

LAND CONSERVATION COUNCIL

NORTH CENTRAL AREA

FINAL RECOMMENDATIONS

February 1981

This text is a facsimile of the former Land Conservation Council's North Central Area Review Final Recommendations. It has been edited to incorporate Government decisions on the recommendations made by Order in Council dated 4 May 1982, 22 June 1982, 24 August 1982 and 26 June 1984, and subsequent formal amendments.

Added text is shown underlined; deleted text is shown ~~struck through~~.

Annotations [in brackets] explain the origin of changes.

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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 final recommendations concerning the public land in the North Central area. Notices showing the boundary of the study area and advising that an investigation was to be carried out were published in the *Victorian Government Gazette* of 4 February 1976, and in local and other Victorian newspapers in February 1976. A descriptive report was published on 19 October 1978. The Council received 288 submissions on the future use of public land. Individuals, associations, companies, and local and State government bodies, representing a wide cross-section of the community, made helpful submissions covering most feasible forms of land use for the district. Extracts from the *Land Conservation Act 1970* covering the procedure to be followed in formulating recommendations were included in the descriptive report.

After considering these submissions, and having visited the study area, the Council formulated its proposed recommendations, which were published on June 23, 1980. The Council subsequently received 1198 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 [Note: not in this version] by two maps - maps A and B - at the scale of 1:250 000, which cover the whole study area and give a broad view of the recommended land uses. Other detailed maps show areas recommended for agriculture (by alienation). More detailed information on many of the boundaries is held by the Land Conservation Council.

Land Uses

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

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

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

In addition to those areas where the production of timber products is recommended as the primary use (Hardwood, Softwood and Eucalyptus oil production), such products may also be drawn from uncommitted land, historic areas (except Whroo) and the Eaglehawk regional park. This amounts to an additional 34 670 ha. or 12 per cent of the public land, from which timber products may be made available. The recommendations also allow that, small quantities of timber may be drawn from both bushland and scenic reserves.

Table 1: Recommended Public Land Use

Major recommended land use	Area (ha)	Percentage of all land covered by these recommendations	Percentage of all public land covered by these recommendations
State parks	17 000	< 1	6
Regional parks	3 660	< 1	< 1
Reference areas	2 540	< 1	< 1
Wildlife reserves	4 110	< 1	1
Water production	20 480	1	7
Hardwood production	158 030	8	56
Softwood production	860	< 1	< 1
Eucalyptus oil production	11 950	< 1	4
Flora, and flora and fauna reserves	18 200	< 1	6
Bushland reserves	4 400	< 1	2
Historic areas and reserves	13 250	< 1	5
Streamside reserves	1 120	< 1	< 1
Highway parks	34	< 1	< 1
Education areas	1 880	< 1	< 1
Geological reserves	185	< 1	< 1
Scenic reserves	2 300	< 1	< 1
Agriculture	150	< 1	< 1
Mineral and stone reserves	1 260	< 1	< 1
Uncommitted land	21 670	1	8

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

[Areas have not been adjusted for subsequent changes]

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

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

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

Flexibility in planning is essential. Our knowledge of many resources (for example, minerals) and of the distribution and ecology of plants is very imperfect. There must be many places in Victoria where special values still remain unrecognised 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 recognises that vermin and noxious weeds pose problems in the management of public land in the North Central area. Finance and staff are required to research and implement methods for control of these pest species.

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

The Council has previously proposed certain additional arrangements for protecting the public land from fire. These arrangements have now been incorporated into an amendment to the *Forests Act 1958*. The amendment creates the designation 'protected public land', which may include public land that is not State forest or national park. The Forests Commission is now required to protect all three of these from fire. 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 organisation. 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 organisations which share the duty of fire prevention and suppression in rural Victoria, namely, the Forests Commission and the Country Fire Authority, have excellent arrangements for mutual co-operation which have operated successfully for many years.

- 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 recognises that the North Central area is one of the world's major gold provinces 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.

- III** The Council recommends that mineral exploration licences held over the area continue except in so far as they affect Reference areas.

The Council expects that, as a result of further study and investigation, many more areas with special values will be identified. Present planning cannot specifically provide for the conservation or utilisation 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 organisations other than government authorities and academic institutions should be sought whenever appropriate.

The Council also recognises 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 North Central 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 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.

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

STATE PARKS

The North Central area has particular natural and historic features that set it apart from other areas of the State. The combination of relatively low rainfall and soils of poor fertility has resulted in most of the public land being covered by dry open forests of slow-growing eucalypts, such as the distinctive hard timbered box-ironbark forests. Other characteristic vegetation communities include the unique whipstick mallee scrub which usually grows in association with the box-ironbark forests; stringybark-box forests, which occur mainly on the shallow-soiled steeper slopes; box-gum open forests, which are found on the flatter, moister sites; and gum woodlands that have developed on granite soils.

The area is renowned for its colourful displays of wildflowers-commonly referred to as the 'goldfields flora'- in a combination largely restricted to this North Central region.

Most of these vegetation communities have developed on soils characteristic of the area's Palaeozoic sediments.

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 and important North Central land types. The State parks recommended below contain representative examples of those land types.

It should be emphasised 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 as such public access will be maintained. Indeed, additional access may be provided to interesting areas by way of nature trails and walking tracks.

Council recognises 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 organisations 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.

The North Central area is a major gold province where the exploration for, and extraction of gold has been an integral part of the land's history. Because of its past use and gold-yielding potential, Council has provided for fossicking and prospecting on public land, including the recommended parks. It is recommended that fossicking and prospecting, involving minimal disturbance, be permitted in these parks 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.

A number 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 North Central area is one of the main sources of honey in the State. 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-A5 That the areas indicated on the maps 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) fossicking and prospecting be permitted in accordance with the recommendations in the chapter on Mineral and Stone Production
- (e) legal access continue to be available to any freehold land located within these parks

A1 Kara Kara State Park

This park is situated in the southern portion of the St Arnaud range and includes land types typical of this range and the northern slopes of the Pyrenees. Its steep, rugged terrain comprises predominantly Cambrian—Ordovician sediments with a smaller area of gently undulating Tertiary sediments adjoining the North-western Highway.

Throughout the North Central area almost all the forests have been, and continue to be, extensively used for timber production. This park contains some of the area's few relatively undisturbed forests, as much of it has never been cut for timber. The resultant mature forests thus have special conservation significance in the North Central area.

Forest types represented include open forest and woodland associations of red stringybark, long-leaf box, red box, yellow gum, grey box, and red ironbark. A vegetation association that is a feature of this park is the mature open forest of blue gum, yellow box, and associated species, located above the Teddington reservoirs. The area of gentler topography in the east gives the park both geological and floristic diversity, as well as providing an access point from the North-western Highway.

Due to the park's relatively undisturbed, mature forests, wildlife values are high, especially for tree-nesting birds and arboreal mammals.

Other features include the panoramic views available from the higher ridge tops and the recreational attractions of the Upper Teddington reservoir. Use of the land surrounding this reservoir will need to be carefully controlled in order that water quality is not adversely affected. Such use should be the subject of a management plan to be prepared by the National Parks Service in consultation with the Shire of Kara Kara and the Soil Conservation Authority.

Recommendation

A1 That the area of 4040 ha shown on the map be used in accordance with the general recommendations for State parks and

(a) to supply water and protect catchments

that

(b) grazing be permitted to continue with a review in 10 years time ~~only on such areas and at such times as the managing authority considers necessary for management purposes—grazing should be phased out from other areas~~

(See Minister's Letter 25/11/1982)

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

Notes:

1. Adjoining portion of the park's northern boundary is an area, comprising the Lower Teddington reservoir and approximately 32 ha of surrounding land, owned by the Shire of Kara Kara. Council recognises that this land is outside its jurisdiction; it suggests, however, that the Shire and the National Parks Service discuss the possibility of using this land in conjunction with the State park.
2. A management plan should be prepared by the management authority, in consultation with the Shire of Kara Kara and the Soil Conservation Authority, for that part of the Kara Kara State Park within the catchment to the Teddington reservoirs.

A2 Kooyoora/Melville Caves State Park

Located west of Inglewood, this park contains some of the area's outstanding natural features and a wide variety of land types. It already attracts many visitors.

A major feature of the park is the granitic outcrop that rises sharply from the surrounding countryside. This outcrop's two highest peaks both exhibit large exposed granite boulders; split and fissured boulders form the well-known Melville 'caves' and provide a readily accessible lookout with magnificent vistas, while sheer rock cliffs characterise the higher Mount Kooyoora.

The park has a wide variety of forest types with representatives of almost all the major open forest communities found in the North Central area. The most significant forest type represented is the important Blakely's red gum woodland that has developed on the park's granitic soils. Here it is at the western limit of its distribution in Victoria, being most commonly found in the north-east of the State. In the eastern section of the park different geological types (sedimentary and metamorphic) support open forests of grey box, yellow gum, red stringybark, and red ironbark. In all, the area contains more than 150 plant species, including the rare *Zieria aspalathoides*. This plant was recently re-discovered and is known in Victoria at only three other locations.

The diversity of habitat types in the park includes the extensive native grasslands that provide forage for native grazing species while the many mature trees are ideal for arboreal mammals and tree-nesting birds. Birdlife varies, and ranges from the spectacular rainbow bird that finds nesting sites in the park's granitic soil to wedge-tailed eagles that inhabit the rocky outcrops of Mount Kooyoora.

The park contains relics of the gold-mining era: Langham Flat provides an excellent example of a shallow alluvial mined area, worked over a short time during a rush and then deserted. There is also evidence of Aboriginal occupation in the form of stone implements, rock walls, and rock arrangements.

Council is aware of the particular necessity to ensure that proper fire-protection measures are employed in this park. It should be emphasised that the Forests Commission will retain its current responsibility for the prevention and suppression of fires in this area. The fire-fighting resources of the National Parks Service will be available to the Commission for fire-suppression operations and will be used under the direction of the Commission.

Legal access will continue to be available to that freehold land located within the park.

Recommendation

A2 That the area of 3435 ha shown on the map be used in accordance with the general recommendations for State parks

that

~~(a) the existing sand quarry not be extended outside its present boundaries, with all extraction to cease and reclamation to be commenced by no later than 1983~~

(Minister's letter 25/11/1982, accepting A2 with the deletion of A2(a)).

(b) sites of historic and archaeological significance be preserved

(c) grazing be permitted only on such areas and at such times as the management authority considers necessary for management purposes - grazing should be phased out from other areas.

(d) the park be developed so as to discourage more intensive use of the steeper, erosion-prone slopes

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

A3 Kamarooka State Park

This park is located in an area where the Riverine plains and the western highlands merge, and land types and fauna typical of both geomorphic divisions are represented. It contains two very significant and quite distinct vegetation associations. In terms of area, the most important is the grey box open forest that has developed on Ordovician and Quaternary alluvial sediments and contains species more commonly found in the north of the State, such as quandong, berrigan, Murray pine, turkey bush, boobialla, and cassia. This comprises one of the few remnants of the once-widespread northern plains flora, most of which has been cleared for agriculture.

The other major vegetation type is a mallee scrub comprising the four main mallee species-blue, green, bull and Kamarooka-found in the study area. The area north of Bendigo contains one of only two known occurrences of these four mallee species in combination. This unique association, known widely as the whipstick mallee, has gained national recognition as one of the few mallee scrubs that has developed on clay and rocky soils of Ordovician origin, rather than on sandy soils.

The park has a large and varied bird population with a number of species approaching the limit of their range. Northern species such as the Mallee ringneck parrot, shy hylacola, and white-fronted honeyeater are seldom found further south, while birds normally from southern districts such as the rufous fantail and pink robin are rarely seen further inland.

Because of the conservation significance of this park, a major aim of management must be to conserve and protect its special natural features.

Recommendation

A3 That the area of 5500 ha shown on the map be used in accordance with the general recommendations for State parks that

- (a) the eucalyptus oil leases be terminated by 1987-provision has been made for the relocation of these leases in the area recommended for eucalyptus oil production (see Recommendation G1)
- (b) grazing be phased out by 1987
- (c) the existing gravel pit, operated by the Shire of East Loddon, not be extended outside its present boundaries, with all extraction to cease and reclamation and landscaping to be commenced by no later than ~~1985~~ 1991 (See Minister's letter 25/11/1982) (technical advice received by Council indicates that Recommendations R66 and 67 make available an equivalent gravel resource)

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

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

[Additional 112 ha (Allot 5 Section C, Parish of Whirrakee) added to park in exchange for part reserved forest A7 (See Minister's letter 14/11/1982)]

A4 Paddy's Ranges State Park

This park, situated south of Maryborough, contains examples of one of the North Central area's most distinctive land types-box-ironbark open forests that have developed on undulating Ordovician sediments. Paddy's Ranges are well known and highly regarded for their colourful wildflower displays and abundant bird population, characteristics that are features of this park.

Acacias are particularly prominent throughout the park, flowering for the greater part of the year. The park is one of the few places where the slender mint bush (*Prostanthera saxicola* var. *bracteolata*) has been recorded.

More than 140 bird species have been recorded in the Paddy's Ranges, including the rare painted honeyeater.

Recommendation

A4 That the area of 1700 ha shown on the map be used in accordance with the general recommendations for State parks and be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the Forests Commission.

A5 Whipstick State Park

This park contains important examples of land types and historical features typical of the auriferous areas of central Victoria.

It has good examples of the distinctive box-ironbark open forests-a vegetation alliance with its Victorian distribution centred on the North Central area. It also contains areas of the unique

whipstick mallee scrub, which is almost wholly restricted to the study area. Unlike most other mallees in Australia, the whipstick mallees occur on clay and rocky soils derived from Ordovician sandstones and slates.

Understorey flora is varied and colourful with significant species including the rare *Phebalium obcordatum* and *Acacia ausfeldii* and the very localised *Acacia williamsonii*. The wildflower displays in the spring are among the most spectacular in the State. The great floral diversity attracts an abundance of birdlife and more than 170 species are represented. The area is reputed to hold one of the highest concentrations of song-birds in Australia, with the crested bell bird, grey thrush, and Gilbert whistler being the most notable species.

The park is steeped in history; much evidence of the gold-mining era survives, together with well-preserved relics of the eucalyptus oil industry.

The combination of important natural and historic features has resulted in this park-combined with that area further to the north (note Recommendation A3)-being one of Victoria's most highly regarded areas for conservation.

Recommendation

A5 That the area of 2400 ha shown on the map be used in accordance with the general recommendations for State parks

that

- (a) historic relics be preserved
- (b) the eucalyptus oil licences be terminated by 1987, and the licence-holders be allocated an equivalent area within the adjacent public land recommended for eucalyptus oil production (see Recommendation G1)

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

REGIONAL PARKS

In recommending four regional parks, Council has attempted to provide for some of the informal outdoor recreation requirements of the area's three major urban centres-Bendigo, Castlemaine, and Maryborough.

Bendigo, with a permanent population of nearly 60 000, is the third-largest country centre in Victoria and is also a popular tourist centre. As such it generates a considerable demand for passive recreation areas situated in a bushland environment close to the city. Council has attempted to meet this demand by the provision of two regional parks immediately adjacent to Bendigo. Both of these parks are in areas already popular for such recreation and one is located to the south and one to the north of the city.

A third regional park has been recommended at Mount Alexander, close to Castlemaine. This area is already heavily used not only by residents of Castlemaine but also by people from Bendigo and tourists on the nearby Calder Highway.

The fourth recommended regional park adjoins the southern boundary of the City of Maryborough. Maryborough makes a tourist feature of the surrounding forests, especially in its annual golden wattle festival.

Council will consider the provision of a regional park for the town of Stawell when making recommendations for South West 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 for 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 any of the recommended parks.

A6 Mount Alexander Regional Park

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

An open forest of messmate and manna gum has developed on the granitic soils. This vegetation type, which is atypical of the study area, provides a varied habitat for several species of birds and mammals. Significant species include powerful owls and tuans. Substantial populations of other arboreal mammals, kangaroos, and wallabies are also found in this park.

A koala park enclosure, which was established in 1939 and expanded in 1979, is periodically restocked from areas outside Mount Alexander. Koalas now occur in several parts of Mount Alexander as well as in the enclosure.

Recommendation

A6 That the area of 1400 ha shown on the map be used to:

- (a) provide opportunities for informal recreation for large numbers of people
- (b) conserve and protect ecosystems to the extent that this is consistent with (a) above
- that
- (c) honey production be permitted
- (d) fossicking and prospecting be permitted in accordance with the recommendations in the chapter on Mineral and Stone Production
- (e) the small school softwood plantations-when harvested-be replaced by species native to the area
- (f) the feasibility of relocating the granite quarries be investigated

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

Notes:

1. The Fisheries and Wildlife Division should be consulted regarding the conservation of wildlife values when management plans are prepared.
2. The Coliban channel is excluded from the park, even though it passes through portion of it. When management plans are prepared for the park, the State Rivers and Water Supply Commission should be consulted.
3. As well as being a major landscape feature, Mount Alexander has for many years been a popular tourist area. It is estimated that its scenic and bushland values attract 20 000 visitors annually, and this number is increasing each year. It could be expected that visitor numbers will increase still further with the development of the area as a regional park.

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

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

The practice of stockpiling waste rock on steep slopes below the quarry face also causes concern. A number of these large granite blocks have already been dislodged and rolled down the hillside. The increasing popularity of the area will increase the need to maintain measures to ensure public safety.

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

A7 One Tree Hill Regional Park

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

Recommendation

A7 That the area of 1083 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
- (e) unless and until alternative provisions can be made, existing water supply dams continue to be used for their present purposes
- (f) the State Electricity Commission continue to use the existing power line reserve for the erection, operation, and maintenance of power lines

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

[7 ha (Allot 18A Section 17, Parish of Strathfieldsaye) excised and sold in exchange for addition of 112 ha of freehold land to A3 (See Minister's letter 14/11/1982)]

A8 Eaglehawk Regional Park

This area, immediately north of Bendigo, is part of the very popular Bendigo whipstick region, which receives an estimated 80 000 visitors per year. It contains typical examples of box-ironbark open forest and mallee scrub. The area's renowned wildflowers such as the Whirrakee wattle, rosy baeckea, pink bells, and grevilleas provide spectacular displays, especially during the late winter and spring. Other park features are the varied bird population and relics of the gold-mining era.

Recommendation

A8 That the area of 900 ha shown on the map be used to:

- (a) provide opportunities for informal recreation for large numbers of people
- (b) conserve and protect ecosystems-emphasis being placed on the spectacular wildflower displays and rich birdlife-to the extent that this is consistent with (a) above
- that
- (c) on completion of the extraction of battery sand and hard rock from the 'moon dumps', the land be revegetated with species native to the area
- (d) honey production be permitted
- (e) fossicking and prospecting be permitted in accordance with the recommendations in the chapter on Mineral and Stone Production
- (f) historic relics be preserved
- (g) timber products be available but management also aim at creating and maintaining a variety of age classes. (Minister's letter 25/11/1982)

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

A9 Maryborough Regional Park

This park adjoins the City of Maryborough and is part of a forest that residents of and visitors to this city use extensively for outdoor recreation. It contains typical examples of box-ironbark open forests with a colourful 'goldfields flora' understorey. The park also supports a varied bird population.

Recommendation

A9 That the area of 270 ha shown on the map be used to:

- (a) provide opportunities for informal recreation for large numbers of people
- (b) conserve and protect ecosystems-emphasis being placed on the spectacular wildflower displays and rich birdlife-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 that it be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the Forests Commission.

Note: Within the City of Maryborough, reserved forest and land controlled by the Maryborough City Council adjoin the park. The Land Conservation Council recognises that this land is outside its jurisdiction; it suggests, however, that it may be possible for some of this land to be incorporated within, or used in conjunction with, the regional park

B. REFERENCE AREAS

Reference areas are tracts of public land containing viable samples of one or more land types that are relatively undisturbed and that are reserved in perpetuity. Those concerned with studying land for particular comparative purposes may then refer to such areas, especially when attempting to solve problems arising from the use of land. Reference areas include typical examples of land types that have been modified elsewhere for productive uses such as agriculture, mining, or intensive timber production. The cause and effects of human alteration and utilisation 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 nutrition. These studies are important in increasing our knowledge of the ecological laws and processes on which Man's survival may ultimately depend.

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

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

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

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

Recommendations

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

- (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 those beekeepers affected by these recommendations.

B1 Mount Separation (200 ha)

Ordovician sediments, strongly dissected; elevation 420–560 m; approximate average annual rainfall 600 mm; open forest I red stringybark, red box, long-leaf box. To be managed by the Department of Crown Lands and Survey.

B2 Kooyoora (325 ha)

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

To be managed by the National Parks Service.

Note: It is appreciated that legal access has to be provided to the freehold land to the north of this area. Currently this access is through the recommended reference area. If alternative arrangements for legal access cannot be made, the area as recommended would not be suitable for a reference area.

B3 Korong Vale (450 ha)

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

To be managed by the National Parks Service.

B4 Kamarooka (225 ha)

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

To be managed by the National Parks Service.

B5 Sandhurst (500 ha)

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

To be managed by the State Rivers and Water Supply Commission.

B6 Rushworth forest (460 ha)

Devonian sediments, undulating; elevation 200–420 m; approximate annual rainfall 550 m; open forest I red ironbark, red stringybark, red box, open forest red stringybark, red box, long-leaf box, open forest II red ironbark, grey box.

To be managed by the Forests Commission.

Note: This reference area does not include the Posiedon gold mine.

C. WILDLIFE RESERVES

The conservation of fauna depends upon the conservation of habitat. Public land in the North Central 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 specialised 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.

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-C17 That the areas indicated on the maps and described below should be used:

- (a) primarily to conserve the 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 Wal Wal Swamp (18 ha), Parish of Warra Warra

A small swamp supporting scattered mature river red gum, which provides valuable habitat, particularly for water birds.

C2 Greens Creek Swamp (39 ha), Parish of Malakoff.

A swamp with dense thatch grass and surrounded by mature river red gum, which provides excellent habitat for ibis, spoonbill, other water birds, and swamp harriers.

C3 Avon Plains Swamps (108 ha), Parish of Banyena.

Two small open swamps surrounded by scattered river red gum, which provide valuable feeding areas for waterfowl.

Notes:

1. This reserve contains a memorial pavilion, which should be maintained and to which access should be ensured, but does not include that land held under permissive occupancy for a residence.
2. The third swamp in the Avon Plains group is within the Wimmera area.

C4 Lake Cope Cope and adjoining swamps (290 ha), Parish of Swanwater.

A series of lakes and swamps that support a diverse range of water birds, in particular hardhead and pink-eared duck. The surrounding woodlands also provide valuable habitat for other bird species.

C5 Clunes Swamp (Merin Merin and Middle Swamp) (476 ha), Parish of Eglinton.

These swamps form a valuable part of a chain of swamps used by waterfowl.

C6 Frogmore Swamp (32 ha), Parish of Moolort.

A small area that is one of a chain of swamps used by waterfowl.

C7 Bells Swamp (10 ha), section 4, Parish of Neereman.

A small swamp supporting good stands of river red gum, which provides valuable wildlife habitat and is one of a chain of swamps used by waterfowl.

C8 Thunder Swamp (131 ha), Parish of Tandarra.

An open swamp that is an important breeding and feeding area for the Australian shoveller and supports a variety of other wetland species.

Note: The Department of Conservation, Forests and Lands, in consultation with the Rural Water Commission, should develop management plans for these areas which take into account the flood mitigation and drainage functions of Thunder Swamp, and the results of the Lower Loddon Region flood and Drainage Study.
(Minister's letter 19/7/1989)

C9 Tang Tang Swamp (126 ha), Parish of Dingee.

A swamp and associated woodlands used by brolgas.

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

Note: The Department of Conservation, Forests and Lands, in consultation with the Rural Water Commission, should develop management plans for these areas which take into account the flood mitigation and drainage functions of Thunder Swamp, and the results of the Lower Loddon Region flood and Drainage Study.
(Minister's letter 19/7/1989)

C10 Gaynor Swamp (422 ha), Parish of Burramboot East

A swamp that previously supported a river red gum forest and now provides a valuable feeding area for water birds.

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

C11 Two Tree Swamp (168 ha), Parish of Burramboot East.

An open swamp that is an important breeding area for brolgas and other birds.

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

C12 Wallenjoe Swamp (approximately 500 ha), Parish of Carag Carag.

A river red gum swamp that provides breeding habitat for at least 90 bird species.

C13 Mansfield Swamp (110 ha), Parish of Carag Carag.

A swamp with both mature river red gum and dense stands of young regeneration, which provides habitat for a wide variety of bird life.

To be managed in consultation with the State Rivers and Water Supply Commission.

C14 Doctors Swamp (263 ha), Parish of Murchison.

A fresh-water swamp surrounded by river red gum that provides valuable habitat for waterfowl, and has, in the past, supported ibis colonies.

To be managed in consultation with the State Rivers and Water Supply Commission.

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

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

C16 Tabilk Lagoon (198 ha), Parish of Tabilk.

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

(See Rivers and Streams SI A5)

C17 Creswick Swamp (24 ha), Parish of Marnoo.

A small swamp that is used by a range of water birds including brolgas.

C18 Murchison Lagoon (5 ha) Township of Murchison East, should be used:

(a) primarily to conserve the habitat of native animals, particularly water-birds;

that

(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 it be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978*, and be managed by the Fisheries and Wildlife Division.

(Minister's letter 13/7/1982)

D. WATER PRODUCTION

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

The State Rivers and Water Supply Commission (the major water supply authority) obtains its major domestic supplies from Lake Eppalock and Tullaroop Reservoirs. In addition, Laanecoorie and Cairn Curran Reservoirs, Goulburn Weir, and Waranga Basin also provide water for domestic purposes to several small towns within the study area.

Current management and use

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

Land use planning

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

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

A. Catchment land

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

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

Where there is a multiplicity of uses in a catchment supplying water used for power generation

or for domestic, industrial, or irrigation purposes, the catchment should be proclaimed under section 5 (1) of the *Land Conservation Act 1970* and section 22 (1) of the *Soil Conservation and Land Utilisation Act 1958*.

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

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

B. Buffer zone

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

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

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

In some instances it may not be practical for the water 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 recognised 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 recognises that a number of water supply systems need some form of treatment now and that others will need to consider some form of treatment in the future. In order to provide for this requirement Council believes it is important for the government to establish long-term policies that provide for the progressive installation of facilities required to supply water of a satisfactory quality.

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

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

Recommendations

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

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

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

Notes:

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 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. 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 reserved for water supply purposes around storages and facilities, etc.

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

Note: The existing land use determination is currently being reviewed.

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

D3 Lead Reservoir, Avoca Waterworks Trust; 100 m buffer.

D4-D21 That in the case of the locations listed below and shown on the maps (all these locations being within catchments for which no land use determinations have been made) the present tenure and management of public land continue for the time being and that, once a land use determination has been made, the following areas:

- (i) the storage areas
- (ii) diversion works
- (iii) associated facilities
- (iv) the buffer zones around diversion works and storages, as defined in the land use determination
- (iv) 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 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.

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.

D4 Landsborough Reservoir, Landsborough Waterworks Trust.

D5 Redbank Reservoir, Redbank Waterworks Trust.

D6 Bealiba Reservoir. Bealiba Waterworks Trust; the reserve to include the water supply reserve north of allotment 11, Parish of Archdale and allotment 14 of section 16, Township of Bealiba.

D7 McCallum's Creek Reservoir, Maryborough Waterworks Trust.
(See Rivers and Streams SI C11)

D8 Mosquito Flat Reservoir, Shire of Tullaroop Waterworks Trust.

D9 Tullaroop Reservoir, State Rivers and Water Supply Commission.

D10 Cairn Curran Reservoir, State Rivers and Water Supply Commission.

D11 Laanecoorie Reservoir, State Rivers and Water Supply Commission.

D12 Loddon River pumping station, Korong Shire Council (a local governing body). The Department of Crown Lands and Survey should investigate the establishment of a small water reserve to protect the pumping equipment located at this site.

D13 Campaspe River pumping station, Axedale Waterworks Trust.

D14 Caledonia Reservoir, Heathcote Waterworks Trust.

D15 Tooborac Reservoir, Heathcote Waterworks Trust.

D16 Campaspe River pumping station, Goornong Waterworks Trust.

D17 Goulburn River pumping station, Murchison Waterworks Trust.

D18 Loddon Weir, State Rivers and Water Supply Commission.

D19 Spring Gully Reservoir, State Rivers and Water Supply Commission.

Note: The historical relics within this area should be protected.

D20 Crusoe No. 7, and Big Hill Reservoirs, and the Sandhurst water reserve excluding those areas that have been recommended as the Sandhurst Reference Area (B5) and part of the Bendigo Hardwood Production Area (E32), State Rivers and Water Supply Commission.

D21 Sandhurst storage (proposed), State Rivers and Water Supply Commission.

D22-D49 That in the case of off-river storages, water supply installations or channels (not individually listed), these and their associated reserves remain under existing tenure and control unless stated otherwise. In these cases no proclamation is necessary.

Note: 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., nor on land adjacent to water distribution channels.

D22 Tandarra Reservoir, State Rivers and Water Supply Commission.

D23 Specimen Hill Reservoir, State Rivers and Water Supply Commission.

D24 Barkers Creek Reservoir, State Rivers and Water Supply Commission.

D25 Golden Point Reservoir, State Rivers and Water Supply Commission.

D26 Crocodile Reservoir, State Rivers and Water Supply Commission.

D27 McCay Reservoir, State Rivers and Water Supply Commission.

- D28** Raywood Reservoir, State Rivers and Water Supply Commission.
- D29** Cockatoo Hill Reservoir, State Rivers and Water Supply Commission.
- D30** Sebastian Reservoir, State Rivers and Water Supply Commission.
- D31** Blue Jacket Reservoir, State Rivers and Water Supply Commission.
- D32** Lockwood - Marong Reservoir, State Rivers and Water Supply Commission.
- D33** Green Gully Reservoir, State Rivers and Water Supply Commission.
- D34** Lockwood pipe head basin, State Rivers and Water Supply Commission.
- D35** Lockwood Reservoir, State Rivers and Water Supply Commission.
- D36** Longlea Reservoir, State Rivers and Water Supply Commission.
- D37** Upper reservoirs and Maldon tank, State Rivers and Water Supply Commission
- D38** Newstead Reservoirs, State Rivers and Water Supply Commission.
- D39** Taradale basins, State Rivers and Water Supply Commission.
- D40** Elphinston tanks, State Rivers and Water Supply Commission.
- D41** Jackass Flat Reservoir, State Rivers and Water Supply Commission.
- D42** Harcourt basin, State Rivers and Water Supply Commission.
- D43** Marong basins, State Rivers and Water Supply Commission.
- D44** Volcano storage, St Arnaud Waterworks Trust.
- D45** Wedderburn Reservoir, Korong Shire Council (a local governing body).
- D45A** Inglewood Reservoir, Korong Shire Council (Minister's Letter 16/6/1981)
- D46** Pumping Station, Colbinabbin Waterworks Trust.
- D47** Groundwater bores, Elmore Waterworks Trust.
- D48** Pumping station, Rushworth Waterworks Trust.
- D49** Dunlop Hill and Growlers Hill basins, Rushworth Waterworks Trust.

Irrigation storages

Council recognises that the storages listed below are important elements of the Waranga-Mallee irrigation system-the Goulburn Weir also services the Shepparton and Rodney irrigation areas-and should be managed by the State Rivers and Water Supply Commission in conjunction with surrounding public land, unless stated otherwise. Some are also important because they supply domestic water to townships in the area. Goulburn Weir supplies Nagambie, Waranga Basin supplies Rushworth, and Lake Batyo Catyo supplies St Arnaud.

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

These storages-especially the Waranga Basin and Goulburn Weir-are major attractions for water-based recreation involving activities such as fishing, shooting, water-skiing, rowing, and swimming.

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

Recommendations

D50-54 That the areas listed below and shown on the maps be used for:

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

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

Note: The Council considers that fossicking, and prospecting under a Miner's Right should not be permitted on land reserved for water supply purposes around storages and facilities, etc.

D50 Waranga basin (5198 ha).

Notes:

1. The public caravan park, located on reserved Crown land abutting the storage, should continue to be managed by the Shire of Waranga.
2. Management of the storage should take account of the fisheries values (both commercial and recreational) and the island-based colony of silver gulls.
3. Uses on and adjacent to the storage should be such that they do not adversely affect the water supply to the township of Rushworth, which is drawn from this storage.

D51 Goulburn Weir (1840 ha)

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

(Rivers and Streams SI A5)

D52 Lake Cooper (1194 ha)

D53 Green Lake (898 ha)

D54 Lake Batyo Catyo (264 ha)

Notes:

1. Uses on and adjacent to the storage should be such that they do not adversely affect the water supply to the Town of St Arnaud, which is drawn from this storage.
2. The Council has no objection to a proposal to develop a water-skiing area involving some public land adjacent to this lake, provided the proposal is approved by the relevant authorities.

E. HARDWOOD PRODUCTION

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

Blue gum and messmate, species of importance for sawlog production in the study area, occur almost exclusively in the Pyrenees Range. The permissible cut of these species for sawlogs is currently held at about 4000 m³ per annum. The sawlogs are converted mainly at the mill situated at Avoca, with some being processed at mills outside the study area.

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

State forests in the area have been intensively managed since the early part of the century when these areas, extensively denuded during the gold-mining era, were given over to Forests Commission control. The forests of the area have inherently low rates of growth; consequently, substantial areas must be managed for timber production if future demands are to be met. 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.

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

Recommendations

E1-E42 That the areas listed below and shown on the maps 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 (see Recommendation R87), and other forest produce as defined in the *Forests Act 1958*.
- (c) water production values be recognised 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. It is estimated that the total area of section 50 Reserve would not exceed 1000 ha.)

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

- E1** Stawell (390 ha)
- E2** Glynwylln (750 ha)
- E3** Morrl Morrl (2000 ha)
- E4** Big Tottington (2120 ha)
- E5** Little Tottington (460 ha)
- E6** Pyrenees Range (15 000 ha)

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

- (i) the site of the old sawmill known as Richardson's Mill, by section 50 Reserve
- (ii) the scenic features of the Governors Rock Scenic Reserve, by section 50 Reserve
- (iii) the scenic features of The Waterfalls picnic area near the headwaters of the No. 2 Creek, by section 50 Reserve
- (iv) the ridge along which stands of Yellow Box occur by Section 50 Reserve (Minister's letter 25/11/1982)

An area should be made available to the Shire of Avoca on either Blue Mountain or Mount Avoca for the location of a two-way radio transmitting tower.

The road along the ridge of the Pyrenees Range should be maintained by the Forests Commission.

Some of the farmland surrounding this area is badly affected by salting and gully erosion. It is important, therefore, that the forests and catchments to this, and indeed all such land, are maintained in a healthy condition.

- E7** St Arnaud Range (10 400 ha)

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

- (i) The stable population of tuans (*Phascogale tapoatafa*), by management prescriptions (these prescriptions should be drawn up in consultation with the Fisheries and Wildlife Division)
- (ii) the environs of the West of England Lookout, by section 50 Reserve

- E8** Glenmona (1000 ha)
- E9** Dalynong (1120 ha)
- E10** Tunstalls (1640 ha)
- E11** Paddy's Ranges (10 500 ha)
- E12** Bealiba (16 400 ha)

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

- E13** West Brenanah (600 ha)

E14 Wedderburn (420 ha)

E15 Dunach (930 ha)

E16 Eglington (1560 ha)

E17 Majorca (190 ha)

E18 Maryborough (1340 ha)

In accordance with (d) above, the Aboriginal rock wells should be protected by section 50 Reserve.

E19 Havelock-Timor (5000 ha)

E20 Mount Hooghly (1730 ha)

E21 Dunolly (12 150 ha)

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

- (i) landscape and flora values of the Green Valley Ranges, by management prescriptions
- (ii) relics and sites associated with the early mining at Jones Creek, Waanyarra, and Tarnagulla, by section 50 Reserves
- (iii) occurrences of the rare double-headed wax-flower (*Eriostomen vertucosus*), by management prescriptions

E22 Longbush (1280 ha)

In accordance with (d) above, the historic gold-mining area known as Longbush Potato Patch should be protected by section 50 Reserve.

E23 Kingower (2880 ha)

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

- (i) the environs of the Inglewood - Rheola road, by management prescriptions
- (ii) the summer-flowering ironbarks, by management prescriptions

E24 Glenalbyn (1040 ha)

E25 Sandon (2700 ha)

E26 Muckleford (3800 ha)

In accordance with (d) above, the flora values and historic relics should be protected by management prescriptions

E27 Shelbourne (790 ha)

E28 Lockwood South (1000 ha)

E29 Myers Flat (300 ha)

E30 Castlemaine (670 ha)

E31 Fryers Ridge (3850 ha)

In accordance with (d) above, the environs of Ridge Road should be protected by management prescriptions

E32 Bendigo (2200 ha)

E33 Mandurang (1100 ha)

E34 Mandurang South (1410 ha)

E35 Axedale (1000 ha)

The Forests Commission should continue discussions with the Victorian Field and Game Association regarding the use of an area as a simulated field shooting range.

E36 Wellsford (10 700 ha)

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

- (i) the geological, landscape and faunal values of Mount Sugarloaf, by management prescriptions
- (ii) the areas containing *Cryptandra amara*, by management prescriptions

Gravel should continue to be provided from the quarry located east of allotments 98D and 98R, Parish of Ellesmere.

E37 Kimbolton (2050 ha)

E38 Knowsley (1290 ha)

E39 Heathcote (3400 ha)

E40 Crosbie (1640 ha)

E41 Whroo - Costerfield (29 000 ha)

Harvesting of leaf for the production of eucalyptus oil may continue

E42 Cornella (170 ha)

F. SOFTWOOD PRODUCTION

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

Recommendations

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

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

F1 Mount Beckworth (50 ha)

F2 Mount Alexander (548 ha)

F3 Castlemaine (255 ha)

G. EUCALYPTUS-OIL PRODUCTION

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

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

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

Future demand for eucalyptus oil

Until about 1950 Australia was virtually the only source of eucalyptus oil, producing some 1000 tonnes a year, but now the bulk is produced overseas. Of world production today, Australia contributes about 15 per cent. (approximately 200 tonnes) per annum.

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

Land tenure

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

Research

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

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

Guidelines

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

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

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

Recommendations

G1—G4 That the areas listed below and shown on the maps be used to:

- (a) produce eucalyptus oil in accordance with the guidelines given above
- (b) provide opportunities for open-space recreation and education
- that
- (c) fossicking and prospecting be permitted

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

Note: Those areas currently being harvested within the areas recommended for hardwood production should continue to be available.

G1 Bendigo (2250 ha)

Notes:

1. The special values of this area for recreation and education use **in** association with the adjacent State park should be recognised in management.
2. The Neilborough and Raywood domestic water supply channels should be protected by a zone in which harvesting should not be permitted. This should be determined in consultation with the State Rivers and Water Supply Commission.
3. Sufficient uncut areas exist within this area recommended for eucalyptus-oil production to provide for those producers affected by Recommendations A3 and A5. Reallocation of these uncut areas will be necessary before 1987 to allow for producers affected by these recommendations to be relocated.
4. Harvesting of eucalyptus leaf should continue on the areas currently being cut in the uncommitted land, U2. (See Recommendation U2 in the chapter on uncommitted land.)

G2 Wedderburn (2590 ha)

Notes:

1. Historic relics associated with mining and eucalyptus-oil production should be protected by management prescriptions.
2. The portion of G2 shown by a stipple on Map A is currently held under licences to harvest eucalyptus leaf. Should the licensees relinquish these licences, these areas should be added to flora and fauna reserve H22.

G3 Inglewood (6390 ha)**G4 St Arnaud (715 ha)**

H. FLORA RESERVES AND FLORA AND FAUNA RESERVES

Throughout the North Central area, a number of areas contain examples of native vegetation with considerable floristic importance. Some of these areas have an additional quality providing valuable fauna habitat.

Council has recognised 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.

The North Central 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 its past use and gold-yielding potential, Council has provided for fossicking and prospecting on most 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.

A number of the recommended flora, and flora and fauna reserves contain mining relics that may in some cases constitute a hazard to public safety. With regard to such relics, the reserve managers should comply with the public safety requirements of the Department of Minerals and Energy.

Public land in the North Central area is one of the main sources of honey in the State. Honey production should be permitted in all flora and flora and fauna reserves and the number of apiary sites maintained.

FLORA RESERVES

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

Recommendations

H1-H20 That the areas indicated on the maps 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) fossicking and prospecting be permitted in accordance with the recommendations in Chapter R, Mineral and Stone Production

(e) grazing be phased out

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

H1 16 ha, being allotment 147C, Parish of Bolangum, to be used to preserve the stunted long-leaf box, red box open forest and associated heathy understorey, dominated by fringed heath myrtle (*Micromyrtus ciliatus*), which have developed on a remnant capping of Tertiary sediments.

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

H2 16 ha in the north-east of allotment 100A Parish of Dalyenong, to be used to preserve the stunted box forest and wildflowers that have developed on a light sandy soil.

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

H3 23 ha, being north of allotments 16 and 17, Parish of St Arnaud, to be used to preserve the only known example of mature blue mallee and associated species growing on a land surface with gilgai soil structures. The land surface probably dates from the Pliocene epoch (around 5 million years ago). Preservation of such land surfaces in an undisturbed state is extremely rare in the study area.

To be managed by the Forests Commission.

H4 120 ha, south of allotment 67, Parish of Gowar, to be used to preserve a mature stand of blue mallee.

To be managed by the Forests Commission.

H5 230 ha, being allotment 27A, Parish of Wehla, to be used to preserve an area containing mature yellow box, red gum, yellow gum, long-leaf box, and grey box occurring on granitic soils. An old-growth forest of this type on granitic soils is not found elsewhere in the study area.

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

H6 13 ha in the south-west of allotment 22, Parish of Walmer, to be used to preserve a relatively undisturbed stand of red box, yellow gum, long-leaf box, red stringy-bark, and grey box with a dense heathy understorey. The distinctive feature of this reserve is the occurrence of these species growing together in a lowland situation rather than on steep dry slopes.

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

H7 10 ha in the Parish of Costerfield, to be used to preserve one of only two known Victorian populations of a subspecies of *Daviesia genistifolia*.

To be managed by the Forests Commission.

H8 300 ha, west of allotment 54A, Parish of Gobarup, being in part the existing wild-flower reserve, to be used to preserve blue and green mallee scrub and wildflowers associated with box-ironbark forests, including the very localised *Acacia williamsonii*. This reserve contains one of the most easterly occurrences of mallee eucalypts in the State.

To be managed by the Forests Commission.

- H9** 240 ha, east of allotment 163, Parish of Runnymede, to be used to preserve a mature grey box open forest.
To be managed by the Department of Crown Lands and Survey.

H10 Inglewood

Approximately 1200 ha to be used to preserve an extensive area of melaleuca scrub and associated species of green mallee and *Hakea*.

The reserve also contains the undisturbed mallee and associated vegetation of the former Inglewood rifle range, which includes areas of the very localised *Acacia williamsonii*.

To be managed by the Forests Commission.

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

H11 Hard Hills

15 ha west of allotments 10 and 11 section G, Parish of St Arnaud, to be used to preserve an area of great floristic diversity containing more than 100 plant species. Significant species include the rare *Stipa breviflumis*, the spectacular scarlet mint bush (*Prostanthera aspaethoides*), and the mallee wattle (*Acacia montana*).

To be managed by the Forests Commission.

H12 Fryers Ridge

Approximately 600 ha to be used to preserve the understorey communities associated with the open forest of predominantly red stringybark, broad-leaf peppermint, and red box.

This area is one of considerable floristic diversity, with the wide variety of wild-flowers being of particular significance. Of the many individual species represented, the most important are the endemic, and as yet scientifically unnamed, 'Elphinstone' grevillea and the very localised scented bush pea (*Pultenaea graveolens*). Other species that add to the colourful displays include wattles, heaths and grevilleas. It is not so much the individual plant species but rather their occurrence together as a community that is of prime interest.

A range of environments in the area grades from the moister gullies that contain larger eucalypts, wattles, and grassier understorey to the steeper slopes and rocky ridge-tops that support stunted eucalypts and a heathy understorey. The flora on these rocky areas has drawn considerable attention from both local and international botanists.

The area's diverse and colourful flora, which already attracts a number of visitors, is easily accessible from the existing network of forest tracks.

In the final recommendations for the Melbourne area published in January 1977, land adjoining the North Central area was recommended as the Fryers Ridge State Park (Recommendation A5, Melbourne area). In the proposed recommendations for the present study area, this park was extended to include land in the area (proposed Recommendation A4, North Central area).

Council has recently carried out further detailed investigations of the land recommended as the Fryers Ridge State Park in both the North Central and Melbourne areas. These investigations have shown that the land's major natural feature is the occurrence of the diverse wildflower community that forms the understorey, in this dry stringybark-peppermint forest. Consequently, the object of management should be the protection and enhancement of this understorey flora. For that reason, and because the area's land types are adequately represented in existing State parks, Council believes the most appropriate reservation for the area should be as a flora reserve.

Council recommends, therefore, that the area of 600 ha in the North Central study area be reserved as a flora reserve and that the Government consider adding to this reserve that land previously recommended in the Melbourne study area as the Fryers Ridge State Park.

To be managed by the National Parks Service.

Notes:

1. The Coliban channel is excluded from the reserve, even though it passes through portion of it. When management plans for the reserve are prepared, the State Rivers and Water Supply Commission should be consulted.
2. Telecom should continue to use the existing easements that pass through this area for the operation and maintenance of underground telephone cables.

H13 Dalyenong

Approximately 1450 ha to be used to preserve the grey box-buloke open woodland.

This community was once widespread in the Wimmera and Northern Plains, but from the earliest days of settlement has been extensively cleared for agriculture. It has been reduced to the extent that this reserve contains the study area's only substantial remnant, and in fact there are very few intact grey box-buloke woodlands left anywhere in Victoria.

The reserve also includes open forest and woodland communities of yellow gum, red ironbark, and red stringybark.

To be managed by the Forests Commission.

Note: Grazing should be phased out by ~~1987~~ 1991 (Minister's letter 25/11/1982)

H14 Tarnagulla

Approximately 970 ha to be used to preserve the green mallee and yellow gum communities.

The occurrence of green mallee growing on the clayey and rocky soils derived from Ordovician sediments is found nowhere in Australia outside the North Central study area. This unique combination is well represented in the reserve, and its conservation significance is further enhanced by the mallee scrub's relative maturity. Much of the mallee vegetation in this study area has been extensively harvested for the production of eucalyptus oil, whereas this reserve has experienced very little such harvesting. The unusual association of green mallee and yellow gum adds further to its conservation significance.

To be managed by the Forests Commission.

Note: Historic buildings and relics occurring on public land in the township of Tarnagulla should be managed by the Department of Crown Lands and Survey.

H15 Bendigo

3 ha in Parish of Whirrakee to be used to preserve the endangered species *Westringia crassifolia*.

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

H16 Metcalfe

300 ha to be used to preserve an old-growth forest of red stringybark, yellow box, and long-leaf box on the ridges and slopes. The gullies contain a community of messmate and manna gum that is not found extensively in the study area.

To be managed by the Forests Commission.

H17 Walmer

15 ha, being allotment 6 of section 6, Parish of Walmer, to be used to preserve a stand of relatively undisturbed vegetation consisting of *Casuarina luehmannii* and grey box with an extensive understorey of *Hakea*, *Grevillea*, and *Acacia* species.

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

H18 Mount Ida

Approximately 1070 ha to be used to preserve the mature open forest consisting primarily of red stringybark, red box, and long-leaf box, and the associated varied understorey, which provides spectacular displays of wildflowers, including the rare *Acacia ausfeldi* and a form of *Grevillea alpina* restricted to the Mount Ida area. The reserve also includes a lookout site on top of Mount Ida itself, which provides magnificent 360 degree views of the surrounding countryside.

To be managed by the Forests Commission.

H19 Mount Black

Approximately 1630 ha to be used to preserve the open forest and woodland communities of red ironbark, grey box, yellow gum, red stringybark, long-leaf box, and yellow box and the associated understoreys.

This reserve contains three quite distinct vegetation communities, with structures and contents that reflect the different geological formations on which they have developed. Outstanding examples of box-ironbark open forests, containing some of the study area's few remaining stands of mature red ironbark, have developed on the Silurian—Devonian sediments that form the bedrock for most of the reserve. The diverse and colourful understorey includes the bent-leaf wattle (*Acacia flexifolia*), a species with a restricted range, massed displays of sticky boronia (*Boronia anemonifolia*), and the area's most extensive stands of grass-trees.

Sandy soils that have developed on a small granite pod at the base of Mount Black support a woodland community of grey box and yellow box with a typically grassy understorey. This section of the reserve contains small disused quarries that provided granite blocks for use in the construction, in 1887, of the Goulburn weir. The more resistant metamorphic rocks adjacent to the granite pod have formed the steeper slopes of Mount Black and Melville's lookout, upon which have grown open forests of predominantly red stringybark and long-leaf box, and an associated sparse understorey.

This reserve's floristic and structural diversity, coupled with the fact that it contains a greater proportion of mature forest types than is found elsewhere in the Rushworth forest, make it an area of great conservation importance.

To be managed by the Forests Commission.

H20 Morrl Morrl

Approximately 55 ha, south of allotment 9, Parish of Morrl Morrl, to be used to preserve the stunted, old-growth forest containing grey box, yellow gum, red stringybark, and long-leaf box, and the associated colourful understorey, that has developed on a remnant capping of Tertiary sediments.

To be managed by the Forests Commission.

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.

Recommendations

H21-H25 That the areas indicated on the maps 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) fossicking and prospecting be permitted subject to the recommendations in Chapter R, Mineral and Stone Production
- (e) grazing be phased out

and that they be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed as indicated in the schedule below. Management plans for these reserves should be prepared by the management authority in consultation with the Fisheries and Wildlife Division.

H21 Mount Bolangum

Approximately 2930 ha to be used to preserve a mature grey box forest, an important forest type that was once widespread over northern Victoria but has since been extensively cleared for agriculture. This reserve represents one of the few substantial remnants of the vegetation type. Its conservation significance is further enhanced by the forest's relative maturity, an unusual feature in this study area where most forests have had a long history of timber production, and one that gives this reserve a high regional importance to those native vertebrate animals whose habitat requirements include tree hollows. One such species in this reserve is the barking owl which, although not uncommon in the St Arnaud area is uncommon to rare in most other parts of Victoria. The combination of flowering eucalypts and hollows are also important as food and nesting areas for many lorikeets, honeyeaters and some mammals.

To be managed by the Forests Commission.

Note: Grazing should be phased out by 1987.

H22 Wychitella

Approximately 3330 ha to be used to preserve:

- (i) excellent representations of the unique whipstick mallee scrub, containing blue, green, bull, and Kamarooka mallees (the area north of Wedderburn is one of only two known occurrences of these four mallee species in combination).
- (ii) the habitat of the mallee fowl, which, here, is near the southern limit of its range in Victoria (although once widely spread throughout, the mallee fowl is now restricted to the Wedderburn district of the study area).

To be managed by the National Parks Service.

H23 Deep Lead

Approximately 1240 ha to be used to preserve the habitat of the rare squirrel glider and the open forest and woodland communities of red ironbark and yellow gum, and their associated understorey.

This reserve contains the study area's only substantial open forest and woodland communities of red ironbark and yellow gum to have developed on Tertiary sediments. Associated with these eucalypts is a diverse and colourful heathy understorey containing species such as horny cone bush (*Isopogon ceratophyllus*), scrub she-oak (*Casuarina paludosa*), and leafless bitter pea (*Daviesia brevifolia*), rarely found elsewhere in the study area. This combination of vegetation communities and geology, although not entirely restricted to the study area, is rarely found outside it.

The reserve also contains one of the few known colonies of the rare squirrel glider. This species is, here, close to the western limit of its range in the State.

The outstanding floristic and habitat values represented in the reserve make it an area of the utmost conservation significance.

To be managed by the Forests Commission.

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

H24 Landsborough

Approximately 1800 ha to be used to preserve open forest and woodland communities, which include at least twelve species of eucalypts.

This reserve contains examples of many of the major forest types to be found in the Pyrenees. The various eucalypts represented occur in a recognisable sequence, with box-ironbark open forests occupying a narrow fringe on the gentle slopes, open forests of predominantly red stringybark and long-leaf box occurring on the steeper slopes, and blue gum and messmate open forest in some of the more sheltered gullies.

Because of their relative maturity, these forests provide excellent habitat, especially for tree-nesting birds and arboreal mammals. Significant species recorded in the area include the tuan, fat-tailed dunnart, and koala.

To be managed by the National Parks Service.

H25 Pilchers Bridge

Approximately 620 ha to be used to preserve the mature open forest of predominantly red box, red stringybark, and long-leaf box. The area contains one of the few examples of this forest type in the Bendigo region that was not heavily cut over during the gold-mining era. It therefore contains a substantial number of mature trees with a relatively undisturbed understorey.

An unusually large and diverse assemblage of birds and mammals is associated with the mature standing trees, which provide excellent habitat for tree-nesting birds and arboreal mammals. Significant mammal species recorded here include the yellow-footed antechinus and the tuan.

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

I. BUSHLAND RESERVES

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

The Council recommends that many of these small remnants of the native vegetation should become bushland reserves. Their major uses are to maintain the character of the countryside and to provide diversity in the landscape. They may also provide some opportunities for passive recreation in relatively natural surroundings, but it is not intended that they be developed for recreation. In 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 and the cutting of small amounts of firewood and an occasional post and pole are not necessarily incompatible with this primary aim, provided they are carefully planned and controlled and do not spoil the appearance of the reserves, particularly as viewed from roads, railway lines, and lookout points. These uses may not be appropriate to all reserves, however, and the management authority may have to exclude them from some, at least temporarily, in order to permit regeneration of tree species.

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

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

Recommendations

I1—I183 That the areas indicated on the maps 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 managed by the Department of Crown Lands and Survey.

Notes:

1. Some reserves specifically referred to in the list below contain gravel resources. The utilisation of these deposits should only take place when other gravel resources listed under R5—87 have been exhausted, or when it can be established that a particular type or grade of deposit is not found elsewhere than in a designated bushland reserve. Gravel extraction, if permitted, should proceed in accordance with the guidelines and recommendations set out in Chapter R, Mineral and Stone Production.

2. A number of dams, located within bushland reserves, are used for fire-protection and Shire purposes and these uses should continue.
- I1** 29 ha east of allotment 54C, Parish of Warra Warra.
 - I2** 9.2 ha west of allotment 156, Parish of Warranook.
 - I3** 17 ha west of allotment 199A Parish of Riachella.
 - I4** 6 ha south of allotment 203 B1, Parish of Riachella.
 - I5** 100 ha east of allotment 27, Township of Glenorchy.
 - I6** 10 ha, being allotment 18B of section 8, Parish of Glenorchy.
 - I7** 22 ha south-west of allotment 43, Parish of Gampola.
 - I8** 33 ha, being allotment 167C, Parish of Kirkella. Relics of the West Germania mine should be preserved.
 - I9** 9.2 ha east of allotment J1, Parish of Kirkella.
 - I10** 15 ha, being allotment 184A Parish of Kirkella. Portion of this reserve contains road-making materials and the use of this resource could be considered in the future (see Note 1 above).
 - I11** 13 ha west of allotment 20C of section 2, Parish of Stawell. Mining relics should be preserved.
 - I12** 20 ha south and east of allotment 27B of section 2, Parish of Stawell.
 - I13** 21 ha south of allotment 18X of section 2, Parish of Stawell.
 - I14** 7 ha south-west of allotment 22C, Parish of Concongella.
 - I15** 5 ha west of allotment 22, Parish of Concongella.
 - I16** 20 ha, being allotment 103A and 131A, Parish of Watta Wella. Slate quarrying relics should be preserved.
 - I17** 8 ha, being allotments 31D and 31E, Parish of Watta Wella.
 - I18** 6.4 ha, being allotment 28D, Parish of Watta Wella.
 - I19** 6.6 ha, being allotments 5K and 5G, Parish of Watta Wella. [transposed with R13, Map A]
 - I20** 4.5 ha adjoining allotment 34A, Parish of Glynwylln.
 - I21** 3 ha, being allotment 157A, Parish of Bolangum.
 - I22** 2 ha, adjoining allotment 156, Parish of Bolangum.
 - I23** 4.5 ha, being allotment 144A, Parish of Bolangum.
 - I24** 8.9 ha south of allotment 87, Parish of Wallaloo.
 - I25** 11 ha, south of allotment 73, Parish of Wirchilleba.
 - I26** 6 ha, adjoining allotment 25, Parish of Marnoo.
 - I27** 57 ha north of allotment 24A, of section A, Parish of Rich Avon East.
 - I28** 14 ha north of allotment 46A of Section G, Parish of Swanwater.
 - I29** 43 ha south of allotments 124B and 124C, Parish of Gre Gre.
 - I30** 56 ha, being allotment 104, Parish of Tottington.
 - I31** 22 ha east of allotment 1B, of Section 1, Parish of Warngar.
[modified area of 1.15 ha removed and sold following survey of boundaries (LCC letter

22/3/1991]

- I32** 9.6 ha north of allotment 1A of Section 1, Parish of Morrl Morrl. Portion of this reserve contains road-making materials and the use of this resource could be considered in the future (See Note 1 above).
- I33** 8 ha adjoining allotment 134B, Parish of Malakoff.
- I34** 247 ha, being the existing timber and gravel reserve south of allotments 105 and 106, Parish of Joel Joel.
- I35** 12 ha, being allotment 29A of section 4, Parish of Landsborough. Grazing should not be permitted.
- I36** ~~8 ha south of allotment 27, of 3.25 ha being the east part of CA 28B, section 4, Parish of Landsborough. [the remaining 2.6 ha of CA 28B is used for a tip and stone, along with CA28A, 2.2 ha, together comprising S14]~~
- I37** 4 ha east of allotment 39 of section 5, Parish of Landsborough.
Portion of this reserve contains road-making materials and the use of this resource could be considered in the future (see Note 1 above).
- I38** 10 ha north of allotment 33 of section 1, Parish of Landsborough.
- I39** 4 ha south of allotment 3K of section 5, Parish of Landsborough.
- I40** 4 ha east of allotment 41 of section A, Parish of Barkly.
- I41** 25 ha west of allotment 14, Parish of Barkly.
- I42** 4 ha north-east of allotment 88A, Parish of Winjallok.
- I43** 10 ha south of allotment 37A, of section D, Parish of Boola Boloke.
- I44** 50 ha in the Township of Stuart Mill.
- I45** 30 ha west of allotment 48B of section 3, Parish of Moolerr.
Portion of this reserve contains road-making materials and the use of this resource could be considered in the future (See Note 1 above).
- I46** 22 ha being allotment 5A of section 7, Parish of Moolerr.
- I47** 22 ha east of allotment 3A of section 7, Parish of Moolerr.
- I48** 8 ha east of allotment 15 of section B, Parish of Moolerr. Regeneration of native vegetation should be encouraged on the parts that have been stripped for gravel. No further gravel extraction should be permitted.
- I49** ~~6 ha, being allotment 1A of section 1A, Parish of Moolerr. 0.81 ha being allotment 1H section 1A Parish of Moolerr. [Remainder sold 4/1/1985]~~
- I50** 24 ha, being part of allotment 95 of section A, Parish of Darkbonee.
- I51** 14 ha, being allotment 112, of section A, Parish of Darkbonee.
- I52** 18 ha west of allotments 3J and 3L of section B, Parish of St Arnaud.
Portion of this reserve contains road-making materials and the use of this resource could be considered in the future (see Note 1 above).
- I53** 14 ha west of allotment 73A of section B, Parish of St Arnaud.
Portion of this reserve contains road-making materials and the use of this resource could be considered in the future (see Note 1 above).
- I54** 5.6 ha east of allotment 19 of section G, Parish of St Arnaud.

- I55** ~~4 ha south of allotment 37 of section C, Parish of Gowar. [sold to adjoining landowner 16/3/2000]~~
- I56** 10 ha west of allotment 11B, of section C, Parish of Gowar.
- I57** 8 ha north of allotment 33A of section B, Parish of Berrimal.
- I58** 46 ha east of allotment 29 of section B, Parish of Bealiba.
- I59** 65 ha, being allotment 102A, Parish of Dalyenong.
- I60** 8 ha east of allotment 20, Parish of Dalyenong.
- I61** 3 ha north-west of allotment 28C, Parish of Archdale. [transposed with I62 on Map A]
- I62** 5.5 ha west of allotment 24D, Parish of Archdale. Extraction of granite sand should be permitted on the area already cleared of trees. [transposed with I61 on Map A]
- I63** 29 ha east of allotment 81B, Parish of Archdale.
- I64** 10 ha east of allotment 81A, Parish of Archdale.
- I65** 12 ha south-east of allotment 15 of section A, Parish of Natteyallock.
- I66** 20 ha, being allotment 24 of section A, Parish of Natteyallock.
- I67** 20 ha, being allotment 7 of section 2, Parish of Rathscar.
Portion of this reserve contains road making materials, and the use of this resource could be considered in the future (see Note 1 above). [Minister's letter 14/12/1981]
- I68** 8 ha, being allotment 7A of section B, Parish of Rathscar.
- I69** 6 ha south of allotment 79A of section 2, Parish of Moyreisk.
- I70** 7.3 ha south of allotment 42L of section 1, Parish of Moyreisk.
- I71** 12 ha, being allotment 6A of section 3, Parish of Warrenmang.
- I72** 14 ha, being allotments 47 and 48 of section 1, Parish of Warrenmang.
- I73** 12 ha, being allotment 27T and the adjoining water reserve, Parish of Yehrip.
- I74** 8 ha east of allotment 27H and 27E, Parish of Yehrip.
Portion of this reserve contains road-making materials and the use of this resource could be considered in the future (see Note 1 above).
- I75** 9 ha, being allotment R, Parish of Avoca. Portion of this reserve contains road-making materials and the use of this resource could be considered in the future (see Note 1 above).
- I76** 125 ha north of allotments 25 and 26 of section H, Parish of Glenmona.
Portion of this reserve contains road-making materials, and the use of this resource could be considered in the future (see Note 1 above). [Minister's letter 14/12/1981]
- I77** 39 ha south of allotment 39A of section 3, Parish of Rathscar.
- I78** 27 ha west of allotment 37F, Parish of Bung Bong.
- I79** 16 ha north of allotment 13c of section 2C, Parish of Amherst.
- I80** 14.67 ha, being part of allotment 5E & 5F of section 2, Parish of Amherst.
- I81** 7 ha being allotment 37A section 7, Parish of Amherst.
- I82** 16 ha being allotment A19 section F, Parish of Amherst
- I83** 10 ha, being allotment 49B of section 7, Parish of Amherst.
- I84** 4 ha, being allotment 15C of section 6, Parish of Clunes.

- I85** 68 ha-allotment 60C of section 7, Parish of Craigie.
- I86** 18 ha west of allotment 32 of section 3, Parish of Carisbrook.
Portion of this reserve contains road-making materials and the use of this resource could be considered in the future. [Minister's letter 14/12/1981]
- I87** 4.8 ha, being allotment 1 of section 20, Parish of Maryborough.
- I88** 13 ha south-east of allotment 14 of section 19, Parish of Maryborough.
- I89** 5.4 ha, being west and south of allotment 9 of section 15, Parish of Maryborough.
[Seaham Mine; incorrectly located on Map A]
- I90** 6 ha, being allotments 31 and 32 of section 6, Parish of Wareek.
- I91** 10.49 ha, being allotment 3A, of section 9, Parish of Wareek. Mining relics should be preserved.
- I92** 4 ha, being east of allotments 1, 2 and 3 of section 5, Township of Bet Bet.
- I93** 8 ha, being north-west of allotment 36B of section 3, Parish of Dunolly.
- I94** 8 ha, being north-east of allotment 36 of section 3 Parish of Dunolly. The tailings licence over the area should continue to operate.
- I95** 12 ha adjoining allotment 5 of section 1B, Parish of Dunolly.
- I96** 20 ha south-west of allotment 17G Parish of Waanyarra.
- I97** 17 ha west of allotment 143Q of section C, Parish of Tarnagulla.
- I98** 10 ha south of allotment 143 of section C, Parish of Tarnagulla.
- I99** 12 ha, being allotments 3 and 13 of section 1, Parish of Moliagul.
- I100** 6 ha south of allotment 13A of section 4, Parish of Moliagul.
- I101** 5 ha south of allotment 36B of section G, Parish of Tarnagulla.
- I102** 12 ha west of allotment 45, of section G, Parish of Tarnagulla.
- I103** 4 ha adjoining allotment 47A of section G, Parish of Tarnagulla.
- I104** 12 ha adjoining allotment 19 of section 2, Parish of Moliagul.
- I105** 6 ha, being allotment 1F of section C, Parish of Tarnagulla.
- I106** 4 ha north of allotment 35B of section 5, Parish of Kangderaar.
- I107** 8 ha adjacent to allotment 14A of section 5, Parish of Kangderaar.
- I108** 8 ha adjoining allotment 24A of section B, Parish of Wehla.
- I109** 12 ha west of allotment 14 of section 1, Parish of Glenalbyn. [shown as I122 on Map A]
- I110** 10 ha south of allotment 15 of section A, Parish of Kurraca.
- I111** 10 ha adjacent to allotment 39, Parish of Kurraca.
- I112** 80 ha, being allotment 111D, Parish of Barrakee.
- I113** 82 ha, being allotment 19 of section 3A, Parish of Wedderburn.
- I114** 74 ha, being allotment 109B, Parish of Barrakee.
- I115** 66 ha north of allotment 105D and 108D, Parish of Barrakee.
- I116** 11 ha east of allotment 100D, Parish of Barrakee.
- I117** 10 ha east of allotment 54B of section B, Parish of Woosang.

- I118** 142 ha, being allotments 18B, 18C, and 18D of section 5, Parish of Borung.
- I119** 45 ha north of allotment 50 of section 4, Parish of Borung.
- I120** 17 ha, being allotment 171, Parish of Mysia.
- I121** 4 ha, being allotment 29B of section A, Parish of Korong. [shown as I109 on Map A]
- I122** 12 ha, being allotment 7C of section C, Parish of Kurting. [shown as I121 on Map A]
- I123** 76 ha north of allotments 4C, 4D, 4K and 4H, of section 9, Parish of Inglewood.
- I124** 31 ha, being allotment 72A, Parish of Derby.
- I125** 13 ha south of allotment 5 of section 4A, Parish of Woodstock.
- I126** 9.7 ha, being allotment 11 of section 5, Parish of Bradford.
- I127** 4 ha west of allotment 2A of section 2, Parish of Maldon.
- I128** 20 ha south-west of allotment 19 of section M, Parish of Maldon.
- I129** 32 ha north and east of allotment 14 of section 1, Parish of Tarrengower.
- I130** 14 ha, being allotment 9A of section 6A, Parish of Tarrengower.
- I131** 8 ha north of allotment 19 of section 5B, Parish of Guildford.
- I132** 50 ha, being north of allotment 17D of section 5, Parish of Guildford.
- I133** 12 ha west of allotment 17D, of section 5, Parish of Guildford.
- I134** 20 ha north of allotment 58 of section E1, Parish of Chewton.
- I135** 19 ha, being allotment 45 of section 8, Parish of Muckleford.
- I136** 80 ha, being allotments 18 and 23 of section 9, Parish of Muckleford.
- I137** 4 ha, being allotment 12 of section 3A, Parish of Walmer.
- I138** 8 ha south of allotment 3F of section 7, Parish of Walmer.
- I139** 8 ha north-east of allotment 6 of section 6A, Parish of Walmer.
- I140** 13 ha south of allotments 19 and 20 of section B, Parish of Maldon.
- I141** 2 ha north of allotment 20 of section B, Parish of Maldon.
- I142** 1 ha east of allotment 4 of section 5, Parish of Maldon.
- I143** 2 ha north-east of allotment 4A, Parish of Ravenswood.
- I144** 13 ha east of allotments 3 and 4B of section 25, Parish of Shelbourne.
- I145** 10 ha west of allotment 1c of section 26, Parish of Shelbourne.
- I146** 8 ha north-west of allotment 1A, Parish of Marong.
- I147** 12 ha, being allotments 9, 7B and 2A of section 5, Parish of Marong.
- I148** 150 ha, being north of allotments 16 and 16A, Parish of Marong.
- I149** 15 ha, being allotment 126B, Parish of Leichardt.
- I150** 8 ha east of allotments 10 and 11J of section E, Parish of Nerring.
- I151** 16 ha, being allotment 12, Parish of Yarraberb.
- I152** ~~60 ha south of allotments 1A and 3A of section 15, Parish of Goornong.~~ [This area has been added to the Public Land Water Frontage (K1) and is to be permanently reserved under Section 4 of the *Crown Land (Reserves) Act 1978*. (See letter from LCC Chairman to Minister 2/10/1981)]

- I153** 18 ha south of allotments 2 and 3A of section 4, Parish of Goornong.
- I154** 75 ha adjoining allotment 12 of section N1, Parish of Sandhurst.
- I155** 175 ha, being the reserve for the growth of timber for the manufacture of eucalyptus oil and adjacent Crown lands, Parishes of Nerring and Sandhurst.
- I156** 200 ha east of allotment 64 of section L, Parish of Sandhurst.
[0.42 ha amended to W1, Order in Council 28/3/2000, and subsequently sold]
- I157** 25 ha east of allotment 63 of section L, Parish of Sandhurst.
- I158** 24 ha west of allotment 42L, section L, Parish of Sandhurst.
- I159** 22 ha north of allotment 1C of section 15, Parish of Strathfieldsaye.
- I160** 2 ha, being section 11, Township of Strathfieldsaye.
- I161** 21 ha, being allotment 7 of section 6, Parish of Eppalock.
- I162** 4 ha, being allotment 17G, of section 6, Parish of Hawkestone.
- I163** 225 ha, being in the Parish of Metcalfe.
- I164** 8 ha, adjoining allotment 33A, Parish of Metcalfe.
- I165** 4 ha south of allotment 2A of section A, Parish of Glenhope.
- I166** 8 ha, being allotment 133A, Parish of Spring Plains.
- I167** 20 ha south of allotment 15, Parish of Tooborac. Management of this reserve should have regard for its role as a water supply catchment to the adjacent Tooborac Reservoir.
- I168** 4.2 ha adjacent to allotment D9, Parish of Heathcote.
- I169** 1.6 ha in the Township of Heathcote.
- I170** 4.8 ha south of allotment 7 of section D, Parish of Crosbie.
- I171** 8 ha adjoining allotments 98 and 99, Parish of Wanalta.
- I172** 7.5 ha, adjoining allotment 179A, Parish of Corop.
- I173** 6.8 ha west of allotment 55, Parish of Waranga. Portion of this reserve contains road-making materials and the use of this resource could be considered in the future (see Note 1 above).
- I174** 14 ha adjacent to allotment 49A, Parish of Waranga.
- I175** 20 ha adjoining allotments 14 and 25, Parish of Waranga.
- I176** 35 ha being allotment 76A, Parish of Baileston.
- I177** 69 ha, being allotment 11 and part of allotment 10A, of section F, Parish of Avenel. Gravel extraction, if required, should only be allowed from those areas stripped in the past.
- I178** 15 ha north of allotment 9G of section F, Parish of Avenel. Grazing should not be permitted.
- I179** 4 ha adjacent to allotments 52 and 53c, Parish of Wormungal.
- I180** 16 ha south of allotment 3 of section B, Parish of Monea North.
- I181** 12 ha in the Township of Locksley.
- I182** 21.8 ha south of allotment 27B2, Parish of Bunganail.
- I183** 16 ha south of allotment 60, Parish of Murchison.

Portion of this reserve contains road-making materials and the use of this resource could

be considered in the future (see Note 1 above).

J. HISTORIC AREAS AND RESERVES

In the North Central area relics associated with the history of the past 130 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 discovery of gold in central Victoria had a major influence on development there. The study area contains a large number of gold-mining sites that provide examples of different mining techniques, ranging from small alluvial hand workings to large deep lead mines. The relics of the settlements and developments associated with the goldfields also provide information on the social environment of that period.

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

Council conducted a study to identify the major historical themes 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 recognises 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 recognises 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, and that there is a need for an advisory committee-consisting of the land managing authorities, the Department of Minerals and Energy, and the Ministry for 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

J1-J7 That the areas indicated on the maps and listed below be used to:

- (a) protect specific sites that carry or contain relics of buildings, equipment, construction works, and artifacts 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 the managing authority would be consulted.)
- (d) exploration for and extraction of 'gold', 'minerals', and 'petroleum'-including fossicking and prospecting under a Miner's Right-be permitted in accordance with recommendations R1-R3 (page 110)
- (e) timber products be available from J1, J2, J3, J4, J5, and J6, as specified below
- (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
- (h) grazing be permitted at the discretion of the managing authority

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

J1 Castlemaine-Chewton (3930 ha)

To be managed by the National Parks Service.

This historic area includes the former Mount Alexander goldfield and surrounding areas. The alluvial workings were the richest in the world in the 1850s and Specimen Gully is allegedly the site of the first surface gold discovery in Victoria.

The many relics scattered throughout the area include mullock dumps, extensive mine remains, water-wheel foundations and water races with their associated stone walling, dams, timber flumes carrying the races across gullies, and a 188 metre tunnel under Ridge road. The area includes several old gold-mining centres such as Wattle Gully, Spring Gully (where the remains of the old township, miners' stone cottages, and examples of reef and alluvial mining are still evident) and the Monk Mine, which is a striking example of reef mining in one of the most productive reef mining areas of the Castlemaine goldfield. Many of the relics on public land have historical associations with other relics on freehold land and historic townships of the area such as Chewton, Vaughan, Irishtown, and Fryerstown.

The recommended Historic Area includes the Sebastapol Creek diggings, a goldfield that has not been reworked since early this century. The Sebastapol Creek diggings contain examples of a variety of gold-mining techniques, the remains of engineering works such as water races, dams, and mining structures, and the ruins of stone houses.

The majority of Sebastapol Creek diggings are located on adjoining land in the Melbourne area that was recommended as uncommitted land in the final recommendations for that area published in January 1977. Council suggests that the government consider adding that part of adjoining uncommitted land in the Melbourne area to the recommended Historic Area in the North Central area.

Notes:

1. Water-distribution channels are excluded from the Historic Area but adjoin portions of it. When management plans for those areas are prepared the State Rivers and Water Supply Commission should be consulted.
2. J1 abuts the Vaughan and Glenluce Mineral Springs Reserve. It is proposed that these springs remain as presently reserved and be managed by the National Parks Service.
3. The camp site occupancy licence held by the 2nd Castlemaine Scout Group on Allotment 3 section K1, Parish of Chewton, should be permitted to continue under the terms of the

existing occupancy licence.

4. Council notes the proposal by the City of Castlemaine and the Shire of Metcalfe to establish a rubbish tip in North Street, Chewton. Because of its proximity to the Garfield Wheel, the Council considers that the Shire of Metcalfe and the City of Castlemaine together with the land managers should investigate alternative sites in the vicinity on land that has been recommended by the Council for hardwood production or as uncommitted land.
5. Fencing timbers would be supplied where this does not conflict with the protection and management of historical features. The residue from these operations would be available as firewood.

J2 Percydale (1630 ha)

To be managed by the National Parks Service.

Gold-mining commenced in the Pyrenees Range west of Avoca in 1854. Gold was discovered on the fall to Middle Creek in October of that year, and Fiddlers Creek was being worked by December. Slate and other minerals were also found and quarried in the area. Many of the early miners were Cornish. Chinese also settled in the area and reports describe an elaborate Chinese theatre, unrivalled anywhere in the Colony, being erected. The town of Percydale, once known as Fiddlers Creek, was a typical mining town, supporting 17 hotels at the height of the mining activity. A school was built in 1866 and early plans show reservations for swimming baths and an agricultural college. Mining activity declined and by the 1930s only the school and its residence, church, and a few scattered houses remained. Relics of the mining era include the school plantation, slate huts, puddling machines, Chinese gardens, and the sites of the slate, silver, and gold mines.

Notes:

1. The Sardine and Percydale slate quarries and the silver mine should continue to operate.
2. Fencing timbers would be supplied where this does not conflict with the protection and management of historical features. The residue from these operations would be available as firewood.

J3 Stuart Mill (2550 ha)

To be managed by the Forests Commission.

The first gold discovery in this area was reported at the head of Carapooee Creek in 1851. The original discoverers of gold in the alluvial fields of Stuart Mill-a party of Italians-worked there in 1859-1860. A rush of 4000 diggers at Stuart Mill (then known as Albert Town) opened up several alluvial gullies, and the township developed.

After the early alluvial workings were exhausted, a number of reef mines were opened - the Isis and Greenock mines being the major ones. Relics from this mining era include puddling machines with much of the timbering still intact, a water race lined with local stone, the Railton Tunnel, which is an intact tunnel with pick marks still clearly visible, and mud-brick ovens used by the Chinese miners.

Relics of the forestry activities in the area include charcoal pits, bee-keepers' cottages, and sites of camps used to house the workers employed during the Great Depression of the 1930s to assist in thinning the forests of the area.

Note: Timber production would be permitted where this does not conflict with the protection and management of historical features.

J4 Maldon (2520 ha)

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

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

The pastoral nature of the area ended suddenly with the discovery of gold in 1853. The discovery was attributed to Captain John G. Mechosk, who eventually received the government reward for the discovery. Alluvial gold-miners led the initial rush, and by May 1854 the population had risen to between 18 000 and 20 000, with 28–57 kg (1000–2000 ounces) of gold produced per week. Lack of water, due to drought, and low yields compared with other fields, however, saw the population decrease to 2000 by November 1854.

The remaining population began quartz reef mining, and by 1857 quartz crushing was well established, by 1500 miners producing 2000 ounces of gold per week. Maldon was proclaimed a municipality in August 1858. The population declined over the years, enjoying a revival in 1901. The last mine closed down in 1926 and by 1933 only 723 people remained.

In 1966 the National Trust declared the Town of Maldon a notable town. The recommended Historic Area complements the Town of Maldon, as it contains many important sites and relics and is an important part of the landscape of the area. Relics include chimneys, tunnels mines, and the foundations of mine buildings. The area includes the Gower township site and the remains of the old Gower School.

Notes:

1. Harvesting of minor forest products such as firewood and round timber suitable for posts and poles should be permitted in that portion of the recommended Historic Area north of the Maldon-Castlemaine road and east of the Maldon-Bendigo road.
2. Management of J4 should be in consultation with the Shire of Maldon and the Town and Country Planning Board.
3. Continued extraction from the hornfels quarry should be permitted.
4. The annual Mount Tarrengower Hill Climb makes use of the roads within the Historic Area. This annual event could be allowed to continue, subject to the approval of and the conditions required by the land managing authority.
5. The environs of the Castlemaine-Maldon railway line should be protected.

J5 Moliagul (1010 ha)

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

This area is centred on the historical township of Moliagul and Mount Moliagul. Gold was first discovered here in 1852-the first find on what became known as the Dunolly goldfield. The Queens Gully open-cut mine was the first major working, but it was the Black Lead that yielded the Welcome Stranger nugget. This nugget, discovered by John Deason and Richard Oates in 1869, contained 2284 ounces (64.75 kg) of gold, one of the largest nuggets found in Victoria. The remains of the former mines include alluvial open-cut and reef workings, dams, and water races. Other relics include the ruins of miners' cottages, the Government Battery, and the police camp established in 1856. Near Mount Moliagul may be found the remains of an open-cut molybdenum mine. Also present are the original building of the common school established in 1862 and the original town water supply reserve surrounded by a split rail fence.

Note: Fencing timbers would be supplied where this does not conflict with the protection and management of historical features. The residues of these operations would be available as firewood.

J6 Diamond Hill, Bendigo (460 ha)

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

This area represents the southern extension of the Bendigo goldfields and contains the alluvial workings of Golden Gully and the quartz reef mines at Diamond Hill. The remains of the mines at Diamond Hill include large mullock heaps, pits, shafts, and tunnelling with brick foundations exposed.

The first gold discovery in the Bendigo goldfields was made at the junction of Golden Gully and Bendigo Creek. The township of Spring Gully once occupied part of this site, boasting at one stage a population in excess of 10 000 people. Relics of the school, hotel, and associated mines are included in the recommended Historic Area.

Notes:

1. This area is noted for its wildflowers. The flora values should be taken into account when management plans are prepared.
2. The adjoining land inside the City of Bendigo is an integral part of the Historic Area. Council recognises that this land is outside its jurisdiction, but suggests that it should be used in conjunction with the Historic Area.
3. Council notes the proposal by the Shire of Strathfieldsaye to establish a garbage disposal area at Golden Gully. Because of the historical, landscape, and recreation values of Golden Gully, the Council considers that the Shire of Strathfieldsaye together with the land managers should investigate alternative sites in the vicinity that have been recommended by Council for hardwood production or as uncommitted land.
4. Fencing timbers would be supplied where this does not conflict with the protection and management of historical features. The residue of these operations would be available as firewood.

J7 Whroo (490 ha)

To be managed by the Forests Commission.

This area contains a number of historical features covering a range of themes, including gold-mining, early settlement, and Aboriginal occupation. Many relics of the gold-mining era remain, including the Balaclava open-cut mine, a restored puddling machine, and cyanide vats. The site of the Whroo township, which once contained more than 1000 inhabitants, is marked by a cleared grassy area in the forest. The best preserved relic of this early settlement is the town's cemetery. There is also evidence of Aboriginal occupation in the form of rock wells.

HISTORIC RESERVES

J8-J29 That the areas listed below be used to:

- (a) protect specific sites that carry or contain the relics of buildings, equipment, construction works, and artifacts 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 the extraction of 'gold', 'minerals' and 'petroleum' - including fossicking and prospecting under a Miner's Right-be permitted in accordance with recommendations R1—R3 (page 110)
 - (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) grazing be permitted at the discretion of the managing authority
- and that the areas be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978*, and be managed by the Department of Crown Lands and Survey.

J8 Landsborough (16 ha)

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

J9 Glendhu (40 ha)

Site of the alluvial workings of Glendhu Reef and an old mining dam.

J10 Majorca (16 ha)

Land covering the public gardens and water reserves, which is an integral part of the historical township. This reserve includes the public hall, which was originally the Borough Office and has been noted by the National Trust.

J11 Kong Meng (20 ha)

Site of the Kong Meng Mine, one of the few deep-lead mines operated by a Chinese company.

J12 Timor (7 ha)

Site of the Grand Duke Mine, containing the arch of the mine plus intact mine dumps. The cemetery located close by has strong historical associations with this mine.

J13 Tipperary Hill (5 ha)

The site of the Tipperary Riots between a party of Irishmen (Tipperaries) and 3000 other diggers over a disputed claim in 1855.

J14 McIntyre (38 ha)

This area is part of the Berlin goldfield, and gold was first discovered here in 1854. It is the site of the Matrix Reef Mine; opposite is the St John's patch, where many large nuggets were found.

J15 Rheola Hill (72 ha)

This area is part of the Berlin goldfield, and was the scene of a rush in 1858 to areas known as Glelland, Paper, and Tylers Gullies.

J16 Nine Mile (12 ha) Site of the Nine Mile mine and battery.

J17 New Bendigo (24 ha)

Goldfield opened first in 1855 and the scene of extensive Chinese workings and settlements.

J18 Wild Dog Diggings (24 ha)

Site of the Wild Dog Lead, a shallow lead mined by both European and Chinese miners.

J19 Baileston (148 ha)

The site of Coy's Diggings, which were opened in 1854. This mine was an example of narrow reef mining, being an extension of the Whroo-Rushworth reef.

(Part revocation, see Order in Council 5/12/1995)

J20 Fosterville (98 ha)

The reefs at Fosterville, part of the Ellesmere goldfield, were discovered in 1852, but only became established in 1895. The main reef, known as Hunt's line, averaged 2.4 metres (8 feet) wide and was mined by open-cut methods.

J21 Wehla (50 ha)

The site of an old mine and the township of Wehla.

J22 Lower Homebush (1 ha)

The site of the Lower Homebush school.

J23 Graytown (50 ha)

Site of an important goldfield and township that, at one time, was sufficiently large to be a borough.

Note: This reserve does not include the former prison camp.

J24 Kinipaniel Creek Weir (10 ha)

Weir built in 1885 by the Loddon United Waterworks Trust.

J25 Wanalta Weir (5 ha)

Intact early timber weir built by Wanalta Weir Waterworks Trust.

J26 Murchison Waterworks Trust (1 ha)

The brick pumping cylinder and timber control gates erected by the United Echuca and Waranga Waterworks Trust in 1882.

(See Rivers and Streams SI A5)

J27 Goldsbrough (7 ha)

The site of the Goldsbrough goldfield; extensive relics remain, including dams, machinery foundations, and mullock heaps. An old eucalyptus-oil distillery is also present.

J28 Serpentine Creek Weir (0.5 ha)

Intact timber weir built by Loddon United Waterworks Trust to raise the level of Serpentine Creek.

J29 Gooseberry Hill Tunnel (0.5 ha)

Well-preserved tunnel with timbering still partially intact.

Advisory Committee

J30 That an advisory committee be formed consisting of representatives of each of the managing authorities, the Department of Minerals and Energy, and the Ministry of Planning to co-ordinate the development of the recommended Historic Areas and Reserves.

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

- a coordinated approach to the management of areas
- the integrated development and promotion of areas
- public safety
- guidelines for the protection of the integrity of the relics if exploration and mining take place
- criteria for assessing the relative significance of historical features and relics.

Note: The township of Tarnagulla is a good example of an early township that has retained many of its original characteristics. Council considers that the historical buildings and other relics that occur on public land in Tarnagulla should be preserved and managed by the Department of Crown Lands and Survey. (See recommendation T1.)

K. RIVERS AND STREAMS

(See Rivers and Streams SI *Chapter E*)

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 20m to 60m) along each bank. In some cases this land has been reserved for public purposes under the [*Crown Land (Reserves) Act 1978*] 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 licenses and Council believes that in some situations, for example along popular fishing streams, the provision of stiles would

facilitate pedestrian access along public land water frontages and would reduce damage to fences and avoid gates being left open.

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

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

Public land water frontage reserves

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

Recommendation

K1 That the public land water frontages

- ~~(a) be used to~~
 - ~~(i) protect adjoining land from erosion by the maintenance of adequate vegetation cover~~
 - ~~(ii) maintain the 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 motorised 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 Utilisation 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: Recommendations for public land water frontage reserves have been replaced by the 1991 Rivers & Streams Special Investigation recommendations E1—E3, as follows]

K1A That public land water frontages

(a) be used to

(i) conserve native flora and fauna as part of an integrated system of habitat networks across the State

(ii) maintain or restore indigenous vegetation

(iii) protect adjoining land from erosion, and provide for flood passage

(iv) protect the character and scenic quality of the local landscape

(v) provide protection for cultural heritage features and associations

(vi) provide access for recreational activities and levels of use consistent with (i)--(v) above (see Note 1)

(vii) where this does not conflict with (i)--(vi) above, allow access for water, and for grazing of stock by adjoining landholders under licence

that

(b) where frontage reserves are currently licensed for grazing or other purposes, and where stream-bank or frontage vegetation is degraded, frontage vegetation is not regenerating, or stream banks are eroding, consultative groups be established by the public land managers, with waterway management, local government, and licensee representatives, as follows:

(i) at a State level, to develop guidelines and programs for restoration of frontages, including re-establishing or regenerating indigenous vegetation

(ii) at a regional level, to develop strategies for managing frontage reserves while vegetation is being restored

(iii) at a local level, to set priorities and a time-table for frontage restoration and maintenance

and these guidelines, programs and strategies be implemented according to the priorities and time-table so determined (see Notes 2--6)

that

(c) (i) where habitat and landscape are proposed to be restored, particularly in cleared or degraded areas, indigenous trees, shrubs, and ground species be planted

(ii) if appropriate, suitable areas for more intensive recreational use be identified and facilities established

(iii) where land

- (iv) exchanges are proposed that involve frontage land that is no longer adjacent to rivers, efforts be made to prevent loss of any nature conservation or other values of this land from the public land estate (see Note 5)
 - (iv) a method be developed that will allow public land frontages to be readily identified, and such frontages be so marked where appropriate
 - (d) (i) where a licence has been issued for a public land water frontage as in (a) (vii) above, recreation use by the public for activities such as walking, nature observation, or fishing be permitted while motorised forms of recreation not be permitted
 - (ii) licensees be required to provide stiles in any fences erected across their licence area if requested to do so by the land manager (see Notes 7 and 8)
 - (iii) no new cultivation for agriculture be permitted, and areas currently cultivated be reviewed by the land manager as part of a systematic assessment of river restoration priorities, with a view to phasing out inappropriate cultivation
 - (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 land manager, special measures are necessary to protect water supplies, to rehabilitate areas that are eroding or salt-affected, to permit regeneration of native plants that have particular value for nature conservation, or to protect cultural, recreational, and scenic values that are sensitive to the impacts of grazing (see Note 8)
 - (e) the Department of Conservation and Environment be consulted prior to the proclamation of roads, the construction of roadways, or the creation of buildings on public land water frontages
- and that public land water frontages be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the Department of Conservation and Environment (or present manager), in consultation with the relevant waterway authority (see Note 9).

Stream Beds and Banks

K1B That stream beds and banks, subject to other recommendations and guidelines in this report and statutory requirements

- (a) be used to
 - (i) conserve or restore habitat for native flora and fauna
 - (ii) provide for appropriate recreational activities and levels of use
 - (iii) provide for flood passage and drainage requirements of adjacent land
 - (iv) where necessary, provide for the passage of artificial flows of water stored within the catchment or transferred from other catchments
 - (b) be maintained in a stable condition using environmentally sound techniques
 - (c) where this does not conflict with (a) and (b) above, provide a source of sand and gravel
- and that stream beds and banks be securely reserved and managed by the relevant waterway authority or the Rural Water Commission (or present manager), in consultation with the Department of Conservation and Environment.

K1C That

- (a) the interrelated nature of the values and uses of river frontage, beds and banks be recognised in management planning and implementation
- (b) initiatives be developed and implemented to remove economic, social, administrative and technical factors that lead to losses of river bed, bank, and frontage values, or to difficulties in achieving effective and co-ordinated restoration and maintenance programs

(c) programs for stream bed, bank and frontage stability be carried out in accordance with [Rivers & Streams] Recommendation F9.

Notes:

1. [Rivers & Streams] recommendation F1(h) provides that a code of behaviour for recreational users of river frontages be developed and promoted.
2. Council recognises that a number of bodies currently exist which undertake, or are capable of undertaking the functional requirements at State, regional or local levels. In this context 'regional' would cover a single river basin or a number of adjacent basins, and 'local' an area within a river basin, such as individual drainage catchments or a particular river reach.
3. It is envisaged that for community consultation, Catchment Co-ordination Groups where they exist, or similar groups where they do not, could carry out or facilitate stages E1(b)(ii) and (b)(iii) above, and that the Standing Committee on Rivers and Catchments or equivalent organisation could carry out or facilitate E1(b)(i). When determining priorities, restoration or maintenance programs which lead to direct site improvement are to be given precedence.
4. Vegetation re-establishment or regeneration may require the temporary or permanent removal of stock from some frontage areas.
5. These areas could include values such as remnant vegetation, wetland habitat, opportunities for recreational use or contain features of cultural significance, such as scarred trees.
6. Identification of priorities in E1(b)(iii) should take into account the guidelines set out above.
7. The choice of a suitable design for stiles should involve representatives of the frontage user groups such as the Victorian Farmers Federation and peak recreation groups.
8. These are provisions in existing legislation, regulations, or licences.
9. It is Council's intention that these areas remain within the public land estate and be securely reserved. The *Crown Land (Reserves) Act 1978* requires that areas to be reserved be surveyed, a process which is expensive and protracted. If alternative methods become available which will achieve Council's intention of secure reservation, for example using a record plan, then these could be used, provided that the reservation is otherwise comparable to permanent reservation under the *Crown Land (Reserves) Act 1978*.

[Rivers & Streams SI recommendations approved by Order in Council 7/7/1992]

(See Rivers and Streams SI A5)

RIVER IMPROVEMENT

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

Bullock Creek
Bendigo Creek.

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

The works carried out include:

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

Such work is often made necessary by the changes that Man has made to land use in the river

catchments and on the flood plain. The following changes have generally reduced the value of the rivers for nature conservation:

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

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

Removal of snags from the centres of wide streams damages fish habitat, but the tethering of these snags against the banks may provide alternative fish habitat, as well as protecting the banks from erosion. 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 minimise the consequences of flooding rather than attempt to prevent it.
- An adequate vegetation cover should be maintained along stream frontages to stabilise

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

[See also recommendations K1B and K1C above]

K2 ~~That the assessment of the need for, and the planning and implementation of, any works involving changes to the beds and banks of streams be based on the principles set out above.~~

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.~~

F9A That

- (a) the assessment of the need for, and the planning and implementation of, waterway management works involving any changes to the beds and banks of streams incorporate the principles outlined above
- (b) the effectiveness of waterway management works, and effects on river values, be researched and, where appropriate, management techniques be changed
- (c) reporting mechanisms and criteria be developed in order to identify the environmental impact of river works, and monitor progressive achievement of the maintenance or restoration of a river's environmental values

and that, except where specified otherwise, Victorian rivers be managed by the relevant waterway authority or the Rural Water Commission (or existing manager) in consultation with the Department of Conservation and Environment.

[Rivers & Streams SI recommendations approved by Order in Council 7/7/1992]

(See Rivers and Streams SI *F9A*)

STREAMSIDE RESERVES

(See Rivers and Streams SI *D1*)

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

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

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

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

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

Recommendations

K3-K50 That the areas shown on the maps and described below be used to:

- (a) provide passive recreation such as picnicking, walking and angling
- (b) provide opportunities for camping at the discretion of the management authority if this does not conflict with the maintenance of the water quality of the adjacent stream
- (c) conserve flora and fauna
- (d) maintain the local quality and character of the landscape
- (e) provide grazing, at the discretion of the management authority, if this use does not conflict with the maintenance of the water quality of the adjacent stream or with (a), (b), and (c) above and that they be reserved under section 4 of the *Crown Land (Reserves) Act 1978* and be managed by the Department of Crown Lands and Survey.

K3 24 ha, being the water reserve west of allotments 133B and 134, Parish of Warranook.

K4 16 ha, on Station Creek, east of allotments 33 and 34, section A, Parish of Warranook.

K5 8 ha on the Wimmera River, south of allotment 13 of section 8, Parish of Glenorchy.

K6 6 ha, west of allotment 170, Parish of Stawell.

- K7** 8 ha on Sheepwash Creek north of allotment 134, Parish of Kirkella
- K8** 2.6 ha on Seven Mile Creek, south of allotment 18, Parish of Watta Wella.
- K9** 8 ha on Seven Mile Creek, being east of allotment 103A Parish of Glynwylln.
- K10** 9 ha on the Wimmera River, west of allotment 68, Parish of Glynwylln.
- K11** 30 ha on the Richardson River, being south of allotment 72, Parish of Bolangum.
- K12** 9 ha on Blind Creek, east of allotment 111B, Parish of Marnoo.
- K13** 4 ha east of allotment 25B, Parish of Boola Boloke
- K14** 7.5 ha west of allotment 44 of section 2, Parish of Moolerr.
- K15** 4 ha on the Avoca River, east of allotment 3, Parish of Gowar.
- K16** 20 ha on the Avoca River, being east of allotment 54A, section C, and south of allotment 7, Parish of Gowar.
- K17** 30 ha on the Avoca River, south of allotment 11, Parish of Dalyenong.
- K18** 18 ha adjacent to allotment 3 of section A, Parish of Kooreh.
- K19** 15 ha, being the water reserve adjoining Bet Bet Creek in section 2A, Township of Bung Bong.
- K20** 10 ha, being the recreation reserve north of allotment 3, Parish of Lillicur.
- K21** 6 ha on Timor Creek west of allotments 9 and 13A of section XII, Parish of Amherst.
- K22** 6 ha on Timor Creek north of allotment 1 of section VIII Parish of Wareek.
- K23** 2 ha, being the water reserve west of allotment C of section 9, Parish of Glengower.
- K24** 10 ha, on McCallum Creek north of allotment 11, Parish of Carisbrook.
- K25** 20 ha, being allotment 2A, and north and east of allotments 1 and 2 of section 3, Township of Eddington.
- K26** 20 ha, being allotments 1 and 2 of section 7, Township of Eddington.
- K27** 8 ha, south of allotment 95 of section D, Parish of Tarnagulla.
- K28** 22 ha on the Loddon River at Bridgewater adjoining allotments 28 and 28A of section A and allotments 4, 5, 6, 7 and 8 of section C, Parish of Inglewood.
- K29** 12 ha, being the water reserve adjacent to allotment 28, Parish of Powlett.
- K30** 6 ha, being the water and camping reserve west of allotment 153, Parish of Hayanmi.
- K31** 30 ha, being the water reserve adjoining allotment 107B, Parish of Leichardt.
- K32** 23 ha, being the water reserve adjacent to allotment 2C of section 32, Parish of Yarraberb.
- K33** 32 ha, being the camping and water reserve adjacent to allotment 25C, Parish of Neilborough.
- K34** 5 ha on Bullock Creek, being the reserve for watering and public purposes and other Crown land extending from east of allotment 15B section 12 to east of allotment 5A section 29, Parish of Lockwood.

- K35** 220 ha, being the public purposes reserve on the Bendigo Creek, Parish of Huntly.
- K36** 50 ha on Sheepwash Creek, north of the Township of Strathfieldsaye.
- K37** 3 ha on the Coliban River, adjoining allotment 14, Parish of Metcalfe.
- K38** 15 ha on the Coliban River and Back Creek, south and east of allotments 16 and 17, Township of Taradale.
- K39** 5 ha on the Campaspe River, north of allotment 17, Parish of Ellesmere.
- K40** 3.5 ha on the Campaspe River, south of allotment 13A of section 10, Parish of Ellesmere.
- K41** 12 ha on the Campaspe River being allotment 5, Parish of Ellesmere and the adjoining river frontage.
- K42** 10 ha, being the water reserve adjoining allotments 6D and 6F of section 1, Parish of Muskerri.
- K43** 15 ha on the Campaspe River, being west of allotments 13A, 13B and 13C, Parish of Campaspe.
- K44** 25 ha on Major's Creek, being part of allotments 1, 3 and 24, Parish of Mitchell.
- K45** 11 ha, being the water reserve north of allotment 2 of section A, Parish of Mitchell.
(See Rivers and Streams SI A5)
- K46** 3 ha on the Goulburn River, west of allotment 57A, Parish of Tabilk.
(See Rivers and Streams SI A5)
- K47** 3 ha on the Goulburn River, west of allotment 2, Parish of Wharing.
(See Rivers and Streams SI A5)
- K48** 3 ha on the Goulburn River, north of allotment 1S, Parish of Dargalong.
(See Rivers and Streams SI A5)
- K49** 3.5 ha on the Goulburn River being west of allotment 166, Parish of Dargalong.
(See Rivers and Streams SI A5)
- K50** 200 ha on the Goulburn River, being allotments 101, 105 and 109, adjacent Crown land reserves and water frontages, Parish of Arcadia.
(See Rivers and Streams SI A5)

L. ROADSIDE CONSERVATION AND HIGHWAY PARKS

ROADSIDE CONSERVATION

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

Nature conservation

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

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

Recreation and landscape

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

Salinity prevention

In this area, where dryland salting is becoming an increasing problem, roadside trees play an important role in mitigating the effects and extent of salinization. These trees, often the only remaining trees in the area, play a vital part in the interception of saline subsurface moisture.

Management

Responsibility for the management of roadside vegetation is vested in various authorities, depending on the status of the road. The most important roads of the State (State highways, tourist and forest roads, and freeways) declared under the *Country Roads Act 1958* are completely

under the control of the Country Roads Board (9000 km). Main roads (14 500 km) are also declared, but are controlled jointly by the Country Roads Board and local municipal councils. Vegetation on unclassified roads (about 98 000 km of mostly minor roads) is under the care and management of municipal councils, although it is owned by the Crown. The Forests Commission has the control of vegetation on unclassified roads that pass through or adjoin State forests. (Note: These figures are for all Victoria.)

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

Back roads

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

Recommendations

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

Landscape, recreation, and conservation values can best be protected by observing the following guidelines. The Council recognises 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 recognising the need for clearing or pruning vegetation close to power lines to reduce the associated fire risk, the State Electricity Commission should consult with the Forests Commission regarding the manner in which the risk posed by vegetation can be reduced, while at the same time reducing the environmental impact to a minimum.
- Road-making materials should not be taken from road reserves unless no suitable alternative sources are available. Any such removal should be done so as to ensure a minimum disturbance of the native vegetation, and the disturbed area should be rehabilitated, where possible, with vegetation native to the area.

- Burning off, slashing, or clearing of roadside vegetation should be kept to a minimum consistent with providing adequate fire protection.
- Weeds and vermin on roads should be controlled by means that do not conflict with the uses given above.
- The various road management authorities, when planning to upgrade roads that have heavy recreational use, should give due consideration to recreational requirements, and give priority along such roads (when funds are available) to the development of roadside recreation facilities.
- On soils of moderate to high erosion hazard, road management authorities should ensure that pre-planning, design, construction, and funding of roads cater adequately for erosion prevention and control. Advice should be sought from the Soil Conservation Authority.

L2-L9 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

L2 Metamorphic aureoles at Fogarty's Gap north-west of Harcourt, and Big Hill south of Bendigo.

To be managed by the Country Roads Board.

L3 Permian tillites at Derrinal.

To be managed by the Country Roads Board.

L4 Selwynite at Heathcote.

To be managed by the Country Roads Board.

L5 Contorted cherts at Lady's Pass north of Heathcote.

To be managed by the Country Roads Board.

Sites of habitat significance

L6 Several road reserves south of Colbinabbin township, which support mature stands of yellow gum, grey box, white box, and some yellow box and are important habitats of the rare squirrel glider.

To be managed by the Shire of Waranga in consultation with the Fisheries and Wildlife Service.

L7 Several road reserves to the west and north of Wedderburn, which support good stands of Kamarooka Mallee (*Eucalyptus frogattii*).

To be managed by the Shire of Korong.

L8 A stand of Kamarooka Mallee (*E. frogattii*) on the Calder Highway north-west of Wedderburn.

To be managed by the Country Roads Board.

L9 Two road reserves, one north of the township of Prairie and the other east of the township of Dingee, which contain small populations of the rare herbaceous legume *Swainsona plagiotropis*.

To be managed by the Shire of East Loddon.

L10 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 the 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

L11 That the area of approximately 24 ha adjacent to the Calder Highway, being allotment 64 in the Township of Ravenswood, be used:

- (a) for picnicking and to provide relaxation for the travelling public
- (b) to maintain the local character and quality of the landscape that
- (c) facilities in keeping with the nature of the reserve be provided

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

Note: The boundaries and area of this park may be altered as a result of proposals for the duplication of the Calder Highway by the Country Roads Board.

L12 That the area of approximately 10 ha adjacent to the Northern Highway and adjoining allotment 3, Parish of Runnymede, be used:

- (a) for picnicking and to provide relaxation for the travelling public
- (b) to maintain the local character and quality of the landscape that
- (c) facilities in keeping with the nature of the reserve be provided

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

Roadside picnic areas

Smaller less-developed picnic areas should supplement the system of highway parks and major

reserves. Unlike highway parks, these would not be sufficiently large or 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

L13 That the land management authorities establish picnic areas in suitable locations adjacent to the road reserves.

M. EDUCATION AREAS AND SCHOOL PLANTATIONS

EDUCATION AREAS

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

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

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

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

- giving examples of major land types
- with maximum diversity of vegetation types, soils, etc., and with natural boundaries
- located with consideration of ready access by users
- located so as to minimise 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 minimise erosion and pollution hazard.

No one organisation 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 organisations, and

the land manager) should be responsible for implementing educational aspects, and for coordinating usage of the areas.

Recommendations

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

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

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

M1 Faraday (100 ha)

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

Note:

1. This area is to be used in conjunction with the school camp facilities in the old primary school at Faraday.
2. A water supply for irrigation purposes should be maintained from the Expedition Pass reservoir to the property of the one existing irrigator, in accordance with the conditions which currently apply.

M2 Eppalock (1200 ha)

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

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

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

M3 Deep Lead (260 ha)

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

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

M4 Waranga (248 ha)

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

[That an area of 12 ha be removed from Education area (M4) and be reserved for stone production as R77, and that the area of 30 ha formerly recommended as R77 be added to the Education Area (M4) (LCC letter to Minister 9/6/1981)]

M5Mt. Egbert (90 ha)

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

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

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

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

It should be realised 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 organisation, schools wishing to use an area of nearby bushland for teaching purposes should consult with the appropriate managing authority. Their use of such an area should be in harmony with the manner in which the surrounding public land is used.

Recommendations

M6 That areas set aside for school plantations be primarily used as a teaching resource and utilised to foster awareness and knowledge of the trees and other living organisms that comprise a forest.

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

M7 That the value of each existing school plantation as a teaching resource or for revenue production be assessed by the Education Department-in consultation with the Forests Commission and the Department of Crown Lands and Survey, where appropriate-and that the use of those considered unsuitable or no longer required be terminated.

M8 That new school plantations only be established on public land for education purposes and where their establishment allows the rehabilitation or reforestation of cleared or eroded areas.

N. GEOLOGICAL RESERVES

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

Recommendations

N1-N6 That the areas indicated on the maps and listed below be used to:

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

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

N1 Mt. Greenock (120 ha) south of allotments 29 and 31 of section B, Parish of Amherst.

(See Rivers and Streams SI C11)

N2 Amherst reef (8 ha) in reserved forest south-west of the Amherst township.

N3 Permian outcrop (2 ha) east of allotment 88, Parish of Mandurang.

N4 Moorabbee shoreline (34 ha) adjacent to the Lake Eppalock shoreline and including examples of glaciated pavements that occur below full-supply level of the lake-to be managed by the State Rivers and Water Supply Commission in consultation with the Department of Minerals and Energy.

~~**N5** Pink Cliffs (17 ha) adjacent to the south-western boundary of the Township of Heathcote.~~

[Revoked by Order in Council 8/8/1995]

N6 Coliban Falls (4 ha) on the Coliban River adjacent to allotment 11, Parish of Hawkestone.

O. RECREATION

The term recreation includes the multitude of different activities that people undertake during their leisure time. In fact, the distinguishing characteristic of recreation is not the activity itself so much as the attitude 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 recreation activities include all organised sports and other group activities, while activities such as picnicking, fishing, and hiking are grouped as informal.
- Passive recreation covers situations where the individual obtains his recreation through absorbing the sights, sounds, and atmosphere of the surrounding environment while expending little physical effort. Examples are picnicking, nature observation, and strolling.
- Active recreation covers situations where the individual must expend considerable physical effort to obtain some mastery of physical forces in order to satisfy his particular recreational needs. Examples are playing organised sport, bushwalking, and rock-climbing.
- Open-space recreation includes all recreational activities that require spacious outdoor surroundings, whether the activities be active or passive, formal or informal.
- Intensive recreation involves large numbers of people per unit area. For example, areas such as picnic grounds and beaches along the shores of Lake Eppalock would be considered to be intensively used.

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

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

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

soils are sensitive to damage, such as those occurring on granite soils, and where the natural environment or special 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 motorised 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 recognise the need to inform and educate participants in motorised 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 organisation 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 recognising 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 organisation 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 North Central area. Most people are seeking gold, but there is also an interest in gemstones.

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

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

Recreation reserves

- O4-O9** That the areas described below and shown in the maps be used for organised sports (football, horse-racing, golf, etc.) and informal recreation (picnicking, camping, etc.) as permitted by the managing authority
 that native trees be conserved where possible (this is of particular significance for part of allotment 81E, Parish of Sandhurst, between the Grassy Flat Reservoir and Cousins Street including the trees on the northern side of Cousins Street)
 and that these areas be permanently reserved under section 4 of the *Crown Land (Reserves) Act 1958* and be managed by the Department of Crown Lands and Survey.
- O4** Existing recreational reserves.
[See also Rivers and Streams SI A5, C9] [O4, CA 23A no sec, Township of East Murchison, Parish of Murchison, changed to C18 Murchison Lagoon wildlife reserve (LCC letter to Minister 13/07/1982)]
- O5** 1 ha comprising the reserve for storage of stone and the unused road reserve to the west of allotment 10, Parish of Carisbrook, should be reserved for the establishment of the Carisbrook Leisure Centre. This facility is being constructed by the Shire of Tullaroop.
- O6** 16 ha, being sections 22, 23 and 24 and the adjoining land to the west within the township of Tarnagulla comprising the Tarnagulla Golf Course should be reserved for recreation purposes, and a small extension north of section 24 to the boundary of the township land should be added if required.
- O7** 42 ha west of allotments 97B and 97E, Parish of Moora, should be added to the existing Rushworth Golf Course and be reserved for recreation purposes.
- O8** 12.5 ha, being the Water Supply Reserve surrounding the Nuggety Gully Reservoir to the east of Bowenvale township, should be reserved for recreation purposes.
- O9** 33 ha east of allotment 160E of section N, Parish of Sandhurst, should be reserved for recreation purposes.
- O10** That the Forests Commission of Victoria continue discussions with the Victorian Field and Game Association regarding the use of an area in the Axedale Forest as a simulated field shooting range (see Recommendation E35).

P. SCENIC RESERVES

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

Recommendations

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

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

P1 470 ha, being Mount Korong and its surrounds including the public purposes reserve, allotment 26, Parish of Korong, and the land north and west of allotment 25B, Parish of Korong (the rehabilitation works will be completed on the former quarries)-to be managed by the Department of Crown Lands and Survey.

P2 330 ha, being the area (The Granites) south of allotments 65 and 67, Section 4, Parish of Borung-to be managed by the National Parks Service.

P3 580 ha, being the land on and surrounding Mount Beckworth, excluding that land used for softwood production (see recommendation F1), Parish of Clunes-to be managed by the Forests Commission.

P4 900 ha, being the area west of allotment 1B, 2A, 2K, Parish of Heathcote-to be managed by the Forests Commission.

P5 7 ha in the Parish of Emberton, being the area surrounding Turpin's Falls-to be managed by the Department of Crown Lands and Survey.

P6 8 ha being allotment 43, section 8, Parish of Eglinton (the land on and surrounding Mount Glasgow)-to be managed by the Department of Crown Lands and Survey.

Q. AGRICULTURE

The Council recommends that, at this stage, no additional large areas of public land be developed for agriculture and that only small areas of suitable land on the perimeter of public land be made available (see Recommendations Q1-Q26).

Council is mindful of the small amount of public land remaining in the North Central area and supports the purchase of additional suitable land to add to the public estate. Reafforestation of this land would help alleviate dryland salting, which is a major problem in this area. When considering the application of public land for agriculture, and the consequent change from forest to grassland that may result, one of the important factors taken into account is the effect such a land use change may have on the salting problem.

Grazing on public land

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

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

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

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

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

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

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

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

The proposed committee should act as a review or monitoring body and should assess and report at regular intervals on the impact of grazing on public land.

Apiculture

Honey production is an important industry in the North Central area. The Council considers that apiary sites should continue to be permitted on public land other than in reference areas.

Recommendations

Agricultural land

Q1-Q26 That the land described below and shown on the maps be used for agriculture. It is intended that this land should form additions to present farms rather than be developed as new units.

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

Q1 1.2 ha west of allotments A20B, A21A, Parish of Knowsley.

Q2 4.4 ha, being allotment 50C, Parish of Winjallock.

Q3 1 ha on the eastern edge of allotment 9, Parish of Strathfieldsaye.

Q4 1.6 ha between allotments 34 and 38 of section N1, Parish of Sandhurst.

Q5 4 ha north of allotment 3, section 11, Parish of Sedgwick.

Q6 0.8 ha south of allotment 16, section G, Parish of Dunolly.

Q7 6.0 ha adjoining allotment 6A, section A, Parish of Natteyallock.

~~**Q8** 12 ha south of allotment 14, section A, Parish of Tehuterr. [Sold 1/3/1996]~~

Q9 2 ha south of allotment 31, section 16, Parish of Guildford.

- Q10** 6.0 ha west of allotment 44, section B, Parish of Gowar.
- Q11** 4 ha south of allotment 158C, section C, Parish of Tarnagulla.
- Q12** 16 ha adjoining allotment 36, section A, Parish of Brenanah.
- Q13** 11 ha, being part of allotment 124, Parish of Kooroc.
- Q14** 0.5 ha within allotment 25, Parish of Burramboot.
- Q15** 1 ha adjoining allotment 3A, section C, Parish of Colbinabbin.
- Q16** 0.5 ha adjoining the northern boundary of allotment 18, Parish of Burramboot.
- Q17** 1 ha within allotment 36, section C, Parish of Colbinabbin.
- Q18** 1 ha adjoining the southern boundary of allotment 59C, Parish of Moora.
- Q19** 2.0 ha adjoining allotment 8, Parish of Glenhope.
- Q20** 24.5 ha, being allotment 129F, Parish of Glynwylln.
- Q21** 8.0 ha adjoining allotment 159, Parish of Bolangum.
- Q22** 11.0 ha, being allotment 254, Parish of Navarre.
- Q23** 3.0 ha adjoining allotment 153, Parish of Bolangum.
- Q24** 3.2 ha adjoining allotment 102, Parish of Bolangum.
- Q25** 24 ha, being allotment 199B, Parish of Joel Joel.
- Q26** 2.4 ha, North of allotment 5J, section H¹, Parish of Sandhurst.

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* 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 places human life at risk. In relation to public safety, nothing in the recommendations shall affect the powers of Inspectors under the *Mines Act* and the *Extractive Industries Act*.

Gold

Council recognises that the North Central area is one of the world's major gold provinces 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

As proposed recommendations appear to have been misunderstood and misinterpreted, the Council has set out in some detail the manner in which prospectors can operate under a Miner's Right.

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

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

Under current legislation there is a small percentage of public land in the North Central 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
- important geological formations such as the ancient rock formations on portion of the shores of Lake Eppalock
- sites of high erosion hazard
- community assets such as recreation areas and water or sewerage 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-D54), the areas specifically excluded in these recommendations amount to less than 1 per cent of the public land in the study area, and are recommended as reference areas. These areas

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.

In determining the areas recommended for the extraction of 'stone', the Council considered the following factors.

In the North Central area, because much of the readily accessible material has been taken in the past by shallow stripping, it will become increasingly necessary to have quarry or deep pit operations. Only limited quantities of material remain to be won by surface stripping. More recently, in areas of Tertiary alluvial gravels, it has been appreciated that below the hard conglomerate cap encountered when shallow stripping, gravels occur that are suitable for many municipal road maintenance and construction purposes. These gravels occur in 13 of the 17 municipalities within the study area. Council believes that these deeper deposits should be exploited on a planned basis and, where necessary, serve a number of shires that do not have adequate resources within their own shire boundaries.

Based on current knowledge, the Council believes that these recommendations allow the shires access to resources of Tertiary 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 the 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 minimised.

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 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', 'mineral', and 'petroleum'. The Department of Minerals and Energy and the managing authority should together determine these areas. An interdepartmental 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 *Mines 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 programme submitted by the applicant. In the case of Miner's Right claims, prior assessment is impractical and the Department should require the lodgment of a bond as surety for adequate rehabilitation. Wherever practical, the Department should seek the lodgment of mining plans that show the expected post-mining state of the land and should state operating conditions to achieve an appropriate standard of rehabilitation acceptable to the land manager.
 - (b) No sites for the extraction of 'stone' should be opened in areas that the managing authority, in consultation with the Department of Minerals and Energy, considers to be of greater value for other uses, including aesthetic or nature conservation values. The advice of the Department of Minerals and Energy should also be sought as to the desirability of proposed excavations, having regard to alternative sources of 'stone'.
 - (c) Extraction of 'stone' should generally be concentrated on the fewest possible sites in an area, and any one site should be substantially worked out and where possible reclamation ensured before a new site is exploited. The type of excavation to be carried out should be that with the lowest environmental impact consistent with the effective use of the resource. In general, and where the nature of the resource permits, excavations for 'stone' should be deep and limited in area in preference to shallow excavations over a wide area. The extraction of granite sand occurring as shallow deposits in the weathered profile should be discouraged unless it has been established that no suitable alternatives

are available. In the special circumstances where approval is given for this form of extraction, particular attention should be given to the prevention of soil erosion.

- (d) Where an application for the removal of 'stone' from a stream-bed is considered, the land management authority should take particular care to ensure that the operations will not directly or indirectly cause erosion of the bed or banks, or undue pollution of the stream. In addition to the arrangements outlined above for 'stone' the land management authority should also consult with the relevant water supply and conservation authorities, and should consider the scenic and recreation values of the area.

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

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

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

Recommendations

R1 That fossicking and prospecting under Miner's Right, involving minimal disturbance of soil or vegetation, be permitted on public land other than:

- (i) those areas specifically excluded in the recommendations (see 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 above guidelines in section on fossicking and prospecting)
- (iii) the areas referred to in R2 below.

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

R2 That those areas of public land currently exempted or excepted from occupation for mining purposes under a Miner's Right or from being leased under a mining lease, remain so exempted unless the land manager and the Department of Minerals and Energy together determine that such exemption or exception should no longer apply.

R3 That public land in the study area (other than reference areas) continue to be available for exploration under licence and for extraction of 'gold', 'minerals', and 'petroleum', subject to Recommendation R2 and the principles and guidelines set out above.

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

- R4** That public land in the study area (other than reference areas) continue to be available for exploration for 'stone' subject to the principles and guidelines set out above.
- R5-R86** That the areas listed below be used for the extraction of 'stone' in accordance with the principles and guidelines outlined above and, if not already reserved for this purpose, be temporarily reserved under section 4 of the *Crown Land (Reserves) Act 1978* and managed by the Department of Crown Lands and Survey.
- R5** 12 ha north of allotment 9A, Parish of Stawell.
- R6** 35 ha west of allotment 37, Parish of Concongella.
- R7** 8 ha, being the gravel reserve adjacent to allotment 91, Parish of Riachella.
- R8** 5 ha south of allotment 196, Parish of Riachella.
- R9** 10 ha, being allotments 116C and 116D, Parish of Watta Wella.
- R10** 5 ha, being allotment 113A, Parish of Watta Wella.
- R11** 8 ha, being allotment 11B, Parish of Watta Wella.
- R12** 7 ha being allotment 55A, Parish of Watta Wella.
- R13** 2.5 ha, being allotment 5J, Parish of Watta Wella. [transposed with I19 on Map A]
- R14** 4 ha, being the gravel reserve adjacent to allotment 21A, Parish of Landsborough.
- R15** 4 ha, being the gravel reserve south-west of allotment 12B, Parish of Glendhu.
- R16** 4.8 ha east of allotment 32 of section 4, Parish of Landsborough.
- R17** 3.2 ha north of allotment 39 of section 3, Parish of Warrenmang.
- R18** 7.2 ha, being allotment 89H, Parish of Warrenmang.
- R19** 16 ha east of allotment 57B, Parish of Yehrip.
- R20** 14 ha, being part of allotment 33 of section 6, south of allotment 33 of section 5, and south of allotment 31A of section 5, Parish of Rathscar.
- R21** 13 ha, being the gravel reserve west of allotment 15A of section E, Parish of Glenmona.
- R22** 1 ha west of allotment 18 of section K, Parish of Glenmona.
- R23** 125 ha, being part of the reserves for gravel and the growth of timber for eucalyptus oil in the Parish of Gowar.
- R24** 14 ha east of allotment 7D of section B, Parish of St Arnaud.
- R25** 16 ha south-east of allotment 39C of section 2, Parish of Moolerr.
- R26** 50 ha north and west of allotment 45 of section 3, Parish of Moolerr.
- R27** 19 ha north of allotment 8 of section 2, Parish of Warngar.
- R28** 15 ha west of allotments 2 and 3 of section E, Parish of Carapooee.
- R29** 8 ha east of allotment 80A of section A, Parish of Carapooee.
- R30** 16 ha adjacent to allotment D1, Parish of Kooreh.

- R31** 2.4 ha, being the gravel reserve adjacent to allotment 5 of section 12, Parish of Moliagul.
- R32** 24 ha, north of allotment 16E of section E, Parish of Inglewood.
- R33** 54 ha, being allotment 57 of section 3, Parish of Borung.
- R34** 6 ha, being the gravel reserve adjacent to allotment 55 of section 4, Parish of Borung.
- R35** 1 ha south of allotment 3 of section 1, Parish of Borung.
- R36** 10 ha east of allotment 9 of section 5, Parish of Wedderburn.
- R37** 4 ha, being north of allotment 29A of section 3, Parish of Dunolly.
- R38** 18 ha south of allotment 9D of section 48, Parish of Dunolly.
- R39** 29 ha, being west and south-west of allotment 14 of section 46, Township of Dunolly.
- R40** 2 ha, being south of allotment 14D of section 9, Parish of Waanyarra.
- R41** 4 ha, being north of allotment 1 of section 4, Parish of Natteyallock.
- R42** 1 ha, being south of allotment 21 of section C, Parish of Barp.
- R43** 2 ha, being east of allotment 9B of section D, Parish of Barp.
- R44** 4 ha, being south of allotment 54C, Parish of Bealiba.
- R45** 4 ha, being south of allotment 14 of section 16, Township of Bealiba.
- R46** 51 ha east of allotments 4, 5 and 6 Section C, Parish of Bealiba, and allotment 3 of section 3A, Township of Bealiba.
- R47** 14 ha, being north of allotment 31F and east of allotment 31C of section B, Parish of Bealiba.
- R48** 10 ha, being west of allotment A3 of section C, Parish of Tarnagulla.
- R49** 30 ha, being north and east of allotment 1A of section C, Parish of Tarnagulla.
- R50** 1 ha, being east of allotment 143B, Parish of Tarnagulla.
- R51** 2 ha, being the gravel reserve and quarry reserve within allotment 14 of section 9A, Township of Carisbrook.
- R52** 8 ha, being the gravel reserve west of allotment 4 of section 19, Parish of Craigie.
(See Rivers and Streams SI C11)
- R53** 5 ha, being the road-making material reserve west of allotment 7D of section 1, Parish of Craigie.
(See Rivers and Streams SI C11)
- R54** 10 ha, being east of allotments 3 and 4 of section 7A, Township of Talbot.
- R55** 10 ha, being north of allotment 1B of section D1, Township of Talbot.
- R56** 10 ha, being allotment 24 of section B, Parish of Strangways.
- R57** 10 ha, being the gravel reserve west of allotment 22 of section 7A, Parish of Guildford.
- R58** 8 ha, being the gravel reserve south and east of allotment 41 of section 5, Parish of Guildford.

- R59** 20 ha, being north and west of allotment 9 of section 9A, Parish of Fryers.
- R60** 15 ha, being the quarry reserve on allotment 1C of section 9, Parish of Neereman.
- R61** 35 ha south-west of allotment 10 of section 2A, Parish of Muckleford.
- R62** 20 ha east of allotment 5BL of section 5, Parish of Shelbourne.
- R63** 40 ha south of allotments 3A, 3, 4, 5, and 6 of section 15, Parish of Huntly. Heavy vehicular traffic to and from this reserve should not pass through the Whipstick State Park.
- R64** 8.5 ha south of allotment 17A of section 29, Parish of Huntly.
- R65** 2 ha west of allotment 5 of section 17, Parish of Huntly.
- R66** 8 ha in the north-eastern corner of allotment 12 of section 2, Parish of Whirrakee.
- R67** 20 ha adjacent to allotments 2 and 2A of section D, Parish of Whirrakee.
[This recommendation is not to be implemented as a 'stone' reserve but should instead be Crown land withheld from sale and be protected forest under provision of the *Forests Act 1958*. (LCC letter 27 August 1986)]
- R68** 4 ha south of 4D of section 16, Parish of Goornong.
- R69** 50 ha east of allotment 34 of section 8, Parish of Axedale.
- R70** 17 ha, being the gravel reserve on allotment 1F of section 20, Parish of Strathfieldsaye. When extraction is completed the pit may be considered for use as a garbage depot (see Recommendation S13).
- R71** 20 ha north of allotment 240B, Parish of Sandhurst. Extraction should be confined to the lower slopes such that the profile of the hill will be preserved when viewed from the east. When extraction is completed the pit may be considered for use as a garbage depot (see Recommendation S12).
- R72** 50 ha south of allotments 20 and 21 of section 19, Parish of Strathfieldsaye.
- R73** 15 ha west of allotment 11 of section B, Parish of Weston. Rehabilitation of this site should take into account its proximity to the Calder Highway.
- R74** 55 ha south of allotment 33, Parish of Heathcote.
- R75** 10 ha, being the area currently operated by the Shire of Metcalfe, within the Parish of Chewton.
- R76** 32 ha adjoining allotment 81, Parish of Murchison.
- R77** 12 ha south of allotment 103, Parish of Waranga.
[That an area of 12 ha be removed from the Education area (M4) and be reserved for stone production as R77, and that the area of 30 ha formerly recommended as R77 be added to the Education Area (M4) (LCC letter to Minister 9/6/1981)]
- R78** 10 ha north of allotment 66C, Parish of Waranga.
- R79** 20 ha adjoining allotments 21A and 22, Parish of Gobarup.
- R80** 6 ha adjoining allotment 38, Parish of Gobarup.
- R81** 6 ha adjoining allotment 62, Parish of Gobarup.

R82 1 ha adjoining 16B, Parish of Moora.

R83 5 ha south of allotment 47C, Parish of Moora.

R84 2 ha west of allotment 114, Parish of Runnymede.

R85 7.5 ha west of allotment 12 of section 29, Township of Toolleen.

R86 22 ha south of allotments 11A, 11B, 11C and 11D of section C, Parish of Tchuterr.

R86A 25 ha north of allotment 9B, Section 9, Parish of Kingower

A strip of vegetation should be preserved along the south-eastern boundary of this reserve such that sand extraction activities are screened from the Inglewood-Kingower road. (Minister's letter, 25/11/1982)

R87 That sites for the extraction of 'stone' continue to be made available in accordance with the principles and guidelines outlined above, within the areas generally described below

1. Areas within the block known as Morri Morri-recommended for hardwood production
2. Areas north of the Township of Moonambel and south of the Township of Redbank-recommended as uncommitted land (U1).

Note: The stone and tailings material available in this area will replace those no longer available in the area covered by Recommendation J2.

3. Land west of the Township of Heathcote-recommended for hardwood production (E39).
4. Land south and east of the Township of Costerfield-recommended for hardwood production (E41).
5. Land south of the Mount Camel-Graytown Road-recommended for hardwood production (E41).
6. Area west of the Township of Toolleen-recommended for hardwood production (E40).
7. Areas north of the Township of Wedderburn-recommended for hardwood production (E14).

and that

sites for the extraction of stone be made available in the Rushworth Forest (E41) (south and east of the Whroo Historic Area) and the north-western section of the Wellsford Forest (E36), where currently no extraction of 'stone' is taking place.

R88 That the areas currently reserved for 'stone' production that are not listed under Recommendations R5-86 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 and Extractive Industries Act*. 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 minimise disturbance to public land and protect the values associated with this land, that they not be sited on public land without the agreement of the managing authority, and that new pipelines and power lines follow existing easements if possible (this may require widening of some easements).

Note: The existing power line reserve within the One Tree Hill Regional Park should continue to be available for use by the State Electricity Commission for the erection, operation, and maintenance of power lines.

- S3** That the Department of Crown Lands and Survey in consultation with the Forests Commission investigate the provision of legal access to the allotments listed below, and to other Crown allotments that are entitled to such access.

Allotments 5A and 6, section 10, Parish of Moliagul.

Allotments 3C, 3B, 14 and 15, section C, Parish of Bealiba.

Garbage and sanitary depots

Council has received several proposals for garbage depots to be established within historic and other reserves. Council considers that sites on public land used for the disposal of garbage and sanitary material should be located so as to cause minimal conflict with conservation values. It therefore suggests that shires, together with the land managers, investigate alternative sites in areas set aside for hardwood production or as uncommitted Crown land.

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

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

- S4** That 7 ha south of allotment 6A, section 5, Parish of Axedale, be used as a garbage depot and that adequate native vegetation be retained to screen the area from adjacent land.
- S5** That 4 ha south of allotment C7A, Parish of Heathcote, be used as a garbage depot and that adequate native vegetation be retained to screen the area from adjacent land.
- S6** That 10 ha south of allotment 7, section 1A, Parish of Fryers, be used as a garbage depot subject to the conditions contained in licence document No. 02774 /138.
- S7** That 2 ha east of allotment 159A, section E, Parish of Chewton, be used as a garbage depot.
- S8** That 6 ha west of allotment 9, section 15, Township of Newbridge, be used as a garbage depot.
- S9** That 6 ha west of allotment 12F, Parish of Harcourt, be used as a garbage depot, and that adequate native vegetation be retained to screen the area from adjacent land.
- S10** That 8 ha north of allotment 7B of section 1B, Parish of Maldon, be used as a garbage depot, and that adequate native vegetation be retained to screen the area from adjacent land.
- S11** That 20 ha in the Parish of Sandhurst, west of the existing garbage depot, be used as an extension to this depot. The land is to be re-vegetated with species native to the area when rubbish dumping is completed and added to the bushland reserve I155.
- S12** That 20 ha in the Parish of Sandhurst, east of the existing garbage depot, be used as an extension of this depot after gravel extraction (see Recommendation R71) is completed.
- S13** That 17 ha, being allotment 1F, of section 20, Parish of Strathfieldsaye, be used as a garbage depot, after gravel extraction (see Recommendation R70) is completed.
- S14** That 4.8 ha, south of allotment 27, section 4, Parish of Landsborough, be used as a garbage depot. This area also contains a resource of Tertiary gravels, which could be utilised in conjunction with tipping activities [see Recommendation I36].
- S15** That 7.2 ha comprising allotment 89H, Parish of Warrenmang, continue to operate as a garbage depot. The extraction of gravel from this site can continue also (see Recommendation R18).
- S16** That 6.8 ha comprising allotment 7D, section G, Parish of Redbank, continue to operate as a garbage depot.
- S16A** That 20 ha south-east of allotment 13E of section 3, Parish of Carisbrook be added to the existing Shire of Tullaroop garbage depot. (Minister's letter 25/11/1982)

Railway lines

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

- S17** 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.

Note: The occurrence of the rare herbaceous legume *Swainsona plagiotropis* on the railway reserve south of Hunter Railway Station should be protected. This species is known only at four localities north of Bendigo, three of these being along road reserves.

S18 That the potential of disused railway land to be used for public purposes or to conserve floristic, historical or other values be assessed and taken into account when arrangements for the disposal of this land are being considered.

Note: The disused railway between Maldon and Castlemaine should be retained as public land and used in conjunction with the historic areas recommended at each end of the line.

Trigonometrical stations

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

S19 That the minimum area necessary for survey purposes be temporarily reserved around trigonometrical stations on public land where it would otherwise remain as unreserved Crown land and, where other forms of public land tenure apply, that the Department of Crown Lands and Survey have the right to occupy a minimum area around the station and provide lines of sight.

Other utility areas

S20 That existing legal use and tenure continue for areas that are at present reserved and used for utility purposes such as public buildings, municipal depots, cemeteries, schools etc.

but in relation to land that is apparently surplus to requirements, an assessment of public land values be undertaken and, following appropriate consultation, these areas be considered for re-categorisation by Environment Conservation Council, land exchange or disposal. [added by Order in Council 10/3/1999]

S21 That 2 8 ha north of allotment 11, Parish of Carisbrook, being the existing municipal depot, and land to the north and south be used for municipal purposes.

S22 The need for the relocation of the Bendigo Saleyards is the subject of discussions between the City of Bendigo, the Shire of Strathfieldsaye, and the government. Should it be agreed that a new site is required, an area in the south-eastern corner of the Wellsford Forest could be considered.

S23 That an area 100 x 100 metres east of the Avoca Lead Storage be reserved as a site for a water treatment plant.

S24 Council recognises that in the future the need may arise for a regional crematorium to be established in the City of Bendigo. Council has no objection to the use of 55 ha, being allotment 68D, Parish of Marong, for this purpose.

S25 The future need to establish a sewage treatment works to service the Township of Rushworth is noted by Council. Consideration could be given to the siting of part of this facility on public land surrounding the township.

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, remain as unreserved Crown land to meet future requirements.

The township of Tarnagulla is a good example of an early township that has retained many of its original characteristics.

but in relation to land that is apparently surplus to requirements, an assessment of public land values be undertaken and, following appropriate consultation, these areas be considered for re-categorisation by Environment Conservation Council, land exchange or disposal. [added by Order in Council 10/3/1999]

T2 That the historical buildings and other relics that occur on public land in the township of Tarnagulla be preserved and be managed by the Department of Crown Lands and Survey.

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

U. UNCOMMITTED LAND

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

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

Land classed as uncommitted includes:

- areas that, although not needed to satisfy any known demand, are retained to meet future demands as yet undefined
- land known to have a high capability to satisfy one or more particular 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.

Recommendations

U1 That the land indicated on the maps 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

that

- (c) extraction of stone be permitted in specified areas of uncommitted land (see Recommendation R87).

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 Council is aware of several proposals that could involve the use of uncommitted land around Rushworth. Recommendations O7 and S25 relate to these proposals.
2. The Council notes proposals to establish garbage depots in Historic Areas J1 and J6. It considers that the shires together with the land managers should investigate alternative sites on public land in the vicinity that has been recommended for hardwood production or as uncommitted land.

An area of public land north of Bendigo bordered in the east, north, and south by freehold land and in the west by Boundary Road has nature conservation values and includes areas that are currently being harvested for eucalyptus oil production.

U2 Neilborough

That the land indicated on the map be used to:

- (a) maintain the capability of the land to meet future demands, especially the possibility of eventually providing a link between the recommended parks, Kamarooka (A3) and Whipstick (A5)

that

- (b) eucalyptus oil production continue on those areas already in production (consideration should be given to the purchase of additional suitable land to the west of the eucalyptus oil production area, G1, and to the relocation of those licence-holders currently operating in the U2 area)

- (c) the rare plant species *Westringia crassifolia* and *Stipa breviglumis* be protected

- (d) honey production be permitted

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

V. MILITARY TRAINING

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

Recommendations

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 managing authority, and other relevant bodies such as the Soil Conservation Authority
- (b) the training activities be carried out under conditions specified by the managing and relevant authorities, to minimise 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.

but in relation to land that is apparently surplus to requirements, an assessment of public land values be undertaken and, following appropriate consultation, these areas be considered for re-categorisation by Environment Conservation Council, land exchange or disposal. [added by Order in Council 10/3/1999]

Note: The areas designated as W1 and shown on the map need to be revegetated, and when this is completed consideration could be given to reserving them for various public uses.