

FINAL RECOMMENDATIONS

MALLEE STUDY AREA

**LAND CONSERVATION COUNCIL, VICTORIA
MELBOURNE, MAY, 1977**

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INTRODUCTION

The Land Conservation Council was established by the *Land Conservation Act* 1970. As one of its three functions, it makes recommendations to the Minister for Conservation with respect to the use of public land, in order to provide for the balanced use of land in Victoria. This report contains the Council's final recommendations concerning the public land in the Mallee study area.

Notices showing the boundary of the study area and advising that an investigation was to be carried out were published in the *Victoria Government Gazette* of May 24, 1972, and in local and Victorian newspapers on May 24-26, 1972. A descriptive report, describing the public land in the study area, and its resources and uses, was published on September 11, 1974. The report also explained the procedures the Council must follow in preparing its recommendations for the Government.

Following publication of the report, the Council received 368 submissions on the future use of public land. Individuals, associations, companies, and local and State government bodies, representing a wide cross-section of the community, made helpful submissions covering most feasible forms of land use for the area.

After considering these submissions and visiting the study area, the Council prepared its proposed recommendations, and these were published on April 22, 1976. The Council subsequently received 582 submissions commenting on the proposed recommendations. After considering these submissions, the Council now presents its final recommendations.

Layout

The recommendations in the text are grouped under major use headings, such as Parks, Hardwood Production, and so on. The text is accompanied by 16 maps. Map A, at the scale of 1 : 300 000, covers the whole study area and gives a broad view of the recommended land uses. It includes a key to 13 sheets, which together cover the study area at a scale of 1 : 100 000, and which show the areas concerned in greater detail. Map B shows the recommended uses in the Mildura-Merbein-Red Cliffs area, and Map C shows those relating to military training.

Detailed information on many of the recommended boundaries is held by the Land Conservation Council.

Land uses

Table 1 summarizes the proposed 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.

The Council recommends the enlargement of the Wyperfeld and Hattah Lakes national parks, and the establishment of a State park in the south of the Sunset Country. It also recommends the establishment of regional parks at Lake Albacutya and along the Murray River adjacent to the Hattah-Kulkyne National Park, and the creation of reference areas and education areas covering a range of the land types found in the study area. The recommendations include proposals for a number of wildlife reserves containing habitats of particular wildlife significance, and for conservation of the many small areas of public land still carrying native vegetation that are scattered through the farmlands.

The Council recommends that large areas of public land, much of which is already cleared and developed for farming, be used for agriculture. Alienation (conversion to freehold) is recommended for the greater part of this land, while a new form of lease is proposed for the remainder.

TABLE 1
RECOMMENDED PUBLIC LAND USE

Major Use.	Area (ha) (Figures are rounded).	Percentage of all land in the study area.	Percentage of the public land.
Parks	205 000	5	12
Wilderness	114 000	3	7
Reference areas	18 700	<1	1
Wildlife, flora and fauna reserves	49 200	1	3
Hardwood production	36 700	1	2
Agriculture—			
Alienation	73 200	2	4
Limited cultivation lease	34 000	<1	2
Education areas	2 200	<1	<1
Mineral and stone production	2 000	<1	<1
Water supply and drainage reserves	10 500	<1	<1
Other recreation and conservation reserves	16 500	<1	1
Uncommitted land	1 180 000	26	68

The study area covers a total of 4 500 000 ha, of which 1 745 000 ha is public land.

It is often not possible to satisfy all the demands for competing forms of use on a given area of land. However, these recommendations attempt to achieve balance in providing for the present needs of most forms of use while retaining flexibility and the opportunity to adjust to future changes in 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 ecosystems, and by placing areas into the "uncommitted land" category. Flexibility in planning is essential. Our knowledge of many resources (for example, minerals) and of the distribution and ecology of plants and animals is very imperfect. In many places in Victoria, special values remain unrecognized and no special provision can be made for them 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 available at present. The Council is aware that review will be necessary to ensure that future land use is in the best long-term interests of the community.

The Council recommends that large areas of the Sunset Country and the Big Desert be uncommitted land. Although many submissions advocated the creation of large reserves for nature conservation and recreation in the Sunset Country, the Council believes that at present the available knowledge concerning the biological, geological,

and recreation resources of this area forms an inadequate base for decisions to reserve very large areas. In addition, the capability of this public land for agriculture varies considerably and has not been investigated in detail. However, the Pink Lakes State Park recommended by the Council does contain examples of the major land types of the Sunset Country.

Large areas of the Big Desert are recommended for recreation and nature conservation use. The creation of more reserves in the future may be justified by the discovery of plant or faunal associations that are not represented in the existing reserves.

The Council believes that research into all aspects of the ecosystems of the Sunset Country and the Big Desert should be encouraged. This applies especially to research on mallee as a plant community, and on the mammal fauna. As part of this research, the Council believes that the development of techniques for managing the wildlife populations of the area should be permitted on the uncommitted land.

General Recommendations

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

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

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

In particular the Council wishes to stress that in the Mallee the introduced rabbit is a major problem in the management of public land. Finance and staff are required to keep rabbit numbers to a minimum to permit regeneration of the native flora, and to protect faunal habitats.

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

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

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

- III. That, when significant new discoveries are made on land within their administration, government agencies enlist the best advice available on the importance of such features and on any measures that should be taken to conserve them. Advice from organizations other than government authorities and academic institutions should be sought whenever appropriate.

The Council also recognizes that in some cases existing legislation will have to be amended in order to effectively implement the recommendations in this volume. The Council is aware that this may result in a delay, in some cases of several years, before some of its recommendations can be implemented. It is concerned that, where implementation of the recommendations would involve a change of management authority, management efficiency could be reduced during the delay period. The Council believes that the government should direct Departments that their responsibilities for management must continue in all areas presently under their control until such time as the recommendations are implemented. The Council therefore recommends :

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

The Council further recommends :

- V. That, as many of them have not been precisely surveyed, the boundaries of the areas referred to in the recommendations be subject to minor modification, road excisions, easements, and other adjustments that may be necessary.

This applies particularly to the areas recommended for agricultural use (categories F1 and F2). The precise boundaries of these areas should be determined in consultation with the Soil Conservation Authority.

- VI. That the recommendations in this publication do not change the status of declared roads, under the *Country Roads Act* 1958, that pass through or abut public land.
- VII. That, where areas of public land are not specifically referred to in these recommendations, present legal uses and tenure continue.

A number of small areas, usually forming parts of areas recommended to be bushland, flora and fauna, or recreation reserves, are used as rubbish tips and are not referred to in these recommendations. In each case the managing authority should investigate the need for the rubbish tip and the suitability of its location, and then take action to reserve the site for rubbish disposal or to close the tip.

A. PARKS

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

A park is here defined as "an area of land in a natural or semi-natural condition, reserved because of its scenery, floral and faunal content, historical interest, or other features, which is used by the public primarily for open-space recreation and education".

This definition encompasses many different types of parks; they vary mainly in size and content and in the types and intensity of uses which they receive. Definitions of different types of parks are needed to clarify the main purpose for which each one is created, and will help planners, managers, and users of parks.

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

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

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

Road-making materials

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

PARK CATEGORIES

National park

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

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

State park

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

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

Regional park

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

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

Recommendations

National parks

A1 Wyperfeld

That the land (96 800 ha) shown on the maps be used to :

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (b) conserve and protect the natural ecosystems
- and that
- (c) no further grazing be permitted on the section of Pine Plains recommended for immediate addition to the park
 - (d) the remainder of Pine Plains, or sections of it, be added to the park as the need becomes apparent

- (e) funds be made available for the re-establishment of the endangered *Callitris* and *Casuarina* forests in the park, and that the re-establishment work be undertaken in consultation with the Forests Commission and the Soil Conservation Authority
- (f) special emphasis be placed on the problem of vermin animals, particularly the rabbit, and that the managing authority be provided with resources to properly control this pest

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.

This recommendation enlarges the existing park. To the south it adds an area of wild Big Desert dunes adjoining the Lake Albacutya Regional Park, and to the east an area of *Eucalyptus leucoxylon* (yellow gum) and *Callitris preissii* and *C. verrucosa* (slender cypress pine and scrub pine).

To the north it adds 2 750 ha of Pine Plains. This addition contains some important nature conservation values, as it includes extensive forests and woodlands of *C. preissii* and smaller stands of *Casuarina luehmannii* (buloke). Intact stands of buloke, a formerly widespread species, are now rare. The area also contains some grassland, and forests and woodlands of *E. largiflorens* (black box) on the flood-plain of Outlet Creek.

The proposed northern addition has good access from Patchewollock. It will greatly increase the park's capacity to absorb the demands for recreation that are being placed upon it, and will permit the establishment of a camping area in the north of the park.

The Council reaffirms that Pine Plains contains outstanding recreation, scenic, and nature conservation values, and that ultimately the whole area should be added to Wyperfeld Park. The Council believes that the current pattern of agricultural use on Pine Plains is likely to gradually reduce the nature conservation values of the area, in particular the wildlife habitats on the grassy plains and pine ridges.

The recommendation will give the people who depend on Pine Plains for their livelihood the opportunity to build up farming enterprises that do not depend so much on the use of public land. During this period, protection of park values should be a major aim of management for the uncommitted land section of Pine Plains.

A2 Hattah-Kulkyne

That the land (46 500 ha) shown on the maps be used to :

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (b) conserve and protect the natural ecosystems
- and that
- (c) grazing of domestic stock be phased out
 - (d) vehicular access through the area continue to be provided, in particular to the regional park
 - (e) Lake Mournpoul and its environs be used for intensive recreation, and that traditional legal uses be permitted to continue in this area

- (f) honey production be permitted in certain zones of the park, subject to conditions imposed by the managing authority
- (g) funds be made available for the re-establishment of the endangered *Callitris* and *Casuarina* forests in the park, and that the re-establishment work be undertaken in consultation with the Forests Commission and the Soil Conservation Authority
- (h) special emphasis be placed on the problem of vermin animals, particularly the rabbit, and that the managing authority be provided with resources to properly control this pest

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.

This park contains a frontage to the Murray River, an extensive area of the Murray flood-plain (including the Chalka Creek anabranch), and about 20 fresh-water lakes. Forests and woodlands of *Eucalyptus camaldulensis* (red gum) and *E. largiflorens* (black box) are the main vegetation types on the flood-plain, although many areas carry sparse grasses or herbs, or are bare. When full, the lakes support fish and a wide range of waterbirds.

The park also contains large areas of sandhills and dunes, which carry mallee, grassland, and remnants of forests and woodlands of *Callitris preissii* (slender cypress pine), *Casuarina cristata* and *C. luehmannii* (belar and buloke), and *Hakea vittata* and *H. leuoptera* (hooked needlewood and silver needlewood).

The Hattah-Kulkyne area has had the worst rabbit infestation in Victoria. Enormous resources have been and continue to be used to control this pest, and the managing authority will need special resources to maintain and extend the necessary control work. The area also has a considerable weed problem, due largely to its early history of sheep and cattle grazing. Conversely, grazing has exerted a degree of control over some weed species, and when it is phased out the weed problem will need particular attention.

State park

A3 Pink Lakes

That the area shown on the maps (49 500 ha) be used to :

- (a) provide opportunities for recreation and education associated with the enjoyment and understanding of natural environments
 - (b) conserve and protect the natural ecosystems
- and that
- (c) grazing by domestic stock be phased out over twelve years
 - (d) salt-harvesting be permitted on Lakes Crosby and Kenyan
 - (e) adequate resources be made available to the managing authority to control rabbits

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

This park contains an extensive area of the salt pans, saltbush flats, and copi rises typical of the Raak land system. The Pink Lakes, a group of salt pans in the south-east, have potential for recreation and tourism. The harvesting of salt (a layer is deposited each summer) from beds of the lakes would be of interest to many tourists. The park also contains an area of wild sand dunes (including Mount Crozier) typical of the Berrook land system, and another (known as the Honeymoon Hut area) of the grassland plains that occur within this land system. In the east, the characteristic east-west dunes of the Central Mallee land system are represented.

Regional parks

A4 Lake Albacutya

That the land shown on the maps (10 700 ha) be used to :

- (a) provide opportunities for informal recreation for large numbers of people
 - (b) protect and conserve the natural ecosystems to the extent that this is consistent with (a) above
- and that
- (c) the existing pattern of legal recreation use be permitted to continue
 - (d) hunting, boating, fishing, camping, horse-riding, and water-skiing be permitted
 - (e) grazing on the bed of the lake be permitted at the discretion of the managing authority
 - (f) a programme of reclamation and revegetation of the degraded land to the east of the lake be undertaken, and that grazing in these areas be phased out if this is deemed necessary by the managing authority

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

This park contains Lake Albacutya and its shores, which carry attractive tall woodlands of red gums. It also includes the lunette to the east of the lake, much of which is rabbit-infested and badly eroded. To the north, it contains a section of Outlet Creek and the Big Desert dunes through which the creek meanders. When Lake Albacutya holds water it is intensively used by local people for picnicking, swimming, boating, fishing, and hunting.

A5 Murray River

That the land shown on the maps (1 450 ha) be used to :

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

and that

- (c) the existing pattern of legal recreation use by local people be permitted to continue
- (d) boating, fishing, and camping be permitted

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

This park consists of a long frontage to the Murray River, which is fringed by tall forests of red gum. It is intensively used for recreation.

B. WILDERNESS AREA

The concept of wilderness ("an uncultivated and uninhabited tract"—Oxford English Dictionary) is at present receiving attention in Australia, after having been established by legislation in the United States of America in 1964 (The Wilderness Act).

The wilderness experience involves the perception of being part of nature, of an environment unaltered by human intervention, of isolation, and of being exposed to the challenge of the elements. In a wilderness, man should function as a part of the natural systems, and on equal terms with nature.

The main elements of the appeal of wilderness are :

- * spiritual refreshment and an awareness of solitude arising from close contact with the uninhabited, undisturbed natural environment ;
- * the knowledge that large wild natural areas, untouched by man, exist and can be experienced ;
- * refuge from the pressures, sights, and sounds of modern urban life ;
- * the adventure and challenge of putting one's powers of endurance and self-reliance to the test in an undisturbed natural environment.

Wilderness, therefore, requires land that still retains its primeval character, and is without human modification or habitation. It is used for recreation of an unconfined nature. To preserve the wilderness values it is necessary to protect the natural ecosystems and maintain the landscape in an undisturbed state. Because of this requirement, a wilderness will have considerable value for nature conservation.

Scenic grandeur enhances the value of an area, but is not an essential requirement of the type of experience the Council is endeavouring to provide in reserving land specifically as wilderness areas.

To fulfil the uses for which they are intended, wilderness areas must be large. They should enable a walking trip of at least several days to be undertaken within them. This spaciousness is the essential characteristic distinguishing wilderness areas from the many other smaller undisturbed or primitive areas that may be found as "islands" even in land that has been developed for more intensive uses.

Large, essentially undisturbed areas are a very scarce resource, and are becoming scarcer as the road and fire-trail network on public land is extended and upgraded.

For this reason, Victoria can probably accommodate only two or at the most three wilderness areas. These could include one in the rugged and heavily forested mountain region, preferably covering from sub-alpine to foothill and riparian environments, and one in the semi-arid Mallee country. They would be the last places in Victoria where it is possible to spend several days in wild challenging conditions without hearing or seeing evidence of human activity. The Council stresses that few such areas remain in the State, and it must be expected that they will gradually diminish in size unless reserved specifically to retain this wilderness quality.

Types of wilderness experience

A wilderness experience of some kind will be available in many different places. For some people, a short walk in part of a State park (or even a regional park) may provide it. Others need a much larger expanse of territory, requiring a number of days to traverse, before they can appreciate it fully. For the former group, therefore, particularly those for whom an essential part of the experience is associated with scenic grandeur and views across large expanses of mountainous country, zones within areas reserved for some other primary purpose will provide some wilderness experiences. For many, the fact that some of the most magnificent scenery in the State contains an obvious man-modified component does not detract from it. Such wilderness experiences, however, may be relatively brief, as people will come into contact with others because of the intensity of recreational use. Council is thus aware that many people can find all they seek within areas not specifically reserved as wilderness, but considers it necessary to reserve some areas specifically as wilderness areas, where the emphasis is on isolation and lack of disturbance, that can provide a wilderness experience lasting for several days at a time.

Use and management of wilderness areas

Wilderness use may include such activities as canoeing, hiking, rock-climbing, caving, fishing, and cross-country skiing. Vehicles (other than those essential for management), timber production, grazing and mining would be excluded from wilderness areas.

In order to maintain the value of a wilderness area for solitude and unconfined types of recreation, it may ultimately be necessary to control the number of people using the area at any one time. Experience in the United States has shown that tourism and the more conventional forms of outdoor recreation commonly associated with parks are among the greatest threats to wilderness, and should not be accommodated in such an area. It may also be necessary to place restrictions on some activities so that conflict between wilderness users is minimized.

Wildfires, however caused, must be prevented from threatening life, property, and natural resources in the State, and the measures necessary to control them must be taken in a wilderness area as in any other. Some pre-suppression measures such as maintenance of fire access tracks and protective burning will be required, at least in areas of strategic importance for fire control. Prevention and suppression of fires shall be the responsibility of the Forests Commission in consultation with the National Parks Service. In the Mallee environment there may be no need for fuel-reduction burning within a wilderness area.

Vehicular use of existing tracks, where they occur, should not be permitted except for essential management operations. By careful maintenance, many tracks can continue to be passable for fire-fighting, rescue, and management vehicles, without clearing all vegetation. Construction of helipads may be an alternative to maintaining all of an extensive track system.

At least in a buffer near the edges of the wilderness area, it will often be necessary to exercise careful vermin and noxious weed control, to ensure that adjoining land is not threatened by pest species from within the area, and conversely that these do not invade the area from outside.

Users of wilderness areas must be prepared to face difficult and challenging conditions, and Council stresses the need to bring to the attention of the public the potential hazards associated with the use of these areas. In general, the lack of vehicle access and the remote location of the recommended wilderness area should ensure that the users are self-reliant and capable of looking after themselves.

Recommendations

B1 Big Desert

That the area shown on the maps (114 000 ha) be used to :

- (a) provide opportunities for solitude and unconfined forms of recreation in unmodified natural environments
- and that
- (b) the value of the area for providing solitude be maintained by strictly controlling the numbers of people using the wilderness at any one time
- (c) construction of roads or tracks and the entry of vehicles not be permitted
- and that it be permanently reserved under section 14 of the *Land Act* 1958, and managed by the National Parks Service.

The wilderness consists of the dunes and plains of the Big Desert. Some of the dunes are steep and high, and impart scenic grandeur to the area.

The wilderness contains no major roads or tracks. Substantial areas of uncommitted land separate it from the farmland to the north and south, and the Murrayville-Yanac road to the east. This uncommitted land may be used for some activities not permitted in the wilderness, in particular intensive fire-protection works.

This area is not very vulnerable to vermin and noxious weeds, as it is relatively undisturbed. However, the buffer area should be used, where possible, to control the spread of vermin and noxious weeds into and from the proposed wilderness area.

The Council believes that this is the best wilderness to be found in western Victoria. To the west it adjoins a large area of public land in South Australia, part of which is reserved in parks at present. If proposals to reserve the remainder are accepted, the effective size of the wilderness will be greatly increased.

C. REFERENCE AREAS

Reference areas are tracts of public land containing viable samples of one or more land types that are relatively undisturbed and that are reserved in perpetuity. Those concerned with studying land for particular comparative purposes may then refer to such areas, especially when attempting to solve problems arising from the use of land.

Reference areas would normally be typical examples of land types that have been extensively developed elsewhere for productive uses such as agriculture or softwood production. The course and effects of human alteration and utilization of the land can be measured against these relatively stable natural areas. Most developed regions have few areas remaining that are suitable as reference areas.

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

Access should be restricted, and experimental manipulation should not be permitted. Reference areas will enable continued study of natural features and processes, for example fauna, flora, hydrology, and nutrition. These studies are important in increasing our knowledge of the ecological laws and processes on which man's survival may ultimately depend.

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

In recommending the creation of reference areas, the Council foresees the need for new legislation to specify their status. An advisory committee has been established to determine the broad policies for the management of reference areas and their buffers.

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

Recommendations

C1–C10 (a) That the areas listed below and shown on the maps be used to maintain natural ecosystems as a reference to which those concerned with studying land for particular comparative purposes may be permitted to refer, especially when attempting to solve problems arising from the use of land.

- (b) That each reference area be surrounded by a buffer ; that the authority currently managing the recommended buffer be responsible for the management of the enclosed reference area ; that the delineation of buffer zones be by joint agreement between the managing authority and the advisory committee ; and that reference areas surrounded by uncommitted land be reserved under section 14 of the *Land Act* 1958 and managed by the Department of Crown Lands and Survey.

- C1** Millewa (Millewa land system) (1 400 ha)
Woorinen Formation (aeolian sand to clay) ; ridge, plain, and sparse east-west dunes ; grassland, woodland of belar and sugarwood, big mallee ; 250 mm average annual rainfall.
- C2** Lake Walla Walla (Neds Corner land system) (700 ha)
Coonambidgal Formation ; flat river terrace above flood level ; saltbush and bluebush ; 250 mm average annual rainfall.
- C3** Sunset (Central Mallee land system) (8 400 ha)
Woorinen Formation ; dense east-west dunes over north-west to south-east trending ridges ; mallee and hummock-grass mallee ; 275 mm average annual rainfall.
- C4** Chalka Creek (Lindsay Island land system) (400 ha)
Coonambidgal Formation (clay, sand, and sandy clay) ; flat flood-plain with shallow channels ; woodland of red gum and black box ; 280 mm average annual rainfall ; subject to frequent flooding from Murray River.
- C5** Kia (Berrook land system) (1 000 ha)
Lowan Sand (white to yellow sand) ; irregular dunes of high and low relief ; mallee, hummock-grass mallee, scrub mallee ; 280 mm average annual rainfall.
- C6** Purnya (Raak land system) (1 100 ha)
Coonambidgal Formation (saline) and Yamba Formation (gypsum) ; salt pans and powered gypsum (copi) rises ; saltbush, beadbush, and mallee ; 300 mm average annual rainfall.
- C7** O'Sullivan Lookout (Big Desert land system) (1 900 ha)
Lowan Sand ; high irregular dunes with intervening sand plains ; heath, mallee heath, scrub mallee ; 315 mm average annual rainfall.
- C8** Lake Jerriwirrup (Tyrrell Creek land system) (400 ha)
Coonambidgal and Shepparton Formations (clay, sand, and sandy clay, often grey) and Lowan Sand ; flat flood-plain, and dunes rising from the flood-plain ; woodland of red gum and black box on the flood-plain, woodland of slender cypress pine on the dunes ; 325 mm average annual rainfall ; infrequently flooded.
- C9** Dattuck (Big Desert land system) (900 ha)
Lowan Sand ; dense, low, irregular dunes ; mallee, hummock-grass mallee, and scrub mallee ; average annual rainfall 325 mm.
- C10** Telopea Downs (Big Desert land system) (2 500 ha)
Lowan Sand ; low irregular dunes ; heath, heath-mallee ; 360 mm average annual rainfall.

D. WILDLIFE

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

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

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

Wildlife Reserves

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

These areas may be selected for conservation of species that the community harvests or directly utilizes. They may contain the habitat of endangered species or areas with particular wildlife values such as specialized breeding grounds, a high species diversity, or educational or scientific interest. They may also be selected because of their ecological significance for (or regional representations of) a species or faunal association, or for their value as a stop-over for migratory or nomadic species.

Recommendations

D1 Kings Billabong

That the area shown on the maps (2 200 ha) be used :

- (a) primarily to conserve native animals, and for public education and recreation where this does not conflict with the primary aim

and that :

- (b) the use of waterways and pump installations to supply irrigation water to Mildura continue
- (c) in the southern part of the area, the disposal of saline drainage water continue to be permitted for the time being

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

The Kings Billabong area contains a mosaic of wet and dry-land habitats found on the Murray River flood-plain. Its large waterfowl populations and proximity to Mildura make it a popular tourist attraction.

D2 Lakes Powell and Carpul

That the area shown on the maps (680 ha) be used :

- (a) primarily to conserve native animals, and for public education and recreation where this does not conflict with the primary aim

and that :

(b) the grazing and irrigation of the bed of Lake Powell be phased out by 1986, or earlier at the discretion of the managing authority

(c) water from the Murray River not be prevented from flowing into Lake Powell via the natural inlet

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

These lakes are surrounded by red gum and black box woodlands and are filled by Murray River floods. The value of the lakes for wildlife conservation would be enhanced by works to hold water in the lakes after flood recession.

D3 Wandown

That the area shown on the maps (1 500 ha) be used primarily to conserve native animals, and for public education and recreation where this does not conflict with the primary aim

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

This reserve consists mainly of dense mallee, with a few semi-cleared areas. It contains a population of mallee-fowl.

D4 Wathe

That the area shown on the maps (5 600 ha) be used :

(a) primarily to conserve native animals, and for public education and recreation where this does not conflict with the primary aim

and that :

(b) the area continue to be used for receiving channel-outfall water

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

This reserve contains diverse habitats—cleared grassy areas, regenerating scrub, dense mallee, and shallow lakes formed by surplus flows from a channel passing through it. It supports many mallee-fowl.

D5 Bronzewing

That the area shown on the maps (11 200 ha) be used primarily to conserve native animals, and for public education and recreation where this does not conflict with the primary aim

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

This reserve contains dense mallee, with a few semi-cleared areas. It is the habitat of the mallee-fowl, and its large size will permit research into manipulation of the habitat of this important species.

D6 Red Bluff

That the area shown on the maps (9 800 ha) be used primarily to conserve native animals, and for public education and recreation where this does not conflict with the primary aim

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

The distribution of the Victorian sub-species of the rare western whip-bird is centred on Red Bluff in the south-west of the Big Desert. Its habitat appears to be the extensive stands of mallee broombush that occur in this locality.

D7 Lake Lalbert

That the area shown on the maps (750 ha) be used :

- (a) primarily to conserve native animals, and for public education and recreation where this does not conflict with the primary aim

and that :

- (b) existing diversions from the lake be permitted to continue

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

This is a shallow lake fed by Lalbert Creek. On average it receives water once every 3-4 years. It supports red gum woodlands and is prime water-bird habitat.

D8 The Marshes

That the area shown on the maps (2 840 ha) be used :

- (a) primarily to conserve native animals, and for public education and recreation where this does not conflict with the primary aim

and that :

- (b) the use of the Marshes for holding flood flows from the Avoca River continue

- (c) existing diversions from the lakes be permitted to continue

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

This system of lakes and marshes is the termination of the Avoca River. When the Marshes hold water, birds breed there in large numbers. It is one of the most popular hunting areas in Victoria.

D9 Dartagook

That the area shown on the maps (450 ha) be used primarily to conserve native animals, and for public education and recreation where this does not conflict with the primary aim

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

This forest of blackbox, red gum, and lignum is part of the flood-plain at the junction of the Loddon River and Sheepwash Creek.

D10 Stevenson Swamp

That the area shown on the maps (90 ha) be used primarily to conserve native animals, and for public education and recreation where this does not conflict with the primary aim

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

This swamp contains semi-permanent water, which is moderately saline (1 000–6 000 mg/l). Waders use the muddy flats around its margins.

Management with Consultation

Wildlife reserves

Council recommends that the areas listed below become wildlife reserves managed by the Fisheries and Wildlife Division. Other uses (water supply or timber production), however, are also recommended for these areas, and in managing them the Division should consult the Water Commission or the Forests Commission (in the case of areas to be used for water supply or for timber production respectively).

D11–D12 That the areas shown on the maps be used to conserve native animals and for public education and recreation, and for water supply purposes and that they be permanently reserved under section 14 of the *Land Act* 1958 and managed by the Fisheries and Wildlife Division in consultation with the State Rivers and Water Supply Commission.

D11 Lake Murphy (230 ha)

This lake contains permanent fresh water, and is fringed with rushes and sparse trees.

D12 Lake Yando (90 ha)

This shallow lake contains permanent fresh water, and is fringed with rushes, reeds, and black box.

D13 Wandella

That the area shown on the maps (1060 ha) be used to conserve native animals and for public education and recreation, and to provide forest produce and that it be permanently reserved under section 14 of the *Land Act* 1958 and managed by the Fisheries and Wildlife Division in consultation with the Forests Commission.

The Wandella forest contains black box with an understorey of lignum, grasses and herbs, and is excellent water-bird habitat. It is flooded by Wandella Creek, an effluent of the Loddon River.

Other reserves

The Council recommends that water supply reserves 018 (Tchum Lake north), 019 (Little Lake Charm), 020 (Reedy Lakes) and 021 (Cullens Lake) be used for conservation of native animals as well as for water supply purposes, and be managed by the State Rivers and Water Supply Commission in consultation with the Fisheries and Wildlife Division.

The Council also recommends that reserved forests E8 (Belsar and Yungera Islands) and E9 (Nyah and Vinifera forests) be used for conservation of native animals as well as for hardwood production, and be managed by the Forests Commission in consultation with the Fisheries and Wildlife Division.

E. HARDWOOD PRODUCTION

Forests within the study area that are used for timber production are limited to the stands of red gum and black box that grow on the flood-plain of the Murray River, and black box on some minor streams in the south.

Although the forests are not highly productive, they fulfil a local demand for timber for various uses. They mainly supply vine trellises for the irrigation areas and fencing materials for the dryland farms. Logs are supplied to two sawmills, and small quantities of railway sleepers and firewood are produced. The area's isolation from alternative sources of supply enhances the value of locally grown timber.

In addition to supplying timber, the forests of the Murray flood-plain have high wildlife values, and the conservation of these is also important. Wildlife values are greatest in areas carrying large numbers of mature and overmature trees, and in some areas silvicultural practices aimed at maintaining these trees should be applied.

The forests are also used for grazing, honey production, and recreation. Grazing there supplements grazing on freehold land, and often flooding in the forests produces good feed when little is available elsewhere.

Red gum is one of Victoria's most important honey-producing species, and large numbers of hives are moved into the forests when a heavy nectar flow occurs. Black box is also valuable.

Recreation is an important form of use, especially in summer. Activities undertaken include swimming, fishing, camping, hunting, and pleasure driving.

Careful management of the forests is necessary to ensure that conflicts between the various uses are minimized. The recommendations below list several areas in which high nature conservation or recreation values should receive special attention.

Recommendations

E1-E7 That the areas shown on the plans be used to :

- (a) produce hardwood timber in a manner that recognizes the importance of the recreation and nature conservation values of the forests
- (b) provide opportunities for open-space recreation and education
- (c) conserve native plants and animals (see Chapter D : Wildlife Reserves)
- (d) produce honey and other forest produce as defined in the *Forests Act* 1958 and that :
- (e) grazing of domestic stock be permitted under conditions similar to those applying to grazing licences as set out in Chapter F
- (f) existing use of the forests for disposal of saline drainage water be permitted to continue for the time being
- (g) the particular areas and values listed below be protected, in some cases by means of reserves under section 50 of the *Forests Act* 1958

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

- E1** Potterwakagee Creek and Wallpolla Island (11 600 ha)
- E2** Abbotsford Bend to Bottle Bend (3 860 ha)
 (a) The management of these forests should recognize their importance in providing recreation for the people of the Sunraysia district.
 (b) Cowanna Billabong should continue to be used for water supply purposes.
- E3** Lambert Island to Graces Bend (2 800 ha)
- E4** Tarpaulin Bend to Bonyaricall Creek (7 200 ha)
 The management of these forests should recognize their importance in providing recreation for the people of Robinvale and district.
- E5** Boundary Bend to Piangil (4 270 ha)
 (a) The management of the forest at Boundary Bend should recognize its importance for recreation and landscape preservation.
 (b) Major Mitchell's Lagoons should be reserved under section 50 of the *Forests Act* 1958 as a site of historical interest.
- E6** Appin and Leaghur (1 950 ha)
 (a) The Leaghur Forest should continue to be reserved under section 50 of the *Forests Act* 1958 as a site of significance for preservation of Aboriginal relics, and for conservation of plants and animals.
- E7** Green Lake and Outlet Creek (600 ha)
 (a) Green Lake should continue to be reserved under section 50 of the *Forests Act* 1958 for its significance for recreation.
 (b) Green Lake should continue to receive channel-outfall water.

Management with Consultation

Reserved forests

The Council recommends that the areas listed below be used to produce hardwood timber and be reserved forests managed by the Forests Commission. Other uses (conservation of native animals and public education and recreation), however, are also recommended for them, and in managing these areas the Forests Commission should consult the Fisheries and Wildlife Division.

- E8-E9** That the areas shown on the maps be used to produce hardwood timber, and to conserve native animals and for public education and recreation and that they remain or become reserved forest under the provisions of the *Forests Act* 1958 and be managed by the Forests Commission in consultation with the Fisheries and Wildlife Division.

- E8** Belsar and Yungera Islands (3 250 ha)

These "islands" on the Murray River floodplain contain a diverse range of habitats—river, lagoon, swamp, grassland, woodland and forest—which supports a rich fauna.

E9 Nyah and Vinifera Forests (1 150 ha)

These areas contain stands of red gum of various ages and densities. They are frequently flooded by the Murray River, and several billabongs retain water for long periods.

Other reserves

The Council recommends that wildlife reserve D13 (Wandella) be used for timber production as well as for conservation of native animals, and be managed by the Fisheries and Wildlife Division in consultation with the Forests Commission.

F. AGRICULTURE

Production of cereals, mainly wheat and barley, is the major enterprise on the agricultural lands of the study area. Over the last 10 years, the area has grown 40 per cent. of Victoria's production of these two crops, and in 1973 and 1974, when demand was high and the seasons good, the Mallee produced more than 50 per cent. Although yields average less per hectare here than in other wheat-growing areas of the State, conditions in the Mallee permit economies of scale that result in low production costs and profitable returns.

Farms in the Mallee carry about 1.7 million sheep, grown mainly for production of fat lambs and wool, and beef cattle numbers have risen over recent years to about 126,000 head.

Government schemes and private diversions irrigate about 73 000 ha along the Murray and Loddon Rivers, and around the lakes between Kerang and Swan Hill. Pastures predominate around Swan Hill and to the south, while horticulture is the main enterprise on the remainder of the irrigated lands.

Sheep or cattle graze the native forage on a large proportion of the public lands in the study area.

Most of the land used for cropping, grazing, and irrigated agriculture is freehold, while grazing on public land takes place under various leases, licences, or agistment rights.

Dryland Agriculture

Cropping and grazing

These recommendations propose that a total of 107 200 ha of public land be made available for agricultural use (cropping and grazing). The Council proposes that this land should be made available under one of two forms of tenure.

Alienation (conversion to freehold) should be permitted for land that is sound, and of average or better quality for cropping and grazing. About three-quarters of the land to be used for agriculture falls into this category.

Some of the public land currently being used for cropping and grazing, however, includes areas of greater-than-average erosion or salting hazards. The intensity of cropping and grazing here must be carefully related to the ability of the soils to withstand these uses, and further clearing of hazardous areas must be prevented. In order to achieve this, a new form of tenure, Limited Cultivation Lease, is recommended.

This proposed lease would permit farming to continue, but the managing authority, with the assistance of an advisory group, would be able to exercise general supervision of the use and management of the leased area. The advisory group would consist of representatives of the relevant Government departments and farmers, with the latter constituting the majority. The District Advisory Committees that report to the Soil Conservation Authority are well suited to this task. Under the suggested conditions of the lease, a management and development plan would be prepared in consultation

with the lessee. Once the plan is agreed on, the lessee should be able to carry out normal farm management with a minimum of interference. If, however, at any time this is not in accordance with good farming practice, the managing authority should invoke the conditions of the lease and issue specific directions to the lessee as to the proper use and management of the land.

The proposed term of the lease is 35 years, and it is expected that, if the lessee manages the land correctly and it does not become unsuitable for agriculture, the lease will be renewed at the end of each term.

The suggested conditions for Limited Cultivation Leases are set out in more detail under Notes on the Recommendations later in this chapter.

Farming land held under lease or licence

Some of the public land held under grazing leases or licences issued under the *Land Act* 1958 has been cleared and developed for intensive cropping and grazing. Although clearing for development is not permitted under the provisions of these leases and licences, it has occurred as a result of the history of settlement in the Mallee. Many settlers cleared, fenced, and cultivated public land in good faith (although in a few cases unsuitable land was cleared, and some areas were cleared without permission). Much of this land is relatively sound, and is being used productively for rotational cropping and grazing.

In its proposed recommendations, the Council recommended that the cleared and developed parts of most of these leases and licences should continue to be used for agriculture. As a result of a thorough re-examination of the use of public land held under existing grazing tenures, the Council is now recommending a substantially greater total area for agricultural use (alienation and Limited Cultivation Leases).

Future extension of agriculture

Most of the land in the Mallee that is well-suited to dryland cropping and grazing is already in production. There is scope for substantial increases in the productivity of the 2.75 million hectares of freehold land.

The uncommitted public land contains large areas considered to be marginal for agricultural use at present. If, in the future, the market for agricultural products outgrows the ability of the existing farmlands to produce them, and advances in agricultural technology permit these lands to be cultivated without threat to their stability, some of this uncommitted land could be brought into production.

Research farms

The Department of Agriculture's Mallee Research Farm at Walpeup occupies 1036 ha of public land, and the Irymple Technical School operates a school farm on 90 ha of public land in the Parish of Mildura. The Council proposes no change in the use of these areas.

Grazing on Public Land

Grazing of native forage on public land has been an important factor in the agricultural development of Victoria. In the early days, when the length of time required to clear and develop land and dependence on native pastures limited the productivity of freehold land, it was an important source of income for many farmers.

The situation is different now. As a result of modern technology and management, much of the freehold land is now cleared and sown to productive improved pastures. The general importance of grazing on public land has declined, although it remains important to some farmers, and may be used in times of emergency when feed is scarce on the farms. At the same time, community attitudes towards the public lands have changed, and many people now expect these to be used and managed in a way that will conserve the natural ecosystems. The Council believes that while grazing should continue to be permitted on much of the public land, it must be carefully managed and controlled to prevent undue damage to the native vegetation and wildlife habitats, and to protect the stability of the soils.

At present the native forage on a large proportion of the public land in the Mallee is grazed under 21-year leases or annual licences issued under the *Land Act* 1958 or, in the case of the forests along the rivers and streams, under agistment rights or annual licences issued under the *Forests Act* 1958. Such grazing is usually an adjunct to farming on freehold land, but some of the holders of large leases and licences do not have freehold land.

In the extensive dryland areas of public land in the Mallee, control of grazing by annual licence has serious shortcomings, as no limits are placed on stocking rates and the licensees have no security of tenure. There is a tendency to overstock some licensed areas, especially in dry years. While the existing 21-year leases give reasonable security of tenure, at present there is little supervision of the lessee's management, particularly with respect to stocking rates, and in many places vegetation and soils are deteriorating.

The grazing of domestic stock on uncommitted land may produce several effects that reduce the land's potential for a number of future uses, especially those involving nature conservation and recreation. It reduces the diversity of the native vegetation, and usually introduces exotic weed species. Grazing pressure from stock and rabbits is at least partly responsible for the lack of regeneration in the *Callitris* and *Casuarina* stands that occur in many of the grazing areas. These changes to the vegetation, and trampling by stock, also lower the value of the land as wildlife habitat.

The impact of grazing on natural ecosystems can be reduced by careful management based on controlling stock numbers according to the condition of the vegetation. In the Mallee, grazing on public land carrying native vegetation should be at a low intensity. In addition, rabbit control, reclamation of damaged areas, and the fencing out of some areas for regeneration are essential if the aims of management for the uncommitted land and reserved forests are to be achieved.

Forms of land tenure

The Council believes that grazing on public land should be controlled by issuing long-term licences, annual licences, or agistment rights, depending on the circumstances as outlined below. In all cases the management authority must be able to control stocking rates.

Long-term licences (up to 21 years) with conditions that permit the Government to exercise general supervision of grazing management, especially with respect to stocking rates, give the licensee reasonable security of tenure, and thus encourage him to conserve the forage resource. These licences are best suited to relatively large areas that are grazed regularly, and would normally cover uncommitted land. The suggested

conditions for grazing licences are set out in more detail under Notes on the Recommendations later in this chapter.

The issue of agistment rights, or annual licences with stock limits, is well suited to situations where :

- * the areas to be grazed are small
- * the demand for grazing is intermittent
- * grazing is used occasionally as a management tool
- * the use for grazing is clearly subordinate to other uses
- * grazing is being phased out.

On these criteria, long-term licences are not applicable to grazing on small reserves, water frontages, and the small river forests in northern Victoria.

In the Mallee, the Council proposes that grazing in the dryland areas should be administered by the Department of Crown Lands and Survey, which should be advised by the District Advisory Committees of the Soil Conservation Authority.

Grazing in river forests differs from that in the dry country : the soils and vegetation differ and, in the more productive areas, growth of forage depends more on flooding than on rainfall. In most cases the areas grazed are small. In areas of river forest where it is recommended that grazing be permitted, the existing forms of tenure, agistment rights or annual licences, are considered satisfactory, provided conditions for grazing management are similar to those set out for grazing licences in the Notes on the Recommendations.

If in the future some of the uncommitted land used for grazing is required for other uses, licences covering this land would then be cancelled or not renewed.

Little research has been done into systems of grazing management best suited to the public lands in the Mallee, or into the effects of grazing on the natural ecosystems. The Council acknowledges the experience of the current grazing lessees and licensees—the inclusion of their representatives on the proposed advisory group will make this experience available to the managers of the public lands. The Council believes that the responsible departments should expand their research and extension activities into this field as a matter of urgency.

Recommendations

F1 That the land shown on the maps (73 200 ha) be used for agriculture, and that alienation be permitted with erosion-prevention clauses where deemed necessary by the Soil Conservation Authority.

With respect to section 5 (3) of the *Land Conservation Act* 1970, the Council recommends that the land covered by the recommendation above be made available under the provisions of the *Land Act* 1958.

F2 That the land shown on the maps (34 000 ha) be used for grazing and cropping and that its use and management be controlled by the issue of Limited Cultivation Leases, administered by the Department of Crown Lands and Survey. (The terms and conditions suggested for Limited Cultivation Leases are given in the Notes below.)

The Council recognizes that some of the areas recommended for agricultural use are currently used for honey production, and recommends that the authority managing uncommitted land permit the construction of some new tracks to enable bee-keepers to use alternative areas.

F3 That the Mallee Research Farm at Walpeup (1 036 ha) and the Irymple Technical School farm (90 ha) continue to be used for agricultural research and education and that they continue to be reserved under section 14 of the *Land Act* 1958 and managed by the Department of Agriculture and the Education Department respectively.

F4 That light grazing of native and volunteer pastures be permitted, at the discretion of the managing authority :

- (a) on uncommitted land, except that grazing should not be permitted in those parts of the Big Desert and Sunset Country that are not at present leased or licensed for grazing
- (b) in the river forests that are not in parks or wildlife reserves and that
- (c) regardless of the form of tenure under which grazing occurs, the managing authority control stocking rates to prevent overgrazing and soil erosion, and to protect the natural vegetation and wildlife habitats from undue damage.

In the case of (a) above, the grazing should be controlled by the issue of long-term grazing licences or agistment rights, administered by the Department of Crown Lands and Survey. (Some terms and conditions suggested for these licences are given in the notes that follow.) Annual grazing licences (with stocking limits) should be issued where it is not practicable to issue a long-term grazing licence.

In the case of (b) above, the grazing should be controlled by the issue of agistment rights or annual grazing licences with stocking limits.

Note that these areas are not shown as F4 on the maps.

Note that some limited grazing may be permitted on some bushland reserves—see Chapter I. Use of these reserves for grazing should be in accordance with the recommendations in this chapter.

Water supply conditions

The following conditions relate to the supply of stock and domestic water to the land covered by recommendations F1 and F2 above :

- (a) The State Rivers and Water Supply Commission will not extend the existing supply system, either by channel or by pumping.
- (b) The Commission will not reopen abandoned channels.
- (c) Settlers will have to make their own arrangements to supply water to the areas proposed for agricultural use.
- (d) Water will be made available from the Water Commission's existing channel system to run private channels or to fill private dams from which farmers may pump to supply the new settlement areas.
- (e) These conditions should be included in any improvement purchases leases or Limited Cultivation Leases issued for these lands.

Notes on the Recommendations

Limited Cultivation Lease

This lease is a new form of tenure not covered by existing legislation. Its introduction is recommended to permit the government to exercise general supervision of the use and management of areas of public land that have been cleared and used for cropping and grazing, but that have greater-than-average erosion or salting hazards. In some cases, Limited Cultivation Leases have been recommended for allotments in which less-productive areas with high erosion or salting hazard are interspersed with good quality agricultural land.

It is proposed that the lease will not lead to freehold tenure.

Some suggested terms and conditions for Limited Cultivation Leases are set out below.

- (i) The term of the lease should be 35 years.
- (ii) After the lease has run 25 years, it should be reviewed and a decision made on renewing it at the end of the 35-year term.
- (iii) The leases should not be protected forest (they should be part of the country area of Victoria, and it will be the responsibility of the Country Fire Authority to provide fire protection for them).
- (iv) If the land is resumed by the Crown and leased to another person, the new lessee should pay compensation to the outgoing one for any structural improvements on the land.
- (v) The lease should be negotiable, subject to the approval of the Minister.
- (vi) With respect to the management and supervision of the leases, the Department of Crown Lands and Survey should be advised by a group consisting of representatives from the Soil Conservation Authority, the Department of Agriculture, the Department of Crown Lands and Survey, and representatives of the lessees and local landholders. The District Advisory Committees that report to the Soil Conservation Authority are well suited to this task. These comprise a majority of elected landholders, together with representatives of relevant Government departments.
- (vii) The managing authority may exercise general supervision of the management of the leases and, after consultation with the advisory group, may issue directions to the lessee with respect to the following matters :
 - (a) grazing management and stocking rates
 - (b) subdivisional fencing, water supply, and other improvements
 - (c) frequency of cropping and cultivation
 - (d) timing and method of cultivation
 - (e) retention of native vegetation on erosion-prone areas or near saltpans
 - (f) reclamation of eroded areas.
- (viii) Before clearing and developing additional areas for farming on a lease, the lessee should be required to obtain written permission from the managing authority.
- (ix) The advisory group should consider the financial implications of any directions they recommend in relation to a lease.

- (x) The lease may be cancelled for non-compliance with the conditions, at the discretion of the Minister.

It is proposed that each lease should be assessed and a plan of development and management worked out by the advisory group in consultation with the lessee. Once the plan is agreed on, the lessee should be able to carry out normal farm management with a minimum of interference. If, however, at any time this is not in accordance with good farming practice, the Department of Crown Lands and Survey should invoke the conditions of the lease and issue specific directions to the lessee as to the proper use and management of the land.

It is expected that, if the lessee manages the land correctly, and it does not become unsuitable for agriculture, the lease will be renewed at the end of each term.

Grazing licence

The proposed long-term licences will permit the managing authority to supervise the management of the land, while giving the licensee reasonable security of tenure. They do not lead to freehold tenure.

Some suggested terms and conditions for grazing licences are set out below.

- (i) The term of the licence should be up to 21 years.
- (ii) When three-quarters of the licence period has expired, the licence should be reviewed and a decision made on renewal.
- (iii) The licensed area should be protected forest.
- (iv) Cultivation should not be permitted other than in accordance with the provisions of the *Land Act* 1958.
- (v) With respect to the selection of areas on which grazing is to be permitted and the supervision of the licences, the Department of Crown Lands and Survey should be advised by the District Advisory Committees of the Soil Conservation Authority.
- (vi) The managing authority should exercise general supervision of the management of the licences and, after consultation with the Advisory Committee, may issue directions to the licensees with respect to the following matters :
 - (a) grazing management and stocking rates
 - (b) subdivisional fencing and water supply
 - (c) reclamation of eroded areas
 - (d) exclusion of stock from some areas in order to encourage or establish regeneration of the vegetation, and the permanent exclusion of stock from some control areas.
- (vii) The Committees supervising the licences should give due consideration to the financial implications of any directions they recommend in relation to a licence.
- (viii) The interests of the Forests Commission and the Fisheries and Wildlife Division in the land under licence should be recognized, and these departments consulted when management decisions are made.
- (ix) The licence should be cancelled for non-compliance with the conditions, at the discretion of the Minister.

Irrigation

The demand for land for irrigation depends largely on the future availability of water for allocation from the Murray River. This will not be known until a Government inquiry into Victoria's water resources and their allocation is completed, and water from the Dartmouth Dam, now under construction, is allocated. It appears, however, that some water will be available for allocation for private diversions from the Murray River.

During the last 20 years, irrigated agriculture in the study area has expanded by private diversions of water onto freehold land. The Council considers that any future expansions should also be by means of private diversions rather than Government schemes. Further large areas of freehold land between Swan Hill and Mildura are suitable for irrigation development. Suitable public land occurs south of Robinvale and at Lindsay Point, in the north-west of the study area. In both places little suitable freehold land is available for expansion of the existing irrigation developments. Most of the suitable public land near Robinvale is cleared and farmed, and that near Lindsay Point is semi-cleared.

The Council proposes that two areas be made available for irrigated agriculture. The first, 142 ha at Lindsay Point, adjoins an existing vineyard. The second, 290 ha south of Robinvale, is part of a large area of public land currently used for cropping and grazing. In addition, a few small areas in the irrigation districts of Sunraysia are recommended for alienation. (These are covered by Recommendation F1.)

In future, further public land could be allocated for extension of irrigated agriculture if review by the Council shows that it is justified.

Recommendations

- F5** That the land shown on the maps (approximately 140 ha in the Parish of Olney) be made available for irrigated agriculture and that alienation be permitted subject to the availability of suitable irrigation water and the provision of suitable onsite drainage disposal facilities.
- F6** That the land shown on the maps (approximately 290 ha comprising allotment 24, Parish of Toltol) be made available for irrigated agriculture, and that alienation be permitted subject to the availability of irrigation water and the provision of suitable on-site drainage disposal facilities.

The Council recommends that this latter area be used for the production of almonds, and that it be made available in a way that will not prevent its development by a co-operative organization.

With respect to section 5 (3) of the *Land Conservation Act* 1970, the Council recommends that the land covered by the recommendations above be made available under the provisions of the *Land Act* 1958.

Rack sites

In the parishes of Mildura and Merbein, many small areas (1–2 ha) of public land are being used as sites for the drying racks required by the dried vine fruit industry. The Council recommends that the Department of Crown Lands and Survey should investigate means of permitting the current use of land for rack sites to continue under the provision of the *Land Act* 1958, and that the alienation of these areas be permitted at the discretion of the Department.

G. FLORA AND FAUNA RESERVES

These reserves contain plant and animal communities in a natural or near-natural state on relatively small blocks of public land. In most cases they are the only substantial areas of native vegetation in predominantly rural areas.

Although their smallness limits their ability to support viable populations of native animals, most can sustain the smaller mammals and a wide range of insects and other invertebrates. They are especially important to birds, supporting sedentary populations and providing food and shelter for nomadic and migratory species.

Careful management can greatly increase the usefulness of these reserves.

Many flora and fauna reserves contain public tanks, which will be filled annually by the State Rivers and Water Supply Commission. The recommendations relating to these tanks are given in the Water Supply and Drainage chapter. Other reserves may have a water-supply or flood-mitigation function.

Recommendations

G1–G33 That the areas shown on the maps and described below be used to conserve native plants and animals

and that they be permanently reserved under section 14 of the *Land Act* 1958.

Map 1

- G1** 2200 ha, comprising the land south of allotments 49 and 54, Parish of Meringur; land south of allotment 56, Parish of Yarrara; and land north and east of allotment 44, and north of allotment 48, Parish of Kurnwill—to be managed by the Forests Commission.
Note that these areas are shown on Map 1 as parts allotments 27, 28, 35 and 36, Parish of Meringur; part allotments 31 and 40, Parish of Yarrara; and allotments 1, 3, 3A, 4 and 12, Parish of Kurnwill.
- G2** 556 ha, comprising the land south of allotment 58, Parish of Mallanbool—to be managed by the Forests Commission.
Note that this area is shown on Maps 1 and 3 as allotments 29 and 31, Parish of Mallanbool.

Map B

- G3** 4 ha, comprising allotment 170e, block B, Parish of Mildura—to be managed by the Department of Crown Lands and Survey.

Map 3

- G2** Southern section of the reserve fully described under G2 on Map 1, Parish of Mallanbool.

Map 4

- G4** 370 ha in allotment 43, Parish of Nulkwyne, and part allotment 3, Parish of Walpamunda—to be managed by the Department of Crown Lands and Survey.
- G5** 680 ha in allotment 5, Parish of Wymlet—to be managed by the Forests Commission.

Map 5

- G6** 240 ha, comprising the northern portion of allotment 5, Parish of Wemen—to be managed by the Forests Commission.
- G7** 340 ha east of allotments 25 and 26, Parish of Annuello—to be managed by the Forests Commission.
- G8** 150 ha, comprising the western part of allotment 8, Parish of Toltol—to be managed by the Department of Crown Lands and Survey.
- G9** 140 ha, comprising a section in the north-west of allotment 19 and an area to its west, Parish of Toltol—to be managed by the Department of Crown Lands and Survey.
- G10** 200 ha, comprising allotment 19 and the water reserve to its south-east, Parish of Myall—to be managed by the Fisheries and Wildlife Division.
- G11** 250 ha, including and south of allotment 9b, and south of allotment 9c, Parish of Kulwin—to be managed by the Department of Crown Lands and Survey.

Map 6

G12 90 ha east of allotments 22 and 24, Parish of Boinka—to be managed by the Forests Commission.

Map 7

G13 190 ha in allotments 26 and 35, Parish of Nyang—to be managed by the Forests Commission.

G14 170 ha, comprising allotment 17 and sections of allotment 16 and the area between these two allotments, and an area south of the Township of Walpeup, Parish of Walpeup—to be managed by the Department of Crown Lands and Survey.

G15 1 230 ha in the Timberoo Forest, Parish of Timberoo—to be managed by the Forests Commission.

G16 303 ha, comprising allotment 23, Parish of Manpy—to be managed by the Department of Crown Lands and Survey.

G17 370 ha, comprising allotment 22, Parish of Patchewollock North, and 170 ha west of allotments 32 and 33, Parish of Patchewollock—to be managed by the Forests Commission.

G18 230 ha, comprising allotment 17, Parish of Patchewollock—to be managed by the Fisheries and Wildlife Division.

G19 270 ha, comprising allotment 31, Parish of Gorya—to be managed by the Fisheries and Wildlife Division.

Map 8

G20 180 ha, comprising allotment 33, Parish of Manangatang—to be managed by the Fisheries and Wildlife Division. The area should continue to be used for the regulation of floodwaters.

G21 130 ha north-east of allotment 5, Parish of Eureka—to be managed by the Forests Commission.

G22 820 ha, comprising the Towan Plains Reserve, Parish of Turoar. (see section below).

G23 45 ha north of allotment 79, Parish of Piangil—to be managed by the Department of Crown Lands and Survey.

G24 190 ha, comprising allotment 49, Parish of Eureka—to be managed by the Forests Commission.

G25 290 ha south of allotment 66, Parish of Eureka—to be managed by the Forests Commission.

G26 230 ha north of allotment 3, Parish of Chillingollah—to be managed by the Fisheries and Wildlife Division.

G27 100 ha, comprising allotments 26A and 27, Parish of Waitchie—to be managed by the Fisheries and Wildlife Division.

G28 Lake Timboram (2 060 ha), Parish of Chillingollah—to be managed by the Fisheries and Wildlife Division. Note : this reserve receives flood flows from Lalbert Creek.

Map 11

G29 90 ha north of allotment 10, Parish of Cambacanya—to be managed by the Fisheries and Wildlife Division.

Map 12

G30 230 ha north of allotments 1 and 31, Parish of Towma—to be managed by the Fisheries and Wildlife Division.

G31 220 ha south of allotments 41 and 36, Parish of Wangie—to be managed by the Fisheries and Wildlife Division.

Map 13

G32 50 ha west of allotment 12, Parish of Budgerum East—to be managed by the Fisheries and Wildlife Division. The area should continue to be used for flood pondage.

G33 60 ha east of allotment 59, Parish of Quambatook—to be managed by the Department of Crown Lands and Survey.

Towan Plains

The Towan Plains Reserve lies 20 km west of Nyah West on the Nyah–Chinkapook road. It is a large depression which contains flat salt-pans, and low ridges or dunes of powdered gypsum (commonly known as copi islands). Some salt-pans carry no vegetation, and hold salty water during winter. In summer many of these dry out and then consist of bare earth with salt encrustations. Most of the salt-pans support salt-tolerant shrubs—mainly samphire (*Arthrocnemum*) and salt bush (*Atriplex*). In some places the salt-pans are fringed by regenerating kangaroo paperbark (*Melaleuca halmaturorum*). Many of the ridges running between the salt-pans support mallees over a groundcover of saltbushes and a few other shrubs, though some carry only sparse shrubs. The mallees are large and old, and contain many hollows in their limbs and trunks.

Towan Plains have high conservation values because of the saltbush–mallee association, and because they provide habitats for invertebrate animals and birds. The salt-pans support a specialized invertebrate fauna, and wading birds such as the red-necked avocet use the pans and samphire flats. The habitats provided by the mallees support a colony of bats as well as hollow-nesting birds such as parrots and tree martins. The value of the reserve as wildlife habitat is enhanced by the lack of other substantial areas of native vegetation nearby. Towan Plains is a good example of the Raak land system.

While Towan Plains is not very attractive visually it does provide some landscape diversity along a main road. At certain times of the year an alga (*Dunaliella salina*) gives the water in the saltpans a pink colour.

The powdered gypsum in the copi islands is widely used as a conditioner for heavy soils. It is extracted after removal of a shallow overburden, and as the deposits are of limited thickness large areas must be disturbed to extract economic quantities of the material. A current mining lease covers part of the area which is recommended to become a flora and fauna reserve. The Council believes that, because Towan Plains has high conservation values, this lease should not be renewed, and that future mining operations should be confined to uncommitted public land, and private land. An area of Towan Plains containing deposits of gypsum, but with low conservation values, has been recommended to be uncommitted land, and could be used for mining in the future.

Recommendation

G22 That the area (Towan Plains reserve) shown on the maps be used :

(a) to conserve native plants and animals

and that

(b) extraction of powdered gypsum from the area covered by a current mineral lease on Towan Plains be permitted to continue until the lease expires (a new lease or leases could then be issued over uncommitted land nearby at the discretion of the Mines Department after consultation with the Soil Conservation Authority)

(c) the extraction referred to in (b) above follow the guidelines laid down in the "Minerals and Stone Production" chapter, and in particular that extraction to be confined to areas not carrying mallee vegetation

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

H. EDUCATION AREAS

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

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

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

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

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

No one organization should have the exclusive right to use a particular education area, as it is important that students have the opportunity to visit a number of education areas in various land types throughout the State rather than visiting the one site several times. Minimum facilities such as toilets and shelters would be required at each education area, and it would be desirable to have accommodation either on the area or at some nearby locality. Whether or not accommodation facilities are located on the education area will depend on its proximity to other areas

of educational value in the region and also on the availability and location of existing accommodation. In forested areas accommodation and other permanent facilities should only be provided where adequate safeguards against fire can be made.

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

Recommendations

H1-H4 That the areas of public land listed below and shown on the maps be used to provide opportunities for students of all ages to :

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

and that they be reserved under section 14 of the *Land Act* 1958.

H1 Outlet Creek (710 ha)

Flood-plain with red gum and black box woodland ; dunes with slender cypress pine woodlands ; dunes with mallee and mallee heath ; close to farmland, national and regional parks ; to be managed by the National Parks Service.

H2 Timberoo (320 ha)

East-west dunes with broad swales ; woodland of slender cypress pine and mallee and grassland ; close to farmland and Walpeup Lake recreation area : to be managed by the Forests Commission.

H3 Wemen (490 ha)

Murray River flood-plain, including lakes ; red gum and black box woodland, and sand dunes with slender cypress pine woodland, mallee, and hummock grass mallee ; close to farmland, national park, and irrigation areas at Wemen ; to be managed by the National Parks Service.

H4 Koorlong (680 ha)

Plains and low dunes ; belar-sugarwood woodland, savannah grassland, and mallee ; close to wheat farms, irrigated vines and citrus, and basins holding saline drainage water ; to be managed by the Department of Crown Lands and Survey.

I. BUSHLAND RESERVES

Throughout the predominantly agricultural regions of the Mallee there are many relatively small pieces of public land which carry remnants of native vegetation. This vegetation, particularly the ground flora, is often modified from the original by grazing and invasion of weeds. The native trees and mallees are, however, still present and these areas provide landscape diversity particularly where more intensive agriculture is resulting in a gradual reduction in the number of trees on freehold land.

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

Management should aim at the maintenance of the native flora, particularly the tree species. Low intensity grazing, timber production and gravel extraction are not necessarily incompatible with this primary aim provided they are carefully planned and controlled, and the appearance of the reserves, particularly as viewed from roads and railway lines, is maintained.

These uses, however, may not be appropriate to all reserves, and the management authority may have to exclude grazing, timber production or gravel extraction from some reserves at least temporarily in order to permit regeneration of tree species.

Many bushland reserves contain public tanks which will be filled by the State Rivers and Water Supply Commission. The recommendations relating to these tanks appear in the Water Supply and Drainage chapter. Some reserves may have a flood mitigation function.

Recommendations

II-I211 That the areas indicated on the maps and described below be used to :

- (a) maintain the local character and quality of the landscape
 - (b) provide opportunities for passive recreation such as picnicking and walking
- and that they be temporarily reserved under section 14 of the *Land Act* 1958 and that—except where otherwise indicated—they be managed by the Department of Crown Lands and Survey.

Expansion of existing recreational facilities or new development should be permitted only where this does not conflict with the primary aim.

Map 1

- 11 50 ha north-west of allotment 48, Parish of Malloren.
 Note that on Map 1 Allotment 48 is shown as Allotment 3.
 12 25 ha north-west of Allotment 44, Parish of Mallanbool. Note that on Map 1 Allotment 44 is shown as Allotment 1.
 13 16 ha south-west of Allotment 49 Parish of Karawinna. Note that on Map 1 Allotment 49 is shown as Allotment 22.

Map 2

- 14 50 ha south-east of Allotment 25, Parish of Ginquam.
 15 10 ha south-east of Allotment 21, Parish of Ginquam.
 16 150 ha, comprising Allotment 7A, Parish of Yatpool.
 17 61 ha north-west of Allotment 19, Parish of Yatpool.
 18 80 ha between Allotment 13 and the township of Carwarp, Parish of Carwarp West. (two areas).
 19 38 ha comprising Allotment 43, Parish of Carwarp West.
 110 40 ha in NW Allotment 36, Parish of Yatpool.
 111 6 ha south of Allotment 57, Parish of Yatpool.
 112 8 ha in the south of Allotment 13, Parish of Carwarp West.

Map 3

- 113 8 ha comprising Allotment 624 of Section B, Parish of Mildura.
 114 7 ha comprising Allotment 702 of Section B, Parish of Mildura
 115 96 ha south of allotments 162c, 162d, 153 and 153d, of block B, Parish of Mildura.

Map 4

- 116 18 ha in the Parish of Bockie to the north of Allotment 11, Parish of Gayfield—to be managed by the National Parks Service.
 117 23 ha in Allotment 10a, and part of Allotment 20, Parish of Gayfield.
 118 20 ha in Allotment 28, Parish of Mamengorooock.
 119 10 ha in Allotment 38, Parish of Kattyong.
 120 24 ha in Allotment 24, Parish of Wymlet.
 121 47 ha in the west of allotment 25, Parish of Wymlet.
 122 52 ha comprising Allotment 25, Parish of Nulkwyne.
 123 25 ha comprising the northern section of the Area fully described under Map 7.
 124 71 ha west of Allotment 62, Parish of Tiega.
 125 53 ha comprising Allotment 23, Parish of Nulkwyne.
 126 48 ha comprising Allotment 6A, Parish of Nulkwyne.
 127 24 ha comprising Allotment 59A, Parish of Tiega.
 128 10 ha east of Allotment 59, Parish of Tiega.
 129 30 ha comprising part of Allotment 13, Parish of Nulkwyne.
 130 22 ha comprising Allotment 18, Parish of Nulkwyne.
 131 25 ha between Allotments 30, 31 and 32, Parish of Kia.
 132 46 ha comprising Allotment 57, Parish of Kia.
 133 55 ha south-west of Allotment 10, Parish of Kia.
 134 36 ha comprising part of the water reserve north of Allotment 43, Parish of Ouyen, and parts of Allotments 13 and 15, Parish of Kia.
 135 24 ha at the south-west of Allotment 3A, Parish of Burnell.
 136 25 ha at the eastern edge of Allotment 7, and north-west of Allotment 12—Parish of Burnell.
 137 28 ha north-west of Allotment 5, Parish of Wagant.

Map 5

- 138 26 ha in Allotment 12A, Parish of Bumbang.
 139 2 ha at the north-west of Allotment 22, Parish of Bumbang.
 140 32 ha south of Allotment 20, Parish of Toltol.
 141 10 ha north-east of Allotment 8, Parish of Koorkab.
 142 550 ha comprising Heywoods Lake, Parish of Narrung.
 143 45 ha south-west of Allotment 3, Parish of Geera.
 144 170 ha west of the township of Annuello, Parish of Geera.
 145 20 ha north of Allotment 11, Parish of Winnambool.
 146 5 ha in the west of Allotment 32, Parish of Koimbo.
 147 10 ha in Allotment 32, Parish of Myall.
 148 60 ha adjacent to the township of Kooloonong, Parish of Mirkoo.
 149 11 ha comprising Allotment 8A, Parish of Burra.
 150 10 ha east of Allotment 10A, Parish of Kulwin.
 151 100 ha west of Allotments 5 and 8, Parish of Larundel.
 152 20 ha north of Allotment 13A, Parish of Proonga.
 153 110 ha at the west of Allotment 13, Parish of Piangil West.
 154 30 ha between Allotments 4 and 5, Parish of Coonimur.
 155 12 ha, both sides of the road, north-west of Allotment 9A, Parish of Coonimur.
 156 15 ha at the north-east of Allotment 12, Parish of Coonimur.

Map 6

- 157 80 ha being Allotment 47, Parish of Duddo.
- 158 15 ha west of Allotment 2, Parish of Pallarang.
- 159 80 ha comprising Allotment 16, Parish of Boinka.
- 160 85 ha comprising Allotments 5A and 9, Parish of Purnya.
- 161 90 ha comprising Allotment 15, Parish of Underbool—to be managed by the Forests Commission.
- 162 160 ha immediately east and north-east of the Murrayville township, Parish of Danyo.
- 163 69 ha comprising Allotment 36, Parish of Danyo.
- 164 28 ha comprising Allotment 41, Parish of Danyo.
- 165 40 ha comprising Allotment 17, Parish of Duddo.
- 166 50 ha comprising Allotment 56, Parish of Tutye.
- 167 15 ha in the south-west of Allotment 7, Parish of Tutye.
- 168 120 ha comprising Allotment 27 and part of Allotment 28, Parish of Tutye.
- 169 190 ha comprising Allotments 9 and 9c, and adjoining areas, Parish of Tyalla.
- 170 75 ha south-east of Allotment 43, Parish of Boinka.
- 171 14 ha at the north-east of Allotment 22A, Parish of Underbool.

Map 7

- 172 140 ha comprising Allotment 23, Parish of Mamengorooock.
- 173 13 ha at the east of Allotment 12, Parish of Mamengorooock.
- 174 120 ha in Allotment 7, Parish of Gnarr—to be managed by the Forests Commission.
- 175 7 ha at the north-west of Allotment 10, Parish of Gnarr.
- 176 83 ha comprising Allotment 31 and the Reserve to its south-east, Parish of Kattyong.
- 177 13 ha in the east of Allotment 14A, Parish of Paignie.
- 178 99 ha comprising Allotment 6, Parish of Walpeup—to be managed by the Forests Commission.
- 179 60 ha between Allotments 4 and 6, Parish of Timberoo, and extending into the Parish of Tiega.
- 180 33 ha in south of Allotment 13, Parish of Tiega.
- 181 26 ha on the western boundary of Allotment 13, Parish of Tiega.
- 182 54 ha south-west of Ouyen township, straddling the Ouyen Highway, Parish of Ouyen—to be managed by the Forests Commission.
- 183 23 ha at the south-west of Allotment 4, Parish of Ouyen.
- 184 18 ha at the north-west of Allotment 11, Parish of Boorongie.
- 185 24 ha at the north-east of Allotment 12, Parish of Ouyen.
- 186 15 ha east of Allotment 31, Parish of Boorongie.
- 187 67 ha in Allotment 10, Parish of Underbool—to be managed by the Forests Commission.
- 188 64 ha in the north of Allotment 1, Parish of Underbool.
- 189 10 ha north-east of Allotment 2, Parish of Underbool.
- 190 19 ha between Allotments 30 and 29, Parish of Underbool.
- 191 76 ha in Allotment 22, Parish of Nyang.
- 192 6 ha in the south-west of Allotment 21, Parish of Walpeup.
- 193 16 ha south of Allotment 1, Parish of Boulka.
- 194 41 ha to the east of Allotment 34A, Parish of Boulka.
- 195 26 ha in Allotment 12, Parish of Boulka.
- 196 15 ha east of Allotment 20A, Parish of Boulka.
- 197 30 ha north-east of Allotment 4B, Parish of Woorack.
- 198 93 ha comprising Allotment 15, Parish of Daalko.
- 199 112 ha in Allotment 21, Parish of Daalko.
- 1100 39 ha between Allotments 8A and 8B, Parish of Daalko.
- 1101 26 ha between Allotments 58 and 60, Parish of Walpeup.
- 1102 28 ha at the south-east of Allotment 32, Parish of Walpeup.
- 1103 40 ha comprising Allotment 70, Parish of Walpeup.
- 1104 35 ha comprising Allotment 43, Parish of Walpeup.
- 1105 264 ha comprising Allotment 43, Parish of Timberoo.
- 1106 11 ha between Allotments 32 and 35, Parish of Timberoo.
- 1107 8 ha in the south of Allotment 50, Parish of Boulka.
- 1108 70 ha comprising Allotment 1, Parish of Pirro.
- 1109 3 ha east of Allotment 24, Parish of Woorack.
- 1110 164 ha at the south of Allotment 31, Parish of Woorack.
- 1111 30 ha east of Allotment 14, Parish of Baring North.
- 1112 60 ha comprising Allotment 20, Parish of Baring.
- 1113 84 ha comprising Allotment 20B, Parish of Baring.
- 1114 23 ha to the north of Allotments 34 and 35, Parish of Patchewollock.
- 1115 26 ha comprising Allotment 46, Parish of Patchewollock.
- 1116 30 ha south of Allotment 12A, Parish of Patchewollock North.
- 1117 64 ha south of Allotment 11, Parish of Patchewollock North—to be managed by the Forests Commission.
- 1118 30 ha to the north of Allotments 34 and 35, Parish of Patchewollock.
- 1119 120 ha comprising Allotment 33, Parish of Denning.
- 1120 10 ha at the south-east of Allotment 34, Parish of Denning.
- 1121 8 ha south-east of Allotment 24, Parish of Dering.
- 1122 110 ha comprising Allotment 13, Parish of Denning—to be managed by the Forests Commission.
- 1123 4 ha in the east of Allotment 4, Parish of Dering.
- 1123A 16 ha at the south-east of Allotment 61, Parish of Pirro.
- 1124 20 ha between Allotments 4 and 8, Parish of Denning.
- 1125 55 ha south-east of Allotment 13, Parish of Dering, and including Allotment 1A, Parish of Denning.

- I126 20 ha at the north-west of Allotment 25, Parish of Gorya.
 I127 64 ha comprising Allotment 26, Parish of Dattuck—to be managed by the Forests Commission.

Map 8

- I128 68 ha comprising Allotment 14, Parish of Pirro.
 I129 110 ha in Allotment 14, Parish of Pier-Millan.
 I129A 255 ha in Allotments 20 and 21, Parish of Wagant and Allotment 31, Parish of Kulwin.
 I130 20 ha south-east of Allotment 22, Parish of Gerahmin.
 I130A 60 ha east of Allotment 30, Parish of Kulwin.
 I131 19 ha in Allotment 21A, Parish of Gerahmin.
 I131A 14 ha south-west of Allotment 15, Parish of Larundel.
 I132 24 ha north-west of Allotment 37, Parish of Gerahmin.
 I133 13 ha at the north-east of Allotment 42, Parish of Gerahmin.
 I134 90 ha south-west of Allotment 24, Parish of Eureka.
 I135 27 ha south-east of Allotment 22A, Parish of Eureka.
 I136 120 ha east of Allotment 41, Parish of Eureka—to be managed by the Forests Commission.
 I137 32 ha south-west of Allotment 15, Parish of Eureka.
 I138 25 ha comprising Allotments 26A and part of 27, Parish of Prooinga.
 I139 20 ha comprising Allotment 31, Parish of Prooinga.
 I140 20 ha south-west of Allotment 19, Parish of Prooinga.
 I141 20 ha comprising the Water Reserve between Allotments 57A and 59B, Parish of Turoar.
 I142 10 ha north-east of Allotment 54, Parish of Turoar.
 I143 62 ha north of Allotment 47A, Parish of Turoar.
 I144 40 ha north of Allotments 18, Parish of Towan.
 I145 20 ha between Allotments 34 and 35, Parish of Towan.
 I146 12 ha west of Allotment 7A, Parish of Turoar.
 I147 83 ha south-east of Allotment 2, Parish of Lianiduck.
 I147A 50 ha in the south-west of Allotment 18, Parish of Turoar.
 I148 16 ha north-east of Allotment 12, Parish of Chillingollah.
 I149 26 ha including part of and to the north west of, Allotment 8B, Parish of Chillingollah.
 I150 50 ha comprising Allotment 32A, Parish of Turoar.
 I151 40 ha comprising Allotments 5D and 5E, Parish of Polisbet.
 I152 28 ha comprising Allotment 16A and the Reserve north of Allotment 16A, Parish of Polisbet.
 I153 9 ha at the south-east of Allotment 24, Parish of Woorinen.
 I154 10 ha at the north-west of Allotment 6, Parish of Bitchigal.
 I155 15 ha north-east of Allotment 62, Parish of Wortongie.
 I156 32 ha at the north-east of Allotment 45, Parish of Bourka.
 I157 52 ha in the west of Allotment 1, Parish of Burupga.
 I158 10 ha south of Allotment 36, Parish of Boigbeat.
 I159 177 ha comprising Allotment 27 and a section of Allotment 25, Parish of Moah.
 I160 13 ha at the north of Allotment 23, Parish of Waitchie.
 I161 39 ha in the west of Allotment 28, Parish of Berriwillock.
 I162 12 ha in the south-west of Allotment 6A, Parish of Chinangin.
 I163 6 ha in the south of Allotment 11, Parish of Nowie.

Map 9

- I164 120 ha west of the Racecourse, Parish of Tyntynder North.
 I165 2 ha in the south-west of Allotment 15, Parish of Mumbel.
 I166 13 ha at the east of Allotment 44, Parish of Mumbel.
 I167 30 ha comprising the southern section of the Water Supply and Timber Reserve, east of Allotments 12 and 16, Parish of Kunat Kunat.

Map 10

- I168 650 ha at Broken Bucket Tank at the centre-south of the County of Weeah.

Map 11

- I169 14 ha in Allotment 42A, Parish of Werrap.
 I170 10 ha north-west of Allotment 53, Parish of Werrap.
 I171 140 ha west of Allotments 13, 13A and 18A, Parish of Albacutya.
 I171A 96 ha east of Allotment 12, Parish of Yaapect.
 I172 20 ha at the south of Allotment 26, Parish of Nandemarriman.
 I173 3 ha in the east of Allotment 69A, Parish of Goyura.
 I174 16 ha in the south-east corner of Allotment 34, Parish of Carori.
 I175 5 ha in the south-east of Allotment 41C, Parish of Carori.
 I176 3 ha in the south of Allotment 3, Parish of Beulah.
 I177 12 ha at the south of Allotment 12, Parish of Chiprick.

Map 12

- I178 10 ha north of Allotment 25, Parish of Chiprick.
- I179 96 ha north of Allotment 52, Parish of Willangie.
- I180 21 ha north-west of Allotment 17, Parish of Wortongie.
- I181 11 ha north-east of Allotment 82, and north-west of Allotment 83, Parish of Boigbeat.
- I182 14 ha comprising the plantation reserve in section 7, township of Berriwillock, Parish of Boigbeat.
- I183 16 ha in the south-west of Allotment 22, Parish of Chinangin.
- I183A 12 ha at the east of Allotment 20, Parish of Wangie.
- I184 126 ha west of Allotment 37, Parish of Wangie.
- I185 10 ha at the west of Allotment 4, Parish of Watchupga.
- I186 10 ha at the south of Allotment 15, Parish of Kinabulla.
- I187 20 ha at the east of Allotment 22, Parish of Kinabulla.
- I188 16 ha at the east of Allotment 2, Parish of Curyo.
- I189 9 ha at the north-east of Allotment 45A, Parish of Marlbed.
- I190 50 ha west of Allotments 1 and 2, Parish of Wirmbirchip.
- I191 33 ha south-east of Allotment 8A, Parish of Marlbed.
- I192 40 ha west of Allotment 4, Parish of Towma.
- I193 32 ha at the south-east of Allotment 13, Parish of Karyrie.
- I194 24 ha comprising Allotment 52A, Parish of Karyrie.
- I195 12 ha south-west of Allotment 39, Parish of Nullawil.
- I196 26 ha north-west of Allotment 20, Parish of Nullawil.
- I197 20 ha north of Allotment 38, Parish of Carapugna.
- I198 9 ha north-west of Allotment 19, Parish of Ninyeunook.

Map 13

- I199 8 ha north-east of Allotment 8c, Parish of Lalbert.
- I200 8 ha north-east of Allotment 5, Parish of Talgitcha.
- I201 36 ha in Allotment 14, Parish of Korrak Korrak.
- I202 20 ha comprising Allotment 8A, Parish of Cannie.
- I203 40 ha east of Allotment 28, Parish of Towaninny.
- I204 29 ha comprising Allotment 12A, Parish of Quambatook.
- I205 9 ha at the west of Allotment 30, Parish of Ninyeunook.
- I206 8 ha south-west of Allotment 47, Parish of Quambatook.
- I207 10 ha south-east of Allotment 22, Parish of Marmal.
- I208 40 ha north of Allotments 26B and 26C, Parish of Quambatook.
- I209 25 ha north of Allotment 8, Parish of Gredgwin.
- I210 16 ha west of Allotment 24A, Parish of Marmal.
- I211 25 ha between allotments 28B and 22, Parish of Leaghur.

J. PUBLIC LAND WATER FRONTAGES

Along numerous rivers and streams in the study area a strip of public land has been retained between the water and adjacent alienated land. This retained strip of land is termed a public land water frontage. There is no retained public land on some of the minor ephemeral streams, and the recommendations that follow do not apply to these privately owned frontages.

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

Each of these authorities may delegate some of its responsibility to local bodies. The Department of Crown Lands and Survey may form committees of management for public purposes reserves, and river improvement or drainage trusts under the guidance of the State Rivers and Water Supply Commission may be formed in certain areas.

The Forests Commission controls forest produce on public land water frontages, except where a committee of management has been formed. Public land frontages alongside artificial water storages and aqueducts are often controlled by the management authority that controls the water.

Adjoining occupiers frequently hold public land water frontages under licence for grazing purposes. Special conditions may apply to the licences—for example, to permit cultivation.

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

These licensed river frontages are, however, public land; they are often valuable for low intensity forms of recreation such as walking, fishing, and observing nature, and they provide access to extensive lengths of streams and lake shores. As mentioned above, the public are legally entitled only to walk through a licensed frontage. Licences for previously unlicensed public water frontages, now being issued by the

Department of Crown Lands and Survey, require the licensee to erect a stile or gate in any fence erected across the frontage, where appropriate, to facilitate public access. This condition has not been applied to the majority of existing licences and Council believes that in some situations—for example, along popular fishing streams—the provision of stiles would facilitate pedestrian access along public land water frontages and would reduce damage to fences and avoid gates being left open.

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

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

Public land water frontage reserves

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

Recommendations

J1–J7 That the public land described below and shown on the maps be used to :

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

and that

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

- (iii) cultivation not be permitted (except with the approval of the Department of Crown Lands and Survey) and that, in proclaimed water supply catchments, the Soil Conservation Authority be consulted to ensure that approval to cultivate is in accordance with any land use determination affecting the water frontage made under the *Soil Conservation and Land Utilization Act 1958*
- (iv) in particular cases, licensees may be required to fence off and exclude stock temporarily from some parts of the licence area where, in the opinion of the management authority, special measures are necessary to protect water supplies, to rehabilitate eroding areas, or to permit regeneration of native plants that have particular value for nature conservation
- (c) existing use of water frontages for disposal of saline drainage water continue for the time being
- (d) the Department of Crown Lands and Survey be consulted prior to the proclamation of roads, the construction of roadways, or the erection of buildings on public land water frontages
- (e)
 - (i) public land water frontages be permanently reserved under section 14 of the *Land Act 1958*
 - (ii) where a water frontage is adjacent to or within a proposed national, State, or regional park, reserved forest, or education or reference area, or bushland, scenic, flora and fauna, or wildlife reserve, it be managed by the authority responsible for the adjoining or surrounding land
 - (iii) where a water frontage is not adjacent to a park or reserve as described in (e) (ii) above, it be managed by the Department of Crown Lands and Survey or by a committee of management where one is appointed.

Note that while most of the areas covered by Recommendations J1–J7 are reserved for public purposes, some are unreserved at present.

- J1** Avoca River and anabranches
- J2** Lalbert Creek
- J3** Loddon River and anabranches
- J4** Murray River and anabranches
- J5** Outlet Creek and Lake Hindmarsh
- J6** Tyrrell Creek
- J7** Yarriambiack Creek

Frontages with channels

Channels forming part of the State Rivers and Water Supply Commission's stock and domestic water supply system run through parts of the water frontage reserves on Tyrrell and Lalbert Creeks. No change in the use and management of these channels is proposed.

K. ROADSIDE CONSERVATION

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

Nature conservation

Vegetation on roads is important for nature conservation because it often contains the only remnants of the region's native plant associations. Such remnants are valuable for preserving species with restricted distribution, and genetically interesting variants of widespread species. They are often useful in land studies, as they may permit the original pattern of the vegetation to be pieced together. They also provide habitat for some native animals, and have special significance as pathways permitting birds to move through the countryside on annual migration, or in search of food or nesting sites.

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

Recreation and landscape

In rural districts vegetation along roads is often a major component of the landscape, breaking the monotony of cleared paddocks and accentuating the contours of the land. It provides a pleasant, variable road environment for motorists, and shady areas for rest and relaxation, especially where wayside stops have been established.

Much of the distinctive character of the Mallee farmlands derives from the native vegetation on the road reserves. The value of this vegetation for landscape preservation and nature conservation is especially high in the eastern and southern Mallee, where very few substantial areas of native vegetation remain. Roadside vegetation also has some value in breaking the force of the wind and ameliorating soil erosion.

While many roads retain wide strips of native vegetation, others are mostly cleared—in general the main roads have fared worse than the minor ones. Some of the roadsides were cleared at the time of settlement, but the vegetation on others has been removed by road-making activities, and by farmers killing mallees to promote better growth of crops in the adjacent paddocks. Grazing, burning off, and rabbit-control measures have also contributed to the deterioration of roadside vegetation.

Stock graze many roadsides in the study area, particularly in the eastern Mallee. The Council believes that this practice should stop, as the grazing conflicts with the conservation of the remaining vegetation. The long, narrow strips of roadside vegetation

are very susceptible to outside influences, and have lower regenerative capacities than large areas of vegetation.

However, good stands of vegetation remain along the Henty and Ouyen Highways, the northern parts of the Calder Highway, the Nyah West-Chinkapook road, the Manangatang-Robinvale road, the Kerang-Quambatook road, and the roads in the Kooloonong area.

In addition to the vegetation on the highways and main roads, that on the road leading from Hopetoun to Wyperfeld National Park is of special significance, as many of the visitors to the park use this road. The vegetation along it is gradually being cleared. The road from Patchewollock to Pine Plains, which is likely to be used by tourists in future, carries some fine stands of mallee.

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 several authorities depending on the status of the road. The most important roads of the State (State highways, tourist and forest roads, and freeways) declared under the *Country Roads Act* 1958 are completely under the control of the Country Roads Board (9 000 km). Main roads (14 500 km) are also declared, but are controlled jointly by the Country Roads Board and local municipal councils. Vegetation on unclassified roads (about 98 000 km of mostly minor roads) is under the care and management of municipal councils, although it is owned by the Crown. The Forests Commission has the control of vegetation on unclassified roads that pass through or adjoin State Forest. (Note : These figures are for all Victoria.)

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

Recommendations

K1 That road reserves throughout the State continue to be used for communication, transport, access, surveys and utilities. Landscape, recreation, and nature conservation values can best be protected by observing the following guidelines. The Council recognizes that many of these are already being implemented by the Country Roads Board :—

- (i) When improvements to a road are being carried out, trees and shrubs on the road reserve should be disturbed to the minimum extent consistent with the safe and efficient design and use of the road.
- (ii) Where a road carrying a healthy stand of trees is to be duplicated, the new carriageways should be located, where feasible, on purchased private land, and the trees be retained as a median strip.

- (iii) Where re-alignment of a road results in a section of the old road being cut off from the new alignment, wherever possible the section of the old road should not be sold but used as a recreation and rest area.
- (iv) Where a pipeline or overhead wires are to follow a road carrying trees and shrubs in a rural district, the easements for these utilities should be located on private land alongside the road if this is already cleared, rather than clearing roadside vegetation to accommodate them.
- (v) Grazing of domestic stock should be discouraged on roadsides in areas where there is a predominately native ground flora or where it is necessary to encourage regeneration of native species.
- (vi) Plantings of trees and shrubs native to the area should be established along roads from which trees and shrubs have been cleared.
- (vii) If gravel, sand and earth for roadworks must be taken from the road verges, then this should be done in such a manner as to ensure a minimum disturbance of the native vegetation, and the disturbed area should be rehabilitated where possible with vegetation native to the area.
- (viii) The practice of burning off roadside vegetation should be kept to a minimum consistent with providing adequate fire protection.
- (ix) Weeds and vermin on roads should be controlled by means that do not conflict with the uses given above.

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

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

L. RECREATION AND RECREATION RESERVES

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 as much as the attitude with which it is undertaken—activities (or inactivities) undertaken with little or no feeling of compulsion are almost certainly recreation.

Outdoor recreation is of particular interest to Council as the public land of the study area provides important opportunities for this type of recreation. Throughout these recommendations the countless forms of outdoor recreation have been referred to 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 absorbing the sights, sounds and atmosphere of the surrounding environment while expending little physical effort. Examples are picnicking, nature observation and strolling.
- * Active recreation covers situations where the individual must expend considerable physical effort to obtain some mastery of physical forces in order to satisfy his particular recreational needs. Examples are playing organized sport, bush-walking and rock-climbing.
- * Open-space recreation includes all recreational activities that require spacious outdoor surroundings, whether the activities be active or passive, formal or informal.
- * Intensive recreation involves large numbers of people per unit area of land. For example, areas such as picnic grounds and beaches near Melbourne would be considered to be intensively used.

In view of the predicted increase in demand for outdoor recreation and the high capability of some public land to meet this demand, the Council, in making its recommendations, has suggested that much public land be available for various recreational uses.

Throughout these recommendations the Council has set aside a variety of reserves which will provide for a wide range of recreation opportunities. However, it has not been possible to make recommendations covering in detail all the forms of recreation currently pursued on public land.

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

The various recreational activities differ in their requirements for types of land, size of area and site location. They also differ in their impact on the land and on other activities (including other recreational activities). Generally, any one activity pursued at a low level of intensity poses little threat to the environment and does not often conflict with other activities. With increasing intensity conflicts and problems can arise. There is always the problem of recreation damaging the environment it seeks to use.

Council therefore believes that the land managers should aim at controlling the levels and patterns of recreational use according to the capability of the area to sustain such use without irreversible damage or significant conflict with the primary purposes of the area, while at the same time avoiding any unnecessary restrictions on use. 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 soils are unstable (such as the sandy soils of the Big Desert), and where the primary use is conservation of the natural environment or special natural features.

A particular recreational activity which may pose a problem for the land managers either now or in the future is further discussed below.

Motorized recreation

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

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

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

The demand exists for the provision of some areas of public land in order to accommodate and relocate the off-road activities of motor vehicles, particularly trail-bikes. Such areas could be, for example, in the form of defined trails through 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 near-by areas. Council points out that there is a serious and growing problem of damage to soils and vegetation associated with the spectators attracted by motorised recreational activities.

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. Land management authorities should aim at controlling the levels and patterns of recreational use according to the capability of particular areas to sustain this use without irreversible change or significant conflict with the primary purpose of the area.

Motorized recreation

- L2** That vehicular use of all roads (within the meaning of the *Land Conservation (Vehicle Control) Regulations*) continue to be permitted on public land except where closure is necessary because of erosion-prone soils, seasonal conditions, excessive maintenance, or conflict with the primary use of the area.
- L3** That the land management authorities endeavour to provide some areas for off-road vehicular use within land under their control.
- L4** That the Soil Conservation Authority and the Lands Department investigate the feasibility of locating a trail or trails in the uncommitted land in the south-east of the Big Desert for use by motor sports clubs from the surrounding districts.
- L5** That the use of the land shown on the maps (50 ha in the Parish of Ouyen) as a site for a motor sports circuit be permitted.

Recreation reserves

- L6-L38** That the areas described below and shown on the maps be used for organized sports (football, cricket, golf and so on), picnicking, camping and informal recreation as permitted by the management authority

and that they be reserved under section 14 of the *Land Act* 1958 and managed by the Department of Crown Land and Survey unless otherwise stated. Note : In some cases, such as golf clubs and shooting ranges, other forms of tenure under the *Land Act* 1958 may be more appropriate.

Note that some recreation reserves contain public tanks which will be filled by the State Rivers and Water Supply Commission. The recommendations relating to these tanks appear in the Water Supply and Drainage chapter.

Map 1

- L6** 180 ha to the west, north, and east of Lake Cullulleraine, Parish of Mullroo.

Map B

- L7** 41 ha comprising the Racecourse and Public Recreation Reserve, north-east of allotments 3, 4 and 5, section B, Parish of Merbein.
- L8** 8.5 ha comprising the Recreation Reserve adjoining the west of allotments 86A and 89A, Parish of Mildura.
- L9** 95 ha comprising the Recreation Reserve to the west of allotments 49 and 50, Parish of Mildura.
- L10** 40 ha comprising the Recreation Reserve to the west of allotment 18, and bordered by Gibbs Street and Ranfurly Way, Parish of Mildura.
- L11** 17 ha comprising the Recreation Reserve between Ranfurly Way and Ranfurlys Bend on the Murray River, north of Recreation Reserve L10, Parish of Mildura.
- L12** 240 ha comprising block 83 and parts blocks 84, 96, and 97, Section C, Parish of Mildura.
- L13** 2 ha west of allotment 133, Parish of Mildura.
- L14** 34 ha comprising the Victorian Field and Game Association Reserve east of allotment 63, south of allotment 130, and west of allotment 61, Parish of Mildura.
- L15** 5 ha comprising the Recreation Reserve bordered by Dairtnunk Avenue, and allotments 636, 637B and 637D, Parish of Mildura.
- L16** 185 ha comprising the Racecourse, and Sandalong Park Recreation Reserve, Parish of Mildura.

Map 5

- L17** 15 ha in the south-west corner of allotment 19, Parish of Bumbang.
L26 20 ha comprising the northern portion of the reserve fully described under Map 8.

Map 7

- L18** 11 ha in the south-east of allotment 1, and 21 ha to the north-west of allotment 16, Parish of Walpeup.
L19 40 ha adjoining the north-west of allotment 16A, Parish of Walpeup.
L20 30 ha at the south of the timber reserve adjoining the north-east of allotment 42, Parish of Timberoo—to be managed by the Forests Commission. This reserve should continue to receive channel outfall water.
L21 75 ha west of Ouyen township, and 20 ha south of Ouyen township, Parish of Ouyen.
L22 60 ha comprising the northern section of allotment 20C, Parish of Baring.
L23 30 ha comprising the south-western section of allotment 31, Parish of Patchewollock.
L24 14 ha at the south-west of allotment 3, Parish of Gorya.
L25 9 ha at the eastern boundary of allotment 47, Parish of Gorya.

Map 8

- L26** 70 ha comprising part of the Water Reserve immediately north-west of the township of Manangatang, and south of allotment 15, Parish of Manangatang.
L27 14 ha immediately west of the township of Chinkapook, Parish of Eureka.
L28 25 ha comprising the western section of allotment 151, Parish of Piangil.
L29 104 ha comprising the Nyah Rifle Range, the Nyah West Golf Club, and the area between these two, Parish of Tyntynder North.
L30 16 ha south-east of the Township of Nandaly, Parish of Bimbourie.
L31 10 ha south of the Township of Sealake, Parish of Burupga.

Map 9

- L32** 31 ha comprising the western section of the Water Supply and Timber Reserve, east of allotments 12 and 16, Parish of Kunat Kunat.

Map 11

- L33** 72 ha between allotment 24 and the township of Rainbow, Parish of Werrap.
L34 30 ha comprising Lake Lascelles and its boundary, south of allotment 2, Parish of Wiall. This reserve should continue to receive channel outfall water.
L35 27 ha in the south-west of allotment 7, Parish of Watchupga. This reserve should continue to receive channel outfall water.

Map 12

- L36** 32 ha in the Berriwillock Township to the east of allotment 87, Parish of Boigbeat.
L37 40 ha comprising the Racecourse Reserve, allotment 21J, Parish of Wirmbirchip.
L38 40 ha comprising the southern section of the Tcham Lakes Water Reserve, west of allotment 6, Parish of Karyrie. This reserve should continue to receive channel outfall water.

M. SCENIC RESERVES

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

Recommendation

- M1** That the 21 ha shown on Map B, between Woomera Avenue and the Murray River, east of Red Cliffs in Parish of Mildura, be used as a lookout and that it be reserved under section 14 of the *Land Act* 1958 and managed by the Department of Crown Lands and Survey.

N. MINERALS AND STONE

The continued existence of our technological society will depend on the availability of minerals. The Mallee study area contains known deposits of "minerals" as defined in the *Mines Act* 1958. Knowledge of the location of our mineral resources is far from complete and new deposits of commercial significance will undoubtedly be found. In addition uneconomic deposits of currently important minerals may become economically exploitable, and other minerals that are not used at present may become important.

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

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

Some areas in the State are excepted under the *Mines Act* 1958, and the *Land Act* 1958, from occupation for mining purposes. Recent legislation has improved the control over operations by holders of miner's rights—before such operations on public land are authorised, the Department of Mines should consult the public authority or department that manages the land.

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

The Council is concerned at the complexity of legislation and procedures governing extraction of "stone", and the lack of control accompanying some of these procedures whether in theory or in practice (for example the Country Roads Board and municipal councils are not bound by many provisions of the *Extractive Industries Act* 1966). Many unwise excavations have been made upon public land, and the rehabilitation of some excavated land is lagging.

Poorly planned and located excavations can affect surrounding lands through noise, dust, unsightliness and erosion, and diminish the value of the land for nature conservation: however, with care these effects can be entirely removed or minimized.

The Council believes that :

- (i) All exploration for and extraction of "minerals" and/or "petroleum" on public land should be subject to the approval of, and conditions imposed and enforced by, the Department of Mines in consultation with the authority managing the land.

In considering an application the Department of Mines should apply the guidelines listed under (v) below and should consult with the public authority that manages the land with a view to agreeing on reasonable conditions to be enforced by the Department. In addition, where necessary, the Department should consult with the Soil Conservation Authority with a view to agreeing on conditions for enforcement.

- (ii) There should be co-operation and consultation between the land managing authorities, the Mines Department and 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 be subject to the approval of the appropriate managing authority.

In all cases, the procedures which are established should apply to Municipal Councils, the Country Roads Board, and other public authorities as well as commercial operators. To enable this the relevant Acts may have to be amended.

- (iii) A system should be established that would guarantee funds in advance for progressive and final reclamation of any excavation or operation, as is already provided for under the *Extractive Industries Act 1966*.
- (iv) Royalties for materials extracted from public land, including site rental when appropriate, should be more closely related to the market value of the material.
- (v) the following guidelines should apply to all extraction from public land.

- * No sites should be opened for the extraction of "minerals", "petroleum" and "stone" in areas considered by the Mines Department, after consultation with the land management authority, to be of greater importance for their aesthetic or nature conservation values.

The Mines Department should not permit any extraction of minerals unless it is satisfied as to the reasonable economic viability of the proposed extraction. The Mines Department should also require as far as reasonably possible the lodgment of mining plans which show the postmining state of the land.

- * Extraction of stone should generally be concentrated on the fewest possible sites in an area, and any one site should be completely worked out and, where possible, rehabilitated before a new site is opened. Where the nature of the resource permits, excavations for stone should be deep and limited in area rather than shallow and extensive.

All extractive sites should be fully rehabilitated where possible. Rehabilitation should follow extraction progressively when possible, but other wise should begin immediately extraction is completed. The requirements for rehabilitation should be included in the conditions of the lease or licence before any approval to extract is granted. The rehabilitation may include, for example, replacing topsoil,

revegetating the site with plantation forest, filling a quarry with water and developing the site as a park, using a gravel pit for off-road vehicles, using a quarry for garbage disposal prior to rehabilitation, or restoring the site as closely as possible to its original topography and revegetating it with species native to the site.

- * The present method of extracting crystalline gypsum leaves very unsightly mounds of overburden resting in excavated pits. In many cases the pits intercept the water table. The Council believes that the Mines Department and the mineral lessees should devise and implement a method of spreading the overburden, and possibly the washed fines also, into the excavations to restore a near-natural surface to the mined areas. In addition, closer supervision of the mining appears to be necessary to ensure that all available gypsum is mined from the excavations.
- * The extraction of powdered gypsum (copi) from dunes on salt pans on public land takes place in the eastern Mallee. These dunes carry scattered to dense mallees, which are significant for nature conservation because very little native vegetation remains in the region. Current mining procedures destroy the mallees, and although topsoil may be replaced, the sites are not revegetated. Extraction of powdered gypsum should be concentrated in areas denuded of mallee cover. If in future it becomes necessary to mine vegetated areas, complete reclamation should take place, including planting of the native vegetation.

Recommendations

N That public land in the study area (other than land excepted from occupation for mining purposes under the *Mines Act* 1958 and the *Land Act* 1958) continue to be available for exploration and extraction of "minerals", "petroleum", and "stone", subject to the principles and guidelines set out above.

N1 Clay Workings—Merbein

- (a) That the area (21.5 ha) shown on the plans be used for the extraction of clay, and activities associated with brick-making.
- (b) That the alienation of the area (3 ha) shown on the plans (on which a brick-factory and house are situated) be permitted.

With respect to section 5 (3) of the *Land Conservation Act* 1970, the Council recommends that the land covered by the recommendation above be made available under the provisions of the *Land Act* 1958.

N2 Crystalline Gypsum Workings

- (a) That the existing mining leases (1 800 ha) shown in the plans continue to be used for the extraction of gypsum, and that new leases be issued for uncommitted land nearby as deemed necessary by the Mines Department.
- (b) That the Mines Department and the mineral lessees devise and implement a method of spreading the over-burden, and possibly the washed fines also, into the excavations left by the mining.
- (c) that all readily available gypsum be mined from excavated areas.

N3 Powdered Gypsum Workings

- (a) That the existing mining leases (200 ha) shown in the plans continue to be used for the extraction of powdered gypsum, and that new leases be issued for uncommitted land nearby as deemed necessary by the Mines Department.
- (b) That mining of powdered gypsum be concentrated onto areas denuded of mallee cover.
- (c) That, if it becomes necessary to mine vegetated areas, vegetation native to the area be replanted.

N4 Salt Workings

That the extraction of salt from pans and lakes on uncommitted land be permitted at the discretion of the management authority.

Note : This recommendation does not preclude the future use of Lakes Tyrrell and Wahpool, and other lakes, for the disposal of saline drainage water. This disposal may have deleterious effects on the salt harvesting operations.

Note : Recommendation A3 permits salt extraction from two of the Pink Lakes, north of Underbool.

O. WATER SUPPLY AND DRAINAGE

WATER SUPPLY

Most of the settled districts of the study area are supplied with water for stock and domestic purposes by the large network of earthen channels that bring water from storages to the south and east. Most towns have an elevated reservoir, into which water is pumped from an earthen storage. Many of the channels and town storages are on public land, but are not shown on the maps because of their small area. The Council proposes no change in the use of these areas.

The Millewa district in the north-west of the study area is supplied from the Murray River, via Lake Cullulleraine and a storage at Bambill South, and then pipelines to individual farms.

The irrigation districts along the Murray River downstream from Swan Hill draw their water directly from the river. Supplies for the irrigation districts in the Kerang region are drawn from the Torrumbarry system. This diverts water from the Murray River at Torrumbarry, east of the study area, to the Loddon River at Kerang, whence it flows through a system of natural lakes, connected by channels. These are the Reedy Lakes, Racecourse Lake, Lake Charm, Kangaroo Lake, and Lake Boga. Water for irrigation and domestic use is drawn from these lakes. Other lakes receive fresh water intermittently from the water supply system. The Lakes also play an important role in flood mitigation.

The lakes mentioned above, which would normally be dry for long periods, now receive assured supplies of fresh water and consequently have considerable value for recreation and nature conservation. Around Kerang, many species of water-birds use and breed in them; the Second (Reedy) Lake contains Victoria's largest colony of white and straw-necked ibis. Lake Boga and Lake Cullulleraine are used extensively for boating, swimming, and fishing. Duck-hunting is an important recreational activity on many of the lakes.

The Council proposes that the lakes currently used for water supply purposes and flood mitigation continue to be so used, and that their importance for nature conservation and recreation be recognized in their management.

Access should be provided to all water supply works on public land.

Flood mitigation

While flood mitigation in the study area is not the direct responsibility of the Water Commission, the operation of the Commission's water supply and drainage systems can provide some mitigation. "Natural" flood mitigation, however, involves the use of many lakes and water courses that are not used for water supply or drainage. It is essential that these areas continue to be available to act as natural flood pondages.

Recommendations

O1–O17 That the areas shown in the plans and listed below be used for :

- (a) storage and distribution of water for irrigation and domestic purposes
- (b) nature conservation and recreation to the extent consistent with the primary aim

and that they be reserved under section 14 of the *Land Act* 1958 and managed by the State Rivers and Water Supply Commission.

Map 1

O1 Lake Cullulleraine, (250 ha), Parish of Mullroo.

O2 Bambill South Dam, 7 ha comprising part allotment 21, Parish of Mallanbool.

Map B

O3 Cowanna Billabong, (9 ha), adjacent to allotment 11, section B, Parish of Mildura.

Map 5

O4 Robinvale Pumping Station, 16 ha north-east of allotment 24, Parish of Toitot.

Map 7

O5 30 ha immediately north-west of Ouyen township, and 10 ha in allotment 7, Parish of Ouyen.

O6 12 ha south-west of Walpeup township, Parish of Walpeup.

Map 8

O7 8 ha, comprising part of allotment 54A, Parish of Eureka.

O8 50 ha, at the east of allotment 7, Parish of Burupga.

Map 9

O9 Lake Boga (950 ha), Parish of Boga.

O10 Northern section of the area fully described under Map 13, 014, Parish of Dartagook.

Map 11

O11 10 ha adjacent to Hopetoun township, Parish of Wiall.

Map 13

O10 Kangaroo and Racecourse Lakes (1,140 ha) Parish of Dartagook.

O12 Lake Charm, (545 ha), Parish of Dartagook.

O13 The Recreation Reserve north of Cullen's Lake, (40 ha), Parish of Dartagook.

O14 Lake Lookout, (70 ha), west of allotment 6, Parish of Bael Bael.

O16 Sand Hills Water Reserve, and the Water Reserve immediately north-west of allotments 1 and 1A, (160 ha), Parish of Bael Bael.

O16 Lake Meering, (220 ha), Parish of Meering.

O17 Lake Leaghur, (72 ha), Parish of Leaghur.

Management with Consultation

Reserves for water supply purposes

Council recommends that the areas listed below be reserved for water supply purposes and managed by the State Rivers and Water Supply Commission. Other uses (conservation of native animals), however, are also recommended for these, and in managing the reserves the Water Commission should consult the Fisheries and Wildlife Division.

O18–O20 That the areas shown on the maps be used for water supply purposes and for conservation of native animals and public education and recreation

and that they be reserved under section 14 of the *Land Act* 1958 and be managed by the State Rivers and Water Supply Commission in consultation with the Fisheries and Wildlife Division.

O18 Tchum Lake (north), (52 ha), Parish of Karyrie.

O19 Little Lake Charm (160 ha), Parish of Dartagook.

O20 Reedy Lakes (680 ha), Parish of Dartagook.

O21 Cullen's Lake.

That the area shown on the maps (760 ha) be used for water management purposes and the conservation of native animals, and public education and recreation where this does not conflict with the primary aim

and that it be permanently preserved under section 14 of the *Land Act* 1958 and managed by the State Rivers and Water Supply Commission in consultation with the Fisheries and Wildlife Division.

It is understood that the lake is under consideration for a salt-disposal scheme to improve the quality of the water in Lake Charm.

Other reserves

The Council recommends that wildlife reserves D11 (Lake Murphy) and D12 (Lake Yando) also be used for water supply purposes, and be managed by the Fisheries and Wildlife Division in consultation with the State Rivers and Water Supply Commission.

Channels

Channel reserve

The Denning Channel runs for 13 km through uncleared public land in the parishes of Paignie and Wymlet. Alienation of the public land is now recommended. In order to protect the channel from the hazard of drift from adjacent cultivated land, and to absorb seepage from the channel, Council proposes retention of a reserve 100 metres wide on either side of the channel.

O22 That the land shown on Map 4, (320 ha), be used to protect a section of the Denning Channel, and to absorb seepage from it

and that it be reserved under section 14 of the *Land Act* 1958 and managed by the State Rivers and Water Supply Commission.

Channels on water frontage reserves

Channels forming part of the Water Commission's stock and domestic water supply system run through parts of the water frontage reserves on Lalbert and Tyrrell Creeks. The Council proposes no change to the use and management of these channels.

Public Tanks

The dryland farming districts of the Mallee contain many public tanks (dams) filled by the channels of the State Rivers and Water Supply Commission's stock and domestic system. Most of these tanks are located in water reserves, though some are on road reserves and channel easements. Those on road reserves and channel easements are not considered further here.

In the early days of settlement the public tanks were the main source of water for stock and domestic use. The need for them now, however, is much reduced, due to the extension of channels to private tanks on farms and the use of road transport rather than droving to move stock.

The State Rivers and Water Supply Commission use a number of tanks for regulation and flood spill purposes as an integral part of the water distribution system. Shire councils use some of the tanks to draw water for road-making, and licensed diverters, after paying a fee to the Commission, draw water for various purposes other than irrigation.

The Council investigated the use of public tanks to assess current requirements and to clarify uncertainty as to the public or private status of a number of them. In assessing which tanks should be retained, the following factors were considered :

- Road-making and maintenance
- Firefighting
- The needs of landholders in fringe areas
- Public use as picnic areas
- S.R. & W.S.C. system regulation
- Existing licensed diversions.

The Council has examined each public tank individually. After consideration of submissions, and consultation with the State Rivers and Water Supply Commission and local municipalities, the Council considers that a number are no longer required for public purposes. The Commission will no longer supply these tanks with water except where it accepts an application for a diversion licence, or a reserve incorporating a tank is alienated.

Those that will continue to be filled are mainly located within areas of public land recommended for use for other purposes (various reserves, uncommitted land, and land recommended for alienation or Limited Cultivation Lease). In these cases the tanks (and, in a few places, water supply bores) occupy a relatively small proportion of the total area of public land, and it is intended that the Commission should manage the tank or bore and the land 50 m around it, and any water supply works on the land. Tanks in this category are shown on the maps by a blue dot placed next to the public land. Where tanks on small areas of public land are to be retained, it is recommended that all of the land become a water reserve.

In addition to the above, the Council recognizes that, in times of flood, more land than the tank and 50 m around it may be required, and that some reserves traversed by channels or water-courses may, from time to time, be used for regulation of the water supply system, or for flood mitigation purposes.

The recommendations include some public tanks which are filled by run-off from the land around them and not by Water Commission channels. The usefulness and reliability of these "catchment" tanks varies considerably.

Recommendations

O23–O194 That the tanks listed below and shown on the maps be used for water supply purposes

and that

- (a) where a tank is located within an area of public land that is recommended for other uses, the tank, the land within 50 m of it, and any other water supply works on the land be reserved under section 14 of the *Land Act* 1958 and managed by the State Rivers and Water Supply Commission. (These tanks are shown on the maps by a blue dot adjacent to the public land.)
- (b) where the tank is located on a small piece of public land, all of it be reserved under section 14 of the *Land Act* 1958 and managed by the State Rivers and Water Supply Commission.

Map 2

- O23** Within Bushland Reserve 17.
- O24** 3 ha in the south-west of allotment 44, Parish of Yatpool.
- O25** Within Bushland Reserve 112.
- O26** Within Bushland Reserve 19.

Map 4.

- O27** 20 ha being allotment 7, Parish of Wymlet (catchment tank).
- O28** Within Bushland Reserve 121.
- O29** Within Bushland Reserve 122 (catchment tank).
- O30** Within Bushland Reserve 126 (catchment tank).
- O31** Within Bushland Reserve 123.
- O32** Within Bushland Reserve 128.
- O33** Within Bushland Reserve 129 (catchment tank).
- O34** Within Bushland Reserve 130.
- O35** Within Bushland Reserve 131 (catchment tank).
- O36** Within Bushland Reserve 132 (catchment tank).
- O37** 8 ha to the west of allotment 41, Parish of Ouyen.
- O38** Within Bushland Reserve 134.
- O39** Within Bushland Reserve 135.

Map 5

- O30** Within Flora and Fauna Reserve G11.
- O41** Within Bushland Reserve 151 (catchment tank).
- O42** Within Bushland Reserve 145.
- O43** 8 ha to the west of allotment 1, Parish of Koimbo.
- O44** Within Bolton township.
- O45** Within Bushland Reserve 152.
- O46** 6 ha in the north-west of allotment 5, Parish of Pines.
- O47** Within Bushland Reserve 148.
- O48** Within Natya township.
- O49** Within Bushland Reserve 156.

Map 6

- O50** Within Bushland Reserve 164 (public bore).
- O51** Within Bushland Reserve 161 (public bore).

Map 7

- O52** Within Bushland Reserve 172 (public bore).
- O53** Within Bushland Reserve 173.
- O54** Within Bushland Reserve 175 (catchment tank).
- O55** Within Bushland Reserve 189.
- O56** Within Bushland Reserve 188.
- O57** Within Bushland Reserve 191.
- O58** 0.5 ha in the north-east of allotment 37, Parish of Nyang.
- O59** In F3, allotment 1, Parish of Kattyong.
- O60** Within Bushland Reserve 192.
- O61** In uncommitted land adjacent to Galah township.
- O62** Within Bushland Reserve 179.
- O53** Within Uncommitted Land being allotment 16, Parish of Tiega (catchment tank).
- O64** Within allotment 13, Parish of Tiega.
- O65** Within Bushland Reserve 183.

- O66 Within Bushland Reserve I84 (catchment tank).
- O67 6 ha in the south of allotment 39, Parish of Wagant.
- O68 Within Flora and Fauna Reserve G16 (catchment tank).
- O69 2 ha in the south-west of allotment 17, Parish of Daalko.
- O70 Within Bushland Reserve I98 (catchment tank).
- O71 Within Bushland Reserve I100.
- O72 1 ha in the south-west of allotment 53, Parish of Nyang.
- O73 Within Bushland Reserve I99 (catchment tank).
- O74 7 ha in the south-west of allotment 37, Parish of Daalko.
- O75 Within Bushland Reserve I104.
- O76 20 ha in the east of allotment 29, Parish of Underbool.
- O77 Within Bushland Reserve I102.
- O78 and O79 Within Bushland Reserve I105 (catchment tanks).
- O80 Within Bushland Reserve I93.
- O81 Within Bushland Reserve I94.
- O82 In the north-east of Wildlife Reserve D5.
- O83 Within Bushland Reserve I95.
- O83A In the east of Wildlife Reserve D5 (catchment tank).
- O84 Within Bushland Reserve I96.
- O85 Within Bushland Reserve I108.
- O86 Within Bushland Reserve I113.
- O87 Within Bushland Reserve I114.
- O88 12 ha to the south-east of allotment 30, Parish of Patchewollock.
- O89 In the north-west of Flora and Fauna Reserve G17.
- O90 Within Uncommitted Land being allotment 28, Parish of Patchewollock.
- O91 Within Flora and Fauna Reserve G18.
- O92 Within Bushland Reserve I118.
- O93 5 ha adjacent to allotment 45c, Parish of Denning.
- O94 In Uncommitted Land, south of allotment 17, Parish of Deering.
- O94A Within Bushland Reserve I124.
- O95 Within Bushland Reserve I123.
- O96 Within Bushland Reserve I123A (catchment tank).
- O97 23 ha east of allotment 46, Parish of Pirro.
- O98 1 ha in the west of allotment 46, Parish of Gorya.
- O99 2 ha in the north-west of allotment 28B, Parish of Gama.
- O100 Within F1, in the south of allotment 5. Parish of Yallum.

Map 8

- O101 Within Uncommitted Land to the west of allotment 29, Parish of Kulwin.
- O102 In the south-west of Mittyack township.
- O103 2 ha in the south of allotment 40, Parish of Pier-Millan.
- O104 4 ha adjacent to allotment 49A, Parish of Bimbourie.
- O105 At the south-west of allotment 25, Parish of Larundel.
- O106 Within F1, adjacent to allotment 28, Parish of Gerahmin.
- O107 Within Bushland Reserve I133.
- O108 Within Flora and Fauna Reserve G20.
- O109 Within F1, adjacent to allotment 37, Parish of Cocamba.
- O110 Within Bushland Reserve I137.
- O111 Within Bushland Reserve I136.
- O112 Within Bushland Reserve I140.
- O113 Within Bushland Reserve I141.
- O114 Within Bushland Reserve I143.
- O115 6 ha in north of allotment 28, Parish of Towan.
- O116 0.2 ha in allotment 78, Parish of Bimbourie.
- O117 0.5 ha in the west of allotment 47A, Parish of Boorong.
- O118 Within Bushland Reserve I154.
- O119 Within Bushland Reserve I155.
- O120 Within Water Frontage Reserve J6, north-east of allotment 9, Parish of Boigbeat.
- O121 Within Bushland Reserve I148.
- O122 Within Bushland Reserve I160.
- O123 In F1, adjacent to allotment 47, Parish of Waitchie.
- O124 Within Bushland Reserve I152.
- O125 Within Flora and Fauna Reserve G27.
- O126 Within Water Frontage Reserve J2.
- O127 Within Water Frontage Reserve J2.
- O128 Within Bushland Reserve I162.
- O129 1.5 ha in the east of allotment 10A, Parish of Koro-Ganeit.
- O130 Within Bushland Reserve I163.
- O131 Within Bushland Reserve I153.
- O132 Within F1, in the west of allotment 16, Parish of Meatian.

Map 9

- O133 Within Bushland Reserve I166 (catchment tank).

Map 10

- O134 Within Bushland Reserve I168.

Map 11

- O135 Within Uncommitted Land, south-east of allotment 2, Parish of Pigick.
 O136 Within Bushland Reserve I170.
 O137 Within Bushland Reserve I171A.
 O138 2 ha in the south-west of allotment 10, Parish of Nandemarriman.
 O139 2 ha in the north-east of allotment 23, Parish of Gaalanungah.
 O140 1 ha in the north-west of allotment 23, Parish of Cambacanya.
 O141 10 ha north of allotment 168, Parish of Chiprick.
 O142 Within Bushland Reserve I177.
 O143 Within Bushland Reserve I173.
 O144 Within Bushland Reserve I174.
 O145 In Water Frontage, Goyura township.
 O146 In Water Frontage Reserve J7, Rosebery township.
 O147 Within Bushland Reserve I176.
 O148 8 ha in the north of allotment 41, Parish of Byanga.
 O149 2 ha in the south of allotment 17, Parish of Kurdgweechee.

Map 12

- O150 Within Bushland Reserve I178.
 O150 In the south-west of Woomelang township.
 O152 12 ha in the north of allotment 9, Parish of Gutchu.
 O153 Within Recreation Reserve L35, Township of Watchupga.
 O153A 0.2 ha in the south-east of allotment 55, Parish of Willangie.
 O154 To the north of allotment 38A, Parish of Wortongie.
 O155 Adjacent to allotment 26, Parish of Willangie.
 O156 Within Bushland Reserve I181.
 O157 Within Recreation Reserve L36.
 O158 Within Bushland Reserve I183.
 O159 Within Bushland Reserve I112.
 O160 Within Water Frontage Reserve J2, allotment 22, Parish of Wangie.
 O161 3 ha in the south-west of allotment 50, Parish of Meatian.
 O162 Within Water Frontage Reserve J2, adjacent allotment 40, Parish of Murnungin.
 O163 Within Water Frontage Reserve J2, north of allotment 43, Parish of Wangie.
 O164 Within Bushland Reserve I184.
 O165 Within Water Frontage Reserve J6, adjacent Township of Culgoa.
 O166 2 ha in the north-east of allotment 8A, Parish of Kurdgweechee.
 O167 0.5 ha in the north of allotment 33, Parish of Byanga.
 O168 5 ha in the south-west of allotment 31, Parish of Marlbed.
 O169 Within Bushland Reserve I186.
 O170 Within Bushland Reserve I187.
 O171 In the south-west of Curyo township.
 O172 1 ha in the south-west of allotment 46, Parish of Kurdgweechee.
 O173 1.2 ha in the north of allotment 34, Parish of Ballapur.
 O174 1 ha in the north-east of allotment 63, Parish of Wirmbirchip.
 O175 15 ha at the south-west of allotment 45, Parish of Jil Jil.
 O176 Within Bushland Reserve I193.
 O177 Within Uncommitted Land being south of allotment 111, Parish of Karyrie.
 O177A Within Uncommitted Land at the south-east of allotment 36, Parish of Wirmbirchip.
 O178 20 ha at the north-east of allotment 76, Parish of Karyrie.
 O179 South of allotment 89A, Parish of Whirily.
 O180 Within Bushland Reserve I195.
 O181 3 ha in the north of allotment 41A, Parish of Carapunga.
 O182 1.4 ha in the north-west of allotment 80, Parish of Kalpienung.
 O183 Within Water Frontage Reserve, north of allotment 37C, Parish of Kalpienung.
 O184 Within Uncommitted Land, adjacent to allotment 11B, Parish of Tittybong.

Map 13

- O185 Within Bushland Reserve I199.
 O186 8 ha in the south-west of allotment 1, Parish of Talgitcha.
 O187 3 ha in the west of allotment 4, Parish of Korrak Korrak.
 O188 Within Water Frontage Reserve (J1), north of allotment 24, Parish of Budgerum West.
 O189 Within Uncommitted Land between allotments 13 and 13A, Parish of Towaninny.
 O190 Within Bushland Reserve I205.
 O191 Within Flora and Fauna Reserve G33.
 O192 Within Bushland Reserve I207.
 O193 Within Bushland Reserve I208.
 O194 Within Bushland Reserve I211.

DRAINAGE

High saline water tables are a problem throughout the irrigated lands of the study area. The method most commonly used to keep the water table below the plant rooting zone is the installation of sub-surface drains. While these drains prevent waterlogging and salting on the irrigated land, disposal of the saline drainage water presents a further problem. Disposal directly into the Murray River must be avoided wherever possible in order to keep the salinity of the river, which causes concern during the summer months, below critical levels.

Current practice is to run the drainage water into lakes and low-lying areas, which act as evaporation basins, although some areas drain directly into the river, or onto its flood-plain. Water is released from some basins into the Murray River at times of high river flow, when it will be rapidly diluted.

The depressions and natural lakes used for disposal have considerable nature conservation value because they provide habitat for water-birds and waders. For example, Lake Tutchewop is noted for the migratory waders found there from time to time, while the Cardross Lakes often attract large numbers of water-birds.

As the salt content of these lakes increases over time, their value as habitat will fall until they become lifeless bodies of brine. The salt usually builds up slowly, however, and the lakes can be expected to provide useful habitat for many years.

The Council believes that the provision of wildlife habitat is an important aspect of the management of areas used for disposal of saline drainage water. The public land currently used for this purpose is shown on the maps. Some areas that may be needed in future have been retained as uncommitted land.

Nangiloc-Colignan

The State Rivers and Water Supply Commission is currently studying a proposal to drain the extensive private irrigation developments at Nangiloc and Colignan, south of Mildura. Of the nine low-lying areas that were considered for use as evaporating basins for saline drainage water, two are wholly on public land. One is a lake in the north-west of the proposed Hattah-Kulkyne National Park, and the other is Lake Iraak on the Murray River flood-plain.

The lake in the proposed Hattah-Kulkyne National Park forms part of the mosaic of wet- and dry-land habitats within the proposed park, although it is filled only infrequently by Murray River floods. The Council agrees with the present intention not to use this lake for drainage disposal. Lake Iraak has considerable landscape and scenic value, as it contains vigorous native vegetation and is set in an area that has been extensively developed for irrigation. Council has recommended that it remain uncommitted land.

Lake Tyrrell

The State Rivers and Water Supply Commission proposes enlarging the existing Barr Creek saline-drainage disposal works in the Kerang area. Lake Tyrrell could be used as a large evaporating basin for disposal of this water. Further detailed planning for the scheme, including assessment of the environmental impact, has yet to be done.

Recommendations

O195-O220 That the areas shown on the plans and listed below be used for the disposal of saline drainage water and, as far as is possible, for nature conservation and recreation

and that they be reserved under section 14 of the *Land Act* 1958 and managed by the State Rivers and Water Supply Commission

Map 2

O195 613 ha comprising parts of allotments 1, 4, 6, 7, 7A, 8, 39A, 40, 41 and allotments 2, 3, 5, 11 and 39B, Parish of Wargan.

O196 32 ha in allotment 13, Parish of Wargan.

Map B

O196 206 ha comprising part allotment 6, section E, Parish of Mildura.

O197 22 ha south of allotments 195A, 195B, and 195C and 196, Parish of Merbein.

O198 33 ha west of allotment 9A, Parish of Merbein.

O199 Brickworks Billabong, (12 ha), Parish of Merbein.

O200 100 ha along the outlet from Lake Hawthorn to the Murray River, Parish of Mildura.

O201 25 ha comprising the western part of Lake Ranfurley, Parish of Mildura.

O202 12 ha comprising the southern part of block 79 of section E, Parish of Mildura.

O203 150 ha in the north of allotments 9 and 10 of section C, and parts of blocks 74, 75 and 84 of section E, Parish of Mildura.

O204 340 ha comprising allotment 5 and a small area to the north west, section C, Parish of Mildura.

O205 45 ha comprising part of block 136, section F, Parish of Mildura.

O206 12 ha comprising part of block 73, section F, Parish of Mildura.

O207 6 ha comprising part of block 111, Section F, Parish of Mildura.

O208 5 ha comprising allotment 630, Section B, Parish of Mildura.

O209 10 ha comprising allotments 588D, 591B and land to the south, Section B, Parish of Mildura.

O210 1380 ha comprising the Cardross Lakes drainage basins, and extensions, Parish of Mildura.

O211 565 ha comprising a group of basins south west of the boundary of Red Cliffs, Parish of Mildura.

O212 80 ha comprising billabongs near the Murray River, east of Red Cliffs, Parish of Mildura.

Map 8

O213 13 ha in allotment 21, Parish of Nyrraby.

Map 9

O214 50 ha, comprising allotment 39A, Parish of Tyntynder.

O215 Lake (Basin) south west of allotment 14, and drainage area south of allotment 17, (170 ha), Parish of Tyntynder.

O216 Long Lake and Round Lake Water Reserves, east of allotments 2, 3, 4, 5 and 7, (125 ha), Parish of Kunat Kunat.

O217 Drainage area west of allotments 1, 4 and 5A, (88 ha), Parish of Kunat Kunat.

O218 Lake Tutchevop, (920 ha), Parish of Benjeroop.

O219 Lake William, (120 ha), Parish of Benjeroop.

O220 Lakes Little and Kelly, (142 ha), Parish of Benjeroop.

P. UTILITIES, SURVEY AND OTHER RESERVES

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

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

The Council believes that Government agencies concerned with provision and installation of communication equipment, transmission lines, power stations, pipelines, new roads, etc., should be requested to submit to the Council during the early planning stages any major proposals that would involve occupation agreements or the setting aside of sites on public land. This would help to achieve co-ordinated planning, and may avoid the need for costly resurveys.

Recommendations

General utilities

- P1** (a) That the public land currently used for public utilities (powerlines, garbage depots, sewerage farms, aerodromes etc.), some of which are shown on the maps, continue to be used for these purposes.
- (b) That powerlines, pipelines and other utilities be planned to minimize disturbance to public land and protect the values associated with it, and not be sited on public land without the agreement of the management authority ; and that new pipelines and powerlines follow existing easements if possible (this may require widening some easements).

Garbage and sanitary depots

- P2** That areas used on a temporary basis (such as garbage depots and sanitary depots) be fully rehabilitated. This should apply to sites used illegally as well as those used legally. Where the user or users are known, rehabilitation should be at their expense.

Railway lines

- P3** That where isolated remnants of the original vegetation remain on land associated with railway lines, every effort be made to protect that vegetation consistent with essential management works.

Trigonometrical stations

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

- P4** That the minimum area necessary for survey purposes be reserved around trigonometrical stations on public land in the study area where it would otherwise remain as unreserved Crown land and, where other forms of public land tenure apply, the Department of Crown Lands and Survey should have the right to occupy a minimum area around the station and provide lines of sight.

Other reserves and public land

There are small areas of both reserved and unoccupied Crown land in the study area which are or have been used for various purposes such as water supply, gravel extraction, camping and so on, and which have not been specifically mentioned in these recommendations. The Council intends that existing legal uses and tenure of these various small areas of public land should continue.

- P5** That for small areas of public land not specifically mentioned in these recommendations, existing legal uses and tenure continue; and that where the land is not used for a specific purpose at present such areas be used in a way that will not preclude their reservation in the future for as yet unknown public purposes, and that they be managed as if they were Uncommitted Land.

Q. TOWNSHIP LAND

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

In general, public land in townships other than those areas which have been specifically reserved should remain as unreserved Crown land to meet future requirements. The Council recommends that one small area of public land be released for urban purposes.

Recommendation

- Q1** That alienation of the land described below for urban purposes be permitted.
(This area is not shown on the maps.)

1.8 ha comprising allotment 21E, Parish of Mournpoul.

Township of Ouyen

- Q2** That alienation of sections of the uncommitted land described below be permitted for residential purposes at the discretion of the Department of Crown Lands and Survey.

55 ha comprising land west and south of Ouyen township, north of the Ouyen-Pinnaroo railway.

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

R. MILITARY TRAINING

The uncommitted lands of the Big Desert and Sunset Country are valuable training areas for the Australian Army. In addition to being close to Sydney, Melbourne, and Puckapunyal, the areas are large, not used intensively for other purposes, and well served by rail transport. They have been proclaimed and used as Army training areas for several years, along with numerous other areas in Victoria and the other States and Territories.

The training areas in the Mallee are used for exercising with tracked armoured vehicles, and for infantry exercises. Exercising with tracked vehicles may have a considerable impact on the land—the vehicles break down mallee and disturb the soil, especially where they turn. This form of use may result in soil erosion, and detract from the natural appearance of the land.

The Council is aware that there is considerable public concern over use for Army training of public land that is considered to have nature conservation and wilderness values. It should be noted, however, that in the Mallee large areas of public land have been recommended for use as parks, wilderness and other reserves. The Council believes that it is important that suitable areas be made available for defence forces training, and that the use by the Army of much of the uncommitted land is justified.

The impact of training on the land can be kept to a low level by careful control of the timing, location, and intensity of exercises, and by rehabilitating disturbed areas. The procedures which have been established for consultation between the Army and the relevant State authorities when planning exercises helps to ensure that adverse effects are minimised. It should be noted that under Commonwealth law the Army is not obliged to seek the permission of or to consult the State authorities with respect to the use of land for training.

The recommendations below aim at concentrating Army use of the uncommitted land on areas that—because of their soils, vegetation, and rainfall—can best withstand such use, and that already contain numerous tracks. Lighter use is proposed on most of the remainder of the uncommitted land. Areas that may have high nature conservation values, and parks and other reserves, have been excluded. The Council believes that studies should be undertaken to monitor the impact of the training exercises over time.

Although the recommendations state that dispersed, mobile training may be permitted over large areas it is important to note that these areas (Zone 2) will not be subject to intensive or regular use.

The land to be made available for Army training in the Mallee under these recommendations is less than that proclaimed under the Defence Act over the last few years.

Recommendations

R1 That military training activities be permitted on the uncommitted land shown on Map C, in accordance with the following zoning :

Zone 1 Land that is not to be used for military training.

Zone 2 Land that may be used for dispersed mobile training, including the use of armoured tracked vehicles. Establishment of major base camps should not be permitted.

Zone 3 Land that may be used for more intensive training, including the use of armoured tracked vehicles, and the establishment of major base camps.

Note that within Zones 2 and 3 no area should be used for training with armoured tracked vehicles more frequently than once every four years.

R2 That the following guidelines apply to military training on public land :

(a) The types of activities, and their timing and location, should be subject to agreement between the Army, the managing authority and the other relevant bodies such as the Soil Conservation Authority.

(b) Where possible, training activities should be carried out under conditions agreed to in consultation with the relevant State authorities.

(c) The Forests Commission should be consulted (for fire-protection purposes) with respect to training activities in protected forest.

(d) Rehabilitation of damaged areas should be done at Army expense to the satisfaction of the managing authority in consultation with the Soil Conservation Authority.

S. UNCOMMITTED LAND

In planning for balanced land use, known resources are allocated to meet known or predicted demands. The Council is aware that many changes in demand cannot be foreseen, and that the value of resources to the community will inevitably change. Similarly, knowledge of resources will change as exploration, research, and technology progress. For these reasons, it is desirable that planning be reviewed periodically, and it must be expected that resources will be re-allocated or adapted to meet changed demands. In addition, to satisfy such future requirements, it is desirable that land not be committed unnecessarily to relatively inflexible forms of land use. The Council therefore considers it necessary to recommend that substantial areas of public land remain uncommitted to any primary use at this stage.

Land classed as uncommitted includes :

Areas that, although not needed to satisfy any known demand, are retained to meet unknown future demands ;

Land known to have a high capability to satisfy one or more particular demands, but not at present committed to any one use, as foreseeable requirements can readily be met from other areas ;

Areas on which further study is required to determine the capability of the land to satisfy particular present or future demands.

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

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

Millewa area

An area of public land in the far north-west of the State—bounded by the Murray River, the South Australian border, the Sturt Highway, and, to the east, by freehold land—has especially high nature conservation values. It contains examples of three major land types, two of which (Neds Corner and Millewa land systems) have a restricted distribution in Victoria.

A large part of this area will be inundated if the proposed Chowilla Dam is built. Because of the Chowilla Dam proposal, the Council has no option but to recommend that the area be uncommitted land. (Otherwise, Council would have recommended that the area become a park.) The Council will review this decision when it next examines the Mallee study area. Meanwhile, the authorities responsible for managing grazing and timber production here should ensure that park and wildlife habitat values are fully protected.

Robinvale area

A large parcel of public land lies to the south of the township and irrigation areas of Robinvale. This land, most of which is cleared and used for cereal production, is held by the Government for possible future extension of the irrigation settlements. The Council proposes that most of this land be uncommitted, and that it continue to be leased or licensed for dryland farming, except for the area subject to recommendation F6.

Recommendations

- S1** That the land indicated on the maps (1 180 000 ha) be used to :
- (a) maintain the capability of the land to meet future demands
 - (b) produce those goods and services required by the community (such as forest produce, honey, grazing, and military training) that can be supplied without seriously reducing the long-term ability of the land to meet future demands

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

Note that recommendations concerning military training on uncommitted land are given in Chapter R, and shown on Map C.

Honey production

Much of the large amount of land recommended for agricultural use (Chapter F) is at present used for honey production. The recommendation below is made to permit bee-keepers affected by the agriculture recommendations to gain access to alternative areas.

Recommendation

- S2** That the Department of Crown Lands and Survey permit the construction of tracks through uncommitted land to establish new bee ranges to replace those in areas recommended for agriculture.

Eucalyptus oil

Extraction of oil from the leaves of mallee eucalypts takes place on a small scale in the Manya district, north of Murrayville. The species utilized are dumosa mallee and acorn (oil) mallee. Regrowth shoots are cut and placed in a still, and the oil extracted by steam distillation. Up to the present time only small areas have been cut, and the still operates intermittently.

Recommendation

- S3** That harvesting of mallee eucalypt foliage and extraction of oil be permitted in the uncommitted land shown on the map (1700 ha being allotments 30, 44 and part 29, Parish of Manya), subject to the provisions of the *Land Act* 1958 and the *Forests Act* 1958 and to any conditions imposed by the managing authority.

Racks

Many small areas (1-2 ha) of public land in irrigation areas are used as sites for the drying racks associated with the dried vine fruits industry.

Recommendation

- S4** That the Department of Crown Lands and Survey investigate means of permitting use of existing rack sites to continue under the provisions of the *Land Act* 1958, and that alienation of these areas be permitted at the discretion of the Department.

Pine Plains

In the Parks chapter the Council stated that Pine Plains (west of Patchewollock) had outstanding recreation, scenic, and nature conservation values, and that ultimately the whole area should be added to Wyperfeld Park. The Council believes that protection of park values should be a major aim of management for the uncommitted land section of Pine Plains.

Recommendation

- S5** That Pine Plains be managed in a manner that will conserve the natural features of the land as far as is possible and that the conditions of any licences or leases granted over the land be drawn up in consultation with the National Parks Service.