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# Northern Region

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# FOREST RECREATION FRAMEWORK PLAN

## 1983





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FOREWORD

The Forests Department's commitment to the principle of multiple use management, while dating back many decades, was spelled out formally for the first time in the Department's General Working Plan No. 86 of 1977. Subsequently, priorities for multiple use management at a regional scale have been established and outlined in the documents "Northern Jarrah Forest Management Priority Areas" (1980), and the General Working Plan No. 87 of 1982.

The next stage in the planning process is to link the Forests Department's corporate plan to local operational plans. This regional recreation plan is one of a series of "framework" plans which are designed to provide such links and thereby to co-ordinate and direct local forestry planning and operations.

This plan has been prepared by staff in the Northern Region and the Extension Branch of the Forests Department. It is based on an earlier draft which was circulated widely both within and outside the Forests Department for critical review and comment.

Although the plan is primarily directed at Forests Department staff in Northern Region divisions, copies will be circulated to interested parties outside the Department in the hope that their comments will provide useful feedback for the next plan revision.

Forest recreation is only one aspect of State recreation planning and cannot proceed in a vacuum. Ideally, this plan should be related to and compatible with State and Regional outdoor recreation plans, but such plans do not yet exist. In the meantime, consultation and liaison must take place with all organisations and authorities having recreation functions, in particular the Department for Youth, Sport and Recreation which has responsibility for co-ordination on a Statewide basis.

B J BEGGS  
CONSERVATOR OF FORESTS

DEFINITIONS

Terms used in the text are defined as follows:

Forest recreation - recreation activity based on the forest for its full enjoyment. Forest recreation is commonly associated with the geographic and ecological characteristics of the land.

Land capability - the inherent capacity of land to physically accommodate a particular activity. As a general rule the assessment of land capability is based on physiographic, geographic and ecological characteristics.

Land suitability - represents what is currently acceptable and is determined by taking account of constraints to management after delineating land capability. The suitability of a site for a particular recreation pursuit is equivalent to capability if no constraints prevail.

Off-road vehicle activity - vehicle activity in areas other than on a track or road constructed for public use. This activity infers damage to soils and vegetation.

(Note that this definition differs from that in the Control of Vehicles (Off-Road Areas) Act & Regulations (1979) which defines an off-road vehicle simply as one which is not licensed under the Road Traffic Act).

Destination oriented activities - those activities which essentially rely on access and use of a specified area or locality (e.g. picnicking, rock climbing etc). These activities usually infer intensive use of a localised area.

Travel oriented activities - those activities which essentially rely on movement across the landscape rather than limited to specific areas (e.g. driving for pleasure, bushwalking etc). These activities infer more extensive use of forest areas.

Management Priority Areas - the forest has been divided into areas in which the dominant and secondary uses are specified and their priority ranking nominated. Each unit is known as a management priority area (M.P.A.) and is described according to its dominant (or priority) use. Areas in which recreation is the management priority are known as Recreation M.P.A.s.

Compatibility - refers to recreational activities which can be carried out in the same area at one point in time without impairing the enjoyment of the users involved.

(iii)

Constraint - any factor which may interfere with the capability of the forest to provide for public recreation.

SUMMARY

The aim of this plan is to provide a framework for planning, development and management of forest recreation in the Northern Region.

The plan covers the nature of forest recreation, analyses the availability of recreational opportunities in the region and discusses a range of management options. The various environmental, management, legislative and economic constraints which apply are considered.

The policy adopted is to provide for recreational activities which:

- (i) are forest-dependent;
- (ii) are environmentally acceptable;
- (iii) do not endanger other forest users, and
- (iv) are not disruptive to the majority of other forest users.

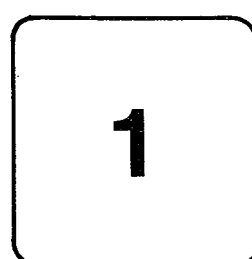
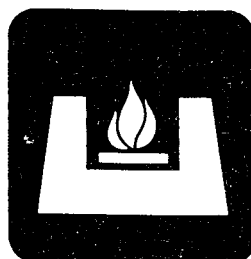
The region is subdivided into a series of "management units" for which appropriate recreation strategies are developed.

The plan then specifies a series of regional strategies which will apply to all management units. These cover site design and maintenance, provision for the disabled, visitor information, dieback hygiene, mining, urban development, use of firearms, camping, off-road vehicles and other matters.

The plan concludes with proposals for implementation and control and specifies the structure of the follow-up plans to be developed by local staff in divisions.



# INTRODUCTION



## I. INTRODUCTION

Western Australia's forest areas constitute an attractive and valuable recreational asset. Over the past 150 years rural communities have made widespread use of the forests of the southwest for recreation. Recently, there has also been a rapid growth in the appreciation and use of the State's forest areas by urban residents and interstate and overseas visitors. This is particularly true in the Northern Jarrah Forest, which is situated within easy reach of over 80% of the State's population.

This increase in forest based recreational activity, increasing competition for forest resources and more stringent environmental and management constraints have emphasised the need for a planned programme of development and management.

This Regional Recreation Plan provides a blueprint for recreational development and management in State forests and other lands administered by the Forests Department's Northern Region, namely the Wanneroo, Mundaring, Jarrahdale, Dwellingup and Narrogin divisions, a total of 642 876 hectares (refer to Map 1).

### 1.1 Background to the Plan

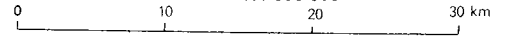
Existing recreation developments in the forest have generally been the result of localised divisional efforts at satisfying perceived public needs through the provision of sites and facilities. Some of this work has been very successful, but in the main the programme has suffered due to a lack of overall planning, and limited funding.

Unco-ordinated localised recreational development is no longer acceptable in view of (1) the recent growth in recreational use in State forest, (2) the greater competition for and restrictions on land and water resources, and (3) the need to define recreation activity to obtain a share of finance available for multiple use management.

STUDY AREA

Fig

SCALE 1:1 000 000



LEGEND



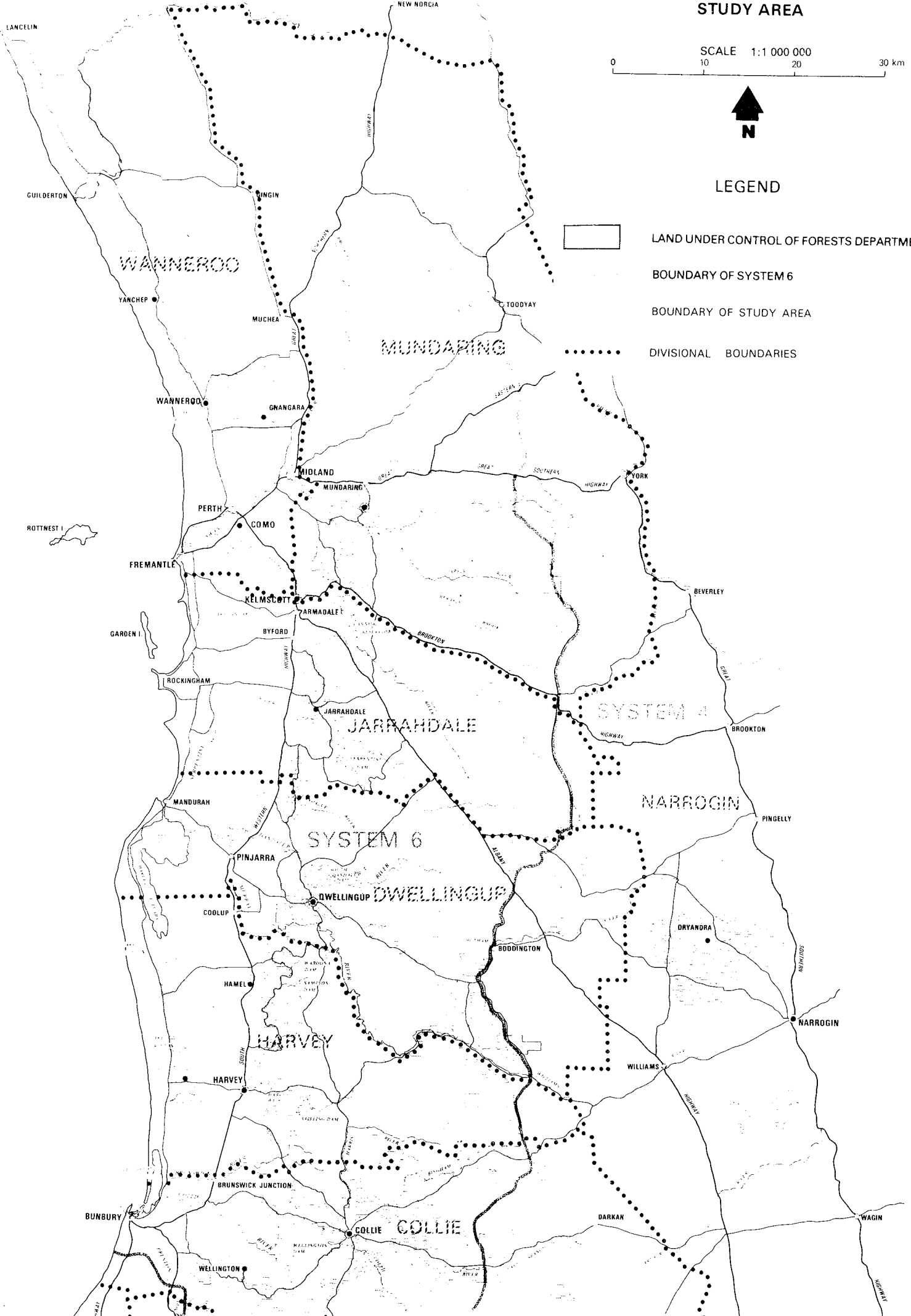
LAND UNDER CONTROL OF FORESTS DEPARTMENT

BOUNDARY OF SYSTEM 6

BOUNDARY OF STUDY AREA



DIVISIONAL BOUNDARIES



The Forests Department has recognised this situation and adopted the approach that provision for forest recreation, as with other resources, must be based on the firmly established and proven principle of multiple use management. The directives for this principle were set out in General Working Plan No. 86 of 1977 and later revised and expanded in General Working Plan No. 87 of 1982 and the land use management plan for the Northern Jarrah Forest.

In this latter document, areas in which recreation is the primary management priority have been identified and demarcated, while in other areas recreation is denoted as either a secondary or tertiary use (i.e. having some degree of compatibility with the primary use) or as an incompatible use. By assigning and ranking land use priorities in this way, conflicts arising from incompatibility among competing land uses are defined and to a large extent overcome.

In summary, the General Working Plan and the Northern Region Land Use Management Plan form the broad base upon which to develop more detailed regional and divisional plans covering all facets of forest management. This regional plan should therefore be viewed as providing the link between the Department's broad policy and strategies on recreation and the divisional working plans which deal with specific works programmes and budgets.

### 1.2 Planning Objectives

The overall recreation management objective for State forest as set out in General Working Plan No. 87 of 1982 (G.W.P.) is:

'to provide for the planned development of recreation on State forests, having regard to anticipated social needs and compatibility with environmental protection'

The G.W.P. also outlines the following recreation policies which guide the way in which the objective is to be achieved:

- \*The provision of recreation opportunities according to use needs and resource capabilities.
- \*Investigation of recreation land use impacts on the forest environment and means by which they can be minimised.

- Development of a regional planning base.
- Liaison with other bodies in developing and implementing recreation planning and management programmes.

In accordance with these general working plan directives for forest recreation the regional objective is to develop a framework for the planned provision and maintenance of recreation opportunities in Northern Region forests based on the best available information on community needs, resource capability and the various constraints to management.

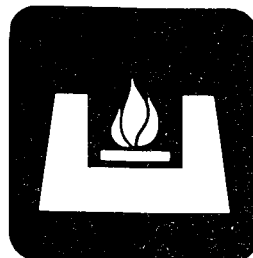
This framework is intended to provide a regional strategy for developing and co-ordinating plans at the divisional level. While the plan provides specifically for recreation within State forest, recreational opportunities and management policies on other public lands are also considered. This is particularly important in the absence of any State or regional plan to guide future provision for outdoor recreation.

### 1.3 Plan Structure

- The Introduction discusses the need for and objectives of this plan.
- Chapter 2 deals with the nature of recreation and the importance of forests in providing for leisure activity.
- Chapter 3 outlines the methodology employed in developing the plan.
- Chapters 4 and 5 analyse the regional availability and use of outdoor recreation opportunities in general and forest based areas and facilities in particular.
- Chapter 6 contains a description and assessment of the various types of forest landscapes available for recreation and then identifies a series of "natural" and "man-made" management units for the Northern Region.
- Chapter 7 presents the various constraints which have an influence on recreation planning and management.
- Chapter 8 discusses alternative recreation development and management options.
- Chapter 9 specifies particular strategies for each Management Unit, as a guide to divisional recreation planning, and

Chapter 10 concludes the plan, with a brief statement as to regional, divisional and specialist staff responsibilities for plan implementation and control. An outline for the structure of the Divisional Recreation Plan is included as an appendix.

# NATURE OF RECREATION



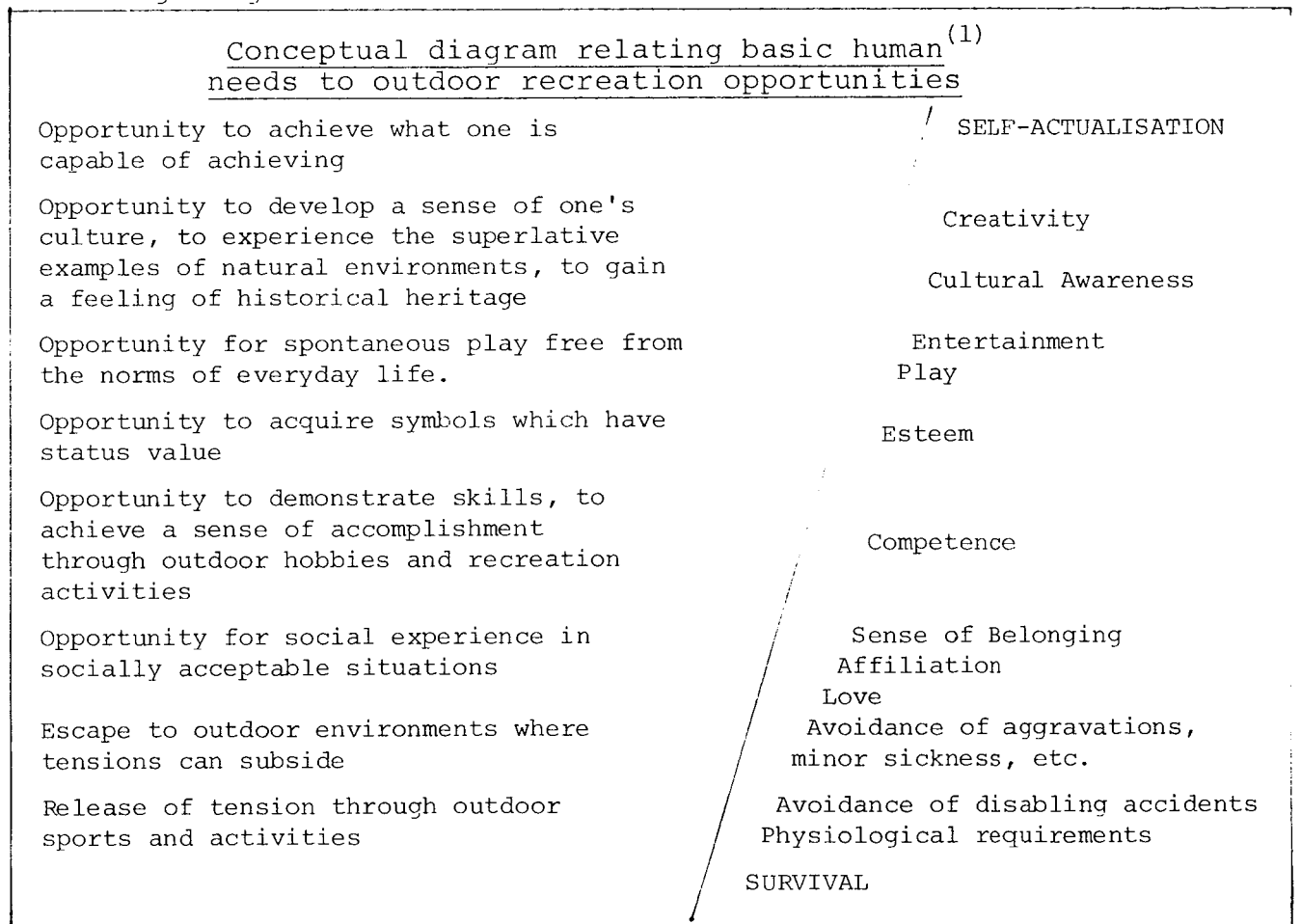
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## 2. NATURE OF RECREATION

While the term "recreation" has been variously defined, it can be best described as any voluntary activity which results in the revitalising (or recreation) of body and mind. Stated another way, recreation is the pleasurable and constructive expenditure of leisure time.

There are numerous ways of categorising and describing recreational activities. One way is to look upon recreation as a spectrum of human activity ranging from individual oriented forms of leisure such as reading and painting to institutional based recreational activity as seen in organised play and sporting events. In such instances, it is also common to think of recreation solely in terms of such specific physical activities and the facilities associated with those activities.

However, recreation also has important social and psychological dimensions as well as physical implications, as indicated in the following diagram:



(1) Tocher, R. and H. Kopp, 1971. People and Forests. The Challenge of Forest Recreation. Paper presented to XV I.U.F.R.O. Congress, Gainesville, Florida.



Thus, recreation is multidimensional, embracing many facets of human life. To ignore this wider meaning is to ignore the true importance and value of recreational activity to human endeavour and well-being.

### 2.1 The Importance of Forests for Recreation

Forest recreation differs from other forms of leisure primarily in terms of its setting. Forest recreation activities are commonly dependent upon the geographic and ecological characteristics of the landscape and are therefore resource based.<sup>(1)</sup> They can vary from skill-oriented activities like rock climbing, white-water canoeing and orienteering to essentially socially-based activities such as camping and picnicking.

Forest areas also support a large and diverse range of plants and animals which offer opportunities for exploration and appreciation of natural systems. These experiences, to be complete, require the use of one or more of the five senses. The forest communities and landscapes therefore form an ideal setting for the development of man's interpretive skills and constitute an irreplaceable part of his natural heritage.

Forested landscapes also provide environments suited to personal reflection, discovery and achievement. In this regard, forest-based recreation experiences can be of therapeutic benefit to society. This is particularly important in those countries or regions that have highly industrialised and urbanised societies.

In Western Australia, the importance and value of State forest areas for recreation is directly attributable to the following factors:

#### (i) Proximity to Population

The concentration of population in the southwest of the State means that most Western Australians reside close to or within State forest. This is particularly true in the Northern Region, where State forest adjoins the Perth

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(1) Clawson, M. 1965. Conservation of Natural Resources; Edited by G.H. Smith.

metropolitan area on the north and east. The future growth of the metropolitan region will result in increasing public pressure for access into and use of northern forest areas for recreation.

(ii) Land Use and Ownership

As a result of increasing land use demands and pressures, undeveloped open space for public recreation throughout the southwest of the State is being reduced. Agricultural clearing, mining, timber production, residential and industrial development and the transportation and utility networks have all left their mark on the landscape. Many recreational opportunities which existed 5-10 years ago have deteriorated or are no longer available to the public.

State forest represents the last large contiguous area of relatively intact landscape available for public recreation on an extensive scale. With greater demands being placed on coastal and urban recreation areas, it is likely that the recreational value of northern State forests will become increasingly evident to the community. The fact that no charge is made for recreation on State forest is likely to contribute to an increase in recreational activity.

(iii) Alternative Opportunities for Forest-Based Recreation in the Northern Region

Opportunities for forest-based recreation are largely confined to State forest, as there are few National Parks within the region. Those which do exist are limited in extent as are other public recreation areas of State or regional significance (refer to Section 4.1).

Coupled with this limitation is the fact that no one State or regional land management authority is responsible for public outdoor recreation needs. The Department of Youth, Sport and Recreation and the Department for Conservation and Environment have an interest and involvement in recreation provision and planning, but only limited land management responsibilities. Other organisations, including the Metropolitan Water Authority,

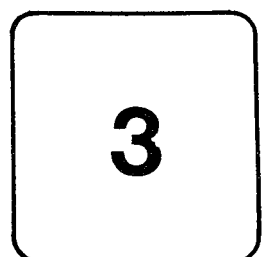
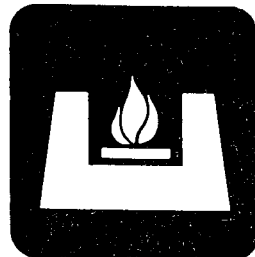
Public Works Department and the Department of Fisheries and Wildlife, while contributing to the provision of public recreation areas and facilities, have well defined management responsibilities which lie in other directions. Thus the present responsibility and capacity to satisfy forest-based recreation needs in the region rest largely with the Forests Department.

(iv) Landscape Diversity

The forest areas of the region offer a remarkable range of landscapes, varying from open woodlands to pine forests and dense stands of jarrah forest. Often this diversity can be experienced within a comparatively small area, where jarrah, wandoo and banksia communities as well as pine plantations and extensive outcrops of granite can be found in close proximity to one another. Such landscape diversity provides a wide array of recreational experiences and opportunities.

In summary, the northern State forest areas are a public recreation asset of major and growing importance to the State. As population pressures and other land use activities place further demands on the region, it can be anticipated that the recreational opportunities of State forest will be increasingly used by the community.

# THE PLANNING PROCESS



### 3. THE PLANNING PROCESS

Recreation planning is the allocation of recreation resources in providing areas and facilities to meet existing and future public leisure needs. Planning provides a systematic basis for determining the types, quantity, location and timing of recreational development.

Planning can also serve as a mechanism for resolving land use conflicts. Such conflict is of particular concern in the Northern Jarrah Forest, hence the methodology adopted in this plan attempts to rationalise growing public recreation activity in a forest region where existing land use pressures are in part constraining and/or displacing opportunities for recreation. The essential features of this planning process include an assessment of existing and future public recreation needs and the capacity of the environment to satisfy those needs.

The key steps in the planning process are as follows (see Figure 1):

#### INVENTORY RECREATION OPPORTUNITIES

Inventory and map all outdoor recreation opportunities (i.e. areas, facilities, etc) which exist within the region.

#### IDENTIFY RECREATION USE PATTERNS

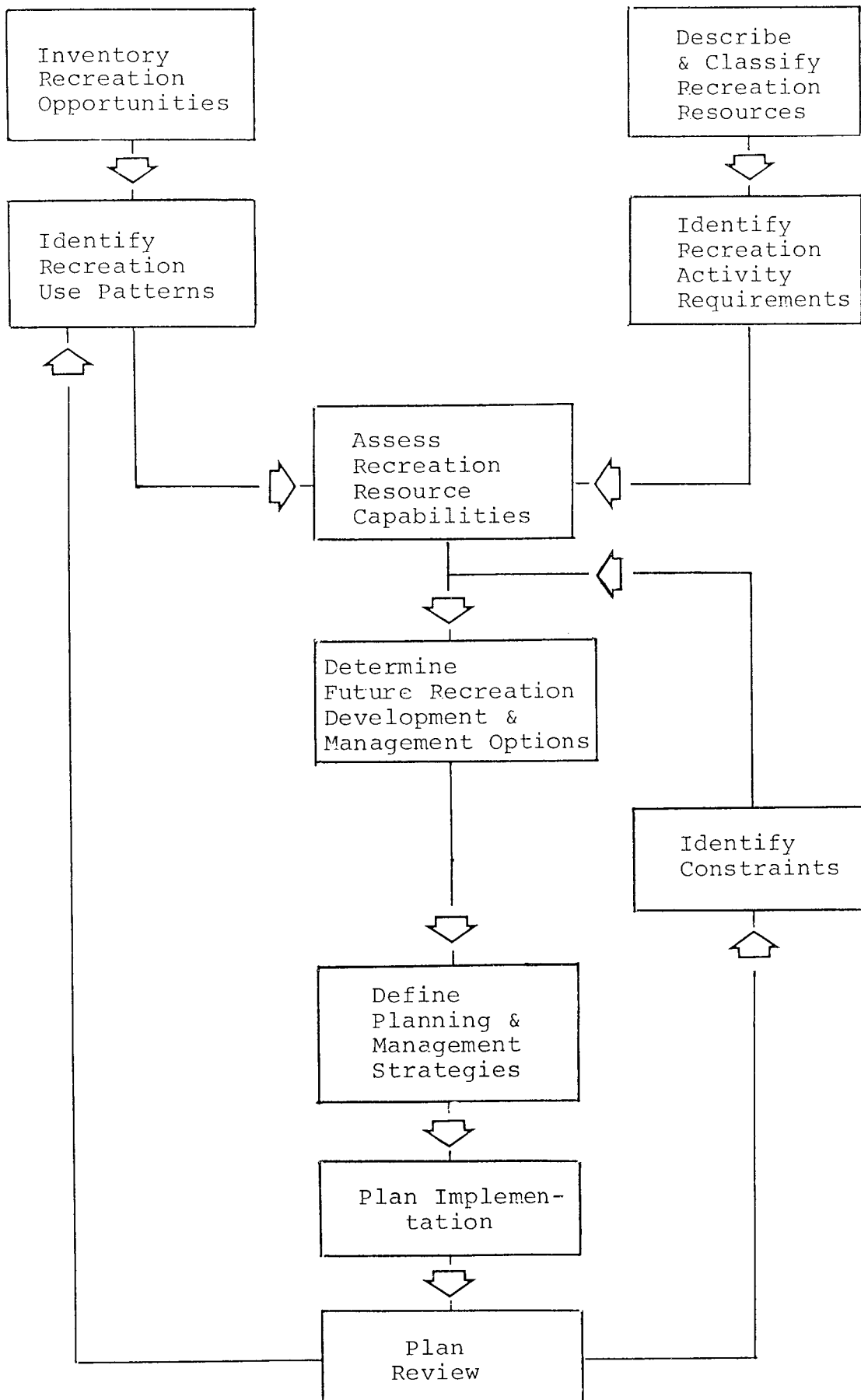
Survey how, and to what extent, existing recreational opportunities within the region are being utilised. Identify and analyse the factors which influence existing patterns of use and estimate how these patterns might change in the future.

Project possible future needs and assign priorities for development and management.

#### DESCRIBE & CLASSIFY RECREATION RESOURCES

Systematically describe and classify the region into discrete and mappable management units based upon various criteria relating to the physical and cultural environment.

Figure 1 : Northern Region Recreation Planning Process



IDENTIFY RECREATION ACTIVITY REQUIREMENTS

Determine what type(s) of environments are required to satisfy various user needs or recreational activities. Identify which groups of activities have similar physical and social requirements.

ASSESS RECREATION RESOURCE CAPABILITIES

Based on observed patterns of recreational use and specified environment site factors, assess the capacity (capability) of the management units defined in Stage 3 to attract and support various types and levels of recreational activity.

IDENTIFY CONSTRAINTS

Identify competing land use demands and environmental, financial and legislative constraints which can or could influence recreation land use development and management. Evaluate and document how such constraints effect proposed recreation planning and management strategies.

DETERMINE FUTURE RECREATION DEVELOPMENT & MANAGEMENT OPTIONS

Compare existing and projected levels/patterns or recreational use with resource capabilities within the Region. Identify medium and long term forest recreation development and management options within the Region.

DEFINE PLANNING & MANAGEMENT STRATEGIES

Define recreation planning and management strategies which reflect existing constraints and other land use requirements. Specify development and management proposals and set priorities for their implementation.

PLAN IMPLEMENTATION

Implement recreational development and management proposals for the Region through detailed divisional plans.

PLAN REVIEW

Periodically review and update recreation management and development programmes to reflect changes in user needs, land use policies, constraints or other factors.

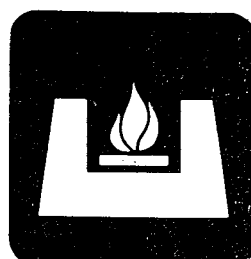
In summary, the most important features of the methodology are that ...

- (1) User needs are considered as an early and integral component in the planning process.
- (2) An attempt is made to match user needs with the capabilities of the forest resource to meet those needs.
- (3) Existing constraints to recreation development and management are taken into account at a relatively late stage in the planning process, ensuring that a full range of planning options are considered and are available should constraints change.

Most important, the plan is viewed as a starting point for future development and management. As improved information on forest visitor needs and resource capabilities becomes available and as policies and constraints concerning recreation land use alter, so these changes can be taken into account and the plan amended as required.



**AVAILABILITY OF  
OUTDOOR  
RECREATION  
OPPORTUNITIES**



**4**

#### 4. AVAILABILITY OF OUTDOOR RECREATION OPPORTUNITIES

Information on outdoor recreation resources available to the public is a basic requirement in formulating recreation land use plans and development priorities. Clearly, it is difficult to provide for future community recreation needs without first analysing existing opportunities and usage.

##### 4.1 Regional Overview

A comprehensive summary of forest recreation resources for the Northern Region was prepared for the System 6 Study. While this information is now dated, it provides a useful indication of the types and extent of recreation areas and facilities available in the Perth Metropolitan Area and the adjoining region from Guilderton to the Blackwood River.

In terms of area of open space for recreation, approximately 60 000 ha of public land within the System 6 Region have either been secured or zoned for recreation (see Table 1).

This represents slightly less than 3% of the total System 6 area. Other areas, including much of State forest, while not nominated specifically for recreation, are presently used by the public, making the actual area available considerably larger. However, many of these additional areas are subject to restrictions and other land use demands and therefore cannot be considered as being permanently available for recreation. Commenting on this aspect, the System 6 Tourism and Recreation Committee concluded that ...

"this figure is not reassuring for the future, particularly as recreation demand continues to increase and non-reserved resources are lost to other uses. Unless further areas are acquired or made accessible to the public, the social and environmental impact of the ever increasing use of our existing open space network is likely to be immense."

From this assessment, it would seem therefore that the northern areas of State forest are likely to be subjected to greatly increased visitor use pressures in the years ahead as other areas become over-crowded or unavailable for public use. This in itself is no cause for alarm providing that planning takes account of such potential pressures.

TABLE 1: SUMMARY OF EXISTING OPEN SPACE IN SYSTEM 6<sup>(1)</sup>

Category of Open Space	Approximate Area (hectares)	Population June, 1976	Open Space ha per 1,000 Population
<u>Metropolitan Region</u>			
Regional Open Space <sup>(2)</sup>	24 700		
District, Local Open Space	2 100		
Sub-totals	26 800	806 000	33.2
<u>Country Region</u>			
National Parks	28 727		
Camping, Parkland and Recreation Reserves	4 229		
Sub-totals	33 056	63 000	524.7
Totals	59 856	869 000	68.9

(1) Department of Conservation and Environment. 1978. System 6 Study. Tourism and Recreation Committee Report.

(2) Includes National Parks and other recreation reserves situated within the Perth Metropolitan Region.

With respect to the provision of outdoor recreation facilities within the Perth region, existing development is primarily oriented towards picnicking and water-based activities. This is expected in view of the water resources available in the coastal zone and the climate and lifestyle Perth enjoys. Although not shown, there is also a very dominant emphasis on outdoor leisure areas and facilities in the region. with competitive sport well catered for in comparison to many other activities. However, it is outside the scope of this plan to evaluate whether the existing network of such facilities is adequate to serve present community needs.

#### 4.2 Recreational Opportunities in State Forest

Part of the information used in compiling the figures for the System 6 Study came from an inventory of State forest recreation areas and facilities carried out by the Forests Department in 1978. This inventory was repeated in 1981 and the most recent figures for the Northern Region of State forest show there is a total of 75 sites with some form of development on State forest and other Crown Lands. As summarised in Table 2, these range from small picnic sites with minimal development to major areas such as John Forrest National Park and Serpentine Dam. (A complete listing of areas and facilities appears in Appendix A).

When the provision of forest recreation facilities in the Northern Region is analysed in terms of type, standard and location of development, the following patterns become apparent.

##### Type and Standard of Development

1. Most development to date has catered for passive, destination oriented activities, particularly picnicking.
2. In recent years, increasing emphasis has been directed towards bushwalking, nature study and related activities as is evidenced by the development of the Bibbulmun Track and a number of self-guiding nature trails. However, there is considerable scope for greatly expanding opportunities for these activities throughout the Region.
3. There are no officially designated areas for camping in northern areas of State forest, although a number of sites are currently used for this activity. The lack of any formal provision for camping has created some difficulties

TABLE 2 : SUMMARY OF STATE FOREST RECREATION AREAS AND FACILITIES, NORTHERN REGION

(Compiled from a 1981 inventory of forest recreation areas and facilities.  
Note that only sites within the Northern Region of State forest are included  
in this summary)

Division	Management Organisation	Summary of Recreation Areas & Facilities							
		Picnic Areas Informal (1)	Picnic Areas Formal (2)	Nature and Interpretive Trails	Hiking and/or Bridle Tracks	Orienteering Courses	Scenic drives or Selfguided tours	Designated off-road vehicle areas	Designated Camping areas
Wanneroo	Forests Department	4	-	-	-	-	-	1	-
	Other Organisations	2	2	-	-	-	-	-	-
Mundaring	Forests Department	12	2	4	1*	-	-	-	-
	Other Organisations	2	13	1	2	-	3	-	-
Jarrahdale	Forests Department	5	2	5	1*	-	-	-	-
	Other Organisations	1	11	-	-	3	1	-	1
Dwellingup	Forests Department	9	-	2	1*	-	1	1	-
	Other Organisations	1	2	1	-	-	-	-	-
Narrogin	Forests Department	5	-	-	-	-	-	-	-
	Other Organisations	-	-	-	-	1	-	-	-
Regional Total	Forests Department	35	4	13	1*	-	1	2	-
	Other Organisations	6	26	2	2	4	4	-	1

\* Bibbulmun Track

(1) Small, less intensively developed areas containing only rustic style tables and barbecues; sanitary facilities normally not provided.

(2) Large, more formal sites where facilities such as toilets, gas barbecues, bitumen parking areas, etc. are commonly provided.

with respect to the use of the Bibbulmun Track and the management of day-use sites in areas such as the Murray Valley, where overnight use is substantial.

4. Sanctioned forest areas for trail and trial bike activity are restricted to 2 locations, one in Wanneroo Division and the other in Dwellingup Division. With the recent restrictions placed on trail bike use in coastal shires as a result of the Control of Vehicles (Off-Road Areas) Act and Regulations, there is the likelihood that more of this activity could be diverted to adjoining areas of State forest.
5. The standard of development at forest sites throughout the Region is variable, both in terms of style of design and quality of facilities provided. There is a need to upgrade many areas and to ensure that a high standard of development is maintained at all sites in the future.
6. There are relatively few designated scenic drives and no self-guiding interpretative tours through State forest in the Northern Region. This is a significant area of need in view of the popularity of such activities as sightseeing and pleasure driving (refer to Chapter 5).
7. The promotion and use of the Northern Jarrah Forest as an educational resource is very restricted. While the proposed Jarrahcentre development near Jarrahdale may help to fill this void when it is completed, there is need for a wide range of on-site interpretative facilities and accompanying publications.

Similarly, the system of road signs can be substantially improved in many areas.

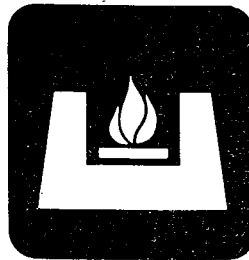
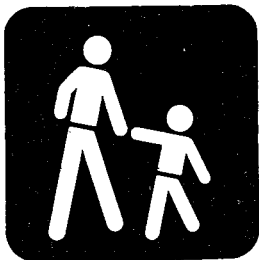
#### Location of Development

1. Many recreation sites and facilities in the Northern Jarrah Forest are situated in the western high rainfall zone. This present distribution of development partly reflects the attractiveness and accessibility of certain portions of the Scarp and Valley systems, but is also the result of existing restrictions on recreational activity in domestic water supply catchments and dieback quarantine areas to the east.

2. This western zone will be subjected to increasing land use (including recreation) conflicts as the result of growth in bauxite mining, construction of additional pipehead dams and pipelines and clearing for transmission corridors.
3. As a result of present land use constraints, many of the most prominent recreational features in the Northern Region are either off-limits or restricted in terms of public access. Included are the major water supply reservoirs and the monadnock chain east of the Albany Highway.

In conclusion, existing opportunities for forest-based recreation in the region are limited both in terms of the range of activities directly catered for and the area which is accessible to the public. Information on the forest-based recreation opportunities which do exist is inadequate. As a result, many people are not well informed about using the jarrah forest for recreation. Recreation planning in the region must address these problems as a matter of high priority.

# THE RECREATIONIST



5



## 5. THE RECREATIONIST

Australia has been described as being a leisure-oriented nation in which the majority of the workforce "work to live" (or play) rather than "live to work". This attitude towards work and leisure is particularly evident in Western Australia, where we enjoy a climate and lifestyle well suited to outdoor recreation activity. But despite the importance of leisure to the community, there is surprisingly little detailed information about the factors which influence how people organise and spend their free time.<sup>(1)</sup>

The most recent comprehensive study of community leisure patterns in Western Australia was carried out in 1977 under the direction of the Department for Youth, Sport and Recreation. Designed to provide an accurate assessment of recreation participation patterns of persons residing in southwestern Australia, the study produced several findings of interest to outdoor recreation planning:<sup>(2)</sup>

- The time spent on home-oriented leisure activities by all survey respondents averaged 85.2 hours for the fortnight period over which the study was conducted. This means in excess of 50% of the total hours spent on leisure activity occurred in the home environment.
- Very few (less than 10%) of the leisure activities survey respondents engaged in required a high degree of group structure and/or organisation. However, the large majority of these activities often involves one or several other participants. In other words, apart from activities such as reading or home fitness, there are few situations where the participant needs to be alone.

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<sup>(1)</sup> The only nationwide study of leisure so far attempted in Australia was a survey undertaken by the Australian Bureau of Statistics in 1975. Entitled the "General Social Survey : Leisure Activities Away from Home", the investigation was a very broad brush attempt at categorising public leisure patterns. Consequently, the information and conclusions presented have limited application to the formulation of a regional recreation plan.

<sup>(2)</sup> Sharp, J. 1982. Recreation Participation Study. In press.

- Approximately one half of all activities listed during the survey require almost no physical effort and many more are on the low end of the passive scale. Of the 258 separate activities recorded, approximately 92% could be classified as sedentary.

These results support those of similar surveys carried out elsewhere, showing that much of our leisure time is spent around the home in predominantly passive activities. Both these findings have implications for forest recreation planning as discussed further in this chapter.

### 5.1 Recreational Use of State Forest

Forest recreation is, by its very nature, a diverse and complex land use. The factors which contribute to this complexity include:

1. The wide range of recreational activities which forest areas attract. These can range from informal casual activities such as sightseeing or picnicking to more structured events such as organised group camping and those activities which require some degree of skill such as white water canoeing.
2. The diverse nature and requirements of the public who recreate in State forest. Public recreational habits and tastes are continually changing with new activities emerging. Added to this is the increased public awareness of the environment which in turn has created growing interest in recreation in the southwest. Collectively, these factors make it difficult to accurately predict the nature and level of forest recreation. Despite such problems, the planner must have some measure of recreation use, however crude, before development needs and management strategies can be defined.

### Findings from the 1978 Forest Visitor Survey

A forest-wide visitor survey conducted in 1978 provides the best and, in many cases, the only recently available information on the level, type, distribution and timing of recreational activity in the Northern Region. The key findings with respect to the planning and programming of future development are as follows:

### 1. Visitor Use Levels

On the basis of the 1978 survey it has been estimated that the four northern divisions of Wanneroo, Mundaring, Jarrahdale and Dwellingup collectively attracted in the vicinity of 300 000 visitor days<sup>(1)</sup> of use during that year. This represented approximately 60% of the projected recreation load for all of State forest in 1978.

This figure is not an accurate measure of total recreation activity throughout the entire Region, as it does not include the use of sites managed by other authorities (e.g. Mundaring, Canning and Serpentine Dams or John Forrest and Serpentine National Parks), or promotional tours organised by mining companies. Nor does this estimate reflect the recreational use occurring in outlying areas of State forest such as Julimar and Dryandra as these were not included in this survey. However, this and similar estimates derived from the 1978 survey do provide a relative measure of the level of activity occurring within the various divisions and regions of State forest.

In terms of peak use, the highest numbers of visitors were recorded during the April to September period. On four separate survey dates, in excess of 1000 visitors per day were observed recreating within State forest in the region. During the warmer months of October to March, visitor levels declined throughout the region as a whole, although some localities such as the Murray Valley experienced peak levels during these months.

Certain recreation sites within the northern divisions are subjected to extremely heavy visitor pressure. At Carinyah picnic area, in excess of 500 people on one day were recorded during the survey and there have been reports of up to 1000 visitors occupying the area at one time. Jacoby Park in Mundaring Division and the old Nanga settlement in the Murray Valley are also known to attract comparable numbers. These numbers greatly exceed the designed limits for the site and are causing serious site degradation.

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(1) A visitor day is defined as the presence of an individual on the site during all or any part of a 24-hour period measured from midnight to midnight. (Glossary of Outdoor Recreation Terms, Sept., 1981).

## 2. Type of Visitors

The family group is the dominant recreational unit, accounting for approximately 60% of all visitor groups. Large organised groups, while comparatively few in number, make up nearly 30% of total visitor numbers. Such groups often require special provision in terms of areas and facilities.

The majority of forest visitors to the region (over 80%) are under 40 years old. The low percentage of older visitors is possibly due to their changing leisure interests and reduced mobility.

## 3. Type of Visitor Activity

The most frequent activities engaged in by visitors to State forest were picnicking and barbecueing, followed by the desire for solitude, retreat and sightseeing. This finding mirrors the results of the Department for Youth, Sport and Recreation study with respect to the dominance of passive or sedentary activities.

In terms of length of stay, over 80% of the groups surveyed visited the Northern Region on day visits. There is also a substantial demand for camping areas in the region, as expressed by the large percentage of extended visits which occurred in Dwellingup Division during the study (42% of groups were over-night visitors in this Division).

## 4. Visitor Preferences and Attitudes

In order of priority, the most frequent reasons given for selecting a particular recreation area were:

1. Peace and solitude (e.g. absence of other visitors);
2. Availability of facilities;
3. Presence of water;
4. Attractiveness of the forest.

Improvements visitors would like were more picnic areas, provision of toilets, litter bins and better signposting.

Heading the list of dislikes was the use of motorcycles by other visitors and this was followed by inadequate maintenance of some areas and vandalism.

## 5. Public Awareness

During the year the survey was conducted, a substantial percentage (20%) of groups indicated that it was their first visit to that particular area. This lends support to the belief that many areas of the Northern Region are only just becoming known to the public. Similarly, many visitors to the region (43% of groups) relied on advice from friends as their source of information about the areas visited. This underlines the need for additional printed information about recreation areas and facilities throughout the region.

These facts emerged from the 1978 Forest Visitor Survey. The implications of this information for planning is considered in the following section.

### 5.2 Present and Future Trends : Implications for Planning

Future recreational demands on the Northern Region of State forest are unknown. Past predictions of use have suggested a growth rate in visitor activity of the order of 7% per annum.<sup>(1)</sup> The System 6 inquiry has predicted that the demand for outdoor recreation in this region of the State will treble by the turn of the century. Whether these estimates are likely to be realised or exceeded will depend on the following factors.

#### (i) Population

Levels of recreation activity are directly influenced by changes in population levels and structure. There have been several estimates on future population growth in Australia which indicate that the so-called sun-belt States of Western Australia and Queensland will continue to experience an increase in population in excess of the national average.

Various population forecasts indicate that the Western Australian population will increase from the June, 1980 figure of 1.26 million to approximately 1.8 million by the

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(1) Forests Department. 1977. General Working Plan No. 86 of 1977. Part 1.

turn of the century.<sup>(1)</sup> The population of the Perth Metropolitan Region, which is largely encompassed by the Northern Region, is expected to grow from the 1980 census figure of 900 000 to 1.3 million by the year 2001 and 1.8 million by 2021.<sup>(2)</sup> This represents a doubling of the present population over the next 40 years. Much of this projected growth is programmed to occur in the northwest, eastern and southeastern corridors of the Metropolitan Region, all of which adjoin areas of State forest. Thus, it is anticipated that these areas of State forest will experience the greatest recreation growth pressures in the future.

Similarly, the growth of communities such as Mandurah where the population is projected to reach 80 000-100 000 by the turn of the century,<sup>(3)</sup> could contribute greatly to the recreational use of forest environments such as the Murray Valley. In terms of population growth alone therefore, the Northern Region will be subjected to much higher levels in the foreseeable future.

(ii) Other Factors

Population is not the only factor likely to influence recreational use levels and patterns. Rising energy and transport costs could result in greater pressure being placed on near urban recreation resources. This trend is already evident in Europe, Britain and North America. Other factors likely to influence the demand for forest-based recreation in the Region include ...

1. Technological and social changes which result in new patterns of work and leisure.
2. Increasing per capita disposable income levels and greater expenditure on leisure goods and services.

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(1) Research Report of the National Population Inquiry, Vol. 1 (Borrie Report) 1975; Projections of the Population of the States and Territories of Australia, 1978-2011. Aust. Bureau of Statistics.

(2) Information compiled by the Department of Conservation and Environment for the System 6 Inquiry. 1978.

(3) Pers. Comm. Patrick Dick, Town Planning Department.

3. Increasing public interest in and awareness of natural environments as a result of improved educational programmes and information systems.
4. Loss of recreation opportunities in non-forest areas due to competing land use pressures.

The Tourism and Recreation Committee Report to the System 6 Inquiry, in analysing these factors, concluded that ...

"the most conservative estimate that can be made is that there will at least be a trebling of demand for outdoor recreation in System 6 by the year 2000. Such a prediction is consistent with those made elsewhere. In 1962, the American Outdoor Recreation Resources Review Commission predicted a trebling or quadrupling of demand for land for outdoor recreation by the year 2000. In many of their indices this has already proven to be an underestimate".

(iii) Participation Rates

Future changes in recreation participation rates for various forest-based activities are also difficult to assess. Public tastes are continually changing as reflected by the emergence of new forms of leisure activity. The rapid increase in participation rates for some recreation activities is indicated in the figures prepared by Greig for the State of Victoria (refer to Table 3).

Increases in off-road vehicle activity and tent camping are occurring in the southwest of Western Australia. For example, the sale of imported tents and airbeds in this State increased from 1500 units to 10 000 units over the 2-year period from 1974 to 1976. <sup>(1)</sup> In 1982, there were some two dozen retail outlets in Perth specialising in camping and other selected outdoor recreation equipment.

However, it is virtually impossible to accurately project future recreation participation rates. In general terms we can expect increased levels of participation in the more sedentary and

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(1) Source : Bureau of Statistics, Perth.

TABLE 3 : GROWTH TRENDS IN VARIOUS INDICES OF PARTICIPATION IN FOREST RECREATION IN VICTORIA

ACTIVITY	INDEX OF PARTICIPATION	AVERAGE ANNUAL GROWTH (approx.) %	PERIOD OF RECENT POPULARITY (Years)	ESTIMATED ANNUAL GROWTH TO 1980 (approx.) %
Riding trail bikes	Club memberships, bike sales	200	5	18
Driving jeeps	Club memberships	137	5	14
Motorboating	Registrations	24	20	10
Camping and caravanning	Imports, production & registration of equipment	14	20	11
Pleasure driving	Sunday axle counts on Maroondah Highway	13	50	10
Hunting	Licences, club memberships	13	50	11
Walking	Club memberships	6	15	4
Fishing	Licences	-1	100	1.4

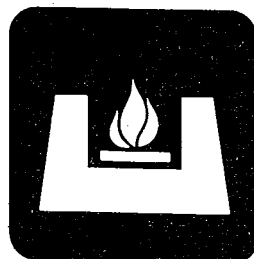
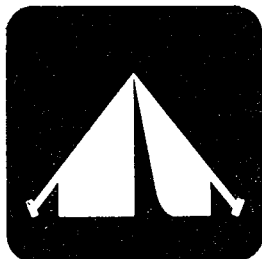
Source: Greig, P. 1975. Recreation : How Fast is it Growing? Forests Commission, Victoria.



inexpensive recreation pursuits such as camping, nature study, walking and the quest for solitude and retreat, if studies elsewhere are a reliable guide. No longer can the forest be regarded solely as a suitable setting for the family barbecue.

In summary, all factors point to a substantial increase in the level and diversity of recreation activity in the northern areas of State forest. Given that the predicted changes in population, work-leisure patterns and energy costs eventuate, it is not inconceivable that the region could be attracting well in excess of 1 million visitor days of use per annum before the turn of the century.

# THE RESOURCE



6

## 6. THE RESOURCE

The forest areas of the Northern Region offer a wide spectrum of recreational settings ranging from the low, undulating banksia, eucalypt and pine covered dunes of the Swan Coastal Plain to the open and more isolated eastern woodlands. Situated in between are the forested uplands of the Darling Plateau, bounded on the west by the Escarpment and dissected by a series of rivers flowing from east to west. All of these environments or settings vary in terms of the recreational experiences they offer and their capacity to support different types and intensities of use.

Recreation land use plans, if they are to provide a practical guide to resource development and management, must attempt to make sense out of this mosaic of environments and their capacity to cater for the leisure needs of the public. Consequently, the approach followed in this plan has been to divide the forest into a series of distinctive and mappable areas referred to as management units. These units then serve as the basis for systematically assessing the relative capability of state forest to attract and support varying types and/or intensities of recreational use.

A total of 6 "natural" and 3 "man-made" units have been identified (see Map 2). The man-made units relate to major developments of regional importance such as reservoirs and highway corridors while the natural units have been defined on the basis of the vegetation, soil and landform studies by Havel.<sup>(1)</sup> Because this plan is concerned with forest recreation planning at the macroscale, the management units are an amalgamation of more detailed vegetation and landform categories.

For further details on the environmental and other planning considerations and constraints of the nine units discussed below, see Appendix B.

### Natural Units

1. Coastal Dune System - a combination of the Bassendean and Spearwood dunes of the Swan Coastal Plain.
2. Darling Escarpment - the western edge of the Darling Plateau which runs N-S and rises approximately 300m above the coastal plain.

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(1) Havel, J.J. 1975. Site-Vegetation Mapping in the Northern Jarrah Forest (Darling Range). Forests Department Bulletin No. 86.

3. Dissected River Valleys - a series of river valleys which run generally from east to west and which are steeply dissected where they meet the Darling Escarpment. Included are the Moore, Helena, Darkin, Canning, Serpentine, Wungong, Little Dandalup, North Dandalup, South Dandalup and Murray systems.
4. Laterite Uplands - broadly undulating forested uplands of jarrah and marri which form the southwestern portion of the Great Plateau.
5. Monadnocks - a chain of residual granite outcrops rising several hundred metres above the Darling Plateau. Included are Mt Dale, Eagle Hill, Mt Vincent, Mt Cuthbert, Mt Cooke, Boonerring Hill, Mt Solus and Mt Saddleback.
6. Eastern Woodlands - combination of broad valleys and low undulating divides supporting an open forest of jarrah, marri, wandoo and other minor species.

#### Man-Made Units

7. Reservoirs - major valley systems which have been impounded for domestic and industrial water supply. Included are Mundaring Weir, Canning Reservoir, Wungong Dam, Serpentine Dam, South Dandalup Dam and other minor storage areas.
8. Plantations - extensive tracts of forest land planted with maritime pine (Pinus pinaster) and Monterey pine (Pinus radiata). Included are the Yanchep and Gngangara plantations of the Coastal Plain and the Gleneagle, Cooke and Murray plantations of the Darling Plateau.
9. Roadways - important regional roads and highways which traverse State forest and which serve as either existing or potential major public access routes. The following roads and the forest corridors which adjoin them are included in this category
  - Wanneroo Division - Wanneroo-Lancelin Road, Gngangara Road, Neaves Road.
  - Mundaring Division - Great Eastern Highway, Kalamunda-Mundaring Road, Ashendon Road, Brookton Highway, Dale Road, Metro Road, Yarra Road, West Talbot Road, Julimar Forest-Julimar Road, Bindoon-Dewars Pool Road.
  - Jarrahdale Division - Albany Highway, Brookton Highway, Nettleton Road, Kingsbury Drive, Jarrahdale Road, Kinsella Road, Balmoral Road, Scarp Road, North Road.
  - Dwellingup Division - Scarp Road, North Road, Del Park Road, Northeast Road, Pinjarra-Boddington Road, Nanga Road, River Road.
  - Dryandra Forest - Wandering-Narrogin Road, Congelin-Narrogin Road, York-Williams Road.

The natural and man-made units as shown in Map 2 are not mutually exclusive. That is, the man-made units have, by definition, been superimposed on the landscape, for example, pine plantations established on the coastal dunes. As a result of this overlap, many forest areas in the region fall within 2 management units. Thus, for purposes of resource assessment and management, the man-made units are treated as having precedence.

#### 6.1 Assessment of the Capacity of the Forest Resource for Recreation Use and Development

A 3-stage process has been employed in assessing the capacity of the nominated management units to attract and sustain various types of recreation use.

Stage 1 - Each unit<sup>(1)</sup> was evaluated in terms of its environmental features or components. As shown in Table 4, the presence or absence of various vegetation, soil, landform and water features has been denoted for each unit. This evaluation has been made on the basis of information compiled in Appendix B.

Stage 2 - Once the various environmental components or features for the management units were tabulated the next step was to nominate the type(s) of environment(s) (both physical and cultural) required for various types of outdoor recreation activity. The basis for this evaluation is derived from existing recreation activity requirement standards<sup>(2)</sup> and observed patterns of forest recreation use locally. In many instances, activity requirements are self-evident, such as the need for various types of water bodies to cater for fishing, marroning, swimming and boating.

The results of this evaluation in which the various environmental and cultural/social factors are assessed in terms of whether they are essential, desirable or undesirable for a particular recreational activity are presented in Table 5. The list of activities which were evaluated represents a compilation of all known forms of outdoor recreation presently occurring within State forest in the region plus other activities which commonly take place in similar forest landscapes elsewhere. Thus, the list contains some activities such as motor

(1) The one exception is the roadway unit, which traverses the entire range of environmental features or conditions encountered in the region.

(2) U.S. Department of the Interior, Bureau of Outdoor Recreation (1970), Outdoor Recreation Space Standards.

TABLE 4 : MANAGEMENT UNIT COMPONENTS

Management Units	Resource Factors															
	Water				Topography			Vegetation				Soils/ Surficial Geology				
	Permanent creeks	Rivers	Small dams	Reservoirs	Flat (0-15°)	Undulating (6-15°)	Steep (15°+)	Open or cleared areas	Woodland	Forest, open understorey	Forest, dense understorey	Plantation	Swamp	Rock outcrops	Shallow, poorly drained soils	Deep, well drained soils
Natural units	Coastal dune system	○	-	○	●	○	○	○	●	○	○	○	○	○	○	○
	Darling escarpment	●	●	○	-	○	○	○	●	○	○	○	○	○	○	○
	Dissected river valleys	●	●	○	●	●	●	○	-	●	●	○	○	○	○	○
	Lateritic uplands	○	-	-	-	○	-	○	○	○	○	○	○	○	○	○
	Monadnocks	-	-	-	-	○	○	○	○	○	○	○	○	○	○	○
	Eastern woodlands	-	-	-	-	○	○	○	○	○	○	○	○	○	○	○
	Reservoirs	-	-	-	●	○	○	○	○	○	○	○	○	○	○	○
Man-made units	Plantations	○	○	-	○	○	○	-	○	○	○	○	○	○	○	○
	Roadways	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

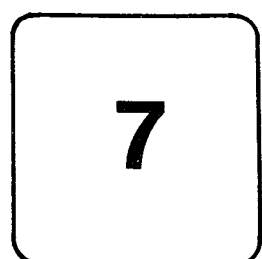
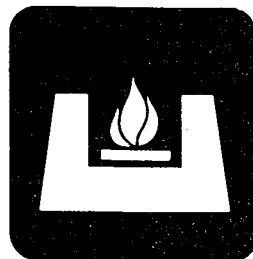
Legend: ● Present, major feature or component  
 ○ Present, minor feature or component  
 - Not present







# FOREST RECREATION DEVELOPMENT AND MANAGEMENT CONSTRAINTS



boating and sailing on domestic water supply reservoirs, and hunting. Inclusion of such activities however should not be interpreted as meaning they will necessarily be permitted in the future.

Stage 3 - the third and final stage of the recreation resource capability assessment involves matching recreation use requirements with the capacity of the landscape to provide those requirements while protecting the forest from unacceptable levels of disturbance or damage. The logic behind this approach is basically this ... by identifying the various types of forest environments which exist, the recreational activities to be catered for and the environmental features or conditions those activities require, it is then possible to allocate particular types of recreational use to areas of forest most capable of attracting and sustaining those uses.

As shown in Table 6, the recreation land use capability of each management unit has been assessed <sup>(1)</sup> and assigned one of 3 ratings as follows:

- High inherent capability to attract and sustain use;
- Capability of attracting and sustaining use with additional management;
- Minimal or low capability to attract and sustain use even with additional management input.

It must be remembered that both this assessment and the classification of the forest resource into discrete units is an artificial subdivision of a continuum. While such a classification and assessment provides guidelines for future management and development on a regional scale, there will be microscale variations which may be important for recreation planning at the divisional and site level. Divisional staff must recognise that the recreation resource assessment and classification just described is useful in broadscale allocation of various recreational uses throughout the forest, but limited in terms of detailed planning for specific sites in the forest.

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(1) The one limitation to this procedure is the lack of detailed environmental information required to quantitatively assess recreation land use capability or measures of capability such as physical carrying capacity. By necessity, the assessment carried out in the formulation of this plan is based largely on subjective, qualitative judgements. However, as our knowledge of the forest environment increases, so will our ability to more accurately evaluate land use capability for recreation as well as other forest uses.

TABLE 6 : CAPABILITY OF MANAGEMENT UNITS TO ATTRACT AND SUPPORT RECREATION ACTIVITY

		Forest-Based Recreation Activities																							
		Destination-Oriented Activities									Travel-Oriented Activities														
Management Units		Picnicking	Nature study	Photography/painting	Hunting	Tent camping	Caravan camping	Shooting (clubs)	Rock climbing	Swimming/wading	Canoeing	Sailing	Motor boating/skiing	Fishing	Marroning	Pleasure driving	Car rallying	Trail/trial bike riding	4 x 4 touring	Cycling	Bushwalking	Horse riding	Running/jogging	Rogaining/orienteering	
		Natural units	Coastal dune system	1	1	1	3	1	2	2	3	3	3	3	3	3	3	3	1	2	2	1	1	1	1
	Darling escarpment	2	1	1	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	2	1	3	3	2	2
	Dissected river valleys	2	1	1	1	2	2	3	3	1	1	3	3	3	1	2	2	3	2	2	1	2	1	1	1
	Lateritic uplands	1	1	1	1	1	2	2	3	3	3	3	3	3	3	1	2	2	2	2	1	1	1	1	1
	Monadhocks	2	1	1	1	1	3	3	2	3	3	3	3	3	3	3	3	3	3	3	1	3	3	1	1
	Eastern woodlands *	1	1	1	1	1	2	2	3	3	3	3	3	3	3	1	2	2	1	1	1	1	1	1	1
	Reservoirs	2	1	1	1	1	2	3	3	1	1	1	2	1	2	2	3	3	3	2	1	1	1	2	2
	Plantations	1	1	1	1	2	2	2	3	3	3	3	3	3	3	2	2	2	2	2	1	1	1	1	1
Man-made units	Roadways	1	1	1	3	3	2	3	3	3	3	3	3	3	3	1	1	1	1	1	3	1	1	3	3

Legend: High inherent capability to attract and sustain use. **1**  
 Capable of attracting and sustaining use with additional management. **2**  
 Minimal or low capability to attract and sustain use even with additional management input. **3**

\* The shallow upland valleys (Goonaping surface) of this unit are often situated upslope of areas of high salt storage and are particularly sensitive to disturbance by man. Their capacity to support recreational activity is much lower than for the remainder of the Eastern Woodlands and consequently recreation is to be discouraged in this sub-unit.

## 7. FOREST RECREATION DEVELOPMENT AND MANAGEMENT CONSTRAINTS

The capacity of the Forests Department to implement a recreation policy is constrained by a number of factors. Such factors may be environmental, management, legislative or economic.

In the Northern Region of State forest, where land use pressures are intense, a number of factors currently determine how the forest is used and managed for outdoor recreation. These existing constraints can be summarised as follows:

### 7.1 Environmental and Management Constraints

Several major environmental considerations have a constraining influence on recreation and other forest land uses in the Northern Region. The most important are:

- (i) The need to prevent the spread of jarrah dieback from infected to dieback-free forest areas;
- (ii) The need to prevent stream and underground water pollution in all domestic water supply catchments and borefields;
- (iii) The need to prevent soil erosion, particularly on the steeper or more dissected portions of the landscape;
- (iv) The need to protect rare and/or fragile plant and animal communities;
- (v) The need to avoid degradation of prominent landscape features or recreational facilities through inappropriate or over-use.

These factors were considered in assessing the capacity or capability of the forest to sustain different types of recreational use (refer to Table 6). That is, recreational activities which are likely to result in substantial environmental degradation have been directed away from the more sensitive portions of the landscape. Sound planning and design at the site level can also serve to overcome such problems on a localised scale.

With respect to management constraints, the ability to provide for recreation is influenced by land tenure and land use. The land considered in this plan is managed under the multiple use concept and includes all land under the control of the Conservator of Forests. In simple terms, this means that recreation provision

must be integrated with the provision of other forest values (e.g. timber and water production) and their protection requirements (from disease and fire in particular).

The whole of the Northern Jarrah Forest has been classified into management priority areas (Map 3). In some areas, recreation is the designated management priority while in others recreational activity has been given a lower priority.

In some instances, certain recreation activities are not considered to be compatible with some land use objectives, for example, the use of off-road vehicles in areas set aside for the conservation of flora and fauna. Similarly, there is often a degree of incompatibility between various recreational pursuits themselves.

## 7.2 Legislative Constraints

A number of Acts, Special Agreements and Government Regulations influence provision for and management of State forest in the north for recreation. Those with direct application are:

- (i) Forest Diseases Regulations - much of the forest in the intermediate and eastern low rainfall zones has been classified as a forest disease risk area and is subject to a period of quarantine (Map 4). Quarantined forest is only accessible along particular specified routes, or on foot. The future management of these areas will depend upon developments in dieback hygiene techniques.
- (ii) Water Catchment Areas - most of the Northern Jarrah Forest is harnessed for water supply and subject to catchment regulations (Map 4). A number of other areas are classified as future water reserves. In the Wanneroo area, the majority of State forest is included in the Gnangara Water Reserve and some of this area is subject to underground pollution control by-laws.

In the absence of any detailed local data on the effect of recreation on water quality, the water authorities have adopted a cautious approach to recreation on forested catchments. Current recreation management policies are based on the type of water use (domestic or irrigation) and the distance from the reservoir.

The W.A. Purity of Water Advisory Committee has proposed subdivision of Northern Region catchments into "recreation zones". This zoning concept has been submitted to the System 6 Study and is accepted as an interim working arrangement between various authorities. These zones are defined in Appendix C as are the recreation uses currently permitted in each.

- (iii) Mining Leases - all of the Northern Jarrah Forest is covered by mining leases and agreements for the extraction of bauxite. Commercial grades of ore are found in areas of laterisation in mid and upper slopes of forest in the Darling Range, where mining has been actively pursued since 1965. Currently there are extensive mine workings at Jarrahdale, Del Park and Huntly with new mines scheduled to begin operations at Saddleback and Willowdale. Mining lease boundaries are shown in Map 4, and recreation planning must take into account long term mining proposals.

The impact of mining on forest recreation is twofold:

- (a) access to the forest is strictly controlled or curtailed in mining envelopes during mining:
- (b) open cut mining extensively alters the appearance of the landscape in the short term and adversely affects those recreation pursuits dependent on natural forest values.

However, the accepted commitment by the bauxite mining companies to spend heavily on rehabilitation, not only of the actual area mined, but of the mining envelope as a whole, provides an opportunity to create recreation assets not present in the original forest. Properly designed, such development can complement overall planning: for example, intensive activity (lakeside picnic/barbecue facilities, motocross courses etc) concentrated in deliberately created artificial landscapes can relieve the pressure on overused fragile natural areas.

- (iv) Town Planning - account must be taken of town and shire planning proposals. Where possible, State forest plans should be complementary to those of the local authority. Similarly, the Metropolitan Region Planning Authority proposals for corridor development on the outskirts of

Perth must also be considered when planning local development, such as in parts of Wanneroo, Mundaring and Jarrahdale Divisions.

- (v) Other Regulations - in addition to the various legislative considerations mentioned, there are a number of other regulations governing recreational activity in State forest. Included are the Forests Act, which prohibits the carrying of firearms on State forest without the written consent of the Conservator of Forests; the various Bushfire, Public Health and Noise Abatement regulations can affect recreation development and management at a local level.

### 7.3 Economic Constraints

The remaining major factor constraining recreation development and management programmes in State forest is the availability of funds to implement and maintain these programmes. In Western Australia the public are not charged for access into and use of State forest recreation areas and no such charges are envisaged.

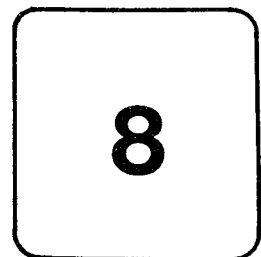
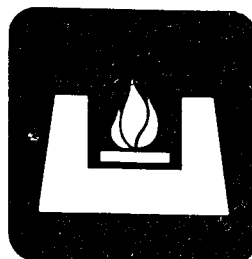
This means that recreation programmes must compete directly for finance with other forest management needs, such as protection and research. Thus, short term recreation plans must take account of the timing and priority of alternative forest management needs and the likelihood of constrained government spending in the future.

#### Summary

Currently there are many factors which constrain forest recreation in the Northern Region. The most important are jarrah dieback disease and water catchment policies.

The next section of the plan deals with proposed recreation strategies in the light of existing policies and constraints.

# RECREATION DEVELOPMENT AND MANAGEMENT OPTIONS





## 8. RECREATION DEVELOPMENT AND MANAGEMENT OPTIONS LEADING TO POLICY GUIDELINES

The preceding chapters of the framework plan have described the availability of outdoor recreation opportunities throughout the region, the public use of northern forest areas for recreation and the capacity of these areas to contribute to present and future recreation needs. This study conclusively points to the following:

1. There is a moderate but rapidly expanding demand for forest-based recreation in the region surrounding Perth. This demand is presently for the more passive forms of outdoor recreation, namely picnicking and sightseeing. Some other activities (for example, camping and the use of off-road vehicles), are on the increase and present special management problems.
2. The competition amongst various uses for forest land and/or resources is intensifying. Mining, timber harvesting, water storage, catchment protection and other factors may all displace or restrict the recreational use of State forest. At the same time, recreational opportunities outside State forest are in some cases declining or deteriorating, thereby adding to the pressures directed towards State forest.
3. There is also growing competition for access to and use of State forest areas between various recreational user groups. The needs of such groups are often in conflict. This can lead to less satisfying recreation experiences.
4. Overcrowding and inappropriate use is leading to site deterioration in some areas. Rehabilitation and maintenance programmes are only able to partially rectify this degradation. The solution lies in the planning of new areas and the effective zoning of recreation activities throughout the region.

The collective effect of the growth in recreation demand and competition for forest land is a potential decrease in the quality of the recreational experience currently available. Such problems are already occurring in heavily visited forest environments such as the Murray Valley.

There are at least 3 possible ways to resolve the dilemma of increased demand for the resource:

Reactionary Option - provision of recreation opportunities could be made in response to observed demand or need. Funding would be directed to the maintenance and redevelopment of existing areas and facilities as contrasted to the funding of new opportunities or activities. This is essentially a reactionary policy in which existing patterns of use are permitted to dictate future planning.

Constraining Option - under this strategy, planning efforts would be directed towards severely restricting or eliminating what are considered to be undesirable and/or inappropriate recreational uses of State forest. Such undesirable or inappropriate uses might include camping, the use of off-road vehicles, hunting and all water-based activities in catchment areas. Funding would be directed towards activities such as patrolling to enforce regulations. New developments would be severely restricted and largely limited to passive activities such as picnicking and nature study and forest recreation values would not be actively promoted or advertised.

Promotional Option - here, the approach would be essentially to promote and optimise the public's use of the forest for recreation. Visitors would be encouraged to use State forest for a variety of land and water activities, which would be widely advertised throughout the community. Funding would be greatly increased to provide and manage for new activities and increasing levels of recreational use. In contrast to the "Constraining Option", the emphasis would be on catering for activities which are not presently permitted and/or provided for.

Many combinations and permutations of these options could be adopted.

While the Forests Department may wish to pursue a particular programme of development and management, it is obviously restricted in terms of available finances and by other legislative, management and environmental constraints as outlined in Chapter 7. Thus, the Forests Department is pursuing a recreation development and management policy which contains aspects of all three options. The

following guidelines for recreation development in the Northern Region have therefore been adopted.

The Northern Region and Divisions will actively favour recreational activities in State forest which ...

- (1) Are forest based and are compatible with the priority of management;
- (2) Do not endanger forest values and result in the large scale destruction or clearing of forest;
- (3) Do not endanger other forest users;
- (4) Are not disruptive to the majority of other users.

Insofar as is practicable, these guidelines provide for the full range of recreation experiences which are obtainable in State forest. No potential user group, regardless of age, economic status and mobility will be deliberately discriminated against. Rather, the intent will be to accommodate a diverse range of activities and experiences.<sup>(1)</sup> This will be achieved through the provision of a greater range of facilities and the allocation of compatible activities to specific areas based on the concept of use zoning.

The essential features of these Regional guidelines which are elaborated upon in Chapter 9, are ...

- (1) Increased availability and diversity of recreational opportunities through improved access and wider dissemination of visitor information;
- (2) Separation of compatible and incompatible uses through zoning to minimise both environmental and social conflicts;
- (3) Redesign and development of existing areas and facilities to resolve existing conflicts and facilitate increased use.

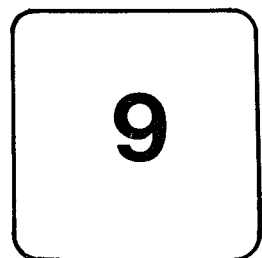
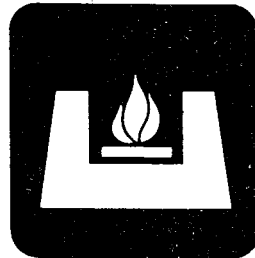
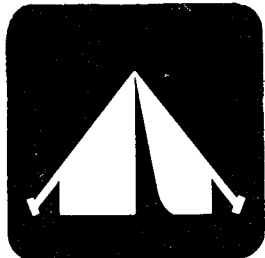
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(1) This is an essential component of the recreation planning and management process developed by Clark and Stankey referred to as the "Recreation Opportunity Spectrum". This concept, which has been adopted by both the Canadian and U.S. Forest Services, advocates the provision of recreational resources based on an assessment of the potential user clientele and the recreational settings and experiences which are available. Clark, R.N. and G.H. Stankey, 1979. The Outdoor Recreation Opportunity Spectrum : A Framework for Recreation Planning, Management and Research. U.S. Forest Service Research Paper PNW98.

- (4) Control of camping and off-road vehicle activity;
- (5) Expansion of visitor education and interpretation programmes;
- (6) Increased research into the effects of recreational use on forest ecosystems; continual reappraisal of forest resource capabilities to support and attract recreational use;
- (7) Liaison with other management authorities to jointly determine how recreational use can best be accommodated in the Region.

The next chapter looks at the specific planning and management strategies to be implemented in the divisions.

# REGIONAL PLANNING AND MANAGEMENT STRATEGIES



## 9. REGIONAL PLANNING AND MANAGEMENT STRATEGIES

The foregoing study of available recreation opportunities, projected levels of visitor activity, forest capabilities and constraints has highlighted the need for a range of strategies to guide divisional recreation planning. The forest is a rich and diverse resource capable of satisfying a wide spectrum of public leisure needs. Some recreational uses result in the intensive use of localised sites or attractions and require special facilities. Other activities are widely dispersed and require only minimal development such as suitable access. Both categories of activities can, through sensitive planning, be provided for simultaneously in the region.

### 9.1 The Concept of Use Zoning

The approach adopted in this plan is that of use zoning. This recreation management concept is widely employed elsewhere. Under this approach, recreation activities sharing similar environmental and cultural requirements are allocated to designated zones or management units. Allocation of activities to areas is based on user needs, assessed recreation land use capabilities and the existing environmental, legislative and management constraints. It is in essence a reflection of recreation land use suitability, i.e. capability as modified by existing constraints.

Successful implementation of the zoning strategy hinges on 3 factors. These are ...

- (1) that the allocation of activities to areas is realistic in providing environments satisfactory to user groups;
- (2) that users are made fully aware of why and where specified use areas have been allocated. This requires a comprehensive visitor information and education programme;
- (3) that access and facilities are planned and located so as to encourage the type(s) of activities considered most suitable for a particular area or zone.

Without these pre-requisites, use zoning is unlikely to be successful. It is therefore critical that the forest visitor is made fully aware of what he can and cannot do and why. Use

zoning presupposes that activities which are allocated to a particular area or unit are compatible. Such activities are generally those which are of low-key, passive nature such as sightseeing, picnicking and nature study.

Other activities in which the fulfilment of one user group's needs precludes or significantly interferes with the enjoyment of other visitors are defined as being incompatible. A common example of incompatibility is that which occurs when motor bike riders use the same areas as people seeking solitude. Similar conflicts can occur between a variety of other activities.

In between these extremes, there are other activities which compete for the same general areas or resources, but which can be managed concurrently with the application of various planning and development controls. Such use combinations have been termed "compatible under management".<sup>(1)</sup> Still other recreational activities which are unlikely to compete with one another under normal circumstances are designated as "not applicable". The compatibility relationships of various recreational pursuits in the Northern Region are summarised in Table 7.

## 9.2 Management Unit Strategies

Strategies for guiding the provision of recreation opportunities in the Northern Region of State forest over the next 5 years have been formulated for each of the 9 management units listed in Chapter 6. These strategies, which briefly outline what types of recreational use will be encouraged in various areas, are the basis on which divisional recreation plans are to be prepared.

In the following section, the most distinctive landscape features of each management unit is briefly described<sup>(2)</sup> and a summary of their existing and potential use for recreation is presented. Recommendations are also made as to how current recreational use conflicts might be resolved where existing constraints preclude most types of recreation.

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(1) This is not meant to imply that management is not required in the case of compatible uses, only that the intensity of management must increase in order to minimise conflicts between less or partially compatible activities. This will usually take the form of a separation of activities in time or space and by so doing, enable them to be carried out in the same general forest area.

(2) A more complete description of the various "natural" units is presented in Appendix B.

TABLE 7 : RECREATION ACTIVITY COMPATIBILITY MATRIX

ACTIVITIES		DESTINATION-ORIENTED													TRAVEL-ORIENTED									
		Picnicking	Nature study	Photography/painting	Hunting	Tent camping	Caravan camping	Shooting (clubs)	Rock climbing	Swimming/wading	Canoeing/rowing	Sailing	Motor boating/skiing	Fishing	Marroning	Pleasure driving	Car rallying	Trail/trial bike riding	4 x 4 touring	Cycling	Bushwalking	Horseriding	Running/Jogging	Rogaining/Orienteering
DESTINATION-ORIENTED ACTIVITIES	Picnicking	-																						
	Nature study	C	-																					
	Photography/painting	C	C	-																				
	Hunting	I	I	M	-																			
	Tent camping	M	C	C	M	-																		
	Caravan camping	M	C	C	I	M	-																	
	Shooting (clubs)	I	I	M	I	I	I	-																
	Rock climbing	C	C	C	I	C	C	■	-															
	Swimming/wading	C	M	C	I	C	C	■	■	-														
	Canoeing/rowing	C	C	C	I	C	C	■	■	C	-													
	Sailing	C	C	C	I	C	C	■	■	C	M	-												
	Motor boating/skiing	C	M	C	I	C	C	■	■	M	M	M	-											
	Fishing	C	C	C	I	C	C	■	■	M	M	M	I	-										
Marroning	C	C	C	I	C	C	■	■	M	M	M	I	C	-										
TRAVEL-ORIENTED ACTIVITIES	Pleasure driving	C	C	C	I	C	C	■	■	■	■	■	■	■	-									
	Car rallying	M	M	M	I	M	M	■	■	■	■	■	■	■	M	-								
	Trail/trial bike riding	I	M	M	I	I	I	I	■	■	■	■	■	I	I	I	M	-						
	4 x 4 touring	M	M	C	M	M	M	■	■	■	■	■	■	M	M	C	M	M	-					
	Cycling	C	C	C	I	C	C	■	■	■	■	■	■	■	C	M	I	M	-					
	Bushwalking	C	C	C	I	C	C	I	C	C	C	■	■	C	C	M	I	I	I	C	-			
	Horseriding	M	C	C	I	C	C	I	■	■	■	■	■	M	M	M	I	I	I	C	M	-		
	Running/jogging	C	C	C	I	C	C	I	■	■	■	■	■	■	■	M	I	I	M	C	C	M	-	
Rogaining/orienteering	C	M	C	I	C	C	I	C	■	■	■	■	M	M	M	I	I	I	C	C	M	C	-	

Legend: C = Compatible

M = Compatible under management

I = Incompatible

■ = Not applicable (unlikely to compete for the same areas or resources)



### 9.2.1 Coastal Dune Management Unit

Unit Description: Comprising the Spearwood and Bassendean Dune Systems of the Northern Swan Coastal Plain, this unit of low rolling hills interspersed with numerous small lakes and swamps supports a mixture of eucalypt and banksia dominated woodlands. It is a landscape which has been extensively altered by the activities of man; for example, residential development, market gardening and plantation establishment. Within the area bounded by State forest to the north of Wanneroo, large tracts of woodland have been cleared and planted to maritime pine (Pinus pinaster).

In terms of its recreational use, the coastal dunes under the control of the Forests Department do not possess outstanding landscape attractions. Nevertheless, the unit is suited to a range of pursuits including passive day uses such as picnicking and nature study as well as other activities such as horse riding and bushwalking. As a result of its proximity to the northern suburbs of Perth, increasing visitor use is expected.

Management Strategy: This unit differs from other areas of State forest within the Northern Region in that much of it could in time be encircled by residential and hobby farm development. Thus, this unit could eventually function as an urban forest and will need to be much more intensively managed for recreation.

The Specific Management Strategies are:

- (1) to provide for a wide range of activities including areas designated for off-road vehicles and horseriding;
- (2) to control the use of plantations for recreation, as specified in section 9.2.8., and
- (3) to co-ordinate Forests Department, Town Planning, Shire and Water Supply Authorities' recreation policies, through formal liaison.

### 9.2.2 Darling Escarpment Management Unit

Unit Description: The Darling Scarp defines the western boundary of the Darling Plateau and provides an attractive frontispiece to the extensive tracts of State forest which lie to the east. The steep terrain, exposed rock outcrops

and diverse flora make it a landscape of considerable appeal. This is particularly true in those areas where the escarpment is dissected by the larger creek and river systems such as the Wungong, Serpentine, South Dandalup and Murray.

Much of the escarpment is within private ownership and has been subjected to increasing development pressures in recent years including quarrying, residential and hobby farm development. Thus, while State forest within the Scarp is close to the most densely populated region in the State, access is largely limited to those areas which adjoin a series of sealed roads which connect the coastal plain and the Darling Plateau. To date, recreational development is restricted and consists of a limited number of picnic areas and lookout points and several small National Parks.

Management Strategy: The Scarp unit is best suited to non-motorised activities including nature study, bushwalking, picnicking and rock climbing in selected locations. There are a number of potential scenic lookouts or vantage points near which picnic facilities and short interpretative walks can be provided.

The Specific Management Strategies are:

- (1) to restrict vehicular access,
- (2) to provide carefully designed lookouts and trail systems, and
- (3) to liaise closely with other authorities to ensure that Forests Department facilities are compatible with proposed regional developments, and the System 6 Study recommendations.

### 9.2.3 Dissected River Valleys

Unit Description: Water is universally recognised as a prime recreational resource, especially when it is combined with steep topography in a forest setting. Such is the case with the numerous small rivers which traverse the Northern Jarrah Forest. Where these rivers approach the

western margin of State forest near the Darling Scarp, they have over millennia created a series of deeply incised valley systems. Most of these rivers have been dammed for domestic water supply and are therefore no longer available for recreation. However, the few remaining undammed streams and the valley systems below the reservoirs themselves are a recreational resource of major importance. The best example is the Murray Valley, which although in part a gazetted water reserve, is not expected to be dammed for many years. This Valley is visited by thousands of people annually to canoe, fish, marron and swim in its waters, and to camp, walk and drive along its banks.

This use pressure is likely to increase and is a special problem which must be addressed in the divisional recreation plan.

Management Strategy: This unit is an example of a recreational environment in which zoning has direct application. If increasing user conflicts and environmental degradation are to be minimised, then the valley systems will need to be carefully zoned and managed for a particular range of recreational activities.

The Specific Management Strategies are:

- (1) to tightly control vehicular access. Consideration will be given to closing existing tracks and river access points where these are resulting in high levels of site disturbance;
- (2) to upgrade existing sites and provide new facilities which are designed to sustain high levels of recreational use;
- (3) to identify designated sites for tent camping. Toilet facilities should be included in the amenities provided.
- (4) to protect conservation values and discourage any land use activities which could significantly detract from the valley landscapes;

- (5) to actively discourage all forms of off-road vehicle activity through signposting and where funds are available, patrols of sensitive areas.
- (6) to discourage motor boat racing events in sections of rivers, where this activity will clash with those of other forest users, and
- (7) to continue discussion with relevant water supply authorities regarding possible future recreational use and development of valley systems such as the Helena, Canning, Serpentine and South Dandalup which have already been dammed.

#### 9.2.4 Uplands Management Unit

Unit Description: The bulk of the western plateau consists of broadly undulating uplands of lateritic gravel supporting a mixed forest of jarrah and marri. In contrast to the more open eastern woodlands, these upland forest stands often contain a well-defined lower tree storey of banksia and sheoak. Much of this unit is situated within domestic water supply catchments, and has been subjected to extensive disturbance as a result of logging, bauxite mining and dieback activity.

While the upland unit possesses few outstanding landscape features, it has the capacity to support a wide range of recreational use. Currently, the uplands are predominantly used for picnicking (particularly at former mill or forestry settlements such as Carinyah, Gleneagle, Lesley and Inglehope) and sightseeing. Extensive sections of the Bibbulmun Track also pass through this unit.

Management Strategy: Areas of upland forest have the capability to absorb the greatest proportion of recreational activity in the region. Given that future sites are carefully located and designed, and where approval of the water supply authorities can be obtained, future recreation sites can be managed to avoid any serious pollution risks in this zone.

The intensive competition for and use of forest land in the western zone must also be addressed in future planning. While land use activities such as catchment management, mining and hardwood logging can restrict the scope for recreational use of an area, they do provide an excellent opportunity for presenting the concept of a "working forest" first hand to the recreating public.

The Specific Management Strategies are:

- (1) to seek endorsement (concurrence) of water supply authorities for a range of activities that includes picnicking, bushwalking, orienteering, back pack camping and sightseeing, at least on an experimental basis, to facilitate a co-ordinated study of pollution risks, and
- (2) to develop a series of 'demonstration forest tours', based on existing land use activities.

9.2.5 Monadnock Management Unit

Unit Description: The chain of residual granite outcrops which rises several hundred metres above the Darling Plateau is the outstanding landscape feature of the Northern Region. The combination of steep landforms and exposed rock faces contribute to the scenic appeal of this unit when viewed from adjoining areas of forest. The monadnocks themselves, which offer extensive panoramic views across the range, support a diverse assemblage of plants.

Currently, the monadnock chain is, with the exception of Mt Dale, only accessible by foot. Other peaks such as Mt Solus and Mt Wells which have road access to their summits are situated within quarantine. However, this unit is close to 2 major highways and can therefore be reached on day use outings by those prepared to walk. Current use is restricted to bushwalking, back pack camping, nature study, photography and similar pursuits.

Management Strategy: This unit is best suited to non-motorised, low intensity recreational activities which are compatible with the objective of fauna and flora conservation.

The Specific Management Strategies are:

- (1) to exclude all road construction activity so as to discourage vehicular use and to minimise the problems of erosion and dieback spread;
- (2) to facilitate access on foot by providing simple recreation facilities such as carpark and picnic area at the base of the monadnock chain, although no formalised system of walk tracks will be constructed in the foreseeable future, and
- (3) to provide interpretive material at all sites.

#### 9.2.6 Eastern Woodland Management Unit

Unit Description: The jarrah and wandoo woodlands of the eastern forest belt form a gently undulating landscape of open forest interspersed with farms and provides some of the most attractive scenery in the region. This unit contains both the Dryandra and Julimar forests which are outliers of the main forest belts.

Due to the distance from population centres, the eastern portions of State forest receive relatively little recreational use at present. It is a forest which could, with relatively small management input, support a range of recreational activities including picnicking, sightseeing, nature study, bushwalking, back pack camping, horse riding and off-road vehicle use in designated areas. Some of this unit lies within domestic water supply catchments and its importance to quantity and quality of water yield is not yet fully understood. Further research is needed to gauge the likely impact of more intensive recreation.

Management Strategy: With the exception of the Goonaping surface, this unit has the potential to provide for intensive recreation off catchments and recreation on catchments should be investigated further.

The Specific Management Strategies are:

- (1) to identify sites suitable for tent camping;
- (2) to provide a network of interpretative trails and scenic drives;
- (3) to identify areas where trial/trail bikes and formal motor rallies could be conducted with minimal risk to site and water quality, and
- (4) to encourage public awareness of the eastern woodland through the provision of published information and the use of signs and map directories.

9.2.7 Reservoir Management Unit

Unit Description: This unit includes all reservoirs and pipehead dams and their immediate catchment areas as included in Zone 1 of the Water Purity Advisory Committee Report. As indicated previously, most major river systems in the Northern Jarrah Forest have been dammed for water supply purposes so that this unit occupies what were formerly dissected valley zones plus much of the adjoining upland region.

Fresh water is an important resource in the southwest, arguably the most important that the Northern Jarrah Forest provides. Until recently, Darling Range catchments supplied over 80% of Perth's water needs and northern forest areas are still the major source of fresh water in the region. The Forests Department co-operates with the Water Supply Authorities to ensure the continuing production of fresh water.

At the same time, the recreational attraction of these forested catchments is high. The reservoirs themselves provide excellent habitat for marron and trout and there is growing pressure to permit fishing in reservoirs such as the Serpentine and South Dandalup. As elsewhere in Australia, there is increasing competition for available water resources by the recreating public on the one hand and the water supply authorities on the other whose brief it is to supply low cost potable water.

The effects of recreational use on water quality have been studied in many parts of the world, but little research of this nature has been carried out in local forested catchments. There is at present regular monitoring of water quality of Northern Jarrah reservoirs, but this programme in itself is not sufficient to establish how, where, what and when recreational uses will effect water quality.

In the absence of such information, the water supply authorities have understandably adopted a cautious approach to the recreational use of domestic supply catchments. Under current restrictions, all water-contact activities are prohibited and land-based forms of recreation are largely restricted to areas outside of Zone 1 (refer to Appendix D for details). Control is primarily achieved through extensive signposting, patrolling and the closure of some roads. With respect to the latter control measure, quarantine of extensive areas of the Northern Jarrah under the Forests Department's disease regulations have helped to restrict public access over most Northern Jarrah Forest catchments.

Future recreation planning and development efforts within the northern catchments should be directed at rationalising the current zoning scheme as additional research information becomes available. Equally important, the public who visit State forest will need to be kept informed as to the basis and reasons for imposing such zoning controls.

Management Strategy: In view of this growing dilemma and the comments and recommendations which have arisen from the System 6 Study

The Specific Management Strategies are:

- (1) to co-operate with the relevant Water Supply Authorities in any joint research and monitoring programmes, the primary objective of which will be to study what risks various types and levels of recreational activity pose to water quality, and



- (2) to work with the water supply authorities in improving the community's understanding and support for regulations governing public use of catchment areas. This educational programme will utilise various avenues of communication including signs and interpretive displays, self-guiding trails, pamphlets and magazine and newspaper articles.

While the collection and dissemination of this information is proceeding, the Region and Divisions will continue to work closely with the Metropolitan Water Authority, Public Works Department and Public Health Department in the planning of all forest recreation areas and facilities within active catchments.

#### 9.2.8 Plantation Management Unit

Unit Description: The Northern Region of State forest contains over 23 000 hectares of pine plantation, which is nearly half of the total Department softwood resource of 50 821 hectares.

TABLE 8  
AREA OF PLANTATIONS (ha) (1)

Division	<u>P. radiata</u>	<u>P. pinaster &amp; other species</u>	Total
Wanneroo	722	18 897	19 619
Mundaring	850	708	1 558
Jarrahdale	324	1 010	1 334
Dwellingup	536	75	611
Totals	2 432	20 690	23 122

The extensive plantations of maritime pine (Pinus pinaster) situated on the coastal plain in Wanneroo Division comprise the bulk of the Regional total (see Table 8). Other large plantation areas include those situated near Mundaring Weir and on the Helena

(1) Areas of plantation as of December, 1980.

Source: Forests Department Annual Report, 1981.

River and Beraking Brook in Mundaring Division, the Gleneagle, Cooke and Frollet plantations in Jarrahdale Division and the Murray plantation in Dwellingup Division. As a management unit, the Northern Region plantations occupy a diverse range of landscapes, varying from the steep valley slopes of the Murray to the undulating dunes of the coastal area. The plantations themselves are quite variable in terms of age, density, condition and recreational appeal.

The current use of pine plantations for recreation in the Region is generally restricted due to the risk of wildfire. With the exception of one area in the Gngangara plantation which has been allocated for various activities including horse riding and the use of trail/trial bikes, the public has not generally been encouraged to enter pine plantations. This is often reinforced through signposting, although patrols are conducted in some Divisions.

Management Strategy: Plantation fire risk is directly related to such factors as topography, plantation age and size, stand density and the presence of ground fuels. In general, older plantations which have been thinned and pruned and have had a hazard reduction burn carried out are less vulnerable to fire. These older plantations offer an attractive environment for most types of recreational activity.

The Specific Management Strategies are:

- (1) to develop a compatibility rating system which relates recreation with other plantation uses and protection needs and then,
- (2) to initiate an effective public education and information programme which explains plantation management.

#### 9.2.9 Roadway Management Unit

Unit Description: Several State highways and a number of major regional roads traverse State forest areas in the Northern Region (refer to Chapter 6). These roadways pass through the whole spectrum of forest landscapes, from the plantations of the coastal plain to the woodlands of the eastern forest zone. On gazetted "Main Roads", the whole road reserve is vested in the Commissioner for Main Roads.

The importance of the highway unit as a recreational resource is demonstrated by the fact that approximately half of all Department recreation areas in the Northern

Region are situated along major sealed roads. Apart from providing access to those people who wish to recreate in State forest, this road system also serves as a window to the forest areas which lie beyond.

Management Strategy: This unit encompasses the viewshed on all major forest roads, as determined by the confining boundaries of the surrounding topography. This may vary from 30m to 2km depending upon the inherent features of the particular area. Within this zone attention will be given to the planning and implementation of all forest land use activities which impinge upon the roadscape.

The Specific Management Strategies are:

- (1) to ensure that all activities involving the removal of forest produce including gravel, and the rehabilitation of degraded areas are carried out according to landscape design and management guidelines provided by Extension Branch.
- (2) to establish a comprehensive visitor information system which includes: the provision of forest information bays on major highways, the development of additional interpretative facilities at existing sites and a co-ordinated approach to the design and use of signs.
- (3) to liaise closely with the Main Roads Department and Local Government, in planning any activities adjacent to the Highways to avoid duplication of effort.

### 9.3 Planning and Management Strategies Applicable to all Management Units

In addition to the management unit strategies just outlined, there are a number of other recreation planning and management aspects for which Regional policy directives are required. These are ...

## 1. Design and Development of New and Existing Sites

All recreation development within the Region, whether it be construction of new areas and facilities or the redevelopment of existing sites, must be in accord with the requirements of Fire and Dieback Control policy. Plans must be approved by the Regional Superintendent and the Recreation Officer. Specialist staff will be available to assist Divisions with these sites.

### Strategy

Factors to be considered in site planning are:

- \* access
- \* signposting
- \* vehicular and pedestrian circulation
- \* parking
- \* visitor safety
- \* provision of hygiene facilities
- \* site drainage
- \* location and arrangement of furniture
- \* health and composition of vegetation, and
- \* silvicultural needs.

Specifications for these factors are available in the Recreation Operations Manual.

## 2. Site Maintenance

### Strategy

- (1) Each division will ensure that all Departmental recreation areas and facilities under their control are maintained in a clean, workable and safe condition.
- (2) Site maintenance programmes will include the periodic inspection and maintenance of:
  - \* access road
  - \* vehicular barriers
  - \* signs
  - \* site furniture
  - \* toilets
  - \* trails
  - \* the collection of refuse
  - \* tree crops

- \* understorey flora
- \* fire protection requirements, and
- \* soil disturbance

A checklist is available in the Recreation Operations Manual.

- (3) Site maintenance schedules will be tailored to cope with special times (such as Easter) when visitor use is at a maximum.

### 3. Provision for the Disabled

The Department will liaise directly with handicapped groups to ascertain any special requirements or needs they may have. Appropriate design guidelines to cater for disabled users will be prepared as part of the Recreation Operations Manual and disseminated to all Divisions. In addition, a directory of areas and facilities suitable for use by the handicapped or invalid will be prepared and made available to the general public.

#### Strategy

Site plans will take into account:

- (a) the need to provide for handicapped and invalid persons on appropriate sites, and
- (b) design provision for comfortable and easy access to nominated areas, which will be advertised and signposted.

### 4. Visitor Information and Education

#### Strategy

Divisions will provide accurate and up-to-date information to assist the public in their use and understanding of State forest, in line with the following directives:

#### (1) Tourist/Visitor Information

- (i) Divisional plans will contain specific provision for the preparation of maps, guides and directories to ensure forest visitors are fully informed about the recreation opportunities available to them.
- (ii) Divisions will be assisted by Extension Branch in

the preparation and dissemination of pamphlets and other publications on various recreational, biological and historical topics of interest to the forest user.

(2) Signs

- (i) all recreational development will be accompanied by the judicious use of signposting;
- (ii) Divisions will adopt the standards for design and construction of signs prepared by Extension Branch;
- (iii) Divisions will regularly inspect and maintain all signs and visitor information boards or displays in good condition.

(3) Demonstration Forests

- (i) Divisions will incorporate a series of demonstration tours into their recreation plan;
- (ii) the objective of these tours will be to provide increased access and recreational opportunities and to inform the forest visitor on forest land use and management.
- (iii) issues to be dealt with will include forest ecology, catchment and reservoir management, timber production, mining and forest protection.

(4) Study Centres

- (i) Divisional plans for Mundaring and Jarrahdale will ensure continued support for existing field study centres;
- (ii) the Education Department will be given full co-operation as regards the management and provision of materials for student exercises at these centres.
- (iii) the Department, through its Jarrahdale and Northern Regional offices, will also assist in planning display material and related field interpretation facilities at the proposed Jarrahcentre development.

(5) Contact with Local Schools and Special Interest Groups

Divisions will continue to maintain contact and supply information to these groups in the form of talks, displays and field trips.

5. Recreation in Relation to Dieback

The need to protect forest values from the effects of jarrah dieback (Phytophthora cinnamomi) is and will remain a Regional management objective of the highest priority.

Strategies

- (i) forest disease risk areas will remain available for all form of non-motorised recreational pursuits provided they conform to normal hygiene practices and standards;
- (ii) dieback hygiene requirements must be considered in planning all motorised recreation in the jarrah forest.

6. Recreation in Relation to Bauxite Mining

Planning must consider the immediate and longer term impacts of open-cut mining for bauxite on the public's use of State forest for recreation.

Guidelines for the rehabilitation of mining areas within designated recreation management priority areas have already been prepared as part of an overall rehabilitation programme. All planned recreational development within the mining envelope will be included in both the annual rehabilitation plans and as part of the 5-year and 25-year mining plans. Planning of recreation development and the future management of all mined areas within State forest will remain the responsibility of the Forests Department. The Region may, as circumstances warrant, request financial and other assistance from the company, in carrying out this work, where additional costs are directly attributable to mining. The Forests Department in association with the mining companies, should also plan for a continuation of recreational site development within the mining envelopes where appropriate.

Strategy

Divisional recreation plans will, where appropriate, take account of the following aspects:

- (1) public safety in areas subject to mining;
- (2) post mining public access requirements;
- (3) identification and protection, where possible, of recreational and historical or educational attractions prior to mining;
- (4) proposed recreational use of mined areas following rehabilitation;
- (5) landscape rehabilitation including earthworks, drainage and disposal of storm water, tree and shrub species selection and planting design, and
- (6) public interest in the mining and rehabilitation phase of the operation.

7. Provision for Recreation in Urban and Near Urban Areas

The outward expansion of the metropolitan area will result in greater recreational demands being placed on those areas of State forest nearest the city. This increasing demand can and will be partly serviced through the provision of forest-based recreation areas and facilities situated as close to the user population as practicable.

Strategy

The Region and Divisions will:

Assist other land management authorities and local government bodies in the planning, establishment and management of small tree parks or urban forests within the metropolitan region. Such areas will substantially improve the availability of nature-based recreational opportunities for the residents of Perth's outer suburbs.

8. Use of Firearms on State Forest

Under current regulations, the use of firearms on State forest is restricted to designated rifle range or gun club sites. Due to public safety, fauna protection and noise considerations,



it is illegal to carry firearms in State forest without the written consent of the Conservator of Forests. It is recognised that there is a growing pressure to allow the hunting of feral pigs in State forest, using a variety of methods including firearms and crossbows. This activity will be considered by the Department during the period of this plan, but it is not envisaged that current restrictions will be relaxed.

9. Tent and/or Backpack Camping

The level of camping activity within the Region is increasing. Most of this activity is in the form of informal tent or 'wild' camping. At present, camping is governed by the Caravans and Camp Regulations of the Public Health Act that generally limit camping to registered caravan parks. Other camping is permitted, subject to the following conditions:

- The use of land is permitted by the owner or occupier of that land;
- There is not in force any by-law made by the Shire Council under the Local Government Act, 1960, prohibiting camping in that place;
- A nuisance is not and will not be caused by a lack of or defective sanitary arrangements;
- The camp is occupied in that place for three nights or less.
- There is no caravan park within a radius of 16km.

Under these regulations, most of the present tent or 'wild' camping occurring in State forest is illegal. There is need to rectify this anomaly and to alleviate problems such as littering, sanitary waste disposal, soil erosion and compaction, destruction of vegetation, fire control and the displacement of day visitors which are occurring in the absence of any formal provision of sites. Consequently, the Department will seek discussions with the Public Health Department to investigate amendment of the regulations.

### Strategy

Each Division will:

- (1) identify potential areas where tent camping facilities could be located. Sites will be selected by Regional staff, taking into account the various problems and conflicts prescribed previously.
- (2) provide assistance, in the form of information and advice, to owners of campsites, on private property adjoining State forest.
- (3) provide proper management of approved camping sites.
- (4) provide an active visitor education programme at all sites.

### 10. Use of Off-Road Vehicles

Similar to wild camping, there is need to regulate off-road vehicle use in State forest. Use of trail and trial bikes in particular, is widespread in some forest areas and has resulted in localised damage to the forest environment and the disturbance of other forest visitors. The existing Control of Vehicles (Off-Road) Act and Regulations provides for control over unlicensed vehicles only and does not apply to areas of State forest. The Department will consider legislation to provide control of all vehicle access on State forest.

There are currently 2 designated sites for trail and trial bike activity within the Region - one situated in the Gngangara Road Recreation Area in Wanneroo Division and the other located in Teesdale Block, Dwellingup Division. Both sites are heavily used although they have not been extensively promoted.

### Strategy

As part of the Divisional recreation plan:

- (1) suitable areas for trail and trial bike activity will be identified. Areas will be selected so as to minimise damage to the environment and reduce conflict with other forest users.
- (2) these areas will be made available to the public once the detail regarding the management of such areas has been

developed. Site planning controls, signs, public advertisements and back up patrols may be required.

- (3) all O R V activity outside of these area in State forest will be prohibited.
- (4) in areas where the impact of off-road vehicles can be shown to cause negligible damage, consideration will be given to providing permits for one or two organised 'trail' events per year for recognised clubs, e.g. trail bike gymkhana, bush-baja events.

#### 11. Surveys of Visitor Needs

Periodic surveys of forest recreational use patterns and user needs/preferences will be carried out throughout the Region. Various techniques, including field observation and questionnaire surveys, traffic counts and the use of air photo reconnaissance will be employed to update existing data on the type, extent, timing and location of recreational activity. Such information will provide a means for monitoring the adequacy or inadequacy of established areas and facilities.

It will be the responsibility of Extension Branch to plan and organise such surveys and to collate, analyse and disseminate the resulting information to the Region and Divisions. The sharing of such information amongst other departments and authorities with an interest in forest-based recreation will be encouraged.

#### 12. Patrols

Greater public contact is seen as a positive means of controlling recreation and gaining wider public understanding and support for various forest land use regulations. The organisation, cost and effectiveness of a trial patrol programme will be assessed prior to any widespread patrols being mounted.

##### Strategy

Divisions will:

- (1) organise a trial programme in accordance with previous paragraph, of recreational patrols to be conducted on weekends and holidays.

- (2) use these patrols to foster contact with the recreating public and to disseminate explanatory information and answer enquiries.
- (3) not use these patrols specifically for law enforcement.

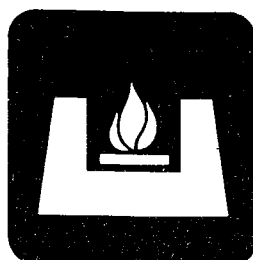
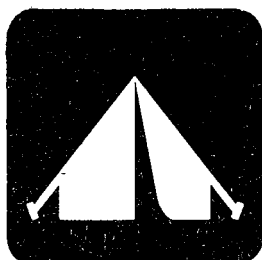
13. Liaison with Other Organisations and Recreational Groups

The Regional recreation or planning officer through the Chief of Division in charge of recreation will ensure that all relevant authorities and departments are consulted as regards any proposed recreation developments or management actions likely to affect such organisations. Communication with organised recreation groups will also be encouraged to better ensure the views of user groups are considered. The Regional recreation officer will compile and maintain a register of all recreation groups known to use State forest in order to facilitate such communication.

Strategy

- (1) Divisional staff will encourage organised recreation groups to use the forest and maintain two-way contact with them.
- (2) Divisional staff will make contact with other organisations who may be publicising recreation in areas of State forest.

# PLAN IMPLEMENTATION AND CONTROL



10

## 10. PLAN IMPLEMENTATION AND CONTROL

The compilation of divisional recreation plans based on the framework outlined in this plan will be completed in 1983. Planning responsibilities will be allocated as follows:

- (i) Regional Planning Officer - dissemination of framework plan, determination of planning timetable and review of divisional draft plans.
- (ii) Divisional O I C - preparation of plans.
- (iii) Specialist staff - advice and assistance in plan preparation, preparation and/or review of site plans and staff training.
- (iv) Regional Superintendent - regional endorsement of divisional plans.
- (v) Chief of Division, Extensions - Departmental approval of regional plan.
- (vi) Chief of Division, Operations - Departmental approval of the annual works programme, re: staff and finance.

### 10.1 Liaison

It will be the responsibility of the Regional Planning Officer to ensure effective planning liaison is achieved throughout the Region. Liaison will also be maintained at all levels with organisations having responsibilities or influencing recreation on State forest, for example -

- Department for Youth, Sport & Recreation
- Department of Tourism
- Metropolitan Water Authority
- Public Works Department
- National Parks Authority
- Department of Conservation & Environment
- Education Department
- Shire Councils
- Alcoa of Australia
- Worsley Alumina
- Main Roads Department

### 10.2 Budgets and Annual Works Programme

Priorities for annual expenditure will be allocated each year on a regional basis, according to ...

- (i) the strategies set down in this plan;
- (ii) Divisional submissions;
- (iii) Departmental budget priorities.

The implementation of annual recreation works programmes will be the responsibility of the respective divisions. Each division will nominate an officer responsible for recreation who will implement the annual development and maintenance recreation activities as set out in the Divisional Works Programme.

Divisions will also maintain records of recreation developments within their Hardwood or Plantation Operations Control Systems, with duplicate copies held at Kelmscott Inventory and Planning Office.

Extension Branch staff will be responsible for developing and promulgating site planning and design guidelines, recreation facility and equipment standards and maintenance prescriptions. Senior staff will programme periodic inspections of sites and facilities to ensure standards are maintained.

### 10.3 Plan Review and Achievements of Objectives

The Regional Recreation Framework Plan will be reviewed formally at each revision of the General Working Plan or more frequently if circumstances warrant. Divisional plans will be reviewed annually when yearly budgets and works programmes are being developed.

In conclusion, the stated objective of this plan has been....

'to develop a framework for the planned provision and maintenance of recreational opportunities in the Northern Region forests based on available information on community needs, resource capability and the various constraints to management'.

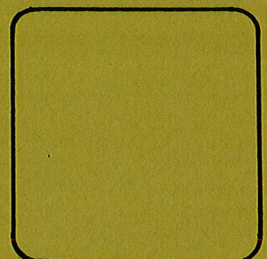
The plan, which has provided a structure for guiding the preparation of recreation working plans at a Divisional level, should ensure that the provision of recreational opportunities in northern forest areas are ...

1. co-ordinated at a regional scale;
2. soundly based on an assessment of factors relevant to recreation resource development and management.

The test of the value of this regional recreation land use plan will now lie in the formulation and, more importantly, the successful implementation of the Divisional plans which are to follow.



# APPENDICES



APPENDIX A : SUMMARY OF THE FORESTS DEPARTMENT'S  
NORTHERN REGION RECREATION AREAS  
AND FACILITIES



DIVISION: MUNDARING

DATE: OCTOBER, 1981

Area	Type of Development	Map Reference	Tables	Barbecues	Bins	Toilets & type	Comments
Jacoby Park	Picnic area, adventure play-ground, informal field sports area & nature trail. City style park.	AR65	56	26	21	2 blocks of 1m 1f (septic)	Site development includes drinking water, septic toilets and both bench and rock slab tables.
Carinyah	Picnic area, adventure play-ground, arboretum	BB68	22	10	10	2m 2f (pit)	Popular area for large group activities
Mt Dale	Picnic area and walk track	BD75	21	10	7	-	Excellent views from top of mount
North Ledge	Picnic area and walk track	AR67	3	3	2	-	Scenic lookout over Mundaring Weir, with short walk
South Ledge	Picnic area and walk track	AS67	5	5	4	-	'Fallen log' walk track down to weir spillway
Gungin Gully	Picnic area	AT66	3	1	1	-	Small site

DIVISION: MUNDARING (contd)

DATE: OCTOBER, 1981

Area	Type of Development	Map Reference	Tables	Barbecues	Bins	Toilets & type	Comments
Mt Gungin	Lookout and picnic area	AU65	3	4	3	1 (pit)	Site includes old fire tower
The Dell	Picnic area	AT65	7	3	3	-	Small site
Pimelia Mycumbene	Picnic area and undefined walk track	AP68	4	3	2	-	Sited in old gravel pit
Forsythe Mill	Picnic area	AM74	4	3	2	-	Small site
Christmas Tree Well	Picnic area	BL83	6	4	1	-	Splendid display of <u>Nuytsia floribunda</u> during December/January
Grevillea Mycumbene	Picnic area	AP68	7	5	5	-	Sited in former gravel pit

DIVISION: MUNDARING (contd)

DATE: OCTOBER, 1981

Area	Type of Development	Map Reference	Tables	Barbecues	Bins	Toilets & type	Comments
Hunter Road	Picnic area	AP67	2	2	2	-	Sited in former gravel pit
Mt Observation	Picnic area	AN90	8	4	4	-	Good views of surrounding country

DIVISION: JARRAHDALÉ

DATE: AUGUST, 1981

Area	Type of Development	Map Reference	Tables	Barbecues	Bins	Toilets & type	Comments
Sullivan Rock	Picnic area & walk track	BV73	7	5	4	-	Interesting granite outcrop
Gleneagle	Picnic area & arboretum	BP69	19	13	2	1m, 1f (chemical)	Former F.D. settlement with large open space
Mt Cooke	Picnic area & undefined walk track	BZ77	8	8	8	-	Adjacent pine plantation, below Mt Cooke
Boulder Rock	Picnic area & walk tracks	BE68	11	9	8	-	Granite outcrop
Gooralong	Forest Park & walk tracks	BT61	9	13	9	1m, 1f (chemical)	Attractive area along Gooralong Brook
Lesley	Picnic area & nature trail	BF69	13	6	6	-	Includes interpretive trail down to Poison Gully





DIVISION: DWELLINGUP

DATE: SEPTEMBER, 1981

Area	Type of Development	Map Reference	Tables	Barbecues	Bins	Toilets & type	Comments
Inglehope Arboretum	Picnic area & arboretum	CX69	2	2	2	-	Includes botanic drive
Island Pool	Picnic area	CZ65	6	6	6	1m, 1f (pit)	Situated adjacent to Murray River
Baden-Powell Water Spout	Picnic area	CX64	4	4	4	1m, 1f (pit)	Situated adjacent to Murray River - popular for camping and canoeing
Scarp Pool	Picnic area	CX59	4	4	4	1m, 1f (pit)	Situated adjacent to Murray River - popular for camping and canoeing
Scarp Lookout	Picnic area & lookout	CX58	4	4	4	-	Good views of coastal plain
Oakley Dam	Picnic area	CP56	5	5	4	-	Excellent in wild-flower season, also good views and dam for swimming



DIVISION: NARROGIN

DATE: MARCH, 1982

Area	Type of Development	Map Reference	Tables	Barbecues	Bins	Toilets & type	Comments
Montague	Picnic area & lookout	CX126	-	-	-	-	Former overseer's house site. Undeveloped site, likely to remain so due to poor access
Lol Gray	Picnic area	CW118	-	2	1	-	Low key site
Dryandra Dam	Picnic area	CX116	-	2	1	-	Close proximity to Lions Club settlement Dam used for swimming
Congelin	Picnic area	DA111	-	1	1	-	A site with potential for historical interpretation. Adjacent to old railway formation
Contine	Picnic area & lookout	DF118	-	1	1	-	Former overseer's house site - excellent views

APPENDIX B : ASSESSMENT OF THE CAPABILITY AND  
SUITABILITY OF MANAGEMENT UNITS  
FOR RECREATION

ASSESSMENT OF THE CAPABILITY AND SUITABILITY OF MANAGEMENT  
UNITS FOR RECREATION

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Each of the "natural" management units has been evaluated with respect to a number of environmental factors and constraints. In the tables which follow an assessment has been made of the capabilities of each landform unit for recreation and also their suitability after considering other planning considerations and management constraints:

(A) Environmental Factors

- (i) Landform - The visibility, degree of accessibility or isolation and the drainage patterns of the landscape are all dependent on landform. Changes in topography can provide a sense of scale and orientation in a region. In addition, the capacity of the landscape to physically accommodate various types of recreation activity is largely dictated by its steepness.
- (ii) Soils - The soil provides the medium for plant life and acts as the natural filtering and recharge system in the hydrologic cycle. Consequently, both the appearance (type and character of vegetation) and recreation use capabilities (soil drainage, resistance to erosion, capacity to support roads and structures, etc) of the landscape are dependent on soil conditions.
- (iii) Vegetation - The appearance or visual character of any landscape is, in part, dependent on the age, size, structure, diversity and extent of vegetation supported by that landscape. Vegetation patterns also affect access and microclimate, both of which are important in site planning.
- (iv) Hydrology - The universal attraction of water for recreation is well documented. The presence, type (wetland, stream, reservoir, etc), size, depth and appearance of surface water bodies helps to determine the types and intensities of recreational use which can be accommodated. The presence, depth and

potability of ground water may also be important in determining if recreation is permissible in a particular area.

(B) Other Planning Considerations and Constraints

- (i) Land Ownership & Use - The existing and/or future availability and cost of land and the compatibility of that land for recreational development and use is largely dictated by past land use practices and present ownership and use. Considerations such as the type and numbers of owners, the scale, flexibility and permanence of uses and the access, service and maintenance requirements of those uses need to be examined. The remnants of former land use activities should also be considered, as they may possess historical, educational, and/or recreational values which are worth preserving.

For the northern jarrah forest, land use has been classified into primary, secondary, tertiary and incompatible uses. This is outlined in the Forests Department publication "Northern Jarrah Forest Management Priority Areas (1980)". A similar document for the Swan Coastal Plain (North) is under preparation.

- (ii) Accessibility - Studies of recreational travel patterns and activity participation rates are influenced by accessibility. Factors such as the character and extent of the transport network and the location of the resource with respect to major population centres are also important, particularly in the case of recreation open space for day use.
- (iii) Legislative Constraints - Constraints imposed by Act of Parliament affect the use of State forests for recreation. Particular constraints apply to water catchments, and to forest quarantine areas and bauxite mining areas.
- (iv) Environmental Constraints - These constraints are necessary to ensure that sites do not become degraded by overuse or by the wrong use, or cause problems having a significant detrimental affect on other land uses (e.g. salinity).

MANAGEMENT UNIT

COASTAL DUNES - SPEARWOOD SYSTEM

RESOURCE EVALUATION  
FACTORS

DESCRIPTION

CAPABILITY/SUITABILITY FOR  
RECREATION

Landform and soils - system of rolling dunes situated to the east of the Quindalup Dune System. Soils range from yellow and brown sands high in iron to outcrops of limestone. Sands are older and deeper to the east.

Vegetation - tall open stands of tuart, jarrah and marri on deeper sands. Tuart becomes increasingly dominant to the west on the shallower soils.

ENVIRONMENTAL  
FACTORS

Hydrology - numerous small lakes and swamps located in the depressions between dunes. Unit has no external drainage. The boundary between this unit and the Bassendean System to the east is marked by a series of swamps and lakes.

Capability determined by combination of lakes and wetlands, limestone outcrops, rolling topography and varied vegetation which all contribute to aesthetic value of this dune system. Areas around wetlands are sensitive to intensive development and use.

Land ownership - primarily in private ownership with limited areas of National Park (Yanchep and Lake Clifton areas) and State forest.

A major recreation resource for the residents of Perth because of location.

OTHER PLANNING  
CONSIDERATIONS  
& CONSTRAINTS

Land use - major use is for residential development in the Metropolitan Region. Extensive areas developed as market gardens around Wanneroo and Jandakot. Further to the north and south, large areas have been cleared as pasture land. Recreational use has centred around the small lakes situated throughout this unit.

Accessibility - much of the population of Perth lives on this landform. Outside the Metropolitan Region, principal road access is via the Old Coast Highway and Lancelin Road.

MANAGEMENT UNIT

COASTAL DUNES - SPEARWOOD SYSTEM (contd)

RESOURCE EVALUATION  
FACTORS

DESCRIPTION

CAPABILITY/SUITABILITY  
FOR RECREATION

Legislative constraints - Gnaragara water reserve, underground water, pollution control areas, Public Health Act, small mining leases, mainly limestone and sand, Town Planning.

Environmental constraints - Jarrah dieback disease present in small areas, sensitive wetland vegetation.

Suitable for:

passive activities such as picnicking, nature study and walking.



MANAGEMENT UNIT

COASTAL DUNES - BASSENDEAN SYSTEM

RESOURCE EVALUATION FACTORS	DESCRIPTION	CAPABILITY/SUITABILITY FOR RECREATION
ENVIRONMENTAL FACTORS	<p><u>Landform and soils</u> - low hills of grey siliceous sands with swamps in the interdunal depressions. Soils are infertile and deficient in calcium, iron and most other minerals.</p> <p><u>Vegetation</u> - open forest of banksia, pricklybark and sheoak and diverse understorey of shrubs. As rainfall decreases to the north of Perth, the open forest gives way to low forest and heathland in both the Bassendean and Spearwood Dune Systems. Extensive areas of dieback infection.</p> <p><u>Hydrology</u> - poorly drained depressions and swamps which are situated over organic hardpans. Low quartz-sand ridges are excessively drained.</p>	<p>Value as a scenic resource relatively low in comparison to other landscape units. High conservation value where vegetation is largely undisturbed. Provision for the increased recreational use of plantations (such as Ghangara) needs consideration subject to fire and logging constraints.</p>
OTHER PLANNING CONSIDERATIONS & CONSTRAINTS	<p><u>Land ownership</u> - mainly private property to the south of the Metropolitan Region with a large area of State forest to the north.</p> <p><u>Land use</u> - variety of uses including sand quarrying, low cost housing, light industry, farming, and service corridors for utilities. Extensive pine plantations on the northern coastal plain with associated fire control and logging activity. Recreational use has been minimal in the past.</p> <p><u>Accessibility</u> - outside the Metropolitan Region, large areas of this unit are relatively inaccessible to the public as a result of private ownership.</p>	<p>Unit subject to considerable human disruption, particularly in the Metropolitan Region</p>

MANAGEMENT UNIT

COASTAL DUNES - BASSENDEAN SYSTEM (contd)

RESOURCE EVALUATION  
FACTORS

DESCRIPTION

CAPABILITY/SUITABILITY  
FOR RECREATION

Legislative constraints - Ghangara Water Reserve and Underground Water Pollution Control Area, Public Health Act, small mining leases, especially sand quarrying, Town Planning.

Environmental constraints - isolated occurrence of jarrah dieback disease. Sensitive vegetation structure.

Suitable for:

large range of recreation uses, subject to conservation constraints in undisturbed areas.

RESOURCE EVALUATION  
FACTORS

## DESCRIPTION

CAPABILITY/SUITABILITY  
FOR RECREATION

Landform and soils - prominent N-S escarpment which rises approximately 300m above coastal plain. Unit is characterised by steep slopes and is dissected by number of sharply incised river valleys. Shallow podsolic soils overlying fresh country rock. Large areas of exposed granite. Surface classified as erosional.

Vegetation - mixture of marri, jarrah, mountain marri, salmon white gum and butterbark. Varied shrub layer. Moderate incidence of dieback. Unit considered to be non-protectable from further spread. Vegetation subject to periodic severe wildfires.

Hydrology - in western high rainfall zone. High rate of surface runoff as a result of shallow soils, steep slopes and large areas of rock exposure. Numerous rivers and smaller streams dissect the unit before entering the coastal plain; several waterfalls.

ENVIRONMENTAL  
FACTORS

Elevated landform, steep slopes, rock outcrops, varied flora and deep river valleys all contribute to unit's high value as a scenic resource. Scarp capability is high for non-motorised active uses such as bushwalking and rock climbing. Steep slopes and erodible soils preclude motorised use. Numerous scenic vistas and potential picnic areas (either at the base or top of the escarpment).

Land ownership - much of this unit is in private ownership. Some areas of National Park (e.g. John Forrest, Serpentine) and State forest.

Land use - extensive areas cleared for pasture. Increasing amount of housing development as well as several quarries in the Metropolitan Region. Additional visual disruption caused by various utility and service corridors (S.E.C. transmission lines, water pipelines, Alcoa conveyor lines). Recreational use largely limited to existing National Parks and areas of State forest.

OTHER PLANNING  
CONSIDERATIONS  
& CONSTRAINTS

Unit is particularly attractive for recreation due to its proximity to large numbers of people. Major limitation is large amount of unit presently in private property. Potential conflict if and when smaller pipehead dams are constructed downstream of existing storage areas.

MANAGEMENT UNIT

DARLING ESCARPMENT (contd)

RESOURCE EVALUATION  
FACTORS

DESCRIPTION

CAPABILITY/SUITABILITY  
FOR RECREATION

Accessibility - close proximity to population centres. Unit is crisscrossed by and accessible from a number of all weather roads.

Legislative constraints - Town Planning, Forests Act, and regulations of other statutory authorities administering land, Public Health Act, Granite Quarrying Leases.

Environmental constraints - susceptible to erosion and subsequent vegetation damage. Dieback introduction is potential danger on ridgetops carrying jarrah and banksia association.

Suitable for:

sightseeing and most passive or pedestrian activities such as picnicking, bush-walking, nature study and rock climbing.

MANAGEMENT UNIT

DISSECTED RIVER VALLEYS

RESOURCE EVALUATION  
FACTORS

DESCRIPTION

CAPABILITY/SUITABILITY  
FOR RECREATION

Landform and soils - steeply sloping valleys often with small areas of exposed granite. Valleys broaden out to the east. Soils are fertile red to brown earths which are subject to erosion. Low salt storage in this portion of the plateau.

Vegetation - marri with jarrah as the minor component. Some stands of marri. Relatively dense understorey vegetation in comparison to uplands. Low dieback occurrence apparently due to the inability of the fungus to invade these soils.

Hydrology - area of rapid runoff and high water production per unit area. With the exception of the Avon and the Murray, all major rivers have been dammed upstream from the escarpment.

Land ownership - all of the major valleys south of the Helena are in State forest; some scattered private holdings. Combination of National Park, vacant Crown land, timber reserves, private property, etc along Avon River.

Land use - principal use is for water production. Recreation is excluded from active catchment areas, but permitted downstream of some dams and in undammed valleys such as the Murray. Conservation of fauna and flora also important in undammed valleys.

Scenic and recreational value is very high due to the steep terrain and presence of water. Valleys (downstream of dams and those still undammed) have high capacity for a range of water and land based activities. Careful control of vehicles required because of risk of erosion (no off-road vehicle activity should be permitted).

Apparent future conflict as valleys downstream of existing dams are utilised for water production.

ENVIRONMENTAL  
FACTORS

OTHER PLANNING  
CONSIDERATIONS  
& CONSTRAINTS

MANAGEMENT UNIT

DISSECTED RIVER VALLEYS (contd)

RESOURCE EVALUATION  
FACTORS

DESCRIPTION

CAPABILITY/SUITABILITY  
FOR RECREATION

Accessibility - limited to areas downstream of dams and undammed valleys. Long sections of the Murray River readily accessible by road.

Legislative constraints - water catchments and reserves, timber permits, apiary sites, bauxite mining leases, forest quarantine in eastern portions.

Environmental constraints - potential for erosion control. Low impact from dieback disease due to high site fertility.

Suitable for:

Harnessed catchments - see Appendix C.

Other areas - sightseeing, picnicking, water based activities, bushwalking, orienteering, nature study and tent camping in designated sites. Recreational use of quarantine areas restricted to non-motorised access except on designated roads.

MANAGEMENT UNIT

LATERITIC UPLANDS

RESOURCE EVALUATION  
FACTORS

DESCRIPTION

CAPABILITY/SUITABILITY  
FOR RECREATION

Landform and soils - southwestern portion of the Great Plateau. Broadly undulating terrain 300m to 400m above sea level. Soils are lateritic sandy gravels over an ironstone cap; underlain at depth by kaolinite (clay) developed from decomposed rock. Surface is classified as stable. Low to moderate salt storage in the profile.

Vegetation - mixture of jarrah and marri with a second storey of bull banksia and sheoak. Occurrence of dieback is high as a result of past logging, road construction and mining activity. High position in landscape means many areas can be protected from further natural spread.

Hydrology - most of this unit south of the Helena is in active catchments. Water yield is only moderate due to well drained soils and high evapotranspiration rates.

ENVIRONMENTAL  
FACTORS

Land ownership - combination of private land (mainly north of the Metropolitan Region) and State forest.

Land use - uses include water production (catchment protection), hardwood production and, more recently, bauxite mining. Some agricultural clearing has occurred mainly north of Perth. All of this unit which is in State forest north of Collie is currently held under mineral lease for bauxite.

OTHER PLANNING  
CONSIDERATIONS  
& CONSTRAINTS

No outstanding landscape attractions. Unit has physical capacity to absorb intensive activities and uses such as picnicking and trail bike riding in selected locations. Number of former mill sites provide attractive focal points for development.

Most uses are currently prohibited as the result of catchment regulations and/or quarantine restrictions on access. However, a few areas have been developed with the consent of water supply authorities. The suitability of portions of this unit (within State forest) for future recreational development is uncertain until future mining plans are resolved.

MANAGEMENT UNIT

LATERITIC UPLANDS (contd)

RESOURCE EVALUATION  
FACTORS

DESCRIPTION

CAPABILITY/SUITABILITY  
FOR RECREATION

Accessibility - portion in State forest is well  
roaded. Vehicular access presently restricted,  
as the result of dieback quarantine regulations.

Legislative constraints - water catchments and  
reserves, timber permits, apiary sites,  
bauxite mining leases.

Environmental constraints - high potential for  
damage from jarrah dieback disease.

Suitable for:

Harnessed catchments - (See  
Appendix C).

Other areas - picnicking,  
driving for pleasure, bush-  
walking, orienteering, nature  
study, solitude, car rallying,  
demonstration forest tours.



MANAGEMENT UNIT

MONADNOCKS

RESOURCE EVALUATION  
FACTORS

DESCRIPTION

Landform and soils - residual granite outcrops rising several hundred metres above the Darling Plateau. Steep slopes with shallow loamy soils and large areas of exposed granite. Surface classified as erosional.

Vegetation - mixed jarrah and marri with minor component of wandoo and butterbark. Diverse understorey, both in terms of number of species and structure. Dieback occurrence presently low. Unit is considered to be protectable from further natural spread due to elevated position and limited road access.

Hydrology - rapid surface runoff and high water yield per unit area as result of steep topography and shallow soils.

ENVIRONMENTAL  
FACTORS

The monadnocks provide outstanding views of the surrounding countryside. This is a highly attractive landform due to large rock outcrops, varied flora and steep topography. Additional road access should be excluded to minimise the problem of erosion and dieback spread.

Land ownership - State forest.

Land use - major uses include water production (catchment protection), recreation and conservation of fauna and flora. With the exception of Mt Dale Picnic Area, recreational use of this landform has been largely confined to dispersed activities such as bushwalking and rock climbing.

Accessibility - most of the monadnocks are situated close to the Albany Highway and within 80 km of Perth. Road access within this unit is generally restricted to the surrounding uplands (two exceptions are Eagle Hill and Mt Dale). Area is presently within quarantine boundaries.

OTHER PLANNING  
CONSIDERATIONS  
& CONSTRAINTS

Unit is subject to water supply regulations governing the recreational use of catchments. Other areas are better suited (both from an environmental and land use standpoint) to more intensive developments and activities such as picnicking.

CAPABILITY/SUITABILITY  
FOR RECREATION

MANAGEMENT UNIT

MONADNOCKS (contd)

RESOURCE EVALUATION FACTORS	DESCRIPTION	CAPABILITY/SUITABILITY FOR RECREATION
	<p><u>Legislative constraints</u> - water catchments and reserves, <u>timber permits</u>, apiary sites, bauxite mining leases, forest quarantine.</p> <p><u>Environmental constraints</u> - are in salt sensitive areas, have vegetation which is susceptible to jarrah dieback disease, and have steep and erodable slopes.</p>	<p><u>Suitable for:</u></p> <p>Non-motorised low intensity recreation activities such as bushwalking which are compatible with conservation of flora and fauna. Provides scenic landscape from adjacent areas. Rock climbing.</p>

MANAGEMENT UNIT

EASTERN WOODLANDS

RESOURCE EVALUATION  
FACTORS

DESCRIPTION

CAPABILITY/SUITABILITY  
FOR RECREATION

Landform and soils - broad valleys, low undulating divides and uplands characterised by gentle slopes. Soils range from sands overlying mottled clays on valley floors to laterite mantled ridges. Soils have high accumulations of salt; bauxite deposits more limited in size.

Vegetation - open woodland of flooded gum and wandoo and areas of treeless shrubland on valley floors. Predominantly jarrah and some marri with wandoo on the dissected lateritic slopes. Second storey of banksia and sheoak present in western uplands is largely missing; shrub layer is low and forest has a much more open appearance. Dieback occurrence low and unit considered to be protectable.

Hydrology - area of low water yield per unit area due to gentle landform and high evapotranspiration. Few surface water resources. Valley floors are seasonally waterlogged.

Land ownership - mixture of State forest and private property. Much of the unit north of the Great Eastern Highway and along the eastern boundary of System 6 is in private ownership.

Land use - major uses include the production of timber and water. Much of the unit is in active catchment and therefore most recreation activities are not permitted. Extensive areas to the north and east have been cleared for agriculture (primarily for sheep and grain production).

Unit is suited to extensive recreation activities such as orienteering. Areas of agricultural clearing interspersed among open woodland add variety to the landscape and provides numerous panoramic vistas which are ideal for scenic drives. Greatest environment risk is the further spread of dieback by off-road vehicular activity. This is particularly true of the shallow upland valleys (Goon-aping surface) where all forms of active recreation should be avoided.

Under present catchment management policy recreation activities are restricted. Unit is considerable distance from population centres and has been subjected to fewer usage pressures than is the case in the western portions of State forest.

ENVIRONMENTAL  
FACTORS

OTHER PLANNING  
CONSIDERATIONS  
& CONSTRAINTS

MANAGEMENT UNIT

EASTERN WOODLANDS (contd)

RESOURCE EVALUATION  
FACTORS

DESCRIPTION

CAPABILITY/SUITABILITY  
FOR RECREATION

Accessibility - there are few all-weather roads. Large portions of this unit are currently off limits to vehicular access as a result of quarantine regulations. The area is generally further from population centres than other land units in the region.

Legislative constraints - water catchments and reserves, timber permits, apiary sites, bauxite mining leases, forest quarantine.

Environmental constraints - introduction of dieback has potential to cause increase in stream salinity by destroying native vegetation.

Suitable for:

Harnessed catchments - see Appendix C. (includes quarantined areas).

Other areas - scenic drives and forest tours, picnicking, bushwalking, nature study, orienteering, solitude, tent and backpack camping, car rallying and trail/trial bike use in designated areas.

APPENDIX C : CLASSIFICATION FOR RECREATIONAL USE  
OF LAND AND WATER RESOURCES ASSOCIATED  
WITH CATCHMENT AND WATER RESERVES IN  
STATE FOREST (DARLING RANGE)

CLASSIFICATION FOR RECREATIONAL USE OF LAND AND WATER RESOURCES ASSOCIATED  
WITH CATCHMENT AND WATER RESERVES AND STATE FOREST IN THE DARLING RANGE

Explanation of Terms

- Picnicking - a person or group of people eating a prepared meal in the open air.
- Barbecueing - a person or group of people cooking and then eating a meal in the open at an approved site.
- Approved - by the appropriate Water Authority and the Forests Department (unless otherwise qualified).
- Terminal - A reservoir is defined as terminal if it is directly supplying water into the reticulation system.
- Non Terminal - A reservoir is defined as non-terminal if it does not supply water directly into the reticulation system. In these cases water is first transferred into the terminal reservoir. The proposed South Canning Dam is an example of a non-terminal reservoir.

This classification was prepared after agreement was reached at a meeting of representatives of the Forests Department, Department of Youth, Sport and Recreation, Public Works Department and Metropolitan Water Board, July 31, 1979.

Zone 1, Zone 2, Zone 3 are defined in "A Study of Catchments and Recreation in Western Australia" by the Advisory Committee on the Purity of Water 1977 (see Fig. 5).

Activities mentioned in these sheets are intended to be indicative of types of activities. A more comprehensive list of activities, together with their definition may be issued in the future.

	Use	Classification	Permitted Recreational Use
Reservoir	<p>Domestic Water Supply (includes those also used for both irrigation and domestic supply)</p> <p>Irrigation</p>	<p>Pipehead/Pumpback</p> <p>Terminal</p> <p>Non Terminal</p>	<p>Recreational use of impounded water will not be permitted.</p> <p>Recreational use of impounded water will not be permitted unless research demonstrates that there will be no detrimental effects to the safety of the dam or to public health.</p> <p>Recreational use of impounded water to be subject to the sanitary regulations of the Public Health Department and the Water Authorities and to other such limitations as the Water Authority considers necessary for preventing interference with its obligation to produce a safe potable domestic water supply.</p> <p>Recreational planning to be done in consultation with all relevant authorities.</p> <p>As for Non Terminal domestic water supply.</p>
Catchment Areas	Domestic supply	Pipehead/Pumpback	<ul style="list-style-type: none"> <li>• Driving - along approved roads</li> <li>• Bushwalking - along Bibbulmun Track only</li> <li>• Barbecueing - at sites approved by the Water Authority</li> </ul>

	Use	Classification	Permitted Recreational Use
Catchment Areas (contd)	Domestic Supply (contd)	Terminal 1 (a) Zone 1  (b) Zone 2  (c) Zone 3  Non Terminal	<ul style="list-style-type: none"> <li>• Driving - along approved roads</li> <li>• Bushwalking - along Bibbulmun Track only</li> <li>• Barbecueing - at sites approved by the Water Authority</li> <li>• Bushwalking - all types</li> <li>• Driving - along approved roads</li> <li>• Picnicking - unrestricted for small groups (10 say) during daylight hours.</li> <li>• Barbecueing - at approved sites.</li> <li>• Bushwalking - all types</li> <li>• Driving - along approved roads</li> <li>• Picnicking - unrestricted for small groups (say 10) during daylight hours</li> <li>• Barbecueing - at approved sites</li> <li>• Car rallying along routes approved</li> <li>• Trail bike riding where approved</li> <li>• Camping where approved (Note: no camping is to be permitted on Helena, Lower Helena or any of the Metropolitan Water Board catchments)</li> </ul> <p style="text-align: right;">As for Terminal Zone 3</p>



	Use	Classification	Permitted Recreational Use
<p>Catchment Areas (contd)</p> <p>Gazetted Water Reserves</p> <p>State forest not on Water Reserves and Catchment Areas</p>	<p>Irrigation</p> <p>Not utilised at present</p>		<ul style="list-style-type: none"> <li>• As for Terminal Zone 3 with the addition of canoeing in areas approved by the Water Authority</li> <li>• Activities as above in such a manner as not to prejudice the future water quality, plus horse riding</li> <li>• All activities as per Forests Department Land Use Management Planning</li> </ul>

APPENDIX D : DIVISIONAL RECREATION  
WORKING PLAN FORMAT

## FORMAT FOR THE DIVISIONAL RECREATION WORKING PLAN

### Part 1 : Objective and Strategies

1. Write divisional objective (to be compatible with Departmental and Regional objective.)
2. List appropriate strategies from Regional Framework Plan.

### Part 2 : The Resource

1. Define the area to which plan applies.
2. Subdivide into Recreation Management Units (R F P)
3. Nominate specific zones within units (e.g. Helena Plantation, Brookton Highway, Canning Dam etc).
4. Inventory and update classification of sites and facilities/developments by zones.
5. Analyse available visitor survey information and forecast future use by zone.
6. Compare current and projected uses with current facilities so as to indicate potential needs for each zone.

### Part 3 : The Plan

1. Specify development proposals and management objectives in each zone so as to meet needs, according to the management strategies.
2. Assign priorities.
3. Prepare 5 year works programme.

### Part 4 : Implementation

1. Index all job prescriptions, specifications, site designs, standards etc to be followed.
2. Outline recreation responsibilities and 'chain of command' in the division.
3. Specify maintenance standards, programmes and responsibilities.

4. Nominate plan update and review dates and responsibilities.

#### Appendices

1. Liaison with other recreation bodies -  
e.g. Shire, D.Y.S.R, N.P.A, M.W.A, P.W.D,  
Education Department, Clubs.
2. Actual copies of prescriptions, specifications  
etc.
3. Maps and plans.