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Conservation Reserves

for Western Australia

as recommended by the
Environmental Protection Authority — 1983

THE DARLING SYSTEM — SYSTEM 6

Part I: General Principles and Recommendations

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Part 1

Report 13
October, 1983



Department of Conservation and Environment
Western Australia

Conservation Reserves
for Western Australia
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Environmental Protection Authority – 1983

THE DARLING SYSTEM – SYSTEM 6

Part I: General Principles and Recommendations

On 19th March, 1984 State Cabinet accepted in principle Part I of this report and approved of the progressive implementation, as far as possible, of the detailed recommendations in Part II.

Report 13
October, 1983



Department of Conservation and Environment
Western Australia

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ENVIRONMENTAL PROTECTION AUTHORITY

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HON. MINISTER FOR THE ENVIRONMENT

We transmit herewith our recommendations on National Parks and Nature Reserves in Western Australia in System 6, being the Darling System which forms the hinterland of Perth.

In 1972, the Authority established the Conservation Through Reserves Committee with terms of reference:—

“to review and update the 1962 recommendations of a sub-committee of the Australian Academy of Science (WA) with respect to National Parks and Nature Reserves of the State”.

CTRC divided the State into 12 systems each representing a natural and demographic entity. The report and recommendations of CTRC for all Systems other than 6 and 7 were made public during 1975.

After reviewing both the CTRC report and recommendations, together with public comments and submissions thereon, the Authority made recommendations to the then Hon. Minister for Conservation and Environment for Systems 4, 8, 9, 10, 11 and 12 on 9 December 1975, and Systems 1, 2, 3 and 5 on 9 July 1976. All of these recommendations were subsequently endorsed by Cabinet.

Having completed its examination of these Systems, the CTRC commenced a review of System 7, the Kimberley. Its report and recommendations were compiled following the broadest possible contact with Local Authorities throughout the region. A special effort was also made to consult with aboriginal groups because of the high aboriginal population and recognised importance of the Kimberley. This report was transmitted to the EPA on 14 April 1978. It was then released for public review and comment until 30 June 1978.

After further review by the CTRC, the EPA made its recommendations on System 7 to the Hon. Minister for Conservation and the Environment in September 1980. Subsequently the Cabinet decided to receive the recommendations of the EPA as a guide for the establishment of conservation reserves in the Kimberley, and that decisions on their implementation would be made on an individual basis.

System 6 has been the subject of a much more comprehensive review, by a complex committee system which identified areas of conservation value, and, as well, attempted to reconcile proposals for their reservation and protection with the need to provide for other competing uses. Submissions were called for at the beginning of the Study in 1976, and when the System 6 Study Report to the EPA (the Green Book) was published in April 1981.

The work of the members of the committees involved in the Study and their support staff is gratefully acknowledged.

This report and recommendations are the considered opinion of the Authority and their adoption by the Government is recommended.

They are presented in two separate parts:

- Part I consists of general principles, and recommendations based on them which have general application.
- Part II identifies specific locations, and makes recommendations concerning them which conform to the principles set out in Part I.

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PART II

Part II of this report is contained in a separate volume and includes detailed recommendations on specific localities. A separate Table of Contents is to be found at the front of Part II.

GENERAL RECOMMENDATIONS

The general recommendations of Part I are listed below under headings which indicate their main direction and emphasis. The arguments in their support are to be found in the main text.

STATE FOREST

1. There should be established in the State Forest, an adequate and representative system of Management Priority Areas for conservation of flora, fauna and landscape, based on those identified for the purpose in the Forests Department's Working Plan No. 87 of 1982.
2. The necessary legislation should be enacted so that the provisions of a working plan as it relates to conservation MPAs shall be deemed to be and take effect as if it were a regulation, and so be unalterable except in the manner required in the Interpretation Act for the amendment of regulations made under an Act of Parliament.
3. The powers proposed in Recommendation 2 above should be progressively applied to secure the purpose of the identified conservation MPAs following review by the Government of their conservation value in relation to their potential for other uses, and the EPA should be involved in the said reviews.
4. Priority in review and implementation should be given to conservation MPAs where conflicting uses are proposed for the near future.
5. Management plans for conservation MPAs should be prepared and made public as soon as practicable.
6. It should be a clearly recognised and stated objective of management of State Forest as a whole to protect the conservation value of MPAs defined for that purpose in approved Working Plans.

LAND ACT RESERVES

7. The Government should recognise the high conservation value of the remaining natural areas outside State Forest, particularly those proposed for Land Act reservation as parks and nature reserves, and further that they should not be regarded as a readily available source of cheap land for development purposes.
8. The proposed new areas for reservation as parks and nature reserves should be given security of tenure and purpose commensurate with their conservation value after assessment of the potential alternative competing uses.
9. In the meantime, the proposed new parks and nature reserves identified as having potential for conflicting uses should be designated as Class C, for conservation of flora and fauna and recreation in some appropriate combination, and for water supply, where appropriate.
10. The new parks and nature reserves proposed under Recommendation 9 should be vested in the W.A. Wildlife Authority, the National Parks Authority or other appropriate managing agency for a limited term, under conditions which would permit mineral exploration and evaluation under stringent conditions.
11. During the period of a limited term vesting, active steps should be taken to determine the potential of the land for uses conflicting with conservation, giving priority to those areas where such uses are under consideration provided that the determination does not itself destroy or permanently damage the conservation value.
12. Management plans for the newly dedicated parks and nature reserves should be prepared and published as soon as practicable.

LAND USE PLANNING

13. The Government should establish an investigation into statutory means by which land beyond the Perth Metropolitan Region could be set aside as open space at the regional level, with a view to early implementation in the area of System 6.
14. The Government should establish an investigation into legislative means of achieving, through public planning procedures, the protection of the conservation and public amenity values of designated privately owned areas, without necessitating public acquisition of the land affected.

MANAGEMENT OF PARKS, RESERVES AND OPEN SPACE

15. Areas identified through planning procedures as open space of regional significance should, where appropriate, be designated as Regional Parks.
16. The National Parks Authority should be given the responsibility for coordinating the planning and management of areas identified as Regional Parks, and for the following functions:
 - i) the provision of technical and other advice to managing agencies and owners;
 - ii) an examination of the present funding and coordination of development programmes.
17. The Government should give urgent consideration to providing adequate staffing and funding for the National Parks Authority and other agencies concerned with management of parks and reserves.

INVENTORY

18. A coordinating committee responsible for the land resource inventory required for planning purposes should be established.
19. A Recreation Areas Strategy Plan should be undertaken by the Department for Youth Sport and Recreation, giving priority to Systems 1, 2 and 6. It should include:
 - i) a survey of the recreational resources available
 - ii) an assessment of current and likely future demands.

Chapter 1

INTRODUCTION

1.1 General

The System 6 Study¹, on which our recommendations to the Government are based, is the latest in a series initiated in 1972 by the then newly established Environmental Protection Authority (EPA). At that time it appointed the Conservation Through Reserves Committee (CTRC) to study the provision of a set of reserves representing the major communities of natural wildlife and flora types in Western Australia.

To facilitate this work, the State was divided into twelve regions or systems, each a natural and demographic entity. The CTRC's Reports or "Green Books" on the other eleven systems were made available for public comment, and the public's responses were taken into account by the EPA when it developed its recommendations, or "Red Books"^{2,3,4} for ten of these systems which were presented to and later endorsed by Government. With regard to System 7, the Kimberley, the Government has accepted the EPA's Red Book as the basis for future conservation reserve creation in that region. Sixty-four per cent of the recommendations endorsed by Government have been implemented and a further 15 per cent are well advanced.

In 1981 the Government halted the implementation of the 1976 recommendations, and required that all further proposals for reserves, including those agreed to in 1976, should be brought forward for individual reconsideration. More recently the Government has decided to suspend any general implementation of earlier Red Book recommendations pending the Aboriginal Land Rights Inquiry.

The remaining system, the Darling System — or System 6 as it has come to be known — consists of the hinterland of Perth, and is the most intensively used part of the State. Consequently land values are high, and setting aside areas to be kept in their natural state can have a substantial effect on alternative uses.

Recognising the complexity of the issues involved, as well as the unique opportunities for conservation offered by the area of System 6, it was made the subject of a separate detailed study which commenced in 1976. For this, the EPA set up six specialist committees, one with ecological and conservation expertise, and others representing commercial and productive uses, local government, urban and recreational planners and the tourist industry, to assist the System 6 Committee in the preparation of the System 6 Study Report or Green Book¹.

The development of recommendations has been further assisted by the valuable comments and criticisms received in the form of submissions, both at the beginning of the Study in 1976 and when the Green Book was available for public comment from 29 April to 30 November 1981. A summary of the submissions on the Green Book is provided in Appendix A of this Report.

Some of the recommendations will have relevance beyond System 6, particularly in the more settled areas. Our proposals for conservation in State Forest have general application, as do those for regional planning.

1.2 Aim of the Report

The System 6 Study identifies opportunities for setting aside areas of land in the most intensively used part of Western Australia, for the purposes of conservation of natural areas and recreation in natural surroundings.

The EPA's recommendations, derived from the Study, are essentially in accord with the World Conservation Strategy prepared by the International Union for Conservation of Nature and Natural Resources (IUCN)⁵ and accepted by the Prime Minister and Premiers of the Australian States. The World Strategy defines conservation as "the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations". It is concerned with sustainable utilisation of living resources, and the integration of conservation and development.

In particular, the World Conservation Strategy calls for the protection of "representative samples of ecosystem types". This is clearly a major objective of our recommendations for the setting aside of land for the purpose of parks and reserves. However, in developing them it has been necessary to consider the effect of reservation on other competing land uses. In many cases there is insufficient information on the land in question for rational decisions to be made today, so that our approach has had to be that of keeping options open for the future. This clearly necessitates protecting conservation and other easily destroyed values for the present.

Some land resources, particularly minerals and water, find expression through the natural ecosystems. For example, certain forest types are associated with bauxite and others with coal. If extraction is by surface mining, then the only way to provide a "representative sample" of the ecosystem is to prevent mining in a representative area and leave some mineral, possibly of commercial value, in the ground. This point of conflict is inescapable, though there is room for negotiation on the size and location of the areas to be protected.

With respect to recreation, we have not been concerned with providing for the types of formal recreation that require grassed playing fields and other public sporting facilities, but rather with providing opportunities for outdoor recreation in natural surroundings, for which there is a growing demand. This form of recreation involves both physically strenuous activities such as bushwalking and canoeing, and less energetic activities such as pleasure motoring, picnicking, camping and sightseeing.

1.3 Conservation Potential

The area of System 6, comprising the Coastal Plain and Darling Range, and extending from as far north as the Moore River to Bunbury in the south, presents an invaluable opportunity for conservation. This is, in part, the result of the natural disadvantages of poor soils and hot rainless summers which prevented early European settlers from clearing extensively in the immediate hinterland of Perth. Recognition early this century of the value of the forests of the Darling Range, if managed for sustained production of timber and protection of water catchments, was an important secondary factor. Thus Perth is fortunate in having close to it an almost unbroken stretch of forest, uniquely adapted to its particular environment. Today the area can be more intensively exploited with modern technology available to raise the fertility level of its soils, or to exploit them more directly and destructively in extracting mineral and earth resources.

Natural communities of plants and animals adapted to the environmental conditions must be of great value as a genetic resource, since it is these very conditions of poor soils and seasonally hot and dry climates which characterise many underdeveloped areas of the world. Such areas will increasingly need to be brought into production to support hungry and growing world populations. Therefore conservation of the natural ecosystems of System 6 — and indeed of much of Australia — is owed by the State not only to itself, but to the world and to posterity. The State of Western Australia, as the *land manager* of perhaps the most difficult third of the whole continent, bears a great share of Australia's responsibility.

Our recommendations in this and previous reports to the Government are producing a slow but steady increase in land reserved for conservation. But reservation alone is insufficient, the land must be properly managed if the responsibility is to be met. At present funding and staffing for management of national parks and nature reserves is inadequate, and we strongly recommend that adequate provision be made as soon as the State's financial situation permits.

About half of the area of System 6, mainly in the Darling Range, is under natural vegetation, most of it protected as State Forest. There are also significant natural areas outside of State Forest, but only a small proportion, about 4 percent, is protected by reservation under the Land Act as National Parks, Nature Reserves, or land in public ownership for purposes other than conservation. Thus the natural areas in private ownership are an important resource, not only for conservation *per se*, but also for the contribution they make to general amenity for the community as a whole, and in a more material sense because of their role in preventing salinisation of water supplies. These areas too, therefore, require some form of protection.

1.4 Conclusion

Our recommendations and suggested procedures are intended to maintain and enhance the conservation and recreation values of the natural areas remaining, in both public and private ownership, while taking account of the needs of other land uses in the area of the State where competition for land is most intense. While we regard the jarrah forest — uniquely adapted to its environment — as a most important opportunity for conservation and recreation and are concerned to improve its level of protection (see Chapter 2), it has to be recognised that as State Forest it already has some security, as do those lands reserved under the Land Act⁶

Since the area in the latter category is only a small proportion (see Chapter 3), and will remain so even if our recommendations for additions are accepted, it cannot provide for an adequate representation of ecosystems apart from those in State Forest. It alone will be insufficient to cover the range of environmental conditions and ecosystems adapted to them. Thus, publicly owned land which can be made available for new parks and reserves under Land Act reservation is undoubtedly scarce in System 6, and should not be regarded as a readily available source of land for development, since its replacement cost would be considerable.

Consequently, protection of conservation and recreation values of land not in public ownership is extremely important, and must depend on public planning procedures.

This is the reason for our concern with town and country planning as practised by local authorities and coordinated for the Metropolitan Region by the Metropolitan Region Planning Authority. Present procedures for setting aside land as public open space are open ended, resulting in costly compensation payments or the acquisition of the land, and consequently the need to spend progressively increasing amounts of public money on its management. Thus the MRPA has spent \$53 million over the past twenty-two years on purchasing about 10,000 ha of private freehold land which has been "reserved"* for Parks and Recreation under the Metropolitan Region Scheme and in 1982/83 its annual expenditure on management was about \$270,000, all of which was allocated to only five of these "reserves". These five "reserves" represent only a small portion of the total area "reserved" for Parks and Recreation under the Metropolitan Region Scheme. Thus adequate management of the remaining "reserves" is obviously not being under-taken, which indicates the enormous amount of public funding which would be required if all such reserves were to be properly managed.

This report draws attention to procedures elsewhere in Australia and overseas which are designed to break this nexus between zoning of land as open space and its acquisition and management at rapidly growing cost to the public purse. We recommend that new procedures be investigated for Western Australia.

Chapter 2

CONSERVATION IN THE JARRAH FOREST

2.1 General

A characteristic of System 6 which it shares with Systems 1 (South West) and 2 (South Coast) is that despite intensity of use, substantial areas of natural forest remain, protected as State Forest. The State Forest covers 38 per cent of System 6 and most of this is contained in the continuous belt of natural vegetation extending from Mundaring to Collie.

The forest is an outstanding opportunity for the conservation of significant areas of a unique natural ecosystem, adapted to soil and other environmental factors not found extensively elsewhere. It is also an outstanding recreational resource close to major centres of population. Both these aspects were stressed in a large proportion of the submissions received.

It is our belief that the traditional use of the forest for wood production, its role in catchment protection, the demand for temporary though destructive uses such as open cast mining for coal or bauxite, and the provision for transport links and service corridors all have to be reconciled with the need to protect its conservation and recreation values. Planning in this direction by the Western Australian Forests Department is already well advanced⁷, and formed the basis of a substantial input to the System 6 Study, both as a Departmental submission and through important contributions to the work of a number of its committees.

2.2 Forest MPAs

The Forests Department's proposals, applying throughout south-western Australia, not only in System 6, include the identification of areas within State Forest where management priority is given to the conservation of flora, fauna and landscape. A lesser number give priority to public recreation. The selection of the Management Priority Areas (MPAs) for conservation, in respect of their location and boundaries, was based on Departmental officers' detailed knowledge of the forest. Their considered judgement was that they are necessary if the main forest types are to be adequately represented, taking into account freedom from disease and the needs of protective management⁷.

MPAs for conservation and recreation received a great deal of consideration in our Report to the Government on System 1 (South West) and System 2 (South Coast), with particular reference to the conservation of the karri forest³. At that time we endorsed the concept of MPAs for conservation and recreation, then described as "forest parks", coupled with recommended legislative changes to give conservation MPAs greater security of purpose which would "... lie in the requirement of the law that no change can be made in the status or purpose of a forest park without scrutiny by Parliament". This would have the effect of making them equivalent in security to A Class reserves.

* In this context the terms "reserve" and "reservation" are used in a special sense, not related to Land Act Reservation. Strictly speaking, it is a zoning of land designed to keep it as open space by applying constraints on development.

While the general intent of that recommendation is not seriously questioned, it has not yet been implemented for several reasons, including:

- i) The Forests Department saw the need to further refine the concept, particularly with regard to appropriate naming to indicate the priority purposes, whether conservation, recreation, or both.
- ii) The need to further consider, in the light of the fullest possible information, the alternative competing uses for the MPAs (particularly mining and timber production) before establishing them with the full security proposed.
- iii) The recognition that the published Working Plans for State Forest and the System 6 Study have created a public awareness of the existence and value of the MPAs, which in itself gives them a degree of security.

In summary, the position now is that based essentially on detailed knowledge of the range of ecosystems in the State Forest of the south-west, the Forests Department have proposed within them a system of reserves for conservation and recreation. Their proposals have been extensively reviewed, by the Special Review Committee⁸ and by Dr. Peter Attiwill⁹, a consultant to the EPA in respect of the karri forest, and by the System 6 Study. In general, we accept the conclusions reached that the MPAs proposed are acceptable in principle, but recognise that in respect of some potential conflicting uses, further information is required. This is because in many areas there are possibilities of other alternative uses, particularly mining for coal or bauxite, or the development of surface or underground water supplies, which conflict with management for conservation. These often require further investigation for their proper evaluation.

These considerations apply particularly in respect of conservation MPAs since their purpose is more readily endangered by disturbance than those for recreation. Recreation is, indeed, catered for throughout the forest areas, since access for extraction of produce and for protection also serves the purpose of facilitating access by the public. We are thus here more concerned with provision for conservation, for which the State Forest of the south-west has such great potential. Our recommendations which follow are applicable throughout the whole State Forest system.

Recommendations

1. There should be established in the State Forest, an adequate and representative system of Management Priority Areas for conservation of flora, fauna and landscape, based on those identified for the purpose in the Forests Department's Working Plan No. 87 of 1982.
2. The necessary legislation should be enacted so that the provisions of a Working Plan as it relates to conservation MPAs shall be deemed to be and take effect as if it were a regulation, and so be unalterable except in the manner required in the Interpretation Act for the amendment of regulations made under an Act of Parliament.
3. The powers proposed in Recommendation 2 above should be progressively applied to secure the purpose of the identified conservation MPAs following review by the Government of their conservation value in relation to their potential for other uses, and the EPA should be involved in the said reviews.
4. Priority in review and implementation should be given to conservation MPAs where conflicting uses are proposed for the near future.

The integrity of areas set aside for conservation purposes will only be maintained by management appropriate for the purpose. Conservation of the jarrah forest is a matter of real concern to many members of the public, as is shown by the large number of submissions referring to it (see Appendix A). Yet the protection of conservation areas may necessitate management activities which seem inappropriate to the lay man. Under the multiple use concept the priority use, in this case conservation of the natural ecosystems, excludes only incompatible activities. It permits others, particularly recreation, where they can be controlled so that the primary use is not endangered. There are other matters too, in which the community takes an interest, including such practices as prescribed burning, regeneration fellings, and the definition of core and buffer areas in some MPAs. Much of the public concern would be allayed if management plans, the reason for them and their expected results in terms of forest type and condition were known.

Recommendation

5. Management plans for conservation MPAs should be prepared and made public as soon as practicable.

2.3 Management Objectives

Although the MPAs for conservation and recreation proposed for System 6 alone amount to about 23 percent of State Forest within the System, their adequacy in representing the range of ecosystems and providing for the protection of larger fauna in particular has been questioned in a number of submissions. Much of this argument starts from the premise that the protected areas are islands surrounded by a sea of incompatible uses, threatening the integrity of the reservation, and necessitating the definition of buffer areas for protective management within the reserve itself. This is not at all the situation in State Forest. The concept of management priority areas, whether for conservation or any other purpose, in a multiple use framework, necessitates management of the whole forest in such a way as not to endanger the priority use of any particular area. This is implicit in the most recent Working Plan,⁷ but it should be made explicit.

Recommendation

6. It should be a clearly recognised and stated objective of management of State Forest as a whole to protect the conservation value of MPAs defined for that purpose in approved Working Plans.

2.4 Conclusion

Our proposals and recommendations for State Forest are aimed at protecting conservation values, while allowing for proper evaluation of other potential uses as the relevant information becomes available. This presupposes that some sort of resource inventory takes place in due course. This question is further addressed in Chapter 6.

If our recommendations are adopted, the conservation MPAs together with those set aside with public recreation as a priority should amount to almost 22 percent of the State Forest of the south west, and 9.1 percent of the total area of System 6. Several MPAs are contiguous and, with sympathetic management of the intervening forest, will provide a conservation and recreation resource of which Western Australia may be proud.

Because of the need to integrate management with that of the State Forest in general, we see no reason to change the view expressed in our Report on Systems 1 and 2, that the Conservator of Forests would continue to have the care and management of the reserved areas. This is despite argument for alternative arrangements advanced in several submissions.

Chapter 3

LAND ACT RESERVES

3.1 General

Outside of State Forest, there is little opportunity for creating significant new nature reserves and parks under the Land Act, because of the extent of clearing of the natural vegetation for urban and industrial development and agriculture, and also due to the high value of alienated land which could be costly to acquire. Nevertheless, some extensions and additions to parks and nature reserves are proposed, in the form of vacant Crown land and existing reserves which are currently dedicated to other purposes.

3.2 Value of Natural Areas

Existing and proposed parks and nature reserves in System 6 amount to 4.5 percent of its total land area, or 2.8 percent of the land outside of State Forest. Two factors combine to make the value of this land for preservation in its natural state extremely high.

The first arises simply because of a scarcity value. It is not possible for such a small proportion of the area to adequately represent the range of ecosystems. Its value in natural condition was recognised in the course of the Study by the Conservation Reserves and National Parks Committee, composed of individuals with all the necessary expertise and knowledge of the region.

The second follows from the first. Once alienated, the land is unlikely to be bought back by the State because of the high cost. For example, land in and around Lakes Neerabup and Carabooda in the Wanneroo wetlands, and Lake Pinjar, were considered for acquisition during the course of the System 6 Study. However, it was estimated in 1980 that the cost of the lakelands themselves was around \$470,000, and provision of adequate buffers and linking areas would have increased the cost to about \$1.5 million.

An additional argument is that alienation and development on some of the proposed reserves may be undesirable for more material reasons than conservation or to protect intangible values

like public amenity, although the latter may be reflected in increased real estate values. The land in question may now, or in the future, have valuable resources which it may be in the best interests of the State to exploit, the most likely being the potential for water supply and mineral and earth resources. If already developed for residential or urban use, for example, these resources may be effectively rendered unavailable.

3.3 Conservation and Development Options

Seen in this perspective, conservation of natural areas clearly protects and preserves land values, and also the option to exploit them in the future where this is proven to be in the public interest. It is not always necessarily in conflict with development, in fact with some forms of it, there is a high degree of compatibility. A telling example in System 6 is the protection against salinisation of soils and streams provided by the retention of natural vegetation. Since water supply is a likely limiting factor to growth and development in south-western Australia, the need to protect such a valuable resource helps to establish conservation as a matter of high priority.

Arising from such considerations, the Study¹ proposed a form of multiple purpose reservation for those of the new areas, where conflict with water supply or extractive industries was identified. An essential feature was joint vesting in the three Ministers likely to have an interest. These were the Ministers for Conservation and Environment, Works and Water Supply, and Mines. This turned out to be one of the most controversial sections of the System 6 Green Book during the period for public submissions. But apart from the argument emanating from some conservationist interests that the new areas should be immediately and permanently dedicated to parks or nature reserves, the main criticism from all sides was in respect of the means, that is the joint vesting proposals, rather than the end it was intended to serve.

That end is the exclusion for the time being of uses which would destroy the conservation value and could at the same time sterilise the mineral potential or prevent the development of a water resource. Protection in this way would permit assembly of information enabling assessment of the potential for mineral extraction or water resource development, as well as the likely demand for their use. The objective would be, ultimately, the firm dedication of the areas to parks and reserves, if their established conservation value were found to outweigh that of the alternatives, or to be compatible with them.

The areas subject to these recommendations are small in number, but are of high significance in relation to recreation as well as conservation. They include extensions to the Avon Valley and Moore River National Parks, an important new nature reserve near Gingin (all of which may have mineral and water supply potential), and substantial areas of forest, presently vacant Crown land, in the catchment of the Wooroloo Brook.

3.4 Strategy for Reservation

The proposed new parks and reserves constitute land which it is important for the State to control in the best interests of all Western Australians. We believe that our recommendations would achieve this control, while permitting the determination of a proper balance between important priority uses. The essential features of the means we propose for areas where there is conflict with mining or water supply, owe a great deal to consultation with other government agencies, particularly the Department of Lands and Surveys. They are as follows:—

- (i) The land should, under the Land Act, be designated as a C Class Reserve for the purposes of conservation of flora and fauna, or recreation, or some combination of them, and for other *compatible* uses. In most cases, this will be for water supply.
- (ii) The land should be vested for a limited term in a managing agency with the necessary expertise, for perhaps 5 or 10 years.
- (iii) Mineral potential, where necessary, should be catered for by allowing for exploration and evaluation in agreed conditions under the vesting order.
- (iv) At the expiry of the term of vesting the potential for other uses, particularly mining and water supply, can be determined by the Government. If preferred options cannot be determined, then a further period of limited vesting can be arranged.
- (v) In the meantime, the land would be managed as a nature reserve or a park, under a published management plan where appropriate.

Recommendations

7. The Government should recognise the high conservation value of the remaining natural areas outside State Forest, particularly those proposed for Land Act reservation as parks and nature reserves, and further that they should not be regarded as a readily available source of cheap land for development purposes.

8. The proposed new areas for reservation as parks and nature reserves should be given security of tenure and purpose commensurate with their conservation value after assessment of the potential alternative competing uses.
9. *In the meantime, the proposed new parks and nature reserves identified as having potential for conflicting uses should be designated as Class C, for conservation of flora and fauna and recreation in some appropriate combination, and for water supply, where appropriate.*
10. The new parks and nature reserves proposed under Recommendation 9 should be vested in the W.A. Wildlife Authority, the National Parks Authority or other appropriate managing agency for a limited term, under conditions which would permit mineral exploration and evaluation under stringent conditions.
11. During the period of a limited term vesting, active steps should be taken to determine the potential of the land for uses conflicting with conservation, giving priority to those areas where such uses are under consideration provided that the determination does not itself destroy or permanently damage the conservation value.
12. Management plans for the newly dedicated parks and nature reserves should be prepared and published as soon as practicable.

3.5 Conclusion

As with the MPAs in State Forest, postponement of decisions for lack of information carries the implication that the information will be sought, so that the position will be capable of resolution in the future. Some form of inventory is required, and this is considered further in Chapter 6.

The areas subject to our detailed recommendations given in Part II are likely to become vested in a variety of agencies and authorities.

Their capacity to manage natural areas, and the assistance, both financial and in the form of technical advice which some of them may require, is discussed in Chapter 5.

Chapter 4

LAND USE PLANNING FOR CONSERVATION AND RECREATION

4.1 Land Use Planning

The essence of land use planning is the allocation of land to particular uses, singly or in combination. The former is seldom the case since most uses, even if given the highest management priority, do not require total exclusion of all others. This is clearly recognised by planners and often referred to as the concept of multiple use of land.

The two preceding chapters argue for the dedication of certain areas of land primarily to conservation and public recreation in some combination. The method is as MPAs in State Forest or by Land Act reservation. The procedures proposed allow for the proper evaluation of other uses, and recognise that conservation is not only an abstract ideal. On the contrary, it is seen as also having tangible benefits; it protects and enhances such land values as water supply potential, contributes to public amenity and aesthetic values of landscape, and even helps to retain options for the development of mineral and other resources if, in the future, the community so desires.

The approach so far outlined involves "conservation through reserves", as used by the CTCR and which is the basis of the majority of our recommendations on the other eleven systems in Western Australia. That is, the land is set aside for the primary purpose of conservation of nature, held in public ownership, and is usually managed by a government agency. But this alone is insufficient in the more intensively settled parts of the State, and therefore especially in System 6. There is a case for "conservation outside reserves", to protect the natural values of land dedicated primarily to other uses, and often not in public ownership. This again, while conserving the natural, pristine character of land resources in general, retains options for decision making in the best interests of the community in the future.

Agencies concerned with public planning procedures, such as local authorities, the MRPA and the Town Planning Board, clearly play a most important part in providing for conservation and public amenity outside reserves. They do so in a number of ways, one of the most important being planning procedures which set aside land as open space. In the general sense, this is simply land not to be built on or used for extractive industry or mining, and its formal designation therefore results in constraints on the forms of development allowed. Regional, as opposed to district and local, open space caters for the interests of users coming from a wide geographic area, and thus may be a concern of the State Government as well as several local authorities

and other agencies. It will often contain landscape features attractive to the public, such as beaches and river foreshores, lakes, and the hills and valleys of the Darling Range. Some will draw people in large numbers, while others will bring only those who appreciate remoteness and solitude. A major concern in this Report is more with regional than local open space, and current planning procedures affecting it.

Additional matters requiring consideration concern the protection of landscape values in general, whether natural or man-made, and provision of protective buffers around conservation areas. These do not require planning constraints as severe as those in areas designated as open space, merely limitation on such activities as excessive clearing of vegetation, erection of inappropriate structures, or changes to hydrology and drainage affecting other areas, particularly wetlands.

4.2 Regional Open Space

Open space of regional significance consists of a great deal more than land formally set aside for the purpose. In a functional sense it can include land in a wide range of tenure and condition. Vacant Crown land, State Forest, Land Act Reserves with various purposes, and freehold land, whether privately or publicly owned may all contribute. It may be managed for the retention of the natural vegetation, or developed as "green belts" or as parks for recreation. It may consist of uncleared bush awaiting development, or farmland forming man-made rural landscapes of considerable amenity value. Figure 1 gives an indication of the potential for open space in System 6.

Clearly, this is a constantly changing situation, particularly where growth and development are concentrated, as is the case with System 6. A responsible planning authority will take account of land functioning as open space as well as land to be formally set aside for the purpose when providing for increasing intensities of use of all sorts.

4.3 Planning for Conservation outside Reserves

At present, planning legislation in Western Australia allows for land to be set aside as open space at the regional level only within the Perth Metropolitan Region. The planning process involves four stages: identification, reservation as open space, possible compensation to owners or eventual acquisition of the land, and then management of the land acquired. This is obviously a very valuable means of ensuring coordinated planning for public recreation and amenity, involving a degree of protection of natural values.

Beyond the Metropolitan Region, in the remainder of System 6, and indeed in the State as a whole, there is no statutory machinery for regional planning of open space, although some schemes have been undertaken which affect regional groupings of local authorities*. Under these circumstances, the open space necessary in the general interest may be lost to more immediately pressing demands. There is, therefore, a serious deficiency in the State's planning machinery for areas beyond the Metropolitan Region.

Recommendation

13. The Government should establish an investigation into statutory means by which land beyond the Perth Metropolitan Region could be set aside as open space at the regional level, with a view to early implementation in the area of System 6.

This recommendation would result, eventually, in a statutory means of setting aside open space of regional significance for other parts of the State besides the Metropolitan Region, having regard to other demands on the land. It would require definition of regions based on their natural resources and patterns of use. Some of the non-statutory regional planning schemes already referred to constitute a recognition of the need for evolution of the State's planning processes in this direction. Clearly priority would need to be given to those regions where development is proceeding most rapidly.

Even within the Metropolitan Region, however, there are serious difficulties and problems. The procedures by which the MRPA and other planning authorities "reserve" land as open space involves constraints on owners, and an obligation on the authority to pay compensation where appropriate, or alternatively to acquire the land by purchase. In either case the cost is high. If the land is acquired, it needs to be managed, and the costs of management form a steadily increasing burden on the public purse, already a matter of serious concern to the government. Further, there is difficulty in finding appropriate management agencies for the land, since the MRPA is itself not intended to be a management body. The consequence is that much open space "reserved" in this way, may deteriorate in quality whether or not it has been acquired.

* Examples are the Mandurah and Districts Planning Study, initiated by the Town Planning Department, and the Bunbury Region Plan, initiated by the State Planning and Co-ordinating Authority, and the Bunbury Districts Regional Planning Committee.

Such an approach, involving all the costs of acquisition and subsequent management is clearly prohibitively expensive. Provision for funding the management of land acquired by the MRPA was \$161,262 in 1980/81¹⁰, \$98,879 in 1981/82¹¹ and is likely to be \$270,000 in 1982-83. The money is to be applied to only five reserves, a very small proportion of the total land acquired.

Thus the current funding system for acquisition and management of existing open space areas is clearly impracticable for the protection of landscape values in general, for the provision of protective buffers around reserves, or indeed for the separation of mutually incompatible land uses of any sort.

We believe that a better alternative to such procedures is to leave much of the land in question in private ownership while subject to planning or development constraints. These would be similar to those which now apply in residential areas in respect of style and quality of buildings. Their acceptance by the community would, similarly, depend on the recognition that protection of natural values in rural and semi-rural areas can be reflected in real estate values and increased amenity values, and lead to cooperative management arrangements with benefits to both owners and the public interest. At the same time, demands on public funds would be reduced.

Legislation in other Australian States and overseas has been successful in making possible the management of private land so that it contributes to public amenity and conservation.

Under the South Australian Heritage Act¹² the private land owner can, on a voluntary basis, have a covenant placed on the land which protects uncleared vegetation or areas of high amenity, while still retaining ownership and the right to use and develop it. There are incentives provided including free specialist management advice, land rate rebates and financial assistance in such activities as fencing. If the covenant is revoked at any time, incentive payments can be recouped by the State. Thus the security of dedication of the natural areas increases with time.

Under the New Zealand Reserve Act¹³ private land owners can voluntarily covenant their land for the purpose of protecting areas of their land which have natural, scientific, scenic, historic, cultural, archeologic, geologic, or any other interests or which have rare species of flora and fauna. The only incentive is that all or part of land rates are paid by Government.

Under the New Zealand Queen Elizabeth the Second National Trust Act¹⁴ covenants can be placed on private land on a voluntary basis and are subject to specific conditions which meet the approval of the land owner. This Act appears less stringent than the Reserve Act although it does provide for the protection and enhancement of open space on private land.

Under the British National Parks and Access to the Country-side Act¹⁵ access to mountains and moorlands is secured and retained, and beautiful countryside is preserved from unplanned or inappropriate development. The Act does not alter ownership nor confer any new rights upon the public, although it does permit public access to private land. Emphasis has been given to the retention of existing private tenure and controlling land use and development through the established structure of local government.

A feature of all these approaches is that they depend on community acceptance of constraints through planning which protect valuable landscapes, both natural and man-made. Development of this type of legislation in Western Australia would mean that owners could retain their land and the right to use and develop it, while receiving specialist advice on its management. This would facilitate cooperation between planning authorities and private land owners in arranging for management of areas of high conservation or recreational value and valuable scenic landscapes. It would also be a means of providing for protective buffers around conservation reserves. Compensation or incentives would be provided where it is necessary for owners to make concessions or forego specified land uses.

A planning initiative for Western Australia along these lines is therefore required, and we believe the matter to be under consideration in other quarters, including in particular the Task Force on Land Resource Management in South Western Australia. Our recommendation is intended to encourage such studies.

Recommendation

14. The Government should establish an investigation into legislative means of achieving, through public planning procedures, the protection of the conservation and public amenity values of designated privately owned areas, without necessitating public acquisition of the land affected.

In South Australia, under the Planning Act¹⁶ there are stringent regulatory powers. They have been used to control clearing of native vegetation, regarded as a class of development. Any clearing proposal requires the consent of the South Australian Planning Commission, and there is provision for appeals. No compensation is payable. Before considering any similar approach in Western Australia, it would be sensible to await developments under the Soil and Land Conser-



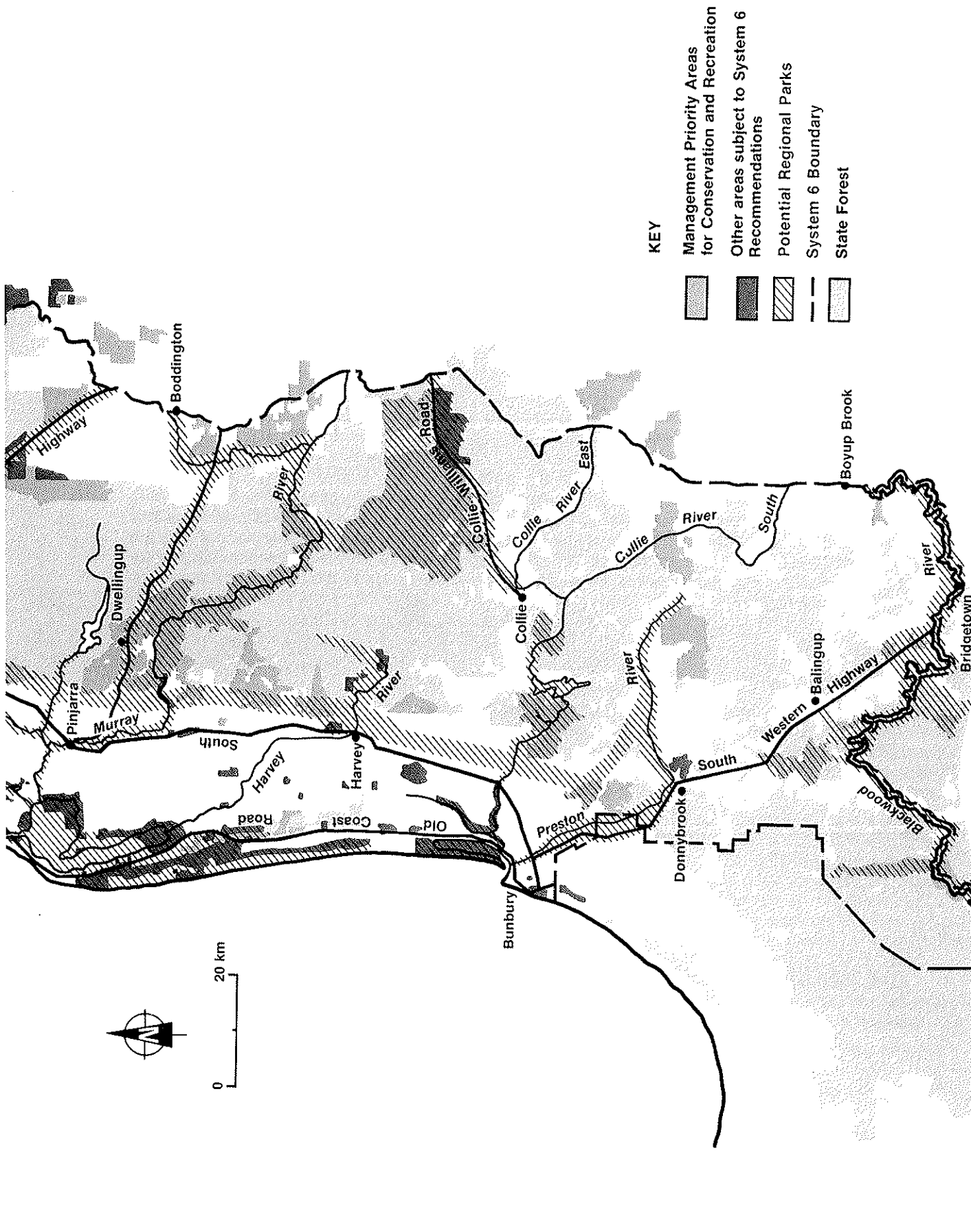


Figure 1 Potential for Regional Parks in System 6.

vation Act (1945-1982)¹⁷. The Soil Conservation District provisions in that legislation appear to allow for local initiatives and control of land use in ways which could have great potential for conservation of land values in general.

4.4 Discussion

The System 6 Study Report¹ gives a more complete discussion of regional planning in general, with particular reference to open space and landscape conservation. Chapter 5 of the Green Book contains a number of suggestions which could prove to be valuable guidelines for the investigations recommended above and Figure 1 in this Report directs attention to a number of areas in which they could find application.

Nevertheless, our recommendations 13 and 14 above here only go so far as to propose the development of new planning machinery which should facilitate proper provision for conservation as planning proceeds. Our recommendations for additional parks and reserves and conservation and recreation MPAs in State Forest are inputs to planning processes more properly undertaken by the planning authorities.

That this is already taking place to some extent is demonstrated by Figure 1. This shows land already formally designated as regional open space by the MRPA and the potential for additions to it for System 6 as a whole. It also includes, without differentiation, zones where landscape conservation is desirable, such as the full length of the Darling Scarp, and the scenic valleys emerging from it. The figure is derived from various sources including the Perth Region Tourism Study, and proposals by local authorities, the MRPA and submissions to the System 6 Study.

Within the Metropolitan Region, the Darling Scarp and lower Avon appear as a strip of country with undoubted scenic value as a backdrop to the city. It is anchored in the north by Walyunga and Avon Valley National Parks and associated reserves, and in the south by the Serpentine National Park, backed by the Serpentine, Gooralong and Karnet conservation MPAs. The intervening length of the Scarp is occupied by land in a variety of tenures, public and private, much of it proposed for or dedicated in some way to conservation. Its natural bush settings and scenic outlooks have attracted residential development, and residents are concerned to protect those attractions, to which publicly owned parks and reserves can contribute substantially. From the Scarp open space extends across the Coastal Plain along river frontages and other features to join up with the green wedges provided for in the MRPA's planning, penetrating from them into the development corridors.

The emergence of such an open space system is one important result of regional planning. There is an obvious potential beyond the Metropolitan Region for such a development, indeed it already appears in outline in Figure 1, where several exciting possibilities are already evident. One is the Blackwood Valley, with its mix of forest, plantation and farmland in a scenic setting, with great recreational and tourist appeal. Another, almost entirely within State Forest, comprises the scenic Murray River Valley, backed by some of the best jarrah forest conservation MPAs. This area was singled out by the Conservation Council of W.A. in its "Jarrah Reserve Proposal". Combined with Peel Inlet and Harvey Estuary, and Mandurah as a resort town, the whole forms a most valuable resource for open air recreation close to the major centres of population.

We have already, therefore, in System 6 a developing network of natural areas and open space extending from the countryside into the city. It is an asset of inestimable value to the community, and its full potential for conservation and public recreation will only be realised if it is seen as an integrated system which therefore requires coordinated management.

Chapter 5

MANAGEMENT OF PARKS, RESERVES AND OPEN SPACE

5.1 General

Taken as a whole, the developing open space network presents formidable problems of management. Since resources for the purpose are scarce, it is important that they are effectively deployed, and that the activities of the many agencies involved are coordinated.

In Systems 1 and 2 in particular, implementation of our earlier proposals based on the CTCRC recommendations has led to some movement in the direction of integrated management. This has been effected very largely by *ad hoc* working groups, such as those in the Leeuwin-Naturaliste and the Esperance areas. There has been most activity in the coastal areas of the south-west following earlier work by the Department of Conservation and Environment on the development of the policy for the coastal zone, and the appointment of a Coastal Planning and Management Adviser.

Our recommendations made here draw on these experiences, and while they are aimed at the problems of the System 6 area, they clearly have relevance beyond it, especially in the south-west.

5.2 Current Management

System 6, for a relatively highly developed part of the State, is extremely well endowed with open space, although, as argued already, it is a resource to be conserved. Management difficulties arise because of limited resources and the complexities and forms of tenure involved. These have evolved over time with the change from a pioneering community struggling to survive to one which now sees conservation of nature and public amenity values as increasingly important.

The main components of the system of parks, reserves and open space and their management agents are:

- State Forest with its MPAs for conservation of flora, fauna and landscape, and for recreation, managed by the Forests Department;
- Nature Reserves — reserved under the Land Act and managed by W.A. Wildlife Authority;
- National Parks — reserved under the Land Act and managed by the National Parks Authority;
- Parks and Reserves reserved under the Land Act for a variety of conservation and recreational purposes, managed by local authorities and some by special boards, e.g. Kings Park and Rottnest Island. Some have been created as a condition of subdivision approvals;
- Freehold land acquired by the Metropolitan Region Planning Authority and local authorities following “reservation” as open space, and MRPA land managed under interim arrangements;
- Freehold land “reserved” by planning authorities, but not acquired, managed with varying competence by current owners;
- Functional open space of various kinds (farmland, forest, vacant Crown land, land awaiting development) managed with varying competence by the owners.

The State Forest already has a developed system of integrated management in a land use planning framework, which is published in the Forests Department’s Working Plan⁷. Priority uses are identified for each forest block, together with other compatible and permitted uses. Though managed by a single agency, its management policies clearly take account of interests other than forest protection and production, including conservation of flora and fauna and the safeguarding of important water resources. The Nature Reserves too are managed by a single agency under the W.A. Wildlife Authority, and in general are designated for a single primary purpose, namely the conservation of flora and fauna. Our concern, therefore, in this Chapter is more with the remaining components listed. These form a system of parks and reserves and open space of great complexity, in terms of ownership, form of tenure, and purposes of management.

A large proportion is managed by the National Parks Authority. It is responsible for numerous parks in a range of conditions for a variety of purposes*. Some are in scenic areas of significant size, often in the more remote parts of the State, which meet IUCN’s criteria for a “National” park. Others, particularly in the more settled areas like System 6, are smaller, and more intensively used. While they attract use from a wide area, the latter are hardly of national significance, and should be more properly termed provincial or regional parks. Some have little or no component of natural area. Their place under National Parks management reflects the historic development of that Authority. The staff of the Authority constitutes a body of expertise, skilled in management of natural areas, both for their protection and to facilitate public use.

There still is, however, a substantial body of reserved land in the remainder of the foregoing list, where management arrangements could be improved, especially in relation to those parks and reserves which attract regional visitors. It includes land held by the smaller local authorities who may not have the necessary technical and financial resources to manage these parks and reserves, though they often have the labour and plant readily available, and the large areas under MRPA freehold ownership amounting to 10 230 ha for which there are only interim management arrangements. Areas “reserved” as open space through planning procedures but still held by their original owners may deteriorate due to neglect.

* Between the Kimberley and the south coast region there are 52 National Parks, occupying a total area of 4 414 266 ha and ranging in size from 33 ha to 1 569 459 ha.

5.3 Regional Parks

The concept of Regional Open Space introduced to Western Australia by Stephenson and Hepburn in 1955¹⁸ was intended to provide for the protection of open space of regional significance. They gave as examples:

- i) ocean beaches
- ii) rivers and their foreshores
- iii) areas of landscape value
- iv) picnic areas, camping rounds, tourist cabin areas etc.
- v) nature reservations
- vi) central parks (e.g. Kings Park, Bold Park)
- vii) zoological gardens
- viii) motor parkways (i.e. scenic drive areas)
- ix) open country

Planning procedures such as those discussed in Chapter 4 tend to produce concentrations or nodes of open space in the more attractive areas, often connecting along such linear natural features as rivers, foreshores and beaches. The concept clearly involves private as well as public land, with National Parks often forming the core of the major concentrations of open space of regional significance (Figure 1).

There is, of course, a definitional problem of when open space is regional in character, as distinct from a local amenity. If regional, in the sense of attracting users from beyond the locality, then there is a case for external funding, whether through direct government grant or by some form of regional rating system. Whatever the means of funding adopted, there are administrative advantages in the clear recognition of the areas to which they are appropriate and applicable.

Recommendation

15. Areas identified through planning procedures as open space of regional significance should, where appropriate, be designated as Regional Parks.

5.4 Coordination of Management

Management of the system of regional open space involves both conservation and provision for public access, it requires the coordination of the activities of the government agencies and other holders of land affected, and it may call for technical advice and financial assistance to owners and managing agencies which require them. If it affects privately owned land, and our earlier Recommendation 14 suggests that it should, then it implies constraints on development or incentives to ensure compatible management. It could also involve negotiation to provide managed access to private land or provision for passage through it. This is not so revolutionary as it may seem, since the public will inevitably attempt to reach attractive features, especially if in rural areas. Managed access, directed to where it will do least harm, would thus be in the interests of owners as well as the public. Again, there may be a case for financial compensation or assistance to owners in return for the acceptance of constraints or for maintenance made necessary by public use of the land.

There will be thus a variety of tenure, ownership and management agencies in a Regional Park with, in most cases, a substantial proportion of publicly owned land, some of it presently classified as National Park or recreation reserve. It will be necessary to define management objectives for each Regional Park and its component parts, designated for differing primary purposes, taking account of its role in relation to others; leading then to the identification of the most suitable managing agencies for each component, and a recognition of the need for coordination of their activities.

There would appear to be advantages in giving these functions to a body with appropriate expertise and experience on the ground. The National Parks Authority, with its capability in the management of natural areas while permitting use and enjoyment by the public, is immediately indicated.

Recommendation

16. The National Parks Authority should be given the responsibility for coordinating the planning and management of areas identified as Regional Parks, and for the following functions:
 - i) the provision of technical and other advice to managing agencies and owners;
 - ii) an examination of the present funding and coordination of development programmes.

These changes to the role of the National Parks Authority may require some legislative changes.

5.5 Staffing and Funding for Management

The number of staff and funds required for the management of open space areas are presently inadequate, and have also failed to grow with the increase in the amount of land set aside for this purpose. For example, in 1968 the National Parks Authority (then Board) employed about forty rangers and ancillary staff to manage 3 500 ha of National Parks. By 1982 the area of National Parks increased over a thousand fold to 4.4 million ha and was accompanied by only a doubling in staff numbers together with a decreasing trend in the discounted Treasury Grants for management purposes.

The additional roles proposed in 5.4 above for the National Parks Authority in coordinating management of regional parks and providing technical support and advice to other managers will make even further demands.

Recommendation

17. The Government should give urgent consideration to providing adequate staffing and funding for the National Parks Authority and other agencies concerned with management of parks and reserves.

Chapter 6

CONCLUSION

The main purpose of the System 6 Study was to ensure that the remaining opportunities for the conservation of natural areas in the area of System 6 were recognised, and to recommend ways and means of setting them aside for their protection after proper consideration of competing uses.

In submitting our recommendations to the Government for its consideration, we recognise the immense amount of work of those participating in the Study, not only the members of the several committees, but also all the organisations, groups, and individuals who made submissions. These submissions were always informative, and often constructive.

It has not been possible to accept all the proposals made, even some of those strongly supported by the constituent committees, and published in the Report of the Study¹. In many cases this was because they involved broad issues of resource planning, management and inventory, properly the concern of other authorities and agencies, or under study elsewhere. Consideration of them is a matter for the type of town and country planning which we argue for in Chapter 4. In three main areas — conservation in State Forest, Land Act reservation and public planning — there are problems of lack of information for decision making, and in the means by which options for the future may be kept open.

Postponement of decisions for lack of information carries the implication that the information will be sought, so that the position will in some way be capable of resolution in the future. There are a number of areas where better inventory is required, some of which were remedied during the course of the Study with the production of the System 6 Atlas.¹⁹

It is recognised that inventory, particularly detailed inventory, is costly. Yet its lack, at some appropriate level of detail, may also have considerable disadvantages. A telling example of this problem is the lack of inventory for the fauna of the Darling Range. Opposition to a proposed development may be generated when intensive investigation, preceding a major project, finds species assumed to be rare because they were previously unrecorded.

A number of agencies have resource inventory responsibilities, including the Mines Department, Department of Agriculture, Forests Department, W.A. Wildlife Authority, W.A. Museum, and the Water Supply Authorities. Some coordination of their contribution to the resource data base for land use planning is probably needed. It will no doubt be a consideration during the development of the Western Australian Conservation Strategy which has the objective of integrating conservation and development.

We endorse, in principle, the Recreation Areas Strategy Plan proposed in the Study Report¹, and recommend accordingly below. It essentially is a survey of the resources available in System 6 for recreation in natural surroundings in relation to estimated demands.

Recommendations

18. A coordinating committee responsible for the land resource inventory required for planning purposes should be established.

19. A Recreation Areas Strategy Plan should be undertaken by the Department for Youth Sport and Recreation, giving priority to Systems 1, 2 and 6. It should include:

- i) a survey of the recreational resources available
- ii) an assessment of current and likely future demands.

During the Study many submissions and the recommendations of the Tourism and Recreation Committee urged fewer restrictions on the use of catchments and reservoirs for public recreation. There was also concern about potential adverse effects of water supply development, due to inundation of scenic landscapes and ecosystems by reservoirs, and the ecological consequences of lowering of water tables following groundwater extraction. However, the Western Australian Water Resources Council, a statutory body since early 1983 is now moving towards the development of broader water use policies. These include conservation and recreation as beneficial uses of water as well as the traditional ones of water supply protection and delivery. We expect that the Council will give consideration to the Green Book recommendations on recreational use of catchments and reservoirs, and its proposals for classification of river valleys on similar lines to USA's Wild and Scenic Rivers Act²⁰.

Finally, we restate the four main issues recognised during the Study:

- the importance of the jarrah forest ecosystem, much of it in State Forest and uncleared;
- the scarcity of uncleared land outside of the State Forest, and the consequent difficulty of finding additional land for reservation under the Land Act for conservation and public recreation;
- the importance, therefore, of public planning procedures in the form of town and country planning to provide for conservation of nature, and for public recreation in natural surroundings, outside of the system of Land Act reserves and State Forest;
- the need to provide adequate management to protect conservation, amenity and other land values, based on proper resource inventory and allocation of responsibilities.

The recommendations developed in principle here in Part I are applied in detail to a large number of specific locations in Part II.

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Appendices

APPENDIX A

REVIEW OF SUBMISSIONS ON THE SYSTEM 6 STUDY REPORT

INTRODUCTION

Submissions made in response to the System 6 Study Report totalled 1494, 612 of which were in the form of coupons or copies of them and over 360 of which were made at the 1981 Royal Show display. Several individuals and organisations submitted more than one submission and often covered a variety of topics. Below is a statistical breakdown of the source of submissions:

Submission Group	Number of Submissions	Approximate Percentage
Private Individuals	1239	82.9
Community Groups	44	2.9
Professional Groups	5	0.3
Environmental Groups	36	2.4
Recreation Groups	35	2.3
Industry Associations	20	1.3
Industry (Individual Companies)	33	2.2
Local Government	40	2.7
State Government	39	2.6
Commonwealth Government	3	0.2
Total	1494	99.8

Submissions came in the form of handwritten or typed letters, reports (formal documents of up to 152 pages) and reproduced coupons and petitions. The following is the source and number of each group of coupons:

Topic	Organisation	Number of Coupons	Percentage of Total No. of Submissions
Jarra Reserve Proposal	Conservation Council of W.A.	392	26.2
Jarra Forest and MPAs	Campaign To Save Native Forests	41	2.7
Star Swamp and Surrounds	Trigg North Beach Waterman Community Association	115	7.7
Herdsmen Lake	Conservation Council of W.A.	37	2.5
Four Wheel Drive Recreation	Four Wheel Drive Club of W.A. Inc.	27	1.8
Total		612	41.0

Many coupons were signed by more than one person. A community organisation known as "Mundaring Sharing" submitted a petition containing 690 signatures in support of the Conservation Council's 77 000 ha "Jarrah Reserve Proposal" for the northern jarrah forest. This proposal, which formed the basis of a submission forwarded just prior to the publication of the System 6 Study Report, attracted more general support and discussion than any other issue. The Jarrah Forest and MPAs coupon called for a substantial improvement in the delineation, management and ad-

ministration of MPAs while supporting the Conservation Council's Jarrah Reserve Proposal. The Star Swamp coupons make a plea for a 90ha reserve covering part of the catchment area of Star Swamp to be set aside to ensure the continued integrity of the wetland. Herdsman Lake coupons call for the adoption of the Conservation Council's Management Plan for Herdsman Lake as detailed on the Council's information sheet entitled "Herdsman Lake Bird Sanctuary". The Four Wheel Drive Recreation coupons request that proper recognition be given to four wheel driving as a legitimate form of recreation and that access to environment based recreation, through the use of four wheel drive vehicles, be retained.

Many submissions made comments on specific localities mentioned in the System 6 Study Report and some made suggestions for the inclusion of new areas. Alternatives to the recommendations made in the report were suggested or have become apparent as a result of information arising from several submissions.

Other comments mainly related to concepts and proposals outlined in the System 6 Study Report and these have been reviewed under similar headings to the chapters of the EPA report (see pages 46 to 55 inclusive). The remainder of comments in submissions covered topics such as the alleged failings and merits of the study, problems outside the scope of the study and highly specific issues such as the recognition of the recreation needs of families with dogs.

All submissions were considered by the EPA in the drafting of its recommendations on concepts, principles and specific localities.

CONSERVATION IN STATE FOREST

A significant proportion of submissions received in response to the System 6 Study Report were related to conservation in the jarrah forest. The majority of these were in the form of coupons containing signatures in support of the Conservation Council of Western Australia's Northern Jarrah Forest Reserve Proposal. The Jarrah Reserve Proposal embraces several Forests Department Management Priority Areas for conservation and recreation and proposes to link them with intervening State Forest and some small parcels of privately owned land to form one continuous 77 000 ha A Class Reserve. Further support for the jarrah reserve proposal came from many original submissions from a wide range of sources including local government authorities, various community organisations and individuals. The proposal itself, together with a separate submission from the Conservation Council of W.A., represents a great deal of detailed investigation and deliberation and it attempts to provide practical options for securing dedicated management of the area. Several submissions suggested that the jarrah reserve proposal should be considered as a minimum requirement; some believed it was definitely too small (comparisons were made with large National Parks in New South Wales close to Sydney); and some expressed a preference for the existing system of Management Priority Areas (usually with some modification). It was generally agreed however, that no mining or other similar disturbance should be allowed to occur within the area and that the reserve should be given the highest possible security of purpose and tenure.

Many submissions also focused attention on the Forests Department's system of Management Priority Areas (MPAs). The majority of submissions referring to MPAs supported the concept, although a great many of these were critical of either their management, their adequacy in terms of size, shape and species representation, the lack of adherence to a proper core-buffer concept, or their security of purpose. Several submissions proposed that the recommendations on MPAs to the EPA from the Technical Advisory Group on Bauxite Mining in the Darling Range (1978) should be adopted.

There were a considerable number of submissions from the mining and forest products industries which emphasised the importance of their respective activities in regard to the economy and employment. Management Priority Areas are seen as a further limitation on the availability of timber and mineral resources by these interest groups. They called for a closer examination of social and economic costs and benefits as well as more detailed assessments of conservation and other resource values within MPAs. Alcoa stated in its submission that "the proposed MPAs contain sufficient bauxite to support Alcoa's approved rate of mining and refining for 20 years". However, Alcoa and other industry sources acknowledged that where it could be proven that conservation values exceeded all other values to the community, MPAs for preservation purposes should not be disturbed. As was the case for submissions received at the beginning of the study, there was a great number of submissions opposed to mining in MPAs and several opposed to mining in any part of State Forest.

With respect to State Forest in general, several submissions proposed strict curtailment of activities carried out by public utilities. Some submissions pointed out that public utilities appear to have rights which allow them to carry out their activities without the degree of control impos-

ed on private industry under similar circumstances. The Forests Department's submission proposed that the Conservation and Land Use Committee's (CLUC) recommendations on mining, extractive industries and public utilities should be applied in the System 6 'Red Book' in the same way as they had been applied in the CLUC report. That is, where mining, extractive industries or public utilities are likely to affect a Management Priority Area, the responsible authorities would be required to consult the Environmental Protection Authority at the planning stage of proposed works. The Forests Department has also proposed the inclusion of the CLUC report's recommendations on off-road vehicles which advocated further controls on, and provision of specific areas for off-road vehicles. The Forests Department's submission also pointed out that (1) the exceptional recreation potential of State Forest in general needs more emphasis, (2) land other than State Forest to be added to MPAs be declared State Forest rather than C Class Reserves, (3) references to changes in MPA boundaries and locations be reworded to allow for increase as well as decrease in area and for relocation to suit conservation purposes as well as mining, (4) it should be made clear that recreation needs to be carefully dedicated in MPAs for conservation and (5) the recommendations for joint management of privately owned land within or adjacent to MPAs be more explicit in terms of the means to be used to achieve joint management.

Many other submissions proposed a wide variety of means of resolving land use conflicts within the forest and for maximising social and economic benefits from it. Some further proposals for conservation in the forest included the creation of a wandoo national park and special protection of the tuart forest along the western edge of the Coastal Plain.

Other matters brought out in the submissions included (1) the need to continue to allow beekeepers to have access to several MPAs, (2) criticisms of the Forests Act and its administration, (3) criticisms of burning practices, planting of pines and over-cutting and (4) arguments for and against the use of currently forested land for agriculture.

Overall, submissions were in favour of the concept of dedicating some proportion of State Forest to conservation purposes and the need to provide adequate protection for the forest as a valuable natural resource.

LAND ACT RESERVES

Of those submissions referring to Land Act Reserves, the majority made criticisms of the joint vesting strategy proposed in the System 6 Study Report. Several industry sources supported the principle subject to minor modifications, but most submissions referring to the strategy came from individuals, private conservation organisations and other sources who expressed concern that the strategy favoured, or could be used to favour mining interests to the detriment of conservation interests by deferring the establishment of reserves indefinitely. Other criticisms were that the strategy could be open to abuse or misinterpretation, that it would be clumsy and difficult to implement, that the Mining Act could be used to frustrate the intent of the strategy and that land use conflicts could not and should not be resolved between government ministers only. Mining interests suggested that the strategy could be adopted provided conflict resolution involved a representative from the mining company concerned or a representative of the whole mining industry. Several of the submissions opposed to the concept strongly recommended that if it was still to be adopted, the resolution of conflicts for each specific area should not be attempted without full and prior public knowledge and participation.

A number of submissions called for continual or periodic reviews of reserve vestings and purposes so that reserve management could remain in tune with changing needs and changing circumstances. These submissions conformed with the submissions from the Department of Lands and Surveys which recommended limited term vesting as an alternative to the joint vesting strategy for proposed new reserves which have potentially incompatible uses. The Department of Lands and Surveys not only recommended the adoption of limited term vesting, but also provided many helpful guidelines enabling the development of recommendations which may be more readily implemented. The clarification of the legal status of land within and adjacent to the specific localities recommended in the System 6 Study Report and the understanding of existing legislation provided by the Department of Lands and Surveys has made the task of making recommendations for specific localities a less difficult one than it otherwise might have been.

Other matters relating to Land Act Reserves mentioned in submissions include: (1) the need to provide reserves specifically for the protection of rare species rather than only concentrating on the representation of vegetation associations and eco-types; (2) the problem of securing funds for land acquisition and reserve management in relation to social and economic costs and benefits; (3) the need to allow controlled exploration on reserves; (4) establishment of a priority system for implementation of recommendations for new reserves; (5) consideration of several new areas identified in submissions as having conservation and/or recreation potential; (6) a

moratorium on development of all specific localities itemised in the System 6 Study Report until the recommendations in the report are implemented; (7) greater control of the activities of public utilities within reserves, although submissions from public utilities such as the SEC and MRD suggest that reserves cannot always be avoided and that disturbance is already kept to a minimum; (8) proposals for a new system of reserve classification; and (9) a need for an investigation into the adequacy of existing and proposed reserves in terms of overall requirements for conservation and recreation.

The problem of intrusion of works such as for roads and powerlines into reserves was also highlighted in the early submissions at the beginning of the System 6 Study as was the suggestion that interim controls be adopted prior to the implementation of recommendations in order to prevent developments taking place which might have an adverse impact on conservation or recreation values.

LAND USE PLANNING FOR CONSERVATION AND RECREATION

References to the protection of conservation values, the preservation of landscapes and the provision of recreation resources on land in private ownership and other land not reserved for these purposes were common in submissions to the System 6 Study Report. The report's references to privately owned land appears to have prompted considerable interest as well as some concern in contrast to the submissions received at the beginning of the study which generally supported the imposition of further planning and land use controls.

Specific comments on the protection of conservation and recreation amenity values of privately owned land varied from those which were totally opposed to the concept, to those in full support of it. The majority of those who totally opposed it were land owners who felt threatened with loss of control of their land or feared that their land would decline in value. There were many submissions which supported the proposals in principle, but several of these stressed the need to observe the rights of land owners under Commonwealth and State laws. They also pointed out that adequate compensation should be paid to land owners for any potential loss of amenity or economic value resulting from controls on the use of their land. Incentives and disincentives for land owners to protect conservation and recreation amenity values were also discussed.

Land owners expressed strong concerns about the effects planning measures for the conservation of nature and public amenity have on their interests. Some seemed to speak from experience. The problems outlined in submissions included: (1) loss of privacy; (2) maintenance costs for access areas; (3) rubbish and noise from visitors; (4) increased likelihood of fires; (5) land degradation; (6) decline in land values and productivity; (7) vandalism; (8) theft, and (9) loss of stock. Proposed compensation measures included: (1) government leasing land from land owners; (2) exemption from land rates for area affected; (3) tax concessions and (4) cash rebates. Several local government authorities, particularly those with a high proportion of non-rated land expressed apprehension at the potential loss of rates as a result of recommendations in the System 6 Study Report.

With respect to joint management arrangements between land owners and traditional reserve managers, reserve managers saw a problem in individually consulting very large numbers of people, and land owners were either sceptical of government advice or totally opposed to any outside influence on the management of their own land.

One of the more common matters discussed in relation to the more general aspects of land use planning for conservation and recreation was the implementation of a State-Wide Recreation Areas Strategy Plan as recommended in the System 6 Study Report. Several submissions, including one from the Department for Youth, Sport and Recreation, called for greater emphasis on this need and the adoption of many other recommendations made in the Tourism and Recreation Committee's report.

Several sporting and recreation groups asked for consideration of their interests in the provision of land and water areas for recreation purposes. The diversity and number of groups requesting such consideration is evidence of the need to cater for them within a broader study of recreation requirements. The sports represented include waterskiing, polocrosse, archery, orienteering and bowling. Recreation interests included four wheel drive enthusiasts, motor cyclists and nudists. By far the greatest number of these submissions came from four wheel drive clubs and enthusiasts who asked for recognition of their activities as a legitimate form of recreation. Community attitudes towards the broader category of off-road vehicles seem to be somewhat polarised since several submissions called for greater control of off-road vehicle use.

The issue of recreational use of water catchments was the focus of considerable comment from two opposing viewpoints. Some submissions sought a compromise between the maintenance

of low cost high quality water and a considerable reduction in restrictions on recreation in catchments. Suggestions included the adoption of curfews, zoning, seasonal restrictions, and giving preference to well organised activities such as those conducted by clubs. The Public Works Department strongly opposed the concept of conducting a controlled experiment on recreation in the lower Helena Valley as recommended in the System 6 Study Report on the grounds that such experiments could threaten the quality of water used for human consumption and suggested that some catchments used solely for irrigation purposes might be more appropriate for such experiments. The Metropolitan Water Board (now the Metropolitan Water Authority) argued that increased recreational use of catchments would lead to increased costs for potable water and that the concept of wild and scenic rivers may not be attainable in Western Australia because of the limited supply and increasing demands for water. Several recreation groups and individuals strongly urged further consideration of increasing recreational use of catchments as they did in earlier submissions at the beginning of the System 6 Study.

Of the remaining issues discussed in relation to planning for conservation and recreation, the establishment of marine reserves seemed to be the most controversial. Professional and amateur fishermen strongly opposed the establishment of a reserve west of Mullaloo and Whitfords. Other groups such as diving clubs who made submissions at the beginning of the System 6 Study, strongly supported the concept and made further suggestions with respect to the delineation of other areas and the types of restrictions which could be imposed. Other submissions raised issues including: (1) the need for more inventory of resources to aid planning; (2) the need for more camping facilities and bush walking trails; (3) encouraging greater use of private and commercial funds for developing and promoting recreation and conservation areas; and (4) the urgent requirement for a total land use study for the whole of the System 6 area.

MANAGEMENT OF PARKS, RESERVES AND OPEN SPACE

Submissions from a wide range of sources showed a great deal of interest in the problems of public open space. Comments varied from those on general policy matters to those relating to detailed management.

With respect to the concept of Regional Parks submissions were generally supportive and most of those who opposed the concept did so because of what they saw as a lack of complete explanation of the proposal. For example, several submissions expressed concern that the objectives and methods of management for Regional Parks would not take sufficient account of the conservation value of these areas and that several reserves which are now known as National Parks might be managed in such a way as to compromise their conservation value. Several submissions asked which authority might manage Regional Parks, and provided suggestions which included the National Parks Authority, the Department of Conservation and Environment and the secretariat which was proposed in the System 6 Study Report. In its submission, the National Parks Authority volunteered to take on the responsibility provided that the task was undertaken in the context of the Authority's existing priorities and providing the Authority could be assured of a substantial ongoing commitment by government to the regional parks system. The National Parks Authority acknowledged the view of the System 6 Study Report that the near metropolitan National Parks are operated as day recreational opportunities for the people of Perth and that the international criteria for the designation of National Parks are not met in these areas.

The reaction to the proposal for a secretariat to be established to coordinate open space planning and development was mixed, but only a few submissions strongly opposed it, mainly because they perceived it as an unnecessary expansion of bureaucracy. The majority of submissions on this topic made positive suggestions on how the secretariat proposal might be improved and several suggested an expansion of its functions. The most favoured form which the secretariat could take was seen as a well funded autonomous body composed of qualified and dedicated officers. The Metropolitan Region Planning Authority pointed out that the proposal may be only one of several approaches which could be adopted and that alternative means of achieving the same end result should be investigated. There were several suggestions that local government should be given the opportunity to increase its involvement in planning and management of open space through extra funding provided by means such as 'purpose grants' or through the formation of regional councils under Section 329 of the Local Government Act.

Other matters raised in submissions relating to open space planning and management include (1) the application of the Regional Park concept beyond System 6 to regional centres such as Bunbury, Albany and Geraldton, (2) consideration of adopting the recommendations of the Legislative Council Select Committee on National Parks which call for a greater commitment to the needs of National Park rangers and (3) several suggestions for the adoption of a new classification system for parks and reserves including a proposal for the setting aside of "wilderness areas".

Appendix B

LIST OF SUBMISSIONS ON THE SYSTEM 6 STUDY REPORT

The following list of names indicates, in alphabetical order, those organisations and individuals who made submissions in response to the publication of the System 6 Study Report (1981). The names of those who made important contributions to the Study by way of earlier submissions were listed in an Appendix to that Report and they are therefore not repeated here.

A

Aboriginal Advancement Council
Adams R.
Addison R.W.
Ahearn I.
Akerman P. (2 submissions)
Alcoa of Australia Ltd.
Alcorn R.W. & E.E.
Alexander I.
Allen E.
Allen J.T. & W.J. et.al.
Allen J.
Allen S.
Amateur Canoe Association of W.A.
Amateur Fisherman's Interest Group
Ambrose S.
Amm L.
Anderson A.
Anderson C.H.
Anderson J.N. (2 submissions)
Anderson P.R.
Andriessen P.P.
Anketell J.
Annen B.
Annen R. (5 submissions)
Anthony B.
Archery Society of W.A. Inc.
Arcus P.
Arkeveld R.
Armada Christian Education Association
(for 'Emmaus Christian School')
Arnold J.
Aroozoo M.
Arthur B.
Arthur J. et.al.
Associated Minerals Consolidated Ltd.
Atkins A.B. et.al.
Atkins W.
Atwell D.
Austin W.
Australasian Wader Studies Group of the
Royal Australasian Ornithologists Union
(W.A. members)
Australia and New Zealand Association for
Advancement of Science (W.A. Division)
Australian Democrats (Kalamunda Branch)
Australian Democrats (Stirling Branch)
(2 submissions)
Australian Conservation Foundation
Australian Fishing Industry Council
Australian Heritage Commission

Australian Institute of Valuers
Australian Montessori Society
Australian National Parks Council
Australian Travel Industry Association
Australian Underwater Federation
(W.A. Branch)
Australind Progress Association
Avenell D.E. (3 submissions)
Avenell K. (2 submissions)
Aviculture Society of W.A.
Ayres T.

B

Bagwill J.
Bailey J. et.al.
Bailey L. et.al.
Bain S.
Baker G.F.U.
Baker S.R.
Baker T.A.
Barbary M.M.
Barizza P.
Barker F.
Barker S.
Barnes E.
Barnes H. (3 submissions)
Barnes H.E.
Barnes I. et.al.
Barnett B.A.
Barnett F.V.
Barnett R.C.
Barnett R.S.
Barrett I.
Barrett R.
Barrett-Lennard D.
Barrow M.I.
Bary K.
Barry L.
Barsby P. & C.
Bartlett L.F.
Bartlett L.H.
Barton M.
Barton N.S.
Bassett T.
Bateman J.C.
Bateman R.A.
Bath D.
Baumaartner G.
Beard Dr. J.S.
Beaton R.
Beck S.

Bedforddale Residents
Bedforddale Residents Association
Beeck N. (2 submissions)
Beirne T. (4 submissions)
Bekle H.
Beliher E.L.
Bell R.
Bell S.
Benn A.
Benny B.S.
Bentley K.
Berryman R.A.
Berryman T.S.
Berston P.
Bessel-Browne F.
Best M.
Best M. & B.
Best S.
Bettenay E. (2 submissions)
Bevan R.
Bibby P.
Bignold B.
Billier N.
Binckes G.K.
Bird H.
Bischoff Dr. B. (4 submissions)
Bishop C.
Bishop N.
Black E.R.M. & G.F.
Blaxell C.
Blaxell E.
Blaxell T.
Bloeman A. & A.
Bloeman J.
Bloeman S.
Blood A.
Boardman W.J.
Boldys M.
Borwick T.
Boulay C.
Boulay M.
Bowler J.
Bowler H.
Box D.S.
Box J.
Boyce T.
Boynes C.
Boyup Brook Sawmills Pty. Ltd.
Brearley A.
Brennan G.
Brewer B.
Briand W.H.
Brickwood G.
Bridgewater Dr. P.
Bristile Ltd.
Broanda S.
Brockman B.
Brockman G.
Brockman N.
Bromley D.
Bronsbay R.
Brooker C.A.

Brooker P.
Brookton System 6 Study Committee
Brown B.
Brown L.G.
Brown R.
Bryce R.A.
Buchanan V.M.
Buddle R.
Bullin S.
Bunning Bros. Pty. Ltd.
Bunning Bros. Pty. Ltd. (Forests Planning
Manager)
Bunning Bros. Pty. Ltd. Collie
Bunning Bros. Pty. Ltd. Dwellingup
Bunning Bros. Pty. Ltd. Nyamup
Bunter D.
Bunter J.
Burgess S.B. & M.M.
Burke C.
Burns W.
Burrell W.H.
Butcher N.R.
Butler K.
Butler W.H.
Butterfield T. & I.
Butterworth J.D.
Byrne B.
Byrne J. et.al.
Byroe G.

C

Calleja J. & P. (2 submissions)
Campaign to Save Native Forests
Campbell F. et.al.
Campbell R.M.
Campbell S.L.
Capill E.A.
Caporn Rhonda
Caporn Ronald
Caporn V.
Carlisle E.C. & E.
Carnaby D.A.
Carpenter J.
Carroll R. et.al.
Carstairs T.E.
Central South Regional Development
Committee
Chalmers W.
Chalweil F.J.
Chamber of Mines of W.A.
Chambers F.
Chambers K.G.
Chapman J.
Chase D.
Cherry I.W.
Christensen E.
Christensen K. & C.A.
Christensen L.
Christensen M.
Christophersen I.
Churchward A.
Churchward B. (2 submissions)

Churchward I.
Citizen Group of City Beach
(2 submissions)
City of Belmont (2 submissions)
City of Cockburn
City of Fremantle
City of Gosnells
City of Melville (2 submissions)
City of Nedlands
City of South Perth (2 submissions)
City of Stirling
Clark I.
Clark J.R. (2 submissions)
Clark M.L.
Clark P.
Clark P.J. & L.A.
Clarke C.M.
Clarke F.P.
Clarke K.
Clarke W.
Clegg R.
Cleland Dame Rachel
Clifton E.
Clithero D.
Coastal Protection Association (Inc.)
Cockburn-Campbell J.A.
Cockburn Cement Ltd.
Cocivera P.
Coils S.
Coles E.J.
Collett J.
Collier H.
Collins J.
Combs H.
Combley B.J.
Confederation of W.A. Industry
(2 submissions)
Conservation Council of W.A.
(2 submissions)
Cook B.
Cook E.M.
Cook G.L.
Cook P.
Cook W.
Coombs D.
Cooper M.T.
Coppin B.
Cotterell J.
Coulter M.J.
Coutinho B.
Coutinho M.
Coutinho S.
Country Regional Council Association of
W.A.
Country Womens Association of W.A.
(Wellard Branch)
Cox L.
Cox N.
Cranbrook Conservation Group
Cranfield G. (2 submissions)
Crawford D.
Crawford I.M.

Credaro P.
Cribb S.
Crockart H.B.
Crombie I. & S.
Cronin T.P.
Cross R.W.
Crowe J.A.
Crowley B.
Cruse A.E.
Currie A.
Currie E.H.
Currie J.H.

D

Dallimore J.W.
Darbyshire J.
Dargie L. & L.
Darling Range Study Group
Darling Range Conservation Farming Club
Darlington Ratepayers & Residents
Association
Davies K.
Davies R.
Davis B.G.
Davis R.
Davis R.B.
Dawkins M.
Dawson A.
Day P.R.E.
Deck D.I. & D.M.
de Garis B.K. & J.
de Gruchy D.J.
de Grys A.F.
Del Riccio C.
Della J.W.
Department of Administrative Services
Department of Agriculture
Department of Fisheries & Wildlife
(3 submissions)
Department of Lands & Surveys
(2 submissions)
Department of Resources Development
Department for Youth Sport & Recreation
Derbyshire A.D. & C.D.
Devereux J.
Devereux P.
Devlin F.
Dick G.
Dillon J.
Dmytryk C.
Dohnt B.
Dolva J.
Dongara Professional Fishermen's
Association
Doorey J.
Dorahy J.M.
Doran B.
Dorman N.
Doyle J.
Doyle P.
Doyle T.
Doyle W.

Dule L.
Dunbar N.M.
Duncan W.G. & P.M.
Dundas J.
Dundon T.J.
Dunn R.
Dunn W.P. & A.M.
Dutch M.
Duxbury M.

E

East Fremantle Yacht Club
Eaton F.M.
Eatt D.
Eat K.
Ebell D. et.al.
Eckersley P.
Edgar L.V.
Edwards D.M.
Edwards P.
Edwards S.
Efford G.
Egan L.
Eggett E. (2 submissions)
Elberink J.
Ellis K.
Endacott Dr.
England W.G.
Environmental Science Class-Churchlands
College of Advanced Education
(2 submissions)
Espie J.
Evans A.
Evans W.J.
Everett M.A.
Ewing P.
Extractive Industries Association
Eyres A.J.

F

Falls J.M.
Farhoumand F.
Farmers Union of W.A. (Inc.) Corrigin Zone
Farr T.
Faulkner J.
Featch C.
Fenbury H.
Fenton E.
Ferguson L.
Ferguson S. & J.
Feuerheerd S.
Fewster N.F.
Fielder M.
Finlay M.
Fitzgerald C.
Flanigan J.H.
Fleay B.
Fleming C.
Fleming Family
Fletcher Dr. L.
Flint T.
Flynn C.A.

Flynn D.
Flynn D.V.
Flynn I.
Foley J.
Folkl L.J.
Foot I.R. et.al.
Foote J.W.
Ford A.D.
Ford J.R. (2 submissions)
Fordham V.
Forest Industries Environmental Advisory
Committee
Forest Products Association
Forests Department (2 submissions)
Forrest J.
Forrestdale Progress Association
Forrester J.
Forum Club of W.A.
Foster G. (2 submissions)
Four Wheel Drive Club of W.A. (Inc.)
Fox Dr. J.
Fraser T.D.
Frayne R.
Frazier J.
Fremantle Diving Club
Fremantle Port Authority
Frochter H.
Fyfe S.

G

Gadsby A.
Gallacher J.H.
Gallaher D.
Gallaher G.
Galvans A.
Ganley L.
Garavanta C.
Garnett-Botfield C.
Gearon V.
Geraldton Professional Fishermen's
Association
Ghitty W.G.
Gilbert N.J.
Giles E.
Gill T.
Gillett S.
Gillham C.
Gillham Jeff (3 submissions)
Gillham J.
Gillham P.
Ginbey J.F. & B.
Gismondi W.
Glasgow A.
Glenister M.
Gobby B. & A. & J.
Goldsmith C.J.
Goody M.
Gordon S.S. & D.L.
Gordon Susan (2 submissions)
Goss B.
Goss K.F.
Graham D. Houghton & Associates

Graham G.R.
Gralton P.
Granich D.
Gratte Family et.al.
Gray M.
Green L.A.
Greenburg J.
Greenbushes Tin Mine
Greenex
Greenhalch D.
Greenham W.J.
Greenslade F.
Greenslopes M.
Grien A.
Grieve B.
Grieve J.C.
Griew A.
Griffin Coal Mining Company Ltd.
Griffin E.A.
Grounds N.
Grounds R.
Grove H.
Grovermann J.
Guildford Progress Association
Guise L.
Gunn P.

H

Habitat Herdsman
Hackett A.
Hadley N.T.
Hafekost J.
Haime A.L.
Hainge P.
Hale M. et.al.
Hall H.G.
Hall T.
Halmer S.
Halse N.J.
Halsmith Family
Halsmith M.
Ham K.M.
Hameister D.
Hamel C.
Hamilton B.
Hammond J.
Hammond P.
Hamond R.
Hancock A.
Hanley
Hannaford W.E. & P.J.
Hansom G.
Hansom-Smith D.
Harbour and Lights Department
Hardey B.M.
Hardey E.C.
Hardey L.E.
Hardey Y.B.
Hardy M.A.(2 submissions)
Hardyside F.
Harold J.
Harrington D.C.

Harris C.
Harris M.
Harris S.
Hart R.J.
Harvey E.
Harvey J.
Harway B.
Hawkes S.
Hawkins J.E.
Hawkins L.
Hawkins W.
Hayden L.
Hayes P.
Haynes A.A.
Hedgcock M.
Heffervan J.
Helena Valley Rural Association
(2 submissions)
Hemery R.C.
Hempsall I.S.
Hemsley E.
Hemsley P.
Henderer N.
Hendrick S.
Hendry C.
Henry D. & E.
Henry T.A. & J.
Hetherington J.
Hibbert C.O.
Hicks J.F.
Higgins K.
Hill G.P. (Mr)
Hill G.P. (Mrs)
Hill J.R.
Hill M.
Hille P.
Hilsz T.
Hilton R.M.
Hilton R.N.
Hinchliffe R.
Hoare R.
Hoff B.C.
Hoffman G.B.
Holden A.
Holden R.C. & J.H.
Holmes G.V.
Holmes J.
Holyday C.M.
Homerill W.
Honey Industry Association of W.A.
Hookham A.
Hooper C.
Horabin K.
Horgan J.B. & J.M.
Hort M.
Horton R. & G.
Hotham Valley Tourist Railway W.A. (Inc.)
Hough G.I.
Howarth L. et.al.
Howell K.F. (Mr)
Howell K.F. (Mrs)
Huck I.

Hudbay Oil (Aust) Ltd.
Hudson J.
Hughes D.A.
Hughes M.
Hughes N.
Hughes V.
Huhsmann L.
Hulcap M.
Humanist Society of W.A.
Husband F.A.
Hussey P.
Hutches P.
Hutchinson H.
Hutchison J.R. & D.E.
Hutton R.

I

Industrial Lands Development Authority
Inglis P.G.
Institute of Foresters of Aust.
(W.A Division)
Interstate Jarrah Export Association
Irvine S.
Irwin J.W.

J

Jackson D.J.
Jago G.A.
James B.
James C.W. & J.
James D.F. (3 submissions)
James Mazza & Company
James S.
James U.
Jenning J.T.
Jennings L.G.
Jennings M.
Jerke Mr.
Jervoise Bay/Woodman Point Project
John Holland Constructions
Johns B.
Johnson G.
Johnson K.E.
Johnson P.
Johnson S.E.I.
Johnston A.
Johnston R.
Jones C.H. & D.A.
Jones O.
Jones J.L. & M.
Jones M.J. & F.L.
Jones M.R.
Jones M.
Jones T.F.
Jones R.
Joondalup Development Corporation
Joyce M.
Julian M.

K

Kable Z.A.
Kaeding W. & C. & Z.

Kanagasabapathy J.
Kardinya Precinct Inc.
Kelly J.B.
Kempin S.
Kendrick G.
Kent B.
Kent J.M.
Kent L.
Ker G.
Kerr S.
Kidd L.B.
King A.E.
King A.
King J.A. & E.A.
King R.
King Richard
Kings Park & Botanic Garden
Kings Park and Swan River Preservation
Society
Klemm B.
Knapp L.T.
Kneebone B.K.
Knight A.G.
Kobelke J.
Kolb R.D.
Kolpa A.
Kopke M.J.
Kramarczuk J. & B.
Kramer F.

L

Lagder T. & V.
Lamb G.
Lambrechts W.
Land Rover Owners' Club of W.A.
(2 submissions)
Lander P.
Landscape Architecture Conservation
Group
Lane A.E.L.
Langdale Pty. Ltd.
Lantzke Dr. I.R.
Larwood M.G.C.
Laura D.
Law J.D.
Lawrence T.
Lee E.
Leeden J.
Leeming W. & S.
Leeson D.F.
Legg M.
Legge F.
Lego R.
Lenard M.F.
Lenard M.F. & J.M.
Lenme R.
Lesmurdie Progress Association
Lettieri S.
Ley N.H.
Lightweight Four Wheel Drive Club
Lillywhite H.
Little G.

Local Plants Group
Loney S.
Loong C.
Lord J.
Lord J.H. & Associates Pty. Ltd.
(3 submissions)
Lovland G.
Ludlow J.R.
Luff M.
Lumsden E.W.
Lund H.P.
Lynton-Brown D.
Lysle R.J. et.al.

M

MacKintosh J.M.
MacLean K.
Maddeford W.
Madden M.J. & P.
Maher M.
Mahon B.C. (2 submissions)
Main J.H. et.al.
Main Roads Department
Mairaita M.
Majer Dr. J.
Major M.
Malacari R.
Mandurah Action Committee
Manley M.J. (2 submissions)
Mann C.E.
Manohar S.
Mansell J. et.al.
Mansell P.M.
Mansveld J.A. & A.
Marmion Angling & Aquatic Club
Marshall A.
Marshall D.
Marshall J.R.
Martin P.
Martin W. & K.
Mary Ann
Mason E.J.
Masters B.K.
Masters B.K. & C.T.
Mateljan J.
Mathias Family
Matthews D.
Matthews L.
Maxwell R.
May A.D.
May R.F.
McAllister R. & E. and Family
McCall A.
McCallum L.
McCallum M.
McCann G.
McColl D. (2 submissions)
McCormick M.
McCowan D.J.
McCreadie E.
McDonald L.
McDowell F.
McEwan A. (2 submissions)
McGavin G.
McGellin S.
McGilligan G. (2 submissions)
McKenna M.
McKenzie N.
McKinnon J. & J.
McKinnon W.L.
McLean J.
McLean M.R.
McLeod M.D. & S.A.
McLeod S.K.
McLoughlin A. (Mr)
McLoughlin A. et.al.
McMullan S.
McMurdo B.R.
McPherson G.
McVee J.
McVee S.
Medigovich M.
Meek S.E. & M.J.
Meers Dr. A.R. (for Christian Youth Camp)
Mellows V.
Melotte B.
Merrilees D.
Metropolitan Region Planning Authority
Metropolitan Water Board (now
Metropolitan Water Authority)
Michael E.
Michael M.E.
Midland Brick Company Pty. Ltd.
(2 submissions)
Mier W.
Miller J.M.
Millars Jarrahdale
Millars W.A. Pty. Ltd.
Millars Yarloop
Milne D. & T.
Mincham A.F.
Mines Department
Mitchell C.A.
Mitchell H.
Mitchell Plateau Bauxite Company Pty. Ltd.
Mitchell T.
Mohar L.
Mongan B.P.
Monier Brick (W.A.)
Monson R.J. & M.
Moon A.
Moone T.M.
Moore I.R.
Moore R.
Moore S.
Moran J.
Moran J.M.
Moran M.W.
Morcombe I. & M.
Morgan G.I.
Morgan V.
Morgan W.H.
Moriarty W.I.
Morris C.A.

Morris E.
Morris L.
Morris R.H.A.
Mosel G.
Moxham D.
Moyle B.
Moyles J.
Moyles M.
Mueller C.
Mueller O.
Muir B.G.
Muir J.H.
Mullins A.R.
Mumford L.G.
Mundaring Sharing
Murdoch University Wildlife Association
Murnane S.J.
Murray J.P.
Murray M.
Murry M.J.
Museum of W.A.
Mustica S.

N

Nangar (Bouzher) 1980 — Wilderness
Expeditions and Natural History Field
Trips
National Country Party of W.A.
National Parks Authority
National Trust of Australia (W.A.)
Neale Dr. A.K.
Nelligan P.
Nelson M.
Newell L.M.
Newland G.
Newman J.
Nicholas E.C.
Nichols E.
Nichols P.J.
Nigot L.
Norman M.J.
Norrie K.
Norris D.H.
North-West Ward Ratepayers Association
(Murray District)
Northern Districts Scuba Club
Nugent M.
Nye B.

O

Oaks N.
O'Leary R.V.
O'Meara M.F.
O'Neil T. & J.
Ophuis C.
O'Reilly P.
Orienteering Association of W.A.
O'Sullivan W.E.
Our Lady of Grace School (25 submissions)
Ozsdolay E.

P

Pachon L. & E.
Page S.
Pages R.
Paley R.E.
Palladino J.
Palladino P.
Plamer B.
Palmer R. & N.
Palmer T.J.
Parker J.B. (2 submissions)
Parker N.
Parker T.
Papenfuz D.
Parry's Esplanade Ltd.
Pascoe D.
Passarelli J.
Passauer D.F.
Patterson A.W.
Patterson J.H.
Patterson V.
Patterson Vera (2 submissions)
Patroni J.
Paul A.E.
Pauli E.P.
Payne A.L.
Payne J.
Paynter R.
Peacock M.
Peacock W.J.
Pearce J.R.
Pearce T.C.
Pearce T.R. & E.A.
Peel-Preston Preservation Group
Pellizzon G.F.
Pen L.
Penberthy C.
Penberthy F.W.
Penter S.
Pepper G.
Perera J.W.B.
Perey R.
Perry H. & N.
Perry K.D.
Perth Bushwalkers Club
Petersen K.
Peterson B.
Peterson S.
Pether A.
Pether R.
Petroboni R.A.
Phillips C.
Phillips G.G.
Pieroni M.
Pinakis A.E.
Pine J.
Pinker L.P. & M.J.
Piper G.
Pitt R.
Polocrosse Association of W.A.
Pony Club Association of W.A.
Porter H.
Powell L.

Powell R.
Price J.D.
Priekulis J.
Primary Industry Association of W.A. (Inc.)
Perth Branch (2 submissions)
Primary Industry Association of W.A. (Inc.)
Toodyay Branch
Primmer R.
Pritchard A.
Pritchard S.
Pritchard Y.
Pryce F. (2 submissions)
Public Works Department
Pullen R.
Purser R.J.
Purves E.

Q

Quinn's Rock Civic Association
Quinn's Rock Recreation Association

R

Radford R.
Radnedge L.
Raikes C.
Raikes D.
Ralph A.
Rangers/Catchment Wardens
Ravine R.P. et.al.
Ray K.G.
Readhead E.L.
Reading A.W.
Readymix Group (W.A.)
Redapple S.
Rees M.
Reid J. & D.
Reitze C.
Renshaw J.
Resch P.
Residents Group Canning/Araluen
Residents Group (Lookout Road, Ozone
Tce, Kalamunda)
Revera N.
Revill I.
Reynolds D.
Reynolds E.
Rice P.J.
Richards G.
Richards M.
Richards O.
Richardson S.
Ridley B.W.
Ridley J.C.A.
Riegner E.H.
Riley E.A.
Rimmer K.N.
Roberts J.
Roberts J.L.
Roberts M.
Roberts P.
Robinson C.
Robinson E.P.

Robinson F.N.
Robinson Joan
Robinson Julieanne
Robinson J.
Robinson P.
Rochfort K.E. & E.A.
Rockingham District Historical Society
(Inc.)
Roe B.W.
Rogers S. et.al.
Roleystone Progress Association
Roscoe A.P.
Rose D.M.
Rose R.A.
Ross R.
Rotary Club of Thornlie
Rotham C.
Rottnest Island Board
Rowe D.W.
Rowe R.
Rowley B.
Rowney L.
Roxburgh J.
Royal Australasian Ornithologists Union
Royal Society of Western Australia
Royal Western Australian Bowling
Association
Ruddle D.
Russell S.
Ryan E.E. & M.I.
Ryan J. et.al.

S

Sadler B.
Safety Bay Primary School
(25 submissions)
Salvation Army, The
Salway L.J.
Salway M.
Sampson G. & F.
Sanders D.W.
Sanderson I.
Sanderson J.F.
Sands G.
Saraceni L.
Sardi M.
Sarti K.
Saunders D.
Savage R.
Saw P. & Y.
Sawyer M.E. & P.J.
Saxon J.
Scalise A.
Scantlebury K.
Schrader A.T. & D.U.
Schultz Dr. E.
Schwartz R.
Scott A. & J.
Scott R.
Sears K.M. et.al.
Secret Harbour Pty. Ltd.
Semeniuk Dr. V.

Sermon M.
Serventy J.
Sewell P.A.
Seymour T.
Shalders R. (3 submissions)
Shanahan B.R. & A.J.
Shannon F.
Sharp C.
Shaw G.
Shaw K. et.al.
Shears P.A.
Shepherd R. et.al.
Sheppard G.
Shire of Bayswater
Shire of Boddington
Shire of Brookton
Shire of Collie
Shire of Dardanup
Shire of Donnybrook-Balingup
Shire of Harvey
Shire of Kalamunda (2 submissions)
Shire of Mandurah
Shire of Mundaring (2 submissions)
Shire of Murray
Shire of Nannup
Shire of Northam (2 submissions)
Shire of Peppermint Grove
Shire of Rockingham
Shire of Serpentine-Jarrahdale
Shire of Swan
Shire of Toodyay
Shire of Wanneroo (2 submissions)
Shire of Waroona
Shugg H.B.
Silk B.
Simmons D.F.
Simmons H.
Simmons R.E.
Simms D.
Simunovich P.
Sinden N.
Skeat J.
Skewes R.D.
Slack R.G.
Slavin M.F.
Sleeper Processing Company
Smeeton M.
Smith A.F.
Smith C.
Smith Darienne
Smith D.
Smith Dr. F.G.
Smith I.
Smith L.N.
Smith P.G.
Smith Philip J.
Smith W.A.
Smither R.
Snow N.
Sombell R.F.
Sorrin A.
Sorrin M.M.

Southside 4 Wheel Drive Group
South West Forests Defence Foundation
Spencer A.E.
Spencer J.A.
Spencer L.C.
Spencer W.R. & C.
Spurge K.
Stack G.F. (2 submissions)
Stack G.S.
Stack M.
Standing A.A.
Staniland I.
Staples A.B.
Stapp G.H.
Star J.
State Energy Commission
State Housing Commission
Stead-Richardson J.E. & S.
Steer D.
Steer D. & P.
Stein R.
Sterrett O.
Stevens A.G.
Stoll G.
Stretch L.
Subaru 4 Wheel Drive Club of W.A.
Sudlow N.P.
Sullivan C.J.
Sullivan G.
Sullivan H.J. & D.E.
Sumpton M.V.
Sunderland J.
Supreme Court Gardens
Suriani B.
Sutcliffe J.D.
Sutherland S.
Swan Portland Cement
Swift A.
Swift A.E.
Swincer H.M.
Swinford W.A. Pty. Ltd.
Szydlowski L.D. et.al.

T

Tanner M.I.
Tanner S.
Tate M.
Tavelli L.
Taylor A.
Taylor B.
Taylor C.
Taylor C.W.
Taylor H. et.al.
Taylor I.
Taylor J.
Taylor M.
Taylor N.E.
Taylor R.D.
Teaser D.
Telford S.
Tertiary Education Canoe Club
Thomas C. & R.

Thomas S.
 Thompson G.
 Thomson A.G.
 Thomson J.A.
 Thomson N.
 Thorn G.S.
 Thorn S.
 Thorn T.
 Thorn T.P.
 Thornber M.R.
 Thorpe J.
 Thorpe R.
 Threader H.
 Threlfall A.T.
 Threlfall V.D.
 Thunder M.
 Thwaites P.
 Tilby H.
 Tilby T.
 Timewell P.
 Tobin K.
 Tolley P.
 Tonkinson J. & J.
 Tomkins M.
 Toodyay Junior Football Club
 Toogood H.
 Topham F.M. & E.M. et.al.
 Town of Armadale
 Town of Claremont
 Town of Cottesloe
 Town of Mosman Park
 Town Planning Department
 Toyota Land Cruiser Club of W.A. (Inc.)
 Treasure J.
 Tree Society (C. Hooper, Secretary)
 (3 submissions)
 Tree Society (Review)
 Tremain R.
 Trenaman P.E.
 Trethowan J.O.
 Trigg North Beach Waterman Community
 Association (3 submissions)
 Trudgen M.E. et.al.
 Trustees of the Public Education
 Endowment (2 submissions)
 Tuffin T.D. & J.A.
 Tunbridge L. et.al.
 Turley J.I.
 Turner E.
 Turner G.
 Two Rocks Professional Fishermen's
 Association
 Tylor L.
 Tyson W.

U

United Nations Association of Australia
 Underwater Skindivers & Fishermens
 Association
 University Extensions Group
 Unwin F.S.
 Urban Lands Council

V

Van Delft R.
 Van Emdem F.T.
 Van Wonderneren A. & M.
 Van Wonderneren N. & A.
 Vaughan M.A.
 Vegter E.Y.P.
 Venter G.
 Verstegen P.J. & M.R.
 Verveer A.
 Vincent P.
 Vintiner A.G.
 Vis R. & D. et.al.
 Vlahov P.
 Vlahov S.

W

Wainwright N.G.
 Walker G.B.
 Walker M.
 Walker N.
 Walkley N.
 Walsh C.
 Walsh C. et.al.
 Ward F.
 Ward J.
 Wardman D.
 Warman Dr. R.A.
 Warne R.
 Warner V.S.
 Warren E.
 Wasley D.I.
 Waterways Commission
 Watson A.C.
 Watson B.
 Watson K.
 Watson S.
 Watt R.
 Wedd D.
 Wedd H.
 Weggelaar F.W.
 Weley M.
 Wells D. et.al.
 Welz U.
 Werne L.
 West Coast Roei Abalone Divers
 Association
 West Leederville Presbyterian Church
 Wester T.
 Western Australia Chip & Pulp Pty. Ltd.
 Western Australia Field & Game
 Association (3 submissions)
 Western Australia Government Railway
 Commission
 Western Australia Hardwood Export
 Association
 Western Australia Heritage Committee
 (2 submissions)
 Western Australia Motor Cycling
 Association (Inc.)
 Western Australia National Parks &
 Reserves Association

Western Australia Naturalists' Club (Darling Range Branch)
 Western Australia Naturalists' Club (Kwinana, Rockingham, Mandurah & Murray Branch)
 Western Australia Naturalists' Club (Nedlands)
 Western Australia Petroleum Pty. Ltd.
 Western Australia Primary Industries Liaison Council
 Western Australia Sleeper Export Association
 Western Australia Standing Committee of the Australian Institute of Landscape Architects
 Western Australia Water Ski Association
 Western Australia Wildflower Society — Armadale/Kelmscott Branch (3 submissions)
 Western Australia Wildflower Society — Darling Range Branch
 Western Australia Wildflower Society — Eastern Hills Branch (10 submissions)
 Western Australia Wildflower Society — Nedlands
 Western Collieries Ltd.
 Western A.S.
 Westralian Sands, Ltd.
 Wetton K.
 Whillier F.T.
 White K.
 White L.
 White P.
 White P.G.
 White R.
 White R.L. & E.D.
 Whitehed W.
 Whitely B.
 Whitely P.
 Whitfield D. et.al.
 Whitford L.
 Whitfords Bay Sailing Club
 Whitfords Beach Pty. Ltd.
 Whitfords Community Progress Association
 Whitfords Sea Sports Club
 Whiting N.
 Whiting P.
 Whittington H.S.
 Whitworth H.E.
 Whyatt D.
 Whyatt M.
 Wignall R. & O.
 Wilkin A.J.
 Wilkinson J.E. & A.M. et.al.
 Wilkes G.
 Williams A.
 Williams O.
 Williams P.J.
 Williams S.
 Williams V.E.R.
 Williams W.J. & M.
 Williamson J.M.R.

Williamson M.
 Wilmot P.
 Wilmot Mr & Mrs
 Wilson B.H.
 Wilson I.
 Wilson S.
 Wilson P.L.
 Wilson T. & G.
 Winstone H.J.
 Winter T.P.
 Winzer N.R.
 Wishaw A.
 Withers N.
 Wolfe P. & J.
 Women's Service Guilds of W.A. (Inc.)
 Wood D.E.
 Wood H.T.
 Wood Y.M.
 Woodroffe D.L.
 Woodroffe M.
 Woodward D.
 Worsley Alumina Pty. Ltd.
 Worsnop K.
 Worth G.
 Worth S.
 Wray J.
 Wright B. & S.
 Wright D. (2 submissions)
 Wright F.S.
 Wright G.
 Wright G.W.
 Wright K. et.al.
 Wyatt-Young R.
 Wylie A. (3 submissions)
 Wylie Alison
 Wylie K.C. & A.V.

Y

Young R.W. et.al.
 Young S.
 Youth, Sport & Recreation Advisory Committee
 YMCA

Z

Zani T.L.
 Zed J.
 Zehnder S.C.
 Zeidaks C.
 Ziwela I.
 Zlatnik D.
 Zoological Gardens
 Zwicky K.T.

Anonymous (5 submissions)
 Illegible (7 submissions)
 Multiple Signatures (2 submissions)