

LAND CONSERVATION COUNCIL

CORANGAMITE AREA

FINAL RECOMMENDATIONS

September, 1978

This text is a facsimile of the former Land Conservation Council's Corangamite Area Final Recommendations. It has been edited to incorporate Government decisions on the recommendations made by Orders in Council dated 4 December 1979 and 22 January 1980 and formal amendments. Subsequent changes may not have been incorporated.

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 Corangamite study area. Notices showing the boundary of the study area and advising that an investigation was to be carried out were published in the *Victoria Government Gazette* of 27th February 1974, and in local and other Victorian newspapers in March 1974. A descriptive report was published on 4th September 1976. The Council received 178 submissions on the future use of public land. Individuals, associations, companies, and local and State government bodies, representing a wide cross-section of the community, made helpful submissions covering most feasible forms of land use for the district. Extracts from the *Land Conservation Act 1970* covering the procedure to be followed in formulating recommendations were included in the descriptive report.

After considering the submissions, and having visited the area, the Council formulated its proposed recommendations, which were published on 20th September 1977. The Council subsequently received 220 submissions commenting on those proposals. After due consideration, the Council now presents its final recommendations.

Layout

The recommendations in the text are grouped under major headings, such as Parks, Hardwood Production, and so on. The text is accompanied by 12 maps. Map A - at the scale of 1: 250,000 [not in this version] - covers the whole study area and gives a broad view of the recommended land uses. Map B-at a scale of 1: 100,000-shows public land between Warrnambool and Port Fairy in greater detail. Other detailed maps show areas recommended for agriculture (by alienation and exchange). More detailed information on many of the boundaries is held by the Land Conservation Council.

Land Uses

Table 1 summaries the proposed recommendations in terms of the major forms of use. 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: two national, one coastal, two State, and two 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); and wildlife reserves for a number of sites (mostly lakes) containing valuable faunal habitats. Most lakes are recommended as Lake Reserves to better provide for a range of uses. Large areas of land in the Heytesbury area have been recommended for agriculture, softwood production, and bushland reserves. Large areas are recommended for hardwood timber production. Recommendations for softwoods aim at consolidating existing plantations.

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.

Table 1: Recommended Public Land Use

Major recommended land use	Area. (ha)	Percentage of all land in the study area	Percentage of the public land
National parks	15 500	1	7
State parks	24 000	1	10
Regional parks and recreation	1 800	< 1	1
Reference areas	2 120	< 1	1
Wildlife	6 160	< 1	2
Hardwood production	80 100	5	36
Softwood production	7 900	< 1	4
Forest area	2 440	< 1	1
Flora and fauna	5 420	< 1	2
Bushland, scenic reserves	3 630	< 1	2
Coasts	2 700	< 1	1
Education areas	950	< 1	< 1
Lake reserves	40 200	3	18
Agriculture	11 770	< 1	5
Uncommitted	17 100	1	7

All other land uses collectively make up the balance. Figures are rounded off. [These areas have not been adjusted for subsequent land use changes]

General Recommendations

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

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

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

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

In national parks and protected public land, the Commission's fire-prevention works are subject to the agreement of the managing authority or, if agreement is not reached, to determination by the Governor in Council. In State forests, which comprise reserved forest and protected forest as

defined in the *Forests Act 1958*, the Forests Commission is also responsible for the control and management of the vegetation.

The Council recommends:

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

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

- III** That, when significant new discoveries are made on land within their administration, government agencies enlist the best advice available on the importance of such features and on any measures that should be taken to conserve them. Advice from 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 volume. The Council is aware that this may result in a delay, in some cases of several years, before some of its recommendations can be implemented. It is concerned that, where implementation of the recommendations would involve a change of management authority, management efficiency could be reduced during the delay period. The Council believes that the government should direct departments that their responsibilities for management must continue in all areas presently under their control until such time as the recommendations are implemented. The Council therefore recommends:

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

The Council further recommends:

- V** That, as many of them have not been precisely surveyed, the boundaries of the areas referred to in the recommendations be subject to minor modification, road excisions, easements, and other adjustments that may be necessary.
- VI** 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*.
- VII** That, where areas of public land are not specifically referred to in these recommendations, present legal uses and tenure continue.

A. PARKS

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

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

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

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

The categories are not to be confused with the existing terminology of national park, forest park, etc., which mainly denotes tenure and the managing body rather than the types of purpose for which they are to be used. 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.

Road-making materials

Road construction authorities may use deposits of road-making materials that occur in parks, subject to the agreement of the managing authority, or other authority as set out in the Minerals and Stone Production chapter.

Youth camps

Some areas of public land recommended by the Council to become parks contain sites held under licence by schools, church groups, and scouts, and are used as youth camps. The sites chosen for camps are usually in attractive environments near streams, with good access, and not exposed to high fire danger. Such sites are scarce, and their occupation by one organisation conflicts with their use by the general public for recreation. The camps may also have a considerable impact on the site, due to the erection of buildings and the provision of car-parking areas.

The Council believes that, while parks should cater for group camps and associated adventure and educational activities, the allocation of permanent sites to single groups in national, State, and regional parks should be phased out. It recognises, however, that on some sites a great deal of time and effort has been expended in erecting buildings and other improvements, and that phasing out these camps may not be practicable. As an alternative, such camps should be more fully utilised throughout the year, as suggested in the chapter on Recreation, rather than their use being confined to particular groups.

The Council believes that in future the demand for youth camps should be met by the organisations involved, which should purchase or lease private land nearby for the actual camp site and erection of buildings, and use the land in the park for adventure and other activities that do not conflict with park management.

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

State park

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

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

Regional park

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

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

PARK RECOMMENDATIONS

A1 Cape Otway National Park

The wet mountain forests of the Otway Ranges are quite distinctive. Both flora and fauna exhibit affinities with eastern Victoria and Tasmania, while the flora is atypical of the remaining western part of the State.

The Cape Otway Park embodies a representative sample of this wet mountain forest-the Calder, Parker, and Elliott River catchments-as well as foothill forest, coastal vegetation, and heathy to shrubby woodland, with their associated fauna. Geological diversity and several uncommon plant and animal species enhance nature conservation values.

Scenic features include magnificent examples of myrtle beech gullies, cascading streams, and dramatic undeveloped coastlines.

Recommendation

That the area of 10 000 ha shown on the map be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
- (b) conserve and protect natural ecosystems
- that
- (c) low-intensity timber production within the area be phased out no later than 1988, these operations to be conducted by the Forests Commission in consultation with the National Parks Service
- (d) permissive occupancies within the area not be transferable and be phased out as soon as possible but not later than 1990
- (e) the proposed subdivision at Blanket Bay not proceed
- (f) the road reserve for the Great Ocean Road and the Cape Otway lighthouse road be excluded from the park (see Chapter L and note below)
- (g) the National Parks Service give consideration to the continuation of horseriding activities under supervision along defined tracks within the park
- (h) the seaward boundary of the park be low-water mark

and that it be permanently reserved under section 14 of the *Land Act 1958* pending reservation under the *National Parks Act 1975* and managed by the National Parks Service.

(See also recommendation Q1)

Notes:

1: The Council believes it is necessary to upgrade the Great Ocean Road and understands that this may require the realignment of some road sections. The National Parks Service should be consulted regarding any realignment proposals. Sections of the existing road reserve not required for the new road should be added to the park.

2: Binns Road and Calder Ridge Road form part of the boundary between the park and hardwood production areas E4 and E5 respectively. The roads themselves are outside the park boundary.

The Coast - Cape Otway to Warrnambool

The coast from Cape Otway to Warrnambool offers some of the most spectacular coastal scenery in Australia and is therefore of national significance. Numerous sites of archaeological importance are located within the narrow strip of public land abutting the sea as well as relics and landmarks commemorating the many shipwrecks that occurred during early settlement.

The Council considers that this coastline should be recognised as a coast of national significance and, although its historical, floral, and faunal values are very high, the main attraction for visitors to the area is its spectacular scenery. Appropriate government action, including landscape planning, is necessary to protect the scenic and other special values associated with this unique coast.

Diverse coastline land types provide a variety of flora, fauna, scenic, and recreation values. Extensive outcrops of soft Tertiary limestones, which are actively eroding, produce the rugged rock stacks, caves, arches, and tunnels between Warrnambool and Moonlight Head. To the east of Moonlight Head, the harder Otway Group sandstones resist erosion more effectively and form high steep cliffs with shore platforms that provide habitat for a variety of marine flora and fauna. They also contain fossil, plant and insect remains and other geological features of international interest. Recreation and sightseeing are particularly important aspects of the traditional use of this coastline. The inclusion of the former Waarre plantation provides a suitable area for the development of facilities for camping.

Two parks are proposed for this area. Uses that apply to specific portions of the coastline are included under each one. In both parks, the retention of the scenic values and vegetation will be a major aim of management.

Recommendations

A2—A3 Western Entrance National Park and Bay of Islands Coastal Park.

That the areas of coastal public land including offshore pillars and rock stacks between Cape Otway and Warrnambool (6,300 ha) shown on the map be used to:

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

A2 Western Entrance National Park

That the area of 5500 ha shown on the map adjacent to the coast including offshore pillars and rock stacks east of Curdies River and Curdies Inlet to the Cape Otway lighthouse reserve be used in accordance with the uses outlined above

and that

- (a) the management authority zone the park to accommodate the legal recreational activities traditionally associated with this area
- (b) because of the inherent instability of land in this area, and (as was evident during the inspection of currently licensed grazing areas) the continued exacerbation of erosion by the grazing on low-value grazing land by domestic stock, existing grazing licences be terminated as soon as practicable but not later than 1983 [see Note 4]
- (c) the management authority give consideration to the continuation of horse-riding activities under supervision along defined tracks
- (d) vehicular access continue to be permitted to a number of points along the coast

- (e) the existing legal use of the rifle range at Point Hesse continue
- (f) the Aire River outlet continue to be managed in consultation with the State Rivers and Water Supply Commission to provide for flood mitigation
- (g) the rubbish depot east of Port Campbell be relocated on public land outside the park (see recommendation S6)
- (h) land damaged by erosion following road construction and gravel stripping in the old Rivernook township area be rehabilitated by the management authority in consultation with the Soil Conservation Authority
- (i) the remnant stands of softwood species adjacent to the Sherbrook River be maintained for their scenic value and to provide sheltered camping areas
- (j) appropriate family camping facilities, in harmony with the protection of the adjacent coastline, be developed in the Sherbrook River area
- (k) the lease held by the Girl Guides Association over an area at Sherbrook River remain in force until the expiration of the current lease period (after expiry of the lease, the area should remain available for use by the Association under guidelines set out in Chapter O - Recreation)
- (l) permissive occupancies within the area not be transferable and be phased out as soon as possible but not later than 1990
- (m) the Port Campbell Surf Lifesaving Club be permitted to continue to occupy the present clubhouse site
- (n) necessary areas be provided for the continuing use of, and access to, the harbour facilities of the Port of Port Campbell and to navigation aids
- (o) gem collection continue to be permitted along the beaches at Moonlight Head using methods approved by the management authority
- (p) sites of archaeological or historical significance be protected
- (q) the seaward boundary of the park be low-water mark
- (r) the owners of allotments 36, 37, and 38 Parish of Otway be permitted, under the control of the National Parks Service, to pump water for stock-watering purposes from springs located within the park

and that the area of the park not already reserved under the *National Parks Act 1975* be temporarily reserved under section 14 of the *Land Act 1958*, pending reservation under the *National Parks Act 1975*.

Notes

1: Unused road reserves that could provide access to freehold allotments are excluded from the park.

2: An exchange of small areas of Crown land for similar areas of freehold land in the Horden Vale—Glenaire area is considered desirable and would be advantageous to both parties. Council believes that this exchange, as detailed in Chapter Q-Agriculture, should be investigated.

3: Council, in the proposed recommendations for this area, indicated that the retention of the name 'Port Campbell' was not entirely appropriate and asked for alternatives to be suggested. After considering these and reviewing the history and scenic features of the area, the Council recommended the Parks A2 and A3 be named Moonlight Head and Bay of Islands respectively. It should be pointed out, however, that these are suggested names only and the final decision will be made by the Place Names Committee.

4: A scheme similar to that devised in 1968 by the Soil Conservation Authority for fencing the Discovery Bay reserve from freehold land (in which the fencing was erected under contract at

the expense of the Crown with the adjacent landholder being responsible for maintenance) should be investigated for this area
(See also Rivers and Streams SI *A16*)

A3 Bay of Islands Coastal Park

That the area of 800 ha shown on the map adjacent to the coast including offshore pillars and rock stacks west from the township of Peterborough to allotment 17A in the Parish of Mepunga be used in accordance with the uses listed in A2-A3 above

and that

- (a) no grazing be permitted. Grazing licences over portions of this park were cancelled in 1970 and Council is opposed to these being reissued. The Council believes that fencing of the boundary is urgent and should be progressively undertaken [see Note 2]
- (b) camping and the lighting of fires be prohibited except in limited areas designated by the management authority (for example, Childers Cove)
- (c) adequate measures be taken by the management authority to control vermin and noxious weeds
- (d) vehicular access continue to be permitted to a number of points along the coast
- (e) sites of archaeological or historical significance be protected
- (f) permissive occupancies within the area not be transferable and be phased out as soon as possible but not later than 1990
- (g) the seaward boundary of the park be low-water mark

and that it be permanently reserved under section 14 of the *Land Act 1958*, and be under the direct management of the Department of Crown Lands and Survey.

Notes:

1: Because of the importance of this park, management should not be delegated.

2: A scheme similar to that devised in 1968 by the Soil Conservation Authority for fencing the Discovery Bay reserve from freehold land (in which the fencing was erected under contract at the expense of the Crown, with adjacent landholders being responsible for maintenance) should be investigated for this area.

A4 Angahook—Lorne State Park

This park, comprising much of the coastal fall of the eastern Otway Ranges, is characterised by highly dissected terrain developed on Lower Cretaceous sediments and supporting open forests of messmate, stringybark, blue gum, mountain grey gum, and manna gum. Particular features include many attractive waterfalls and several scenic drives and lookouts.

The park incorporates the existing Angahook and Lorne forest parks, the Erskine Falls, Grey River, and Kalimna Falls reserves, and is contiguous with the Angahook State Park of 3300 ha recommended in the Melbourne study area.

Recommendation

That the area of 18 000 ha shown on the map be used to:

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

that

- (d) the purity and quality of the domestic water supplied by the Erskine and St. George River catchments be a major constraint on the development of facilities for public access and recreation activities (see D Water Production - reserves around storages)
- (e) the strategic location of the park with respect to fire protection around the various nearby seaside resorts be recognised in management

and that it be permanently reserved under section 14 of the *Land Act 1958* and managed by the Forests Commission.

A5 Carlisle State Park

Located on the north-western hanks of the Otway Ranges, this park provides an important example of low open forest, heathy woodland, and heathlands growing on soils derived from Tertiary sediments (Wangerrip Group), as well as taller open forest more typical of the northern Otways. The profusion of showy heathland plants and the abundant bird population are attractive features of the park.

Recommendation

That the area of 6000 ha shown on the map be used to:

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

that

- (d) the strategic location of the park with respect to fire protection in the Otway Ranges as a whole be recognised in management
- (e) emphasis be placed on the conservation of wildlife populations, especially the ground parrot and that it be permanently reserved under section 14 of the *Land Act 1958* and managed by the Forests Commission in consultation with the Fisheries and Wildlife Division.

(See Rivers and Streams SI C12)

A6 Kwarren Regional Park

Situated 12 km south of Colac on the road to Beech Forest and Apollo Bay, this park provides opportunities for activities such as picnicking and walking in a pleasant forest environment. Features include a dismantled railway-line running along the environs of the Ten Mile Creek.

Recommendation

That the area of 650 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) as this park is within the Gellibrand water supply catchment, any development take into account the need to protect water supply and quality

and that it be permanently reserved under section 14 of the *Land Act 1958* and managed by the Forests Commission.

~~A7 Framlingham Regional Park~~

~~This forested park is surrounded by agricultural land, some of which is owned by the Framlingham Aboriginal Trust, and is bordered on the east by the Hopkins River. Within easy reach of Warrnambool and Mortlake, the area provides abundant opportunities for picnicking, walking, and similar recreation activities.~~

Recommendation

That the area of 740 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) low intensity timber production and grazing be permitted, provided these uses do not conflict with (a) and (b) above~~
- ~~(d) land adjacent to the reference area (B9) be managed in such a manner that the reference area is protected from the effects of any development associated with the park~~

~~and that it be permanently reserved under section 14 of the *Land Act 1958* and managed by the Forests Commission in consultation with the Framlingham Aboriginal Trust.~~

~~Note: The value of this area as a remnant of the once extensive forests growing on basalt-derived soils should be recognised by the managing authority.~~

~~(Not accepted; omitted from Order in Council, 4/12/1979)~~

Geological Monument

Geological monuments are areas that contain features of great geological interest, and are reserved primarily to preserve these features for the education and enjoyment of the people. Such areas often have high recreation, nature conservation, and landscape values, in addition to geological features.

~~A8 Tower Hill Geological Monument~~

~~An area of 606 ha in the Parish of Yangery, managed by the Fisheries and Wildlife Division, is known as the Tower Hill State Game Reserve. This area is within the Borough of Koroit and is therefore not 'public land' as defined by the *Land Conservation Act 1970*. (See Chapter C-Wildlife Reserves.)~~

~~Tower Hill has been included in this report because it is one of the most important geological features of the surrounding volcanic plain. It consists of a volcanic crater rimmed by beds of volcanic ash. The floor of the crater contains conical hills of red and black scoria surrounded by a shallow lake.~~

~~Council believes that the geological significance of Tower Hill should be emphasised in the development of educational programmes associated with this reserve.~~

~~(Not accepted; omitted from Order in Council, 4/12/1979)~~

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 would normally include typical examples of land types that have been extensively developed elsewhere for productive uses such as agriculture or softwood production. The course and effects of human alteration and utilisation of the land can be measured against these relatively stable natural areas. Most developed regions have few areas remaining that are suitable as reference 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 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 reference areas from damaging or potentially damaging activities on surrounding land. It will also protect important values in the surrounding land from potentially damaging natural processes occurring on the reference area.

Access should be restricted, and experimental manipulation should not be permitted. Reference areas will enable continued study of natural features and processes, for example fauna, flora, 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. The Minister will be advised with respect to the protection, control, and management of reference areas by an advisory committee established under the Act.

Note: 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—B9** (a) That the areas listed below and shown on the map 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) That each reference area be surrounded by a buffer; that the authority managing the recommended buffer be responsible for the management of the enclosed reference area, and that the delineation of buffer zones be by joint agreement between the managing authority and the advisory committee.

B1 Parker River (205 ha)

Quaternary alluvium, undulating plains; Miocene sediments, undulating plains; Lower Cretaceous sediments, low hills; elevation 60–140 m; approximate annual rainfall 625–750 mm; open forest II, brown stringybark, manna gum.

B2 Stony Creek (370 ha)

Lower Cretaceous sediments, low hills; Palaeocene sediments, low hills; elevation 0–200 m; approximate annual rainfall 1000–1400mm; coastal complex, brown stringybark, coastal tea tree; open forest I, brown stringybark; open forest III, messmate; open forest I, blue gum, messmate.

B3 Calder River (155 ha)

Lower cretaceous sediments, hills; elevation 180–410 m; approximate annual rainfall 1300 mm; open forest IV, mountain ash; closed forest II, myrtle beech-blackwood.

B4 Olangolah Creek (120 ha)

Lower Cretaceous sediments, hills; elevation 360–520 m; approximate annual rainfall 1500–1700mm; open forest IV, mountain ash.

Note: The Forests Commission should consult with the Colac Waterworks Trust when preparing a management plan for the area. This plan would be implemented only with the agreement of the Trust. (Ministerial letter 1/10/79)

B5 Crinoline Creek (340 ha)

Palaeocene sediments, low hills; elevation 120–200m; approximate annual rainfall 1,100–1300 mm; woodland, open forest I, shining peppermint; open forest II-III, brown stringybark, messmate.

B6 Tomahawk Creek (300 ha)

Miocene sediments; Pliocene sediments, low hills, elevation 100–160 m; approximate annual rainfall 900–1000 mm; open forest II-III, messmate.

B7 Carpendeit (415 ha)

Pliocene sediments, flat plains; elevation 150–160 m; approximate annual rainfall 700–800 mm; open forest II, brown stringybark, messmate.

B8 Coorlemungle (70 ha)

Miocene sediments, undulating plains; elevation 90–120m; approximate annual rainfall 900–1000 mm; open forest I, brown stringybark; woodland, shining peppermint, brown stringybark.

~~B9 Framlingham (140 ha)~~

~~Pleistocene Newer Volcanics (phase 1), flat plains; elevation 80 m; approximate annual rainfall 700–800 mm; open forest II, messmate.~~

(Not accepted; omitted from Order in Council, 4/12/79)

C. WILDLIFE RESERVES

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

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

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

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

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

Recommendations

C1—C34 That the areas indicated on the map and described below be used primarily to conserve native animals, particularly water birds, and for public education and recreation where this does not conflict with the primary aim

and that they be permanently reserved under section 14 of the *Land Act 1958*, and be managed by the Fisheries and Wildlife Division.

C1 Lake Kennedy (230 ha)

Salt lake and surrounding frontages, allotment 1A, Parish of Linlithgow.

C2 Salt Lake (20 ha)

Brackish lake west of and adjoining allotment 2 of section C, Parish of Linlithgow.

C3 Tabor Swamp (57 ha)

Fresh-water swamp in sections 2 and 3, Parish of Yatchaw East.

Note: This area is a remnant of the large Buckleys Swamp system, most of which is now freehold land. Management should be oriented towards preserving the remaining wildlife habitat. The possibility of restoring breeding areas for ibis and habitat areas for Gunn's bandicoot should be investigated.

C4 Lake (12 ha)

Fresh-water lake and surrounding frontages, allotment 9 of section 4, Parish of Yatmerone.

C5 Lake Eyang (107 ha)

Salt lake allotment 112A, Parish of Eilyar.

- C6** Lake Oundell (78 ha)
Fresh-water lake allotment 122A, Parish of Nerrin Nerrin.
- C7** Nerrin Nerrin Swamp (288 ha)
Fresh-water depression allotment 118A, Parish of Nerrin Nerrin.
- C8** Lake Jollicum (77 ha)
Fresh-water lake, adjoining frontage and the Departmental camping and water reserve, allotment 123A, Parish of Nerrin Nerrin.
- C9** Lake (14.3 ha)
Salt lake allotment 86B3, Parish of Kornong.
- C10** Lake (38 ha)
Salt lake allotment 42C, Parish of Kornong.
- C11** Pink Lake (44 ha)
Salt lake allotment 54C, Parish of Kornong.
- C12** Lake (88 ha)
Salt lake allotment 58A, Parish of Kornong.
- C13** Lake Terrinallum (174 ha)
Salt lake allotment 39B, Parish of Terrinallum.
- C14** Lake Barnie Bolac (40.3 ha)
Brackish lake allotment 25A of section B, Parish of Jellalabad.
- C15** Lake Bookar (473 ha)
Fresh-water lake and adjoining frontages (excluding the camping and water reserve referred to under recommendation O4), allotment 8D of section IV, Parish of Koort-Koort-Nong.
- C16** Round Lake (74 ha)
Brackish lake allotment 5A of section 5, Parish of Taaraak.
- C17** Melingil Lake (240 ha)
Brackish lake allotment 3 of section IV, Parish of Taaraak.
- C18** Kooraweera lakes and swamps (345 ha)
(a) Lake (20 ha) adjoining allotments 51 and 61B, Parish of Taaraak.
(b) Lake (20 ha) in allotment 61B, Parish of Taaraak.
(c) Lake (96 ha) north-east of allotment 61A of section K, Parish of Taaraak.
(d) Lake (10 ha) east of allotment 43D, no section, Parish of Corangamite.
(e) Salt lagoon (60 ha) east of allotment 40A, no section, Parish of Corangamite.
(f) Salt lake (21 ha) north-west of allotment 60 of section K, Parish of Taaraak.
(g) Fresh-water lake (48 ha) north-east of allotment 60 of section K, Parish of Taaraak.
(h) Lake (70 ha) north of allotment 58 of section M, Parish of Taaraak.

C19 Lake Terangpom (213 ha)

Brackish lake and adjoining gravel reserve, allotment 24A Section 1, Parish of Corangamite.

C20 Lake Struan (51 ha)

Brackish lake CA 3 Section 39, Parish of Struan.

C21 Lake Rosine (175 ha)

Salt lake, allotment 3C, Parish of Wilgul South.

C22 Lake Cundare (290 ha)

Salt lake and the adjoining reserve, allotment 122F, Parish of Oudit.

C23 Lake Beeac (670 ha)

Salt lake, including surrounding public reserves, CA 70C, Parish of Oudit.

C24 Lake Murdeduke (1,500 ha)

Salt lake and the adjoining frontages, CA 53 Parish of Murdeduke, CA 1A Parish of Hesse, CA 18B Parish of Mirnee, CA 4A Parish of Gellibrand.

C25 Lake Dubban (14.9 ha)

Fresh-water lake and the adjoining frontage, allotment 8A of section 12, Parish of Lake Lake Wollard.

C26 Lake Gherang Gherang (114 ha)

Fresh-water swamp and surrounding frontages, allotment 14 of section 4, Parish of Lake Lake Wollard.

C27 Lake Ayrey (19.1 ha)

Fresh-water lake and surrounding frontages, allotment 10 of section 17, Parish of Birregurra.

C28 Lakes Hordern, Costin, and Craven (170 ha)

Fresh-water lakes and the adjoining frontages north-west and east of allotment 7A, Parish of Otway

Note: These three wetlands are among the relatively few fresh-water lakes along the coast and lie in the path of the flightline for intercontinental migratory waders. They are situated in a flood-plain, the remainder of which is freehold and used for agriculture, and serve as part of an extensive drainage system for this area. This important drainage function should be recognised by the management authority, and the outlet of these lakes to the sea through the Aire River should continue to be managed to provide for flood mitigation in consultation with the State Rivers and Water Supply Commission.

(See also Rivers and Streams SI A16)

C29 Serpentine Creek (73 ha)

Swampland and adjacent frontage to the Serpentine Creek, CA 34A, Township of Princetown.

C30 Lake Purrumbete (570 ha)

Fresh-water lake, and surrounding public land frontages, Parishes of Purrumbete North and South.

Notes:

- 1: The camping ground north of allotment 16D is excluded from this recommendation.
- 2: Water from this lake is used for irrigation. In order to provide for this use, as well as maintaining wildlife habitat, the managing authority should consult with the State Rivers and Water Supply Commission regarding water levels in the lake.
- 3: In the management of the lake, its value as an amateur fishery should be recognised.

C31 Cobrico Swamp (13 ha)

Fresh-water lake south-east of and adjoining allotment 1B of section 12A, Parish of Elingamite.

Note: Water from this lake is used for irrigation. In order to provide for this use, as well as maintaining wildlife habitat, the managing authority should consult with the State Rivers and Water Supply Commission regarding water levels in the lake.

C32 Lake Gilleear (23 ha)

Fresh-water lake and frontages, allotment 4A, of section 2, Parish of Mepunga.

C33 Lake Aringa (22 ha)

Fresh-water reservoir and surrounding frontages between allotments 17 and 19, Parish of Belfast.

Note: This lake is used as a flood pondage to alleviate flooding of adjacent freehold land. The managing authority should consult with the State Rivers and Water Supply Commission and the Shire of Belfast regarding the control of water levels in the lake.

C34 Goose Lagoon (10 ha)

Fresh-water swamp, allotment 10B, Parish of Belfast.

C35 Lady Julia Percy Island

That the area of 150 ha indicated on the map continued to be used primarily to conserve native animals, and for public education and recreation where this does not conflict with the primary aim

and that it be permanently reserved under section 14 of the *Land Act 1958* and managed by the Fisheries and Wildlife Division.

Note: Public access to the island should continue to be restricted, and commercial tourist-boat operators prohibited.

Lady Julia Percy Island supports major breeding colonies of a number of wildlife species including the largest colony of fur seals in Victoria and the fairy prion, known to breed on only two other Victorian islands.

C36 Cobra Killuc

That the area of 507 ha, CA 17 and 18 Section A, Parish of Cobra Killuc, indicated on the map be used:

- (a) to conserve a remnant of the western plains grasslands and to conserve native animals
- (b) for public education and recreation where this does not conflict with (a) above

that

- (c) the area of pine plantation (86 ha) continue to be managed by the Forests Commission until harvested (in consultation with the Fisheries and Wildlife Division); no further plantations be established; and the current plantation site, when felled, be regenerated with indigenous grassland species
- (d) grazing be permitted in areas of the reserve until the management authority is ready to undertake the restoration of the site with indigenous grassland species
- (e) management plans for the area recognise the necessity to protect adjacent freehold land from fire and vermin

and that it be reserved under section 14 of the *Land Act 1958* and managed by the Fisheries and Wildlife Division.

Cobra Killuc contains significant areas of *Themeda australis* grasslands, once the most common species on the western plains. The area is suitable for the reintroduction of animals once common to this savannah-grassland habitat. These are the bustard or plains turkey, plain wanderer, fat-tailed dunnart, and Gunn's bandicoot.

~~C37/A8~~ Tower Hill Geological Monument

~~An area of 606 ha in the Parish of Yangery, managed by the Fisheries and Wildlife Division, is known as the Tower Hill State Game Reserve. This area is within the Borough of Koroit and is therefore not 'public land' as defined by the *Land Conservation Act 1970*.~~

~~Tower Hill has been included in this report because it is one of the most important geological features of the surrounding volcanic plain. It consists of a volcanic crater rimmed by beds of volcanic ash. The floor of the crater contains conical hills of red and black scoria surrounded by a shallow lake.~~

~~Council believes that the geological significance of Tower Hill should be emphasised in the development of educational programmes associated with this reserve.~~

~~(Not accepted; omitted from Order in Council 4/12/1979).~~

~~(Additional wildlife reserve – see former lake reserve N52)~~

D. WATER PRODUCTION

The catchments of the wet Otway Ranges have a high potential for water harvesting. They currently supply virtually all of the surface water used for domestic and industrial purposes in the study area as well as a large proportion of that used by the adjacent City of Geelong. Three catchments-those of the Upper Barwon, the Gellibrand, and the Erskine Rivers-are proclaimed water supply catchments. Two other areas-the Gellibrand River extension and the Skenes Creek-are currently proposed for proclamation. The use of all land within proclaimed catchments is subject to specification by notice issued by the Soil Conservation Authority, or by determination made by the Authority after consultation with the Land Conservation Council.

Public land within the proclaimed catchments and the areas awaiting proclamation have been shown by blue cross-hatching on the map. Implementation of any recommendations for this public land will require recognition that water catchment values -such as water yield, quality, and flow regime-are of prime concern.

Current management

The sub-catchments of Arkins Creek and West Gellibrand River within the proclaimed Gellibrand River catchment are currently used solely for water production and are closed to the public. The remainder of this one and the other catchments support hardwood and softwood timber production, recreation, and other uses on the public land and normal agricultural pursuits on the substantial freehold areas contained in them.

Land-use planning

The Council notes that the degree of land-use planning varies between catchments. Detailed land-use prescriptions exist only for that of the Upper Barwon River, the other proclaimed catchments being in various stages of investigation by the Soil Conservation Authority in order that it may issue the relevant land determinations. Two catchment areas are currently proposed for proclamation.

The Council maintains that this 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.

Multiple use

Recognising that the prime water-producing areas of the State coincide with the principal mountain and forested areas, and that inland water bodies are a major attraction for recreation-the Council favours multiple use of catchments wherever possible. 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 must vary from one land type to another, depending on the inter-relations between the environmental variables of climate, parent material, topography, soils, and organisms. The Council is aware that a particular use may not impair the quantity, frequency, or quality of water yield in one instance, but may have a profound effect in another.

Where a number of other products are required from a catchment supplying water used for domestic, industrial, or irrigation purposes, the catchment should be proclaimed under section 22 (1) of the *Soil Conservation and Land Utilisation Act 1958* and also under section 5 (1) of the *Land Conservation Act 1970*.

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, however, consult and cooperate with the water supply authority and the Soil Conservation Authority regarding the location, timing, and type of its management activities. This is the current practice in most areas.

On the other hand, the water supply authority should control and manage the buffer strip (defined in the land-use determination) around storages and diversion works in addition to the actual waterworks area. Although the primary object of management in the buffer must always be to protect water quality, there are situations where secondary uses (such as recreation and timber production) can be accommodated. In such circumstances, the water supply authority and any other authorities concerned must agree upon the principles of management.

Water quality, yield, and regulation

The Council is aware that it is possible to improve the quality of water by treatment- at a cost. It must, however, be recognised that the higher the quality of raw water, the cheaper and more efficient the treatment is and, in most cases, the more acceptable the end product. It is also vital to safeguard the quantity and timing of yield. Catchments must be protected from soil erosion, soil compaction, and contamination from chemical or biological sources.

The implementation of proper management of land uses within catchments is extremely important and recognition must be given to the greater-than-normal need for high levels of protection. Implementation of any recommendations for public land within catchments will require that values such as water yield, quality, and flow regime are of prime concern. The Council recognises the need for research to provide guidelines for such management.

Council considers that sterilisation of drinking water is ultimately inevitable, even with controlled land use in catchments. Where multiple land use in catchments is increasing in intensity, water supply authorities should provide, at the earliest possible time, facilities for sterilisation of all drinking water in accordance with established standards. The Council notes that the Commission of Public Health and the Melbourne and Metropolitan Board of Works believes that the standards for water quality adopted by the World Health Organisation should be the long-term goals for domestic water supply systems.

Additional water needs

Future water needs for domestic purposes and for stock and irrigation may require the construction of additional water storages. No specific areas can be reserved for this purpose until the need has been reasonably established and possible sites are investigated. The Council notes that the State Rivers and Water Supply Commission is undertaking preliminary investigations into possible sites for major storages on the Aire and Gellibrand Rivers.

Recommendations

- D1** That in the Upper Barwon Water Supply Catchment shown on the map (being a catchment that has been proclaimed and for which a land-use determination has been made), the following areas:

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

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 14 of the *Land Act 1958* for water supply purposes, and be managed by the Geelong Waterworks and Sewerage Trust.

Notes:

1. The primary object of management of the buffer must be to protect water quality. Subject to this principle, the water supply authority may permit other secondary uses on the buffer. In such cases, the principles of management must be agreed upon by that authority and any other authorities concerned.
2. In cases where the above recommendation causes the control and management of an area to pass to a land management authority from a water supply authority, which thus loses income, Council believes that the new management authority should make adequate compensation or negotiate some other mutually acceptable arrangement.

D2—D18 That in the case of the locations listed below and shown on the map (all these locations being within catchments for which no land-use determinations have been made), the present tenure and management of public land continue for the time being

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

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

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 14 of the *Land Act 1958* for water supply purposes, and be managed by the water supply authority named.

Notes:

1. The buffer should be wide enough to prevent direct pollution, to filter overland flow of water, and to control access. Its width will vary to suit differences in ground slope, soil type, vegetative cover, adjoining land use, and type of facilities available for treating the water.
2. The primary object of management of the buffer must be to protect water quality. Subject to this principle, the water supply authority may permit other secondary uses on the buffer. In such cases, the principles of management must be agreed upon by that authority and any other authorities concerned.

3. In cases where the above recommendations cause the control and management of an area to pass to a land management authority from a water supply authority, which thus loses income, Council believes that the new management authority should make adequate compensation or negotiate some other mutually acceptable arrangement.

D2 South Otway Number 2 Pumping Station; State Rivers and Water Supply Commission.

D3 South Otway Number 1 Pumping Station; State Rivers and Water Supply Commission.

D4 Gellibrand Main Pumping Station; State Rivers and Water Supply Commission.

D5 Gellibrand River Pumping Station; State Rivers and Water Supply Commission.

D6 Arkins Creek diversions; State Rivers and Water Supply Commission.

D7 West Gellibrand Dam; Colac Waterworks Trust.

D8 Olangolah Weir; Colac Waterworks Trust.

Note: Refer to recommendation H13, Flora and Fauna Reserves.

D9 Barham River (West Branch) offtake; Apollo Bay Waterworks Trust.

D10 Andersons Creek offtake; Apollo Bay Waterworks Trust.

D11 Skene's Creek offtake; Skene's Creek Waterworks Trust.

D12 Allen Reservoir; Lorne Waterworks Trust.

D13 Erskine River offtake; Lorne Waterworks Trust.

D14 Barramunga Pumping Station; 0.5 ha north-west of allotment 23, Parish of Barramunga; Geelong Waterworks and Sewerage Trust.

D15 Lardner Creek offtake; Gellibrand Waterworks Trust.

D16 Goslings Creek Diversion; Geelong Waterworks and Sewerage Trust.

D17 Matthews Creek Diversion; Geelong Waterworks and Sewerage Trust.

D18 Pennyroyal Creek Diversion; Geelong Waterworks and Sewerage Trust.

D19—D43 That in the case of the following off-river storages and water supply installations, the storages and installations and their associated reserves remain under their existing tenure and control. In these cases no proclamation is necessary.

D19 Rough and Tumble reservoir; north-west of allotment 22 of section 5, Parish of Lorne (Township of Lorne); Lorne Waterworks Trust.

D20 Service basin; 0.5 ha, being portion of allotment 6, Parish of Krambruk; Apollo Bay Waterworks Trust.

D21 Service basins; 9.7 ha in the south-east corner of allotment 38, Parish of Elliminyt; Colac Waterworks Trust.

D22 Service basin; 0.5 ha, being portion of allotment 4A in section A, Parish of Yaugher; Forrest Waterworks Trust.

D23 Groundwater treatment site; 10.0 ha on the Barwon Railway Station Reserve; Geelong Waterworks and Sewerage Trust.

D24 Wurdiboluc Reservoir; 200 ha south-east of Winchelsea, Parish of Tutegong; Geelong Waterworks and Sewerage Trust.

D25 Storage tanks; 0.1 ha, being portion of allotment 10C Parish of Moorbanool; Gellibrand Waterworks Trust.

- D26** Service basin; 1.0 ha, being portion of allotments 5 and 6A, Parish of Tooliorook; Lismore-Derrinallum Waterworks Trust.
- D27** Timboon service basins; 1.3 ha, being portion of allotment 77C, Parish of Timboon; Shire of Heytesbury Waterworks Trust.
- D28** Storage tank; 0.04 ha, being portion of allotment 17B of section 2, Parish of Paarate; Shire of Heytesbury Waterworks Trust.
- D29** Service basin; 0.7 ha, being portion of allotment 24A, Parish of Lake Lake Wollard (Township of Winchelsea); Winchelsea Waterworks Trust.
- D30** Birregurra service basins; 4.3 ha, being portion of allotment 7 of section 9, Parish of Whoorel; State Rivers and Water Supply Commission.
- D31** Simpson service basin and pumping station; 10.0 ha east of the Township of Simpson; State Rivers and Water Supply Commission.
- D32** Carpendeit Pumping Station; 0.1 ha, being part of allotment 16, Parish of Carpendeit; State Rivers and Water Supply Commission.
- D33** Donalds Hill storage; 9.0 ha, being part of allotment 2 of section 9, Parish of Colongulac; State Rivers and Water Supply Commission.
- D34** Camperdown Pumping Station; 0.01 ha west of allotment 5, Parish of Tandarook; State Rivers and Water Supply Commission.
- D35** Cobden service basin; 22.0 ha, being art of section D, Parish of Tandarook; State Rivers and Water Supply Commission.
- D36** Mt. Ewen storage; 50 ha, being portion of section 10A Parish of Marida Yallock and part of allotment 2 of section 2 and adjacent road reserve, Parish of Elingamite; State Rivers and Water Supply Commission.
- D37** Terang Pumping Station; 0.1 ha, being part of allotment 30, Parish of Terang; State Rivers and Water Supply Commission.
- D38** Terang tank, Terang high-level pumping station and Noorat Pumping Station; 0.3 ha, being part of allotments 13 and 14 and adjacent road reserve, Parish of Terang; State Rivers and Water Supply Commission.
- D39** Noorat storage tank; 0.4 ha, being part of section 21, Parish of Glenormiston; State Rivers and Water Supply Commission.
- D40** Tank Hill storage; 25 ha, being part of allotments 67A and 67B, Parish of Garvoc; State Rivers and Water Supply Commission.
- D41** Cudgee Pumping Station; 0.1 ha, being part of allotment 3 of section A, Parish of Tallangatta; State Rivers and Water Supply Commission.
- D42** Brierley Pumping Station and basin; 2.85 ha, being part of allotment 8 of section A, Parish of Wangoom, City of Warrnambool; State Rivers and Water Supply Commission
- D43** Plantation road storage; 4.4 ha within the Sherbrook River pine plantation, Parish of Waarre; State Rivers and Water Supply Commission.

D44—D50 That the following areas be used to provide watering points for stock and that they be reserved under section 14 of the *Land Act 1958* as water reserves, and managed by the Department of Crown Lands and Survey. These areas include springs and waterholes in predominantly grazing districts.

D44 2.5 ha north of allotment 29A(2), Parish of Cundare.

D45 20 ha east of allotment 6B, Parish of Warrion.

D46 6.7 ha east of allotment 2B of section VI, Parish of Wangoom.

D47 0.2 ha east of allotment 49B, Parish of Bamba.

D48 7.3 ha of allotment 54C and 54D, Parish of Bamba.

D49 5.9 ha west of allotment 3 of section 38, Parish of Struan.

D50 2.4 ha, being section A, Parish of Struan.

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. About 9% of Victoria's high-quality forests are found here, and their proximity to the major markets considerably enhances their value.

The most important species are mountain ash and messmate stringybark. Other species include manna gum, blue gum, and mountain grey gum. The hardwood industry based on the study area directly employs over 300 persons in harvesting and initial processing of sawlogs and current commitments total about 110 000m³ of timber annually. This volume comprises sawlogs and pulpwood in roughly equal quantities. Minor products such as poles and veneer logs are also obtained.

On the scale at which it has traditionally been practised, hardwood production is compatible with many other uses, such as conservation of flora and fauna and many types of outdoor recreation. It has also been a flexible use, allowing the possibility of later adaptation.

Constraints are nevertheless placed on timber production in order to protect floral, faunal, recreational, water catchment, and landscape values when intensive silvicultural techniques such as clear-felling are employed, and as the community becomes increasingly aware of other forest values. Logging is excluded from reference areas and from many parks; furthermore, management prescriptions within hardwood production areas normally apply restrictions in areas close to streams, on steep slopes, or of special landscape significance.

The net area available for hardwood timber production thus decreases and, though it may therefore be necessary to increase the productivity of suitable portions of areas set aside for timber production, proper consideration should be given to non-timber values.

The Otway forests are generally below their productive potential, particularly the mountain forests, because of early timber exploitation, attempts at clearing for settlement, and wildfires. Present hardwood timber harvesting aims to increase productivity by cutting and regenerating the old growth forest first then the regrowth forests which have resulted from earlier timber extraction and from fires. Harvesting produces both sawlogs and pulpwood, utilisation of the latter enabling cheaper and more effective logging and regeneration operations. Successful regeneration requires clear-felling of defined cutting areas and burning of the site to establish a suitable seedbed.

Hardwood forestry, over its full range of products, is essential for the well-being of the community. As only a gradual improvement in productivity can be expected from most native forests, substantial areas need to be set aside for hardwood timber production.

The Council realises that the recommended hardwood production area contains a mosaic of forests of varying productivity, including some parts that are unsuitable for timber production. These are nevertheless included for ease of management. The hardwood production area also includes some areas of productive forest with significant water production, landscape, or conservation values. Constraints are therefore imposed in some cases, and the Council has defined areas where particular non-timber values must be protected. Council endorses the practice that has been adopted by the Forests Commission of preparing detailed management plans for public lands placed under its control. The plans prescribe by maps and text the detailed implementation of the approved land uses.

Recommendations

E1—E12 That the areas listed below and shown on the map be used:

- (a) primarily to produce hardwood timber in a manner having due regard for landscape values as seen from the main roads outside the forest that
- (b) major secondary uses be to:
 - (i) provide opportunities for open-space recreation and education
 - (ii) conserve native plants and animals, and provide opportunities for the development of wildlife conservation techniques
 - (iii) produce honey, forage, gravel, sand, and other forest produce as defined in the *Forests Act 1958*
- (c) water production values be recognised and protected
- (d) particular values as listed below be protected by means of reserves under section 50 of the *Forests Act 1958*, or by management prescriptions prepared (in the case of fauna) in consultation with the Fisheries and Wildlife Division

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

E1 Boonah Forest (14 000 ha)

E2 Barwon Forest (11 700 ha)

- (a) Lake Elizabeth and its environs be reserved for recreation under section 50 of the *Forests Act 1958*.

E3 South-eastern Otways Forest (13 300 ha)

- (a) The special values of this forest for recreation use in association with the adjacent State park be recognised in management.

E4 Barham Forest (7800 ha)

- (a) Steep land be protected by management prescriptions drawn up by the Forests Commission in consultation with the Soil Conservation Authority.
- (b) Landscape values of forested slopes as viewed from Turtons Track be protected and a buffer of suitable width be maintained adjacent to the track to protect its immediate environs from possible effects of adjacent forest operations.
- (c) Consideration be given in management of the area to the landscape values associated with the Wild Dog Spur as viewed from the Wild Dog Creek Road and the views obtained from the Great Ocean Road between Apollo Bay and Cape Horn.

E5 Aire Forest (9,800 ha)

- (a) The attractive wet gully plant communities (including tall eucalypts, some of the tallest examples of myrtle beech in the State, blackwoods and tree-ferns) along the Aire River and major tributaries be delineated and protected by reservation for conservation under section 50 of the *Forests Act 1958*.

Notes:

1. Council considers that the width of the reserves referred to in (a) above should be of sufficient size to protect the plant communities and the water resource from possible effects of nearby forest operations.
2. Council is aware that the Aire River is a potential source of high quality water and that it will eventually be required for water supply purposes as demands on the present supply systems increase.

(See also Rivers and Streams SI A16)

E6 Sheepyard Creek Forest (1,700 ha)

E7 Kennedys Creek Forest (2,500 ha)

E8 Jancourt Forest (1,900 ha)

- (a) In the management of this area for low-intensity timber production, its value as an example of the original Heytesbury forest be recognised.

E9 Wonga Forest (4,200 ha)

(See also Rivers and Streams SI C14)

E10 Upper Gellibrand Forest (1,200 ha)

E11 Lardner Creek Forest (4,000 ha)

(See also Rivers and Streams SI C12)

E12 Western Otways Forest (8,200 ha)

F.SOFTWOOD PRODUCTION

The study area contains areas of softwood plantations on both public and private land. The Forests Commission plans to increase its plantations within the Otway development zone from its present area of 3800 ha net to 8000 ha net at a rate of 200 ha annually.

Its existing plantation at Aire Valley currently supplies two sawmills in the Colac area. The Commission intends to increase the supply of softwood sawlogs to industry as part of its policy to maintain a viable timber industry based on the Otways. No legislation concerning long-term commitments to supply softwood pulpwood has been enacted.

The recommendations make available to the Commission an area of 500 ha net in four different localities. Plantings at two of these will consolidate existing plantations and at another will complete plantings on cleared farmland recently purchased for this purpose.

An additional area of 2300 ha at Irrewillipe has been recommended for softwood plantations. This public land has been cleared by the Rural Finance Commission. Council has not specified whether the Forests Commission or private companies should have rights to this area.

Non-government Plantations

The Council believes that private softwood plantings should be substantially based on private property. Public land may be made available to companies for softwood plantings, where its use would serve to consolidate the project. Such land should remain in public ownership, with the rights to and conditions of its use covered by a lease.

A number of private companies own substantial areas of land suitable for softwoods and have established a total of about 5000 ha of softwood plantation in the area.

Recommendation F2 leaves the option open for private softwood planting on land at Irrewillipe.

Plantation Planning Guidelines

Council believes the impact that large plantations of softwoods have on the natural environment can be lessened by retaining selected areas of native vegetation, and by adhering to catchment prescriptions laid down by the relevant management authorities where applicable. The guidelines set out below apply to the establishment of plantations on public land in this study area.

No continuous plantation area should exceed 1,400 ha without obvious break-up areas retained as native forest. Large samples (100,200 ha) of all vegetation types in the area should be retained. Where possible, several types should be combined in one unit. The unit may be sited to improve the appearance of the plantation, or to combine with land unsuitable for planting to form a range of habitats for wildlife. Units may also include stands of native hardwood managed for timber production. While logging and fuel-reduction burning need not be prohibited in areas where native vegetation is retained, it is important to protect their recreational values.

Any utilisation, including that carried out prior to clearing, should be carefully controlled, and slash, snig tracks, and landings cleaned up. No retained area should be fuel-reduced in its entirety in any one year.

Native vegetation should be retained for at least 40 m from each bank along minor streams and 80 m from each bank along major streams, and such areas should be kept free of exotic

vegetation. This is in line with other Council recommendations that all wetlands on public land be conserved. These strips of retained native vegetation should be kept free of bulldozed material, and windrows should be swept back from them to protect them from hot burns. They should be linked to areas of native forest wherever possible, to allow movement of wildlife.

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

This may be achieved by:

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

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

Clearing prior to planting makes the soil more liable to erosion until a new vegetation cover forms. Special care must be taken to ensure that soil erosion does not begin or increase during this period, and that water catchment values are not impaired. Clearing is to be confined to areas with a ground slope generally less than 20 degrees.

The above guidelines have been adapted from those prepared and used by the Forests Commission. Obviously, planning plantations in this way increases their gross area. Allowances for this have been made in calculating the areas allocated to softwoods.

Recommendations

F1 That the present plantations of 5000 ha gross shown on the map continue to be used for the production of softwoods and the provision of other goods and services compatible with the primary use, as well as providing opportunities for education and recreation

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

(See also Rivers and Streams SI A16)

F2 Rural Finance Commission (Irrewillipe)

That an area of ~~2300~~ 860 ha gross be used for softwood production, within which the available suitable area may be planted to softwoods in accordance with the plantation planning guidelines, and use of this land for this purpose be dealt with under existing legislation.

(1440 ha revoked, Order in Council 4/4/1989)

F3—F6 That the areas shown on the map and described below be used for softwood production in accordance with the plantation planning guidelines

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

F3 McDonald Creek; 74 ha gross, within which an area of 40 ha may be planted to softwoods.

F4 Lardner Track; 130 ha gross, within which an area of 100 ha may be planted to softwoods.

(See also Rivers and Streams SI C12)

F5 Barramunga; 105 ha, being allotments 73 and 78C, Parish of Barramunga, within which the available area may be planted to softwoods.

F6 Wormbete; 250 ha gross, within which an area of 215 ha net may be planted to softwoods.

Note: Proposed plantation areas F3 to F5 fall within the Upper Gellibrand proclaimed water catchment, and F2 falls within the proposed extension to the Upper Gellibrand catchment.

G. FOREST AREA

When making recommendations on land for softwood plantations, the Council has recognised that their establishment constitutes a major change from any natural ecosystems they replace. Further, it realises that softwood production is a long-term endeavour and that restoring the plantation areas to a natural condition may be difficult. Adjacent areas of public land that have high nature conservation and/or landscape values thus play an important role in maintaining a local balance in land use. Because of their locations, these areas are also important for protecting the softwood resource from fire, and therefore must also be managed for this purpose. Such land has been designated forest area.

Recommendation

G1 That the area of 2,440 ha indicated on the map be used for:

- (a) conservation of fauna and flora, and preservation of scenic values
- (b) protection of the adjacent area recommended for softwood production
- (c) low-intensity hardwood production, recreation, education, forest grazing, honey production, and mining, where these activities do not conflict with (a) above
- (d) water supply and catchment protection where these areas lie within water supply catchments

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

(See also Rivers and Streams SI C14)

H. FLORA RESERVES AND FLORA AND FAUNA RESERVES

FLORA RESERVES

These reserves are significant because they contain examples of native vegetation with considerable floristic value in a natural or near natural state. They are set aside primarily to conserve species that may be rare or endangered and associations of native plants that are poorly represented on public land. Council recognises that all flora reserves have an associated fauna, and where these values are known they have been referred to in the following recommendations.

Recommendations

H1—H4 That the areas indicated on the map and described below be used to conserve particular species or associations of native plants

and that they be permanently reserved under section 14 of the *Land Act 1958*, and managed by the Department of Crown Lands and Survey.

H1 1 ha allotment 36B, Parish of Nullawarre.

H2 900 ha, being allotments 3A, 9H, 14A and 14C, of section C, Parish of Waarre.

Note: The area occupied by the Coorimungle telephone exchange in allotment 9C is excluded.

H3 16.4 ha allotment 7G of section 2A, Parish of Krambruk.

H4 56.3 ha allotment 24M, excluding stream frontage, Parish of Wongarra.

FLORA AND FAUNA RESERVES

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

Recommendations

H5—H14 That the areas shown on the map and described below be used to conserve native plants and animals

and that they be permanently reserved under section 14 of the *Land Act 1958*, and managed as indicated in the schedule below.

H5 103 ha south of allotments 11A, 11B, 11C, and 11D, Parish of Yambuk - to be managed by the Department of Crown Lands and Survey.

H6 4.1 ha allotment 70F, Parish of Nullawarre - to be managed by the Department of Crown Lands and Survey.

H7 13.3 ha allotment 18C, Parish of Pomborneit - to be managed by the Fisheries and Wildlife Division.

- H8** 3.2 ha allotment 13C, section A, Parish of Pomborneit - to be managed by the Fisheries and Wildlife Division.
- H9** 16.2 ha north of allotment 74, Parish of Yan Yan Gurt - to be managed by the Department of Crown Lands and Survey
- H10** 1,242 ha, being the area south of Carpendeit adjacent to the Jancourt Forest, CA 37 and 41A Parish of Carpendeit - to be managed by the Forests Commission.
- H11** 1,550 ha, being the area adjacent to Crinoline Creek, east of Chapple Vale, Parish of Moomowroong - to be managed by the Forests Commission in consultation with the Fisheries and Wildlife Division.
- H12** 122.2 ha, being the existing native flora and fauna reserve, west of allotments 28D and 28B, of section A, Parish of Yaughar - to be managed by the Forests Commission.
- H13** ~~1 525 ha, being portions of the Olangolah water reserve, reserved forest and unreserved Crown land adjacent to Turtons Track and west of Mt. Sabine, Parishes of Olangolah and Barramunga - to be managed by the Forests Commission in cooperation with the Colac Waterworks Trust.~~

Notes:

- ~~(i) Turtons Track, one of the State's outstanding scenic roads, traversing the southern portion of this reserve should be preserved as a scenic road and the present alignment retained.~~
- ~~(ii) Portion of this area (260 ha) comprises land purchased for water supply purposes in 1948/49. Council believes that the purchasing authority should be relieved of indebtedness resulting from the purchase of this land.~~
- ~~(iii) The values of this area for water supply should be recognised in management and the water supply authority consulted in matters relating to water supply protection.~~

That the land shown on the map be a flora and fauna reserve, permanently reserved under section 4 of the *Crown Land (Reserves) Act 1978*, and be managed by the Forests Commission. The Commission, in consultation with the Colac Waterworks Trust, should prepare management plans for that part of the reserve within the catchment and that land owned by the Trust (40 ha) below the reservoir. These plans are to be implemented only with the agreement of the Colac Waterworks Trust.

Notes:

- (1) Turtons Track, one of the State's outstanding scenic roads, traversing the southern portion of this reserve should be preserved as a scenic road and the present alignment retained. The Colac Waterworks Trust should be consulted regarding any major maintenance works which would affect the quality of water supplied from the catchment.
- (2) Portion of this reserve comprises land purchased by the Colac Waterworks Trust (CA 56A, Parish of Barramunga). Council believes that the Trust should be relieved of indebtedness resulting from the purchase of this land. (Ministerial letter 1/10/79)

- H14** 370 ha, being the area north of the Calder Ridge Road between the Redwater and Clearwater Tracks within the Aire Forest, Parish of Otway - to be managed by the Forests Commission.

Note: This area is of considerable scientific and scenic interest, containing both the normal Lower Cretaceous sediments of the Aire Forest and areas where these are overlain by ones of Tertiary origin. The vegetation varies from low heath to mountain forest-including mountain ash growing on Tertiary sediments.

I. BUSHLAND RESERVES

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

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

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

Recommendations

I1—I14 That the areas indicated on the map and described below be used to:

- (a) maintain the local character and quality of the landscape
- and
- (b) provide opportunities for passive recreation such as picnicking and walking
- that
- (c) expansion of any existing facilities or new development be permitted only where this does not conflict with the primary aim

and that they be permanently reserved under section 14 of the *Land Act 1958*, and be managed as indicated in the schedule below.

I1 275 ha, being allotments 75H, 75J and 75K, Parish of Timboon - to be managed by the Department of Crown Lands and Survey.

I2 162 ha, being allotment 2A, Parish of Coradjil - to be managed by the Forests Commission

I3 850 ha, being uncleared land adjacent to Tomahawk Creek, Parish of Coradjil - to be managed by the Forests Commission.

(See also Rivers and Streams SI C14)

I4 1,350 ha, being uncleared land west of the Gellibrand River, Parish of Wiridjil - to be managed by the Forests Commission.

I5 79 ha, being allotments 22N, 22O and 22P, Parish of Yaugher - to be managed by the Forests Commission

(See also Rivers and Streams SI C12)

I6 2.2 ha allotments 90E and 90F, Parish of Murroon - to be managed by the Department of Crown Lands and Survey.

- I7** 10.9 ha allotment 51H, Parish of Bamba - to be managed by the Department of Crown Lands and Survey.
- I8** 30 ha, being allotments 70A and 70B, and the gravel reserve adjoining the north-east of allotment 70A, Parish of Bamba - to be managed by the Department of Crown Lands and Survey.
- I9** 12.1 ha allotment 24F, Parish of Wensleydale - to be managed by the Department of Crown Lands and Survey.
- I10** 125 ha north of allotment 57, Parish of Gherang Gherang - to be managed by the Department of Crown Lands and Survey.
- I11** 180 ha, being allotments 16D and 20C Section A, Parish of Latrobe - to be managed by the Forests Commission.
- I12** 63.9 ha, being allotment 64, Parish of Aire - to be managed by the National Parks Service.
- I13** 48 ha, being allotment 60B and 60C, Parish of Aire - to be managed by the National Parks Service.
- I14** 1.4 ha allotment 19G, Parish of Wongarra - to be managed by the Forests Commission.

J. THE COAST

The coastal zone within the study area contains some of the most spectacular coastline scenery in Australia and is also of great value for nature conservation. This resource will undoubtedly come under increased recreation pressures.

In formulating the following recommendations for public land along the coast, the Council is aware that coasts represent a dynamic zone of interaction between land and sea, encompassing fragile environments.

The various management authorities of coastal land should take steps to ensure that management is coordinated.

All works to be implemented by any committees of management on the coastal reserve should be subject to approval (prior to implementation) by the Department of Crown Lands and Survey. Other government agencies concerned with coastal development (such as the Ministry for Tourism and the Department of Youth, Sport, and Recreation), or with coastal maintenance (such as the Ports and Harbours Division of the Public Works Department) should also consult with the management authority before authorising any expenditure for the implementation of coastal works.

COASTAL RESERVES

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

Coastal areas specifically reserved for some other purpose (national and State parks, flora reserve, recreation reserves, or major ports) would not be included in the coastal reserve.

Recommendations

J1—J2 That the areas listed below and shown on the maps

- (a) be used to:
 - (i) provide opportunities for informal recreation for large numbers of people, and also for recreation related to enjoying and understanding nature
 - (ii) protect and conserve natural coastal landscapes and ecosystems-and geomorphological, archaeological, and historic features-for public enjoyment and inspiration and for education and scientific study
 - (iii) ensure the conservation of aquatic littoral and terrestrial fauna and flora
 - (iv) provide facilities for shipping, fishing, and boating (including harbour facilities), together with the necessary navigation aids

and that the management authority

- (b) manage the areas according to policies they develop in consultation with the Ports and Harbours Division, Soil Conservation Authority, and the municipalities or Committees of Management
- (c) in the policies for the coastal reserve, recognise the following principles:
 - (i) new roads should not be sited along the coast, but rather should be located far enough back in the hinterland to avoid damaging sensitive environments or impairing the scenic qualities of coastal landscape

- (ii) any major coastal development projects should be subject to a detailed environmental study prior to commencement by the body proposing such development. Examples of such projects would include proposals for jetties, marinas, mining, sea walls, etc.
- (iii) occupation of coastal public land by private individuals or organisations should be phased out; no new occupation leases should be granted; certain coast-oriented uses such as yacht clubs and surf clubs could be permitted, subject to conditions laid down by the management authority
- (iv) if camp sites and car parks are to be established on coastal reserves, the managing authority should avoid locating these on sensitive areas or on areas of importance for nature conservation; consideration should be given to relocating some existing camp sites and car parks
- (v) where public rights-of-way are obstructed by privately constructed walls, buildings, fences, etc., such obstructions should be removed

that

- (d) in order to rectify or prevent soil erosion on coastal public land, the Soil Conservation Authority, after consultation with the managing authority and the Ports and Harbours Division, recommend that the Governor-in-Council proclaim certain sections of the coast, with a view to carrying out such reclamation and stabilisation measures as are necessary and determining appropriate land uses and management practices

and that

- (e) the areas J1 and J2 be permanently reserved as coastal reserve (their seaward boundaries being low-water mark) and managed by the Department of Crown Lands and Survey and J2 be zoned in order to provide for a range of uses as outlined below and be managed in cooperation with the Fisheries and Wildlife Division

J1 The coastal frontage, as shown on the map and listed below:

- from Loutit Bay, Township of Lorne, to the north-eastern boundary of allotment 71A, Parish of Lorne
- from the northern boundary of allotment 27A, Parish of Kaanglang, to south of allotment 12, Parish of Krambruk
- from Curdies River to the western boundary of the Peterborough Golf Course, including Curdies Inlet and associated frontages.

J2 The coastal frontage from Lady Bay, City of Warrnambool to Griffiths Island, Borough of Port Fairy.

J2—Zone I The coastal frontage land, swamps, and dunes, except those areas specifically referred to under other zones.

The land within this zone be used to:

- (i) conserve the flora and fauna
- (ii) maintain the stability of the coastal dune formations
- (iii) provide for low-intensity recreation activities such as walking and picnicking
- (iv) provide for access through the dunes to the Zone II beach frontage at points defined by the managing authority in consultation with the Soil Conservation Authority
- (v) protect areas of archaeological significance, especially the Aboriginal shell midden and camp deposit sites from Belfast Lough to Killarney Beach

and that

- (vi) no further roads parallel to the coast be built in this zone from Levys Point to Belfast Lough except between the existing Port Fairy Golf Club road and allotment 12, Parish of Koroit.

J2—Zone II The beach frontage and rock outcrop areas on the coastline, except the area from Mills Reef to Killarney Beach and Killarney Beach to Rutledges cutting.

The land within this zone be used to:

- (i) provide for recreation activities such as swimming, fishing, boating, walking, and picnicking
- (ii) conserve fauna, particularly migratory beach wading birds
- (iii) maintain the stability and scenic beauty of the coastline.

J2—Zone III The beach frontage and rock outcrop areas on the coastline from Mills Reef to Killarney Beach and Killarney Beach to Rutledges cutting.

The land within this zone be used to:

- (i) conserve the habitat and resting places for migratory beach wading birds
- (ii) provide for nature study activities, walking, and fishing
- (iii) maintain the stability and scenic beauty of coastline and the area be managed in cooperation with the Fisheries and Wildlife Division.

J2—Zone IV The areas of lake and swamp land contained in Belfast Lough and Salt Water Swamp.

The land within this zone be used to:

- (i) conserve wildlife
- (ii) provide for low-intensity recreation and public education.

J2—Zone V The existing public park reserve (Golf Course) and Killarney Beach in the Shire of Belfast, and the Rutledges Cutting area in the Shire of Warrnambool.

The land within this zone be used to:

- (i) provide for recreation activities
 - (ii) maintain the scenic beauty and stability of the area
- and the area be managed in cooperation with the Shires of Belfast and Warrnambool.

J2—Zone VI The area of swamp land known as Kellys Swamp.

The land in this zone be used to:

- (i) provide for existing drainage and flood mitigation
 - (ii) provide for stock grazing
 - (iii) provide wildlife habitat consistent with (i) and (ii) above
- and the area be managed in cooperation with the State Rivers and Water Supply Commission.

Note: Council recognises that portions of the reserve extend within the City of Warrnambool and the Borough of Port Fairy. It considers it desirable to treat the land in this coastal reserve as

a whole, and therefore suggests that land within the City and Borough be managed in a similar manner to adjacent areas.

SCENIC COASTS

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

A high proportion of the coastline in this area fits this description, and is an important component in the State's coastal landscape heritage. The Council believes that it is important to protect the landscape qualities of such coastlines, and that such areas should be used primarily for public enjoyment, education, and inspiration in coastal surroundings in a manner that will leave landscape values unimpaired

In making these recommendations for the Corangamite area the Council has taken into account the landscape qualities of the coastline elsewhere in the State.

Recommendation

J3 That the coastline from Lorne to Warrnambool shown on the map be designated scenic coast, and that planning and management in the area give special emphasis to the protection of the outstanding natural landscape qualities.

K. RIVERS AND STREAMS

(See Rivers and Streams SI- Chapter E)

PUBLIC-LAND WATER FRONTAGES

Along numerous rivers and streams in the study area a strip of public land has been retained between the water and adjacent alienated land. No public-land strip adjoins land alienated before 1881, and a large number of properties in the study area have titles that extend to the banks of a stream.

Thus some streams and rivers have either no public-land water frontage or a discontinuous one. The recommendations that follow do not apply to privately owned frontages.

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

Adjoining occupiers frequently 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, the public are legally entitled only to walk through a licensed frontage. Licences for previously unlicensed public water frontages, now being issued by the Department of Crown Lands and Survey, require the licensee to erect a stile or gate in any fence erected across the frontage where appropriate, to facilitate public access. This condition has not been applied to the majority of existing licences and Council believes that in some situations - for example, along popular fishing streams - the

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

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

The maintenance of a vegetation cover along stream banks is important in preventing soil erosion and in preserving the local landscape. Public-land water frontages are sometimes valuable for nature conservation as well, as they may provide corridors for movement of nomadic and migratory species, or support native plants and animals that are no longer found in surrounding areas. In too many cases, however, the provisions of the relevant Acts have not been enforced effectively and such public-land water frontages have been progressively cleared of native vegetation. Some with special value for uses such as protection of water supplies, recreation, or nature conservation have been designated as water, streamside, flora and fauna, or bushland reserves, as appropriate in the particular case.

Public-land water frontage reserves

Water frontage reserves are defined for the purposes of the recommendations as being all existing water frontage reserves and other reserved or unreserved public land adjoining streams, except for those areas that have been set aside elsewhere in these recommendations, either as part of a large reserve (such as a national park or reserved forest) or for some special purpose (such as a wildlife, flora, recreation, or streamside reserve).

Recommendation

~~K1~~ That the public land defined above

~~(a) be used to:~~

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

~~that~~

- ~~(b) (i) where a licence has been issued for a public land water frontage as in (a)(v) above, restricted recreation use by the public should be permitted (non-damaging activities such as walking, observing nature, fishing, or just relaxing should be allowed, but 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 may 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 erection of buildings on public land water frontages~~

~~and that~~

- ~~(d) (i) public land water frontages be permanently reserved under section 14 of the *Land Act 1958*~~
- ~~(ii) where it is adjacent to or within a proposed national, State, or regional park, reserved forest or education area, or reference, bushland, streamside, scenic, flora or fauna, or wildlife reserve, it be managed by the authority responsible for the adjoining or surrounding land~~
- ~~(iii) where it is not adjacent to a park or reserve 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, 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 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 K1A(b)(ii) and (b)(iii) above, and that the Standing Committee on Rivers and Catchments or equivalent organisation could carry out or facilitate K1A(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 K1A(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 recommendations approved by Order in Council 7/7/92]

STREAMSIDE RESERVES

Throughout the study area, small blocks of public land adjoin streams but are not included in the public-land water frontage. These blocks have, where appropriate, been designated streamside reserves.

Some of them are currently reserved under section 14 of the *Land Act 1958*; 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 streamside reserves be managed by the authority responsible for the streamside reserve

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

Recommendations

K2—K11 That the areas shown on the map and described below be used to:

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

and that they be reserved under section 14 of the *Land Act 1958* and managed by the Department of Crown Lands and Survey, except where otherwise indicated.

K2 8.5 ha on the Hopkins River, east of allotment 48, Parish of Framlingham East.

K3 3.0 ha, being the water reserve north of allotment 2A of section 1, Parish of Marida Yallock.

K4 5.25 ha, being the water reserve north-west of allotment IIIA, Parish of Vite Vite.

K5 1.7 ha, being the public purposes reserve north of allotment 7 of section 2A, Parish of Skipton.

K6 12 ha, being the road, camping, and water reserve east of allotments 70A and 70B, Parish of Wilgul North.

K7 4 ha, being the camping and water reserve east of allotment 19A, Parish of Gellibrand.

K8 1.6 ha, being the camping and water reserve east of allotment 38, Parish of Yeo.

K9 0.5 ha, being the water reserve adjacent to allotment 26C of Section A, Parish of Yaughar - to be managed by the Forests Commission.

K10 20 ha, being the water supply reserve west of allotment 18 of section 3, Parish of Krambruk.

K11 16 ha, being the camping reserve east of allotment 1, Parish of Wangerrip.

L.ROADSIDE CONSERVATION

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

Nature conservation

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

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, especially where wayside stops have been established.

The character of such roadside environments should be recognised and maintained where possible. Examples include the Hawks Nest road (which crosses the 'stony rises' between Pomboineit and Pirron Yallock) and the Wild Dog Creek and Skenes Creek roads (which climb from the Otway coastline to the main ridge).

The Council believes that as much roadside vegetation as possible should be retained when roads are being upgraded. If a major upgrading is being planned, the feasibility of purchasing a strip of private land should be considered in order to preserve good stands of roadside vegetation.

Management

Responsibility for the management of roadside vegetation is vested in various authorities, depending on the status of the road. The most important roads of the State (State highways, tourist and forest roads, and freeways) declared under the *Country Roads Act 1958* are completely under the control of the Country Roads Board (9000 km). Main roads (14 500 km) are also declared, but are controlled jointly by the Country Roads Board and local municipal councils.

Vegetation on unclassified roads (about 98 000 km of mostly minor roads) is under the care and management of municipal councils, although it is owned by the Crown. The Forests

Commission has the control of vegetation on unclassified roads that pass through or adjoin State forest. (Note: These figures are for all Victoria.)

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

Main recreation roads

A number of roads in the study area receive high recreational use. They include the Great Ocean Road, the Colac-Apollo Bay Road, and Turtons Track.

Council believes that it is important that the diversity and attractiveness of the landscape viewed from such roads should be maintained or improved. This requires concern for the landscape values of adjoining private and public land, as well as proper management of the road reserve. In considering the planning of such roads, the need to provide roadside relaxation facilities should also be given high priority.

Back roads

With increasing population and use of cars, a tendency has developed for all 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 State continue to be used for communication, transport, access, surveys, and utilities. Landscape, recreation, and nature conservation values can best be protected by observing the following guidelines. The Council recognises that many of these are already being implemented by the Country Roads Board:

- (i) 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.
- (ii) Where a road carrying a healthy stand of trees is to be duplicated, the new carriageways should be located, where feasible, on purchased private land, and the trees be retained as a median strip.
- (iii) Where realignment of a road results in a section of the old road being cut off from the new alignment, wherever possible the section of the old road should not be sold but used as a recreation and rest area.
- (iv) Every effort should be made to retain significant geological features exposed in existing cuttings, when roads are widened or realigned.
- (v) 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 for these utilities on private land alongside the road if this is already cleared, rather than clearing roadside vegetation to accommodate them.

- (vi) While recognising the need for clearing or pruning of vegetation close to power lines to reduce the associated fire risks, Council suggests that 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.
- (vii) Grazing of domestic stock should be discouraged on roadsides in areas where there is a predominantly native ground flora or where it is necessary to encourage regeneration of native species.
- (viii) Plantings of trees and shrubs native to the area should be established along roads from which trees and shrubs have been cleared.
- (ix) If gravel, sand, and earth for roadworks must be taken from the road verges, then this should be done in such a manner 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.
- (x) The practice of burning off roadside vegetation should be kept to a minimum consistent with providing adequate fire protection.
- (xi) Weeds and vermin on roads should be controlled by means that do not conflict with the uses given above.

For unused roads, the Council recommends that the following guidelines be observed:

- (xii) The clearing of native trees and shrubs other than noxious weeds should continue to be clearly prohibited in the conditions of unused-road licences.
- (xiii) Where it appears to be reasonable, a condition permitting public use should be written into unused-road licences where necessary to provide access to public land.
- (xiv) 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.

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—M4 That the areas of public land listed below and shown on the map be used to provide opportunities for students of all ages to:

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

and that they be permanently reserved under section 14 of the *Land Act 1958* and managed as indicated in the schedule below.

M1 ~~Framlingham Forest (200 ha)~~

~~Late Pliocene-early Pleistocene basalt; relatively flat, with steep banks to the Hopkins River; open forest II of messmate, manna gum, and swamp gum with an understorey of bracken, dogwood, and other low shrubs; cleared area in north-west; elevation 80m; rainfall 700 mm.~~

~~To be managed by the Forests Commission.~~

(Not accepted; omitted from Order in Council 4/12/1979)

M2 Sherbrook River (395 ha)

Miocene limestone and marl; undulating to hilly; open forest II and I of messmate with low shrub understorey; elevation 80 m; rainfall 900 mm.

To be managed by the National Parks Service.

M3 Barramunga Creek (135 ha)

Lower Cretaceous sandstone and shale; steep slopes exceeding 20°; open forest IV of mountain ash, with typical dense understorey; some areas of regrowth; elevation 300 mm; rainfall 1400 mm.

To be managed by the Forests Commission.

M4 Bamba(217 ha)

Pliocene sediments (Moorabool Viaduct formation and Dorodong sand) undulating to hilly; open forest II of messmate, brown stringybark, and narrow-leaf peppermint with understorey varying from blackwood, wirilda, and other wattles with bracken and tussock grass to a heathland with small grass-trees; elevation 200 m; rainfall 625 mm.

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

Note: There is limited use of a small portion of this area as a sanitary depot. This use may continue for up to five years after which it is anticipated arrangements will be made for disposal into the proposed Winchelsea sewerage system.

SCHOOL PLANTATIONS

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

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

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

It should be 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

M5 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.

M6 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.

M7 That new school plantations not be established on public land unless they would clearly enhance conservation values-for example, by the rehabilitation or reforestation of cleared or eroded areas.

N. LAKE RESERVES

The study area includes the major part of the volcanic plains of western Victoria. These fertile plains were formed by lava flows from numerous volcanoes, which also resulted in the formation of many lakes. Some of the lakes are interconnected and others not; nevertheless, all are regarded as forming a system of 'Volcanic Plains Lakes'. The plains are almost entirely freehold as their agricultural potential was appreciated very early in Victorian history. The majority of the lakes, however, remain in public ownership.

Some of the public land lakes are reserved for 'public purposes', but others are simply unreserved Crown land. The Council considers that, while 'public purposes' reservations have in the past served to protect particular lakes, the value of the whole system has not been recognised. This system, unique within Australia, contains a range of physical characteristics-such as size, depth, salinity, flora and fauna, ephemeral nature, surrounding topography, and isolation due to the limited extent of public access available. The differences in these characteristics provide opportunities for comparative studies of lake ecosystems.

The capability and current use of the individual lakes vary widely. Scenic quality varies from picturesque to barren and unattractive, and similar quality variations occur for uses such as recreation (mainly boating and angling), wildlife conservation (particularly waterfowl), water supply, and drainage. The ephemeral nature of many lakes also leads to a variation of uses and values with time on individual lakes: higher water levels provide, for example, better conditions for recreation and irrigation, while lower levels provide a generally more saline habitat, with different classes of birds frequenting the lake. In some cases, a lake may dry up completely and remain until the next wet season as either a bare salt pan or a fertile plain that can be used for agriculture.

The natural water levels in some lakes are manipulated-either by deliberate drainage or by pumping for irrigation. Fresh-water lakes support more diverse ecosystems than the saline ones and are thus valuable for nature conservation, but they also suffer from a larger number of competing pressures-to the extent that some, such as Lake Terang and Lake Peawick Gorra, are entirely drained and their wetland habitat and water sport recreation value has been completely lost. Others such as Lake Elingamite, have suffered a continuing reduction in water level associated with an increase in irrigation water use.

The water levels in Lake Corangamite and adjacent lakes are subject to manipulation by the State Rivers and Water Supply Commission and the Lough Calvert Drainage Trust, in order to avoid a repetition of the serious flooding of freehold land that occurred in the 1950s. The Crown resumed areas of land adjacent to these lakes, under the *Lake Corangamite Act 1966*, and in most cases leases them for grazing under licence. The lakes have values for wildlife conservation and for recreation, and conflicts thus arise between these uses and the drainage function as well as agricultural uses on the adjoining leasehold and freehold land. Council considers that these conflicts can best be resolved by cooperation between the various government departments with responsibilities in the area and by consultation with local sporting, conservation, and farmer organisations. A mechanism for formal cooperation and consultation can be established by the formation of Committees of Management.

Public access to numerous lakes can only be gained by entry through freehold land, as no public land exists beyond the water's edge. In other cases there is legal public access along unmade roads that are cleared and grazed under licence by adjoining landholders.

The Council nevertheless considers that, although in some cases legal access should be made more easily useable, sufficient public access is available to meet the present and foreseeable recreation demand. The isolation of some lakes enhances their value for waterfowl conservation and scientific study through a reduction in competing pressures. Availability of public access through freehold land is presently determined by the owners of the land, and nothing in these recommendations suggests that this situation should change.

Form of Reservation

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

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

In making these recommendations the Council emphasises the general lack of knowledge available on this unique lake system and stresses the need for positive management in the future to ensure that the important values of the system for scientific study are maintained. The complex of small crater lakes around Red Rock is of special importance, as it provides examples of lakes with a range of salinity levels and other characteristics in close proximity to one another.

Recommendations

N1—N64 That the lakes described in the schedule below and shown on the map be used, according to their particular capabilities, for:

- (a) recreation
 - (b) wildlife conservation
 - (c) scientific study
 - (d) water supply
 - (e) drainage
- that
- (f) current legal use for low-intensity grazing be permitted under the control of the managing authority (such control may involve exclusion of grazing, at least temporarily, from some reserves)
 - (g) commercial eel-fishing be permitted in lake reserves at the discretion of the managing authority after consultation with the Fisheries and Wildlife Division.

and that they be reserved under section 14 of the *Land Act 1958* and be managed by the Department of Crown Lands and Survey, which may delegate management where appropriate; there should be consultation with the State Rivers and Water Supply Commission and the Fisheries and Wildlife Division regarding management of these reserves.

N1 Lake Linlithgow (1,000 ha) and Bulrush Swamp (150 ha), Parish of Linlithgow.

Lake Linlithgow and Bulrush Swamp are used in conjunction as recreation and water-sports areas. Depending on water levels and the growth of aquatic vegetation, the use for water sports shifts from one lake to the other. Both lakes also have considerable value as wildlife habitats, and water birds similarly move from one to the other depending on habitat conditions and the disturbance from water sport. Each of these major uses can be accommodated, but the management authority should recognise the importance and interrelations of the recreation and wildlife values of these two lakes in their policies for them.

Note: Council realises that Bulrush Swamp is under consideration for use as a water storage and in making the above recommendation does not preclude such use in the future.

Also includes approximately 15 ha north of allotment 1 in the Parish of Jennawarra, and approximately 32 ha north of allotment 1 and 1C of section B in the Parish of Linlithgow. (Order in Council 4/12/79)

N2 Picnic Lakes and surrounding frontages (68 ha) east of allotments 44 and 53A, Parish of Towanway.**N3 Lake Peawick-Gorra (24 ha) between allotments 46B and 47B, Parish of Towanway.****N4 Tim Dunn Lake (16 ha) east of allotment 59A, Parish of Towanway.****N5 Lake (8 ha) between allotments 37A and 38A, Parish of Towanway.****N6 Lake (10 ha) south-west of allotment 38A, Parish of Towanway.****N7 White's Lake (7 ha) north of allotments 78 and 79, Parish of Woorndoo.****N8 Salt Lake (37 ha) in and south of allotment 103, Parish of Kornong.****N9 Lake and frontage to the west (20 ha) between allotments 24 and 24AA, Parish of Terrinallum.****N10 Lake (6 ha) adjoining allotments 24 and 25, Parish of Terrinallum.****N11 Deep Lake (80 ha) east of allotment 42B, Parish of Dunnawalla.****N12 Logans Lake (250 ha) south of allotments 32, 25B, 25A, and 23A, Parish of Dunnawalla.****N13 Lake Koonangurt (23 ha) between allotments 1 and 3 of section 31, Parish of Tooliorook.****N14 Lake Tooliorook (250 ha) in section 3, Parish of Ettrick.****N15 Lake Cartcarrong (24 ha) south-west of township of Winslow, Parish of Yarrpturk.****N16 Salt lake and the adjoining reserve (40 ha) north of allotment 4A of section 25, Parish of Mortlake.****N17 Salt Lake (40 ha) east of allotment 4A of section 25, Parish of Mortlake.****N18 Lake Keilambete and the adjoining reserve to the north (320 ha) in section 1, Parish of Keilambete.****N19 Lake Terang and the adjoining reserve to the south (120 ha) south of the township of Terang, Parish of Keilambete.**

- N20** Lake Bullen Merri (560 ha), south-west of the Town of Camperdown, Parish of Colongulac.
- N21** Lake Gnotuk (260 ha), west of the Town of Camperdown, Parish of Colongulac.
- N22** Lake Colongulac (1,400 ha) in section 3, Parish of Kariah.
- N23** Lake Kariah and the adjoining reserve to the east (160 ha) in section 3, Parish of Kariah.
- N24** Lake Koreetnung (200 ha) in section 10, Parish of Kariah.
- N25** Lake Weeranganuk (400 ha) in sections 12 and 14, Parish of Kariah.
- N26** Lake Gnarpurt (2,350 ha) and adjoining frontage to the south-west and land resumed by the Crown, Parish of Struan.

Note: The Crown has resumed a large number of separate areas of land around the shores of Lakes Corangamite and Gnarpurt that are subject to inundation by the manipulation of lake levels. In most cases, the areas are currently leased for grazing and no change is proposed in this use. The management authority should consult with the State Rivers and Water Supply Commission, which is responsible for the management of water levels in the lake, before implementing any changes in land use programs for leased frontage areas (see Recommendation Q6)

- N27** Lake Coradgill (45 ha) in allotment 18 of section 1, Parish of Corangamite.
- N28** Lake Terang Goodtditch (13 ha) in allotment 17 of section 1, Parish of Corangamite.
- N29** Lake Bulkil Narra (5 ha) in allotment 16 of section 1, Parish of Corangamite.
- N30** Lake Punpundal (30 ha) in allotment 27 of section 1, Parish of Corangamite.
- N31** Lake Tatutong (25 ha) north-east of allotment 33, Parish of Corangamite.
- N32** Lake and adjacent frontage (26 ha) west of allotments 6, 7A, 8, and 9, Parish of Purumbete North.
- N33** Lake Corangamite (23,000 ha) County of Grenville and the public purposes reserve (2.5 ha) to the north-east of allotment 36 of section 1, Parish of Corangamite.

Note: The Crown has resumed a large number of separate areas of land around the shores of Lakes Corangamite and Gnarpurt that are subject to inundation by the manipulation of lake levels. In most cases, the areas are currently leased for grazing and no change is proposed in this use. The management authority should consult with the State Rivers and Water Supply Commission, which is responsible for the management of water levels in the lake, before implementing any changes in land use programs for leased frontage areas (see Recommendation Q6).

- N34** Cundare Pool (2,230 ha)-incorporating Lake Martin, unnamed salt depressions, and the Woody Yalloak River flood plain-north-east of Lake Corangamite, Parish of Cundare.

Note: The State Rivers and Water Supply Commission developed this area as a flood pondage basin to prevent flood flows entering Lake Corangamite and to maintain a constant flow in the flood-water diversion channel from the Woody Yalloak River to the Warambine Creek. It has a primary drainage function and should be managed for the purpose of water control. The Council therefore proposes that the management authority delegate the management of the Cundare Pool to the State Rivers and Water Supply Commission.

- N35** Lakes (16 ha) north-east and north-west of allotment 46A, Parish of Cressy.

N36 Lake Weering (450 ha), including frontages to the south-west and north-east and the adjacent camping ground reserve, south of allotment 57 A3, Parish of Cressy.

N37 Saline lake (16 ha) in allotments 102 and 105, Parish of Weering.

N38 Lough Calvert (2,100 ha), consisting of a chain of lakes and swamps approximately 16 km long, north-east of Lake Colac.

Note: The function of this reserve in the removal of surplus water from the surrounding areas should be recognised by the management authority. The Lough Calvert Drainage Trust is responsible for the management of water levels in this lake.

N39 Salt lakes (14 ha between allotments 144 and 144C, 6 ha in allotment 145 and 8 ha between allotments 143A and 146A), Parish of Ondit.

N40 Salt lake (100 ha) south-east of allotment 67, Parish of Cundare.

N41 Lake Cockatoo (44 ha) west of allotments 119B, 120A, and 120B, Parish of Ondit.

N42 Cemetery Lake (25 ha) west of allotments 99A and 99B, Parish of Ondit.

N43 Salt lakes (11 ha between allotments 100A and 100B, 12 ha between allotments 100A, and 100A, 59 ha between allotments 95B and 96C, 20 ha between allotments 91A and 92A, and 10 ha between allotments 87A and 88B), Parish of Ondit.

N44 Beeac Swamp (70 ha) adjoining sections 61 and 62, Parish of Ondit.

N45 Saline lake (50 ha) east of allotments 22A and 22B, Parish of Ondit.

N46 Salt lake (40 ha) north of allotment 60B, Parish of Turkeeth.

N47 Salt lake (11 ha) east of allotment 55A, Parish of Turkeeth.

N48 Salt lake (57 ha) south of allotment 21, Parish of Warracbarunah.

Note: The Lough Calvert Drainage Trust is responsible for the management of water levels in this lake.

N49 Salt lake (20 ha) between allotments 12 and 13, Parish of Mirnee.

N50 Fresh-water lake (32 ha) west of allotments 37AA, 37AB, and 37F, Parish of Mirnee.

N51 Lake Burn (50 ha) west of allotment 69, Parish of Birregurra.

Additional Wildlife Reserve

This lake is part of a system of lakes in which water levels are regulated by the Lough Calvert Drainage Trust in order to drain excess water from land to the north of Lake Colac.

Recommendation

That the area indicated on the map and described below be used primarily to conserve native animals, particularly water birds, and for public education and recreation where this does not conflict with the primary aim;

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

N52 Salt lake (450 ha) east of allotment 138A, Parish of Turkeeth.

Note: The Lough Calvert Drainage Trust is responsible for the management of water levels in this lake.

(LCC letter to the Minister for Conservation. 29/7/82)

N53 Lake Colac (2,700 ha) north of the City of Colac, Parish of Colac.

Notes:

1. This reserve supports a variety of recreation activities (such as swimming, fishing, and boating), forms part of the water-control system for the surrounding area, is utilised as a disposal area for treated effluent, and is a valuable area for wildlife. The management authority should recognise the values of this lake and the complex nature of its utilisation in formulating policies for its management.

2. The Lough Calvert Drainage Trust is responsible for the management of water levels in this lake.

N54 Lake Ondit (110 ha) south of allotment 2A, Parish of Ondit.**N55** Lake Coragulac (40 ha) south of allotment 12A, Parish of Warrion.**N56** Lake Werowrap (42 ha) and unnamed lakes to the east and west in allotments 11C and 11D, Parish of Warrion.**N57** Lake Gnalinegurk (26 ha) east of allotment 19L, Parish of Warrion.**N58** Lake Purdiguluc (90 ha) north-east of allotment 19A, Parish of Warrion.**N59** Salt lagoons (45 ha) between allotments 11A and 22, and north-east of allotment 22, Parish of Nalangil.**N60** Lagoon (6 ha) south of allotment 11D, Parish of Barongarook.**N61** Lake Elingamite (375 ha) south of township of Elingamite North, Parish of Elingamite.

Note: The water level in this lake has continually declined in recent years. The management authority should investigate the extent to which this decline is due to pumping of water from the lake and place restrictions on this use if necessary. A scheme for the diversion of water into the lake from adjacent freehold land should be investigated by the State Rivers and Water Supply Commission.

N62 Lake Numblin (15 ha) and the stone reserve adjoining it to the north-east, adjacent to allotments 6A and 6B of section 8 and allotments 3A and 3B of section 7, Parish of Ecklin.**N63** Lake Munderong (20 ha) adjoining allotments 71A and 71B, Parish of Garvoc.

Note: The State Rivers and Water Supply Commission has identified this area as a possible site for a water storage.

N64 10 ha adjoining allotments 58, 59, 63, and 64, Parish of Mepunga.

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 (or inactivities) undertaken with little or no feeling of compulsion are almost certainly recreation.

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

- Formal recreation activities include all 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 coastal strip in the Corangamite area 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 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 bush-walking, rock-climbing, orienteering, canoeing, fishing, hunting, fossicking, picnicking, horse-riding, boating, trail-bike riding, and pleasure driving. Council believes that activities such as these can be accommodated, without detriment to other values, somewhere on public land. Consequently, Council points out that outdoor recreation in general is an acceptable primary or secondary use of much public land (except reference areas and some water storages and their buffers) and has left the details of recreational use to the land managers.

The various recreation activities differ in their requirements for types of land, size of area and site location. They also differ in their impact on the land and on other activities (including other forms of recreation). Generally, any one activity pursued at a low level of intensity poses little threat to the environment and seldom conflicts with other activities. With increasing intensity, conflicts and problems can arise. There is always the problem of recreation damaging the environment it seeks to use. Council therefore believes that the land managers should aim at controlling the levels and patterns of recreational use according to the capability of the area to sustain such use without irreversible damage or significant conflict with the primary purposes of the area, while at the same time avoiding any unnecessary restrictions on usage. Special care will be required in the location and management of areas zoned for intensive recreation, to prevent environmental damage. Thus, more stringent restrictions can be expected in areas where the vegetation and soils are sensitive to damage, such as in coastal and low-rainfall areas, and where the natural environment or special natural features are being preserved.

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

Motorised Recreation

Much of our outdoor recreation depends on motor vehicles. These may be conventional cars, four-wheel-drive vehicles, or motor-bikes. 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. Any vehicle registered under the *Motor Car Act 1958* has access to any legally open road anywhere on public land. Roads are defined in the *Land Conservation (Vehicle Control) Regulations* as being 'any road formed for the passage of vehicles having four or more wheels'. The land management authorities can close roads when traffic exceeds their physical capacity, or when vehicular access or its associated activities seriously conflict with the area's primary purpose. Seasonal closure of some roads may be necessary to avoid erosion and excessive maintenance, or because of extreme fire hazard. As the intensity of recreational use on public land increases it is inevitable that more roads and tracks will be closed to vehicular access, particularly in areas with erodible soils. Council believes that these closures will not significantly reduce the many hundreds of kilometres of roads and tracks currently open to the public.

Motor vehicles leaving roads on public land without the written permission of the land management authority contravene the provisions of the *Land Conservation (Vehicle Control) Act 1972* and *Regulations*. Moreover they can, and do, cause extreme damage to vegetation and soils.

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 or general camping.

Camps on public land vary greatly-in the purpose for which they are constructed, in their standard of maintenance, and in the degree to which they are used. Some are designed to provide full accommodation, with campers living in huts that have electricity and hot water provided; others have only minimal facilities, with campers living in tents. Some have considerable amounts of money and volunteers' time and effort put into their construction and maintenance; others have been built and are maintained at very low standards. Some are used for much of the year, with the owner 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 camp 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 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 wider use of camps on public land is desirable in order to avoid proliferation of camp sites, and there is a need for coordination of information regarding the availability of those camps that could be used by groups who do not have tenure of their own.

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

Recommendations

Recreation

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

Motorised 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—O12** That the areas described below and shown on the map 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
- and that these areas be permanently reserved under section 14 of the *Land Act 1958* and managed by the Department of Crown Lands and Survey.
- O4** Existing recreation reserves.
- O5** 24 ha, being part of the former public purposes reserve, south of allotment 20A, Parish of Yambuk. See recommendation S5, establishment of rubbish depot.
- O6** 16 ha, being an extension of the Mt. Rouse Public Park by inclusion of the adjacent water reserve and gravel reserve, south of the township of Penshurst, Parish of Purdeet.

- O7** 2.4 ha, being the existing cemetery reserve (unused), west of the township of Timboon; to be used as an addition to the existing golf course. The area occupied by the water tower is excluded from this recommendation.
- O8** 1.6 ha west of allotment 20 of section 5, Parish of Paaratte (township of Port Campbell), as an addition to adjoining recreation reserve.
- O9** 15 ha south of the Wiridjil Recreation Reserve, Parish of Wiridjil, as an addition to existing recreation reserve.
- O10** 18 ha south-west of allotment 2 of section 3, Parish of Krambruk. Grazing could be permitted to continue at the discretion of the managing authority.
- O11** 1.6 ha, being part of the former camping and water reserve south of allotment 42, Parish of Barongarook.
- O12** 8 ha west of allotment 1F, Parish of Yaughar, as an addition to adjoining recreation reserve. Provision should be made for a road reserve on the north-western boundary to provide access to allotment 1G(2).

P. SCENIC RESERVES

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

Recommendations

P1—P12 That the areas shown on the map and described below be used to preserve scenic features or lookouts

and that they be permanently reserved under section 14 of the *Land Act 1958*, and except where otherwise indicated be managed by the Department of Crown Lands and Survey.

- P1** 0.8 ha adjoining the Hopkins River for a distance of 100 metres (5 chains) radius from the centre of Hopkins Falls, Parishes of Purnim and Tallangatta.
- P2** 4 ha, being the Red Rock public park and recreation purposes reserve, within and to the east of allotment 11D, Parish of Warrion.
- P3** 10 ha adjoining the Gellibrand River (Stephenson Falls), Parish of Barramunga - to be managed by the Forests Commission.
- P4** 9 ha, being the waterfall reserve, west of allotment 14D, Parish of Wongarra - to be managed by the Forests Commission.
- P5** 58 ha, being the Carisbrook Falls reserve, south-west of allotment 29A, Parish of Wongarra.
- P6** 82 ha, being the Barham Paradise picnic reserve, adjacent to the north-east and south of allotments 7 and 8, Parish of Krambruk.
- P7** 32 ha, being the Beauchamp's Falls reserve, west of allotment 36A, Parish of Olangolah - to be managed by the Forests Commission.
- P8** 2 ha, being the public purposes reserve (Hopetoun Falls), Parish of Olangolah - to be managed by the Forests Commission.
(See also Rivers and Streams SI A16)
- P9** 30 ha, being the waterfall reserve in section B, Parish of Wyelangta - to be managed by the Forests Commission.
- P10** 13 ha, being the waterfall reserve (Glasgow Falls), allotment 44A(1), Parish of Barwongemoong - to be managed by the Forests Commission.
- P11** 16 ha, being the public purposes reserve (the Beauty Spot) west of allotment 9, Parish of Barwongemoong - to be managed by the National Parks Service.
- P12** 10 ha, being the Johanna Falls recreation reserve and the adjacent allotment 68D, Parish of Aire - to be managed by the National Parks Service.

Q. AGRICULTURE

Most land in the area suitable for agriculture was alienated in the early days of settlement. Apart from the public land cleared and developed for agriculture under the Heytesbury Settlement Scheme, and 310 ha associated with the Cooriemungle Prison Camp, little of the public land has significant value for agricultural production. Areas of marginally suitable land in and around the Otway Ranges were alienated and used for agriculture, but now many of these areas are being used for timber production, mainly softwoods, following sale to the Forests Commission or private softwood companies.

Heytesbury Land Settlement Scheme

The Rural Finance Commission started development of the Heytesbury Settlement in 1956. Of the total areas of 42,500 ha cleared and sown, 29,500 ha have been alienated for dairy production. The remaining land is presently managed by the Rural Finance Commission and used for beef cattle production.

Most of the unallocated land is suitable for dairy production in the long term, but Council realises that under the present circumstances it would not be appropriate to alienate further land in this area for new agricultural units. The land will remain under present management and be utilised for agricultural production pending eventual alienation except for an area of 2,300 ha recommended for softwood production (see Chapter F).

Cooriemungle Prison Camp Area

The area at Cooriemungle, presently reserved as a prison camp and managed by the Department of Social Welfare, is highly suitable for agriculture. It has been cleared and developed for agriculture and currently supports beef cattle production. The Council believes that this land could be made available to existing agricultural producers in the immediate vicinity of Cooriemungle for the purpose of adding to present land-holdings.

Glenormiston Agricultural College

The Department of Agriculture manages 280 ha of the original Glenormiston Estate north of Noorat as an agricultural college. The Council does not propose any changes in the use or management of this area.

Lake Corangamite (Resumption of Land) Act 1966

Many separate areas of land around the shores of Lakes Corangamite, Gnarpurt, and Murdeduke were resumed under the *Lake Corangamite (Resumption of Land) Act 1966* or purchased on behalf of the Crown by the State Rivers and Water Supply Commission. This land is subject to inundation and the bulk of it is leased for grazing under licence, in many cases to the original owners. Council proposes no change in the current use of these areas.

Commons and Unused Recreation Reserves

The agricultural region in the west of the study area contains very little public land. The remaining areas, apart from the lakes, consist mainly of commons and now unused recreation reserves, particularly racecourses. They have been used for agriculture for many years, being well managed for grazing, and the land is both stable and productive. Very little native vegetation remains and the areas would have major conservation value considering the general lack of

public land in the region, if the native vegetation was restored to provide habitat for species such as the bustard, plain wanderer, and brolga. Such a programme would, however, be difficult and expensive and the Council considers that, for the present, the areas should continue to be used for agriculture. They should be retained as public land and managed with the assistance of the Fisheries and Wildlife Division to retain those wildlife conservation values that they may presently have.

Recommendations

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

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

Schedule 1: Land Recommended for Agriculture Q1

Parish	Location	Area(ha)
Bambra	To the east of allotment 83	2.4
Otway [see note]	Adjacent to allotments 31 and 31A	20.0
Paaratte	In the east of allotment 12 of section 2	0.7
Waarre	Being allotment 11B of section C	2.0
Weeaprounah	Unused road sections south of allotment 38 and between allotments 38 and 36C, and portion of allotment 36C	3.0
Weeaprounah	Adjacent to allotment 17	1.4
Wormbete	South of allotment 17	1.0
Wyelangta	Unused road section between allotments 7A and 20C of section 3	1.0
Yagher	To the north and to the south of allotment 26G	2.0
Total		33.5

Note: Part Q1, being Crown allotments 30B and 30C, Parish of Otway (20 ha) amended to A1 because of its regionally significant vegetation. [Order In Council 13/7/99]

Q2 That the land exchanges listed below be investigated:

- (a) an area of 35 ha south of allotment 79, Parish of Wangerrip, be made available for agriculture in exchange for 31 ha of freehold land, being allotment 77, Parish of Barwongemoong, and that allotment 77 be added to the adjacent streamside reserve (Recommendation K11)
- (b) the areas of land totalling approximately 60 ha in the Parishes of Aire and Otway be made available for agriculture in exchange for approximately 80 ha of freehold land in the same parishes, as detailed on map 10, and that these areas be added to the adjacent National Park or Wildlife Reserve as appropriate (Recommendations A2 and C28).

Heytesbury Land Settlement Scheme

Q3 That the land shown on the map be used for agriculture and be managed by the Rural Finance Commission that portion of the area may be alienated to eligible applicants for the purpose of adding to existing agricultural holdings or for forestry purposes the policy for alienation to be determined by the Rural Finance Commission and that the timing of further alienations to provide new agricultural units be reviewed periodically by the Rural Finance Commission.

Note: An area of 2,300 ha has been recommended for use for softwood production - see Recommendation F2.

Cooriemungle Prison Camp

- Q4** That the area of 310 ha shown on the map - comprising allotment 43A of section B, and allotments 10 and 11 of section C, Parish of Waarre - be used for agriculture. With reference to section 5 (3) of the *Land Conservation Act 1970*, the Council recommends that the land be made available for agriculture in accordance with the provisions of the *Land Act 1958*.

Note: This land could form additions to present farms.

Glenormiston Agricultural College

- Q5** That the land shown on the map and described below be used as the Glenormiston Agricultural College and that it be permanently reserved under section 14 of the *Land Act 1958* and managed by the Department of Agriculture.
Agricultural College Reserve (Gaz. 1971 222), 281 ha, Parish of Glenormiston.

Land Resumed Around Lakes

- Q6** That the land resumed by the Crown and reserved pursuant to the *Lake Corangamite (Resumption of Land) Act 1966* around the shores of Lakes Corangamite, Gnarpurt, and Murdeduke be available for use for grazing under licence

and be managed by the Department of Crown Lands and Survey in consultation with the State Rivers and Water Supply Commission.

Note: These areas of land are also referred to under Recommendations N33 and N26 - lake reserves, and C24 - wildlife reserves.

Commons and Unused Recreation Reserves

- Q7** That the areas described in the schedule II below, and shown on the map be used for grazing and be reserved under section 14 of the *Land Act 1958* and managed by the Department of Crown Lands and Survey with the assistance of local committees of management.

Schedule II Commons and Unused Recreation Reserves

Location.	Commons and unused recreation reserves	Area(ha)
Mortlake	Mortlake Common (excluding the Education Department plantation), Parish of Connewarren	300
Caramut	Northern part of the Racecourse and Recreation Reserve and the adjacent Caramut Common, Parish of Caramut	50
Koroit (see note)	Racecourse and Recreation Reserve, being allotments 2 and 3 of section 32A, Parish of Yarrpturk.	35
Darlington	Former Darlington Common (excluding the Education Department plantation) in section 14, Parish of Darlington	50

(Koroit Racecourse and Recreation Reserve, being allotments 2 and 3, section 32A, Parish of Yarrpturk, revoked by Order in Council 1/10/96; to be transferred to South West Water Authority.)

R. MINERAL AND STONE PRODUCTION

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

Government has the responsibility to establish the existence and extent of the State's mineral resources. When a new deposit is discovered in an area where mineral extraction is not a currently approved land use, it may be of such importance that a change of the land use is required in the national interest. The decision on whether such a change is in fact necessary can only be made against a background of the best available knowledge of the location and extent of alternative sources of the particular mineral.

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

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

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

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

The Council believes that:

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

authorities with respect to the procedures to be adopted for the exploration and extraction of 'stone' on public land. Any operations on public land should continue to be subject to the approval of the appropriate managing authority.

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

- (iii) A system should be established that would guarantee, before work commences, the availability of funds for progressive and final reclamation for any excavation or operation. Provision should also be made to enable the acceleration of the rehabilitation of all existing extraction areas on public land.
- (iv) Royalties for materials extracted from public land, including site rental when appropriate, should be more closely related to the market value of the material. This would eliminate the temptation to use public land purely on the grounds of the nominal royalties often levied in the past.
- (v) The following guidelines should apply to all extraction from public land:
 - No sites for the extraction of 'gold', 'minerals', and 'petroleum' should be opened in areas that the Department of Minerals and Energy and the land management authority in consultation consider to be of greater value for their aesthetic or nature conservation values.
 - The Department of Minerals and Energy should not permit any extraction of 'gold', 'minerals', or 'petroleum', unless satisfied as to the reasonable economic viability of the proposed extraction. The Department should also require, as far as is reasonably possible, the lodgement of mining plans that show the expected post-mining state of the land.
 - No sites for the extraction of 'stone' should be opened in areas that the managing authority, in consultation with the Department of Minerals and Energy, considers to be of greater value for other uses including aesthetic or nature conservation values. The advice of the Department of Minerals and Energy should also be sought as to the desirability of proposed excavations having regard to alternative sources of 'stone'.
 - Extraction of 'stone' should generally be concentrated on the fewest possible sites in an area, and any one site should be completely worked out and where possible reclamation ensured before a new site is exploited. The type of excavation to be carried out should be that with the lowest environmental impact consistent with effective use of the resource. In general, and where the nature of the resource permits, excavations for 'stone' should be deep and limited in area in preference to shallow excavations over a wide area. The extraction of granitic sand occurring as shallow deposits in the weathered profile should not be permitted until it has been established that no suitable alternatives are available. In the special circumstances where approval is given for this form of extraction, particular attention should be given to the prevention of soil erosion.
 - Where an application for the removal of 'stone' from a stream bed is considered, the land management authority should take particular care to ensure that the operations will not directly or indirectly cause erosion of the bed or banks, or undue pollution of the stream. In addition to the arrangements outlined above for 'stone', the land management authority should also consult with the relevant water supply and conservation authorities, and should consider the scenic and recreation values of the area. Alternative sources with a lower environmental impact should be used where they are available. The environmental effect of extraction may be reduced if alluvial stone is obtained from properly managed quarries on the river terraces, rather than from the present stream bed.
 - All extraction sites should be fully reclaimed where possible. Reclamation should follow extraction progressively when possible, but otherwise should begin immediately

extraction is completed. The requirements for reclamation should be included in the conditions of the lease or licence before any approval to extract is granted. The reclamation may include, for example, replacing topsoil, revegetating the site with plantation forest, filling a quarry with water and developing the site as a park, using a gravel pit for off-road vehicles, using a quarry for garbage disposal prior to reclamation, or restoring the site as closely as possible to its original topography and revegetating it with species native to the site.

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

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

Recommendations

R1 That public land in the study area (other than land excepted from occupation for mining purposes under the *Mines Act* and the *Land Act 1958*) continue to be available for exploration and extraction of 'gold', 'minerals', 'petroleum', and 'stone', subject to the principles and guidelines set out above. (Some deposits of 'stone' are specifically identified in Recommendation R2-R9 below.)

R2—R9 That the areas listed below and shown on the map be used for the extraction of 'stone', subject to the principles and guidelines set out above

and that they be temporarily reserved under section 14 of the *Land Act 1958*, and managed by the Department of Crown Lands and Survey.

R2 ~~16 ha south-east of allotment 49, Parish of Barwongemoong.~~

Note: Too inaccessible for extraction; amended to hardwood production (E12); ECC notified 16/11/98.

R3 50 ha south of allotments 32C and 33C of section A, Parish of Yaughar.

R4 ~~12 2 ha being the existing gravel reserve between allotments 21 and 21P, Parish of Yaughar.~~
(description corrected 16/2/79).

R5 4 ha west of allotment 34B, Parish of Gerangamete.

R6 6 ha north-west of allotment 16, Parish of Wormbete.

R7 2 ha west of allotment 71A, Parish of Gherang Gherang.

R8 115 ha between allotments 48B and 57, Parish of Gherang Gherang.

R9 10 ha being the Cape Horn Quarry, Parish of Wyelangta

Anglesea Lease Area

R10 The recommendations for the area marked on the map were included in the Final Recommendations for the Melbourne Area and reference should be made to these for details. [The following text and recommendations (M1 R6—M1 R12) are extracted from LCC's Melbourne Area District 1 Review final recommendations, June 1987, which replaced the Melbourne Area recommendations.]

Immediately north-west of Anglesea a 7350-ha block of public land is leased under the provisions of the *Mines (Aluminium Agreement) Act 1961*, which grants Alcoa of Australia Ltd exclusive right to search for and mine all coal found within the area for 50 years, until 2011, with the right of renewal as specified in the Agreement.

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

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

The lease area

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

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

Land use

Brown coal

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

Results of exploratory drilling by the then Mines Department, Roche Brothers, and Western Mining Corporation indicated a large economically viable field in the Salt Creek—Marshy Creek area immediately to the north of Anglesea. Roche Brothers commenced open-cut mining operations on the western limb of this field in 1959. Later, control of the field passed to Western Mining Corporation - an associate of Alcoa of Australia Ltd - and in 1961 Alcoa was granted a long-term lease over the field, including a considerable tract of country to the north and west.

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

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

Initially, the company commenced open-cut mining in the central-eastern portion of the field, and the open cut has progressively advanced west. Back filling and rehabilitation have taken

place in areas that have been mined. The open cut will be extended southwards and northwards to the economic limits of the uppermost seam, while mining of the lower seams is not being proposed at present. The remaining portions of the lease area are known to contain brown coal, but the extent of these reserves has not yet been fully determined.

Softwood production

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

Other uses

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

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

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

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

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

Conservation values

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

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

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

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

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

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

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

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

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

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

Lease area

Recommendations

M1 R6 That the 5960 ha comprising areas A, B, and C and shown on Map B (omitted) continue to be available to Alcoa of Australia Ltd as specified in the *Mines (Aluminium Agreement) Act 1961* for the mining of brown coal, exploration and associated works.

Notes:

1. The area marked A on Map B includes the present works area and is known to contain coal reserves sufficient to last some 75 years at the current rate of extraction.

2. The Council realises that part of the lease area lies outside the arbitrarily established boundary of the Council's Melbourne Area, District I, but must consider this land in order to adopt a balanced view of land use within the lease area.

M1 R7 That mining, where it is to proceed on part of the lease area outside the area marked A on Map B, should be subject of negotiated conditions between Alcoa of Australia Ltd and the government in order to minimise the impact on significant conservation values.

M1 R8 That, most importantly, in view of the high fire hazard that exists in the lease area and its location immediately to the north and west of the Anglesea township, the land manager and the Country Fire Authority continue to implement an adequate fire-protection policy for this area.

M1 R9 That, subject to the rights conferred by the *Mines (Aluminium Agreement) Act 1961*, the Anglesea lease area continue to be managed by the Department of Conservation, Forests and Lands.

M1 R10 That, in recognition of the area's capabilities for nature conservation (particularly floral values), gravel and sand production, and outdoor recreation, the government enter into negotiations with Alcoa of Australia Ltd to provide for the following uses within those portions of the lease area described below:

Area A

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

Area B

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

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

Area C

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

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

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

Council is aware of a proposal to establish a sewerage treatment scheme in the south-west portion of the Anglesea Lease Area. Council is also aware that this proposal is subject to further evaluation work currently being undertaken to identify other alternatives to improve waste disposal services in the Aireys Inlet area. Council believes that the evaluation work should include all options and potential sites, including those on freehold land. Depending upon the nature of the plant to be established, and if public land is required, land in the south-west portion of the Anglesea Lease Area could be suitable. However, detailed assessment of the preferred option would need to be undertaken in conjunction with the Department of Conservation, Forests and Lands and other relevant authorities before any decision is made. (Note amended by Order in Council 23/8/1988; new text above not underlined)

Motorised recreation

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

The Council wishes to emphasise that even legal use of roads can pose maintenance problems, and authorities responsible for their construction and maintenance on public land may close roads temporarily or permanently when traffic exceeds their physical capacity, for safety reasons, or when use by vehicles is in unacceptable conflict with the area's other values and uses. Erosion hazard areas may be proclaimed according to the provisions on the *Land Conservation (Vehicle Control) Act 1972* and regulations, enabling strict control to be enforced. Drivers of motor vehicles, including motor-cycles, who leave the roads on public land contravene the provisions of the above *Act*. (Limited exceptions are seven in the *Act*).

Rehabilitation

It is the intention of Alcoa to continue to progressively rehabilitate areas from which brown coal has been removed. Council notes the company's research and development of effective techniques for the re-establishment of native plant species on mined-over areas, which include the use of topsoil containing seed of native plant species and the use of trees and shrubs mostly grown from seed collected around Anglesea.

Anglesea township

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

Site of special conservation significance

Area D

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

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

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

Vegetation communities found here include heathy woodland, in what has been identified as one of two areas where this community is best developed. The heathy woodlands are characterised by a high degree of species richness and diversity and available information suggests that within one hectare it is possible to find up to some 160 individual native plant species. Further it has been suggested that these heathy woodlands would rank among the richest and most diverse vegetation communities in Victoria and are possibly of national significance. The community has also been identified as containing the majority of orchid species found within the lease area and it is also noted for the exceptional wildflower display produced each spring.

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

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

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

Plants of conservation significance occurring here also include seven orchids (plain-lip, spider, bronze caladenia, large duck, variable-midge, Austral leek, and scented sun orchids), *Leptorhynchus linearis* (shiny buttons), *Opercularia scabrida* (stalked stinkweed), *Melaleuca squamea* (swamp honey myrtle) and *Grevillea infecunda* (Anglesea grevillea), which is endemic to the lease area.

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

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

Recommendations

M1 R11 That the government enter into negotiations with Alcoa of Australia Ltd with the aim of reaching agreement to excise the area of some 1390 ha marked D on Map B from the Anglesea lease area and that this land be included in the State's system of conservation reserves as a flora reserve to be managed by the Department of Conservation, Forests and Lands.

Note: The area does not include existing utility easements.

M1 R12 In the event that negotiations outlined in Recommendation R11 are not entered into or are unsuccessful, the area marked D on Map B be subject to Recommendation R7.

[Melbourne Area District 1 Review final recommendations approved by Order in Council 23 August 1988]

S. UTILITIES AND SURVEY

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

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

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

Garbage and Sanitary Depots

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

- S3** That areas used on a temporary basis (such as garbage depots and sanitary depots) be fully rehabilitated. This should apply to sites used illegally as well as those used legally. Where the user or users are known, rehabilitation should be at their expense.
- S4** That within areas reserved as garbage depots, disposal of waste be confined to small sections of the site at any one time, and that steps be taken to prevent the dumping of garbage other than in the designated areas.
- S5** That 2 ha south of allotment 20A, Parish of Yambuk, be used as a garbage depot, and that adequate native vegetation be retained to screen the area from adjacent land.

- S6** That 1 ha adjacent to the south of allotment 17 of section 5, Parish of Paaratte, be used as a garbage depot, and that adequate native vegetation be retained to screen the area from adjacent land.
- S7** That 1.5 ha, being portion of allotment 27, Parish of Yaugher, be used as a garbage depot, and that adequate native vegetation be retained to screen the area from adjacent land.
- S8** That 6 ha east of allotment 8A of section 2A, Parish of Krambruk, be used as a garbage depot, and that adequate native vegetation be retained to screen the area from adjacent land.
- S9** That 5 ha in the south-west of allotment 24, Parish of Lorne, be used as a garbage depot, and that adequate native vegetation be retained to screen the area from adjacent land.
- S10** That 5 ha in the south-eastern corner of allotment 46C, Parish of Bambra, be used as a garbage depot and that adequate native vegetation be retained to screen the area from adjacent land.
- S11** That 1 ha in the north of allotment 70B, Parish of Bambra, be used as a garbage depot, and that adequate native vegetation be retained to screen the area from adjacent land.

Note: This area is within the proposed bushland reserve I8. (corrected by Order in Council 4/12/1979)

Railway Lines

- S12** 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.
- S13** That disused railway land within the study area be retained as public land where it may have value for use as cycling or walking tracks or may eventually be needed again as routes for public transport (including roads).

Trigonometrical Stations

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

- S14** That the minimum area necessary for survey purposes be temporarily reserved around trigonometrical stations on public land where it would otherwise remain as unreserved Crown land and, where other forms of public land tenure apply, that the Department of Crown Lands and Survey have the right to occupy a minimum area around the station and provide lines of sight.

Navigation Aids

- S15** That the minimum area necessary for access to and maintenance of navigation aids be temporarily reserved on public land where it would otherwise remain as unreserved Crown land and, where other forms of public land tenure apply, that the Ports and Harbours Division have the right to occupy a minimum area around the aid and provide lines of sight.

Other Utility Areas

S16 That existing legal uses and tenure continue for areas that are at present reserved and used for utility purposes such as public buildings, municipal depots, cemeteries, schools, etc.

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: Areas are approximate.

T. TOWNSHIP LAND

Public land in townships is currently used for a wide range of purposes. The Council has not generally proposed any change of use for such public land where the present use is for schools, public halls, sports grounds, and the like. In some cases, however, Council has made a specific recommendation for township land to be used for recreation. These recommendations are included in the section on recreation reserves.

Recommendation

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

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

U. UNCOMMITTED LAND

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

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

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

Land classed as uncommitted includes:

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

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

The Council wishes to emphasise that sufficient resources should be made available to the managing authorities to enable careful management of uncommitted land. Funds and personnel are essential for conservation of specific features and values, for protection of the land and adjacent areas from soil erosion, wildfire, vermin and noxious weeds, and for silvicultural treatment of forests.

Arkins Creek and West Gellibrand River

The sub-catchments of Arkins Creek and West Gellibrand River within the Gellibrand River Catchment comprise another category within uncommitted land. The whole catchment of the Gellibrand River is used to supply water to cities and towns north and west of the Otway Ranges. A substantial proportion of the catchment is cleared farmland and some of the remainder supports timber production.

Water harvested from pumping stations in the lower reaches of the Gellibrand River, including that from the Arkins Creek below the offtakes, requires chlorination and excessive colour is a problem at times. The two closed sub-catchments can, however, supply high-quality water. These sub-catchments contain areas of scrub-covered farmland, acquired to protect the water supply, together with dense stands of mountain ash regrowth that regenerated following wildfires in 1919 and 1939.

The Council realises that the continued supply of high-quality water from these subcatchments is of great importance in reducing the total cost of supplying treated and untreated water from the Gellibrand River systems. The colour of water supplied from all of the Otway catchments is very

sensitive to disturbance of the highly colloidal clays that form on the arkosic sediments of the Otway Ranges. This is particularly important in the Arkins Creek catchment, which is relatively small and has no reservoir that could permit clarification of the water by storage.

Council believes, however, that it is possible to safeguard the water quality in both catchments while at the same time enhancing the potential for other forms of use. The scrub-covered areas of abandoned farmland should be reforested to enhance the nature conservation values of the catchments and perhaps in the long term to provide timber supplies.

Decisions regarding other forms of use in the catchments, including the supply of timber, should not be made until sufficient knowledge is available to determine the possible effects on water quality. To obtain information on the effects of timber harvesting, Council suggests that some experimental forestry operations could be initiated, the details of these to be worked out in consultations between the State Rivers and Water Supply Commission, the Forests Commission, and the Soil Conservation Authority.

Recommendations

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

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

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

Note: The area of uncommitted land (U1) to the south-west of allotment C, Parish of Aire, is further referred to in recommendation Q2. Should the northern portion of this land be alienated, the remaining portion (shown as U1 on map 10) should be added to the adjacent National Park and not remain uncommitted land.

(See also Rivers and Streams SI C14)

U2 That the land shown on the map (See maps attached to Ministerial letter 1/10/1979) be used to:

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

(b) protect water catchments

(c) conserve native flora and fauna

that

(d) in areas where water quality can be adequately protected, native forest be re-established on scrub-covered former farmland

and that it be uncommitted land and remain under present tenure and management until reviewed by the Council.

(See Ministerial letter 1/10/1979)

V.MILITARY TRAINING

The Council believes that military training is a legitimate use of public land. Military training should not occur in reference areas, and only under special circumstances in parks and other recreation and conservation areas.

Recommendations

V1 That the following conditions apply to military training conducted on public land:

- (a) The types of activities, and their timing and location, should be subject to agreement between the Army, the managing authority, and other relevant bodies such as the Soil Conservation Authority.
- (b) The training activities should be carried out under conditions specified by the managing and relevant authorities, to minimise any detrimental effects.
- (c) The Forests Commission should be consulted (for fire-protection purposes) with respect to training activities in protected forest, and protected public land.

V2 That the area proclaimed under the *Defence Act* section 69 known as the Wonga Training Area, to the north-west of Gellibrand, continue to be available for military training purposes.

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, grazing, camping, and so on have not been specifically mentioned in these recommendations. Others (both reserved and unreserved) receive little active use at present even though they may once have been reserved for some specific purpose. These areas are sometimes cleared and, although their present value for recreation or conservation is limited, they may have considerable value in the future for as-yet-unknown public purposes.

The Council intends that existing legal uses and tenure of these various small areas of public land should continue, and that, where the land is not currently used for any particular purpose, they 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 uses and tenure continue

and that

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