picnic area, seeds stocks should be obtained from native plants endemic to the reserve. This work should be carried out in consultation with the Forests Commission.

P5 Mount Bute

43 ha, being allotment 7 of Section C, Parish of Argyle.

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 (see Recommendations Q1–Q15)

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 J). The availability of this public land is not of great significance in the economy of the grazing industry in the region. It is, however, of considerable importance to the individual licensees, for whom the forest grazing often forms an integral part of their enterprise.

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

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

Apiculture

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

Recommendations

Agricultural land

Q1–Q15 That the land described below and shown on the map be used for agriculture.

It is intended that this land should form additions to present farms rather than be developed as new units.

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

- Q1** 4 ha adjacent to allotment 12 of Section K, Parish of Eversley.
- Q2** 3 ha north of allotment E14A, Parish of Yalong South.
- Q3** 3 ha east of allotment 34D of Section B, Parish of Lexton.
- Q4** 4 ha, being allotment 1A of Section 5, Parish of Yangerahwill.

- Q5** 4 ha north of allotment 24A, Parish of Clarkesdale.
- Q6** 3 ha, being the area south of allotment 8 of Section F, Parish of Creswick between the new road alignment and the railway.
- Q7** 3 ha, being allotment 26 of Section A, Parish of Haddon.
- Q8** 5 ha, being allotment 3B of Section 10, Parish of Haddon.
- Q9** 2 ha, being allotment 5D of Section 10, Parish of Haddon.
- Q10** 3 ha south of allotment 115F, Parish of Buninyong.
- Q11** 1 ha adjacent to allotment 66P1, Parish of Yarrowee.
- Q12** 1 ha, being allotment X1, Parish of Buninyong.
- Q13** 2 ha east of allotment 8 of Section 29, Parish of Buninyong.
- Q14** 1 ha south of allotment 8 of Section 37, Parish of Scarsdale.
- Q15** 2 ha, being allotment 142Q, Parish of Corindhap.

R. MINERAL AND STONE PRODUCTION

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

Exploration for gold and minerals

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

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

Gold

Council recognizes that the Ballarat area is a major gold province and as such has particular significance with respect to future mining operations. Since 1977, sharp rises in the price of gold have resulted in a significant upturn in exploration activity. The interest of individual prospectors has also increased, as seen by the increased number of claims being registered. A number of attempts are being made to re-open previously uneconomic mines on existing leases.

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

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

Fossicking and prospecting

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

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

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

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

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

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

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

With the exception of the land referred to in the Water Production chapter (Recommendations D1–D61), the areas specifically excluded in these recommendations amount to less than 1% of the public land in the study area, and are recommended as Reference Areas. These are set aside to maintain natural ecosystems as a standard that may be used by those concerned with studying the land for particular comparative purposes. Within these areas all human interference, including fossicking and prospecting as well as all other forms of productive or recreational use, is prohibited.

Stone

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

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

Based on current knowledge, the Council believes that these recommendations allow the shires access to resources of gravels that, together with the resources located on private land, are sufficient to last well beyond the time when Council will next review the area.

The Council is concerned by the complexity of legislation and procedures governing extraction of 'stone'. (For example, the Country Roads Board and municipal councils are not bound by many provisions of the *Extractive Industries Act 1966*.) A substantial number of unwise excavations have been made upon public land, and in many instances, particularly with older excavation sites, the rehabilitation of excavated land is lagging.

There is need for:

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

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

Principles and guidelines

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

The Council believes that the following principles should apply:

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

3. Consultation should continue between the land managing authorities, the Department of Minerals and Energy, the Soil Conservation Authority, and the other relevant authorities with respect to the procedures to be adopted for the exploration and extraction of 'stone' on public land. Any operations on public land should continue to be subject to the approval of the appropriate managing authority.

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

4. A system should be established that would ensure, before work commences, the availability of funds for progressive and final reclamation of any excavation or operation. Provision should also be made to enable the acceleration of the rehabilitation of all existing extraction areas on public land.
5. Royalties for materials extracted from public land, including site rental when appropriate, should be more closely related to the market value of the material. This would eliminate the temptation to use public land purely on the grounds of the nominal royalties often levied in the past.
6. The following guidelines should apply to all extraction from public land:
 - (a) The Department of Minerals and Energy should not issue leases for mining of 'gold', 'mineral', or 'petroleum' unless satisfied with the program submitted by the applicant. In the case of Miner's Right claims, prior assessment is impractical and the Department should require the lodgment of a bond as surety for adequate rehabilitation. Wherever practical, the Department should seek the lodgment of mining plans that show the expected post-mining state of the land and should state operating conditions to achieve an appropriate standard of rehabilitation acceptable to the land manager.
 - (b) No sites for the extraction of 'stone' should be opened in areas that the managing authority, in consultation with the Department of Minerals and Energy, considers to be of greater value for other uses, including aesthetic or nature conservation values. The advice of the Department of Minerals and Energy should also be sought as to the desirability of proposed excavations, having regard to alternative sources of 'stone'.
 - (c) Extraction of 'stone' should generally be concentrated on the fewest possible sites in an area, and any one site should be substantially worked out and where possible reclamation ensured before a new site is exploited. The type of excavation to be carried out should be that with the lowest environmental impact consistent with the effective use of the resource. In general, and where the nature of the resource permits, excavations for 'stone' should be deep and limited in area in preference to shallow excavations over a wide area. The extraction of granite sand occurring as shallow deposits in the weathered profile should be discouraged unless it has been established that no suitable alternatives are available. In the special circumstances where approval is given for this form of extraction, particular attention should be given to the prevention of soil erosion.
 - (d) Where an application for the removal of 'stone' from a stream-bed is considered, the land management authority should take particular care to ensure that the operations will not directly or indirectly cause erosion of the bed or banks or undue pollution of the stream. All applications for the removal of stone from a stream-bed are submitted to the Department of Crown Lands and Survey. Before approving the application, the

Department seeks agreement with the Soil Conservation Authority and the State Rivers and Water Supply Commission regarding particular measures that must be taken to prevent erosion, stream pollution, or permanent damage to the stream environment. It is also necessary that the scenic and recreation values of the stream and adjacent frontages be considered.

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

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

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

Recommendations

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

Note:

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

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

Note:

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

R4 That public land in the study area (other than Reference Areas) continue to be available for exploration for 'stone' subject to the principles and guidelines set out above.

R5–R47 That the areas described below be used for the extraction of 'stone' in accordance with the guidelines outlined above, and if not already reserved for this purpose be temporarily reserved under Section 4 of the *Crown Lands (Reserves) Act* 1978 and managed by the Department of Crown Lands and Survey except where indicated in the schedule below.

Note:

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

R5 9 ha, being the Quarry Reserve adjacent to allotment 1 of Section 13, Parish of Burrumbeep.

Note:

This area could be used as a shooting range until such time as it is needed for quarrying purposes by the Shire of Ararat.

R6 6 ha, being the Gravel Reserve adjacent to allotment 12 of Section 1, Parish of Glenlogie.

R7 6 ha, being the Gravel Reserve south of allotment 9 of Section 1, Parish of Glenlogie.

R8 5 ha south of allotment 10 of Section 3, Parish of Glenlogie.

R9 Being the north-western portion of the former rifle range, Parish of Yalong South. Following cessation of gravel extraction and rehabilitation, this area should be added to the remainder of the former rifle range (see Recommendation H3).

R10 6 ha north-west of allotment 23B, Parish of Yalong.

R11 3 ha, being allotment 81A, Parish of Spring Hill.

R12 5 ha south of allotment 4 of Section K, Parish of Creswick.

R13 8 ha, being allotment 16 of Section K, Parish of Creswick.

Note:

This area could be considered for alienation following extraction of the gravel.

R14 40 ha, being the area west of the Township of Creswick and east of allotment 5A of Section 14, Parish of Creswick. The area consists of land adjacent to Creswick Creek that has been previously dredged for gold, and contains a medium-term source of gravel. Extraction of gravels should be conducted on a systematic basis so that progressive reclamation can be carried out with the aim of restoring the land for future public use.

R15 4 ha, being the area of the tailings licence covering the Portuguese Pit south of allotment 18 of Section 51, Township of Creswick.

Notes:

1. Blue Waters, adjacent to Portuguese Pit should be protected by a buffer at least 30 m wide. Gravel extraction would not be permitted in this buffer area.
2. Following extraction and reclamation, this area should be incorporated into the Ballarat–Creswick Regional Park (Recommendation A4).

To be managed by the Forests Commission.

R16 9 ha, being the area covered by an occupation licence at Humbug Hill in Section U, Parish of Creswick.

Note:

Following extraction and reclamation, this area should be incorporated into the Ballarat–Creswick Regional Park (Recommendation A4).

To be managed by the Forests Commission.

R17 3 ha, being allotment 1T of Section 15, Parish of Cardigan.

R18 100 ha in Sections 32 and 49, Parish of Smythesdale. Forested public land along Smythes Creek and on the western side of this reserve should be managed to retain its value as a landscape feature.

R19 66 ha, being Crown land in Section 30, Township of Smythesdale.

R20 19 ha, being allotment 2 of Section 90, Parish of Smythesdale.

R21 7 ha, being the Gravel Reserve west of allotment 7A of Section 44, Parish of Scarsdale.

R22 5 ha, west and south of allotment 17 of Section 8, Parish of Scarsdale.

R23 40 ha adjoining allotment 12 of Section 28, Parish of Scarsdale.

R24 52 ha north of allotment 10A of Section 50, Parish of Scarsdale.

R25 A series of Quarry Reserves adjacent to the Woody Yaloak River in the Parish of Scarsdale:

- (a) 1 ha north of allotment 3 of Section 45, Parish of Scarsdale.
- (b) 0.5 ha west of allotment 4 of Section 31, Parish of Scarsdale.
- (c) 0.5 ha west of allotment 1 of Section 30, Parish of Scarsdale.
- (d) 1 ha west of allotment 4 of Section 26, Parish of Scarsdale.

Note:

This does not include the Quarry Reserve south of allotment 10 of Section 45, Parish of Scarsdale, which Council has recommended as an Historic Reserve (Recommendation I5).

R26 8 ha, being the Gravel Reserve south of allotment D13 of Section C, Parish of Argyle.

Note:

Trees on this reserve are a landscape feature and should be retained where this is practicable.

- R27** 4 ha north of allotment 23 of Section F, Parish of Clarkesdale.
- R28** 4 ha, being the Gravel Reserve in the Township of Golden Lake, Parish of Clarkesdale.
- R29** 12 ha adjacent to allotment 9 of Section 2 and Kangaroo Creek, Township of Berringa.
- R30** 130 ha at Illabarook in the Parish of Dereel. Gravel extraction at this site should be planned by the Shire in consultation with the Forests Commission and the Soil Conservation Authority such that areas may be systematically reclaimed and planted with softwoods (see Recommendation F10).
- R31** 8 ha west of allotment 156J, Parish of Commeralghip.
- R32** 12 ha west and south of allotment A26D, Parish of Dereel.

Note:

Public land abutting to the south has been recommended as a Bushland Reserve (see Recommendation H27).

- R33** 6 ha, being allotments 10 and 11, Township of Dereel.
- R34** 24 ha north of allotment 59, Parish of Carrah.

Note:

Every effort should be made to preserve the river red gum, manna gum, and she-oak trees growing on this area.

- R35** 8 ha, being allotment 50R, Parish of Enfield.
- R36** 2 ha, being the Gravel Reserve adjacent to allotment 5 of Section 5, Parish of Clarendon.
- R37** 3 ha, being the Road Materials Reserve, Township of Garibaldi.
- R38** 2 ha north of allotment 7B of Section 24A, Parish of Buninyong.
- R39** 8 ha, being the Gravel Reserve north of allotments 7, 8 and 9 of Section 25, Parish of Buninyong.
- R40** 2 ha, being allotment X3, Parish of Buninyong.
- R41** 5 ha, being the Road Making Materials Reserve south of allotment 52B, Township of Napoleons.
- R42** 4 ha, being the Gravel Reserve adjacent to allotment 26E of Section 29, Parish of Buninyong.
- R43** 1 ha in Section 64, Township of Buninyong.
- R44** 52 ha, being the Gravel Reserve and Rubbish Depot Reserve north of allotments E20 and E21, Parish of Buninyong.

Note:

Part of this site may be used to supply clay for industrial purposes.

- R45** 3 ha, being the Road Material Reserve adjacent to allotment 28B of no section, Parish of Yarrowee.
- R46** 6 ha adjacent to allotment G18, Parish of Buninyong.
- R47** That the areas currently reserved for 'stone' production that are not listed under Recommendations R5–R46 or recommended for some other use remain as currently reserved. In the future, consideration could be given to using these areas if the need to do so can be established. (At the scale of mapping used, it has not been possible to show all these areas.)

Note:

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

S. UTILITIES AND SURVEY

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

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

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

Recommendations

General Utilities

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

Garbage and Sanitary Depots

Council 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.

- S3** That areas used on a temporary basis (such as garbage depots and sanitary depots) be fully rehabilitated. This should apply to sites used illegally as well as those used legally. Where the user or users are known, rehabilitation should be at their expense.
- S4** That within areas reserved as garbage depots, disposal of waste be confined to small sections of the site at any one time, and that steps be taken to prevent the dumping of garbage other than in the designated areas.
- S5** That 16 ha, being the Gravel Reserve, allotment 3 of Section 16 in the Parish of Cardigan, be used as a garbage depot and for the disposal of industrial wastes. Fringing vegetation should be retained to screen the area from adjacent land.

Railway Lines

- S6** 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.
- S7** That disused railway land within the study area be retained as public land where it may have historical, recreational, or educational value, or may eventually be needed again as routes for public transport.

Trigonometrical Stations

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

- S8** That the minimum area necessary for survey purposes be temporarily reserved around trigonometrical stations on public land where it would otherwise remain as unreserved Crown land; and, where other forms of public land tenure apply, that the Department of Crown Lands and Survey have the right to occupy a minimum area around the station and provide lines of sight.

Navigation Aids and Communications Towers

- S9** That the minimum area necessary for access to and maintenance of navigation aids and communications towers be temporarily reserved on public land where it would otherwise remain as unreserved Crown land; and, where other forms of public land tenure apply, that the government utility involved have the right to occupy a minimum area and provide lines of sight.

Langi Kal Kal Youth Training Centre

- S10** That the area shown on the map continue to be used as the Langi Kal Kal Youth Training Centre and be managed by the Department of Community Welfare Services.

Note:

Bittern Lagoon, lying within this area, should continue to be managed to provide habitat for waterfowl in consultation with the Fisheries and Wildlife Division.

Other Utility Areas

- S11** That existing legal uses and tenure continue for areas that are at present reserved and used for utility purposes, such as public buildings, municipal depots, cemeteries, schools, etc.
- S12** That an area of 1.7 ha north of the Sewage Purposes Reserve in the Parish of Dowling Forest be added to that Reserve.

T. TOWNSHIP LAND

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

Recommendations

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

Note:

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

Barkstead

In 1890, a small township was proclaimed at Barkstead situated within the Wombat forest. The township area is presently reserved as a Water Reserve and residents occupy the land under permissive occupancies. Council believes that the Water Reserve should be revoked, and a township boundary be defined that would include the existing dwellings.

T2 Consideration should be given to defining a township boundary that would include the existing dwellings at Barkstead. Any land not included within the new boundary should be managed by the Forests Commission in conjunction with the adjoining Hardwood Production area (E 11).

Note:

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

Nerrina

Nerrina is a former gold-mining township situated on the north-western outskirts of Ballarat. Much of the township area is disturbed and degraded forest land that is contiguous with adjacent public land. Council believes that the township boundary should be redefined and any land not required be added to the adjacent uncommitted land.

T3 Consideration should be given to redefining the boundary of the Nerrina township. Any land not included in the new boundary should be added to the adjacent uncommitted land.

Note:

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

U. UNCOMMITTED LAND

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

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

Land classed as uncommitted includes:

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

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.

Recommendation

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, honey, 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.

Notes:

1. The uncommitted land around Nerrina includes forested and cleared township land, school plantations, recreation reserves and a new municipal garbage depot. These areas are not identified on Map A because of the mapping scale used. However, existing legal uses should be permitted to continue.

2. Extraction of granitic sand should be permitted from the uncommitted land adjoining the recommended Langi Ghiran State Park (Recommendation A1), subject to the following conditions:

- (1) Extraction of sand should only be permitted north of the prominent ridge running approximately east–west through this area.
- (2) The area should be progressively rehabilitated as extraction proceeds.
- (3) The National Parks Service should be consulted regarding the protection of the landscape and conservation values of the area.
- (4) The need to extract sand from the area south of the ridge will be examined by Council in its review of the study area in about 10 years time.

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. It is Council's view that military training should not occur in Reference Areas, and only under special circumstances in parks and other areas of recreation and conservation significance.

Recommendation

V1 That, where military training is conducted on public land:

- (a) the types of activities, and their timing and location, be subject to agreement between the appropriate defence department, the management authority, and other relevant bodies such as the Soil Conservation Authority
- (b) the training activities be carried out under conditions specified by the management and relevant authorities, to minimize any detrimental effects
- (c) the Forests Commission be consulted (for fire-protection purposes) with respect to training activities in protected forest and protected public land
- (d) it be excluded from Reference Areas, 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, public utilities, and so on, have not been specifically mentioned in these recommendations. Others (both reserved and unreserved) receive little active use at present, even though they may once have been reserved for some specific purpose.

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

Recommendation

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

Commons

Throughout the study area there are a number of commons that were originally set aside to provide common grazing land for the people of the adjoining towns. Although these areas are generally no longer used as a common grazing land, most are currently being grazed under licence.

Council believes that commons should be used to benefit local communities, and that these areas have potential for a number of future community uses. For example, the Shire of Leigh proposes to use the Rokewood Common to raise funds for local community organizations, and Council would have no objection to other commons being used in a similar manner. Consideration could also be given to revegetation of some of these areas to enhance their value for recreation and nature conservation.

Recommendation

- W2** That the areas described in the schedule below and shown on the map continue to be reserved as commons, and be managed by the Department of Crown Lands and Survey.

Notes:

1. The local Shires should be consulted in the management of these commons.
2. Grazing should be permitted, but may be excluded from some areas for a period to permit the regeneration of tree species.

Ararat Common (60 ha), Parish of Ararat

Beaufort (Waterloo Road) Common (40 ha), Parish of Beaufort

Note:

The Shire of Ripon should be permitted to continue to use part of this area as a rubbish tip.

Skipton Common (90 ha), Parish of Skipton

Note:

The Shire of Hampden should be permitted to continue to use part of this area as a rubbish tip.

Rokewood Common (105 ha), Parish of Corindhap

Notes:

1. The Shire of Leigh should be permitted to continue to use part of this area as a rubbish tip.
2. This common is currently used by the residents of Rokewood for grazing and this use should continue.

Ballarat Common and Adjoining Public Land

The Ballarat Common originally covered a large area on the western outskirts of the City of Ballarat. Parts of the Common were alienated for urban and industrial development; and other parts developed for recreation and for the Ballarat airport. Some 680 ha of the original Ballarat Common and adjoining Crown land remains as public land. The bulk of this area is grazed under licence and supports very few trees or other native vegetation.

A tree-planting program has recently been carried out around the margins of Winter Swamp in this area and a number of islands have been constructed in the Swamp to improve its value for wildlife habitat. The Shire of Ballarat plans to expand this tree-planting program; and Council believes that other parts of the existing Common and the adjacent Crown land could also be revegetated to make the area more attractive for open-space recreation, and to improve the amenity of the area. Part of the Common adjoins the Ballarat sewage treatment works and it may be possible to utilize the effluent from the treatment works for irrigation of some of the planted areas.

Public land close to Ballarat will be of increasing importance for a number of community uses—such as open-space recreation, and Council believes that provision should be made to meet present and future community needs. Part of the area, for instance, may be required for expansion of the Ballarat airport and its facilities, and provision for this must be made when planning the future use of the area.

Recommendation

W3 That on the area of approximately 620 ha shown on the map, current uses may continue; but the aims for future development be as outlined in the zones described below and shown on Map 16

and that the area be reserved as a common and be managed by the Department of Crown Lands and Survey.

Notes:

1. Some of this area is currently reserved as a common.
2. The Shire of Ballarat should be consulted in the management of this area.

Zone 1: *Recreation and Conservation*

The land within this zone should be used for:

- (a) open-space recreation
- and
- (b) development of habitat for wildlife conservation.

Note:

The Fisheries and Wildlife Division should continue to be involved in the development of habitat for wildlife conservation in this zone.

Zone 2: *Airport Expansion and Recreation*

The land within this zone should be used for:

- (a) expansion of the Ballarat airport and its facilities if and as required
- and
- (b) revegetation to enhance the value of the area for public recreation.

Notes:

1. The Shire of Ballarat is hopeful that an aircraft museum may be established on part of this area in the future. Council would have no objection to part of the zone being used for this purpose.
2. If all or part of this area is not required for expansion of the airport or for an aircraft museum, then consideration could be given to adding those parts not required to Zone 1.

Zone 3: *Revegetation and Recreation*

The land within this zone should be used for:

- (a) revegetation that may be able to utilize effluent from the adjacent sewage treatment works
- and
- (b) open-space recreation to the extent that this is compatible with (a) above.

Other Land in the Ballarat Common

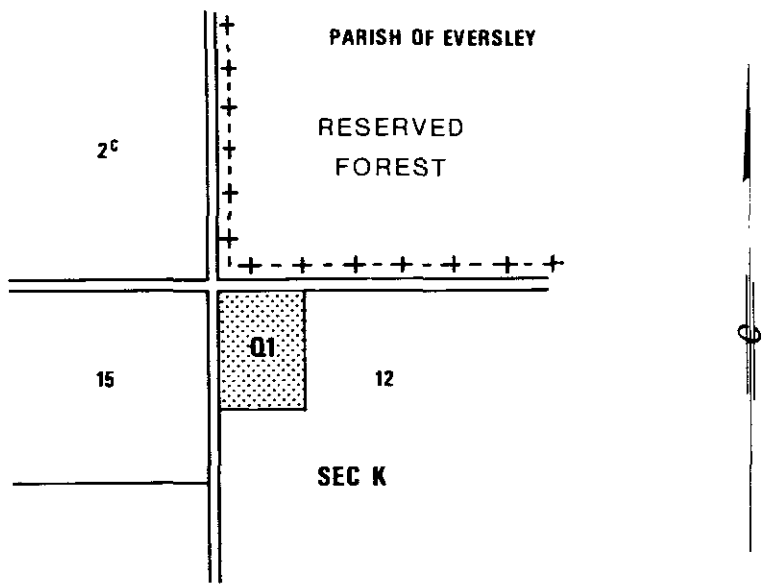
Freehold land east of the existing Ballarat Common has been developed for industrial uses, and some of the adjacent public land may be required to accommodate future expansion. Council therefore recommends that the portion of the existing Common adjoining the industrial area be uncommitted land.

Recommendation

W4/U1 That an area of 60 ha adjacent to allotment 19C of Section 4, Parish of Dowling Forest, and shown on the map be excised from the existing Ballarat Common and be uncommitted land.

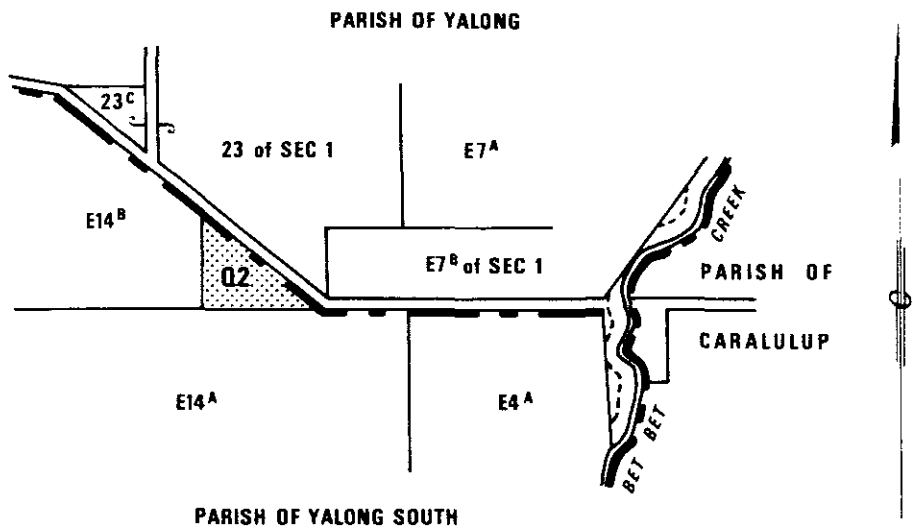
AGRICULTURE Q1
EVERSLEY

MAP 1



AGRICULTURE Q2
YALONG SOUTH

MAP 2



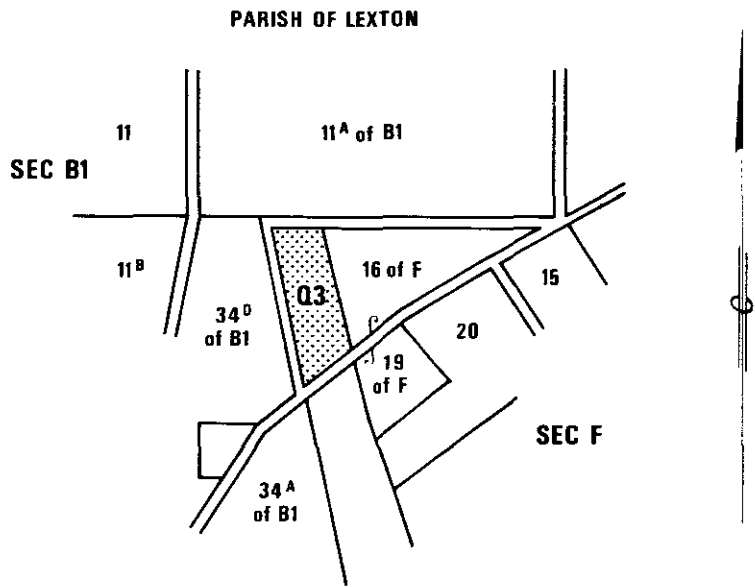
PUBLIC LAND RECOMMENDED FOR ALIENATION



SCALE 1 : 15,840

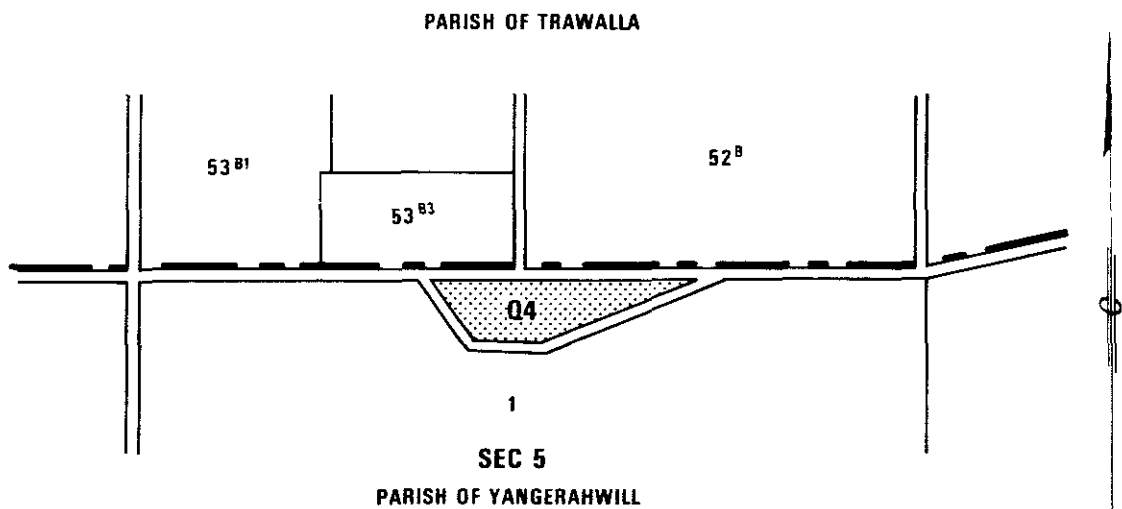
AGRICULTURE Q3
LEXTON

MAP 3



AGRICULTURE Q4
YANGERAHWill

MAP 4



PUBLIC LAND RECOMMENDED FOR ALIENATION

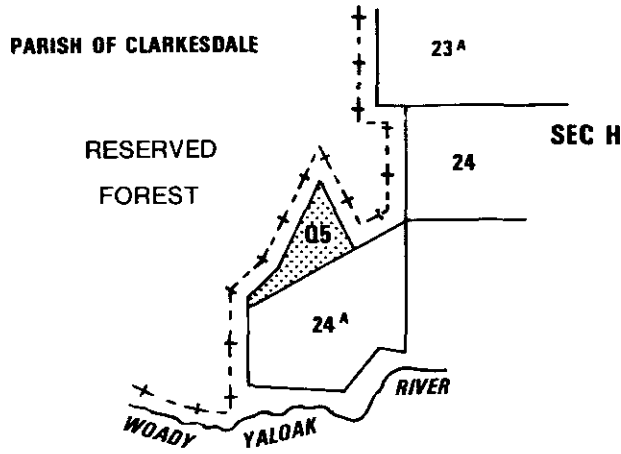


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AGRICULTURE Q5

CLARKESDALE

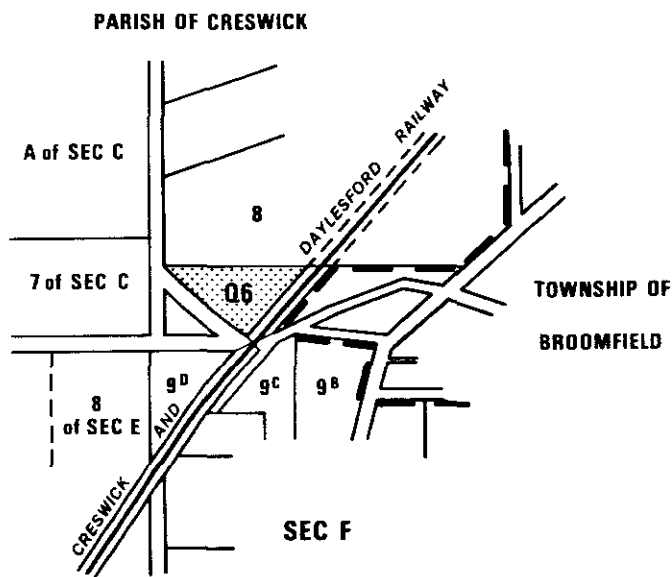
MAP 5



AGRICULTURE Q6

CRESWICK

MAP 6



PUBLIC LAND RECOMMENDED FOR ALIENATION

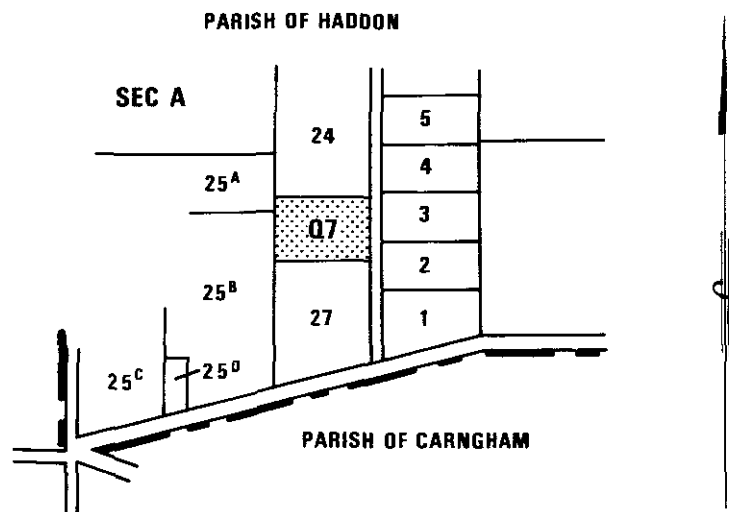


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AGRICULTURE Q7

MAP 7

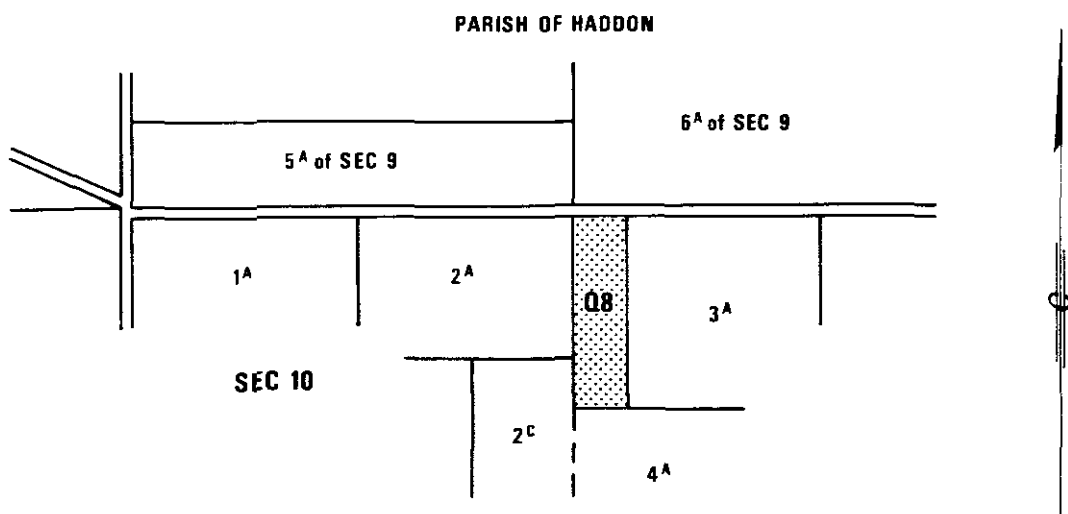
HADDON



AGRICULTURE Q8

MAP 8

HADDON



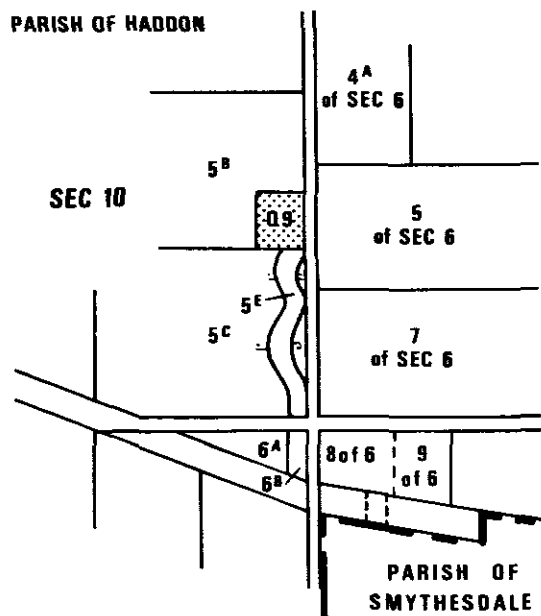
PUBLIC LAND RECOMMENDED FOR ALIENATION



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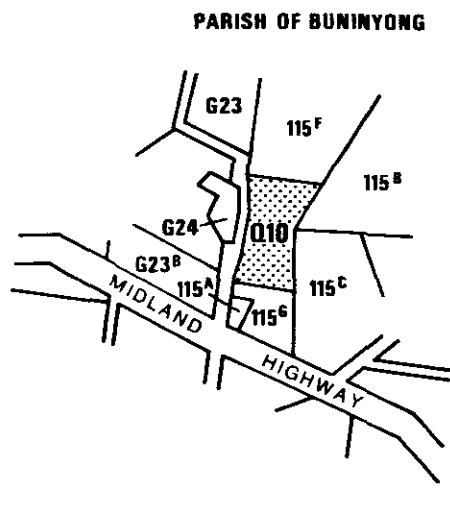
AGRICULTURE Q9
HADDON

MAP 9



AGRICULTURE Q10
BUNINYONG

MAP 10



PUBLIC LAND RECOMMENDED FOR ALIENATION

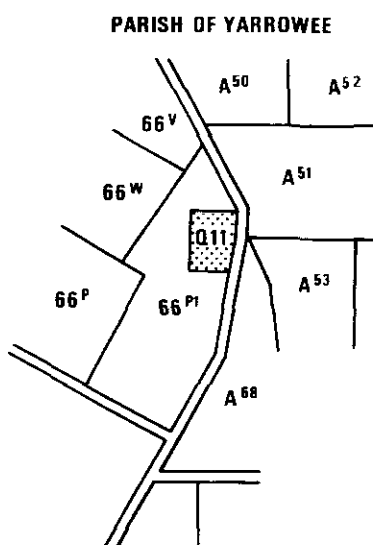


SCALE 1 : 15,840

AGRICULTURE Q11

MAP 11

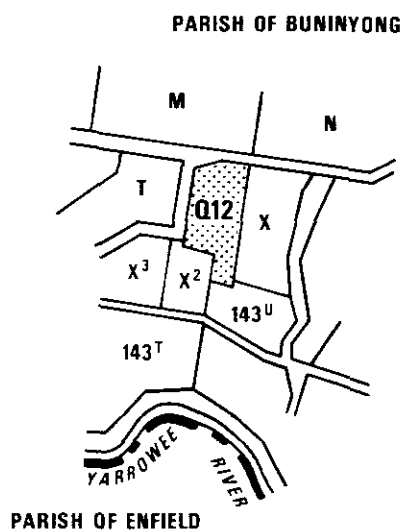
YARROWEE



AGRICULTURE Q12

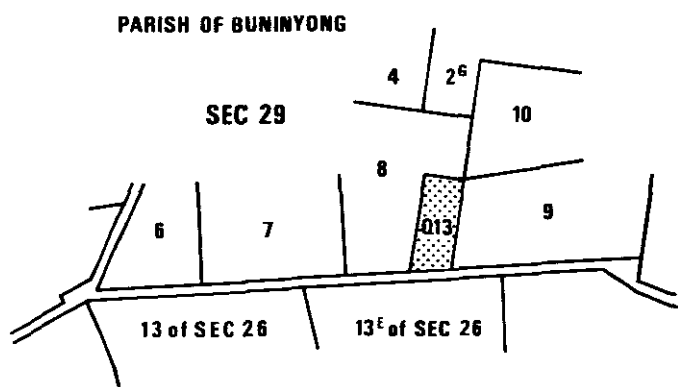
MAP 12

BUNINYONG



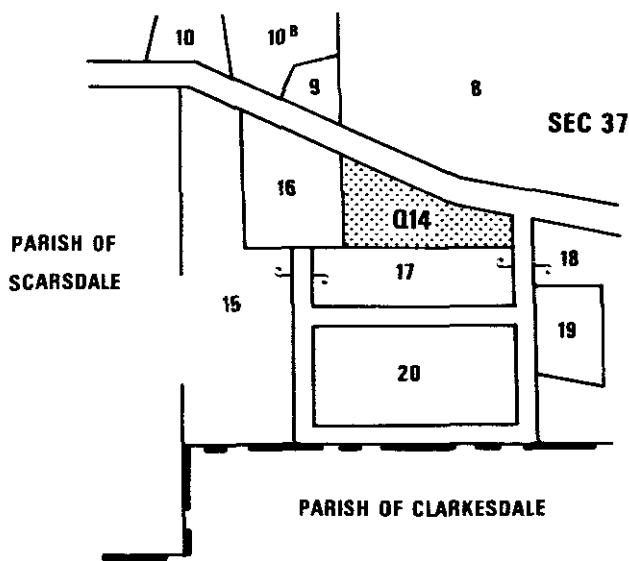
AGRICULTURE Q13
BUNINYONG

MAP 13



AGRICULTURE Q14
SCARSDALE

MAP 14



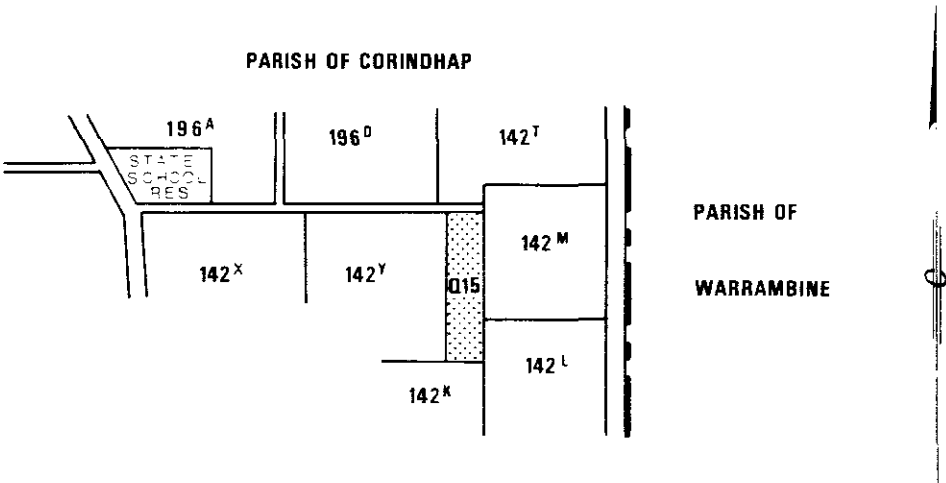
PUBLIC LAND RECOMMENDED FOR ALIENATION



SCALE 1 : 15,840

AGRICULTURE Q15
CORINDHAP

MAP 15

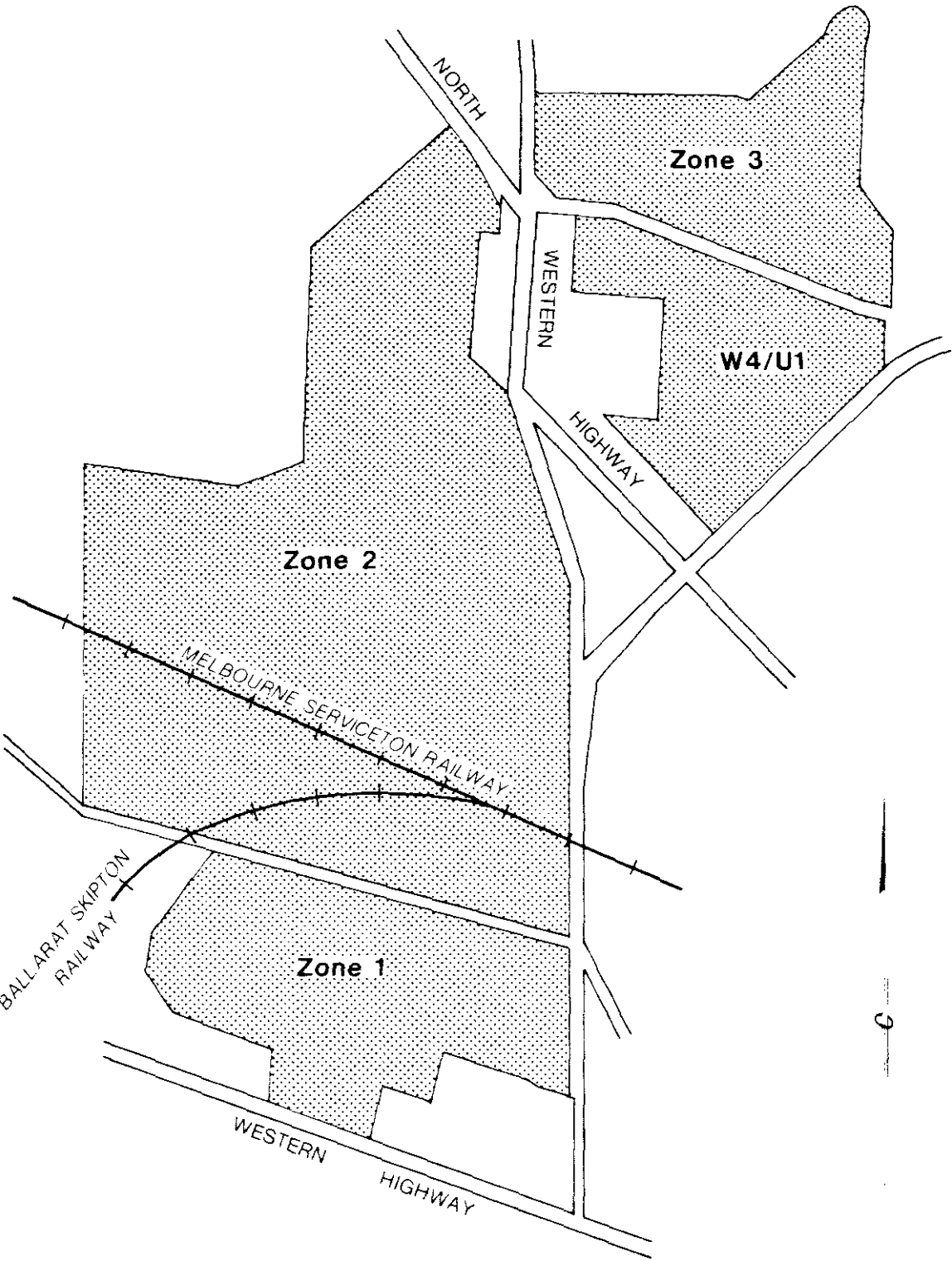


PUBLIC LAND RECOMMENDED FOR ALIENATION

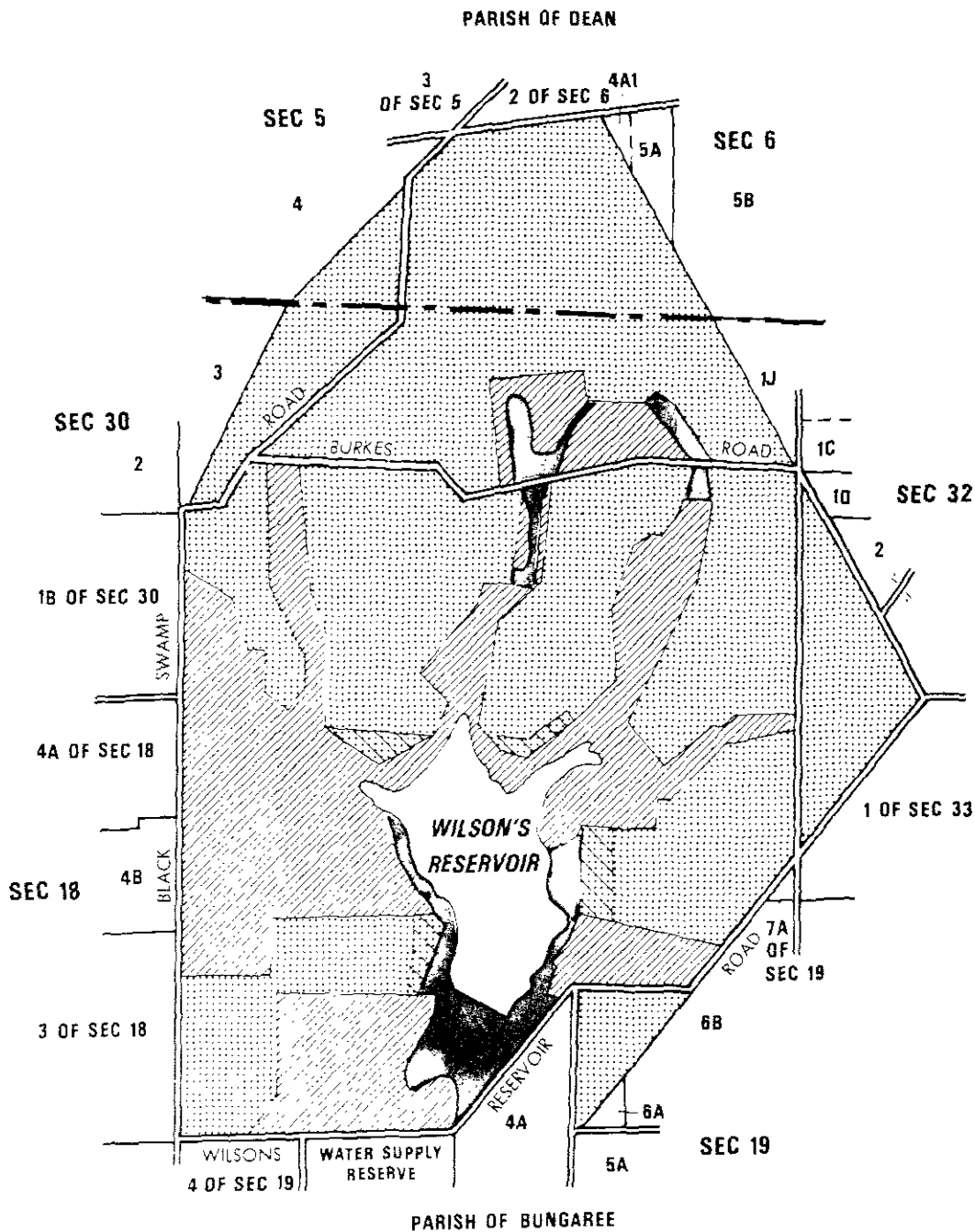






SCALE 1 : 15,840

**PROPOSED ZONING BALLARAT COMMON
AND ADJOINING PUBLIC LAND**

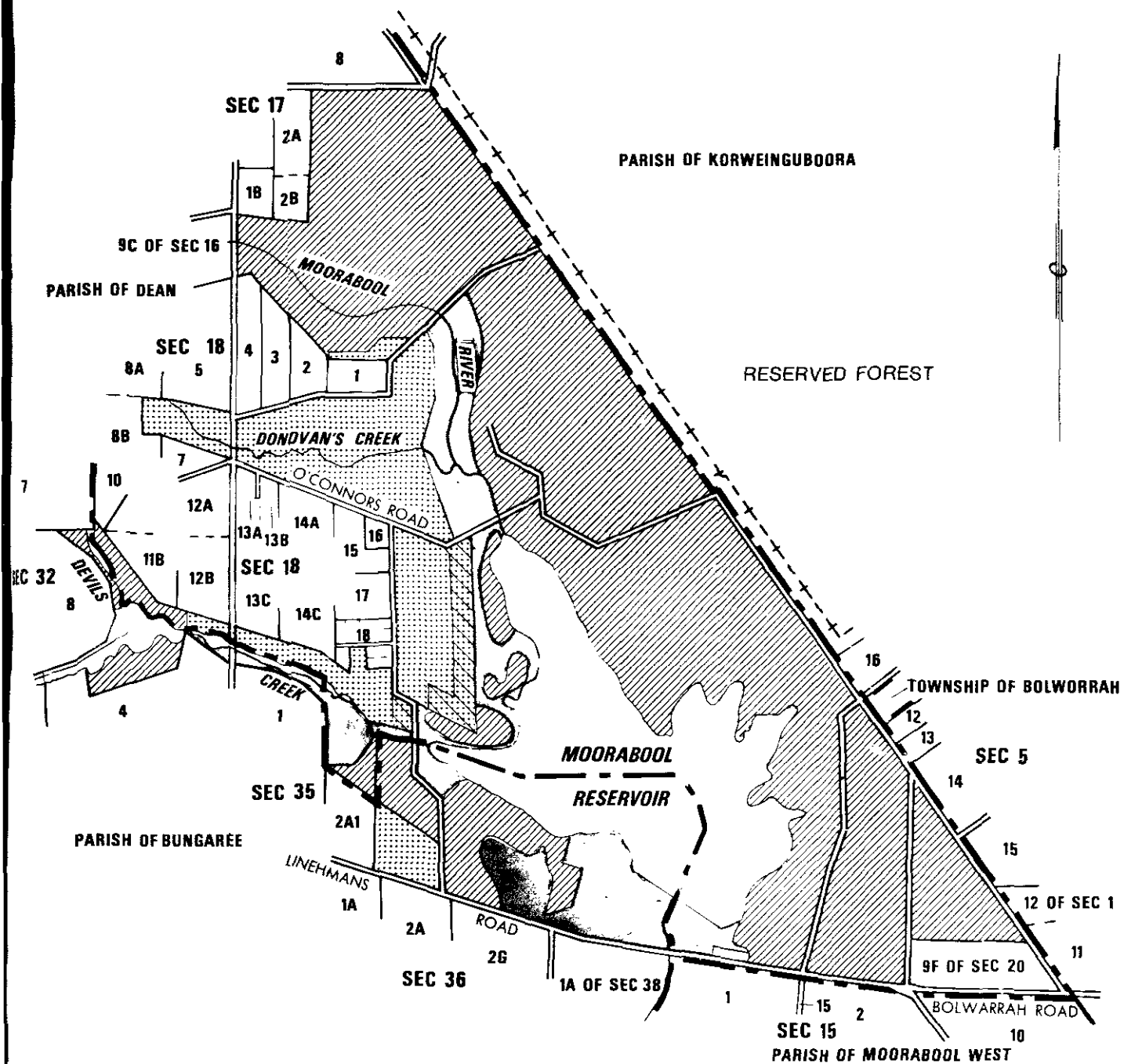






RECOMMENDED PROTECTIVE STRIPS—WILSON'S RESERVOIR



-  AREAS OF NATIVE FOREST AND SOFTWOOD PLANTATIONS
-  LAND LEASED BY THE BALLARAT WATER COMMISSIONERS FOR AGRICULTURE
-  RECOMMENDED PROTECTIVE STRIPS
-  OTHER PUBLIC LAND MANAGED BY THE BALLARAT WATER COMMISSIONERS

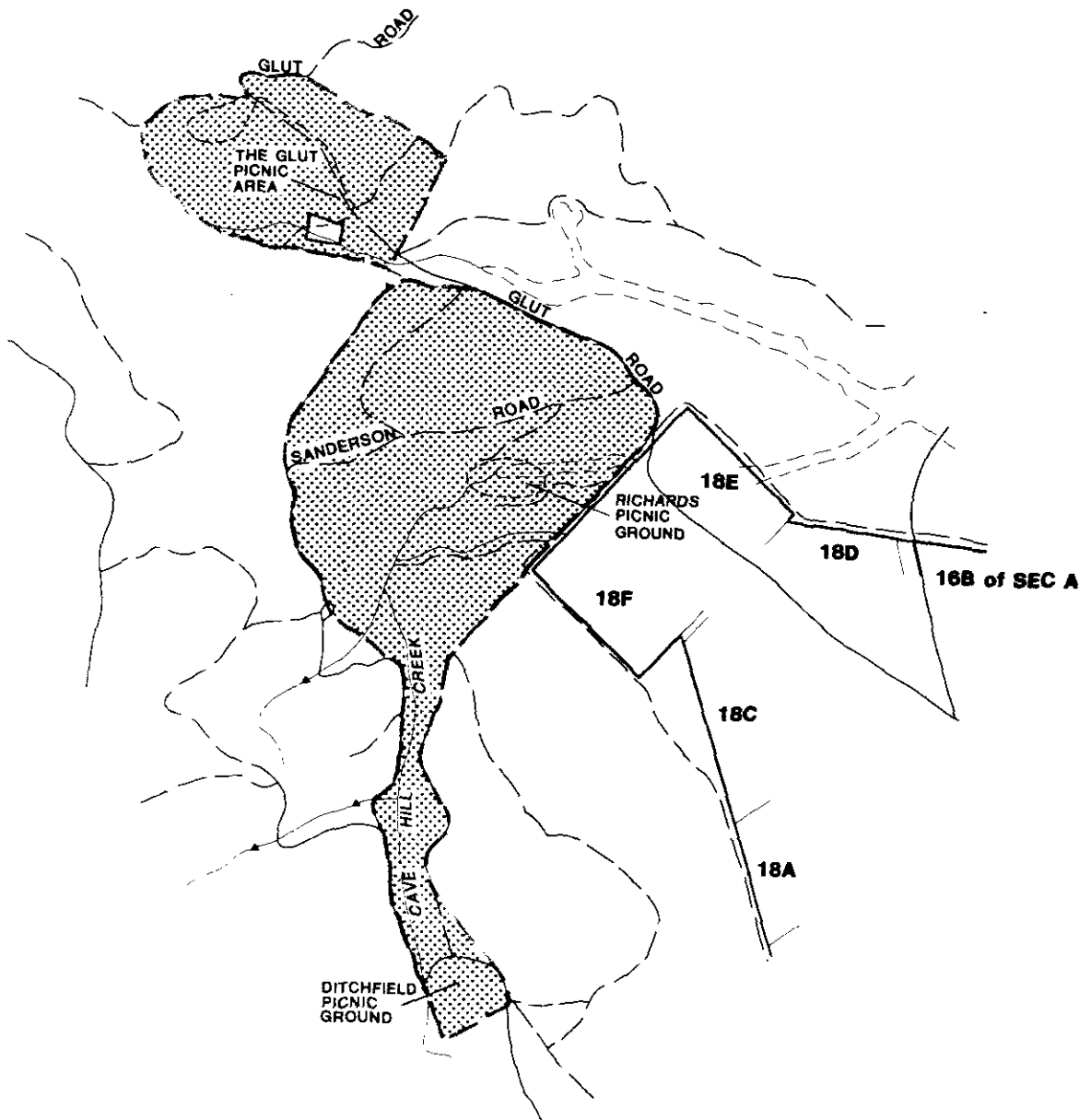
RECOMMENDED PROTECTIVE STRIPS—MOORABOOL RESERVOIR



-  AREAS OF NATIVE FOREST AND SOFTWOOD PLANTATIONS
-  LAND LEASED BY THE BALLARAT WATER COMMISSIONERS FOR AGRICULTURE
-  RECOMMENDED PROTECTIVE STRIPS
-  OTHER PUBLIC LAND MANAGED BY THE BALLARAT WATER COMMISSIONERS

MAP 19

RECOMMENDED RESERVES UNDER SECTION 50 OF THE FORESTS ACT 1958 WITHIN THE MT. COLE HARDWOOD PRODUCTION AREA.



SCALE 1 : 25000