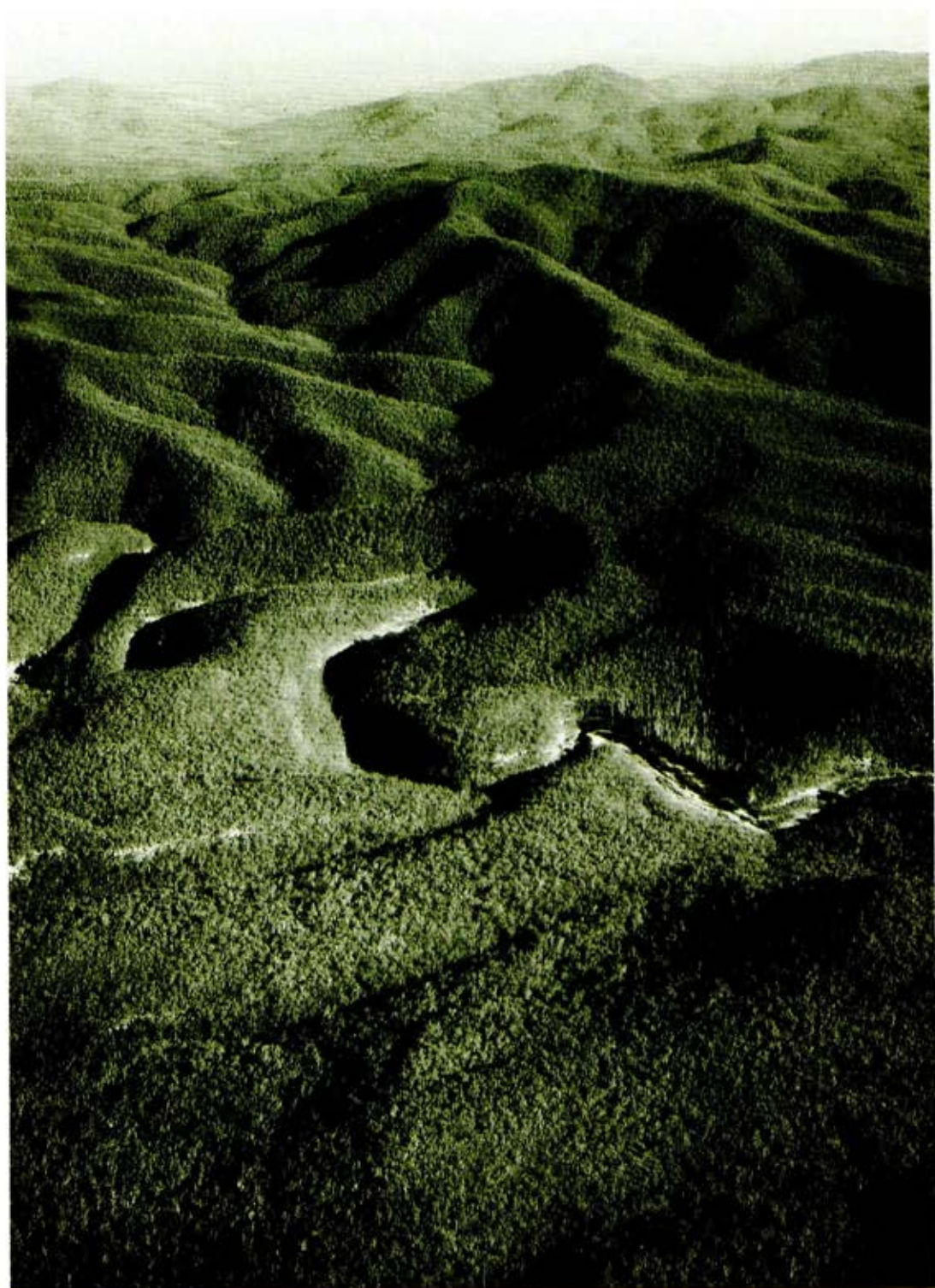


EAST GIPPSLAND AREA

REVIEW

PROPOSED RECOMMENDATIONS





LAND CONSERVATION COUNCIL

Government of Victoria

Fourth Floor, 464 St. Kilda Rd. Melbourne, Victoria 3004

Phone: (03) 267 1311

PROPOSED RECOMMENDATIONS

Reference:

EAST GIPPSLAND AREA - REVIEW

Submissions Invited

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

All such submissions must reach the Secretary no later than Tuesday, 15 July 1986. These submissions will be considered by the Council before Final Recommendations are made on the future use of public land in the study area. It is suggested that persons wishing to making a confidential submission should first contact the Chairman of the Land Conservation Council.

Economic-Employment Study

The Council has commissioned a firm of consultants to assess the economic and employment implications of these proposed recommendations and to examine the potential for alternative employment opportunities. This study is due to be released during the submission period so that it can be used by those making submissions to the Council.

If you wish to receive a copy of this study, please fill-in and send the slip below to the address shown.

G. Blackman

G. Blackman
Acting Secretary
Land Conservation Council

Please send me a copy of the
Land Conservation Council's
Stage Two Economic Study of
East Gippsland.

Name

Address

.....

Date

Send to:
The Secretary
Land Conservation Council
4th Floor
464 St Kilda Road
MELBOURNE, 3004

ERRATUM

Page 42

First paragraph under the sub-heading
'Significance of the Industry' should read:

The forests of the East Gippsland area currently provide around 30% of the total supply of hardwood sawlogs from public land in Victoria. The employment and economic study conducted in the study area for the Council showed that gross turnover in the timber industry amounted to more than \$38 million in 1983/84 while the flow-on effect to other sectors in the regional economy was more than \$18 million. Royalties paid to the government exceeded \$4 million.

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MAY 1986



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Fourth Floor, 464 St. Kilda Rd. Melbourne, Victoria 3004

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Government of Victoria

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Introduction

The East Gippsland Investigation

The Land Conservation Council was established by the *Land Conservation Act* 1970. As one of its three functions, it makes recommendations to the Minister for Planning and Environment with respect to the use of public land, in order to provide for the balanced use of land in Victoria. Notices showing the boundary of the East Gippsland study area and advising that an investigation was to be carried out were published in the *Victoria Government Gazette* of 18 July 1984 and in local and other Victorian newspapers in July 1984. A descriptive resources report was published on 28 August 1985.

Submissions

Following the publication of the report, the Council received 1930 submissions on the future use of public land. Individuals, associations, companies, and local and State government bodies, representing a wide cross-section of the community, made helpful submissions covering possible forms of land use for the district. In addition, discussions have taken place with many individuals and groups, both in East Gippsland and in Melbourne prior to the formulation of recommendations. All submissions received by the Council are available for inspection at the Council's offices, 464 St. Kilda Road, Melbourne.

Recommendations

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

Report Contents

This report contains the Council's proposed recommendations concerning the use of public land in the East Gippsland study area, the boundaries of which correspond to those of the Shire of Orbost. The recommendations in the text are grouped under major headings, such as Parks, State Forest, and so on. Accompanying the text is a map at the scale of 1:250 000 which covers the whole study area and gives a broad view of the recommended land uses. More detailed maps show areas recommended for agriculture (by alienation). Additional information on boundaries is held by the Land Conservation Council.

Land Uses

The Council recommends the continued use or establishment of: parks in areas of particular importance for recreation and nature conservation; reference areas and education areas (covering part of the range of land types found in the study area); flora reserves and a flora and fauna reserve for areas of value for conservation of representative plant communities and habitat; and wildlife reserves for several sites containing valuable faunal habitats. Other areas are recommended as historic reserves and substantial areas are recommended as State forest.

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

Flexibility in planning is essential. Our knowledge of many resources (for example, minerals) and of the distribution and ecology of plants is very imperfect. There must be many places in Victoria where special values remain unrecognized and for which no special provision can be made in present planning. Furthermore, future demands for resources on public land may require alteration or modification of these recommendations, which are based on the best information presently available.

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

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

Table 1: Public Land Use

Land use categories						Area (ha)	Percentage of all land covered by these recommendations	Percentage of all public land covered by these recommendations
National parks	..	..	..	..	..	238,300	25	29
State park	..	..	..	..	..	3,300	<1	<1
Coastal park	..	..	..	..	..	12,600	1	1
Regional park	..	..	..	..	..	800	<1	<1
Reference areas	..	..	..	..	..	11,270	1	1
Wildlife reserves	..	..	..	..	..	8,835	<1	1
Flora and flora and fauna reserves	..	..	..	..	..	9,266	<1	1
State forest	..	..	..	..	..	530,200	56	64
Bushland reserves	..	..	..	..	..	220	<1	<1
Coastal reserve	..	..	..	..	..	1,090	<1	<1
Streamside reserves	..	..	..	..	..	34	<1	<1
Education areas	..	..	..	..	..	1,910	<1	<1
Recreation areas	..	..	..	..	..	340	<1	<1
Scenic reserves	..	..	..	..	..	1,745	<1	<1
Historic reserves	..	..	..	..	..	100	<1	<1
Agriculture	..	..	..	..	..	8,700	<1	1
Major utilities	..	..	..	..	..	836	<1	<1
Township land	..	..	..	..	..	2,360	<1	<1

Other land uses collectively make up the balance.
Figures are rounded.

New Information

The Council is aware that many changes in demand for the use of public land cannot be foreseen, and that the value of environmental resources will change as exploration, research, and technology progress. For these reasons, the Council believes that periodic reviews of public land use in the State are desirable, and it must be expected that resources will be re-allocated or adapted to meet changed demands.

In its previous recommendations the Council identified two areas, the Gelantipy Plateau/Bowen Range and the headwaters of the Goolengook River, designating them as areas with both high conservation and timber values that were to be withheld from logging or new roading until public land use in East Gippsland was reviewed.

The Council did not commit these areas to any primary use because of a lack of detailed information, strong competing arguments regarding their use, and the availability (in the short term) of other areas with similar timber resources.

Since the publication of the Council's final recommendations for the area in 1977, considerable new information about East Gippsland has been collected, which has generated a number of issues about the way that public land in East Gippsland should be used.

Flora and Fauna

Until several years ago, few surveys of the natural resources in East Gippsland had been undertaken, and the available information covered only part of the study area. Then, however, the Environmental Studies Division of the former Ministry for Conservation initiated a series of research projects to identify sites of zoological, botanical and geological or geomorphological significance in the region, thus enabling the Council to place the attributes and natural values of East Gippsland in a State-wide perspective.

These studies provided considerable information about the area as a whole and identified particular species and sites of significance. (For example, the initial discovery of the long-footed potoroo—an East Gippsland endemic—did not occur until the mid 1970s, and it was not described as a new species until 1980.) They also drew together previous knowledge about the area to establish a much improved data base, supplemented by more detailed flora and fauna surveys that the Department of Conservation, Forests and Lands conducted and by the Fisheries and Wildlife Service's work on the fauna. However, the surveys conducted so far have highlighted several gaps in the current knowledge and further work is required.

Studies are continuing here, particularly with respect to stands of rainforest, wet sclerophyll forest, 'mixed' forest, and multi-aged eucalypt forest, but many questions about the ecology of these forest types remain to be answered. Only limited work has been conducted on terrestrial invertebrates in the area, but it appears that the faunal assemblage is rich and varied and includes a number of species endemic to East Gippsland.

While the information regarding terrestrial flora and fauna is incomplete, far less is known about aquatic ecosystems and the biological communities they support. However, preliminary studies indicate that they are also varied and, by comparison with the remainder of the State, are little altered by human activities. In particular, they contain a complex and diverse invertebrate fauna.

Streams and Catchments

According to a 1983 report entitled 'The State of the Rivers', many catchments and their associated stream environs throughout the State have been substantially modified from their original condition, primarily to meet the needs of the growing population. In contrast, most catchments in East Gippsland are still predominantly forested and, although many have been subjected to various forms of human disturbance, some remain in an essentially natural condition. A recent study conducted in the East Gippsland area has identified 43 such catchments of varying size. East Gippsland streams also support a large proportion of the native fish species occurring in south-eastern Australia. Furthermore, only three exotic species have been recorded in these streams and even these have limited distributions, thereby increasing the significance on a State-wide basis, of streams in which they do not occur.

Timber Resources

Over the last few years, the Department of Conservation, Forests and Lands has collected much information on the timber resources in the study area. A detailed resources inventory has been established for the area, although refinement of the resource estimates is continuing. However, the data available now are far more comprehensive than the information upon which the Council's previous recommendations were based.

Wilderness

In 1979 a Victorian inventory was conducted to identify potential wilderness areas. Of the 12 areas identified, four occur in the study area. They are: the area around the upper Snowy River north of MacKillop Bridge and across to Mount Tingaringy (Tingaringy-Byadbo); another including the Gelantipy Plateau, Bowen Range, and the Rodger River catchment (central Snowy River); one incorporating the Genoa River gorge between the Cann Valley Highway, W.B. Line, Wangarabell, and the Victoria-New South Wales border (Genoa); and the area east of Mallacoota Inlet, which is part of a larger one extending into New South Wales (Nadgee).

Apart from the 'Central Snowy' area, the majority of these are already incorporated within existing parks.

Land Use Issues

Considerable debate has taken place in the community about land use in East Gippsland. Some people expressed concern over the continuation of timber-harvesting and the resulting threat posed to newly identified values. Discussion has also centred on the current forestry policy, which requires that wood residues resulting from timber-harvesting cannot be utilized, but instead must remain in the forest and be burnt following the completion of logging. Some have suggested that the integration of sawlog and pulpwood harvesting would benefit the community, as more sawlogs would be produced, more jobs would be created, and degraded public forests could be regenerated with

minimum cost to the State. However, others believe that, once a pulpwood industry is established, pressure to increase the volume of residue supplied to that industry will follow, with the result that environmental considerations will be compromised and sawlogs will be utilized for pulp.

Much debate has revolved about the technique of clear-felling, which is currently used to harvest and regenerate forests in East Gippsland. The department uses this method as it is the most efficient means by which harvesting and adequate regeneration can be achieved. But some critics also consider it to be wasteful and environmentally undesirable; they put forward the argument that clear-felling creates the residues that the timber industry wants to utilize, but that other harvesting techniques such as selective felling, if adopted, would greatly diminish the volume of waste.

These, and other issues were raised in many of the 1930 submissions received. Other issues included the need to make public land available for township and tourist development, particularly along the coast, the promotion of tourism, and the need for safe boat access across the bar at Mallacoota Inlet. The major issues of additional parks and a continuing viable timber industry are considered in detail in following sections of these recommendations.

Timber Industry Inquiry

In 1984, the State government established a Board of Inquiry into a broad range of issues affecting the timber industry. This inquiry, conducted by Professor Ian Ferguson, was completed in June 1985 and has provided an important input to the Council's investigation of East Gippsland. Its terms of reference and report summary, and the government response, were included in the Council's descriptive report for the area. The inquiry made recommendations on rainforest and discussed several options for utilizing the East Gippsland timber resource, as well as other recommendations about the future of the timber industry and management of the State's timber resource.

Subsequent to the publication of the inquiry report, the government announced the preparation of a timber industry strategy for the State. A draft strategy, released in November 1985, discussed a number of harvesting options for the timber resource in East Gippsland. The final strategy is due for release in April 1986.

Economic Study

The Land Conservation Council is required to make recommendations on the balanced use of public land. To do so necessitates a consideration of the economic and social, as well as the environmental, characteristics of East Gippsland. In order to fulfil this responsibility, the Land Conservation Council commissioned an economic study of the area.

The study identified the distribution of employment in the various sectors of the East Gippsland economy and the significance of each sector on a regional basis and for individual towns and settlements in the area. It has provided a description of the present socio-economic framework of East Gippsland against which the implications of future land use decisions can be assessed.

It indicated that about half of the 2520 jobs available were considered to be associated with the export sector of the economy (that is, with products sold outside the region). The two most important sectors were the timber industry and agriculture, although growth in these sectors was considered to be small. Tourism accounted for the third-highest number of jobs and, while still well below the timber and agriculture sectors, appeared to be growing at a significant rate.

Some 42% of the work force in East Gippsland is either directly or indirectly dependent on the timber industry, and several towns and settlements rely on the employment and income it provides. For every 100 jobs in the timber industry, another 62 jobs are created in related industries, giving a multiplier effect of around 1.6. The multiplier would be higher, except that more than 90% of the sawn-timber products are sold outside the study area, thereby reducing the benefits to the local economy.

By contrast, towns such as Mallacoota and Marlo depend upon tourism and commercial fishing and, as described above, tourism has a relatively high potential for increased employment opportunities compared with other sectors, unless major changes occur in those sectors.

Other studies commissioned by the Council relating to the East Gippsland area include the identification of sites of historical significance, an evaluation of vegetation communities and sites of botanical significance, and a study of the history of the Aboriginal people in the area. All of these studies are available for inspection at the office of the Land Conservation Council.

Proposed Recommendations

In formulating its recommendations the Council has considered all the available information from a wide range of sources and has taken into account the various issues raised above. All the information on natural resources in the area was evaluated bearing in mind their significance on a State-wide basis. Aspects such as representation of land systems and major land types, vegetation communities, fauna, wilderness areas and essentially undisturbed water catchments were considered.

In the light of this evaluation, the Council now proposes to extend the existing reserve system in order to incorporate the full range of values represented in East Gippsland.

Major extensions to the Snowy River National Park and Coopracambra State Park and smaller additions to the Croajingolong National Park, Tingaringy National Park, and Lake Tyers State Park are proposed. A new national park centred on the Errinundra Plateau and a coastal park between Point Ricardo and Sydenham Inlet are also recommended. All areas of rainforest and an adjacent buffer are recommended for permanent protection, and several of the major stream corridors are to be incorporated in natural features zones.

In line with previous recommendations, Council again proposes that part of the existing Lind National Park become a scenic reserve to protect the important rainforest stands and scenic drive along the Euchre Creek valley, and recommends the remainder as State forest. A proposed minor extension to the Alfred National Park is to include significant rainforest stands in the headwaters of Soda Creek.

The Council also believes, however, that public land should continue to be available for the harvesting of wood products. Areas available for timber production should be able to provide a range of forest products, without substantially degrading other forest values, by the careful application of appropriate silvicultural techniques. Some forest areas may be suited to intensive silvicultural treatment and the application of new technology. In other areas, it may be more appropriate to carry out less intensive treatment to protect important non-timber values.

It has been suggested that the multi-purpose management of forests can provide for the protection of all the significant values that are identified while still allowing the timber resource to be harvested from adjoining areas of forest; that is, there is no need to create National Parks and other conservation reserves.

The concept of National Parks is internationally recognized and embraces the notion that representative examples of the major land and vegetation types, together with the outstanding features occurring on public land, should not be subjected to commercial exploitation nor the environmental disturbance associated with such enterprises. These areas should, because of their significance, be afforded the maximum possible protection in legislation.

In National Parks, the aim of management revolves about the need to provide recreational and educational opportunities consistent with the maintenance of environmental and conservation values. Developments associated with the use of parks is confined to relatively small areas to minimize disturbance. However, in areas set aside for a different range of uses such as are permitted in State forest where timber production is a major use, the management aims differ and considerably larger and sometimes contiguous areas are subject to modification, with emphasis on particular forest types and locations. Although protection of natural values is an essential part of the management of all forests, decisions must often favour one particular form of use over another and the maintenance of biological diversity and protection of natural values can be reduced when the supply of forest products is the primary use.

The Council believes that in parts of the public land estate, pressures to modify the natural environment should be minimized as far as is possible. Consequently it has adopted the policy of setting aside areas of public land for parks, to be used in ways that are consistent with this aim.

Timber Production and Parks

The Council recognizes that the timber industry forms a significant component of the narrowly based East Gippsland economy and believes it will continue to do so in the foreseeable future. Future options for the industry here should aim at maintaining an adequate resource base to provide for the continuation of timber production until regrowth resources become available. Therefore, it

will be necessary for the industry in East Gippsland to be re-organized in the near future. Based on sawlog-only operations, a substantial reduction in the current annual level of harvesting is required if the remaining mature sawlog resource is to last until regrowth timber is available in about 45 years, regardless of any changes to land use recommended by the Council.

However, the Council is well aware that a reduction in harvesting rates to sustainable levels will have implications for employment in the timber industry and the employment base needs to be widened.

Several alternatives have been raised in submissions and in discussions that could provide additional employment: the expansion of tourism and other sectors of the economy; the establishment of a value-added processing industry in East Gippsland; and the introduction of integrated harvesting to allow the utilization of pulpwood and provide additional sawlogs to permit the establishment of a more stable, broadly-based socio-economic environment.

The Council has proposed, for the reasons summarized earlier, the addition of substantial areas of land to parks. As a result, significant stands of productive forest would be included in parks, particularly around the Rodger River-Bowen Range, Errinundra, and Mount Kaye/Coopracambra.

It is estimated that the park proposals will absorb about one-third of the available sawlog resource in areas currently regarded as economic to harvest and/or regenerate, and it is recognized that this will further reduce the sustainable yield in the study area.

The Council has commissioned a firm of consultants to carry out stage two of the socio-economic study of East Gippsland, which will assess the impact of the Council's proposals on the timber industry and on the economy of East Gippsland as well as the implications of other proposals such as integrated harvesting and the establishment of further processing industries in the region. This will enable further consideration of these issues when Council is preparing its final recommendations. The information contained in the economic study conducted for the Council in 1985 by the National Institute of Economic and Industry Research will form the basis for that assessment.

Various other factors, external to the Council's recommendations, could in the future increase or decrease the level of the remaining available resource. Further reductions could result from Departmental flora and fauna surveys in other forest blocks in East Gippsland or as a result of the identification of other significant values. On the other hand, additional resources would become available if sawmillers were encouraged to take 'optional sawlogs' and if log standards were lowered to allow them to take smaller diameter timber.

Tourism

It is well established that East Gippsland has a narrow economic base and depends to a large extent upon the timber industry and agriculture (including commercial fisheries). The Council believes that the region needs to expand this economic base to ensure a more stable socio-economic environment and to utilize more fully the natural resources occurring in the area. The Council considers that there is scope for the expansion of tourism in the area, particularly associated with large and diverse national parks and development along the coast.

The government's new tourism strategy for the South Coast region, which covers an area from Sale eastwards to the border, identifies the Gippsland Lakes as the primary focus for development. While the major emphasis will be on attracting tourists (including those from overseas) to the lakes, other tourist features within a day trip from there will be ideally placed to attract these visitors, particularly if their development is part of a co-ordinated approach to tourism in the region.

Many places in the East Gippsland area lie within a day's drive of the lakes and offer a range of attractions for day visitors.

The potential also exists for further development of accommodation facilities in the region to enable more people to enjoy the diverse attractions that East Gippsland has to offer. In this regard, the Council supports the development of additional recreational facilities at Cape Conran and has also set aside other sites around Mallacoota, Tamboon Inlet, and Bemm River for possible future development. The Council supports the concept of leasing public land for major developments in certain places both as an incentive for investment and as a mechanism for ensuring that any development is compatible with the maintenance of environmental values. *

The Council also recognizes that parts of East Gippsland provide excellent opportunities for more isolated forms of recreation and that these areas need to be retained in an undisturbed condition. This type of recreation experience is growing in popularity and use of certain areas may need to be carefully controlled to ensure that it does not impair either the recreational experience or the natural environment.

Further detail about the issues raised in the preceding discussion and indeed many other issues can be found in various chapters, which describe more fully the Council's proposed recommendations.

The Department of Conservation, Forests and Lands

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

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

Head Office, located in Melbourne, consists of eight Divisions, four of which are the functional arms—the State Forests and Lands Service, National Parks Service, Fisheries and Wildlife Service, and Land Protection Service. This last Service comprises staff formerly in the Soil Conservation Authority and Vermin and Noxious Weeds Destruction Board, and the tree-growing extension group within the Forests Commission.

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

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

The State has been divided into 18 regions and each regional group is responsible for the management of public land in that region, irrespective of whether an area is national or State park, State forest, or some other reserve set aside for a particular form of community use. Management plans will be prepared by staff from the regions and functional arms working together.

Particular attention has been given to fire-prevention and suppression. Fire-protection services for public land are provided and co-ordinated by the Regional Management Division. Organizational arrangements to provide the services are similar to those that have operated effectively in the Forests Commission. The amalgamation provides significant additional benefits: direct involvement of much larger forces of staff and employees in prevention and suppression; and better co-ordinated and more readily available support forces of manpower and equipment. All these elements collectively enable more effective fire-prevention and fire-suppression programs to be achieved on the public lands of the State.

The creation of the Department of Conservation, Forests and Lands has not altered the statutory responsibilities of such bodies as the Forests Commission (under the *Forests Act 1958*), the Soil Conservation Authority (under the *Soil Conservation and Land Utilization Act 1958*), and the Vermin and Noxious Weeds Destruction Board (under the *Vermin and Noxious Weeds Act 1958*). Consequently, various parts of the text refer to such bodies and their responsibilities.

General Recommendations

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

The Council wishes to stress the need for adequate management and protection of public land, as it has made its recommendations on the assumption that sufficient manpower and finance will be provided for the appropriate management. Unless these resources are provided, the Council's recommendations cannot be effectively implemented. Council emphasizes that vermin and

noxious weeds pose problems in the management of public land in the East Gippsland area. Finance and staff are required to research and implement methods of control of pest species. Council therefore recommends:

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

Following Council's proposal that additional arrangements be made for protecting public land from fire, an amendment to the *Forests Act* 1958 has created the designation 'protected public land', which may include public land that is not State forest or national park. The Forests Commission is now required to protect all three of these from fire. The establishment of the new Department of Conservation, Forests and Lands has brought about certain changes in the organization of fire-protection operations, with the Regional Management Division being responsible for the provision and co-ordination of fire-protection services. Current responsibilities are as follows:

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

Accordingly, the Council recommends:

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

Council recognizes that parts of the East Gippsland area has a long history of mining, and as such have potential with respect to future mineral exploration and mining operations.

The Council recommends:

- III** That mineral exploration licences held over the area continue except in so far as they affect Reference Areas.

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

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

The Council also recognizes that in some cases, existing legislation will have to be amended in order to effectively implement the recommendations in this report. It is aware that this may result in a delay, perhaps of several years, before some of its recommendations can be implemented. It is concerned that, where implementation of the recommendations would involve a change of land tenure, management efficiency could be reduced during the delay period. The Council believes that the government should direct that the intent of the recommendations should be followed until they are implemented.

The following recommendations concern the implementation of recommendations:

- V** That the present legal status and management responsibilities for public land continue until the resources required to implement the recommendations are available.
- VI** That, as the boundaries of many areas have not been precisely surveyed, they be subject to minor modification, road excisions, easements, and other adjustments that may be necessary.
- VII** That in cases where occupation does not agree with title, the Department of Conservation, Forests and Lands may at its discretion make adjustments to boundaries of public land when implementing these recommendations.
- VIII** That the recommendations in this publication do not change the status of roads passing through or abutting public land that are at present declared roads under the *Transport Act* 1983.
- IX** That, where areas of public land are not specifically referred to in these recommendations present legal uses and tenure continue.

A. Parks

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.

In contrast to the rest of Victoria the East Gippsland region retains several large areas that are essentially natural and contain examples of the landscape and flora and fauna virtually undisturbed by activities of European man. Such lands are a valuable part of our heritage and must be dedicated for nature conservation and the benefit, education, and enjoyment of present and future generations. This principle of land use is a major consideration in determining that areas should be reserved as parks.

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

It is necessary to establish the management aims that apply to areas or zones within parks. Among these, the conservation of native flora, fauna, and other natural features would be an essential part of national and State park management. This should include the identification and strict protection of significant ecological systems as well as the development and use of techniques (including husbandry techniques and population manipulation) to enable species of particular interest to be studied and special values associated with flora and fauna to be maintained or enhanced.

The location and management of areas zoned for intensive recreation will require special care to prevent damage to the environment.

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

Park Categories

National Park

An extensive area of public land of 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, and other natural features would be an essential part of national park management. Interpretative services would be provided. Development of facilities would be confined to a very small portion of the park. Activities would largely consist of sightseeing and the observation of natural features. Wilderness zones, which are relatively undisturbed tracts of land used for solitude and wide-ranging forms of recreation, could be designated within a national park.

State Park

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

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

Regional Park

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

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

Coastal Park

An area of coastal land, usually linear in shape and comprising the coastal reserve and adjoining public land, which has natural features, flora, and fauna that give it particular landscape and conservation significance.

Coastal parks usually include small areas that are intensively used for recreation and also areas of conservation significance due to the occurrence of remnant vegetation, particular plant associations or important faunal species. It is necessary to zone coastal parks to provide for the continuation of recreational pursuits while ensuring that the natural attributes are protected.

Park Management

Council recognizes that wildfires, however caused, must be prevented from threatening life, property, and natural resources in the State. The measures necessary to control wildfires must be taken in parks as in other areas. In all parks the suppression of fires remains the responsibility of the Forests Commission.

Fire-prevention measures such as maintenance of fire-access tracks and protective burning will also be required in those areas of parks that have strategic importance for fire-control.

The particular measures to be taken in individual parks will be incorporated in the protection plans prepared by the Department of Conservation, Forests and Lands.

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

The control of vermin and noxious weeds within parks will be the responsibility of the Department of Conservation, Forests and Lands.

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

An essential aim in the reservation of an area as a park is to provide for the enjoyment of the public, and therefore public access will be maintained. Indeed, additional access may be provided to interesting areas by way of nature trails and walking tracks.

The Council believes that the park system should offer a wide range of recreational uses. There is a place not only for photography, bird-watching, nature study, etc., but also for activities such as scenic driving, and for touring using the tracks through steep terrain and into isolated areas as well as the system of formed roads.

Because of its network of roads, the region has particular value for motorized recreation. The Council considers that the park system should continue to contain a series of linked roads, mainly of four-wheel-drive standard, available for use by licensed vehicles in order that extended touring throughout the area is possible. However, as well as this system of linked roads, other subsidiary tracks should be maintained for community use.

The Council points out, however, that the existing system of seasonal road closures, for reasons such as safety and erosion hazard, should continue, after consultation between the managing authorities and user groups.

Dispersed camping occurs throughout the area in association with many outdoor recreational activities. The Council considers that large areas should remain available for dispersed or bush camping within the park system. That is, in these areas, users should be allowed to camp where they choose rather than be restricted to camping sites delineated by the managing authority.

In a number of places it will be necessary to transport timber through some parks due to the fact that they lie between areas of commercial forest and the sawmills. Council believes that the use of any roads designed and built primarily for the purpose of transporting timber should not be restricted. Every effort, however, should be made to reduce the impact of logging roads on important park features, and, to this end, the National Parks Service should be fully consulted in the planning of new roadworks.

Parks in East Gippsland

In 1977, the Council recommended the establishment of three national parks, two State parks, and one regional park, totalling 141,600 ha. The government subsequently accepted these recommendations, but also decided to retain the existing Lind and Alfred National Parks, bringing the total area in parks to just over 145,000 ha.

Snowy River National Park and Tingaringy National Park encompass the eastern side of the Snowy River valley and contain some of the most spectacular scenery in the State. They also include a range of environments, with good representations of the dry rainshadow country typical of the Upper Snowy area. The Croajingolong National Park incorporates excellent examples of the coastal and adjacent lowland environments found in East Gippsland and is one of the most significant conservation reserves in the State, being one of only three established world biosphere reserves in Victoria. It is also a very important recreational asset.

Coopracambra State Park incorporates the spectacular Genoa River gorge with its steep sandstone escarpments and virtually undisturbed vegetation. Lake Tyers State Park includes attractive forests of Gippsland grey box around its shores and provides a range of water-based recreation, including boating, fishing, water-skiing, and swimming.

Mount Raymond Regional Park—approximately 12 km from Orbost—offers panoramic views over Orbost township, the Snowy River floodplain, and the coastal lowlands around Marlo.

In line with its previous recommendations, the Council recommends that the significant values in Lind National Park be protected in a scenic reserve, while the remainder should revert to State forest. It also recommends that Alfred National Park be extended to include significant stands of rainforest in the headwaters of Soda Creek, and to establish a park boundary that conforms to topographic features.

Appendix 1 lists the land uses specified for parks in the Council's previous recommendations.

In formulating its recommendations for additions to parks in East Gippsland, the Council evaluated all the information on the natural resources in the area, bearing in mind their significance on a State-wide basis. The representation of important features and values in the existing park system was also taken into account.

Land Types

Of the 59 major land types recognized throughout the State, 51 are represented on public land. The council has an established policy of including representative types of land in the State-wide park system. Eight of the major types occur in the East Gippsland area and all but two are well represented. One of those, an alluvial floodplain type, occurs on the Snowy River flats at Orbost. It is primarily located on freehold land but small parcels are included in two wildlife reserves and a small flora and fauna reserve. The other, a plateau land type, is well represented on public land in the northern part of the study area. These recommendations propose the inclusion of a substantial example of it in a park based on the Errinundra Plateau and another in the extension to the Snowy River National Park.

At a more detailed level of mapping, 21 different land systems have been recognized in East Gippsland. Apart from the Errinundra and Moonkan land systems in the Errinundra Plateau and Rodger River areas, one additional land system, Wat Wat, is poorly represented in the existing

State-wide park system. A very small area of it occurs in the alpine park around Lake Dartmouth. In East Gippsland it occurs in the catchments of the Cann, Brodribb and Bemm Rivers, and is represented in the proposed Errinundra National Park.

Vegetation

Some 21 vegetation communities have been identified in the study area by the National Herbarium. The majority of these occupy relatively small areas but are nevertheless highly significant because they are floristically diverse, contain rare species, or are in themselves restricted in occurrence on a State-wide basis. Examples in the third category include warm temperate and cool temperate rainforest, and rocky outcrop open scrubland.

By contrast, three communities—wet sclerophyll forest, lowland sclerophyll forest and dry sclerophyll forest—occupy more than 80% of the forested area in East Gippsland. Each of these communities, along with others in the study area, have been further subdivided into sub-communities that reflect changes in floristic composition, which is determined by differing environmental conditions. Both wet and dry sclerophyll forest comprise four sub-communities while lowland sclerophyll forest has six. Council believes that the reserve system should incorporate better representation of all communities and their sub-communities and, in the case of particularly significant ones, such as warm temperate and cool temperate rainforest and their adjacent eucalypt buffer, that all occurrences should be fully protected.

Wet sclerophyll forest in East Gippsland is dominated by various eucalypts, depending on the location. In the western parts of the study area mountain ash, manna gum, messmate, and blue gum are dominant; on the Errinundra Plateau shining gum dominates (and has its most extensive occurrence in the State) while further east brown barrel (known locally as cut-tail) takes over as the dominant species. The great age of these forests (particularly those in the Rodger River and on the Errinundra Plateau) adds to their significance as very few stands of wet sclerophyll forest of such antiquity occur elsewhere in the State. The proposed park additions include representations of these various communities.

Examples of most of the coastal and near-coastal sub-communities of lowland sclerophyll forest are included in the Croajingolong National Park, but the foothill occurrences of the sub-community, which differ floristically from those near the coast, are not well represented.

It is important to note that the wet sclerophyll forest community and the lowland sclerophyll forest community are the two most wood-productive forest types and have been, and will continue to be, extensively utilized for timber harvesting.

Four areas in East Gippsland were identified in a State-wide inventory conducted in 1979 as having wilderness potential, and the core areas of three are included in existing major conservation reserves. The fourth one, centred on the Rodger River–Bowen Range, is proposed for inclusion in the Snowy River National Park. Less than 3% of the State is classified as having wilderness value and such areas are slowly diminishing both in size and quality due to the encroachment of human disturbance.

Significance of East Gippsland Streams and Catchments

A report recently produced by the Standing Consultative Committee on river improvement, entitled 'The State of the Rivers', concluded that, 'The hydraulic and environmental characteristics of most Victorian rivers have changed dramatically since settlement. Moreover, the present condition of many of the rivers and their frontages is unsatisfactory and is becoming steadily worse with each flood.'

Many catchments throughout the State have been substantially modified from their original condition, primarily to meet the needs of the growing population.

By contrast, however, most catchments in East Gippsland are still predominantly forested and, although many have been subjected to various forms of human disturbance, some remain in an essentially natural condition. They therefore constitute an invaluable resource as reference catchments against which to judge the state of other streams in south-eastern Australia, and are an important part of the State's natural heritage.

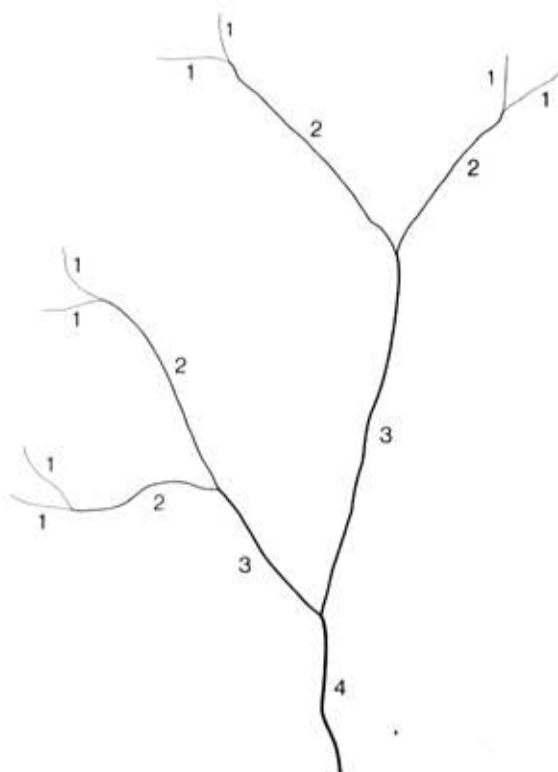
Of the 36 species of native 'fresh-water' fish listed by McDowall (1980) as occurring in streams draining southern New South Wales and Victoria, 25 have been recorded in East Gippsland.

Furthermore, only three exotic species have been recorded and their distributions are limited. The introduced brown trout and rainbow trout are widespread in south-eastern Australia, thus increasing the significance of those East Gippsland streams in which they do not occur.

Information about the fresh-water invertebrate fauna is very limited, but the minimal work that has been done suggests that many undescribed species will be identified. Its range of climate and habitat types and its geographical position also suggest that the East Gippsland region is an important transition area between different climatic zones, and harbours several different groups of species at the limit of their ranges.

A preliminary assessment of streams in East Gippsland identified a number that remain in an essentially natural condition relative to others in the State. No catchment in the State has escaped some form of human disturbance, but some in East Gippsland have been modified to only a limited extent. The headwater tributaries (or first-order streams based on Strahler, see the diagram below) of numerous rivers across the State may be essentially undisturbed, but as these tributaries converge to form larger streams and rivers (second-order or greater), very few could be so described. Even in East Gippsland, most streams larger than third-order (identified on 1:100 000 scale maps) have been modified to some degree. Therefore, those third-order or larger streams and their catchments in the study area that are essentially undisturbed are particularly significant in terms of their value for scientific study and conservation, and provide possibly the last opportunity in south-eastern Australia to protect catchments of reasonable size.

**Figure 1: Stream Order
Diagram**



Based on Strahler, 1964

The approach used in East Gippsland was to establish broad stream types based on climate, physiography, and geology. Streams of high conservation status were identified using a number of criteria, including the presence or absence of impoundments and river improvement works, mining (past and present), logging, road crossings, grazing (past and present), and presence or absence of exotic species. Application of the criteria in East Gippsland defined 33 third-order catchments and 10 fourth-order as being in an essentially natural condition. Of these, only 12 are included in major conservation reserves. Furthermore, of the 11 stream types defined on the basis of climate, physiography, and geology, six are not represented in existing reserves—the two categories of wet plateau streams, the two categories of the plateau-dissected upland streams, the very wet dissected upland streams and those of the coastal plain. Catchments representing these various categories are included in the proposed park additions.

Fauna

The protection of native fauna depends on the availability and protection of suitable habitat. The East Gippsland area includes a range of habitats for native fauna and supports a number of significant faunal assemblages and rare or notable species. A number of habitats such as those of the long-footed potoroo are not within the existing reserve system, while other fauna such as the great barred frog, giant burrowing frog, smoky mouse, ground parrot, and tiger quoll, and a number of rare or significant species of bats require additional protection. Suitable habitat for these animals is known to occur in the various proposed additions to the park system.

Park Proposals

Following consideration of the above factors and the need to protect these important values in the park system, the Council is proposing major extensions to the Snowy River National Park and Coopracambra State Park and smaller additions to the Croajingolong National Park, Tingaringy National Park, and Lake Tyers State Park. A new national park centred on the Errinundra Plateau and a coastal park between Point Ricardo and Sydenham Inlet are also recommended. In total, recommended additions to the park system comprise some 109,000 ha. Each park addition is discussed in detail below.

Marine parks

During the process of formulating its proposed recommendations the Council evaluated the available information (including that contained in submissions) on offshore zones around East Gippsland, with a view to determining their conservation significance and the possible establishment of marine parks.

Very little biological information is available for most offshore zones abutting the State and it is therefore very difficult to assess the conservation significance of specific ones. This is particularly so for East Gippsland. Thus, the Council has not recommended the establishment of marine parks in the area.

However, the Council believes that a State-wide inventory of marine resources should be undertaken as a matter of priority to identify significant marine environments.

Furthermore, the Council is concerned that very little research has been conducted into the environmental impact of commercial fisheries in the area, and believes that such research is urgently required to ascertain whether harvesting levels are environmentally acceptable and sustainable in the long term.

National Parks

Tingaringy National Park

Recommendation

- A1** That the area of 17 600 ha, shown on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977 (see Appendix 1)

except that

grazing be phased out by 1988.

Addition to Tingaringy National Park

The proposed addition incorporates all the public land between the existing Tingaringy Park and freehold land to the south.

The catchment of Big Murrumbidgee Creek contains at least 12 native plants that are not known to occur in any other reserve in East Gippsland although some are relatively common elsewhere in the State. Others, however, such as short wallaby-grass (*Danthonia geniculata*) and pappus grass (*Enneapogon nigricans*) are essentially western Victorian species but occur in this part of the Snowy River rainshadow. The uncommon rock daisy (*Brachycome petrophila*) also occurs in the area. The vegetation ranges from riparian forests of manna gum along the Deddick and Bonang Rivers to the dry box-stringybark woodlands throughout most of the catchment.

Rocky outcrop open scrubland communities occur around the summits of Mount Whittakers, Mount Taylor, and Mount Bulla Bulla and these contain a number of rare species including shrubby everlasting (*Haloragodendron baeuerlenii*) and tall acrotriche (*Acrotriche divaricata*).

The park addition includes the remaining rainshadow woodland on public land in the area which is known to be the stronghold of tiger quoll populations in eastern Victoria. This species is considered rare although it is recorded in isolated populations across the State.

Addition of the Big Murrumbidgee Creek offers alternative walking access into the park from the Deddick River road, while the attractive riparian environments along the Deddick River and Bonang River provide opportunities for picnicking and shorter walks—for example, to the falls on the Bonang River just west of Dellicknora.

This area forms part of the Tingaringy–Byadbo Wilderness identified in a State-wide inventory of potential wilderness areas conducted in 1979. It abuts the Byadbo wilderness zone in the Kosciusko National Park in New South Wales and should thus be managed in a way that is compatible with the maintenance of its wilderness values.

Recommendation

A2 That the area of 11 400 ha, shown on Map A, be added to the Tingaringy National Park and be used to:

- (i) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
- (ii) conserve and protect natural ecosystems
- (iii) supply water and protect catchments and streams

that

- (iv) the area be managed in such a way as to maintain its wilderness values
- (v) logging not be permitted
- (vi) hunting and use of firearms not be permitted
- (vii) grazing be phased out by 1988

and that the area be included in a schedule to the *National Parks Act* 1975 and be managed by the Department of Conservation, Forests and Lands.

Snowy River National Park

Recommendation

A3 That the area of 25 600 ha, shown on Map A, continue be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977 (see Appendix 1).

Addition to the Snowy River National Park

This addition forms a major extension to the Snowy River National Park and includes the entire catchments of the Rodger River (above its confluence with the Yalmy River), New Country Creek and Mountain Creek, as well as the headwaters of several smaller streams that flow northward into the Deddick River.

Topography

Topographically, the area ranges from the plateau country around Mount Gelantipy, through the deeply incised valleys of Mountain Creek and New Country Creek, to the more subdued relief in the Rodger River catchment.

It contains some outstanding scenic and landscape values; in particular, the panoramic views from vantage points on the Bowen Range at the Pinnacle, Mount Tower, Mount Richardson and Mount Bowen. Breathtaking views can be obtained of the rugged and untracked Mountain Creek catchment and the Gelantipy Plateau, as well as of areas to the north including the Tingaringy Ridge and

the high country as far as Mount Kosciusko. The tall mature forests that dominate the Rodger River area also have outstanding scenic value and comprise one of the few remaining pockets of ancient wet sclerophyll forest in the State.

Catchments

The Rodger River catchment, the Mountain Creek catchment and the Home Creek catchment (all within the proposed addition) have been identified as essentially undisturbed, while similar catchments throughout the area have already been subjected to varying levels of disturbance. The stream types they represent do not occur in existing reserves.

Vegetation

Vegetation throughout the Rodger–Bowen area is complex and varied and has been identified by the National Herbarium as being of national significance. The very old ash forests of the Rodger River are particularly significant in that the stands contain trees of several age classes with mature stems scattered among younger trees. These ancient multi-aged forests are uncommon in Victoria, but are well represented in the Rodger River catchment and contrast with the extensive stands of relatively young even-aged ash elsewhere in the State. Some stands in the Rodger River catchment contain as many as five different age classes, each being representative of a period of regeneration, most probably as a result of fire. Some of the oldest individuals in the multi-aged stands reach heights of 80 m and are thought to be about 350 years old. These veterans have also survived at least four wildfires which initiated the regeneration of successively younger-aged trees. Such multi-aged forests, being uncommon in Victoria, have not yet been adequately studied by ecologists, who may be able to shed new light on the life cycle of wet sclerophyll communities.

Other significant vegetation includes the extensive and relatively undisturbed stands of alpine ash on the Gelantipy Plateau and manna gum forests in the Mountain Creek and New Country Creek catchments. In addition, the montane sclerophyll woodlands and snow gum woodlands on the summits and northern slopes of the Bowen Range contain a number of uncommon or interesting species, including the alpine star bush (*Asterolasia trymaloides*), tufted daisy (*Brachycome scapigera*), yellow hyacinth orchid (*Dipodium hamiltonianum*) and the bush-pea (*Pultenaea procumbens*). The montane woodlands also differ floristically and structurally from those in the Tingaringy National Park, while the snow gum woodlands contain stands of the spinning gum (*Eucalyptus perriniana*).

Excellent examples of rocky outcrop–open scrubland occur on the northern slopes of the Bowen Range and in the lower portion of the Mountain Creek catchment. This community contains mallee-like forms of several eucalypts, including gully gum (*E. smithii*), manna gum (*E. viminalis*), and Suggan Buggan mallee (*E. saxatilis*), but in some cases eucalypts are absent and it is dominated by rock wax-flower (*Eriostemon trachyphyllus*) and red wattle (*Acacia silvestris*). The community also includes a number of other plants not previously recorded east of the Snowy River. The whole of the Gelantipy Plateau–Bowen Range area was placed in a special uncommitted land category in the Council's previous recommendations pending a review of land use.

Other significant vegetation includes the multi-aged stands of alpine ash and shining gum containing the rare monkey mint bush (*Prostanthera walteri*) in the vicinity of Monkey Top and wet sclerophyll forest dominated by blue gum in the Rodger River catchment.

The riparian vegetation along the Rodger River in the vicinity of the Deddick Trail is particularly rich in species and several are rare or uncommon. These include the rock daisy (*Brachycome petrophila*), bog bent-grass (*Deyeuxia gunniana*), and an undescribed cushion moss that could be the first Australasian record of the genus *Hygrohypnum*.

Also important is the grassland at Waratah Flat which contributes significantly to the structural and floristic diversity of the area. It contains several rare, interesting, or restricted species including red-stemmed cranes-bill (*Geranium neglectum*), bog bent-grass, swamp daisy-bush (*Olearia glandulosa*), mauve leek-orchid (*Prasophyllum suttonii*), and sun-orchid (*Thelymitra relecta*).

In terms of its vegetation, the addition has importance because of the juxtaposition of a wide variety of communities and because, together with the existing Snowy River National Park, it forms a reserve of national conservation significance.

Fauna

The proposed addition contains a rich and varied faunal assemblage dependent on the range of vegetation occurring there and its essentially mature and unmodified condition. Several rare or restricted species are also known to occur in various parts of the area.

The mature forests of the Rodger River area support: good populations of arboreal mammals, including four of the five species of Victorian gliders; a variety of forest bats, including one undescribed species belonging to the genus *Nycticeius*; occurrences of the two rare owls, the powerful owl and sooty owl; and other species requiring hollows for nesting such as cockatoos, lorikeets, parrots, kingfishers, and treecreepers. These species all rely on substantial parcels of mature forest for nesting, feeding and roosting.

In addition, the rare long-footed potoroo is known to occur in the Rodger catchment. This East Gippsland endemic was not described until 1980 and is not currently known in any reserve in East Gippsland. Other significant species recorded in the area are the tiger quoll, giant burrowing frog, Jervis Bay treefrog, southern water skink (both warm temperate and cool temperate forms), White's skink and weasel skink.

Recreation

The recreational attributes of the Rodger-Bowen area are considerable. The northern part of the park is very remote. In particular, the Mountain Creek catchment is very steep and rugged, falling away abruptly from the escarpment of the Gelantipy Plateau and the spine of the Bowen Range. It is virtually untracked and therefore provides opportunities for wilderness-style recreation in an essentially undisturbed environment. Other areas in the north such as the Gelantipy Plateau and Bowen Range offer excellent opportunities for bushwalking and remote camping.

By contrast, the southern portion of the park has high potential for pleasure driving along the Yalmy Road, which would give access to many places of interest including the multi-aged mountain ash forests, Waratah Flat, and the attractive riparian forests along the Rodger River. Already, limited camping, bushwalking, and pleasure driving take place here. The Deddick Trail and other tracks provide four-wheel-drive access through the proposed park. In view of its outstanding recreational potential and the fact that it is already used for activities such as pleasure driving, camping, picnicking, and walking, the Council believes that this part of the park should be managed to accommodate such uses, but recognizes that that may conflict with some wilderness recreational experiences. However, the northern portion of the park, because of its ruggedness and relative isolation, could be zoned for wilderness recreation.

Other Park Proposals

During the course of its deliberations the Council considered a number of alternative proposals for this area. One proposal suggested that, in addition to the land described above, the whole of the Yalmy catchment in the south and the Swamp Creek catchment in the north-east be included in the park. Although the Yalmy catchment is currently being logged, some conservation groups see it as being a buffer to a Rodger/Bowen wilderness. The Council believes that its inclusion would not enhance the values in the proposed addition to any great extent.

Moreover, the catchment is an important source of timber to the industry at present and will be more so in the longer term when regrowth stands mature.

Swamp Creek—along with Home Creek which is included in the proposed park—was identified as an undisturbed catchment. Both catchments are representative of plateau streams receiving between 900 and 1400 mm rainfall annually and in view of the timber resource contained in the Swamp Creek catchment (95 000 m³ of mountain mixed species sawlogs) Council excluded it from the proposed park.

Several other proposals were put forward. One excludes a major portion of the Rodger catchment, thereby eliminating the potential for protecting its significant undisturbed catchment and other conservation values, although the Mountain Creek catchment would remain intact. Some of the significant floral and faunal values of the Rodger would not be protected in reserves. A third option excludes the whole of the Rodger catchment and portion of the Mountain Creek catchment, thereby eliminating the undisturbed catchment values that are an integral part of the proposed park and the highly significant botanical, zoological, and recreational values of the Rodger River area.

A number of other submissions did not propose any extension to the Snowy River National Park. However, for reasons outlined above, the Council believes the existing park needs such an addition. The area proposed has attributes that warrant its inclusion in a national park.

Two areas that are licensed for grazing and are stocked in some years occur within the proposed park addition.

Recommendation

A4 That the area of 50 000 ha, shown on Map A, be added to the Snowy River National Park and be used to:

(i) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments

(ii) conserve and protect natural ecosystems

(iii) supply water and protect catchments and streams

that

(iv) grazing be phased out by 1988

(v) logging not be permitted

(vi) hunting and use of firearms not be permitted

and that the area be included in a schedule to the *National Parks Act* 1975 and be managed by the Department of Conservation, Forests and Lands.

Croajingolong National Park

Recommendation

A5 That the area of 80 840 ha, shown on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977 (see Appendix 1)

and that the area of land previously recommended for township purposes at Point Hicks (recommendation Q2) be included in the Croajingolong National Park and consideration be given to providing low-cost accommodation in this area.

Note:

Portion of the park delineated in 1977 is now proposed for inclusion in the Sydenham Inlet-Cape Conran Coastal Park (A13).

Addition to Croajingolong National Park

The proposed addition incorporates the remainder of the Teal, Dowell, and David Creek catchments in the Croajingolong National Park.

Stands of warm temperate rainforest in these catchments contain occurrences of at least 10 of the State's rare plants. Many of these species are more characteristic of rainforests in New South Wales, but reach the limits of their distribution around Mallacoota Inlet. Others, such as yellow elderberry (*Sambucus australasica*) and prickly tree fern (*Cyathea leichardtiana*) also occur in rainforests to the west but are very rare. The bower wattle (*Acacia subporosa*) and daisy bush (*Olearia dentata*) are found in other parts of these catchments away from the rainforest stands. The proposed addition provides full catchment protection to these rainforest communities and establishes a more readily defined park boundary that has greater ecological integrity than the existing boundary.

The juxtaposition of such a large number of rare plants in a relatively small area warrants the inclusion of these catchments in the Croajingolong National Park. The 10 rare plants recorded here are—bower wattle, prickly tree fern, eastern leatherwood (*Eucryphia moorei*), sandpaper fig (*Ficus coronata*), creeping shield-fern (*Lastreopsis microsora*), jungle bristle-fern (*Macroglena caudata*), daisy bush, yellow elderberry, small fork-fern (*Tmesipteris parva*), and oval fork-fern (*Tmesipteris ovata*).

Recommendation

- A6** That the area of 1 700 ha, shown on Map A, be added to the Croajingolong National Park and be used to:
- (i) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (ii) conserve and protect natural ecosystems
 - (iii) supply water and protect catchments and streams
- that
- (iv) logging not be permitted
 - (v) hunting and use of firearms not be permitted
 - (vi) grazing not be permitted
- and that the area be included in a schedule to the *National Parks Act* 1975 and be managed by the Department of Conservation, Forests and Lands.

Note:

The Council has approached the New South Wales government with a view to obtaining assistance in protecting the part of the Dowell Creek catchment in that State.

Errinundra National Park

Errinundra Plateau and its surrounding country together form an area of international botanical significance. This also supports some rare and interesting fauna as well as having outstanding scenic, landscape, and recreational values. Its botanical significance lies in the unique forests around the Goonmirk Rocks, the mixed forests on the Gunmark Range, the large stands of cool temperate rainforests on the plateau and escarpments, and the extensive stands of mature shining gum and brown barrel, which reach their maximum development here. Brown barrel is found nowhere else in Victoria and both species are poorly represented in existing reserves. Available evidence suggests that the plateau might have functioned as a refuge for flora and fauna during past climatic changes, and it therefore has high biogeographical significance.

The Council is proposing establishment of a national park that incorporates the major elements of this unique area. The proposed park is centred on the existing Errinundra and Delegate River Flora Reserves and the Mount Ellery Scenic Reserve along with the adjoining headwaters of the Goolengook River. These features are linked by the headwaters of the Brodribb River. Three major components, the plateau proper, the southern fall, and the northern fall are all represented in the park.

Topography

The Errinundra Plateau is the best and most extensive example in the State of one of Victoria's major plateau land types and, apart from a very limited representation in the Kinglake National Park, is not represented in the existing park system. This land type is more extensive in New South Wales, but has largely been cleared for agriculture there—for example, on the Monaro Tablelands. The Errinundra Plateau is the southern extension of these tablelands and still carries much of its original vegetation.

Catchments

As with the Rodger River–Bowen Range area, several catchments on or adjacent to the Errinundra Plateau have been identified as essentially natural. They include the East Errinundra, East Delegate, Brodribb, and Goolengook Rivers and the Rooty Break and Craigie Bog Creeks. These catchments, representing plateau and dissected upland streams with varying geological and aquatic environments, are all contained in the proposed park, which will thus provide protection for examples of currently unreserved catchment types.

Originating on the plateau and flowing in a southerly direction, the East Errinundra River displays a range of undisturbed aquatic environments—from sub-alpine springs and swamps on the plateau proper through a stream with very steep gradients and spectacular waterfalls on the escarpment, to a

substantial foothill river. By contrast, streams traversing the more gently sloping northern fall of the plateau—such as The East Delegate River, Rooty Break Creek, and Craigie Bog Creek—have very different physical characteristics. They are also chemically dissimilar and may therefore support quite discrete aquatic faunal assemblages. The headwaters of the Brodribb and Goolengook Rivers differ from those of the East Errinundra in that they are developed on granitic parent material. Furthermore, the Goolengook River, with its steep headwaters but relatively broad flat valley tract provides a valuable undisturbed example of a stream type that has been cleared for agriculture elsewhere.

Vegetation

The park contains some outstanding botanical features, including the unusual tree form of mountain plum pine (*Podocarpus lawrencei*), which reaches heights of 17 m near the Goonmirk Rocks. The limits of this rare form of podocarp are also within the park: in the north along the East Delegate River, in the south at Cobb Hill, and to the east along Rooty Break Creek.

The trees are some of the oldest reliably dated living plants in the State and are thought to be at least 400 years old.

Straddling the divide between the headwaters of the East Errinundra River and the Queensborough River the largest stand of rainforest in Victoria also occurs in the park, and is buffered by surrounding wet sclerophyll forest.

The Cobb Hill area contains the most extensive remaining undisturbed example of mature 'mixed forest' on the plateau. This forest type includes a continuous understorey of rainforest beneath a sparse eucalypt overstorey; it was relatively common on the south fall of the Gunmark Range, but much of it has been harvested for timber in recent years. The forests are probably the oldest of any of the plateau, as evidenced by the very large specimens of a number of rainforest species. In contrast to cool temperate rainforests further west in the Central Highlands and the Otways, those on the Errinundra Plateau are dominated by southern sassafras (*Atherosperma moschatum*) and black olive berry (*Elaeocarpus holopetalus*). The park includes examples of the vegetation continuum from pure rainforest, through mixed forest, to eucalypt forest.

Overstorey eucalypts in the 'mixed forest' stands often display a multi-aged structure, implying that wildfires, when they have occurred, have not been severe enough to kill the mature eucalypts. Riparian occurrences of cool temperate rainforest are well developed along many of the streams in the proposed park, on both the southern and northern falls of the plateau. In the Goolengook River headwaters a transition from cool temperate rainforest to warm temperate rainforest occurs. The biogeographical significance of the area is further enhanced by the fact that populations of *Podocarpus* and *Tasmannia* spp. may be distinct species and therefore endemic to the plateau.

The catchment of the East Delegate River contains a significant representation of the flora of the northern fall of the Errinundra Plateau. In a transitional sequence, the tall wet forests of the Gunmark Range give way to the drier woodlands and grassy flats once common to the Monaro Tablelands. The peppermints, brown barrel, and manna gum occur more frequently here than on the plateau. As mentioned earlier the northern limit of mountain plum pine occurs here also, and the area has the highest diversity of plant species and communities on the plateau.

Within the proposed park also the most easterly stands of mountain ash in the State occur in the East Errinundra catchment and in the headwaters of the Queensborough River. Other major plant communities such as wet sclerophyll forest dominated by shining gum, brown barrel, and messmate are all well represented, as are stands of mature and regrowth alpine ash, particularly around Mount Ellery and on the Coast Range.

Fauna

The park is known to contain the habitats of a number of highly significant animals, including the long-footed potoroo, sooty owl, powerful owl, Jervis Bay tree frog, Blue Mountains tree frog and recently recognized subspecies of the pink robin. Important factors in the significance of this area for fauna are the age and diversity of forests. Populations of arboreal mammals, which are very sensitive to habitat disturbance, occur in the peppermint and brown barrel forests on the northern fall. Although only very limited survey work has been carried out on terrestrial and aquatic invertebrates on the plateau, a newly discovered species of giant earthworm (*Notoscolex* sp.) has been found and may be confined to areas of mature 'mixed forest' on the plateau.

Recreation

Much of the park has outstanding scenic and landscape values and offers a range of opportunities for recreation. The tall sclerophyll forests and rainforests of great antiquity in the area are scenically very attractive, and with improved access could be a major focus for activities such as picnicking, pleasure driving, and short walking trips. The landscape values of the undisturbed catchments on the southern fall of the plateau are particularly high. Spectacular views can be obtained from the summit of Mount Ellery, while Ocean View Lookout in the headwaters of the Goolengook River provides excellent views of this undisturbed catchment and forested ranges all the way to the coast, and Waratah Lookout offers excellent views into the headwaters of Hensleighs Creek on the eastern side of the plateau.

Spectacular waterfalls and cascades occur in the Errinundra, Brodribb, and Queensborough catchments within the park and many of the riparian environments dominated by cool temperate rainforest are breathtakingly beautiful. The large granite tors and boulders on Mount Ellery provide an added attraction for visitors, apart from the magnificent views from its summit. The rugged nature of the southern escarpment also provides opportunities for bushwalking in remote undisturbed country.

Other Park Proposals

In formulating its recommendation for this area the Council considered several different options for a park on the plateau. One option would have added the remainder of the Brodribb and Delegate catchments, most of the Coast Range, and a further portion of the Goolengook catchment. These areas contain substantial volumes of mature sawlogs as well as extensive tracts of logging regrowth, but would provide additional representations of values within the Council's proposal. Another option linked the Cobb Hill area with the existing Errinundra flora reserve (essentially via the stands of logging regrowth on the Gunmark Range), extended the existing flora reserve to include most (but not all) of the East Errinundra catchment, and added only portion of the Goolengook headwaters to the Mount Ellery scenic reserve. This option would not give protection to the essentially undisturbed catchments described earlier, nor would it include valuable examples of the transitional sequence of vegetation from the very wet sclerophyll forests to the drier peppermint-gum forests typical of the northern fall of the plateau.

Coast Range

The Coast Range area (shown by horizontal hatching on Map A) was considered for inclusion in the proposed Errinundra National Park. However, the Council determined that no decision would be made about this area until further information on its conservation values had been collected and evaluated. This will be completed prior to Council's deliberations on the final recommendations for East Gippsland. The area is known to contain about 280 000m³ of sawlogs.

Recommendation

A7 Errinundra Plateau National Park

That the area of 17 500 ha, shown on Map A, be used to:

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

that

- (i) logging not be permitted
- (ii) hunting and use of firearms not be permitted
- (iii) grazing not be permitted
- (iv) the environs of the Errinundra road, Greens road, and Gunmark road, where they abut the park, be preserved

and that the area be included in a schedule to the *National Parks Act 1975* and be managed by the Department of Conservation, Forests and Lands.

Coopracambra—Kaye National Park

This park incorporates the existing Coopracambra State Park, Mount Kaye Flora Reserve, and Beehive Creek Flora Reserve and includes all catchments flowing into the Genoa River upstream of Wangarabell.

Catchments

The Murmuring Creek, Black Jack Gully, and Back Creek catchments have been classified as essentially undisturbed catchments, representing dissected upland streams on sedimentary and igneous parent materials in areas of moderate rainfall. At present only the lower portions of Murmuring Creek and Black Jack Gully are included in the existing Coopracambra Park, while the headwaters are unprotected. Their inclusion in the park ensures their long-term viability as ecological units; moreover they provide a substantial link between the existing park and the Mount Kaye area, which are both botanically and biogeographically highly significant.

Vegetation

The extensive rocky outcrops around Mount Kaye and in the catchments of Back Creek, Black Jack Gully, and the small tributary streams flowing into the Cann River support distinctive heathy scrub communities and several rare species. In addition, the heathland communities bordering tributaries of Black Jack Gully, Murmuring Creek, Back Creek, and Beehive Creek include a number of rare plants. Of the 62 significant species identified in a recent preliminary survey, some 46 are not known in the existing Coopracambra State Park. Four species had not been previously recorded in East Gippsland and one of these—*Mirbelia pungens*—is a new record for the State.

From the available information an area centred on the major peaks around Mount Kaye seems to be the natural limit of distribution in Victoria for both Tasmanian sub-alpine species and eastern New South Wales species. The Mount Kaye–Mount Denmarsh area and the adjoining Back Creek catchment boast an impressive list of rare plants, including finger hakea (*Hakea dactyloides*), long-leaf bitter pea (*Daviesia wyattiana*), monkey mint bush (*Prostanthera walteri*), New South Wales pomaderris (*Pomaderris ledifolia*), rusty velvet-bush (*Lasiopetalum ferrugineum*), and Tasmanian waxflower (*Eriostemon virgatus*). Shining gum (*Eucalyptus nitens*) also reaches the eastern limit of its distribution at Mount Kaye.

Fine stands of blue-leaved stringybark (*E. agglomerata*), normally a New South Wales species, occur between Mount Kaye and the border. Lowland sclerophyll forest between Mount Kaye and Mount Coopracambra contains good examples of the typical inland sub-communities of the vegetation type, which differ floristically from those nearer the coast. In particular, the drier rocky ridges support several uncommon species including native passionfruit (*Passiflora cinnabarina*), a liane normally occurring in rainforest margins, and streaked rock orchid (*Dendrobium striolatum*) in the Beehive Creek, Black Jack Gully, and small tributary catchments of the Cann River. Heathland vegetation bordering the tributaries of Black Jack Gully and Murmuring Creek is rich in species and also contains significant plants, including crane's bill (*Geranium neglectum*), the rare sun orchid (*Thelymitra resecta*), and fine examples of apple-topped box (*Eucalyptus angophoroides*). The first two species are normally found in montane areas near streams. These heathlands are also rich in other terrestrial orchids, some of which were not previously known in the general locality. Riparian communities occur in a number of catchments and although they have not been investigated, probably contain significant species.

Fauna

The mature lowland sclerophyll forests in the park contain a high diversity of bat fauna. A total of 14 species have been recorded, including rare ones such as the large-footed myotis, eastern horseshoe bat, and eastern broad-nosed bat. These forests also support a population of the rare masked owl.

The north-western portion of the park extends across the Cann Valley Highway to include known populations of two rare amphibians, the great barred frog and giant burrowing frog.

Recreation

The undisturbed nature of much of the park provides opportunities for wilderness-style recreation—in particular, the Genoa River Gorge and its surrounds, which also offer some spectacular scenery. Excellent views can be obtained from the summits of Mount Kaye, Mount Denmarsh, Mount Coopracambra, and Mealing Hill. Access through the park is limited, but the W. B. Line

offers scope for pleasure driving and picnicking. Attractive waterfalls and cascades occur on a number of creeks in the park, including Beehive Creek, Back Creek, Black Jack Gully, Murmuring Creek and the Cann River tributaries. The rugged granite outcrops have significant landscape values, particularly when viewed from the Cann Valley Highway.

Other Park Proposals

A number of other options for additions to the Coopracambra State Park were considered by Council. One of these suggested that in addition to the areas proposed by Council, the headwaters of the Thurra River be included. The Council believes that its broad aim for this proposed extension was to include the major streams and their catchments flowing into the Genoa River, but felt that it was inappropriate to extend into another major catchment such as the Thurra, which flows south to the sea.

Another option suggested linking the Mount Kaye area with the existing Coopracambra State Park via the land adjoining the Cann Valley Highway, while another would have added to this option a major part of the Black Jack Gully catchment. However, these options would not have afforded protection to the essentially undisturbed catchments of Black Jack Gully and Murmuring Creek, nor would they have included some of the important botanical values of these areas. However, Council believes that the addition of the land described above to the existing Coopracambra State Park warrants the designation of the whole area as national park.

The proposed park forms part of an area used for grazing agistment, but receives only intermittent use.

Recommendation

A8 Coopracambra—Kaye National Park

That the area of 30 260 ha, shown on Map A, be used to:

- (i) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (ii) conserve and protect natural ecosystems
 - (iii) supply water and protect catchments and streams
- that
- (iv) logging not be permitted
 - (v) hunting and use of firearms not be permitted
 - (vi) grazing be phased out by 1988

and that the area be included in a schedule to the *National Parks Act 1975* and be managed by the Department of Conservation, Forests and Lands.

Alfred National Park

Recommendation

- A9** That the area of 2390 ha, shown on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977 (see Appendix 1).

Addition to Alfred National Park

It is proposed to extend the southern boundary of the existing park to include the headwaters of Soda Creek, which contain important stands of warm temperate rainforest which are known to support at least 15 species of lianes. Other sections of the park boundary have been rationalized to follow topographic features. The proposed park also provides valuable habitat for a variety of associated fauna.

Recommendation

- A10** That the areas totalling 1050 ha, shown on Map A, be added to the Alfred National Park and be used to:
- (i) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (ii) conserve and protect natural ecosystems
 - (iii) supply water and protect catchments and streams
- that
- (iv) grazing and logging not be permitted
 - (v) hunting and use of firearms not be permitted
- and that the area be included in a schedule to the *National Parks Act 1975* and be managed by the Department of Conservation, Forests and Lands.

State Park

Lake Tyers State Park

Recommendation

- A11** That the area of 2000 ha, shown on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977 (see Appendix 1).

Addition to Lake Tyers State Park

The proposed addition comprises public land west of Pettman's Beach road and south and east of Tyers House road. It includes the coastal reserve east of Lake Tyers, portion of the Ewing Marsh Wildlife Reserve and an area of uncommitted land north of Morass Break road.

Several interesting plant communities occur within the proposed addition, including primary dune scrub along the coast, coastal sclerophyll forest along drainage lines, dominated by southern mahogany (*Eucalyptus botryoides*), and a sub-community of lowland sclerophyll forest that contains the following unusual assemblage of eucalypts: white stringybark (*E. globoidea*), silvertop (*E. sieberi*), yellow stringybark (*E. muelleriana*), mountain grey gum (*E. cypellocarpa*), red ironbark (*E. sideroxylon*), red box (*E. polyanthemus*), and blue box (*E. bauerana*). Near the coast the eucalypts occur as stunted woodlands no more than 10 m in height, with an interesting array of understorey plants.

These coastal forests are also noted for their value as food sources for nectivorous birds, including the uncommon scarlet honeyeater, which has been recorded in the area.

Pettman's Beach road is a popular point of access to the Ninety Mile Beach, particularly for surf fishing and other beach activities. It is more appropriately included within the park than used for its present designation as part of a wildlife reserve.

Recommendation

- A12** That the area of 1300 ha, shown on Map A, be added to the Lake Tyers State Park and be used to:
- (i) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (ii) conserve and protect natural ecosystems
 - (iii) supply water and protect catchments and streams
- that
- (iv) honey production be permitted subject to specified conditions
 - (v) small quantities of forest produce, associated with the development of the park, would be available from time to time

- (vi) legal access to private property enclosed within the park continue to be permitted and that it be managed by the Department of Conservation, Forests and Lands.

Coastal Park

Sydenham Inlet—Cape Conran Coastal Park

This park includes land along the coast from just east of Sydenham Inlet to Point Ricardo near Marlo. It incorporates the catchment of Dock Inlet and the small lakes and wetlands east of Sydenham Inlet, and is bounded in the north by the Old Coast road. It includes long stretches of relatively undisturbed coastline.

Sydenham Inlet is a large estuarine lagoon (1000 ha) which is intermittently sealed off from the sea by a sandy barrier. Several geomorphological features associated with the estuary are of State-wide significance, notably the active and abandoned river deltas and the extensive wetlands and tidal channels associated with Swan Lake and Mud Lake (both of which are included in this park).

Recreational fishing in the estuary and on the ocean beach, boating and water-skiing are popular activities here. In season, Swan Lake, Mud Lake and other wetlands associated with the Inlet are considered to have potential for duck-hunting. The Council proposes that the wetlands adjoining Sydenham Inlet, including Swan Lake and Mud Lake, be excised from the Croajingolong National Park and incorporated in this coastal park to provide the opportunity for more effective management of recreational activities essentially associated with the Inlet and its surrounds.

Dock Inlet similarly contains geomorphological features of State-wide significance. Formerly a small bay, it became isolated from the sea by a barrier of sand. Although the sand barrier is low, this coastal lagoon is rarely subject to incursions by the sea and the water is fresh. Stream-flow into the lagoon is permanent and its catchment remains in a near-natural condition, although a management track passes through it. The Dock Inlet system is the only essentially undisturbed example of a catchment on the coastal plain that terminates in a land-locked lake.

The Yeerung River in the west has formed a brackish estuarine lagoon at its mouth, which is also often sealed off from the sea by a sand barrier. This lagoon is popular for swimming and fishing and is readily accessible from the camping ground near Cape Conran. The river has exposed Palaeozoic metasediments and granite rocks above the lagoon as well as a section of the Tertiary and Quaternary coastal sediments.

Cape Conran is popular for surf fishing and swimming. Skin-divers use the rocky outcrops and platforms around the Cape, which together with those around Pearl Point are included in the park. The main headland of Cape Conran comprises a narrow promontory of granodiorite, and on its eastern side presents a readily accessible example of contact between granitic and sedimentary rocks.

Near Cape Conran, the Marlo Plains remain relatively undisturbed and permit studies of the nature of the Pleistocene environments of southern Victoria. The Council has recommended that the Bemm River Education Area (K3) be relocated to the north of Cape Conran (see Chapter K), in order to take advantage of these educational attributes.

Vegetation of the park is a mosaic of banksia woodlands, coastal sclerophyll forests, and heathlands in the many seasonally wet depressions. These provide brilliant wildflower displays in the Spring. The numerous rare and interesting plants found here include two tongue-orchids, *Cryptostylis erecta* and *C. hunteriana*, while the near-coastal heaths include sword bossiaea (*Bossiaea ensata*) and, in swampy areas the bush-pea (*Pultenaea paludosa*).

The low heaths, woodlands, and forests on the coastal dunes form the habitat of the smoky mouse, which has a wide but disjunct distribution in Victoria. The rare ground parrot also occurs in the coastal heaths, while the fresh-water swamps have resident populations of the long-necked tortoise.

Proposed Coast Road

It has been suggested that a coast road of two wheel-drive standard be established between Cape Conran and Bemm River. In concept, a coast road should provide the motorist with views of the coastline and, to achieve this, should be routed as closely as possible to the shoreline. For much of

the coast between Cape Conran and Bemm River, however, such a road would need to be sited on unstable coastal dunes to provide the best views of the foreshore. To align the road behind the dunes would virtually eliminate any views of the coastal scenery.

However, the Council believes that the important conservation values of the heathlands and essentially undisturbed catchment in this portion of the park should not be degraded or in any way compromised by any access developed between these centres.

Further information regarding the concept of a coast road appears in Chapter L (Recreation).

Boat Ramp—Cape Conran

Small craft have only limited access to coastal waters in eastern Victoria, and the existing boat ramp at West Cape Conran is inadequate in terms of both safety and capacity. A large number of people use the ramp throughout the year, and at the peak of the holiday season facilities for the parking of boat trailers and access to the ramp become crowded. Under adverse weather conditions boat retrieval is slow and dangerous. The government has decided to duplicate the existing ramp to aid boat launching and retrieval.

However, alternative facilities for the launching and retrieval of small craft, which can be used should the West Cape ramp be closed by an adverse weather change, should be provided. Investigations should cover sites that would accommodate the alternative facilities and would have only minimal conflict with protection of the coastline and other recreational activities.

Such development should be considered in concert with the strategy plan now being prepared for Cape Conran.

Recommendation

A13 Sydenham Inlet—Cape Conran Coastal Park

That the area of 12 600 ha, shown on Map A, and including the rock platforms and outcrops in the adjacent waters, be used to:

- (i) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
- (ii) conserve and protect natural ecosystems and features listed below—in particular, the conservation values between the Yeerung River and Pearl Point including
 - the diverse flora and fauna associated with the heathlands and coastal forests
 - the habitat of the smoky mouse and ground parrot
 - the essentially natural condition of the catchment and environs of Dock Inlet

and

- the wetlands associated with Sydenham Inlet, which are significant wildlife habitats, particularly for waterfowl

that

- (iii) grazing and timber production not be permitted
- (iv) camping be permitted to continue at sites approved by the managing authority
- (v) the managing authority zone the park to accommodate the legal recreational activities traditionally associated with the area, such as surfing, fishing, camping, walking, and hunting in season
- (vi) the managing authority investigate the provision of boat launching and retrieval facilities at Cape Conran, which may be used to supplement the existing ramp on West Cape Conran

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

Notes:

1. The Department of Conservation, Forests and Lands is investigating the establishment of additional accommodation facilities near Cape Conran.
2. Commercial fishing should be permitted to continue in the off-shore waters consistent with the management goals for the park.
3. The Council considers that an investigation should be conducted into the establishment of a road linking Bemm River and Cape Conran, bearing in mind the need to protect the nature conservation values of this portion of the park (see Recommendation L8).

Regional Park

Mount Raymond Regional Park

Recommendation

- A14** That the area of 800 ha, shown on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977 (see Appendix 1).

B. Reference Areas

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

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

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

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

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

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

Existing Reference Areas

Recommendations

B2–B4, B6, B8–B14 That the areas listed below and indicated on Map A continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

- B2** Gelantipy Plateau (430 ha)
- B3** Mountain Creek (1520 ha)
- B4** Zig Zag Creek (600 ha)
- B6** Big River (400 ha)
- B8** Barga (1030 ha) (this reference area was originally named Camp Creek, but has been renamed to avoid confusion between the two Camp Creeks in the Croajingolong National Park, and the other passing through the Baawang Reference Area)
- B9** Yambulla (380 ha)
- B10** Merragunegin (660 ha)
- B11** Jones Creek (425 ha)
- B12** Baawang (600 ha)
- B13** Benedore River (1130 ha)

B14 Seal Creek (905 ha)

Relocation of Reference Area B1—Gattamurh Creek

A vehicular track leading to Ventry's hut on the Gattamurh Creek passes through the existing Gattamurh Creek Reference Area. The new site for the reference area does not contain any tracks, and is mostly on the Tubbut land system, as was the original area. (Since publication of the final recommendations for the East Gippsland area in March 1977 the boundaries of the land systems in this area have been revised in consultation with the Land Protection Service).

Recommendation

- B1** That the Gattamurh Creek Reference Area be relocated to the site described below and indicated on Map A, and be renamed the Beehive Creek Reference Area
- and that it be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

Beehive Creek (590 ha)

Geology: Lower Devonian granite and hornblende diorite, Ordovician sediment. Topography: steep slopes. Elevation: 160–940 m. Rainfall: 800 mm. Vegetation: white box and white cypress pine woodland and open forest I and II. Land systems: Tubbut and Wyangil.

Enlargement of Reference Area B5—Concordia Gully

The enlarged reference area incorporates more of the Victorian portion of the Concordia Gully catchment. This is the only remaining example of an essentially natural intermittent plateau stream in East Gippsland.

Recommendation

- B5** That the enlarged Concordia Gully Reference Area (840 ha) shown on Map A be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

Council notes that some activity associated with mineral exploration has recently occurred in this reference area, including re-opening of a road, subsequent to government approval of the 1977 recommendation. These activities should be terminated and restoration operations, if required, should be carried out.

Relocation of the Boundary of Reference Area B7—Musket Creek

The existing Musket Creek Reference Area contains only one side of the Musket Creek catchment as well as some additional country to the north. Removal of the latter and addition of the southern side of the Musket Creek catchment mean that the reference area includes a complete catchment.

Recommendation

- B7** That the boundary of the Musket Creek Reference Area (470 ha) be relocated as shown on Map A and the area be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

Additional Reference Area

Recommendation

- B15** That the area described below and shown on Map A:
- (a) be used to maintain natural ecosystems as a reference to which those concerned with studying land for particular comparative purposes may be permitted to refer, especially when attempting to solve problems arising from the use of land
 - (b) be surrounded by a buffer, and that delineation of the buffer be by joint arrangement between the advisory committee and the land manager of both the area itself and of the land adjacent to the reference area

and that

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

Winnot Creek (1290 ha)

Geology: Lower Devonian granite. Topography: moderately steep slopes. Elevation: 380–1000 m. Rainfall: 950 mm. Vegetation: messmate—gum and silvertop—stringybark open forest III, stringybark—red box—silvertop open forest II, and yertchuk—red stringybark open forest I and II. Land system: Kowat.

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

C. Wildlife

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

Animal habitats are generally described in terms of vegetation communities, although other characteristics—such as vegetation structure, ground cover, water depth, salinity, rock outcrops, and hollow trees—are also important. In the study area some 24 major animal habitat types have been identified, ranging from coastal heaths and estuaries, wet sclerophyll, dry sclerophyll, and lowland sclerophyll forests, to warm temperate and cool temperate rainforests.

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

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

Council considers that the Fisheries and Wildlife Service has an important role in the management of the entire area and, by working in close co-operation with the land managers in the formulation of management plans, should ensure that provision is made for the conservation of wildlife. This is especially important for animals that are essentially restricted to a particular habitat for feeding and breeding. The ground parrot, for instance, is a ground-dwelling species restricted to sedgeland and heathlands near the coast.

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

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

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

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

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

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

Existing Wildlife Reserves

Recommendations

C1-C3 That the areas indicated on Map A and listed below continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

C1 Ewing Marsh (6700 ha)

Note:

Portion of the area previously recommended as the Ewing Marsh Wildlife Reserve is now proposed for inclusion in the Lake Tyers State Park (see Recommendation A12)

C2 Lake Corringale (800 ha)

C3 Lake Curlip (980 ha)

Addition to Lake Curlip Wildlife Reserve

It is proposed to extend the Lake Curlip Wildlife Reserve to include the lower reaches of Cabbage Tree Creek and a small wetland south of allotment 45, Parish of Orbost East.

Recommendation

C4 That the area of 55 ha, shown on Map A, be added to the Lake Curlip Wildlife Reserve (C3)

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

D. Water Production

Local catchments are very important for water production, both for domestic consumption and for irrigation water supply. Orbost, Marlo and Newmerella receive water from the Rocky River and this can be augmented by supplies from the Brodribb River. The townships of Cann River and Bemm River obtain water from the Cann and Bemm Rivers respectively and Mallacoota draws supplies from the Betka River.

Water for irrigation is drawn mainly from the Snowy, Genoa, and Cann Rivers.

Current Management and Use

No catchment in the study area is used solely for water production. Most are utilized for hardwood timber-harvesting, recreation, and other forest uses, as well as for agricultural pursuits on freehold land.

Land Use Planning

Council notes that the degree of land use planning varies between catchments. The Rocky River, Cann River, and Betka River water supply catchments have been proclaimed, but a land use determination exists only for the Rocky River. The catchments of the Bemm River and Brodribb River are under investigation for proclamation.

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

Catchment Land

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

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

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

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

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

Buffer Zone

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

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

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

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

Water Quality, Yield, and Regulation

It is possible to improve the quality of water by partial or complete treatment—at a cost. It must, however, be recognized that the higher the original quality of the water, the cheaper and more efficient is the treatment and, in most cases, the more acceptable the end product.

In many catchments it is already difficult to maintain existing water quality. This problem is likely to become even greater as pressures to allow various forms of land development and use of natural resources increase. Even with properly planned and controlled land use in catchments it is probable that many water supply authorities will consider it necessary to at least disinfect water supplied from their storages. Indeed, many authorities already employ such treatment. Council recognizes that a number of water supply systems need some form of treatment now and that the others will need to consider some form of treatment in the future. In order to provide for this requirement, Council believes it is important for the government to establish long-term policies to maintain water supply of a satisfactory quality.

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

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

Additional Water Needs

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

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

Recommendations

D1–D3 That the water production areas indicated on Map A, continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

D4–D5 That in the case of the locations listed below and shown on Map A (these locations being within catchments for which no land use determinations have been made) the present tenure and management of public land continue for the time being

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

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

be used for

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

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

Notes:

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

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

3. The Council considers that fossicking and prospecting under a Miner's Right should not be permitted on land under the control of water supply authorities, around storages and facilities, etc.

D4 Brodribb River; Orbost Water Board

D5 Bemm River; Orbost Water Board

D6 That, in the case of various off-river storages and facilities for domestic water supply purposes (not individually listed), these and their associated reserves remain under existing tenure and control.

E. Timber Production and State Forest

Following the 'Report of the Board of Inquiry into the Timber Industry' in Victoria, conducted by Professor Ian Ferguson, the government is preparing a Timber Industry Strategy for the State that will address the future of the industry in East Gippsland, although the responsibility for identifying the land base upon which timber production can take place in the region rests with the Land Conservation Council.

The Council believes that future options for the timber industry in East Gippsland should aim at maintaining an adequate resource base to provide for the continuation of timber production until regrowth resources become available.

If this is to be achieved, changes will need to be made to the current supply arrangements in the near future. A substantial reduction of about 57% in the current annual level of harvesting is required if the remaining mature sawlog resource is to last until regrowth timber is available in about 45 years, regardless of any changes to land use recommended by the Council.

Council has proposed, for the reasons outlined earlier in these recommendations, extensive additions to the existing national and State parks in East Gippsland. It recognizes that this will cause substantial timber resources to be withdrawn from availability and this will, unless alternative employment opportunities are created, add to the decline in employment opportunities associated with a lowering of the annual cut to a sustainable level and expected increases in labour productivity.

The Council has commissioned a firm of consultants to carry out Stage Two of the socio-economic study of East Gippsland, which will assess the impact of the Council's proposals on the timber industry and the economy of East Gippsland, as well as the implications of other proposals such as integrated harvesting and the establishment of further processing industries in the region. The information contained in the economic study conducted for the Council in 1985 by the National Institute of Economic and Industry Research will form the basis for that assessment.

The East Gippsland Timber Industry

Nature of The Industry

Some 23 sawmills in or adjacent to East Gippsland draw supplies of hardwood timber from public land within the study area. During the logging season these employ a total of about 580 people, including those involved in bush work, truck-driving, and further processing. Sawlog allocations to various mills range from about 2000m³ per annum up to 60 000m³ per annum. A number of mills are located at major centres such as Orbost and Cann River, while others form the basis of smaller settlements such as Club Terrace and Bendoc.

Four major forest types in the study area provide timber for the sawmilling industry:

- ash-type forests containing alpine ash, mountain ash, and shining gum
- mountain mixed-species forests dominated by brown barrel (known locally as cut-tail), messmate, and mountain grey gum
- foothill mixed-species and coastal mixed-species forests, both dominated by silvertop, several stringybark species, narrow-leaf peppermint, and mountain grey gum.

Depending upon the quality and species involved, timber from the area is suited to a variety of uses including house-framing, furniture manufacture, joinery, heavy construction, and urban fencing. Most of the output is sold on the Melbourne market.

Almost all the sawn timber produced in East Gippsland is used for house construction, where green hardwood retains a significant proportion of the market because of its intrinsic properties such as higher strength and lower cost relative to its major competitors (radiata pine, seasoned hardwood,

and imported timbers). East Gippsland is regarded as the prime area for the cutting of house-lots, as a full range of sizes and grades can be supplied.

The study area also produces railway sleepers, poles, fencing timbers, flitches from selected sawlogs for sliced veneers, and wood chips from sawmill residues and forest clearing on private land.

Significance of the Industry

The forests of the East Gippsland area currently provide around 30% of the total supply of hardwood sawlogs from public land in Victoria. The employment and economic study conducted in the study area for the Council showed that gross turnover in the timber industry amounted to more than \$60 million in 1983/84 while the flow-on effect to other sectors in the regional economy was more than \$30 million. Royalties paid to the government exceeded \$4 million.

The study estimated that the timber industry, directly and indirectly, accounts for some 42% of the total employment in East Gippsland. The regional centre for the study area, Orbost, depends not only on economic activity in its immediate vicinity but also on activity throughout East Gippsland. Other smaller settlements such as Cann River, Club Terrace, and Bendoc are essentially timber towns and their future depends on the continued location of sawmills at these centres.

Area Currently Available for Timber Production

During this investigation Council has been assisted by data on the type, location, and quantity of commercial timber resources throughout East Gippsland. The principal source of this information—a detailed statement of timber resources prepared by the Department of Conservation, Forests and Lands—has been supplemented by further useful material provided in submissions. While the information is the best currently available, it is nevertheless compiled from base data that vary in precision.

Two important aspects of the resources data need to be explained. Firstly, the inventory identifies the gross area available for timber production and then the area that will actually be harvested following the exclusion of sectors that are unsuitable because of steep slopes, stream-side buffers, etc., and tracts with particular conservation values. The remaining land on which timber-harvesting could be conducted is referred to as the 'net productive area' and this concept is used extensively in the following discussions.

Secondly, the resources inventory distinguishes between two types of timber resource: the resource that is currently economic to utilize using a sawlog-only operation, and the one that is currently uneconomic to utilize using a sawlog-only operation. An arbitrary distinction is made between these two resource types and any area that carries a sawlog volume generally less than 40 m³ per ha is currently regarded as being uneconomic to harvest and/or regenerate on a sawlog-only basis—because its sawlog resource is scattered and would therefore be too expensive to harvest, or because the cost of its adequate regeneration exceeds the funds and resources available to the Department of Conservation, Forests and Lands. The high cost of regeneration is associated with the need to pay the logging contractor to fall non-sawlog trees in order to allow adequate regeneration to become established and mature. In some cases both these reasons cause areas to be regarded as uneconomic to harvest.

However, utilization of the pulpwood resource remaining following the harvesting of sawlogs, in an integrated sawlog-pulpwood harvesting operation, could not only make these areas economic to log but allow adequate regeneration to be achieved without the high cost to the land manager.

The total net productive area on all public land in East Gippsland (sawlog-only operations) is about 184 000 ha. Some 10% (18 000 ha) of the net productive area, carrying just over 1 000 000 m³ (sawlog-only operations) was withdrawn from the timber industry when the government accepted final recommendations of the Council in 1977. Of this resource, 763 000 m³ were contained in parks and other conservation reserves, while the remaining 297 000 m³ occurred in the two parcels of special uncommitted land in the Gelantipy Plateau-Bowen Range area and in the headwaters of the Goolengook River. The remaining 166 000 ha of net productive area occurs within the 600 000 ha of public land designated as being available for timber production in the Council's final recommendations for East Gippsland in 1977.

As Table 2 indicates, some 72% of this gross area would not be harvested—because of harvesting prescriptions, because of pre-logging flora and fauna surveys, or because some areas are currently regarded as being uneconomic to utilize on a sawlog-only basis. Therefore, taking that into account, extraction of timber would take place during the course of a rotation on approximately 166 000 ha net or 28% of the total area currently designated as hardwood production or uncommitted land. Of that total, some 79 000 ha now carries mature timber while the remaining 87 000 ha carry stands of regrowth.

Table 2: Area Currently Available for Wood Production

Gross Area (ha)	602 000	
Less areas:		
excluded by prescriptions or otherwise unsuitable	236 000	
currently regarded as uneconomic to harvest and/or regenerate on a sawlog-only basis	200 000	436 000
Net area for sawlog-only operations (includes 86 870 ha of regrowth)	166 000	

The Timber Resource and Current Levels of Utilization

At present, timber production in East Gippsland is based on sawlog-only harvesting operations while pulpwood harvesting (that is, the utilization of timber below sawlog quality) is not permitted. This contrasts with other areas of the State such as the Central Highlands and the alpine area, where pulpwood harvesting is permitted in conjunction with the utilization of sawlogs.

For this reason harvesting of sawlogs occurs only on areas currently regarded as economic to harvest on a sawlog-only basis. These total about 79 000 ha and carry some 6 240 000 m³ of mature sawlogs (see Table 3).

Table 3: Current Estimate of Available Commercial Sawlog Resource

	Volume (m ³)	Net volume (m ³)
Estimated sawlog timber resources:		
on all public land in East Gippsland		12 368 000
in areas currently regarded as uneconomic to harvest and/or regenerate	5 069 000	7 299 000
in existing conservation reserves including all national and State parks	763 000	6 536 000
Sawlogs within special uncommitted areas (unavailable pending review by Council)	297 000	
Sawlogs available for harvesting with existing land use		6 239 000

Source: Department of Conservation, Forests and Lands Resources Inventory—October 1985.

The 200 000 ha currently regarded as uneconomic to utilize on a sawlog-only basis, carry a further 3 670 000 m³ of mature sawlogs, and these if they could be harvested also, could lift the total mature sawlog resource in the study area to 9 900 000 m³ (see Table 4).

Table 4: Timber Resources in East Gippsland

Sawlog volume (m ³)		Pulpwood volume (m ³) ¹		Regrowth
Currently Economic Areas ²	Currently Uneconomic Areas ³	Currently Economic Areas ²	Currently Uneconomic Areas ³	Net Productive Area ha
6 239 000	3 670 000	12 567 000	21 288 000	86 870
Total sawlogs (notional) 9 900 000		Total pulpwood (notional) 33 800 000		

1. Pulpwood harvesting is not currently permitted in East Gippsland.

2. These areas are currently utilized for timber production as they are economic to harvest and/or regenerate using a sawlog-only operation.

3. These areas are not currently utilized for timber production as they are uneconomic to harvest and/or regenerate using a sawlog-only operation.

Future Options

Sustainable Production

Although allocations for the East Gippsland area total about 370 000 m³ of sawlogs, the average cut over the past 5 years has been approximately 320 000 m³ per annum.

Both the Report of the Inquiry into the Timber Industry and the Draft Timber Industry Strategy Report discussed a number of options for the use of the currently available timber resource in East Gippsland. Some of the options involved a maintenance or increase in the current harvesting rate. This would have the effect of maintaining or increasing existing levels in the short term, but would result in exhaustion of the resource well before stands of regrowth could become available. Other options considered that the industry should continue to operate until regrowth resources are ready to harvest but these all result in a reduction of the present cutting rate, even with the introduction of integrated harvesting in East Gippsland.

The current annual harvesting rate of 320 000 m³ per annum cannot be maintained for more than about 20 years given the volume of mature sawlogs in currently economic areas (6 240 000 m³). However, the age distribution of regrowth forests in the study area is such that substantial wood flows from them could not be expected before about the year 2030—that is, some 45 years hence, leaving a 25-year gap.

During those 25 years no sawlog production from public land in the area would be possible. If timber production maintains its significance to the regional economy this would result in major disruption to the social fabric and economic base of the East Gippsland area.

If the 6 240 000 m³ of mature sawlogs in areas currently considered economic to harvest on a sawlog-only basis is to last until regrowth timber is available around 2030, the current level of sawlog harvesting of 320 000 m³ per annum would need to be immediately reduced to around 138 000 m³ annually. Such an immediate reduction would result in job losses in the timber industry, which could nevertheless continue to make a contribution to the economy of the region rather than being eliminated in about 20 years time. After 2030 the level of cutting could be increased until about 2080, when a sustainable level of about 260 000 m³ per annum would be reached.

Resources in Existing Parks

It has been suggested that the timber resource in existing parks and reserves is substantial and should be made available to relieve the current shortfall. Apart from the fact that it would constitute an abandonment of long-standing Council and Government policy and be contrary to the basic concept of the use of national parks, this would not provide a solution to the decreasing availability of timber as the resource based on sawlog-only operations in existing parks amounts to just over 2 years' cutting at current levels of harvesting.

Implications of Proposed Recommendations

Park Additions

The Council is proposing major extensions to the existing Snowy River National Park, Tingaringy National Park, and the Coopracambra State Park, as well as the establishment of a new national park centred on the Errinundra Plateau. These contain the timber resources outlined below.

Sawlogs

Adoption of these recommendations would make an estimated 2.2 million m³ of mature sawlogs unavailable (see Table 5). This total includes 275 000 m³ that was subject to future review by the Council.

Table 5: Sawlog Resource Available After Park Proposals

	Net volume (m ³)
Sawlogs available with existing land use	6 239 000
Sawlogs within special uncommitted areas (availability subject to review by Council)	297 000
Sub Total	6 536 000
Less resources in proposed parks	
—Rodger River–Bowen Range	1 270 000
—Errinundra	754 000
—Coopracambra–Kaye	176 000
Sub-total:	2 200 000
Available sawlog resource after proposed recommendations	4 336 000

As indicated in Figure 2, the inclusion of these sawlog resources in parks would reduce the sustainable level of cut from 138 000 to about 96 000 m³ per annum.

Regrowth

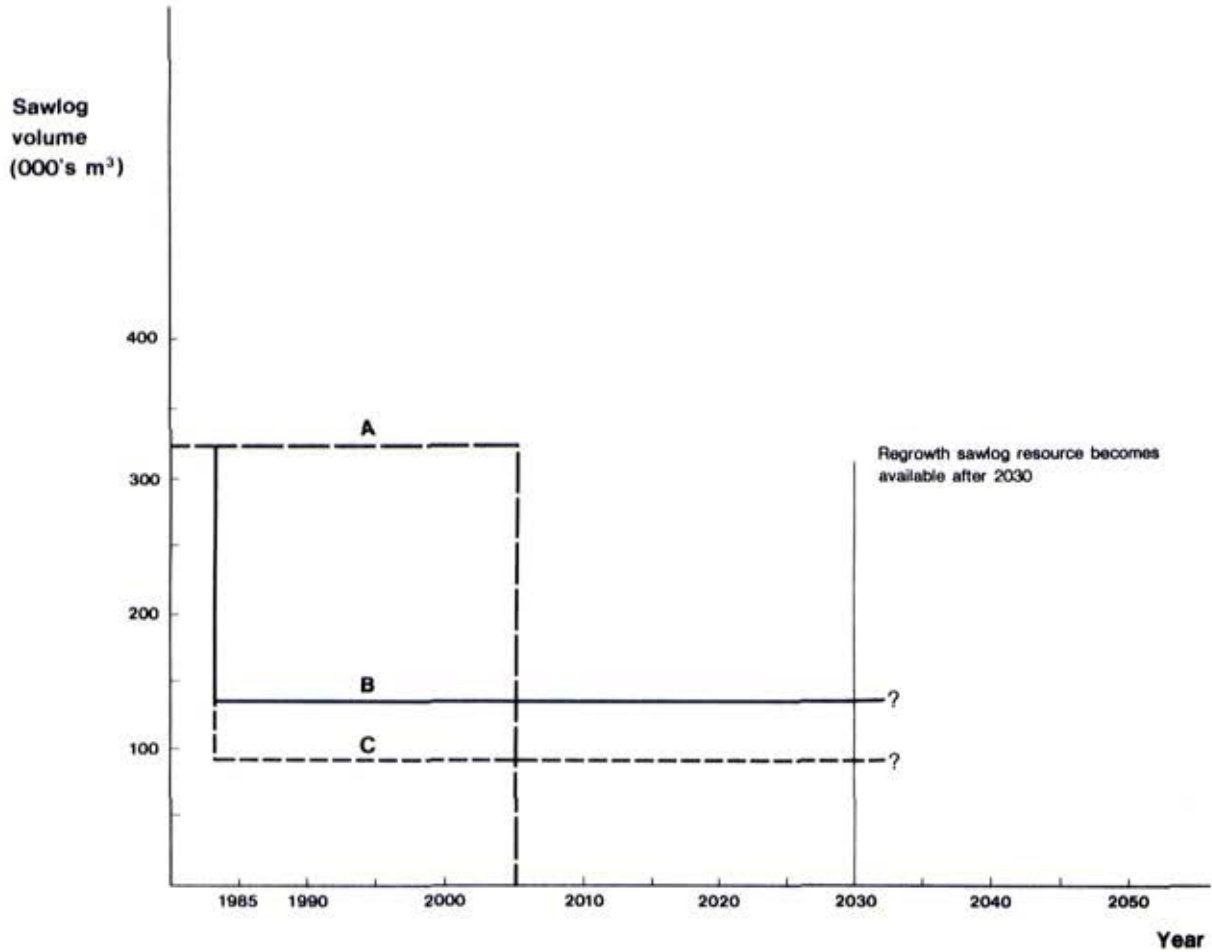
The park extensions recommended by the Council withdraw approximately 5% of the net productive area of currently available regrowth, making a total of 7% withdrawn after taking into account Council's previous recommendations in 1977. The impact on regrowth resources is therefore not great. As most of the regrowth is very young, it is not possible to provide accurate estimates of the actual volume of timber that could be harvested from these areas. Impacts on regrowth are therefore expressed as percentages of the available net productive area.

Additional Proposed Resources

The proposed recommendations make available some sawlog resources located in part of the Goolengook River area (22 000 m³), placed by the Council in previous recommendations in a 'special uncommitted' category. Also included is the sawlog resource in part of what is now the Lind National Park (56 000 m³). While the important rainforest areas in the park and the attractive forest drive and picnic sites should be protected, the attributes and characteristics of the land are not those of a national park and consequently certain areas now within it could supply some sawlogs without impinging on its scenic, floristic and recreational values (see Recommendation M4).

Inclusion of these parts of the Goolengook catchment and sections of the Lind Park in State forest would make available some 78 000 m³ of sawlogs, and would increase the level of sustainable yield to about 98 000 m³.

Figure 2: Estimated Sawlog Availability—East Gippsland Study Area



- A ———— Maintain current level of harvesting; resource exhausted by 2005
- B ———— Immediate reduction to sustainable yield (138 000m³/annum)
- C - - - - - Further reduction of sustainable yield due to withdrawal of resources in proposed parks and other factors (98 000m³/annum)

Other Factors Affecting Resources Availability

The Council is aware that various other factors could in the future affect the level of the remaining available resource.

Reductions in the remaining mature resource could result from future flora and fauna surveys conducted by the Department of Conservation, Forests and Lands, should these reveal significant floral and faunal values are not already adequately represented in reserves. Some ten forest blocks in the timber resources inventory (in the remaining State forest area) are scheduled to be surveyed in the future. These are Buldah, Quadra, Buckland, Sisters, Cooagalah, Noorinbee, Tennyson and Lock Up and parts of Brodribb and Misery. Three other blocks in State forest have been surveyed, but resource estimates have yet to be adjusted. The survey of the Rodger Block resulted in the loss of 23% of the net productive area available, but this block's significance and the fact that some of the others to be surveyed have been partially logged, make it unlikely that the latter will lose as much as 23% of their productive area. Taking an average figure of 17%—derived from the results of three blocks recently surveyed in East Gippsland (Ellery 12%, Coast Range 24% and Yalmy 12%) and the figure for the Rodger Block, some 360 000 m³ of sawlogs could be withdrawn from harvesting within these 13 forest blocks, which together carry about 2 100 000 m³ of sawlog material.

The Council is also proposing that a number of natural features zones be established along some of the major streams in East Gippsland (see chapter I) and that rainforests and their buffers be protected. In addition, other small areas of significance in State forest will undoubtedly be identified as more detailed information becomes available. These factors could result in some further reductions in the available mature resource, but these cannot be quantified at this stage and are likely to be small.

Fire is a constant threat in East Gippsland and it is inevitable that some timber resources will be lost in the future. Again the loss is difficult to quantify, as the frequency and intensity of fires affect the level of recovery that can be achieved through salvage logging. However, the Department of Conservation, Forests and Lands resource inventory indicates that virtually all the sawlogs in areas subject to recent fires will be salvaged, although the quality of the logs and regrowth stands will be affected.

As well as reductions in resource estimates, other changes could result in increases. Information that some sawmillers provided to the Timber Industry Inquiry indicated that between 5 and 20% more millable timber could be recovered if there was a reduction in utilization standards for sawlogs.

In his report, Professor Ferguson accepted that the mature resource could be increased by about 5% because of changing sawlog standards in the future, which would mean that smaller-dimension timber could be utilized for sawlogs.

It has also been suggested that a greater volume of 'optional sawlogs' (that is, logs that do not meet the minimum requirements for normal sawlogs) could be taken from areas currently regarded as economic to harvest on a sawlog-only basis. Some mills already take a proportion of these optional logs, but an adjustment of the current royalty rate and other administrative arrangements should allow increased utilization of this resource. Professor Ferguson concluded that:

'The present pricing system is characterised by a marked differential between the prices paid for hardwood pulpwood and those paid for hardwood sawlogs. The effect of the system is that there is little incentive for a sawmiller to consider taking smaller size or poorer quality logs.

Consideration must be given to developing a more continuous price gradient, such as is used at Eden in New South Wales, that will encourage sawmillers to utilize such logs.'

A new royalty rate structure outlined in the Draft Timber Industry Strategy is now in force in Victoria and should provide the incentive for these logs to be taken in the future.

Evidence that various individuals, including East Gippsland sawmillers, submitted to Professor Ferguson indicated that between 5 and 25% more sawlogs could be obtained if royalty rates were adjusted. The development of new administrative arrangements associated with integrated harvesting could also encourage greater utilization of lower-quality logs.

Adopting a conservative figure, another 5% of the mature sawlog resource could be available to the industry.

Together these two factors (changing sawlog standards and royalty rate adjustments) could provide an additional 400 000 m³ of sawlog timber.

All these changes in the resource base would have the net effect of reducing the total sawlog resource from 6.5 million m³ to 4.4 million m³ (see Table 6). Table 7 indicates that the proposals would have the greatest impact on the future availability of ash, shining gum, and mountain mixed species, with the greatest proportionate effect on the ash and shining gum. However, these latter species represent a relatively small, although important, percentage of the currently available timber resource. The implications of the characteristics of the timber resource available under these proposals will be explored in stage two of the economic study.

Table 6: Estimate of Available Sawlog Resources

	Volume (m ³)	Net volume (m ³)
Estimated sawlog resource located in areas currently designated as hardwood production and uncommitted land (including special uncommitted areas)	6 536 000	
Estimated resource within parks now proposed	- 2 200 000	
Estimated sawlog resource in areas proposed to be available for timber production (includes 22 000 m ³ in Goolengook "special uncommitted" which was previously unavailable)		4 336 000
Estimated resource that may be unavailable following future flora and fauna surveys	- 360 000	
Balance		3 976 000
Sawlogs now available from areas previously withdrawn (Lind National Park)	+56 000	
Possible increases in sawlog resources due to declining sawlog utilization standards and greater utilization of 'optional logs' (normal) as a result of royalty restructuring (5% of available mature resource for each) ¹	+400 000	
Estimated resource available in accordance with these proposals		4 432 000

1. In using a conservative figure of 5% the Council is aware that there is debate about the actual volume of additional sawlogs that might be achieved as a result of using more 'optional logs' and changing utilization standards.

Table 7: Impact of Park Proposals by Species Class

Status	Sawlog volume by species (000's m ³) ¹						Total (000 m ³)
	Ash species		Shining gum	Mixed species		Coastal	
	Alpine	Mountain		Mountain	Foothill		
Currently available ²	172	326	349	3 837	1 763	89	6 536
Available under these recommendations	1	13	147	2 530	1 613	89	4 393

1. Figures are rounded

2. Comprises resources located in areas currently available for timber production as well as special uncommitted areas

Estimated Impact of Recommendations on Employment

At the present time some 580 people are directly employed in the timber industry based on public land in East Gippsland processing around 320 000 m³ of sawlogs each year. A reduction in the current level of harvesting from 320 000 m³ to 138 000 m³, the level of cut required to maintain sawlog supplies until regrowth is available, would be associated with a loss of employment opportunities. An additional reduction (to about 98 000 m³ per annum) resulting from the Council's proposed recommendations would further reduce employment unless alternative job opportunities are created in the area. Stage Two of the Council's economic study will attempt to provide a more accurate assessment of changes in both direct and indirect employment levels relating to various proposals for the use of timber resources in the study area.

Several alternatives have been suggested in submissions and in discussions that could expand the employment base namely: the expansion of tourism and other sectors of the economy; the establishment of a value-added processing industry in East Gippsland; and the introduction of integrated harvesting to allow the utilization of pulpwood and provide additional sawlogs. These would assist in the establishment of a more stable, broadly-based socio-economic environment.

Views differ on the feasibility and/or suitability of the various alternatives, but little quantitative information has been provided about the contribution to employment levels that each may make or about their potential in East Gippsland.

Council has therefore asked the firm of consultants conducting Stage Two of the economic study of East Gippsland to examine the opportunities to create additional employment associated with tourism, the production of value-added goods, and integrated harvesting. The study will provide information which the Council can use in its final recommendations. However, it is likely that the future stability of the East Gippsland economy will depend on the creation of jobs in all these sectors.

The following discussion briefly describes these alternatives and their relevance to East Gippsland, but it should be recognized that a detailed analysis of the implications of each will be provided in Stage Two of the economic study.

Tourism

There is some scope for the expansion of other sectors in the regional economy such as tourism, but while employment associated with it is likely to increase, uncertainty remains about the extent of its contribution to the regional economy, particularly in the short term.

The contribution that tourism makes to employment opportunities will depend largely on the promotion of East Gippsland by both local and State governments and on the degree to which private developers are prepared to invest in tourism there. East Gippsland has many natural attributes (many of which are now proposed for inclusion in major national parks) that make it particularly attractive as a destination for a variety of recreational pursuits. These parks could provide significant employment opportunities, but their potential will need to be realized if tourism is to make a substantial contribution to employment levels and the regional economy. Stage One of the economic study estimated that tourism was the only growth sector in the regional economy (around 4 to 5% per annum), but it also concluded that this level of growth would be unlikely to continue unless adequate facilities and developments associated with national parks were provided.

Value-added Processing

If, as is predicted, the use of softwood increases substantially, the East Gippsland sawmilling industry could become increasingly dependent on supplying timber for specialist uses and value-added products to both local and overseas markets. The Council believes that sawmillers, irrespective of size, should be given every encouragement to become involved in producing value-added goods. For example, sawmillers with such processing facilities may be preferentially supplied with higher-quality logs from the study area, while those mills producing lower-value goods such as scantling could have access to sawlogs of a quality commensurate with their timber products. At present, higher-quality timber is being used to produce scantling-grade material.

Establishment of further-processing facilities in the region to make value-added products could result in additional employment opportunities. The feasibility of establishing a further-processing

industry in East Gippsland will depend on the nature of the timber resource, distance to markets, and competition from other areas with similar or better-quality timber resources. The contribution it makes to employment will depend partly on the lead time required to establish such an industry. These issues will also be considered in Stage Two of the economic study.

Integrated Harvesting

Just over 200 000 ha of the area currently recommended for timber production is regarded as uneconomic to utilize on a sawlog-only basis. Much of this forest has been selectively harvested for sawlogs in the past and so the best stems have been removed, leaving the lower-quality and defective trees standing.

These retained stems have suppressed regrowth that established itself following logging. Other parts of the forest have been repeatedly burnt in the past and these too carry damaged stands of poor quality for timber production. Thus, while many of these areas are potentially highly productive, past utilization history and wildfires have resulted in the development of forests that will yield far less than their potential.

In future, the likelihood of timber being an important regional product could well depend on achieving a higher productivity from these hardwood forests. The most effective way of achieving that productivity is to silviculturally manage the areas to promote vigorous regeneration. This may be done by removing most of the overstorey trees, with the remainder providing seed for regeneration. However, the cost to a sawmiller, or the Department if cull payments have to be made, to fall virtually all the trees on a site is extremely high, particularly when only a small proportion of the stems will provide suitable sawlog material.

Conversely, the report of the Timber Industry Inquiry indicates that reductions in utilization standards, arising as a result of diminishing supplies of mature timber, could lead to a large proportion of these lower-grade sawlogs, on areas currently regarded as uneconomic to harvest, being taken in the future. However, because selective harvesting would probably be used because of the high cost of falling all trees, such a move would further decrease the productivity of these forests.

If pulpwood was to be taken in conjunction with sawlogs in an integrated operation, the cost of providing for adequate regeneration of these forests could be financed through the payment of an appropriate royalty, and non-sawlog trees could be sold for pulpwood.

Benefits

The removal of pulpwood as part of the integrated sawlog operations therefore has important ramifications for the regeneration of extensive areas of public land that, because of past logging practices and fire history, are carrying forests of low sawlog productivity. Currently the cost of silviculturally treating these forests means that their potential to produce substantial volumes of high-quality sawlogs cannot be achieved and the options associated with the utilization of future high-quality hardwood forests cannot be realized.

The introduction of integrated harvesting in such areas would provide an efficient and cost-effective method of rehabilitating forests of low productivity in order that their potential to produce high-quality timber in the longer term can then be realized. This would lead to an increased area of productive forest and would compensate for the loss of productive forest included in conservation reserves.

Rehabilitation of these low-yielding, though potentially productive, forests would result in increased volumes of sawlogs after 2030 than would otherwise have been available.

Integrated harvesting would also result in a more efficient use of wood residues, which are presently left on the ground and burnt, and could also provide additional income and employment in the region. The State could earn about \$1 million in revenue from royalties for every 100 000 m³ of pulpwood harvested.

If integrated harvesting was permitted on all areas of productive forest including those currently regarded as being uneconomic for sawlog-only harvesting in East Gippsland, the volume of sawlogs based on current land use could theoretically be increased to about 9 900 000 m³. At the present rate of cutting, this sawlog resource would be exhausted by 2015, still leaving a 15-year gap before the regrowth becomes available. However, as indicated below, the Council believes that not all areas would be suitable for integrated harvesting.

Thus, even with the introduction of integrated operations, present cutting rates could not be maintained. However the sustainable rate of harvesting over the next 45 years could rise from 138 000 m³ to 220 000 m³ per annum (assuming no park proposals) if the total integrated sawlog resource in East Gippsland was available. In addition, integrated operations could theoretically yield approximately 34 million m³ of pulpwood and some 750 000 m³ per annum could be harvested over the next 45 years. However, after about 2030 the level of sawlog production would begin to increase slowly as regrowth forests become available for harvesting but the pulpwood resource would rapidly decline. A sustainable yield of about 400 000 m³ per year of sawlogs could be reached by the year 2080. The sustainable level of pulpwood production would be of a similar magnitude but would be influenced by silvicultural practises such as thinning and the success in protecting regrowth forests from damage by fire.

Various estimates have been made of the number of jobs that could be created and this will be investigated in Stage Two of the economic study.

Environmental Concerns

The Council is aware that proposals to introduce integrated harvesting in East Gippsland raise some significant and valid environmental concerns. Trees now left because they are uneconomic or unsuitable for harvesting for sawlogs would be felled for pulpwood and, as larger quantities of timber would be harvested, greater nutrient loss, increased soil disturbance on harvested areas, increased compaction of log landings, and increased road use would occur.

There is some evidence that the area of a coupe disturbed is about 20% higher in an integrated operation than in a sawlog-only operation. This would lead to an increase in various forms of soil deterioration, particularly on granitic parent materials. Roding is recognized as a major contributor to increased sediment loads in streams, and can have a detrimental effect on water quality, flow regime, and stream biota.

In addition, it is claimed that integrated harvesting contributes to changes in species composition of vegetation communities, alteration of gene pools of both flora and fauna, and changes in population sizes due to variations in the quality and quantity of available habitat.

It is important to recognize that these concerns apply to both sawlog-only operations and integrated harvesting, with the main difference being the increased intensity of utilization of a given area during integrated operations.

Professor Ferguson's Timber Industry Inquiry Report indicated that environmental impact would increase if integrated harvesting was introduced, but it concluded that under current harvesting techniques the increase would be minimal. The Council notes this view, but believes that the monitoring and research program associated with pulpwood trials in East Gippsland should be supplemented by further detailed research to establish the extent of these additional effects and also ways in which they can be further reduced or eliminated. Such research is necessarily long-term, but its commencement should be given a high priority.

Expansion of Pulpwood Operations

A major concern expressed about the introduction of pulpwood harvesting is that the impact of logging operations would be expanded to a much larger area of the region—currently regarded as uneconomic to utilize for timber production. However, Professor Ferguson predicted that in the longer term, as the mature sawlog resource diminishes and sawlog utilization standards fall, these areas will be harvested for timber anyway. The Council points out that these areas, if they are to be harvested for timber, must be adequately regenerated to ensure that in the future they will provide the maximum volume of high-quality sawlogs consistent with the maintenance of environmental values.

Another fear expressed about the establishment of a pulpwood industry is that it will exert pressure to utilize increasing quantities of pulpwood—with the result that further areas of State forest would be devoted to supplying pulpwood, or that sawlogs would be utilized for pulp—and that environmental considerations would be compromised.

Council considers that if any areas were to be available for the extraction of pulpwood through integrated harvesting, they should be legislatively defined, as should the maximum volume of

pulpwood that could be harvested, consistent with providing a sustainable supply of sawlogs from the region. Within the legislatively defined areas, integrated harvesting would proceed in accordance with a set of principles to control the operations and these would form the basis of the proposed 'Code of Forest Practice' recommended by Professor Ferguson, and subsequently discussed in the Draft Timber Industry Strategy.

The Council believes that any proposals for the sale of pulpwood would require thorough investigation to establish their economic viability, particularly in the longer term when the resource available for pulping will be substantially reduced. Any proposal for an export industry would be subject to the provisions of the federal *Environment Protection (Impact of Proposals) Act* 1974–1975.

Further, the Council is aware that a greater degree of supervision of forest operations would be necessary with the introduction of integrated harvesting to ensure: that the timber resource is utilized efficiently; that waste material is kept to a minimum; and that environmental standards are adhered to.

Pulp Mill Proposals

In the past, there have been proposals to establish a pulp mill in the study area, but no such development is currently proposed. Should the need arise in the future, the establishment of a pulp mill or any infrastructure associated with a pulpwood industry would have to be considered in the light of the environmental effects and the need to make a commitment to the long-term supply of pulpwood.

Unsuitable Area

In the Council's view, not all areas in East Gippsland could be considered for integrated operations, and identification of suitable areas would need to take account of environmental factors such as those outlined below.

- inherent productivity; as measured by soil fertility, climatic factors, and susceptibility to biological pests such as cinnamon fungus, which all determine the long-term potential of an area to produce high-quality sawlogs in the future
- erosion potential: the nature of the parent material; slope; soil depth, structure, texture, and permeability; and susceptibility to slope failure
- impact of roading, measured by the degree of existing access to stands, length of roading needed to provide new access, and number and location of stream crossings (consideration should also be given to minimizing the impacts of road construction and maintenance on conservation values)
- sensitivity of particular catchments, since small catchments or parts of larger ones supplying water for domestic purposes may be particularly sensitive to soil disturbance

These would need to be incorporated in the 'Code of Forest Practice' and detailed land capability studies by the land manager would be required to identify suitable areas, which would then be described in management plans. It is suggested that areas only be approved after the community input and review by the Land Conservation Council.

The Council considers that any future plans for the utilization of pulpwood should therefore be confined to the areas identified as being suitable and be tied strictly to the procurement of sawlogs, unless it is obtained as a result of silvicultural thinning programs aimed at providing a greater volume of sawlogs at the final stage of felling. Rotation lengths in East Gippsland forests should continue to be geared to the production of high-quality sawlogs with the production of pulpwood as a by-product, if its utilization is permitted.

Wood Flows and Commercial Use

It should be noted that while over the next 30 years or so substantial volumes of pulpwood could be available, the volume will decline sharply as regrowth resources are harvested. These likely wood flows need to be clearly understood and must be taken into account when consideration is given to the way a pulpwood resource might be utilized.

Hardwood Silviculture

Eucalypts in East Gippsland occupy a wide range of environmental niches; they vary from wet mountain forests dominated by single species to coastal woodlands comprising mixtures of several species. Forests used for timber production receive treatments that encompass harvesting, regeneration, and subsequent tending, usually referred to in aggregate as hardwood silviculture.

At present, the principal silvicultural technique employed to achieve adequate regeneration of eucalypts on public land in the study area is clear-felling, followed by burning and either artificial or induced natural seeding. It is used in a range of forest types, mainly because of its operational effectiveness.

However, considerable debate has recently surrounded the suitability of clear-felling as a silvicultural technique. At present, although it has been suggested that adequate regeneration can be obtained in various forest types using other methods, only limited information about these is available.

While the Council recognizes that clear-felling in East Gippsland is operationally efficient for the harvesting and regeneration of some forest types, it acknowledges that there is scope for a range of alternatives to be evaluated in terms of their operational suitability and effects on resource availability. The Council is aware that operational and ecological constraints limit the silvicultural techniques that may be employed in a particular forest type in order to obtain sufficient regeneration following harvesting. It also recognizes that the retention of significant overwood inhibits both establishment of regeneration and its subsequent growth. These factors should be taken into account when alternative techniques are being evaluated.

State Forest

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

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

Council has now decided to apply the concept of State forest to the public land in the East Gippsland area that was previously recommended for hardwood production and uncommitted land.

Existing Land Use Categories

Hardwood areas and uncommitted land are administered under provisions of the *Forests Act 1958* and the *Land Act 1958*. In the past this has led to differences in fees for essentially the same type of licence and in some instances has resulted in the necessity to obtain two or three licences to occupy a single parcel of land.

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

Although many of the outstanding natural features and values occurring on public land are included in parks and reserves, the hardwood production areas and uncommitted land contain

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

Management of State Forest

The Council believes that, in the future, a unified and co-ordinated approach should be taken to the management of State forest and that it should be set aside and managed as a unit rather than administered as two classes of land of different tenure—namely reserved forest and uncommitted land. However, it will be necessary to recognize the different management requirements of areas with particular attributes within State forest.

Council has defined the areas of State forest in this study area and, in line with the concept of unified and co-ordinated management, believes it would be appropriate for all State forest to be administered under one *Act* and be securely reserved under a single land tenure incorporating provisions similar to those currently applying to reserved forest. The consolidation of responsibility for issuing all licensed occupations in State forest is an essential aspect of adopting a unified and integrated management approach. This would overcome the problems associated with the dual system of licensing that currently exists.

Following the delineation by Council of State forest and the designation of areas that have significance and need special protection or are required for particular purposes such as softwood production, management plans should be prepared. These plans should reflect the diverse values and differing capabilities of the land to support various community uses and needs. They would be developed in the light of a State-wide policy for the management of forested public land not included in parks or other specified reserves, and would take account of water production, recreation, timber production, floral, faunal, and fire-protection values.

Each management plan should also provide for the protection of significant areas designated by the Council as well as incorporating the Council's established principles relating to timber harvesting and the provision of other resources required by the community. It should also take account of existing statutory requirements such as land use determinations and specialist advice available from other agencies such as the Fisheries and Wildlife Service. Provision should be made for a regular review of management plans for State forest. Where appropriate, the Council would continue to recommend areas of special significance to be permanently reserved for a particular purpose.

Many areas of State forest have no particularly significant features; nevertheless, although they do not currently support resources to meet known or predicted demands they may well be required to meet as yet unspecified demands in the future. Much of this type of land has a relatively high erosion hazard and management will need to be directed towards the maintenance of the forest cover so that land options for the future are preserved.

In summary then, the Council believes a broad management strategy for State forests must be developed to provide for the carefully planned utilization of natural resources as well as the protection of other important values. Management carried out in accordance with formal plans and the secure reservation of these lands under one form of land tenure should also provide a sound basis for the commercial utilization of resources and the long-term maintenance and, where possible, enhancement of the diverse natural values and attributes of the forest estate.

Goals in the Management of State Forest

State forest throughout the East Gippsland area has a multiplicity of uses. It is important for the protection of water supply catchments, conservation of plants and animals, and timber production and provides many opportunities for outdoor recreation. The forests also provide honey, forage, road-making materials, and other forest produce to satisfy various community needs.

Management of State forest should take into account these various values and should ensure that they can be maintained and that the range of forest products can continue to be supplied in the

future. The Council believes that the broad management goals applying to State forest in this area should be incorporated into a regional 'Code of Forest Practice' and include the need to:

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

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

Soil Conservation and Catchment Protection

- Adequate buffer strips of at least 40 metres width along major streams and 20 metres along ephemeral watercourses and hydrologically sensitive areas should not be logged, and where possible other operations that cause soil disturbance should not take place in the buffer strips. They should, as far as practicable, be protected from fire. The width of the buffer should be determined after consideration of the sensitivity of the particular stream environment.
- All roads and snig tracks, log landings, and dumps should be designed and constructed to minimize erosion. These should be adequately drained, breached, and barred when not required, and ripped to encourage rapid regeneration.
- Intensive utilization operations should be excluded from areas of high erosion hazard and from slopes generally greater than 30°.
- Except in some mixed-species forests at lower elevations, logging operations should be restricted during winter and during and following periods of heavy rainfall; consideration should be given to closing unsurfaced logging roads during these periods. Seasonal closure of other roads will continue to be necessary because of excessive damage, erosion, or cost of maintenance, or because of extreme fire hazard.
- Plans for forest roading and harvesting operations should be discussed between the State Forests and Lands Service, the Land Protection Service, and the Division of Regional Management prior to implementation, so that the aims outlined in the above principles can be achieved.
- Forestry operations in water supply catchments should be undertaken in accordance with a 'Code of Forest Practice' and/or prescriptions and with the agreement of the Department of Water Resources or the delegated water authority.

Recreation and Aesthetics

- Special consideration should be given to road location, size and shape of logging coupes, and other activities carried out in the forest in areas of high landscape value.
- Specific prescriptions should be applied to logging and other activities involving disturbance to the natural environment near major roads and walking tracks.
- All refuse associated with logging, mining, or quarrying operations (such as tyres, drums, and disused huts) should be removed at the end of the operations.
- Activities involving disturbance to the natural environment should not occur in buffer zones around popular recreation sites and beauty spots.

Nature Conservation

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

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

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

Historic Sites

- Sites of historical significance or interest (such as relics of mining, logging, or early settlement) should be identified, and the sites and their environs should be protected by special prescriptions.
- When such sites are identified, the desirability or otherwise of providing or upgrading vehicular access to each one should be considered when logging roads are being designed.

Recommendations

- E1** That the area of 530 200 ha, shown on Map A, be used in accordance with the principles outlined above to:
- (a) supply water and protect catchments and streams
 - (b) produce hardwood timber
 - (c) conserve native plants and animals, and provide opportunities for the development of wildlife conservation techniques
 - (d) provide opportunities for open-space recreation (including hunting) and education
 - (e) produce honey, forage, gravel, sand, and other forest produce
- and that it becomes State forest.

Note:

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

- E2** That the Department of Conservation, Forests and Lands establish detailed harvesting guidelines for State forest incorporating the Principles of Forest Management outlined above and establish further research programs to monitor the environmental effects of the harvesting operations

and that modifications to operational procedures and the guidelines be progressively made as new information becomes available.

- E3** That rotation lengths in East Gippsland State forest continue to be geared to the production of high-quality sawlogs.
- E4** That a range of silvicultural strategies for achieving adequate regeneration within State forest be investigated and evaluated by the Department of Conservation, Forests and Lands.
- E5** That the values in the areas of State forest described in the following sections (recreation and landscape; nature conservation; historic sites; and natural features along streams) be protected by the implementation of management prescriptions.

Recreation and Landscape

The areas described below are considered by the Council to contain scenic qualities or recreational values that warrant particular protection. In accordance with Recommendation E5 above, special consideration should be given to road location, and size and shape of logging coupes, to protect sensitive landscape and recreational values. Other activities carried out in these areas will need to be carefully planned. Buffer zones around popular recreation sites and beauty spots should be excluded from activities involving disturbance to the natural environment.

Outstanding views of the surrounding landscape can be obtained from a number of vantage points in the East Gippsland area, including: the summits of Mount Ellery, Mount Raymond, Mount Kaye, Genoa Peak, and Mealing Hill; along parts of the Bowen Range, Coast Range, and the southern escarpment of the Errinundra Plateau; and along major forest roads including the Yalmy road and Greens road. Management of the surrounding State forest should aim at minimizing the visual impact of any activities as seen from these vantage points. The Department of Conservation, Forests and Lands has established a Visual Management System, which can assist in reducing the visual impact of timber-harvesting and other operations, and the Council believes that it should be applied to State forest in East Gippsland.

Nature Conservation

A large number of plant species found in the East Gippsland area are considered by Dr J. H. Willis [*'A List of Rare, Very Localized and Endangered Indigenous Plants of Victoria'*] and A. C. Beauglehole [*'The Distribution and Conservation of Vascular Plants in the East Gippsland Area, Victoria'*] to be either rare or otherwise significant. Many of these are located outside existing or proposed conservation reserves but within State forest. These, and important animal species such as those listed below, should be protected in accordance with the principles previously outlined.

- The endangered long-footed potoroo has been found in a range of forests types. The largest known population is in the Bellbird Creek catchment, and timber-harvesting operations should be suspended there pending determination of the habitat requirements of this species.
- Maternity sites of the eastern horse-shoe bat and common bent-wing bat should be protected where these have been identified.

Historic Sites

Sites of historical interest such as the following should be protected in accordance with the principles previously outlined:

- Stringer Knob fire-tower, Parish of Bete Bolong North
- Gippsland Boulder reef gold mine, Bola Creek, Parish of Bungywarr
- Water-supply reservoir (now disused) on Young's Creek and the nearby Young's Creek sawmill site, Parish of Curlip

Natural Features Along Streams

The Council believes that all streams in State forest should be protected in accordance with the principles previously outlined. In Chapter I, Rivers and Streams, however, the Council has referred to a number of streams that have significant scenic and nature conservation values—in addition to those stream sections bordered by rainforest. These are the Snowy, Brodribb, Goolengook, Errinundra, Combienbar, Bemm, Cann, Thurra, Wingan, and Genoa Rivers.

F. Flora Reserves and Flora and Fauna Reserves

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

Council has recognized the special conservation significance of these areas and has accordingly recommended their reservation as flora reserves or flora and fauna reserves. They are set aside primarily to conserve species that may be rare or endangered, and also other plant associations and animals that have particular conservation significance. Timber production from these areas would not be permitted.

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

Existing Flora, and Flora and Fauna Reserves

Recommendations

F1–F7, F10 That the areas indicated on Map A and listed below continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

Flora Reserves

- F1 Mottle Range** (120 ha)
- F2 Wood Point** (40 ha)
- F3 Brodribb** (2800 ha)
- F4 Cabbage Tree Creek** (1745 ha)
- F5 Kanuka Creek** (180 ha)
- F6 Jones Creek** (75 ha)
- F7 Maramingo Creek** (320 ha)

Flora and Fauna Reserve

- F10 Brodribb River** (36 ha)

Note:

Some of the areas previously recommended as flora reserves are now proposed for inclusion in parks: Delegate River and Goonmirk Rocks (Errinundra Plateau National Park—A7), and Mount Kaye and Beehive Creek (Coopracambra–Kaye National Park—A8)

New Flora Reserve

St George Plain is the largest and probably the most representative example of the grass-tree plain variant of coastal heathland in East Gippsland. The rare leek orchid—*Prasophyllum viride*—also occurs here.

Recommendation

- F8 St George Plain** (350 ha)

That the area indicated on Map A be used to:

- (a) conserve plant species and associations that
- (b) honey production be permitted

- (c) passive recreation such as nature study and picnicking be permitted
- (d) grazing and logging not be permitted

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

Rainforests

The rainforests in East Gippsland are remnants of a much wider, ancient distribution of plant communities, now generally restricted to sheltered gully sites where fire frequency has been low and moist conditions have been maintained.

A committee established by the Minister for Conservation Forests and Lands recently developed the following working definition of 'rainforest' applicable on a State-wide basis:

'Rainforest is defined ecologically as closed (> 70% projective foliage cover) broad-leaved forest vegetation with a continuous rainforest tree canopy of variable height, and with a characteristic diversity of species and life forms. Rainforest includes closed transitional and seral communities, with emergent eucalypts, that are of similar botanical composition to mature rainforests in which eucalypts are absent.

Rainforest canopy species are defined as shade-tolerant tree species which are able to establish below an undisturbed canopy, or in small canopy gaps resulting from locally recurring minor disturbances, such as isolated windthrow or lightning strike, which are part of the rainforest ecosystem. Such species are not dependent on fire for their regeneration.'

The committee also produced the following guidelines for the botanical identification of rainforest in accordance with the definition. The botanical characteristics of rainforest are:

- 1 A closed (> 70% projective foliage cover) canopy of broad-leaved shade-tolerant trees with or without sclerophyll emergents
- 2 Canopy species consisting of one or more of the following: for warm temperate rainforest—lilly-pilly, kanooka, sweet pittosporum, mutton-wood and rarely yellow-wood, leatherwood and blue oliveberry; and for cool temperate rainforest—myrtle beech, sassafras, black oliveberry and, in some circumstances, blackwood
Canopy species for cool temperate rainforest on the Errinundra Plateau also include mountain plum pine, mountain pepper, Gippsland waratah, forest lomatia, privet mock-olive, banyalla, forest geebung and sub-alpine beard-heath.
- 3 Regeneration characteristically of rainforest rather than sclerophyll species
- 4 Understorey species consisting generally of broad-leaved shrubs, herbs and ferns. Ferns, including tree-ferns, are usually abundant.
- 5 Epiphytic species, especially ferns (mainly filmy-ferns—*Hymenophyllaceae*), mosses, liverworts and lichens are usually abundant.
- 6 Characteristic vascular plant species (as listed in Appendix 1 of the committee's report).
- 7 Commonly with a projective crown cover of emergent eucalypts less than about 40%

The Council will shortly commence an investigation of rainforests in Victoria with a view to recommending appropriate uses and reservation. Specific proposals for the protection of rainforest will be put forward when that study is completed.

The following proposal covers the plant communities within the study area identified as cool temperate and warm temperate rainforest on the Floristic Vegetation Map of East Gippsland produced by the National Herbarium of Victoria, Department of Conservation, Forests and Lands (1984). A copy of this map was included with the recent resources report for East Gippsland.

Most of the closed forest communities of wet montane gullies and sheltered slopes of the Errinundra Plateau would be included in the proposed national park. (See Recommendation A7.) Warm temperate rainforests, however, are located in gully heads and along many of the lowland streams of

the study area, although their occurrence is discontinuous. Some of them are included in a reference area, existing and proposed extensions to national parks, and flora reserves. Provision for the protection of other areas is set out in the following recommendation.

As fire, mechanical disturbance, and wind damage are the most common contemporary factors leading to rainforest degradation, each area to be protected will comprise, in addition to the stand of rainforest, a buffer of a width that will depend on various factors (see Note 4 below).

Recommendation

F9 That the areas indicated on Map A be used to:

(a) conserve rainforest

that

(b) each area be protected by a buffer, the width of which should be delineated taking into account the factors outlined below

(c) if logging operations are conducted in the adjoining forests, no tree is to be fallen into the rainforest or buffer

(d) passive recreation such as nature study be permitted

(e) logging and grazing not be permitted

and that they be permanently protected according to a procedure to be established by the Council in a future investigation of rainforest.

Notes:

1. All plans for new roads or road improvement works for those sections falling within rainforest should be submitted to the authority managing the rainforest for approval.

2. At the scale of mapping used, the boundaries to the areas cannot be accurately defined nor are all the areas of rainforest indicated, and some are indicated by a coloured dot only.

3. Further areas of rainforest may be identified in the future and this recommendation should also apply to these areas.

4. Delineation of the buffer around each of these rainforest areas should take into account the following factors:

- land use activities in adjacent areas—for example, clear-felling, selection logging, fuel-reduction or regeneration fires, aerial spraying of herbicides or fertilizers
- microclimatic effects of the exposure of rainforest margins resulting from clearing of adjacent areas
- the risk of trees falling into rainforest areas during timber-harvesting operations
- the likelihood of sediment eroded from roads being deposited in rainforest areas
- the risk of *Phytophthora cinnamomi* infestation
- invasion of weed species

G. Bushland Reserves

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

Council recommends that several of these small remnants of the native vegetation should become bushland reserves. Their major uses are to maintain the distinctive Australian character of the countryside and to provide diversity in the landscape. When accessible, they may also provide some opportunities for passive recreation in relatively natural surroundings, but it is not intended that they be developed for recreation. For some the only access is via an unused road covered by an unused-road licence, which should continue subject to the approval of the Department of Conservation, Forests and Lands. These bushland reserves are generally too small to have major significance for fauna conservation, although some may be important for migratory birds.

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

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

Existing Bushland Reserves

Recommendations

G1-G3 That the bushland reserves shown on Map A continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

Additional Bushland Reserve

Recommendation

G4 That the area indicated on Map A and described below be used to:

- (a) maintain the local character and quality of the landscape that
- (b) passive recreation such as picnicking and walking be permitted
- (c) honey production be permitted
- (d) grazing be permitted subject to the approval of the land manager

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

G4 Mortimers Paddock; 15 ha in the Township of Mallacoota.

Note:

A number of interesting plant species are located in this reserve, and these should be protected.

H. The Coast

The coastline of the State is a resource of great value for recreation, for nature conservation, and for the preservation of features of historical interest.

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

The various management authorities of coastal land are required to ensure that their management is consistent with the State-wide coastal policies and strategies prepared by the Ministry for Planning and Environment.

All works proposed by committees of management or government agencies on coastal lands require prior consents or approval of management plans by either the Minister for Planning and Environment, for areas within Port Phillip Bay, or by the Coastal Management and Coordination Committee, for the coastline outside Port Phillip Bay.

Coastal Reserve

A coastal reserve is an area of public land on the coast set aside primarily for public recreation, education, and inspiration in coastal environments. Coastal areas specifically reserved for some other purposes (parks, wildlife reserves, sites for navigational aids, or major ports) would not be included in the coastal reserve.

Aboriginal middens occur frequently along the coastline.

Existing Coastal Reserves

Recommendations

H1-H2 That the areas indicated on Map A and listed below continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

H1 Marlo (725 ha)

H2 Mallacoota (365 ha)

Notes:

1. The area previously recommended as the Lake Tyers coastal reserve is now proposed for inclusion in the Lake Tyers State Park (A12).
2. Portion of the previous Corringale Creek-Sydenham Inlet coastal reserve is proposed for inclusion in the Sydenham Inlet-Cape Conran coastal park (A13). The reduced area now designated as the Marlo coastal reserve includes the estuary of the Snowy River upstream to Lake Corringale.
3. Uncontrolled access between the road and beach in the vicinity of Bastion Point—Mallacoota—is damaging vegetation and aggravating erosion along the coastal cliff, and some paths terminate on the cliff edge. This situation should be investigated with a view to providing controlled access to the foreshore.

Scenic Coasts

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

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

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

Recommendation

H3-H5 That those portions of the East Gippsland coastline indicated on Map A continue to be designated scenic coast and that planning and management be carried out in these areas as approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

I. Rivers and Streams

Public Land Water Frontages

Along a number of rivers and streams in the study area, a strip of public land has been reserved between the water and adjacent public land or alienated land. No public land strip adjoins land alienated before 1881, and some properties in the study area have titles that extend to the banks or even incorporate the bed and banks of a stream. Thus some streams and rivers have either no public land water frontage or a discontinuous one. The recommendations that follow do not apply to privately owned frontage.

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

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

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

These licensed river frontages are, however, public land; they are often valuable for low-intensity forms of recreation such as walking, fishing and observing nature, and provide access to extensive lengths of streambank. Following the *Land (Amendment) Act* 1983, members of the public may 'enter and remain for recreational purposes' onto licensed frontages. Licensees are required to erect and maintain a suitable means of pedestrian access to the water frontage.

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

Public land frontages that are unlicensed have no restriction on public access, although use of vehicles is controlled by the *Land Conservation (Vehicle Control) Act* 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 surroundings areas. In too many cases, however, the provisions of the relevant *Acts* have not been enforced effectively, and such public land water frontages have been progressively cleared of native vegetation.

Public Land Water Frontage Reserves

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

Recommendation

- II That public land water frontage reserves continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

River Management

River Management Boards (previously known as river improvement trusts) are constituted under the *River Improvement Act* 1958, as amended by the *Water Acts (Amendment) Act* 1985. With the rationalization of boundaries proposed following the Public Bodies Review Committee's eighth report, the Snowy River Management Board's District would include the whole of that catchment within Victoria, while the East Gippsland Rivers Management Board's District would include the catchments of the rivers east of the Snowy.

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

The works carried out include:

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

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

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

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

Removal of snags from the centres of wide streams damages fish habitat, but the tethering of these snags against the banks may provide alternative fish habitat, as well as protecting the banks from erosion. Realigning and regrading of eroding beds and banks often removes holes and back waters of value as fish habitat and for angling and swimming in a particular location. On the other hand, these operations, in preventing erosion, reduce transportation of silt.

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

River management boards are required to act within their District as defined under the *River Improvement Act 1958*. Where such Districts encompass only the stream environs, or part only of the stream, they may be able to treat only the symptoms of problems, as the causes may lie in the catchments beyond the area of their responsibility. There is thus little opportunity in the design and implementation of works for consideration of their likely impact on areas outside the Boards' Districts.

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

The second, known as the 'State of the Rivers Task Force', was established (August, 1984) to examine and recommend the future legal, institutional, technical, and financial arrangements for an effective, regionally based river management system. It is expected that this task force will complete its work and report in 1986.

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

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

East Gippsland Catchments

Many catchments throughout Victoria have been substantially modified from their original condition, primarily to meet the needs of a growing population. By contrast, however, most catchments in East Gippsland are still predominantly forested, and although many have been subjected to various forms of human disturbance, some remain in an essentially natural condition. They therefore constitute an invaluable resource as reference catchments against which to judge the state of many other streams in south-eastern Australia.

A number of these little-modified catchments are proposed for inclusion in parks and other reserves, but many others, although they have been subjected to minor disturbance, continue to be of great importance for conservation and the supply of high-quality water.

These functions should continue to be recognized by the managing authorities and incorporated in management plans for the region. The Council considers that the managing authority should consult the Department of Water Resources when proposals that may affect the quality or quantity of water in streams are being considered.

Recommendations

- I2** That the assessment of the need for, and the planning and implementation of, any works involving changes to the beds and banks of streams incorporate the principles approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.
- I3** That the managing authority consult the Department of Water Resources when proposals that may affect the quality or quantity of water in streams are being considered.

Notes:

1. The Rural Water Commission has formed a Standing Consultative Committee to advise the Commission on river works. This committee comprises representatives from the following: Rural Water Commission; Department of Water Resources; Conservation Council of Victoria; Land Protection Service; Fisheries and Wildlife Service; State Forests and Lands Service; and Association of Victorian River Improvement Trusts. The Committee is convened by a representative of the Rural Water Commission.

2. The Standing Consultative Committee has prepared three documents that expand on the principles set out above. The first of these documents, 'Guidelines for River Management, 1979', requires plans for all works other than minor ones, together with an assessment of their environmental consequences, to be submitted to all relevant agencies for consideration prior to the commencement of works. The aim of the guidelines is to ensure an optimum balance between structural improvements on the one hand and the maintenance or enhancement of the stream's landscape values and its value as habitat for wildlife and for recreation on the other.

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

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

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

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

Natural Features Zones

In general, the foothills of the study area lack the outstanding natural values that characterize the adjacent mountainous and coastal regions. The relatively uniform and unexceptional nature of much of this public land highlights the significance of the area's major river valleys, which contain many of its most important natural, scenic, and recreational features.

Major rivers and streams invariably constitute one of the most significant scenic elements in the landscape as well as providing a natural focus for recreation. For example, one of the area's scenic drives follows the Bemm River and its tributary the Errinundra River north of Club Terrace.

The variety and nature of the flora and fauna in the riparian zone often give it a greater environmental significance than the surrounding relatively dry, uniform forests. The riverine environment exhibits the typical focusing effect of a vegetation strip that is well suited to wildlife passing through a drier environment of less-favoured plant species. Also, the zone where the drier foothill and wetter riverine forests overlap contains the greatest variety of plant species and, therefore, the greatest diversity of faunal habitat types. Often the river valleys contain some of the more significant and attractive vegetation—such as the warm temperate rainforests in the lowland regions of the study area.

While it is not practical to create parks along each of the study area's major streams, Council considers the importance of these streamside areas warrants the adoption of management practices that have as their major aim the protection of these areas' special natural features, particularly as some of these streams provide an important link between the proposed parks in the mountainous regions of the study area and the Croajingolong National Park along the coast.

Council also believes there is further scope for the sympathetic development of recreational and interpretative facilities that would increase people's enjoyment and understanding of the area's river systems.

Recommendation

I4 That, for those sections of streams indicated on Map A by cross-hatching, primary aims of management be:

- (a) the protection of natural and scenic values
- (b) the provision of recreational facilities and interpretative aids where this does not conflict with (a) above

that

- (c) timber-harvesting and gravel extraction not be permitted
- (d) any new roading be constructed only where essential for the purposes of management, protection, and transport of timber and be designed to minimize effects on scenic and nature conservation values.

and that management be the responsibility of the authority managing the adjacent public land.

Notes:

1. Portions of some streams designated as Natural Features Zones also include areas for the protection of rainforest. Management in these portions should give priority to the protection of the rainforest, but should recognize that they also contain a valuable recreational and scenic resource.

2. The hatching on the map should not be taken as delineating exact boundaries to the natural features zones. It is intended that these zones should include both the visual corridor (comprising those parts of the valley that can be seen from the stream) and the environmental sequence from relatively dry foothill country, through the species-rich intermediate zone, to the riverine section. In many areas the visual corridor will include this sequence and as such will determine the width of the zone. In other places, however, not all of the environmental sequence will be visible from the stream and in these cases the natural features zone will extend beyond the visual corridor. As described below, the extent of these zones will vary according to local circumstances. The zones should be delineated on management plans where appropriate.

In the lower reaches of some of the rivers where generally low stream-bed gradients have permitted the development of broad floodplains, the zones would be relatively wide. This is the case with most of the natural features zones recommended in the East Gippsland area. In the mountainous stream segments towards the upper reaches of their catchments, the width of the natural features zone would be limited by rapid transition through the environmental sequence, a less obvious visual corridor, and reduced visibility owing to dense vegetation. The narrower zones should extend to include areas of importance for the conservation of significant plant species and the animal habitats that are associated with the streams, strong elements of the visual corridor (such as the short, steep ends of spurs and rocky outcrops), alluvial plains, areas of historical importance, and sites either used for or with potential for recreational activities.

The topography through which a stream passes generally gives a good guide to the width of the natural features zone. Streams have been divided into five segments, based, in general, on the gradient of the stream-bed: the steep headwaters, the mountainous, the steeply dissected hills, the foothills, and the lower valley segments. The zone indicated on the Thurra River, for instance, incorporates all five segments.

The lowest stream segment found in the East Gippsland area winds across a broad alluvial plain and has a bed gradient less than 0.5%. Density of vegetation commonly restricts the view from the stream to less than the full width of the alluvial plain. The natural features zone here would have a width of around 100 metres from each side of the stream.

Where necessary the width of the zone would increase up to 300 metres to incorporate the visual corridor and the environmental sequence. The visual corridor comprises the adjacent slopes (where these are short) up to the ridge line, and the steeper footslopes up to the point of inflexion (for the longer side slopes). The zone is also wider where site-specific natural or historical features such as those mentioned above occur, and adjacent to road crossings where camping is a present or potential use. The Bemm River, for example, up to Club Terrace, is within this river segment.

The foothills stream segment has a continuous alluvial plain with broad sections, particularly at major tributaries. The gentle stream gradient ranges from 0.5% to 1%. On the outside of river bends, as for the lower segment the visual corridor is strongly expressed. The natural features zone includes these elements of the visual corridor and a strip on the alluvial plain, incorporating the environmental sequence. It has a minimum width of 80 metres and increases up to about 200 metres where necessary to include site-specific natural and historical features or recreation sites. The Errinundra River above Boulder Flat would represent this segment.

In the steeply dissected hill segment, the valleys may comprise a number of small alluvial flats or a continuous plain, flanked by long side slopes or by the short steep footslopes of spurs. The gradient of the stream-bed is expected to be between 1% and 2%. To incorporate the environmental sequence extending from the riparian vegetation onto the floodplain, the zone has a minimum width of 60 m from each bank. This width would increase up to some 100 m to include obvious expressions of the visual corridor such as steep footslopes which would also incorporate the environmental sequence to the drier slopes, or rock faces adjacent to the stream-banks. The zone would also include the other features mentioned above, such as recreation areas. An example of this segment would be the Errinundra River—below the junction of the East and West Branches.

In the mountainous segment, the alluvial flats are small and discrete, occurring in the wider bends or at confluences with major tributaries. The short steep footslopes of spurs flank much of this tract and where side slopes fall directly to the stream there is generally a narrow colluvial strip. The gradient of the stream-bed is expected to be between 2% and 5%. The natural features zone in this segment generally extends 40 m from each bank to incorporate the environmental sequence on the floodplains or colluvial slopes. It would broaden where necessary to include steep rocky slopes adjacent to the stream and other special features as mentioned above. On the east branch of the Thurra River, this segment is found upstream of the Thurra River road crossing.

Streams in the headwaters segment usually have no alluvial flats and the beds are rocky and steep—the gradient being generally greater than 5%. Stream-flow may be intermittent. Side slopes fall directly to the stream and vegetation may completely enclose the watercourse. The narrow environmental sequence here is incorporated in a zone about 20 m from each side of the watercourse. In the headwaters of the east branch of the Thurra River, for example, this zone width extends down a tributary from the plateau near Mount Kaye. The tributary also passes through a section with a shallower gradient before again following a steep course through a gorge; reflecting redissection—following the Thurra Fault uplift—near the junction of Ordovician sediments and granite.

It is not intended that the width of natural features zones delineated under these guidelines would be less than the buffer strips along streams required by forest management prescriptions or delineated by land use determinations for a water supply catchment.

Streamside Reserves

In many instances, small blocks of public land adjoin streams but are not included in the public land water frontage.

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

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

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

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

Recommendations

I5–I9 That the areas shown on Map A and described below to be used to:

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

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

- I5** 6.8 ha, being allotment 1, Parish of Jingallala; situated on the Deddick River at Deddick.
- I6** 2.8 ha north of allotment 14B, Parish of Bonang; on the Deddick River at Cabanandra.
- I7** 5.5 ha south of allotment 18, Section A, Parish of Bidwell; near the Gap road crossing of the Delegate River.
- I8** 10 ha north of allotment 2A, Parish of Tonghi; between the Princes Highway and Tonghi Creek.
- I9** 8.5 ha, being the Camping Reserve north-east of allotment 9, Section C, Parish of Maramingo on the Wallagaraugh River near Johnson Bridge.

J. Roadside Conservation

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

Nature Conservation

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

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

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

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

Recreation and Landscape

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

Management

Responsibility for the management of roadside vegetation is vested in various authorities, depending on the status of the road. The most important roads of the State (State highways, tourist and forest roads, and freeways) declared under the *Transport Act 1983* are completely under the control of the Road Construction Authority (9 000 km). Main roads (14 500 km) are also declared, but are controlled jointly by the Road Construction Authority and local municipal councils. Vegetation on unclassified roads (about 98 000 km of mostly minor roads) is under the care and management of municipal councils, although it is owned by the Crown. The Department of Conservation, Forests and Lands has the control of vegetation on unclassified roads that pass through or adjoin State forests. (Note: these figures are for all Victoria.)

Back Roads

With increasing population and use of cars, a tendency has developed for through-roads in the State to be continually upgraded. 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 realigning is being considered.

Generally the vegetation on road reserves, although it affects landscape values, is somewhat less important for conservation in East Gippsland than in areas that have been predominantly cleared for agriculture. The roadside environment of main roads does, however, depend largely on management of the road reserve. It is important that the managers concerned (usually the Road Construction Authority and the Orbost Shire Council), and the manager of adjacent public land, consider these landscape values, and that vegetation on the road reserve be disturbed to the minimum extent consistent with the safe and efficient design and use of the road.

Recommendation

J1 That road reserves throughout the study area continue to be used for communication, transport, access, surveys and utilities.

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

- When improvements to a road are being carried out, trees and shrubs on the road reserve should be disturbed to the minimum extent consistent with the safe and efficient design and use of the road.
- Major works to realign minor roads carrying trees and shrubs should not be undertaken unless clearly warranted by the nature and volume of the traffic carried, and the managers of adjacent public land should be consulted regarding such works.
- Where re-alignment of a road results in a section of the old road being cut off, wherever possible that section should not be sold but used as a recreation and rest area or incorporated into an adjacent appropriate reserve.
- Where a pipeline or overhead wires are to follow a road carrying trees and shrubs in a rural district, every effort should be made to locate the easements on private land alongside the road if this is already cleared, rather than clearing roadside vegetation to accommodate them.
- While recognizing the need for clearing or pruning vegetation close to power lines to reduce the associated fire risk, the State Electricity Commission should consult the Department of Conservation, Forests and Lands regarding the manner in which the risk posed by vegetation can be reduced, while at the same time reducing the environmental impact to a minimum.
- Road-making materials should not be taken from road reserves unless no suitable alternative sources are available. Any such removal should be done so as to ensure a minimum disturbance of the native vegetation, and the disturbed area should be rehabilitated, where possible, with vegetation native to the area.
- Burning off, slashing, or clearing of roadside vegetation should be kept to a minimum consistent with providing adequate fire protection.
- Weeds and vermin on roads should be controlled by means that do not conflict with the uses given above.
- The various road management authorities, when planning to upgrade roads that have heavy recreational use, should give due consideration to recreational requirements, and give priority along such roads (when funds are available) to the development of roadside recreational facilities.
- On soils of moderate to high erosion hazard, road management authorities should ensure that pre-planning, design, construction, and funding of roads cater adequately for erosion prevention and control. Advice should be sought from the Land Protection Service.

Unused Roads

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

Recommendation

- J2** That the following guidelines, approved by the government following publication of the final recommendations for the East Gippsland area in March 1977, continue to apply to unused roads:
- The clearing of native trees and shrubs other than noxious weeds should continue to be clearly prohibited in the conditions of unused-road licences.
 - A condition permitting public use of licensed unused roads should be written into unused-road licences where necessary to provide practical access to public land.
 - Unused roads or easements should not be alienated if there is any likelihood that they will have value for future traffic, nature conservation, recreation, or other public use.

Roadside Picnic Areas

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

Recommendation

- J3** That the recommendation that land management authorities establish roadside picnic areas in suitable locations, approved by the government following publication of the final recommendations for the East Gippsland area in March 1977, continue to apply.

It is proposed to incorporate the previously recommended McKenzie River Highway Park within the Bemm River Scenic Reserve (see Recommendation M3). Recent road re-alignment and bridge construction have reduced the value of this area as a highway park, but Council believes that, in conjunction with the adjoining Bemm River Scenic Reserve, it could be developed as a major scenic stop located midway between Orbost and Cann River.

Roadside Sites of Habitat and/or Botanical Significance

Recommendations

- J4-J6** That, when widening or re-alignment of roads is proposed, sites of geological, habitat, or botanical significance that may be affected be investigated and every effort made to retain and preserve them.

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

- J4** Beside the Bete Bolong-Buchan road at Bete Bolong, an occurrence of *Acacia maidenii*
J5 Occurrence of *Gahnia subaequiglumis* on roadsides in the Bonang district
J6 Areas of rainforest as indicated in Recommendation F9

Sites of Historical Importance

Recommendation

- J7** That, where items of historical significance are identified on road easements, every effort be made to preserve their historical character consistent with management practices and safety requirements.

Note:

Examples of the typical architecture and materials used in road-bridge construction during the first half of this century can be found along a number of roads in the East Gippsland area. The large timber-trestle road bridge across Sardine Creek (1940) is a typical example. MacKillop Bridge (1935), over the Snowy River at Deddick, is located near a ford used in the early pastoral settlement of Gippsland. The substantial bridge now at this site indicates the measures required to maintain communications in a remote part of the State.

K. Education Areas

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

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

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

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

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

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

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

Existing Education Areas

Recommendations

K1, K2, K4 That the areas indicated on Map A and listed below continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

- K1 Bidwell (350 ha)**
- K2 Sardine Creek (250 ha)**
- K4 Serpentine Creek (530 ha)**

Relocation of Education Area

- K3** The existing education area representing coastal heaths and woodlands is at Bemm River. Much of it, however, is low-lying and in many places access is difficult, particularly in wet conditions. The new site for the education area—near Cape Conran—is more accessible, and it too contains representations of coastal heaths and woodlands. Geomorphological features at the Yeerung River and Cape Conran are nearby, and provide an additional educational resource.

Recommendation

- K3 Cape Conran (780 ha)**

That the coastal heath and woodland education area be relocated to the site indicated on Map A and used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

L. Recreation

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

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

- Formal recreational activities include all organized sports and other group activities, while activities such as picnicking, fishing and hiking are grouped as informal.
- Passive recreation covers situations where the individual obtains his recreation through enjoying the sights, sounds and atmosphere of the surrounding environment while expending little physical effort. Examples are picnicking, nature observation, and strolling.
- Active recreation covers situations where the individual must expend considerable physical effort to obtain some mastery of physical forces in order to satisfy his particular recreational needs. Examples are playing organized sport, bushwalking, and water-skiing.
- Open-space recreation includes all recreational activities that require spacious outdoor surroundings, whether the activities be active or passive, formal or informal.
- Intensive recreation involves large numbers of people per unit area. For example, parts of Mallacoota, the Cape Conran foreshore, and the Marlo foreshore would be considered to be intensively used.

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

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

Council therefore believes that the land manager should aim at controlling the levels and patterns of recreational use according to the capability of the area to sustain such use without irreversible damage or significant conflict with the primary purposes of the area, while at the same time avoiding unnecessary restrictions on usage. Special care will be required in the location and management of areas zoned for intensive recreation, to prevent environmental damage. Thus, more stringent restrictions can be expected in areas where the vegetation and soils are sensitive to damage (such as those occurring on granite soils), and where the natural environment or special natural features are being preserved.

Four particular forms of recreation that may require consideration by the land manager, whether now or in the future, are further discussed below.

Motorized Recreation

Much outdoor recreation depends on motor vehicles. These may be conventional cars, four-wheel-drive vehicles, or motor cycles.

They may be used for touring and sightseeing, as a means of obtaining access to a particular area where other forms of recreation will be undertaken, or—when they are driven in competitive rallies or in adverse but challenging road conditions—as a source of recreation in themselves.

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

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

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

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

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

The demand exists for the provision of some areas of public land to accommodate and relocate the off-road activities of motor vehicles, particularly trail-bikes. Such areas could, for example, take the form of defined trails in some State forests or could include disused quarries or parts of some recreation reserves close to urban centres. Where possible, the alternative use of suitable private land should be considered. Areas chosen, whether public land or freehold, would have to be in situations where damage to soil and vegetation would be minimal, and where noise would not cause undue disturbance to other people using, or living in, nearby areas. Council points out that there is a serious and growing problem of damage to soils and vegetation by spectators attracted to these activities.

Hunting

The wetlands of Lakes Corringale and Curlip and Ewing Marsh are visited by hunters during the proclaimed Victorian duck-hunting season. Swan Lake, Mud Lake, and other wetlands associated with Sydenham Inlet are also considered to have good potential for duck-hunting, while local hunters use the river flats at Genoa and Wangarabell and parts of the Betka River catchment.

Potential in the study area for deer-hunting is likely to increase. Hog deer occur in small groups along the coast from Lake Tyers to near Mallacoota. At present most hunters concentrate on the major hog deer populations further west around the Gippsland Lakes, but this may change if the East Gippsland populations increase in size. Hog deer can only be hunted during one month of the year (April) and then only by stalking using bows or rifles of a specific calibre. The use of hounds is prohibited.

Sambar deer are known to occur in the Orbost district and colonization is continuing. It is likely that breeding populations will increase. East Gippsland therefore offers potential for hunting but at this stage is not heavily exploited. The two methods of hunting Sambar deer are stalking using either

guns or bows, and trailing using hounds. Under the *Wildlife (Game) Regulations 1976*, No. 2, hunting of Sambar is permitted year-round.

For the large areas of public land now proposed to become State forest, no restrictions on deer-hunting are proposed by the Council, other than existing legal requirements. Hunting is not permitted, however, in parks and other reserves where flora and fauna are specifically protected.

Youth Camps

Currently the study area contains few permanent youth camp sites. Demand is likely to increase, however, for sites for use by scouts, schools, church groups, and the like. Users have generally preferred sites situated in pleasant bushland, close to a permanent stream, readily accessible by road, and in areas where the safety of the camp and its occupants can be ensured during periods of high fire danger. Such sites are relatively scarce and their use for youth camps is in direct competition with their use for less-restrictive public activities, such as picnicking and general camping.

Camps on public land vary greatly—in the purpose for which they are constructed, in their standards of maintenance, and in the degree to which they are used. Some are designed to provide full accommodation, with campers living in huts that have electricity and hot water provided; others have only minimal facilities, with campers living in tents. Some have considerable amounts of money and volunteers' time and effort put into their construction and maintenance; others have been built and are maintained at very low standards. Some are used for much of the year, with the owner organization allowing use by other groups. Others are used only occasionally and exclusively by one group.

User groups have an increasing tendency to acquire freehold land for their actual camp site, while using adjacent public land for their outdoor activities, and Council believes that this trend should be encouraged. While recognizing that a variety of types of camps may be needed, Council believes that any camps permitted on public land should be properly located, constructed, and maintained. For efficient management of camps, it may be necessary for a single organization to be given limited tenure over a minimum area at any individual camp site, under the control of the land manager. Council believes, however, that these camps should still be used as fully as possible consistent with avoiding damage to the environment.

The greater use of existing camps on public land is desirable in order to avoid proliferation of camp sites, and there is a need for co-ordination of information regarding the availability of those camps that could be used by groups who do not have tenure of their own.

Fossicking or Prospecting

Fossicking, or prospecting (prospecting as defined by the *Mines Act 1958* means operations conducted in the course of exploring for gold or minerals), is a popular recreational activity in parts of the study area. Most people are seeking gold, but there is also an interest in gemstones.

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

Guidelines and recommendations relating to fossicking and prospecting are given in Chapter P, Mineral and Stone Production.

Recommendations

- L1 That public land continue to be available for a wide range of recreational uses where these can be accommodated without detriment to other values, and that land managing authorities aim at controlling the types, levels, and patterns of recreational use according to the capability of particular areas to sustain such use without irreversible change or significant conflict with the primary purpose of the area.
- L2 That vehicular use of roads within the meaning of the *Land Conservation (Vehicle Control) Regulations 1973* 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.
- L3-L7 That the areas indicated on Map A and listed below continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

- L3** Land available for off-road vehicular use—**Parish of Newmerella** (45 ha)
- L4** **Existing recreation reserves**
- L5** **Tonghi** (100 ha)
- L6** **Cann River** (1 ha)
- L7** **Cann River** (8 ha)

Note:

Portion of the Marlo racecourse and recreation reserve may be required for garbage disposal purposes (see Recommendation Q11).

Coast Road Proposal

Representations for a coastal road in the East Gippsland area originated in the 1930s. In 1943 the Department of Crown Lands and Survey made provision for a coastal road by reserving from occupation a 30-chain strip of Crown land along the coast between Marlo and Mallacoota.

In 1964 the Council of the Shire of Orbost raised the question with the Tourist Development Authority. An inspection was made of the area by Councillors, Members of Parliament, and representatives of the then Country Roads Board with a view to constructing some 120 km of road between Mallacoota and Marlo.

During 1965, when the Roads (Special Project) Fund was introduced, it was announced that monies would be allocated in the 1966/67 financial year for the construction of the stage between Mallacoota and Wingan Inlet. This was later amended to 1970/71 and programmed for construction over the following three years; but funds were not allocated.

Construction of the Marlo–Cape Conran Road was commenced in 1966 and completed in 1969. This links with the Princes Highway—at Orbost via Marlo, and near Cabbage Tree Creek from the Cape Conran end.

In 1973, the Shire Council proposed two 'loop roads' as an alternative to the original plan. One loop from Mallacoota, along the coast to Wingan Inlet, then upstream to the Princes Highway; the other linking Cape Conran to Bemm River. The latter loop proposal has again been put forward by the Shire during consideration of the Corringle–Bemm River Strategy Plan. The Shire Council suggested that an all-weather road be constructed, preferably along the alignment of the State Electricity Commission power line, with access to points along the coast.

The Shire Council expects that a coast road would encourage more tourist spending in the Shire as well as the development of 'village' subdivisions in the Marlo area, which would create more rateable property. It believes that the route would provide a scenic alternative to the Princes Highway away from heavy transports and through traffic, and that it would cost less than a collection of several branch roads from the highway to particular points on the coast.

Mallacoota, Wingan Inlet, Cape Everard, Tamboon Inlet, Bemm River, and Cape Conran, however, are now all accessible by branch roads from the Princes Highway. Other sites are accessible by forest tracks—including the Yeerung River (from Cape Conran) and Pearl Point (from Bemm River). Shipwreck Creek is also on a track that branches from a road looping back from the Mallacoota aerodrome to the Princes Highway.

The Old Coast Road links Bemm River with Cann River and is of two-wheel-drive standard. This route extends as a track of less than 20 km length to near Cape Conran—parallel to the coast, but some 5 km inland. If upgraded, it could provide a link between Cann River, Bemm River, Cape Conran, and Marlo and provide a pleasant diversion from the Princes Highway.

Ideally, a coast road should provide the motorist with views of the coastline and to achieve this it should be routed as closely as possible to the shoreline. For much of the coast between Cape Conran and Bemm River such a road would need to be sited on unstable coastal dunes to provide the views of the foreshore and ocean. To align the road behind the dunes would essentially eliminate all but an occasional glimpse of the coastal scenery.

The plains between Cape Conran and Bemm River are important geomorphologically; the heathlands provide habitat for a number of faunal species, including the smoky mouse and groundparrot; and the catchment to Dock Inlet is the only essentially undisturbed example of a stream system

feeding a land-locked lake on the coastal plains. Engineering works associated with the construction of a road as well as the road itself would be major intrusion in this relatively flat landscape and may hinder the movement of fauna. Such a road would also provide access to the sensitive coastal environment and this would need to be strictly controlled.

Recommendation

- L8** That an investigation be conducted to determine whether a road, either adjacent to or within the proposed coastal park, could be constructed to link Bemm River and Cape Conran without degrading or compromising the significant conservation values occurring in the park.

Tourism and Mallacoota Inlet

The township of Mallacoota has a population of 600 people. The Mallacoota Chamber of Commerce estimates the value of investment in the town at \$10m, and annual income at some \$15m. The town depends largely on the 9000 tourists who enjoy recreational facilities in Mallacoota in holiday periods. The tourist potential of the area in turn depends chiefly on the natural environment—namely, the inlet, the sea, beaches, and surrounding forest. Thus, the way in which public land is reserved and used has a significant influence on the socio-economic structure of Mallacoota. Most of the public land around the inlet is included in the Croajingolong National Park and, while this is a major recreational focus, there are certain limitations on the types of activities and developments that can take place within it.

The Council is therefore proposing that an area of land to the west of the township be available as required for future development associated with the township.

The Mallacoota area also has a well-known and well-deserved reputation as a major recreational fishing centre. However, concern has been expressed recently about the decline (perceived or actual) in the numbers of fish caught in the inlet. There are a number of views about the nature and extent of the decline, and various proposals have been suggested to alleviate the problem. These include the introduction of a closed season during the bream spawning period, a reduction in the number of professional fishermen working in the inlet (or a complete prohibition of professional fishing), the introduction of a bag limit, and the closure of the inlet for at least 1 year to allow fish stocks to recover.

Responding to the concern, the Department of Conservation, Forests and Lands—Fisheries and Wildlife Service—carried out a survey of recreational fishing in Mallacoota Inlet. While the survey acknowledged a decline in the angling catch during the period of the survey (1982–84), the Department concluded that:

‘It is not possible to determine whether the lower productivity of bream in Mallacoota Inlet is a natural phenomenon or has resulted from alterations in the aquatic environment brought about by human activities.’

Recreational fishing has long been one of the attractions of Mallacoota and it is believed that any decline in this valuable asset could have an adverse effect on the tourism industry, which would in turn have an impact on the economy of the township and subsequently the region.

As the bed and banks of Mallacoota Inlet, as well as most of the catchments to it, are public land, land use in these areas should be compatible with the maintenance of water quality and aquatic values in the Inlet. For this reason, vegetation disturbance should be kept to a minimum. If integrated harvesting were to be permitted in East Gippsland, these catchments should be excluded.

The Council also notes that considerable pulpwood-harvesting is taking place on freehold land within the Mallacoota Inlet catchments and this could be affecting water quality and sediment loads.

It is also important that further research be undertaken to identify ways in which further habitat degradation can be prevented and measures taken to improve environmental characteristics to improve fishing resources.

Proposals to establish a permanent entrance from the sea to Mallacoota Inlet have also been put forward, primarily to provide safer boating conditions on the sand bar at the entrance. A number of options, including the construction of training walls, have been considered, but the cost of con-

struction and maintenance would seem to be high, although no comprehensive investigation of the benefits and costs has been undertaken. Such proposals also raise environmental concerns in that a larger permanent entrance could affect tidal patterns and salinity regimes, and may lead to problems in maintaining shoreline stability.

The Council recognizes that while the establishment of a permanent entrance would provide safer access to and from the inlet for both commercial and recreational fishing, the environmental concerns and the high cost of constructing and maintaining the entrance must be weighed up against the benefits. It may be more appropriate and less costly from financial and environmental points of view to upgrade the existing boating facilities at Bastion Point as an alternative.

M. Scenic Reserves

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

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

Existing Scenic Reserves

Recommendations

M1-M3 That the areas listed below and shown on Map A continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977

and

that timber harvesting not be permitted.

Note:

The scenic reserve at Mount Ellery is now recommended as part of the Errinundra National Park; Martins Creek and Arte River now comprise two of the areas to be set aside for the protection of rainforest (see Recommendation F9).

M1 The Gap (430 ha)

M2 Mount Delegate (300 ha)

M3 Bemm River (635 ha)

Note:

This area has been enlarged slightly to incorporate the previously recommended McKenzie River Highway Park. The Council considers that off-road parking, picnic sites, and walking tracks should be established in the scenic reserve to provide public access to the fine example of lowland rainforest adjacent to the Princes Highway.

Euchre Creek Scenic Reserve

The council reinforces its previous recommendation that this area should be managed to conserve the scenic drive and lowland rainforest close to the Princes Highway and that the remaining area currently within the Lind National Park become State forest.

Recommendation

M4 Euchre Creek (380ha)

That the area indicated on Map A be used to preserve scenic features

that timber harvesting not be permitted

and

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

N. Historic Reserves

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

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

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

Council conducted a study to identify the major historical themes representative of past uses of the sites and areas of greatest historical significance. Where sites were identified that are not currently protected by reservation or mentioned in the following recommendations, their location has been drawn to the attention of the land managers, for appropriate protection by prescriptions and in management plans.

Council believes that several of the mining sites should be reserved to protect the artefacts within them.

Management of Historic Reserves

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

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

Recommendations

N1-N3 That the areas listed below be used to:

- (a) protect specific sites that carry or contain the relics of buildings, equipment, construction works, and artefacts associated with the history of the locality
- (b) provide opportunities for recreation and education associated with the history of the locality (development of recreational facilities would be minimal)

that

- (c) use of these areas be such as to ensure the safety of visitors (in matters of public safety nothing in these recommendations affects the powers of Inspectors under the *Mines Act 1958* and the *Extractive Industries Act 1966*; it is understood that in exercising these powers the land manager would be consulted)
- (d) exploration for and the extraction of 'gold', and 'minerals'—including fossicking and prospecting under a Miner's Right—be permitted in accordance with Recommendations P1-P4 and the principles and guidelines contained in the chapter on Mineral and Stone Production

- (e) removal and treatment of material from mine dumps only be permitted in areas agreed to by the Department of Industry, Technology and Resources and the land manager (safety, the availability of material from alternative sources, and the historical importance of the dump should be taken into account)
- (f) honey production be permitted
- (g) grazing be permitted at the discretion of the land manager

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

N1 Bonanza Gully (5 ha)

This reef gold-mine operated at about the turn of the century and the site now contains three mullock heaps, a timbered tunnel, an infilled shaft, and remnants of a chimney and small furnace.

N2 Victoria Star Mine (35 ha)

Dating from 1911, this mine worked the highest-yielding reef in East Gippsland. Relics at the site include mullock heaps, crusher, remains of a boiler, and puddling tanks.

N3 Golden Gully Machinery Site (60 ha)

This site contains a re-built water-wheel powered by water from a race fed by a nearby dam, which drives a six-head battery. Although a reconstruction, the site has educational value, representing the traditional methods of mining in the region.

O. Agriculture

In the previous (1977) recommendations, Council made available large parcels of land close to established agricultural centres so that people farming remote and isolated blocks could have the opportunity to exchange the land and move to areas that could be serviced more efficiently by the Shire. No application for land exchange for this purpose has been received since the recommendations were published. However, very little scope remains for the expansion of agriculture in the area and Council believes that some public land should be available in the future for possible development should the need arise. It may be more appropriate in some instances to make some of these areas available under lease, rather than by alienation.

Other areas for agricultural development proposed by the Council and shown on the map are those for which applications have been made, which would rationalize public land-freehold boundaries, or would constitute small additions to existing properties.

The Tostaree Pilot Farm (Recommendation N4 in 1977) was set aside for research into the agricultural development of the relatively infertile coastal plains. This research is now finished and the area previously set aside is now included in State forest.

Recommendations

- O1** That the areas of land indicated on Map A (approximately 1260 ha) and described in Schedule 1 below be used for agriculture in accordance with the provisions of section 5(3) of the *Land Conservation Act* 1970 and the *Land Act* 1958.

Note:

A number of the areas shown as O1 on the map and included in the schedule were approved for alienation by the government following publication of the final recommendations for the East Gippsland area in 1977. Council is aware that applications have subsequently been received for some of the areas, but that these have not been processed. Council believes that the applications for alienation should now proceed.

Schedule 1: Land for Agriculture

(Recommendation O1)

Parish	Location	Area (ha)
Bidwell	allotment 5c of section A	60
*Bonang	allotment 8, section A	40
Maramingo	north of allotments 5, 6, 7, and 8 of section A	240
*Maramingo	allotment 13B, section A	61
Orbost	north of allotment 47B of section A	94
Newmerella	adjacent to allotment 8E of section C	3.6
Newmerella	north of allotment 15 of section B	16
Noorinbee	allotments 24 and 24L	47
Noorinbee	east of allotments 31 and 31A	90
*Noorinbee	allotment 34A, section A	80
Nowa Nowa South	part of allotment 7B	4.1
Tildesley East	allotment 2c of section A	44
Tildesley West	allotment 33	80
Tildesley West	allotment 41H	15
Tonghi	east of allotment 29c	100
*Waygara	west of allotment 14, section A	270

*Denotes new areas proposed for agriculture—these are shown on Maps 1 to 4

- O2** That the areas shown on Map A and described in Schedule 2 below be available for agricultural use, either under lease or by alienation.

Schedule 2: Land for Future Development

(Recommendation O2)

Parish	Location	Area (ha)
Bete Bolong South Tildesley East Waygara	south-east of Parish north-east of Parish north-west of Parish	} approx 4600
Noorinbee Tonghi	west of allotments 10, 30A, 18, 38, 38C, and 39B, section A west of Old Coast Road	} Approx 2500

Grazing on public land

The value of agricultural production from licensed grazing areas in East Gippsland is insignificant on both district and State-wide bases. To the individual graziers, however, particularly those in isolated areas, forest grazing may be an integral part of the total enterprise and may be a significant factor in the farm's viability.

At present, 49 current grazing licences throughout the study area cover almost 100 000 ha. Most of these are located between Club Terrace and Genoa and along the Cann Valley, and allow either forest grazing or grazing on public land water frontages.

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

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

Recommendation

- O3** That grazing be permitted on public land as approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

Apiculture

The Council considers that apiary sites should continue to be permitted on public land other than in reference areas or designated wilderness areas.

P. Mineral and Stone Production

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

Exploration for Gold and Minerals

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

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

Gold

Increases in the price of gold have resulted in a significant upturn in exploration activity in recent years. The interest of individual prospectors has also increased, as seen by the increased number of claims being registered. A number of attempts are being made to re-open previously uneconomic mines on existing leases.

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

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

Fossicking and Prospecting

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

Prospecting is a systematic activity, defined in the *Mines Act* 1958 as 'all operations conducted for the purpose of discovering or establishing the presence or extent of mineralization of a mineral'. It is necessary to hold either an exploration or search licence, or a Miner's Right, before prospecting may be undertaken. Most individual miners and prospectors operate under a Miner's Right, which does not permit prospecting on private land.

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

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

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

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

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

Stone

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

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

There is need for:

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

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

Principles and Guidelines

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

The Council believes that the following principles should apply.

1. Some areas of land surface—because of their inherent instability or special public significance (for example, community assets or areas with important scenic, archaeological, historical, recreation, or nature conservation values)—warrant permanent or temporary exclu-

sion from exploration and/or extraction of 'gold' and 'minerals'. The Department of Industry, Technology and Resources and the land manager should together determine these areas. Consultations take place as required between officers of the Department of Industry, Technology and Resources and the Department of Conservation, Forests and Lands to determine those areas that should be excluded and the conditions under which particular areas of public land are used for exploration for, and production of, minerals and stone.

2. When tenure is issued for operations under the *Mines Act* 1958 on public land, the land manager should be consulted regarding the conditions to apply and the supervision should be in accordance with the agreed conditions as specified in the claim, licence, or lease and with the requirements of the *Act*.
3. Consultation should continue between the land manager, the Department of Industry, Technology and Resources, the Land Protection Service, and the other relevant authorities with respect to the procedures to be adopted for the exploration and extraction of 'stone' on public land. Any operations on public land should continue to be subject to the approval of the land manager.

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

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

addition to the arrangements outlined above for 'stone', the land manager should also consult with the relevant water supply and conservation authorities, and should consider the scenic and recreation values of the area.

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

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

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

Recommendations

- P1** That fossicking and prospecting under Miner's Right, involving minimal disturbance of soil or vegetation, be permitted on public land other than:
 - (i) those areas specifically excluded in the recommendations (see the chapters on reference areas and water production)
 - (ii) those areas that the land manager and the Department of Industry, Technology and Resources together may determine (see the guidelines in the section on fossicking and prospecting)
 - (iii) the areas referred to in P2 below.
- P2** That those areas of public land currently exempted or excepted from occupation for mining purposes under a Miner's right or from being leased under a mining lease, remain so excepted or exempted unless the land manager and the Department of Industry, Technology and Resources together determine that such exemption or exception should no longer apply.
- P3** That public land in the study area (other than reference areas and other areas as determined by the government) continue to be available for exploration under licence and for extraction of 'gold', 'minerals', 'petroleum' and groundwater, subject to Recommendation P2 and the principles and guidelines set out above.

Note:

This recommendation does not refer to exploration under a Miner's Right, which is covered by Recommendation P1.

- P4** That public land in the study area (other than reference areas and other areas as determined by the government) continue to be available for exploration for 'stone' subject to the principles and guidelines set out above.

Note:

Existing 'stone' reserves are described in Schedule 3 in Chapter S—Other Reserves and Public Land.

Q. Utilities and Survey

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

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

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

Existing Utilities

Recommendations

Q1-Q9 That the areas indicated on Map A and listed below continue to be used for those purposes approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

Q3 Sewage treatment works—**Newmerella and Marlo.**

Q4 **Marlo aerodrome.**

Note:

Portion of this reserve contains vegetated sand dunes and swales, which are not required for aerodrome purposes; these areas should be added to the adjoining coastal park or coastal reserve where appropriate (see Recommendations A13 and H1 respectively).

Q5 **Maramingo rubbish tip**

Q1, Q2, Q6-Q9 Other sites and easements for utility, survey, or navigation purposes.

Note:

A number of sites and structures, such as cemeteries and road bridges, are of local historical interest and this should be taken into account when maintenance and other works are undertaken.

Garbage Disposal—Marlo

At present, rubbish from the township and region of Marlo is deposited in a short, steep gully, on the Coastal Reserve, which flows directly into the estuary of the Snowy River. The potential environmental hazards of poisonous leachates entering the estuary from this tip, the conflict now with people using the adjacent beach and water, and the location of the tip beside the main tourist road to Cape Conran necessitate the early closure of the tip and rehabilitation of this site.

Investigations of alternative methods of waste disposal should include those involving collection services or a transfer station—particularly as Orbost region is now serviced by a recycling centre—as well as sanitary landfill methods on private or public land.

Should public land be required for a sanitary landfill rubbish tip, the Council has identified a site within the northern section of the adjacent recreation reserve (L4) that could be used for this purpose subject to the conditions applicable to this form of waste disposal.

Recommendations

Q10 That the existing rubbish tip at Marlo be closed by September 1987 and the area be rehabilitated.

- Q11** That, should public land be required for a sanitary land-fill rubbish tip near Marlo, approximately 1 ha near the eastern margin of the Racecourse and Recreation Reserve, Parish of Orbost East, be temporarily reserved for this purpose, subject to the approval of the appropriate authorities.

Railway Land

The Bairnsdale–Orbost railway was brought into operation in 1916. Timber-trestle bridges carry the line across Ironstone Creek and Hospital Creek within (and over Stony Creek just to the west of) the study area. These bridges are now of considerable historical interest because of the method of construction and the materials used. The Stony Creek bridge, said to be the largest timber-trestle bridge in the Southern Hemisphere, is considered to be of State-wide significance. The rail viaduct across the Snowy River floodplain, also of timber-trestle construction, is the longest in the State.

Recommendation

- Q12** That, subject to safety requirements, the historic timber-trestle railway bridges and viaduct be protected and examined for possible inclusion on the government register of historic buildings.

R. Township Land

Public land in townships is currently used for a wide range of purposes. The Council has not proposed any change of use for such public land where the present use is for schools, public halls, sports grounds, and the like. In some cases, however, Council has made specific recommendations for township land to be set aside as bushland reserves and recreation reserves; these recommendations are included in the appropriate sections. Other areas of public land in townships should remain as unreserved Crown land—to be used, if required, for township purposes in the future.

Recommendation

- R1** That public land in townships, other than those areas that have been specifically reserved, should remain as unreserved Crown land to meet future requirements.

Note:

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

Land for Future Development

Council believes that there is potential for further development of camping and other accommodation and recreation facilities in the region to enable more people to enjoy the diverse attractions that East Gippsland has to offer. In this regard, the Council supports the development of additional facilities at Cape Conran, provided they do not impair the significant environmental values of the area (see Recommendation A13).

Similarly, the Council has identified areas of land for possible future development adjacent to the townships of Mallacoota and Bemm River and an area adjacent to Tamboon Inlet. Council supports the concept of leasing public land for major private developments in certain areas, both as an incentive for investment and as a mechanism for ensuring that any such development is compatible with sensible planning and the maintenance of environmental values.

Recommendations

- R2 Gipsy Point (60 ha)**

That the area at Gipsy Point, indicated on Map A, continue to be available for township purposes as approved by the government following publication of the final recommendations for the East Gippsland area in March 1977.

Note:

The area previously recommended as township land at Point Hicks is now proposed for inclusion in the Croajingolong National Park (see Recommendation A5). However, consideration should be given to the provision of low-cost accommodation in this area and such provision should be incorporated in the management plan for the park.

- R3–R5** That the areas indicated on Map A and listed below be available for development associated with tourism and other township requirements according to the provisions of the *Land Act* 1958, provided the developments are environmentally sensitive and other planning requirements can be fulfilled

and that

until required for any of these purposes they be managed as State forest.

- R3 Bemm River (93 ha)**

- R4 Tamboon Inlet (210 ha)**

- R5 Mallacoota (2000 ha)**

Note:

In the event of development taking place within the area indicated at Mallacoota, a buffer may need to be defined between the development and the Croajingolong National Park—to be used for a variety of purposes including fire-protection.

S. Other Reserves and Public Land

Some small areas of public land in the study area that are used for various purposes, such as water production, grazing, camping, public utilities, and so on, have not been specifically mentioned in these recommendations. Others (both reserved and unreserved) receive little active use at present, even though they may once have been reserved for some specific purpose.

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

Recommendations

- S1** That, for small areas of public land not specifically mentioned in these recommendations, existing legal use and tenure continue
and that
where the land is not reserved for a specific purpose at present, such areas be used in a way that will not preclude their reservation in the future for as-yet-unknown public purposes.
- S2** That, for the 'stone' reserves described in Schedule 3 below, existing legal uses and tenure continue.

Schedule 3: Existing Stone Reserves

Parish	Location	Area (ha)
Tonghi	south of allotments 34 and 35—no section	3.6
Newmerella	allotment 23G of C	39.3
Bemm	south of allotment 3—section A	3.0
Orbost East	within allotment 19L—section B	1.1
Orbost East	within allotment 19G—section B	3.5
Waygara	within allotment 18—section A	1.0
Bete Bolong South	south of allotment 18D—no section	1.1
Tildesley East	within allotment 20—section A	0.8

Final Recommendations for Parks in the Previous East Gippsland Investigation

Park Recommendations

A1 Croajingolong National Park

That the area of 82,000 ha shown on Map 1 be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (b) conserve and protect natural ecosystems
- and that
- (c) as the park includes Tamboon Inlet and extends to low-water mark in Mallacoota Inlet, any commercial fishing (including oyster-farming) in Tamboon Inlet and between low-water mark and high-water mark in Mallacoota Inlet be subject to any special conditions agreed upon by the National Parks Service in consultation with the Division of Fisheries and Wildlife
 - (d) sites of archaeological or historical significance be protected
 - (e) car access be permitted to a number of points on the coast, including the Point Hicks area and Wingan Inlet
 - (f) policy with regard to motor boats on Tamboon Inlet be determined by the National Parks Service (after consultation with the Shire of Orbost), which should be the responsible authority under the *Motor Boating Act* 1961
 - (g) the National Parks Service should consult with the Fisheries and Wildlife Division concerning wildlife management
 - (h) honey production be permitted subject to specified conditions
 - (i) grazing be phased out

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

A2 Tingaringy National Park

That the land (17 000 ha) shown on Map 1 be used to:

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

and that

low-intensity grazing of cattle be permitted in limited areas—subject to adequate protection of the park, the Kosciuszko National Park in New South Wales, and the proposed Gattamurh Creek reference area

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

A3 Snowy River National Park

That the area of 25 000 ha shown on Map 1 be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (b) conserve and protect natural ecosystems
- and that
- (c) the managing authority consult with the Fisheries and Wildlife Division concerning wildlife management within the park
 - (d) grazing be phased out

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

A4 Coopracambra State Park

That the land (13 000 ha) shown on Map 1 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) protect features of particular geological significance

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

A5 Lake Tyers State Park

That the land (2 000 ha) shown on Map 1 be used to:

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (b) conserve and protect natural ecosystems
- and that
- (c) features of historical interest be preserved
 - (d) honey production be permitted subject to specified conditions

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

A6 Mount Raymond Regional Park

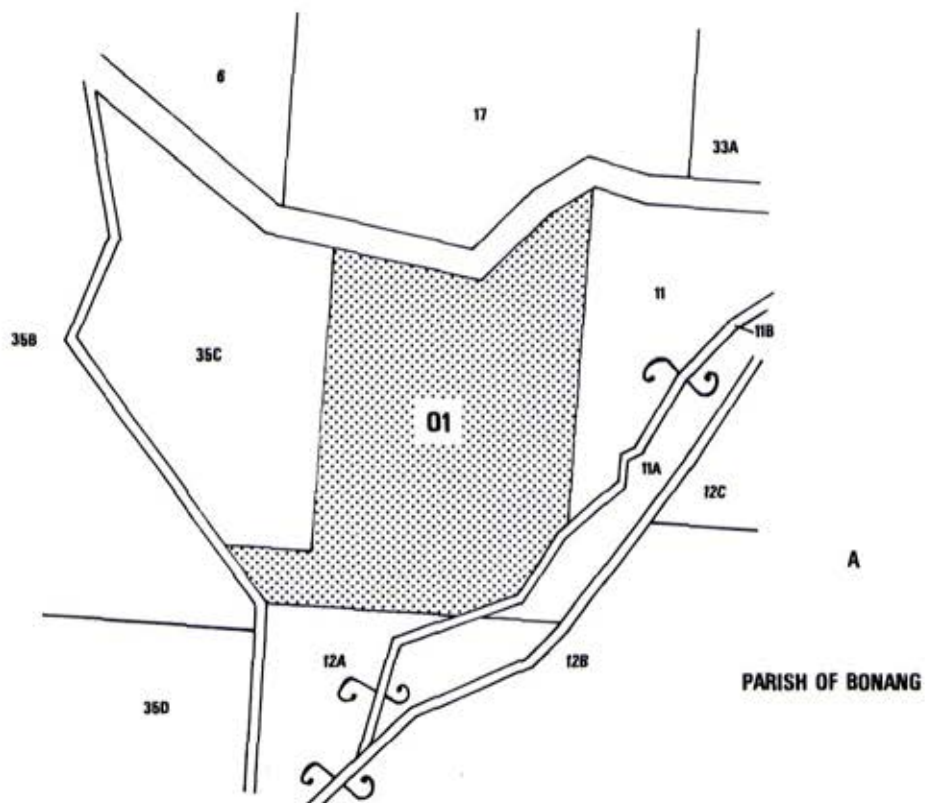
That the land (800 ha) shown on the map be used to:

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

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

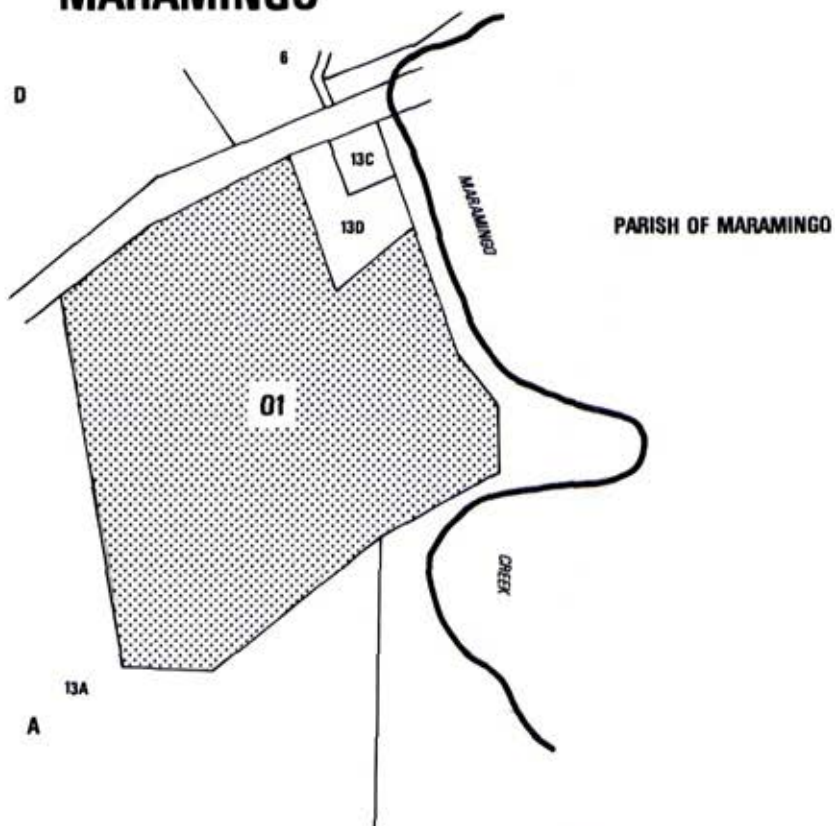
AGRICULTURE 01 BONANG

MAP 1



AGRICULTURE 01 MARAMINGO

MAP 2



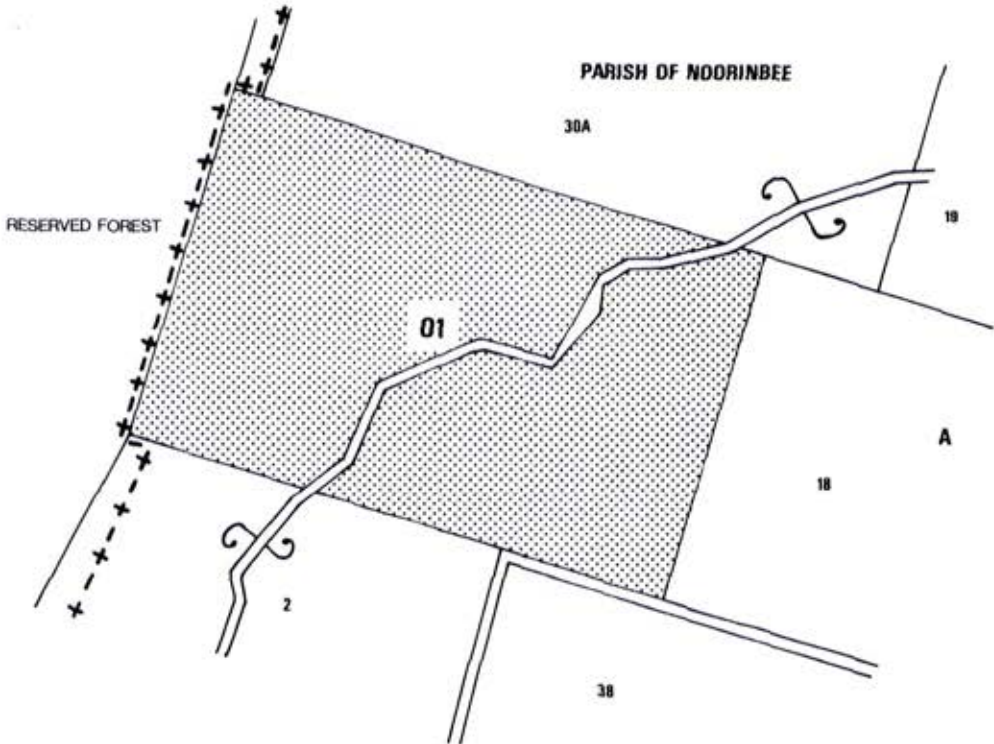
PUBLIC LAND RECOMMENDED FOR ALIENATION



SCALE 1 : 15,840

**AGRICULTURE 01
NOORINBEE**

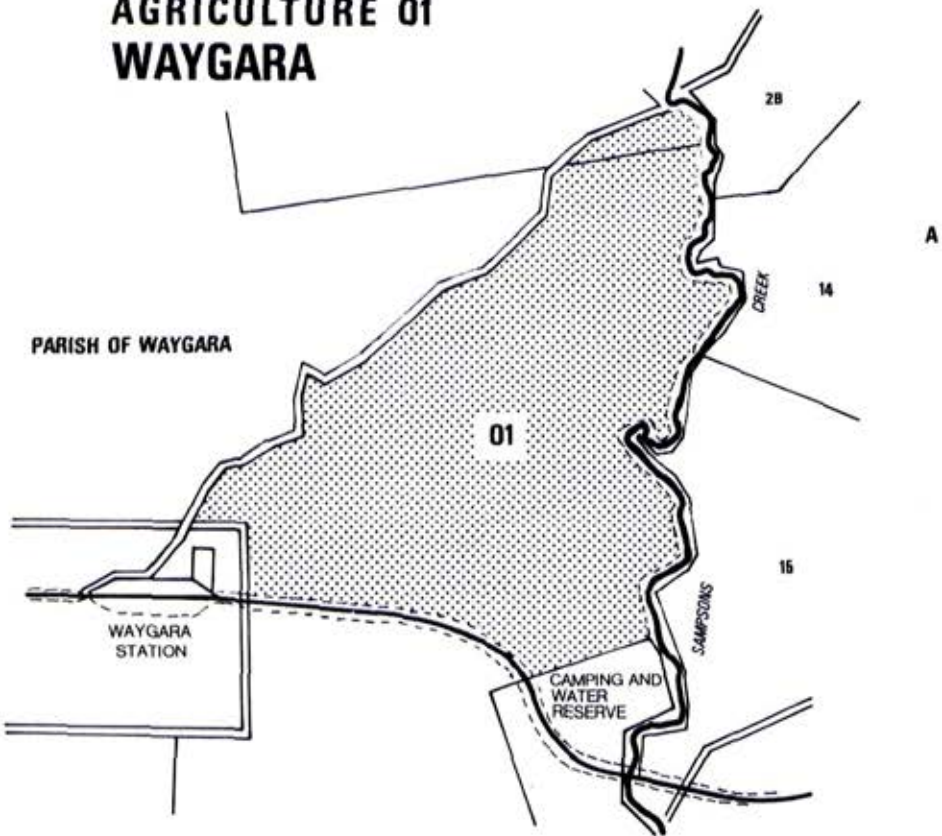
MAP 3



SCALE 1 : 15,840

**AGRICULTURE 01
WAYGARA**

MAP 4



PUBLIC LAND RECOMMENDED FOR ALIENATION



SCALE 1 : 31,680