



Department of Conservation  
and Land Management

# ANNUAL REPORT



1st JULY 1986 to 30th JUNE 1987

## HON MINISTER FOR CONSERVATION AND LAND MANAGEMENT

In accordance with Section 62 of the Financial Administration and Audit Act 1985, I submit for your information and presentation to Parliament the Annual Reports of the Department of Conservation and Land Management and the Roadside Vegetation Conservation Committee, for the year ending 30 June 1987.

It is to be noted that exemption for this Annual Report has been granted by the Treasurer from the requirement to supply performance indicators as prescribed in the Financial Administration and Audit Act.

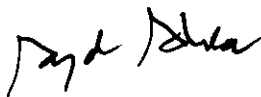
The exemption was sought because:

- the Department's strategic plan portion of its corporate plan was not in place for the budgeting period for 1986/87;
- as a consequence, specific outcomes for the financial year to which effectiveness indicators could be related were not formally identified;
- neither was the required management information identified and collected;
- a considerable amount of statistical information, customarily collected and presented in the Annual Report would continue to provide for some appreciation of the Department's activities and efficiency.

The Department now has its strategic plan and has implemented a cyclical review in which specific outcomes for each financial year will be set. Once each program has been developed and its objectives carefully determined, performance indicators will be developed and measurement data identified. Information and education relating to performance indicators is about to be promulgated through the Department.

It is anticipated that a set of effectiveness and efficiency performance indicators will accompany the Department's 1987/88 Annual Report.

In this year's Report, statistical information relating to the Department's performance will be included as appendices. Internally, regular financial and activity reporting at cost centre, regional and departmental levels has been used to monitor organisational performance.



Syd Shea  
EXECUTIVE DIRECTOR



Cover Photo: Pied Oystercatcher (*Haematopus ostralegus*)

**This document contains the annual reports of the:**

- Department of Conservation and Land Management
- Lands and Forest Commission
- National Parks and Nature Conservation Authority
- Forest Production Council
- Roadside Vegetation Conservation Committee

# Contents

---

<b>GENERAL INFORMATION</b>	7
Functions under the Legislation	7
Other Legislation	8
Ministerial Responsibility	9
Corporate Objectives	9
Administrative Structure	13
Divisional and Branch Responsibilities	13
Locations	17
Further Information	19
<b>EXECUTIVE DIRECTOR'S REVIEW</b>	21
<b>CHANGE AND ORGANISATIONAL DEVELOPMENT</b>	23
Government Policy and Legislative Changes	23
<b>POLICY DEVELOPMENT</b>	25
Land Classification and Tenure	25
Timber Strategy	25
Timber Royalty	25
Amendment to Legislation	26
Mining in National Parks and Nature Reserves	26
New Conservation Lands	26
Conservation on CALM Lands	26
Conservation Outside CALM Lands	26
External Participation in Policy Development	26
Policy Statements	27
<b>THE LAND ESTATE</b>	29
Forest Areas	29
National Parks	30
Marine Parks	31
Conservation of Flora and Fauna Reserves	32
Conservation and Recreation Reserves	32
Purchases of Freehold Land	32

<b>LAND MANAGEMENT</b>	33
Forests	33
National Parks	37
Nature Reserves	40
Marine Parks	41
<b>RESOURCE PRODUCTION</b>	43
Wood Production	43
Log Production	44
Tree Nurseries	48
Seed Store	49
<b>RESEARCH</b>	51
Biogeography	51
Fauna Conservation	52
Fire	53
Flora Conservation	55
Jarrah Forest	56
Karri Forest	57
Pine	57
Plant Diseases and Pests	58
Rehabilitation	59
Wetlands and Waterbirds	60
Research Computing	61
<b>SERVICES</b>	63
Computing Branch	63
Economics Branch	64
Engineering Services Branch	65
Environmental Protection Branch	66
Finance Branch	67
Fire Protection Branch	68
Information Branch	70
Internal Audit Section	72
Inventory Branch	72
Library Section	74
Mapping Branch	74
Personnel Branch	75
Planning Branch	78
Radio Communications Section	79
Records Section	80
Recreation and Landscape Branch	80
Silviculture Branch	81
Timber Production Branch	82
Wildlife And Land Administration Branch	84
Wildlife Protection Branch	85
<b>FINANCIAL STATEMENTS</b>	87
Variation from Estimates	93
Variation from Capital Estimates	98
Auditor General's Opinion	109

<b>REPORTS OF THE CONTROLLING BODIES</b>	111
Lands and Forest Commission	113
National Parks and Nature Conservation Authority	116
Forest Production Council	128
<b>ROADSIDE VEGETATION CONSERVATION COMMITTEE</b>	132
<b>APPENDICES</b>	135



## GENERAL INFORMATION

---

The Department of Conservation and Land Management and three statutory controlling bodies were established under the Conservation and Land Management Act 1984. The controlling bodies are the Lands and Forest Commission, the National Parks and Nature Conservation Authority and the Forest Production Council. All are responsible to the Minister for Conservation and Land Management.

### Functions under the Legislation

The Conservation and Land Management Act specifies a series of functions for the three controlling bodies<sup>1</sup> and the Department. In brief the functions of the Lands and Forest Commission are to:-

- have vested in it, State forests and timber reserves;
- develop policies to achieve or promote the multiple use and sustained yield of the forest resource for the satisfaction of long term social and economic needs;
- process and monitor land management plans for forest areas;
- advise the Minister for Conservation and Land Management on appropriate matters;
- provide advice to others in the public interest;
- instigate appropriate research.

National Parks and Nature Conservation Authority are to:-

- have vested in it, national parks, nature reserves, marine parks and marine nature reserves;
- develop policies for the preservation and enjoyment of the natural environment and the promotion of appreciation of flora and fauna, consistent with the essential purposes of parks and reserves;
- process and monitor land management plans for parks and reserves;
- advise the Minister on the development of policies for the conservation and management of flora and fauna;
- provide advice to others in the public interest;
- instigate appropriate research.

Forest Production Council are to:-

- advise the Minister on:
  - matters relevant to production from State forests and timber reserves;
  - improvement in production consistent with maintenance of other forest values;
  - improvement in use, processing and marketing of forest produce;

<sup>1</sup> While the functions of the three controlling bodies are reported here, their activities and achievements for 1986/87 are described in a separate report bound with this volume.

- research to achieve multiple use and sustained yield of the forest resource;
- contents of proposed management plans.

Department of Conservation and Land Management are to:-

- manage State forests, national parks, nature reserves and other lands and the associated forest produce, fauna and flora;
- assist the Commission, Authority and Council in their functions;
- encourage the development of forest production requirements;
- conserve and protect flora and fauna, and administer the Wildlife Conservation Act;
- carry out research into land management, and conservation and protection of flora and fauna;
- advise and co-operate with others in the public interest;
- advise the Minister on land matters.

## Other Legislation

In its nature conservation functions the Department administers the Wildlife Conservation Act 1950 and associated regulations. This Act applies to any indigenous or migratory fauna and any flora native to the State, whether found on Crown land, private land or territorial waters of the Commonwealth. The essential purpose is the conservation of flora and fauna in the State.

Although the Forests Act 1918 and the National Parks Authority Act 1976 were repealed to make way for the Conservation and Land Management Act 1984, the Forests regulations and the National Parks regulations remain in force until replaced by new regulations.

Associated with the passage of the Conservation and Land Management Act in 1984 were appropriate amendments to the Wildlife Conservation Act 1950, the Land Act 1933, the Bush Fires Act 1954, the Agriculture and Related Resources Protection Act 1976, the Fisheries Act 1905, and the Public Works Act 1902.

The Department also administers the following acts:

Timber Industry Regulation Act 1926-1969, which empowers it to record, investigate and secure safe working practices in the bush and mill operations of the timber industry.

Sandalwood Act 1929-1934, which gives control over sandalwood gathering via a fixed quota, licensing and limiting collection of sandalwood on private property.

The Minister for Conservation and Land Management has a specific role under the Mining Act 1978. Applications for mining tenements on land managed by the Department, and some associated land, must be referred by the Minister for Mines for the Minister's concurrence or opinion. The Department becomes involved in drawing up the conditions for mining activity.

Other acts under which the Department has specific responsibilities are:



Alumina Refinery Agreement Act, 1961-1974  
Alumina Refinery (Pinjarra) Agreement Act, 1969-1976  
Alumina Refinery (Wagerup) Agreement and Acts Amendment Act, 1978  
Alumina Refinery (Worsley) Agreement Act Amendment Act, 1978  
Bush Fires Act, 1954-1981  
Collie Coal (Western Collieries) Agreement Act, 1979  
Land Tax Assessment Act, 1976-1980  
Wesply (Dardanup) Agreement Authorization Act, 1975  
Wood Chipping Industry Agreement Act, 1969-1973  
Wundowie Charcoal Iron Industry Sale Agreement Act, 1974-1979

Other acts which affect the Department's land management responsibilities are:

Aboriginal Heritage Act, 1972-1980  
Aerial Spraying Control Act, 1966-1978  
Agriculture and Related Resources Protection Act, 1976-1981  
Agriculture Protection Board Act, 1950-1976  
Collie Coal (Western Collieries) Agreement Act, 1979  
Control of Vehicles (Offroad Areas) Act, 1978  
Country Areas Water Supply Act, 1947-1981  
Environmental Protection Act, 1986  
Land Act, 1933-1980  
Local Government Act, 1960-1981  
Main Roads Act, 1930-1981  
Metropolitan Water Supply Sewerage & Drainage Act, 1909-1981  
Mineral Sands (Western Titanium) Agreement Act, 1975  
Rights in Water and Irrigation Act, 1914-1981  
Soil and Land Conservation Act, 1945-1982  
State Energy Commission Act, 1979-1981

International treaties signed by the Commonwealth Government which may impinge on the Department's responsibility are:-

CITES - Convention on International Trade in Endangered Species  
Ramsar Agreement - Convention on Wetlands of International Importance especially as Waterfowl Habitat  
JAMBA - Japan Australia Migratory Birds Agreement

## **Ministerial Responsibility**

The Department is responsible to the Minister for Conservation and Land Management.

## **Corporate Objectives**

In recognising that Western Australia has a beautiful and diverse natural environment which provides material, aesthetic and spiritual benefits and that the natural environment is an essential component of the quality of life for Western Australians, a statement of mission adopted for the Department of Conservation and Land Management is:-

*TO PROVIDE FOR THE USE OF THE NATURAL ENVIRONMENT WITHOUT  
DETRACTING FROM POSSIBLE FUTURE USE.*

The scope of the Department's responsibilities is represented by its charter which is:

*TO CONSERVE WESTERN AUSTRALIA'S WILDLIFE AND MANAGE PUBLIC  
LANDS AND WATERS ENTRUSTED TO THE DEPARTMENT FOR THE BENEFIT  
OF PRESENT AND FUTURE GENERATIONS.*

Primary objectives are:

**Management**

To protect, restore and enhance the value of resources entrusted to the Department so as to meet, as far as possible, the diverse expectations of the community.

**Conservation**

To conserve the indigenous plant and animal species and environmental processes in natural habitats throughout the State.

**Production**

To provide and regulate the supply of renewable resources on a sustained yield basis for the satisfaction of long term social and economic needs, and in a manner that minimises impact on other values.

**Recreation**

To facilitate the public enjoyment of the natural attributes of public lands and reserved waters in a manner that does not compromise conservation and other management objectives.

**Knowledge**

To seek a better understanding of the natural environment and to promote awareness and appreciation of its values.

To achieve the primary objectives the Department will:

*Provide an effective administrative framework for the conservation of wildlife throughout the State and the management of lands, waters and natural resources entrusted to the Department.*

This will involve:

- The maintenance of a Policy Directorate to establish, review and refine Departmental aims, policies and priorities; to monitor the implementation of management plans; and to see that goals are achieved.
- The maintenance of an operations wing to implement policies and management plans and to set up efficient financial, administrative and management systems.
- The provision of a Research Division to provide the scientific basis for conservation and land management, and provide scientific, environmental monitoring and advice to managers.
- The establishment of a system of regional and district management, where staff convert plans and policies into works programs, carry out the work, provide feedback on progress and policy and planning needs, and maintain close, constructive relationships with local communities.
- The maintenance of specialist branches to help to prepare management plans, to set standards and to assist with the implementation of research findings, new technology, and improved methods of conservation and land management.
- The development and maintenance of corporate information systems to facilitate the sharing of data, efficient communication and decision making.
- The maintenance of a well motivated and competent staff.
- The provision of programs for staff development and training.
- Ensuring liaison, co-operation and co-ordination with other agencies or people with a function or interest in conservation and land management.

- The maintenance of national and international liaison and co-operation in the field of nature conservation and the management of renewable natural resources.

*Establish and maintain a system of secure reserves which protect viable representative samples of all the State's natural ecosystems and species, both terrestrial and aquatic, as well as areas suitable for recreation and the production of renewable natural resources.*

This will involve:

- The development and maintenance, in conjunction with other government instrumentalities and the public, of a comprehensive data base on the occurrence and conservation status of the State's ecosystems and species.
- The maintenance of a representative committee to evaluate existing nature conservation reserves and to recommend additions, deletions or exchanges.
- Categorising lands and waters entrusted to the Department into priority use zones and applying the principle of multiple use to provide for the needs of nature conservation, recreation and production.
- Protecting ecosystems, landscape and the cultural heritage on lands and waters entrusted to the Department from damage by fire, disease, grazing, feral animals and people.
- Developing prescriptions for control of disturbance and for rehabilitation of damaged forests, parks and reserves.
- Opposing the incompatible use of lands and waters entrusted to the Department and opposing the release of such lands and waters for other purposes.

*Ensure that conservation and land management is carried out according to sound, well-researched scientific principles.*

This will involve:

- Carrying out, encouraging, supporting and publishing scientific, economic and social research relevant to the Department's needs.
- Establishing long-term monitoring of ecosystems and individual species, and of recreation requirements and effects.
- Developing and maintaining inventories of biological resources on lands and waters entrusted to the Department, and where appropriate, Statewide.
- Liaising with other research and land management organisations to define, prioritise and co-ordinate research programs and publishing results.
- Ensuring the efficient transmission of research findings into operational practice.

*Provide public education and information programs designed to increase community understanding of and support for nature conservation and natural land management.*

This will involve:

- The establishment of interpretation centres with appropriate facilities for education and activity programs.
- The dissemination of relevant information.
- The promotion of direct interaction between staff and the public.
- The encouragement and facilitation of publicity for nature conservation and natural resource management.

- The establishment of arboreta and trial plots to demonstrate the performance of trees and other plants to rural communities.
- The promotion and facilitation of the use of native trees and plants to combat land degradation, create wildlife habitat, conserve water resources and enhance the human environment.

*Encourage and assist the public to participate in the development of conservation and land management policies and the implementation of management and research programs.*

This will involve:

- The use of formal processes which involve the:
  - Lands and Forest Commission;
  - National Parks and Nature Conservation Authority;
  - Forest Production Council; and
  - public submissions to the planning process, as described in the Conservation and Land Management Act, 1984.
- The establishment of consultative and advisory committees, when appropriate, to facilitate an exchange of information between organisations and public groups and to provide advice to the Executive Director.
- The formation of 'friends' groups and similar associations and the organisation of voluntary assistance programs.
- The training of staff in the objectives and techniques of public participation.

*Prepare and implement management plans for lands and waters entrusted to the Department.*

This will involve:

- The establishment of priorities for management plan preparation according to set criteria.
- Restricting procedures to necessary operations to maintain public safety and the status quo of area management where no management plan exists.

*Prepare and implement wildlife management programs for wildlife throughout the State.*

This will involve:

- Providing special protection for declared rare (endangered) flora by regulating land use of their habitat.
- Managing rare animal populations to ensure their survival.

*Prepare and implement timber production strategies which meet the objectives of the State.*

This will involve:

- Continuous review of supply and demand data for wood products.
- The development of cost effective procedures for growing, processing and marketing timber at the level sustainable under sound forest management.
- Establishment of pine forests to supplement available hardwood supplies when necessary

*Manage exploitation of renewable natural resources according to the following principles:*

- resources are managed to ensure their long term conservation;
- a fair and equitable return is received for the resource;
- wherever possible the operation is commercially viable;
- the resource is managed to minimise waste.

*Develop opportunities for the recreational use of lands and waters entrusted to the Department in ways which:*

- are consistent with the purpose of the area;
- provide a return to the State for services and amenities;
- provide an equitable allocation of land and resources where there is competition between user groups;
- allow for commercial operators to provide services where appropriate.

## **Administrative Structure**

The administrative structure of the Department is headed by an Executive Director who is appointed by the Governor for a seven year term. Besides being the permanent head the Executive Director is a member of the Lands and Forest Commission, an ex-officio member of the National Parks and Nature Conservation Authority and Chairman of the Forest Production Council.

Two corporate decision-making groups oversee the diverse functions and responsibilities of the Department, and make up a Corporate Executive.

The Policy Directorate is headed by the Executive Director and comprises the General Manager, and three policy directors who are responsible for forests, national parks and recreation, and nature conservation. Its major task is to devise policy and liaise with the Operations Directorate about policy implementation.

The Operations Directorate is headed by the General Manager. The other members are the Divisional Managers of Research, Services, Forest Resources, Operations and Administration and Finance.

This executive structure, as at 30 June 1987, is shown in Figure 1.

Five research locations, sixteen specialist branches and eleven regions are responsible to the Policy and Operations Directorates. The detailed structure of divisions and branches, current at 30 June 1987, is shown in Figure 2, together with the names and qualifications of the officers occupying managerial positions. Regions are shown in Figure 3.

## **Divisional and Branch Responsibilities**

The essential tasks for divisions and branches are as follows:

**Economics Branch** - services the Policy Directorate with economic analysis and long term economic strategic planning for resources allocation and research.

**Research Division** - has ten major research programs designed to provide specialised information which will support conservation of flora and fauna, land and resource management planning in discrete areas of the CALM estate.

#### Services Division

Planning Branch - prepares management plans in draft and final form according to requirements of the Act and provides planning advice; co-ordinates the collection and analysis of visitor use data on Departmental lands and waters.

Recreation and Landscape Branch - provides landscape planning and design assistance, and recreation planning and management advice.

Fire Protection Branch - prepares fire protection and suppression plans, provides detection and aerial prescribed burning services, and conducts fire training courses.

Environmental Protection Branch - prepares guidelines and procedures for protection from dieback, weeds and vermin, evaluates mining proposals, and advises on implementation and rehabilitation.

Information Branch - produces publications, displays, media releases and audio-visuals, co-ordinates interpretation, education and public participation, and operates a rural advisory service.

Computing Branch - provides and maintains a digital computing facility with networking to major country locations.

Mapping Branch - provides management maps and a specialist mapping service for operational and public information requirements.

#### Forest Resources Division

Timber Production Branch - manages the commercial harvesting and log utilisation standards of hardwood and softwood round timber, organises sales and ensures realisation of the maximum value; arranges wood utilisation research; advises on timber quality, engineering and marketing.

Silviculture Branch - develops silvicultural guidelines and practices, advises on their implementation, nurseries and seed supplies.

Inventory Branch - services management operations of the Department with resource information and plans for forest production, disease protection; develops computer systems for a digital geographic information system.

#### Administration and Finance Division

Wildlife and Land Administration Branch - administers flora and fauna licences, prosecutions, permits and allocation of apiary sites; obtains land by purchases, exchange or by arranging a change of purpose of crown or reserved land; alienates State forest as required; issues leases; and prepares contracts.

Personnel Branch - administers human resource management through co-ordination of selection and training of staff, liaison with unions and industrial associations, conducting a safety, health and welfare program, and maintaining staff records.

Engineering Services Branch - administers the vehicle fleet, houses and buildings, and stores, and consults on the engineering of various projects.

Finance Branch - administers finances and maintains accounting systems and procedures.

#### Operations Division

Wildlife Protection Branch - protects native flora and fauna throughout the State and its waters, investigates and reports on compliance with the Wildlife Conservation Act and

FIGURE 1

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT  
EXECUTIVE STRUCTURE

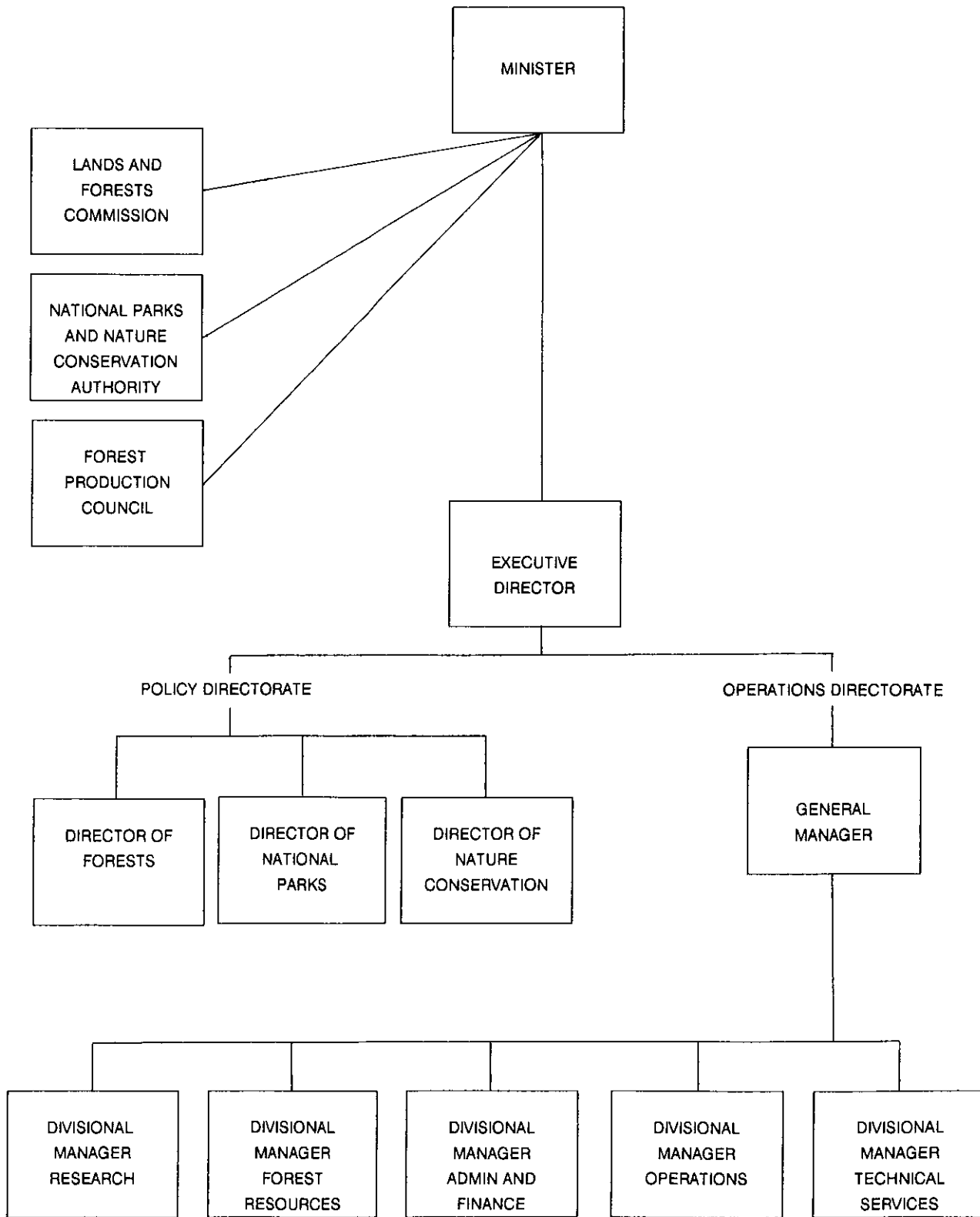
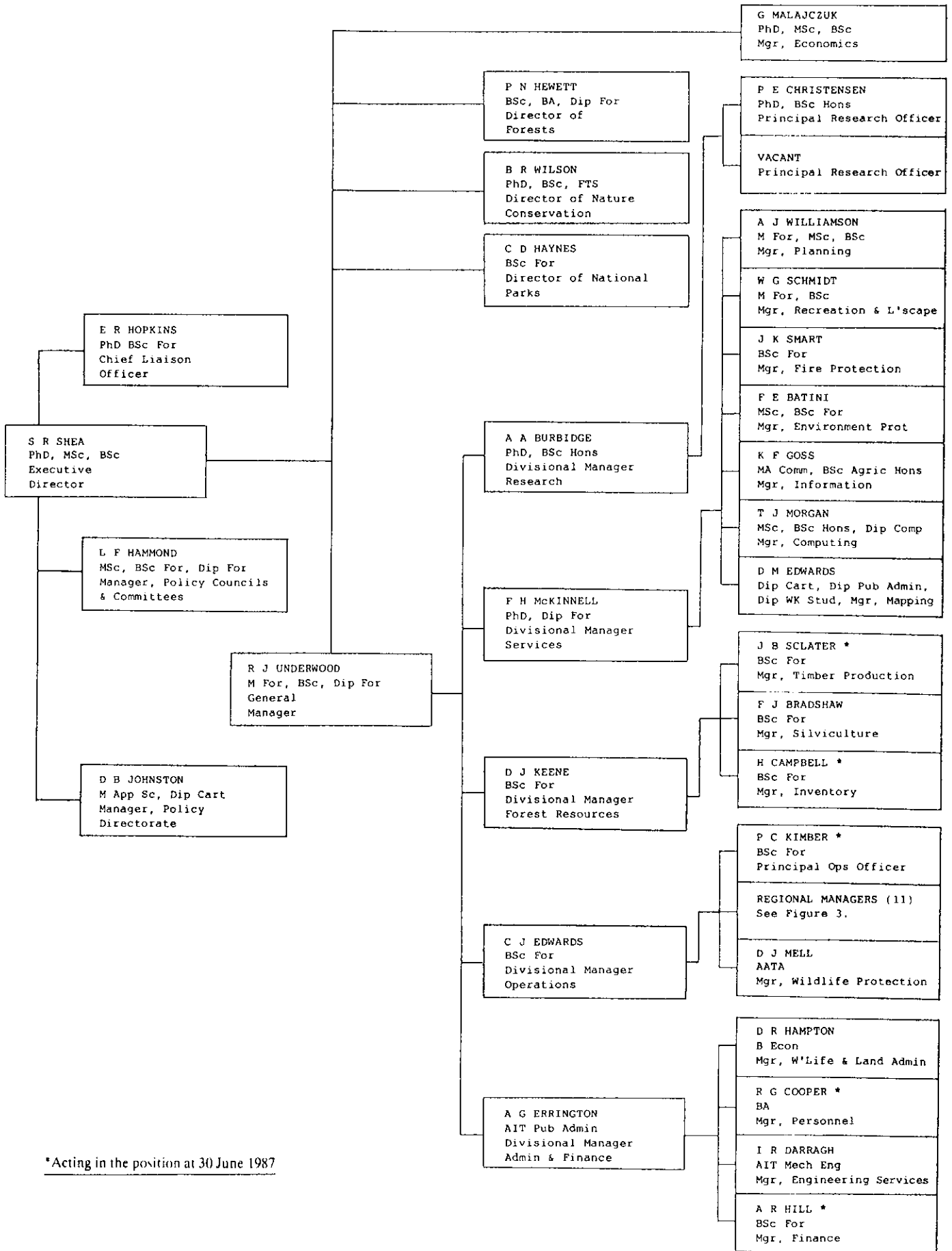




FIGURE 2

BRANCH STRUCTURE AS AT 30.6.87



\* Acting in the position at 30 June 1987

other related Acts and prosecutes as necessary, provides information and advice on wildlife protection and management.

Regions - carry out departmental operational functions.

The Department is extensively regionalised in a way which provides the benefits of small autonomous organisations in close proximity to their area of operations while providing access to services that are best provided by a larger integrated organisation. Regions are responsible for the management of all departmental lands and waters and for conservation of flora and fauna within their boundaries. According to the intensity of activity regions are subdivided into districts.

The general responsibilities allocated to regions are to:

- prepare financial estimates and manage approved budgets;
- participate in project teams preparing land and marine area management plans;
- prepare and supervise work programs (based on approved management plans or necessary operations) for staff, employees and contractors;
- help, guide and train departmental staff in the region and promote the health and safety of the departmental personnel;
- ensure the conservation of indigenous flora and fauna;
- supervise and regulate industry (e.g. wildflower pickers, apiarists, timber and mining operations) on departmental lands;
- preserve or restore the natural environment on departmental land;
- provide information and advice on land management and conservation to people in the region; promote conservation and good land and marine area management;
- provide a focal point for interaction between research and operations; and
- liaise with State government and local government agencies in the region; represent the Department on interdisciplinary working groups, and advisory committees.

The State is divided into eleven regions, each to eventually be self-contained. Each has a regional manager who responds to the Divisional Manager, Operations.

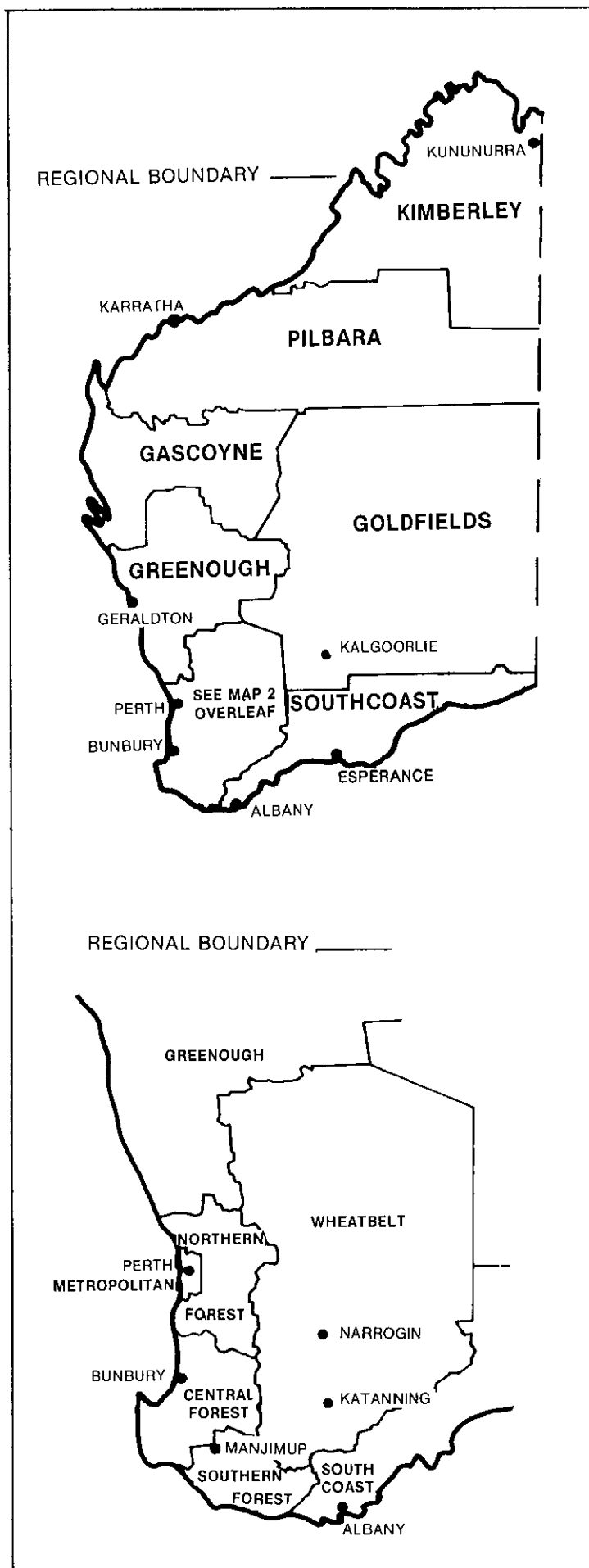
## Locations

The Policy Directorate is located at Matilda Bay. The Operations Directorate and many of the specialist branches are based at Como. The Planning, and Landscape and Recreation branches, as well as a group of Wildlife Officers, are located at Canning Bridge. Research laboratories are at Woodvale, Como, Dwellingup, Manjimup and Busseton.

Regional office locations are shown in Figure 3.

On 30 June 1987, the Department had officers placed at many other locations, as follows:

district offices	16 locations
sub-district offices	3 locations
national park rangers	31 locations
wildlife officers	13 locations
nurseries	6 locations



**FIG. 3 REGIONAL ORGANISATION AS AT 30.6.87**

**Regional Managers**

D.A. HASWELL\* BSc For Metropolitan

G.B. PEET MSc, BSc, Dip For Northern Forest

D. SPRIGGINS BSc For Central Forest

A. WALKER BSc For Southern Forest

J.R. WATSON PhD, BSc ARIC South Coast

K.J. WALLACE BSc Hons, Dip Ed Wheatbelt

G. MERCER B App Sc, Grad Dip (Env Studies), Dip T Greenough and Gascoyne

I.G. KEALLY\* BSc For Goldfields

A.N. START PhD, BSc ARIC Pilbara and Gascoyne

C.C. DONE BSc For Kimberley

\* Acting in the position at 30 June 1987.

## **Further Information**

Further information about the functions and activities of the Department can be obtained from the following sources by:

- writing to the Executive Director, PO Box 104, Como, WA, 6152, or telephoning 386 8811.
- visiting the operations headquarters at 50 Hayman Road, Como, or telephoning 367 0333.
- subscribing to *Landscape*, a quarterly conservation, wildlife and forests magazine published by the Department, which features current policy and management issues.

## EXECUTIVE DIRECTOR'S REVIEW

---

The formation of CALM from three former agencies occurred two and a half years ago. Although the pace of Departmental activities has not lessened during the past twelve months, there has been greater opportunity to consolidate the Department and to plan new directions.

One of the most difficult problems that the Department faces is the environmental controversy over management and reservation of our forests. In April this year, the Government released CALM's draft regional management plans for the south-west forest regions and a draft timber strategy. These documents are an important first step towards resolving the conflict over forest management and providing a long-term plan to manage the forests on behalf of the community.

CALM is committed to the principle that it is managing land and waters on behalf of the public and that the public should be involved as much as possible in the planning for these areas. To this end, CALM launched its biggest ever public participation program for the forest plans under the banner of "What Future for Our Forests? - You Choose". The program has been very successful as evidenced by the fact that the plans and strategy have attracted about 4 000 submissions.

CALM received international acclaim for its part in co-ordinating the whale rescue at Augusta in July-August 1986. There have been many examples of the advantages of an integrated land management agency since CALM's formation. But this event was a spectacular demonstration of the Department's capacity to handle emergency situations.

It was ironic that the organisation that was used in the whale rescue was based on a well developed system which the Department employs to control major wildfires. Once again this year the Department was called to a large number of wildfires, the most dangerous of which threatened the town of Walpole in February.

While there were a number of high profile events during the past year which received media attention, the Department has also made progress in a variety of areas which are not visible but which are crucial to its successful operation. A corporate plan and strategy plan is nearly completed, 17 policy statements have been developed, major recreation and landscape training has been conducted throughout the Department, professionally planned landscape developments are being implemented throughout the State, a career structure has been developed for national park rangers and the first Aboriginal national park ranger program has been brought to completion and major advances have been made in the development of efficient utilisation of the State's hardwood species. All these initiatives, and many more, have enabled the Department to take on added responsibilities (during the year, the Department had three major national parks, the Bungle Bungle, Ningaloo and Marmion Marine Park added to its estate) without increasing its staff resources.

One of the major objectives the Department has set itself was the attempt to improve its efficiency and to reduce the drain on the State's Treasury. In its year of formation, CALM effectively required a subsidy from the Treasury of 55 per cent of its total expenditure. In the coming year, this will be reduced to 43 per cent. This has been achieved by more efficient use of resources and by a more entrepreneurial approach to the commercial activities that the Department is engaged in.

Once again, I would like to record my appreciation of the effort that everybody in the Department has put into achieving its objectives. Complaints about the Public Service are fashionable these days. I can honestly say that the greatest pleasure that I obtain from my job is observing the commitment, dedication and enthusiasm of the people who make up this Department.

I also record my appreciation of the assistance of the Chairman of the Lands and Forest Commission, Mr Bruce Beggs, the Chairman of the National Parks and Nature Conservation Authority, Mr Norman Halse, and members of the Authority and the Forest Production Council throughout the year.

# **CHANGE AND ORGANISATIONAL DEVELOPMENT**

## **Government Policy and Legislative Changes**

During 1986/87 the following major activities were committed to the Department by Government decisions:

1. Timber strategy and regional management plans for the forest areas - planning, consultation and public information.
2. Bailey Committee Report - consultation and review.
3. Timber royalties - review and proposals for a new system.
4. Shark Bay region - land use planning, consultation and joint operation of Monkey Mia visitor centre.
5. Ningaloo Marine Park - vesting, planning and management.
6. Bungle Bungle National Park - vesting, planning and management.
7. Softwood sharefarming - extension to the Albany region.
8. W.A. Silicon Trust, proposal for charcoal production - resource and cost estimates.
9. Kimberley Land Use Study - consultation, planning and mapping.

There were no enacted changes to the Conservation and Land Management Act or other acts for which the Department is responsible. However, a "reserves bill" (Land Act 1933) which includes a number of changes to the CALM estate was still before Parliament.

As part of the Government's commitment to reduce total State public sector employment, the Department completed a staffing plan specifying a reduction of three per cent, or 44.38 Full Time Equivalent positions, by 1 July 1987. The plan was approved by the Minister for Budget Management on 16 January 1987 and subsequently carried out.

### **Constraints on the Department's Operations**

The staff reduction program described above and an associated "freeze" on filling vacancies, which lasted from 24 June 1986 to 16 January 1987, had an impact on Departmental operations. It was necessary to re-allocate staff positions to higher priority areas, which placed increased pressure on staff and functions in forest operations and general administrative support.

### **Organisational Change**

The changes in organisational structure, described in the 1985/86 Annual Report, were fully implemented in 1986/87 and are incorporated into Figures 1 and 2.

The newly formed Division of Forest Resources acquired the functions of the former Timber Bureau and Mr D.J. Keene was appointed its Divisional Manager. The Timber Production, Silviculture and Inventory branches are grouped in this Division along with the wood utilisation research facilities and project.



The newly created position of Divisional manager, to lead the Research Division which is now a single entity in the Operations wing of the Department, was filled by Dr A.A. Burbidge. The new organisational structure provides for a corporate team of two Senior Principal Research Scientists and two Principal Research Scientists, and eleven integrated research areas each with a project team and program leader.

Staff are located at five research centres (Busselton, Como, Dwellingup, Manjimup, Woodvale), each under the administrative control of a research centre manager, and at two regional offices (Kalgoorlie, Karratha) which are administered from Woodvale. Some Como research centre staff are located at Narrogin and Wanneroo district offices.

The research programs and team leaders as at 30 June 1987 are as follows:

Ecosystem based:

jarrah	I. Abbott
karri	L. McCaw
pine	J. McGrath
wetlands and waterbirds	J. Lane

Process/goal based:

biogeography	N. McKenzie
fauna conservation	R. Prince
flora conservation	S. Hopper
fire	N. Burrows
plant diseases	J. Tippett
rehabilitation	J. Bartle

Services:

computing	M. Choo
executive and administrative support	A. Burbidge

With further re-allocation of staff positions substantial progress was made in bringing the South Coast and Pilbara regions to a fully functional level.

While the Gascoyne Region remains as the only region not to be established, a district manager was appointed to Exmouth under the supervision of the Regional Manager, Greenough.

## **POLICY DEVELOPMENT**

---

For 1986/87 a great deal of emphasis for policy development came through the necessity to produce the three regional plans for the south-west of the State. These plans were released for public consideration in April after months of extraordinary effort by staff at all levels in the Department. The plans themselves were made necessary by the expiry in 1987 of the existing general working plan of the former Forests Department. The plans contain the development of proposals for a timber strategy, land classification and tenure, and revisions of policy statements, all of which are discussed in separate sections below.

### **Land Classification and Tenure**

When the Department of Conservation and Land Management was formed, it was recognised that the Department offered the possibility of drawing together a variety of forms of land tenure into a more rational and cohesive system. The former Forests Department had been responsible for State forest and timber reserves. The former National Parks Authority had responsibility for national parks and some other miscellaneous reserves and the Fisheries and Wildlife Department had responsibility for nature reserves.

Both the Department and the associated controlling bodies, the Lands and Forest Commission and the National Parks and Nature Conservation Authority, recognised the need to create a rational system which would enable some broader range of alternatives for land classification and also enable the transfer of anomalous lands to a more appropriate purpose. To the existing forms of classification were suggested additions for State park and forest park/marine park. The vesting, tenure and purpose of all classifications of land have been described in the supporting papers for the draft management plans. The Department believes that this description sets out in a cohesive form the comparative status of all land classifications which are proposed.

### **Timber Strategy**

A draft timber strategy plan was also released for public comment. A document of this kind has never been produced before. It sets out in detail, the areas of forest which will be used for timber production, how the timber is to be allocated and the quantity of timber which will be taken from the forests over the next 10 years.

The strategy provides for an efficient sustainable industry while at the same time ensuring that water catchments are protected and conservation and recreation in State forest are enhanced.

### **Timber Royalty**

During the year the Department completed a major review of the royalty system for timber produced from State forest and timber reserves. For the first time a system has been developed which determines royalty levels on the basis of the cost of growing the forest to millable size. Previously royalties were calculated mainly from the residual value of sawn product after deducting the costs of harvesting the logs and processing them through a sawmill. The new system takes into account the market value of timber and also ensures that Government receives sufficient revenue to provide the funds needed to grow a new forest and to maintain it until maturity. Royalty increases towards the new "target" royalties have commenced and negotiation with the industry is continuing.

## **Amendment to Legislation**

Anticipating that a number of new land classifications will be required and other demands will be placed on the Department by factors associated with a new land classification system, several staff have been giving attention to possible changes to the Conservation and Land Management Act which will be drafted once public response to the forest region plans has been analysed.

## **Mining in National Parks and Nature Reserves**

In November 1986 the Bailey Committee, which comprised Dr John Bailey, Deputy Chairman of the National Parks and Nature Conservation Authority and a member of the Environmental Protection Authority, Dr Philip Playford, Director of Geological Survey, Department of Mines, and Mr Chris Haynes, Director of National Parks and Recreation, reported to the Government. The Report was released for public comment shortly before the end of 1986 and following public comment has been analysed by a review committee on which Mr Frank Batini represented the Department. The report was completed towards the end of the financial year.

## **New Conservation Lands**

Progressive review and implementation of the EPA "Systems" recommendations continues according to established procedures. Considerable liaison is required with interested parties in developing policies for the implementation of each recommendation.

Negotiations over the past year have resulted in: the declaration of Western Australia's first two marine parks at Ningaloo and Marmion; an important extension to the Fitzgerald River National Park; and, in consultation with the State Planning Commission, a land-use plan for Shark Bay which has been released for public comment.

Discussions and liaison, both informally and through consultative committees and working groups, are continuing on a wide range of "System" recommendations as well as proposals in other areas. These include several regional parks in the Metropolitan area and around the Peel-Harvey Estuary, and national parks or nature reserves in the Mitchell River area, Roebuck Bay and the Nullarbor.

## **Conservation on CALM Lands**

Various matters, such as the management of nature reserves, stream and road reserves in logging compartments, and the protection of wetlands, are currently being discussed widely within the Department, both in developing new policies and in guiding ongoing management.

## **Conservation Outside CALM Lands**

Input has been provided to a number of widely different issues involving other State and Commonwealth agencies. Issues addressed include: protection of native vegetation along roadsides via the Roadside Vegetation Conservation Committee; encouragement of the maintenance of native vegetation on farmlands; the State Conservation Strategy, issued by the Government early in 1987; and conditions relating to the importation of exotic animals, either for biological control or for commercial purposes.

## **External Participation in Policy Development**

Much development of policy related to nature conservation continues to be via consultative committees and other less formal means of communication with individuals, community groups and Government agencies. Consultative or advisory committees, or working groups, continue to be convened by this Department for Shark Bay, Marmion and Ningaloo Marine Parks, Herdsman Lake, the Peel-Harvey Estuary, and the selection of marine parks and reserves. Policy staff also have input to committees and working groups convened by other Departments, and are involved in developing State policies, on

many issues including coastal management, the use of water resources, protection of wetlands and management of the Abrolhos Islands.

Considerable consultation with Aboriginal communities is being conducted currently, to develop a policy clarifying the relationship between the communities and the Department.

## Policy Statements

As indicated earlier, the development of the regional plans for the three regions in the southwest of the State required revision of a number of individual policies which have been included within the supporting papers and the plans themselves. In addition, a number of new policy initiatives were developed during the year. These are:

POLICY NO.	TITLE	DATE OF ISSUE
3	Dieback and Logging (revised)	September 1986
10	Rehabilitation of Disturbed Land	November 1986
12	Arbor Day	August 1986
13	Taking of Protected Flora in the Kimberley Region	December 1986
14	Weeds on CALM Lands	November 1986
15	Public Participation	April 1987
16	Computer Purchase and Use	December 1986
17	Housing	February 1987
18	Recreation	April 1987
19	Fire Management	May 1987

Consistent with the procedures adopted in 1985/86, policies were developed by either the Policy Directorate or specialist branches and before examination by the Corporate Executive were passed to regions and branches and other specialists for comment. After approval by the Corporate Executive, the documents were submitted to the National Parks and Nature Conservation Authority and/or the Lands and Forest Commission as appropriate.

## THE LAND ESTATE

---

The purposes and areas of land reserved within the Department as at 30 June 1987 were as follows:

	<u>Hectares</u>
State forest	1 821 965
Timber reserves	144 851
Freehold vested in the Executive Director	31 794
National Parks	4 649 732
Marine Parks	233 350
Conservation of flora and fauna reserves	9 988 375
Conservation/recreation reserves	187 142
Total	17 057 209

### Forest Areas

There was a net decrease in the area of State forest during 1986/87 of 75 381 ha. This was largely due to the excision from State forest of four areas totalling 76 520 ha, which have since been set aside as the Lane Poole, Dale, Monadnocks and Serpentine conservation reserves.

The total area of timber reserves rose by 25 676 ha. This increase was largely due to the creation of two large timber reserves in the Perenjori district.

Freehold land vested with the Executive Director was increased by 5 236 ha during 1986/87. The bulk of this land was acquired for the purpose of pine production.

The following table shows the major forest types which occur within State forest, timber reserves, and freehold land held in the name of the Executive Director as at 30 June 1987.

<u>Type</u>	<u>Area (ha)</u>
Jarrah	1 398 000
Karri	155 000
Wandoo	104 000
Mallet	8 000
Tuart	3 000
Goldfields species	54 000
Radiata pine	34 000
Pinaster pine	28 000
Exotic eucalypts	4 000
Very open areas	211 000
	1 999 000

Note: This does not include about 800 ha of radiata and 100 ha of pinaster pine which are managed by the Department but are not growing on the land tenures listed above. This additional area is included under the section "Establishment and Tending of Pine Forests".

### **Description of Forest Type**

**Jarrah includes:** pure jarrah; jarrah with marri, W.A. blackbutt, wandoo, W.A. sheoak and bullich as minor species; stands dominated by marri with jarrah as the minor species; stands dominated by W.A. blackbutt with jarrah or marri as the minor species; stands dominated by bullich with jarrah or marri as the minor species.

**Karri includes:** pure karri; karri with marri, and/or jarrah and the three species of tingle as the major or minor species.

**Wandoo includes:** pure wandoo; pure powderback wandoo; wandoo and powderbark wandoo with jarrah, marri and brown mallet as minor species.

**Mallet includes:** plantations; natural mallet with wandoo as the minor species.

**Tuart** consists of pure stands only.

**Goldfields species include:** pure stands of salmon gum, Dundas Mahogany, Dundas blackbutt, Cleland's blackbutt, silver gimlet, sandalwood, jam and many others, or any of these species in combination.

**Radiata pine includes:** pure stands in plantations only.

**Pinaster pine includes:** pure stands plus a very small area of other species, in plantations only.

**Exotic eucalypts include:** many species in rehabilitated dieback and mined areas and in trial plots.

**Very open areas includes:** swampy and rocky areas; areas with sparse tree canopy; areas cleared for mining and not yet rehabilitated; powerlines and dams.

### **National Parks**

On 6 March 1987 the Bungle Bungle National Park was reserved and vested in the National Parks and Nature Conservation Authority. Situated south of Kununurra, the National Park area is 208 723 ha and includes the spectacular Bungle Bungle massif. In addition a conservation reserve of 110 602 ha has been created and vested on the western side of the massif and will be managed as if it were national park.

The three areas of land previously collectively named Pemberton National Park were re-named as Beedelup National Park (1 530 ha), Brockman National Park (250 ha) and Warren National Park (1 355 ha).

As at 30 June 1987 there were 56 national parks vested with the National Parks and Nature Conservation Authority with the following areas -

<u>National Park</u>	<u>Area (ha)</u>	<u>National Park</u>	<u>Area (ha)</u>
Alexander Morrison	8 501	Lesmurdie Falls	56
Avon Valley	4 366	Millstream-Chichester	199 730
Badgingarra	13 121	Moore River	17 543
Beedelup	1 530	Nambung	17 491
Boorabbin	26 000	Nowergup Lake	116
Brockman	250	Neerabup	1 078
Bungle Bungle	208 723	Peak Charles	39 959
Cape Arid	279 415	Porongurup	2 572
Cape Le Grand	31 390	Rudall River	1 569 459
Cape Range	50 581	Scott	3 273
Collier Range	277 841	Serpentine	635
d'Entrecasteaux	39 122	Sir James Mitchell	1 087
Drovers Cave	2 681	Stirling Range	115 661
Drysdale River	435 906	Stockyard Gully	1 406
Eucla	3 342	Stokes	9 509
Fitzgerald River	242 804	Tathra	4 322
Frank Hann	61 420	Torndirrup	3 919
Geikie Gorge	3 136	Tunnel Creek	91
Goongarrie	60 356	Walpole-Nornalup	15 877
Gooseberry Hill	33	Walyunga	1 812
Greenmount	58	Warren	1 355
Hamersley Range	617 602	Watheroo	44 512
Hassell	1 265	West Cape Howe	3 580
Hidden Valley	1 817	William Bay	1 739
John Forrest	1 508	Windjana Gorge	2 134
Kalamunda	375	Wolfe Creek Crater	1 460
Kalbarri	186 075	Yalgorup	11 740
Leeuwin-Naturaliste	15 600	Yanchep	2 799
<b>TOTAL AREA</b>			<b>4 649 732</b>

## Marine Parks

The State's first two marine parks were reserved and vested under the Conservation and Land Management Act 1984. Marmion and Ningaloo Marine Parks were gazetted on 18 March 1987 and 3 April 1987 respectively and were required to be tabled in Parliament for 14 sitting days.

The Marmion Marine Park does not include any mainland component and its area of 9 350 ha extends from just south of Trigg Island to just north of Burns Rocks.

The Ningaloo Marine Park runs from just north of Exmouth, around the North West Cape and down to just north of Cape Farquhar. The marine component includes both State and Commonwealth waters, with the latter extending out from the Territorial sea limit to ensure the fringing reef is protected. The Commonwealth portion was declared on 20 May 1987.

The Park also includes a coastal strip of 40 metres between high water mark and the adjacent pastoral stations. The land component was to be reserved and vested in July 1987 under the Lands Act 1933.

The State's component of the Ningaloo Marine Park is approximately 224 000 ha.



## **Conservation of Flora and Fauna Reserves**

The total area in these categories as at 30 June 1987 was 9 988 375 ha; a net increase of 27 615 ha during the year. Important reserves created or enlarged included Barrow Island, Mill Brook, Birdwhistle, Broadwater and Lake Shaster.

## **Conservation and Recreation Reserves**

The 110 602 ha conservation reserve to be managed as part of the Bungle Bungle National Park dominates this category of land. Also significant are reserves created by excising State forest to create the conservation reserves for Dale (5 798 ha), Serpentine (3 727 ha) and Monadnocks (15 418 ha) and conservation and recreation reserves for Lane Poole (51 591 ha).

## **Purchases of Freehold Land**

The Department purchased the following areas of freehold property for addition to the land estate.

- 1 300 ha of former State Energy Commission land south of Mandurah; 1 150 ha to be added to Yalgorup National Park.
- 2 878 ha of predominantly cleared farmland in the Blackwood Valley, at Kemerton and near Collie for the establishment of pine forests.
- Tracts of largely uncleared land for addition to existing nature reserves at Bengier Swamp, Tutanning and Lake Coyrecup.
- 148 ha (two properties) adjacent to Mialla Lagoon, north of Bunbury, for conservation purposes.

# LAND MANAGEMENT

---

## Forests

Forest management continued according to the objectives, policies and strategies laid down in General Working Plan No. 87, 1982. However, the regional management plans and a timber strategy for the Northern, Central and Southern Forests Regions of the Department (see Figure 3) described below will supersede this Plan.

The draft timber strategy proposed that the forests of the south-west be managed according to seven major principles:

1. There is an equitable reservation of forest areas for conservation, recreation and timber production, and that these areas have security of tenure and purpose;
2. Areas of native forest reserved for timber production will also be managed to provide for the other values of the forest, according to the principles of multiple-use management;
3. All forest areas harvested for timber production will be regenerated;
4. The cost of regenerating, establishing, and managing both native forests used for timber production and exotic pine forests will be recouped from the sale of the harvested logs;
5. The yield from forest areas reserved for timber production will be regulated to levels that can be sustained indefinitely;
6. The processing of logs from State forests will be managed to maximise the employment and economic benefits for Western Australia;
7. All forest management operations, including logging, will be controlled by the Department.

## Planning and Consultation

On 13 April 1987 the following documents were released for public comment:

- Northern Forest Region, Draft Management Plan
- Central Forest Region, Draft Management Plan
- Southern Forest Region, Draft Management Plan
- Northern, Central, Southern Forest Regions, Draft Management Plans, Supporting Papers
- Timber Production in Western Australia (Draft)

A major campaign of publicity and public information followed, with the purposes of maximising community knowledge about the scope of these plans and of fostering a greater number of well-prepared submissions, more representative of the general public.

The highlights of this campaign were:

- o public launches of the plans at Technology Park, Bentley, Manjimup and Bunbury by the Premier and the Minister for Conservation and Land Management, respectively.

- various announcements and advertisements in the press.
- distribution of about 14 000 colour booklets, entitled "What Future for Our Forests? - You Choose" via direct mail to community groups, local government authorities, teachers, timber workers and interested individuals; via hand outs to national park visitors; and in response to public demand.
- circulation of an explanatory folded poster in single editions of the Sunday Times, South-West Times, Warren-Blackwood Times and Albany Advertiser.
- briefings and talks to about 90 groups, including government agencies, timber industry, conservation movement, academics and community organisations; and to several public meetings.
- distribution of 45 video cassettes, entitled "What Future for Our Forests?", for public showings.
- distribution and sale of about 3 200 sets of the management plans themselves.

The Minister decided to extend the public comment period by one month to 17 July 1987, in response to community wishes. The level of interest and public debate was high, and by closing date about 4 000 submissions had been received.

Meanwhile work continued on the assessment and collation of public submissions to the draft management plans for the Lane Poole Reserve and the Shannon Park/d'Entrecasteaux National Park. The final management plans will be released in late 1987.

The Karri/d'Entrecasteaux Advisory Committee continued to meet to consider and prepare submissions to the regional management plans and the timber strategy.

#### **Landscape Planning**

Work was completed on the Albany Highway Viewshed Study; an assessment of the potential impact of proposed bauxite mining operations along portions of the Albany Highway east of Jarrahdale. A report was presented to a Reserves Review Committee.

A delineation of the major landscape character types in the southwest was commenced. This assessment will be the basis of a visual management system to be developed over the next two to three years.

#### **Regeneration and Tending of Hardwood Forests**

Areas of forests cut over for timber production are shown for the 1986 calendar year. This differs from all previous reports which showed the area cut-over for a financial year. The area cut over during the 1985/86 financial year is also shown for a comparison of operations over a 12 month period. The area cut during the half year January to June 1986 is identified as this is the area duplicated in both figures.

The long term trend in felling of the karri forest is shown in Appendix 1.

Generally the jarrah forest regenerates naturally from lignotuberous seedlings stimulated by controlled burns before and after logging.

The Forest Improvement and Rehabilitation Scheme (FIRS), which is funded by Alcoa, aims to rehabilitate areas of jarrah forest adjacent to bauxite mining areas to increase the capacity of the land to support its long term land use and to reserve or minimize the effects of dieback. During 1986 1 230 ha were treated.

## Regeneration and Tending of Hardwood Forests

Forest Areas	1986 12 months	1985/86 12 months	Jan-June 1986 6 months
Jarrah — Selection felled	18,824	22,168	12,211
— Clear felled	514	468	290
Karri — Clear felled or cut to seed trees	1,094	1,585	780
— Removal of seed trees	1,203	685	466
— Thinned	491	340	206
Jarrah/Wandoo — Selection felled	1,145	742	694
Mallet — Thinned	123	91	39
Pine — Clear felled	123	88	67
— Thinned	3,176	2,224	1,507

\* includes 34 ha clear felled for Christmas trees.

\*\* areas cleared for mining.

Note: The area from which seed trees are removed are the same areas accounted for under 'cut to seed trees' either in this or a previous reporting period. They are not additional areas of cutting.

The level of cutting is controlled by the volume of sawlogs removed rather than the area covered. Volumes are detailed in the next section.

Jarrah Stand Improvement (JSI) is a silvicultural program for the improvement in productivity of hardwood forests. The work includes thinning of regrowth stands and removal of unsaleable old growth trees to make way for regeneration. In 1986 5 030 ha of jarrah forest were treated.

A total of 1 994 ha of forest was regenerated to karri during 1986. This included 1 113 ha from natural seed fall, 212 ha by sowing with seed and 669 ha hand planted with nursery seedlings. On 112 ha of the area hand planted a 50:50 mix of karri and *Eucalyptus muelleriana* was used. The long term trend in even-aged regrowth of karri following clearfelling is shown in Appendix 2.

An area of 64 ha was hand planted with *E. muelleriana* seedlings.

Sixty one hectares of tuart and 17 ha of wandoo were regenerated in the Central Forest Region.

### Establishment and Tending of Pine Forests

At 30 December 1986 the areas of State owned pine forests were 34 677 ha *Pinus radiata*, 28 504 ha *Pinus pinaster* and other species, with a total of 63 181 ha.

For the calendar year 1986 planting details were as follows:

	1986	1985
Area planted with pines (ha)	2 016	2 289
Radiata	1 406	1 770
Pinaster & other species	610	519

## Districts Planting Pines (ha)

District	Radiata	Pinaster & Other Species	Total
Wanneroo	—	482	482
Harvey	17*	—	17
Kirup	793	128	921
Busselton	69	—	69
Nannup	—	—	—
Manjimup	312	—	312
Pemberton	215	—	215
<b>Total</b>	1,406	610	2,016

\* Second rotation

The longer term trend in pine plantings is shown in Appendix 3.

The following pine forest tending was carried out during the 1986/87 period:

Scrub control	3 905 ha
Refertilising	10 762 ha
Pasture improvements	290 ha
Low pruning	3 784 ha
High pruning	2 902 ha
Non commercial thinning	3 623 ha

### Commercial Plantings and Woodlots on Private Property

Information supplied to the Department indicates the private land forest estate increased by about 1 300 ha for softwood and 340 ha for hardwood production, in calendar year 1986. Major forest management companies contributed most of this, but numerous farmers and other landholders have planted small woodlots and plantations. Up to 640 ha of pine plantings occurred outside the zone considered suitable for commercial production.

The areas planted up to and including 1986 totalled 14 700 ha of softwood and 1 200 ha of hardwood.

During 1986/87 the Department commenced planting the Softwood Sharefarming scheme which enables the Department to grow pine in partnership with private land owners. To date the scheme has resulted in 1 140 ha being planned for planting in winter of 1987.

### Rehabilitation

The Department's responsibilities in bauxite mining are to:

- direct mining to areas of least forest impact
- plan dieback management and rehabilitation programs
- maximise timber utilisation prior to clearing
- ensure compliance with agreed environmental protection measures
- implement FIRS program.

In 1986/87, 385 ha of mine pits, access roads and other clearings associated with mining, were rehabilitated by planting or seeding with a mix of eucalypt and scrub species.

Borrow pits (including gravel) were rehabilitated in several districts; for example 52 ha in the Central Forest Region.

In the Wellington catchment a total of 640 ha were planted to 11 eucalypt species. An area of 80 ha was planted on behalf of the State Energy Commission.

In the Mundaring district 10 ha of catchment were rehabilitated.

### **Protection**

A total of 228 500 ha of indigenous State forest were prescribed burned for a variety of purposes including fuel reduction for fire protection, habitat management, disposal of logging debris, site preparation for hardwood regeneration, and pine plantation establishment. Aerial burns were 196 300 ha and hand burning by ground crews 32 200 ha.

A further 6 429 ha of winter burning was conducted under pines for fuel reduction purposes. In addition several hundred kilometres of fire breaks and forest tracks were maintained or upgraded.

Fire detection and suppression are reported later in this Report.

Dieback hygiene, regulation and monitoring measures continued according to existing policies.

Noxious weed and feral animal control continued according to existing policies and techniques, and in co-operation with the Agriculture Protection Board.

A total of 4 200 ha was treated for noxious weed control of Blackberry, Variegated Thistle, Apple of Sodom, Arum Lilies, Pattersons Curse, Double gees, Cape Tulip and Cotton Bush. In the Northern and Central Forest Regions, 195 pigs were trapped and destroyed. Other feral animal control included foxes (22 known kills in the Central Forests Region), feral dogs and goats.

### **Recreation**

A revised alignment for the Bibbulmun Track was finalised with the district offices and Recreation and Landscape Branch co-operating. The installation of 12 campsites with toilet facilities has been organised, following consultation with the Water Authority of W.A.

A concept plan was drawn up and implemented for development of group camping and outdoor education facilities at Icy Creek Camp in the Lane Poole Forest Reserve.

The Marrinup Forest Tour, in the vicinity of Dwellingup, was completed. This project involved directional and interpretative signposting for a vehicle-based tour and five self-guiding walks; production of a guide booklet; and site development.

The Dryandra Field Study Centre, near Narrogin, was opened by the Minister. This centre has been equipped with basic furniture and fittings, including accommodation, for use by organisations. One of the original fire tree lookouts was re-constructed by the Institute of Foresters of Australia (W.A. Branch), and the site developed into a picnic ground.

## **National Parks**

### **Planning and Consultation**

During 1986/87 there was continued emphasis on public participation in connection with the preparation of management plans. The highlights of this joint program - between Planning Branch and the regional and district offices - were:

- A successful workshop was held to assist in preparation of a draft management plan for Yanchep National Park.

- Questionnaires were used to collect visitor information for the Leeuwin-Naturaliste and Bungle Bungle National Parks draft management plans.
- Consultation with aboriginal communities and others involved in the Bungle Bungles took place in the course of draft plan preparation.
- Aboriginal communities were consulted prior to drafting a management plan for Rudall River National Park.
- There were discussions with mining, Shire, conservation and local interest groups while preparing the draft management plan for the Hamersley Range National Park.
- An Australian National Parks and Wildlife Service grant enabled employment of one person for six months to collect background information for the Hamersley draft plan.

Pending the drafting and approval of a management plan for the South Coast Region, interim management plans were approved for Fitzgerald River National Park (fire plan only), Cape Le Grand, Stirling Range and Porongurup National Parks.

Drafts now exist for Cape Arid, Fitzgerald River, Torndirrup, West Cape Howe and William Bay National Parks.

#### **Conservation and Protection**

Particular attention was paid to the occurrence of dieback in the national parks and reserves of the Greenough, Wheatbelt and South Coast regions. There was a continued closure of roads in parks in the latter region, under moist soil conditions, to prevent spread of the disease. Hygiene regulation and monitoring measures continued as per the South Coast Dieback Protection Plan. Washdown facilities were provided in several areas, including all major national parks on the South Coast. Also a program of upgrading to all-weather roads was given high priority.

A summary of prescribed burning for fire protection is provided in Appendix 10.

In South Coast national parks and nature reserves 6 933 ha were burned for fuel reduction, and 103 km of buffers were burnt. Interagency aircraft burns were carried out at Fitzgerald River and Cape Le Grand National Parks in conjunction with bushfire brigades and the Bush Fires Board.

In Watheroo, Nambung and Kalbarri National Parks prescribed burning and burning of 56 km of buffer strips took place. About 40 km of chaining was done in the latter park in preparation for an August 1987 prescribed burn.

A program of patch burning in spinifex communities has begun in Pilbara national parks. The objective was to protect fire sensitive plant communities and other park assets while maintaining diversity in other plant associations.

Strategic buffer strips of about 120 km were burnt in the first Kimberley trial using aerial ignition techniques, in both Bungle Bungle and Drysdale River National Parks.

Eradication of feral animals from national parks, including foxes, cats, goats and rabbits, continued in co-operation with the Agriculture Protection Board (APB). For instance, fox baiting was carried out in Kalbarri and Cape Range National Parks, and about 1 200 goats were mustered and removed from Cape Range National Park.

The Water Authority of W.A. continued mustering cattle from the former Millstream station including areas which are now part of Millstream-Chichester National Park. The

APB shot feral horses and donkeys from the air in Hamersley Range National Park. Feral cattle and donkey control continued in Bungle Bungle National Park.

#### **Review of Fees**

The range of fees and charges for national parks were reviewed, and a proposed general increase approved by the Minister for Conservation and Land Management on 1 November 1986. The basis of the new fee levels was recoument of management costs and raising funds for provision of facilities and services, comparable to other recreation areas. The policy for recoument of fees is stated in Policy Statement No. 18, Recreation, approved by the Executive Director in April 1987.

#### **Landscaping and Recreation Facilities**

A major program of improving facilities in the State's national parks continued according to sound planning principles. This rapid improvement in the standard of park presentation and interpretative information, has been the cause of much positive feedback from the visiting public and is a significant contributor to the growth in tourism demand. It is one of the most tangible outcomes of the formation of an amalgamated land management agency.

The highlights for 1986/87 were:

- Nambung National Park - completion of improved access roads to the Pinnacles, Kangaroo Point and Hangover Bay. A site development plan for the Pinnacles was implemented; work completed included the development of parking facilities and a walk trail, and the installation of ablution and visitor information facilities. Site plans for Kangaroo Point and Hangover Bay were also prepared and gas barbeques have been installed.
- Kalbarri National Park - prepared site plans for the redevelopment and upgrading of parking, visitor information and walk track facilities at a number of coastal and inland gorge sites including Island Rock, Natural Bridge, Eagle Gorge, Z-Bend and the Loop. Planning for coastal spur roads was completed, to be linked to the new Kalbarri-Balline Road. Other access roads have been upgraded.
- Cape Range National Park and Ningaloo Marine Park - site plans have been prepared for several coastal attractions including Mangrove Bay, as part of a program to upgrade coastal camping and protect environmentally sensitive areas. A further section of the new road was completed.
- Windjana Gorge National Park - finalised site plans for the redevelopment of the Windjana Gorge camping area.
- Geikie Gorge National Park - prepared plans and specifications for the redevelopment of the Park facilities area and the upgrading of the access road from Fitzroy Crossing.
- Hidden Valley National Park - finalised plans for the development of parking, visitor information and walk track facilities.
- Leeuwin-Naturaliste National Park - prepared preliminary site plans for Hamelin Bay, Contos Field, Ellensbrook and a number of other areas within the Park. These site plans are to be included in the Leeuwin-Naturaliste National Park draft management plan to be released later this year.
- Augusta/Flinders Bay Whale Display - finalised plans for the construction of a whale memorial display at Flinders Bay.
- Porongurup National Park - prepared plans for the redevelopment of Tree-in-the-Rocks recreation area, and installed new toilets and gas barbeques.



- Torndirrup National Park - as part of the 2nd year field cadet training program, a site redevelopment plan was prepared and implemented for Sharp Point; this plan included the redevelopment of parking facilities, the upgrading of pedestrian access and the installation of a coastal vista point.
- Fitzgerald River National Park - drafted a site plan for Mylies Beach and a development plan for Point Ann.
- Bungle Bungle National Park - basic facilities were installed for the first time.

Through re-allocation of capital works funds a program to instal and update park information shelters was carried out. The object was to provide on-site park orientation and interpretative information to augment a range of publications and contact with the rangers. By June 1987 23 information shelters were largely completed and many had already been installed, particularly in northern national parks.

The Department was fortunate to be awarded a number of grants from the W.A. Heritage Committee and Commonwealth Government for development of heritage trails. A one year program for South Coast national parks, based on the theme of early overland exploration and involving production of brochures and a self-funding book, was commenced in January 1987. The Lightfoot Heritage Trail in Cape Range National Park was completed. A trail was commenced following the road built for camel-drawn wagons to climb the Chichester Scarp.

## Nature Reserves

### Planning and Consultation

In addition to the established procedures for preparation and approval of management plans; a questionnaire was sent to adjacent landholders to encourage their response to the draft plan for nature reserves of the Shires of York and Northam, and there was close consultation with landholders on and adjacent to Benger Swamp regarding recommended future uses of the Reserve.

### Conservation and Protection

The Wheatbelt Region manages a large number of nature reserves which are particularly subjected to indirect human impact because many are small, and most are surrounded by agricultural landholdings. Protection activities for 1986/87 included:

Prescribed burning - 110 ha block burnt, 89 ha buffer burnt, 13 km buffers were burnt, and 30 km firebreaks constructed.

Wildfires - eight fires occurred on or threatened reserves, and the total area burnt was 46 ha. The majority of these were in remote locations and the fire was not reported at the time.

Disease - a selection of nature reserves were surveyed to discover two infestations of *Amillaria* in Boyagin Nature Reserve causing deaths in marri trees. These are the first known occurrences of plant disease in nature reserves in this district.

Insects - an intense borer attack causing death of marri trees on a reserve in Kojonup Shire was noted.

Rabbits - A co-operative program with the Agriculture Protection Board to clean up rabbit breeding areas continued. A trial on the use of explosives to destroy rabbit warrens was conducted. Initial results were encouraging, but further evaluation of this method is needed.

Weeds - herbicide spray trials for the control of veldt grass commenced. This is a problem for selected nature reserves and can threaten isolated populations of gazetted rare flora. Herbicide control of mallee regeneration on firebreaks, using techniques adapted from jarrah silviculture, was also experimented.

Rare Flora - a trial mapping project for gazetted rare flora was finished and is being evaluated as a possible standard procedure.

Rehabilitation - 14.5 ha of gravel pits and 25 ha of former farm land were rehabilitated, planting 10 000 tree seedlings raised from local seed. The ex-farmland is now on Dulbining Nature Reserve; and this planting in conjunction with the Wickepin Soil Conservation District was part of the project to protect the fresh water status of Lake Toolibin. In addition a 3 km drain was constructed to divert salt water flow from the lake. A former gypsum mine on another nature reserve was treated.

Similar work to protect nature reserves in other regions was carried out. Also, in the Goldfields Region, mineral tenements were inspected and there was liaison with mining companies over tenement conditions, to minimise the impact of increased gold mining exploration activity on nature reserves. The Noisy Scrub Bird translocation from Two Peoples Bay Nature Reserve continued. The noxious weed African Boxthorn was sprayed on island reserves of the Beagle Group, Milligan and Lipfert Islands, and Orton Rocks, by staff of the Greenough Region. There was a concerted effort to ensure minimal impact of oil and gas industry developments on island nature reserves off the Pilbara coast. In the Metropolitan region fencing was completed at Woodman Point and was under way at Casuarina and Forrestdale Lake nature reserves.

#### **Recreation and Other Works**

A concept zoning plan for redevelopment of the main visitor facilities area of Two Peoples Bay Nature Reserve was prepared. This plan will be incorporated into a draft management plan.

Recreation facilities were installed and management work completed at Rowles Lagoon, Burra Rock, Victoria Rock and Cave Hill nature reserves in the Goldfields Region. Most central desert nature reserves and other regional reserves were signposted. A field study centre at Wanjarri Nature Reserve was upgraded.

A suitable site for a permanent field station in Prince Regent Nature Reserve was investigated and selected. It overlooks the entrance to the River.

Work started on peripheral bridle trails for Forrestdale Lake, Casuarina and Cardup Nature Reserves in the Metropolitan Region. Preliminary plans for public access to the reserve adjoining the proposed prison at Casuarina were prepared.

#### **Marine Parks**

There was considerable progress during 1986/87 in establishing the management of Marmion Marine Park:

- The Park was proclaimed by the Minister on 20 May 1987.
- The Park Manager moved to the new headquarters at Hillarys Boat Harbour at the end of June 1987
- Other Metropolitan Region staff were assigned supporting duties, with further assistance from the Department of Fisheries.
- The Marmion Marine Park Consultative Committee met regularly.

- A draft management plan was finalised, but awaits changes to the Conservation and Land Management Act.
- A Friends of Marmion Marine Park interim committee was formed, headed by the Hon. Graham Edwards, MLA, and Minister for Sport and Recreation.
- The 6 m patrol vessel and scuba equipment were in daily use.
- Management decisions concerning spearfishing on in-shore reefs, collection of specimens, contingency plan for oil spills, and prevention of reef blasting were taken.
- Public information objectives were being achieved through issue of a poster and park brochure; talks to schools, community groups and the general public; signs erected along the coastline; public contact on patrol; and media liaison.
- Inner reefs were surveyed for diversity of marine flora and fauna, and their use. Marine mammal monitoring was commenced.

The draft management plan for Ningaloo Marine Park was well underway. Workshops were conducted at Exmouth and Carnarvon to assist in this planning. Negotiations with the lessees of three pastoral properties bordering the southern section of the Park took place, to agree on recreational access to the coast and the basis for formal management agreements at a later date. In conjunction with the Department of Marine and Harbours the entire length of the Park was surveyed for potential boat launching ramps. The Building Management Authority designed the visitor information centre to be built at the Milyering site in Cape Range National Park. A landscape plan was also completed. This project is funded by the Australian Bicentennial Authority.

Preparatory work for the establishment and management of regional parks in the Perth metropolitan area involved the Metropolitan Region of the Department. There was consultation and planning of procedures for co-operative management of regional parks at Beeliar Wetlands, Lake Joondalup, Canning River wetlands and Rockingham Lake, and the reserve at Herdsman Lake. An advisory committee was established for Herdsman Lake and for Beeliar Wetlands, a draft planning study was completed for Beeliar Regional Park, and a project team was nominated for preparing a draft management plan for Herdsman Lake. Both the State Planning Commission and local government authorities have been involved in this work.

# RESOURCE PRODUCTION

---

## Wood Production

### Timber Strategy

The Department released for public comment a draft strategy for timber production in Western Australia. This will allow the planning for an efficient and sustainable timber industry whilst providing security for water catchment, conservation and recreation requirements.

The plan encourages the development of high value products whilst recognising the large volume of wood residues which are available.

There will be increased availability of new resource in the form of additional grades of mature growth sawlogs, regrowth karri and jarrah sawlogs and softwood.

The allocation of the resource is aimed at minimising the disruption of the industry whilst providing security of access in an equitable way.

The plan is the most comprehensive strategy attempted by Government to integrate the wood production needs with the other major multiple use requirements.

The plan aims to provide security for the industry and, in conjunction with the draft management plans for the Northern, Central and Southern Forest Regions, provides for adequate reservation for conservation and recreation.

A major export market for particleboard resulted in a substantial increase in requirements for softwood logs from young thinnings and logs not suitable as sawlogs. The ability to thin softwood stands on time has been substantially improved whilst also allowing increased intake of wood from unthinned stands in privately owned plantations increasing the total State sawlog growth.

The transition to second growth forests was continued by the letting of the second major tender for removal of 20 000 m<sup>3</sup> of small size karri and marri from mixed forest near Manjimup. The logs will be produced and delivered by Departmental contractors to a new sawmill specialised to process small regrowth logs.

A policy of in-forest treatment of sawlogs was introduced, designed to increase the overall utilisation of both first grade and second grade sawlogs from integrated logging operations. The policy, which provides guidelines for log treatment, has been very successful, leading to an overall increase in volumes of sawlog per hectare.

A system of issuing licences for craftspeople was commenced. This system, introduced for an initial trial period of six months, enables craftspeople to obtain up to 40 m<sup>3</sup> of short length timber of any species from the forest floor.

The Wood Utilisation Research Centre programs have expanded through a Public Interest Project funded by Commonwealth, State and industry sources.

New sawmilling, seasoning and wood machining equipment has been installed and the main activity is now towards research techniques for higher value products from regrowth eucalypts.

The development of a new economic computer model of the forest based industry is well advanced. This model, named "Gumtree", is designed to provide industry leaders with a management tool for planning the efficient and productive use of the forest resources.

An Environmental Review and Management Programme (ERMP) produced by the W.A. Silicon Trust, proposing the harvesting of 100 000 tonnes per annum of jarrah suitable for charcoal manufacture over 20 years, was approved by the EPA in June 1987. This project which has yet to be finally ratified, plans to utilise both green and dead jarrah from existing logging operations and dieback-infected forest in the districts of Dwellingup and Harvey. The Department has agreed to a log specification and has provided cost estimates of delivered logs.

In May, West Australian Chip and Pulp Co Pty Ltd (WACAP) submitted an ERMP/draft Environmental Impact Statement to:

- (i) the EPA of W.A., and
- (ii) the Department of Arts, Heritage and Environment in Canberra.

The document, which was available for public comment, proposes that the WACAP chipwood export licence be renewed after the expiry of the existing licence in 1990, and extended for a further 15 years.

## Log Production

The production of hardwood sawlogs for 1986/87 is summarised in the following table, and can be compared to the allowable cut:

### Hardwood Sawlog Production from Crown Land 1986/87 (m<sup>3</sup>)

Species	1st Grade Logs under SOHQ licences		Logs Produced under Contract of Sale or Local Licences					Total
	Actual Cut	Allowable Cut	1st Gr. Logs	2nd Gr. Logs	Construction Logs	Regrowth Thinnings	Veneer Logs	
Karri	144,422	560,620	440	36,660		26,721*	2,106	210,349
Jarrah	510,990		15,061	29,680		123		555,854
Marri	7,732		2,408	3,043	1,019			14,202
Blackbutt	2,303		587	101				2,991
Wandoo	1,866		179					2,045
Sheoak	113				450			113
Other	—		—					450
<b>Total</b>	<b>667,426</b>	<b>728,450</b>	<b>18,675</b>	<b>69,934</b>	<b>1,019</b>	<b>26,844</b>	<b>2,106</b>	<b>786,004</b>

\* Includes 7,173 m<sup>3</sup> of karri to mills under SOHQ licence. This amount should be included in the actual cut when comparing actual and allowable karri cut.

The allowable cut refers only to the volume of hardwood sawlogs made available to the sawmilling industry under State Operations Headquarters (SOHQ) licences issued by the Department.

Local licences issued by Districts for sawlogs which, because of size or defect, are classed as second grade logs.

Other sources of log production - veneer logs, small logs from regrowth karri forests, pine sawlogs, hardwood chiplogs and softwood pulping logs contributed to a total production of 1.6 million cubic metres for 1986/87. Another 183 689 m<sup>3</sup> of log materials were taken from private property.

### Log Production from Crown Land and Private Property 1986/87

(m <sup>3</sup> )	Crown Land (m <sup>3</sup> )	Private Property (m <sup>3</sup> )	Total
<b>Sawlog Timber *</b>			
Jarrah	555,854	26,673	582,527
Karri	210,349	22,749	233,098
Marri	14,202	3,406	17,608
Blackbutt	2,991	3,134	6,125
Wandoo	2,045	2,609	4,654
Sheoak	113	—	113
Other	450	364	814
Total hardwood	786,004	58,935	844,939
Pine	95,299	8,701	104,000
Total sawlog	881,303	67,636	948,939
<b>Other Log Materials **</b>			
Hardwood	552,693	99,923	652,616
Softwood	171,467	16,130	187,597
<b>Total Log Timber</b>	<b>1,605,463</b>	<b>183,689</b>	<b>1,789,152</b>

\* Sawlog timber from all sources, including veneer, but not including chiplogs, firewood, piles and poles.

\*\* Includes chiplogs, pine particleboard material and pine rounds.

Compared with the previous year the volume of all log materials increased 53 557 m<sup>3</sup> to 1 789 152 m<sup>3</sup>, and pine logs by 14 839 m<sup>3</sup> to 291 597 m<sup>3</sup>. Long term trends are shown in Appendices 4, 5 and 6.

The volume of sawn timber produced from Crown land decreased by 12 764 m<sup>3</sup> to 268 764 m<sup>3</sup> for 1986/87.

### Sawn Production from Crown Land and Private Property

	1986/87 (m <sup>3</sup> )	1985/86 (m <sup>3</sup> )
<b>Sawn Timber Production</b>		
Crown Land	268,764	281,528
Private Property	21,854	20,462
<b>Sawn Sleeper Production</b>		
Crown Land	25,334	24,156
Private Property	706	2,830
<b>Total</b>	<b>316,658</b>	<b>328,976</b>

The supply of high quality karri logs for production of veneer declined slightly from the previous year.

## Veneer Log Production

	1986/87 (m <sup>3</sup> )	1985/86 (m <sup>3</sup> )
Karri	2,106	2,617
Jarrah	—	—
Pine	5,039	5,066
<b>Total</b>	<b>7,145</b>	<b>7,683</b>

The supply of marri and karri chiplogs from Crown land increased by 38 258 m<sup>3</sup> to 552 693 m<sup>3</sup>. The trend in a relative decline of chiplogs from the 'old growth' karri forest continued. In 1986/87 80.3 per cent were marri and 9.5 per cent were karri. An increasing proportion of the karri chiplogs came from thinnings from regrowth forests (10.1 per cent), and regrowth marri (0.1 per cent). The W.A. Chip and Pulp Co. Pty Ltd also obtained 99 923 m<sup>3</sup> from private property; an increase of 35 009 m<sup>3</sup> from 1985/86. Sawmill residues contributed 88 111 tonnes to woodchip production.

## Hardwood Chiplog Production from Crown Land and Private Property

	1986/87		1985/86	
	(m <sup>3</sup> )	per cent	(m <sup>3</sup> )	per cent
<b>Crown Land</b>				
Old growth forest		89.8		94
Marri	444,076	80.3	428,514	83
Karri	52,364	9.5	54,448	11
Regrowth forest (thinning)		10.2		6.1
Marri	500	0.1	555	0.1
Karri	55,753	10.1	30,918	6.0
Subtotal	552,693	100	514,435	100
<b>Private Property</b>				
Marri	82,384		52,700	
Karri	17,539		12,214	
<b>Total</b>	<b>652,616</b>		<b>579,349</b>	

Longer term trends for hardwood chiplog supply from Crown land are shown in Appendix 7.

Mining timber production further decreased to 1 464 t due to a continued downturn in underground mining and the use of new techniques.

Thinning operations in the mallet forest at Narrogin yielded 15 000 pieces of fence post material and 459 tonnes for tool handles.

Sandalwood production decreased slightly to 1 865 tonnes due to seasonal harvesting effects. 1 670 t was harvested by regular contractors, another 88 t by pastoralists under the economic hardship provisions and 107 t from private property harvesting. 996 t of Crown land production was dead wood. Licences to obtain sandalwood were issued to 26 contractors; 7 full-time, 8 part-time and 7 pastoralists and 4 private property. Exports totalled 1 810 t for 1986/87 compared with 1 829 t for the previous year.

### Sandalwood Production

	1986/87 t	1985/86 t
From Crown Land		
Green sandalwood	762	966
Dead sandalwood	996	964
From Private Property	107	10
<b>Total</b>	<b>1,865</b>	<b>1,940</b>

### Firewood Production & Consumption

		1986/87 (t)	1985/86 (t)
Crown land sawmills	For sale	43,687	37,546
	For own use	1,176	1,211
Firewood contractors	Local Firewood Permit	2,446	3,779
	Forest Produce Licence	28,321	17,104
Industrial use		N/A	N/A
<b>Sub total</b>		<b>75,630</b>	<b>59,640</b>
Private property sawmills	For sale	4,876	4,267
	For own use	293	937
<b>Total</b>		<b>80,799</b>	<b>64,844</b>

Firewood is obtained as a by-product of sawmilling, from forest thinning operations, and from dead trees in the forest.

These figures do not take into account the private collection of firewood in the forest.

### Other Forest Produce

		1986/87	1985/86
<b>South West Division</b>			
<b>Agricultural Areas</b>			
Mining timber (m <sup>3</sup> )	Crown land	3,750	3,343
	Private property	N/A*	N/A
Piles, poles & bridge timbers (m)	Crown land:		
	Hardwood	47,810	236,029
	Softwood	28,501	
	Private property	26,909	34,904
Fence posts & rails (no.)	Crown land	186,876	187,355
	Private property	14,389	19,234
Strainer posts (no.)	Crown land	19,749	28,424
	Private property	N/A	N/A
<b>Goldfields Area</b>			
Mining timber (t)	Crown land	1,464	1,707
Fence posts & rails (no.)	Crown land	9,811	14,319
Strainer posts (no.)	Crown land	576	1,915



The supply of poles was significantly less than previous years with softwood poles becoming important.

The updated summaries of exports and imports of forest produce, taken from figures supplied by the Australian Bureau of Statistics, are shown at Appendices 8 and 9.

## Tree Nurseries

The Department operates seven nurseries offering seedlings both for sale to the public and for Departmental planting programs.

The north-west nurseries at Karratha and Broome continued to produce and distribute species suited to arid environments, as part of the North-west Tree Scheme to encourage water-saving gardens in townsites. Karratha nursery distributed 10 000 potted seedlings free of charge under this Scheme. Hamel and Narrogin nurseries produce trees for farm plantings and other re-vegetation schemes. The production and sales (excluding pine stock) increased 30 per cent from the previous year.

The Gnangara, Nannup and Manjimup nurseries produced pine and eucalypt seedlings for Departmental plantings. Overall the demand for seedlings increased mainly due to increased pine planting.

Nursery production for 1986/87 is shown in the table.

### Departmental Nursery Production

Nursery	For Sale to the Public		For Departmental Use		Carry Over 86/87	Total
	Potted Stock	Open Rooted Stock	Potted Stock	Open Rooted Stock		
<b>Commercial Nurseries:</b>						
Narrogin	286,000					286,000
Hamel	254,000		241,000			495,000
<b>Hardwood Nurseries:</b>						
Manjimup	9,000	17,000	1,060,000	949,000		2,035,000
<b>Pine Nurseries:</b>						
Gnangara		448,000		2,129,000	383,000	2,960,000
Nannup		2,000		2,505,000		2,507,000
<b>Other Nurseries:</b>						
Broome	35,100		1,900		13,000	50,000
Karratha	30,500		300		26,100	56,900
<b>TOTAL</b>	<b>614,600</b>	<b>467,000</b>	<b>1,303,200</b>	<b>5,583,000</b>	<b>422,100</b>	<b>8,389,900</b>

## Seed Store

Seeds of the major species needed for Departmental forest plantings, regeneration, rehabilitation, and conservation work, are collected and stored at Como and the West Manjimup nursery.

In 1986/87 a total of 419 kg of seed was collected. Included were:

Pinus species	164 kg
Karri	37 kg
Other eucalyptus species	143 kg
Legumes	48 kg
Other	27 kg

There were 304 accessions, 144 for public sales stock and 160 for Departmental stock.

Discount allowed for encouragement of direct seeding to re-establish vegetation in rural areas amounted to \$1 282 for the year.

The total weight of seed distributed or sold for the year was 1 098 kg, 100 kg in public sales with the rest issued to Departmental locations.

# RESEARCH

---

The research activities of the Department are reported here according to the 11 program areas of the Research Division.

## Biogeography

The aim of the program is to describe and monitor the patterns of distribution of Western Australia's biota.

The primary objectives are:

1. Provide and maintain a biogeographic data-base of site descriptions that represents the diversity of W.A.'s biota.
2. Ensure that all ecosystems are adequately represented in conservation reserves.
3. Provide data and interpretation to planners and managers so management can be carried out according to sound scientific principles.
4. Establish and monitor benchmark quadrats in the variety of ecosystems within the CALM estate.

Available information on the majority of the State's natural districts is extremely limited. Additional ecological surveys of districts are badly needed. Broad-scale quantitative biogeographic data are fundamental to the land-use decisions and management responsibilities of the Department. Such data provide an explicit basis for assessing the status of species and communities and a rational basis for setting priorities among many of the tasks that confront regional managers and management researchers. It is apparent that substantial external funding and/or staffing for broad-scale ecological surveys is still readily available where Federal/State interests intersect.

Publication of the biological survey report on the Nullarbor area finalizes the program's obligation to a grant received from Australian National Parks and Wildlife Service. Further field work was carried out on the Nullarbor in October 1986 to ground truth the biogeographic patterns predicted from the ecological data-base.

Reconnaissance work was undertaken in preparation for surveys of the Cape Arid and Yanchep National Parks. Internal reports were prepared on: Difficulties in the temporary transfer of research staff to country regions; garden plants that have escaped on Rottnest Island; the role, strategy and methodology of ecological surveys for nature conservation. Biogeographic projects being carried out by Departmental research staff were compiled, and themes identified. A variety of national parks and nature reserves in the South Coast Region were surveyed to assess the susceptibility of different species of native plant to dieback.

A year-round ecological survey was undertaken of the Walpole-Nornalup National Park; 220 floristic sample points, representing most of the Park, were analysed and a paper on the results of the work submitted for publication on floristic classification and the prediction of site-types.

A management plan for the Dampier Archipelago and management guidelines for the Monte Bello Islands were completed. The biological data-base on islands along Western

Australia's north-western coastline, especially those used as bases by the oil industry, was extended.

Micro-computer data entry systems were developed for the Eastern Goldfields database, and a field-capable system used during a survey of Kimberley rainforests undertaken in June 1987.

A number of scientific papers were accepted for publication. Subjects include:

- The relationship between environmental disturbances and determinism in mammal community structure.
- The flora and fauna of the Southern Beekeepers Reserve.

A number of scientific papers were published on:

- The palaeo-climatic significance of Dragon Tree Soak Nature Reserve.
- The wildlife of the Nullarbor Plain.
- New species of Western Australian plants (description).
- Naturalised plants in Western Australia.
- The structure of bat guilds in the Kimberley mangroves.
- Flora treatments of a variety of plant genera for the "Flora of Australia".
- Flora of a variety of Wheatbelt nature reserves.

In January 1987, an \$86 000 grant was received from the Department of Arts, Heritage and Environment to carry out an ecological survey of the rainforest communities found in the Kimberley Region. Preliminary studies established that there are more than 300 patches of rainforest ranging in size from 0.5 to 60 hectares and occurring along a 600 km stretch of coast between Broome and the mouth of the Berkeley River, near Cape St Lambert. Most are on the coast and coastal islands, though others occur up to 120 km inland. A survey strategy was subsequently developed and, during a field expedition mounted in June 1987, 83 patches of rainforest were sampled for plants, birds, land-snails and 53 attributes of the physical environment. The sites sampled were chosen to represent the geographical extent of the rainforest resource.

At least 10 plant species encountered during the survey are new records for Western Australia. Examples include: *Eugenia reinwardtiana*, *Ailanthus* sp., *Croton* sp., and *Bucanania arborescens*. A number of species previously considered "rare and endangered" are actually better classified as having a restricted habitat; bird examples include the Rufous Owl and Rufous Fantail. Additional populations of a number of other uncommon species were recorded; for instance, White-browed Robin, Yellow-footed Scrub-fowl, Red-crowned Fruit Pigeon and Figbird. When analysed, the data will provide a base-line of information to guide future rainforest management programs and allow reassessment of the extent to which rainforest species are represented in the existing Kimberley conservation reserve system.

## Fauna Conservation

This program aims at providing information sufficient to ensure effective conservation and management of Western Australia's marine and terrestrial fauna.

The primary objectives of work undertaken within the program are:

1. To expand knowledge of the fauna and ecosystems with a view to development and/or refinement of necessary management practices;

2. To identify vulnerable (rare and/or endangered) species, assess need for specific management, and develop necessary management programs;
3. To provide a sound basis for conservation of exploited fauna via sustainable management programs;
4. To control and effectively manage the adverse impacts on fauna conservation due to the presence of feral and other exotic species.

A major program aimed at alleviating the impact of fox predation on relict mammal fauna in the south-west was commenced. This project builds on information on the impact of fox predation on local populations of the brush-tailed rock wallaby and woylie previously obtained in studies of these declared rare species.

Translocation of numbats to new areas outside the present range of species was commenced in December 1986. It is anticipated that re-establishment of populations in some of the areas selected will be possible and when successful will enhance conservation prospects for this unique mammal. The program for re-establishment of noisy scrub bird populations was continued by operations staff.

A major study of marine turtles on the Pilbara and Kimberley coasts was commenced in September 1986. Approximately 1 000 adult turtles were tagged on nesting beaches between October 1986 and March 1987. Tagging sites extended from the West Kimberley coast south to Exmouth, with the two main sites being the Lacepede Islands Nature Reserve and the Barrow Island Nature Reserve. Small numbers of flatback, Hawksbill and Loggerhead turtles were tagged; the majority were green turtles. The sole recovery to date is of a female green turtle tagged at the Lacepedes and later captured and released alive at Croker Island, N.T., by an Aboriginal fisherman.

Re-survey of the saltwater crocodile population in the Kimberley region in 1986 revealed an increase in the numbers of larger sized individuals and a slow overall rate of recovery of the depleted population. Total numbers are still relatively low (less than 3 000).

The third aerial survey of Western Australian red and western grey kangaroo populations was commenced in May 1987 by Australian National Parks and Wildlife Service officers.

## **Fire**

The aim of the program is to understand the role of fire in ecological processes as a basis for predicting effects of various fire regimes on the biota. To describe fire behaviour in major vegetation types and to develop fire behaviour models suitable for use by land managers.

The primary objectives are:

1. To determine the effects of various fire regimes on flora and fauna and especially rare species. To identify and monitor critical plant and animal species and communities which may be used as indicators of the relationship between fire and the environment.
2. To develop fuel and fire behaviour models for major vegetation types and to assist with the development of operational guides for prescribed burning and wildfire suppression.
3. To develop computer-based management systems which integrate fire behaviour, suppression, effects and relevant resource information.

### **Fire Ecology**

Vertebrate and invertebrate sampling grids were established on several wheatbelt nature reserves including Tutanning, Durokoppin and East Yorkrakine to sample shrubland habitats, to test various sample designs and to obtain pre-treatment data for fire effects studies.

Pitfall samples of invertebrates have been collected before and after a summer fire on experimental plots at the Perup Fauna Management Priority Area on the eastern margin of the jarrah forest. Sampling will continue on a seasonal basis. Further sampling to compare the effects of repeated spring and autumn burning on invertebrates is planned.

The controlled use of autumn fire to regenerate heartleaf thickets (*Gastrolobium bilobum*) for use as habitat by the tammar wallaby, *Macropus eugenii* is now operational at the Perup Fauna Priority Area. Research is continuing and operations are being monitored.

Plots to study the long term effects of various fire regimes on vegetation in south-west forests have been constructed and some fire treatments have commenced. The study covers major vegetation types in forest areas of the South-west. Similar plots were constructed in jarrah, (*Eucalyptus marginata*) and karri (*E. diversicolor*) forests near Manjimup in 1972. Some of these plots have been burnt every 2-3 years without causing major changes to understorey composition. A progress report is being prepared for publication.

Research into the post-fire regeneration of vegetation in heathlands at Two Peoples Bay and Mt Lesueur Nature Reserves continues.

A study of the interactions between fire, vegetation and animals has commenced in the desert at Queen Victoria Spring Nature Reserve. An alarming decline of medium-sized mammals in the deserts and the strong evidence linking this with a changed fire regime in the last 50 years has prompted this major new research initiative.

### **Fire Behaviour**

Some six years of research into the prescribed burning of even-aged karri regrowth to achieve fuel reduction has culminated in the development of a prescription and operational trials. The prescription emphasizes the importance of carefully planning and executing the burns to ensure optimal fuel removal without unduly damaging potential crop trees.

Research into fuels, vegetation and fire behaviour characteristics in heathlands at Kalbarri, Moora and the Fitzgerald River area has commenced. Scientists are also monitoring the effects of various wildfire prevention and suppression activities, such as chaining, on vegetation.

Following several years of research, prescribed burning to remove highly flammable slash fuels left following thinning operations in *Pinus radiata* plantations is now operational. The controlled use of fire to reduce the abundance of *P. radiata* wildings in pine plantations has been studied and operational prescriptions prepared.

Fuel and fire behaviour studies have commenced in conjunction with fire effects studies in the Queen Victoria Spring Nature Reserve. The aim of this research is to enable the preparation of reliable prescriptions for conducting mosaic or patch burns in major desert reserves with the dual purpose of improving habitat and minimizing the impact of wildfires.

## Flora Conservation

The aim of the program is to undertake research on the conservation and management of the indigenous flora of Western Australia.

The primary objectives are:

1. To establish and maintain a data base on the geographical distribution and conservation status of Western Australia's native flora and plant communities.
2. To undertake research on rare and endangered flora systematics, geographical distribution, genetics, population ecology and management techniques (e.g. fire, mechanical disturbance, weed competition, grazing regimes, pest and disease control, propagation and re-establishment in the wild), and to recommend on land acquisition, management techniques, future research and conditions for Ministerial permits to take with a view to producing rare flora wildlife management plans. To prepare wildlife management programs for species that require management.
3. To undertake research and provide advice with a view to producing wildlife management programs for plants used in wildflower industry.
4. To foster a sympathetic public attitude to flora conservation through direct involvement of the public in appropriate research projects and through open communication of research findings.

Surveys of rare and poorly known flora were conducted on major field trips to Mt Lesueur-Eneabba, Hamersley Range National Park, Cape Range National Park, Kalbarri National Park, Dragon Rocks Nature Reserve, Hatters Hill-Ironcaps area, metropolitan Perth, Leeuwin-Naturaliste National Park, Great Victoria Desert, Albany-Bremer Bay area and on granite outcrops throughout the south-west. New species of *Tribonanthes* and *Wurmbea* were discovered. New populations of about 50 poorly known species were located, including the presumed extinct *Verrauxia erreauxii*.

The Banksia Atlas project was completed, the data analysed and submitted for publication to the Bureau of Flora and Fauna, Canberra. Treatments of *Anigozanthos*, *Conostylis*, *Blancoa* and *Macropidia* were published in Volume 45 of the Flora of Australia, including the description of new species and subspecies. Field work for systematic studies on new eucalypts and orchids continued.

Permanent monitoring quadrats were established for 12 currently declared endangered species of plants.

Conservation genetic studies were completed on the declared endangered species *Acacia anomala*. Marked differences were found in the genetic structuring of the two known disjunct population groups (10 populations in total) which were attributed to their contrasting modes of reproduction (vegetative vs sexual). As a result different strategies for the conservation of this species and its genetic resources will need to be considered in these two areas. Initial population genetic studies were completed in the declared endangered species *Stylidium coroniforme* indicating similar levels of genetic diversity in the two known populations even though one had been through a severe bottleneck in the past eight years. The consequences of this finding in terms of minimum viable population size and levels of genetic diversity is of particular interest and indicates that at least some species have a genetic system capable of coping with a severe reduction in population size and the loss of substantial genetic resources. Seed material for conservation genetic studies has been collected from all populations of the following rare and endangered species: *Banksia brownii*, *Banksia verticillata*, *Banksia goodii* and population genetic studies initiated on *B. brownii*.

A phylogenetic study using isozyme techniques has been completed on the genus *Eremaea*. As a result of this study and work by Dr R. Hnatiuk (Bureau of Flora and Fauna, Canberra), at least eight new taxa have been recognized; a number, including a new species from Clackline Nature Reserve, being extremely rare.

With regard to establishment of field herbaria, the national parks staff of Yanchep, John Forest, Walyunga, Nambung, Cervantes and Kalbarri participated in training courses together with forestry officers from the Wanneroo and Mundaring Districts.

## Jarrah Forest

The aim of the jarrah forest program is to ensure that this ecosystem is managed on a sound scientific basis. The program is organized around the themes of protecting existing timber and water resources, identifying fast growing stands which can be logged without aggravating insect infestation and fungal infection, increasing the productivity (quantity and quality of wood and water) of these stands, and ensuring that a new stand develops adequately after logging.

1. To elucidate how the jarrah forest can be logged, regenerated and thinned in the presence of fungal diseases and insect pests. To determine how existing stands of jarrah differ in their rates of wood growth, capacity for regeneration, and resistance to fungal disease and insect pests and other disturbances.
2. To ascertain the optimal relationship among stand basal area, yield of utilizable wood, and water quantity and quality within catchments.
3. To ensure that wood harvested from the jarrah forest is used efficiently.
4. To understand the factors governing the regeneration of the jarrah ecosystem.
5. To ensure that no indigenous plant or animal species declines in abundance over the whole jarrah forest as a result of forest management.
6. To foster a sympathetic attitude from the public to current management of the jarrah forest ecosystem, and to involve the public in appropriate research projects.

The effect of chronic jarrah leafminer infestation on crown condition and wood growth of jarrah in the southern jarrah forest over a 16 year period has been quantified.

A system of hazard rating of stands in the northern jarrah forest for fungal infection has been developed, and is being evaluated in the forest.

A co-operative study with CSIRO has been initiated to investigate and model factors controlling the growth of jarrah pole stands following thinning and fertilizing.

Log stockpiling trials of regrowth jarrah showed the advantages of storage under water sprays in reducing end splitting, insect attack, and subsequent degrade following sawing. Five watering schedules were tested, and showed that satisfactory results could be obtained with substantially less water usage.

Jarrah seed has been collected from more than 50 locations in the southern jarrah forest. This will be used in a provenance trial examining growth and resistance to fungal and insect work.



## Karri Forest

The aim of the program is to provide a sound scientific basis for planning and implementing sustainable management of the karri ecosystem. The program has three primary objectives as follows:

1. Resources - to describe the biological and physical resource of the karri ecosystem and understand the factors that control their distribution and abundance, so that priorities for land use can be allocated on a scientific basis.
2. Management - to provide techniques to integrate the activities managed by the Department so that recognized values of the karri ecosystem are protected and maintained.
3. Production - to examine a range of stand management strategies and evaluate the effect of each of the quantity, quality, utilization and timing of wood production during a rotation. To understand the factors governing the sustainable production of other resources including water, honey and recreation.

The details of a five year plan for the program were decided on at a meeting of program members held in December 1986.

Research into aspects of karri silviculture has concentrated on analysing existing experimental data to determine the growth response of young stands to thinning and fertilizer treatments. Re-measurement of an espacement trial in 17 year old forest will help to qualify the influence of initial stand density on the form and growth rate of karri.

Data from a study to determine the factors controlling the distribution and growth of karri are currently being analysed. Results will be used to classify forest sites according to growth potential for incorporation into a growth stimulation model. A more detailed classification of forest and coastal sites within the Walpole-Nornalup National Park has been undertaken to provide a basis for interpretation of the distribution of plants and animals in the area.

Research findings on fire behaviour and effects in young karri regrowth provided the basis for successful prescribed burning of 40 ha of 17 year old forest in Manjimup District. Progress has been made in writing up several fire studies in karri for publication.

Work has continued in analysing genetic variation within a number of populations of karri using gel electrophoresis techniques. A schedule has been developed to evaluate a range of experimental treatments for increasing seed production within established orchards.

Utilization research has concentrated on stockpiling, sawing and seasoning trials for small diameter karri logs. A project has also commenced to examine the causes of brown wood defect in karri and evaluate the possible consequences for future utilization. A survey of the incidence of *Tryphocaria* borer in karri has indicated that the insect attacks the more dominant trees in a stand and is less frequent on high quality sites.

## Pine

The aim of the program is to provide forest managers with the information base necessary to optimize production and utilisation of softwood in Western Australia.

The primary objectives are:

1. To increase wood production, wood quality and disease resistance by production of superior genotypes.

2. Determine optimum establishment, pruning, thinning and fertilization regimes for *Pinus radiata* and *P. pinaster* plantations.
3. Determine the impact of silvicultural practices on wood quality and recovery of wood products.

### **Tree Breeding**

Planting of a second-generation *P. pinaster* seed orchard commenced at Manjimup in 1986. This will replace the first generation Mullaloo orchard located in the Joondalup Regional Centre. Grafts for the new orchard were made from collections within the best families of *P. pinaster* that have shown superior growth rates, smaller branching and straighter stems.

Planting of the *P. radiata* in hedged artificially pollinated seed orchards (HAPSO) continued at the West Manjimup nursery site using selections showing superior growth rates, stem, branching quality and *Phytophthora cinnamomi* tolerance. Screening of Western Australian, interstate and overseas populations of *P. radiata* for tolerance to *P. cinnamomi* has continued. A high proportion of tolerant families has again been found in the South African population. Some families from the New Zealand program, selected for their high quality volume production, straightness and branching characters, have also been found to have a high level of tolerance to *P. cinnamomi*.

### **Silviculture**

A pine growth modelling team with representatives from Inventory, Economics and Silviculture branches, and Research Division have begun assembling the data necessary to improve growth functions which predict timber yield. Data for radiata pine at a range of sites, ages, stand densities and fertiliser regimes have been collected and will be used along with previously collected data to develop the pine growth model. This project will enable managers to evaluate the profitability of alternative silvicultural options with greater accuracy than is currently possible.

Further experiments evaluating responses to fertilizer by *P. radiata* following thinning have been established. Results from experiments already in progress have shown that fertilization following thinning substantially increases wood production. In the second year after treatment the basal area increment of thinned and fertilized trees were up to double that of trees that were thinned but not fertilized.

### **Utilization**

A saw milling study compared sawn graded recoveries of pine grown in agroforestry stands, fuel-reduced buffers, and in conventional plantations. Fast-grown pine from agroforestry stands and fuel reduced buffers produced an acceptable product.

## **Plant Diseases and Pests**

The aim of this program is to diagnose causes and to assess, understand and advise on plant diseases in native plant communities, plantations and nurseries.

The primary objectives are:

1. To diagnose causes of disease and assess damage in situations of concern.
2. To survey and to monitor disease, thus enabling predictions to be made as to the potential impact and economic importance of plant diseases.
3. To define factors affecting host resistance, disease expression and impact.
4. To advise on control of pathogens and the management of vegetation to minimize damage caused by diseases and pests.

5. To identify any indigenous plant species or communities considered to be seriously threatened by disease.

A disease hazard rating system has now been developed for predicting dieback impact in the northern jarrah forest. The system is being validated for use by forest managers and as an essential base for future research. Good progress has been made in understanding the processes which result in disease expression in the field. Work has concentrated on monitoring sub-surface flows of water within sites after rain, population dynamics of the fungus and the etiology of disease symptoms in jarrah. Quantitative information on the rate of disease spread, rate of tree decline and amount of damage done to jarrah root systems by the fungus on different sites has been collected. Research has also commenced on dieback in susceptible coastal communities and methods of chemical control of spot-infections of the fungus are now being tested.

The impact of disease caused by a number of *Phytophthora* species other than *P. cinnamomi* has also been assessed in areas of heath and banksia woodland north of Perth. Other diseases were also studied and their progress monitored throughout the year including those caused by *Armillaria luteobubalina* and *Botryosphaeria ribis*.

## Rehabilitation

The aim of the program is to regenerate on any disturbed land self regulating ecosystems able to meet the local land use objectives.

The primary objectives are:

1. To develop the treatments and management practices to regenerate disturbed land as an integral part of land use.
2. In cases of major disturbance, such as that affecting water catchments in the southwest (mining, salinity, dieback), to develop models of the important physical and biological processes to provide a framework to guide research and a method to predict the consequences of the disturbance to monitor the consequences of the disturbance.

Selection of tree species is a key decision in revegetation. In the case of salt affected catchments transpiration potential should be a major selection criterion. However, no information of this type has previously been available. In a joint study with the W.A. Water Authority important differences between species were demonstrated. Of 25 species tested on a site with shallow saline groundwater, the outstanding performers were *Eucalyptus sideroxylon*, *E. microcarpa* and *E. botryoides*. These and other promising species will be included in current catchment reforestation operations.

There has been considerable progress in recent years in the development of techniques for managing salinity. However, the full potential of these techniques cannot be demonstrated unless they are systematically applied over a substantial area. A project has been initiated with the Department of Agriculture and the W.A. Water Authority to do this. The target area is the Denmark River Catchment where agricultural development of about 15 per cent of the catchment has jeopardized its water supply potential. The project will initially involve land capability survey and planning of drainage and cropping (including tree crops) systems on a farm by farm and integrated catchment basis. The objective is to design and demonstrate economically attractive modifications to farming practice, which would be voluntarily adopted by farmers and would also control salinity. If successful the Denmark River Project could serve as a model for the management of other similar areas.

In the process of introducing new dieback control techniques to bauxite mining activities in the jarrah forest, it became apparent that the major impediment to progress

was local scale co-ordination and integration of existing practices rather than the availability of new techniques. For this reason a new project, funded by Alcoa, was initiated. It will upgrade local scale planning procedures especially with respect to dieback but will also include all other aspects of land use.

Practical solutions to the many problems hindering tree establishment on farms are being rapidly developed. In pasture land the direct seeding technique, with effective weed control, has been developed to the point where it is reliable and cheap. Better specification of mounding to enhance the establishment of trees on saline, waterlogged sites is now possible.

## **Wetlands and Waterbirds**

The aim of the program is to undertake studies that will assist in the conservation of Western Australia's wetland ecosystems and the maintenance of waterbird populations.

The primary objectives are:

1. Identify wetlands of high conservation value and identify species of wetland-inhabiting plants and animals with a threatened status.
2. Gain an understanding of the processes that maintain high conservation value of wetlands and ensure that management practices are appropriate.
3. Gather biological data by which to ensure sound management of species that are declining in numbers or are rare and endangered.
4. Provide a scientific basis for management of game species of duck.

Members of the program have continued to devote a large proportion of their time to management problems (e.g. midge control at Forrestdale Lake, monitoring pesticide levels at Herdsman Lake) and to giving advice to a host of outside organisations. Major achievements for the year include:

1. A draft list of wetlands to be nominated as Wetlands of International Importance has been submitted to the Government.
2. The Royal Australasian Ornithologists Union (RAOU) has submitted the final report on the 1981-85 Waterbird Survey Project which covers 197 nature reserves in south-western Australia. This will be published by the Department.
3. Departmental staff have almost completed analysis of RAOU Waterbird Survey data to gain a better idea of how physical characteristics of a wetland (e.g. vegetation, salinity) affect its use by waterbirds. A paper on this topic was presented at the Australian Society for Limnology meeting at Albury-Wodonga in May 1987.
4. \$24 000 was received from the Australian National Parks and Wildlife Service to analyse data collected between 1953-76 in the Department of Fisheries and Wildlife duck banding program.
5. An invertebrate survey program of major lakes in the South-west was initiated. A number of new species of ostracod (a small crustacean) and water mite have been collected.
6. A Departmentally-funded expedition by the RAOU to Lakes Gregory and Argyle (in the Great Sandy Desert and Kimberley) counted 450 000 waterbirds in September 1986.

## **Research Computing**

The aim is to set up and maintain an integrated computing environment which will provide the Research Division with the processing power and facilities necessary for it to more effectively and professionally perform its aim, primary objectives and research projects.

The primary objectives are:

1. To provide an integrated environment where the capture, processing, analyses and dissemination of information is fully automated, i.e. elimination of mundane manual workloads.
2. To develop computing skills and expertise within the Research Division and provide expert knowledge in systems and softwares tailored to meet specific research requirements.
3. To communicate and integrate with other research organisations to allow for exchange ideas, softwares and other products.

In the computing area, achievements can be related directly to an increase in efficiency, quality and productivity, and, indirectly to an increase in the level of computer literacy and resources that enable the Research Division to keep abreast of research problems.

### **Data Management**

Continuing automation and widespread use of computers within the Division has enabled research scientists to cope with and manage enormous amounts of data.

### **Data Analyses**

Installation of the SAS and NTP (PATTERN) softwares have made it possible to perform statistical analyses and numerical taxonomy not otherwise possible.

### **Information Dissemination**

Hardware and software integration has provided staff with the ability to electronically collate and consolidate information and present them in graphical and textual form. In the word processing area alone, at the Woodvale research centre, the word processing bottleneck has been eliminated and one typist has been reclassified.

Graphical outputs (distribution maps, graphs and charts) can now be generated at will.

### **Field Data Capture**

The introduction of data loggers, recorders, laptop and portable computers have provided staff with much needed processing power. This has enabled officers to record, validate and correct data out in the field. In the recent Kimberley rainforest field trip, the biogeography team used a laptop computer and estimated a savings of three person weeks. There are also indirect savings that cannot be quantified (e.g. readings that cannot be remeasured, not feasible to return to study site after return to the research centre).

### **Communications**

Establishment of communications between hardwares and softwares, the installation of communications lines and electronic mail have made it possible for the Research Division to communicate more effectively on an inter/intra departmental basis. This has facilitated collaborative work (e.g. with the RAOU and Museum).

# SERVICES

---

## Computing Branch

Several new computer systems were installed during 1986/87 and many existing systems were improved. Staff ceilings limited the services available from Computer Branch.

### New Systems

A subscription system for Departmental publications was installed and put into service this year. The system handles revenue and mailing lists generated by subscriptions to and sales of Departmental publications.

An electronic mail system which uses the computer network was also put into operation. Electronic mail allows rapid and inexpensive communication between the many regional and district offices of the Department.

A new records management system was implemented to assist tracking files. The system stores the titles of all central files as well as their location, and is also used for information retrieval.

A new budgeting system which allows direct input of budgets into the computer, saved a considerable amount of time during budget preparation this year.

A system was implemented to provide details on Crown reserves in Western Australia. Information about national parks, nature reserves, timber reserves and other reserves of interest is available from this system. The data is collected by the Department of Land Administration and is provided to this Department as part of the WA Land Information System.

Good progress has been made towards the implementation of a new system to manage the kangaroo population throughout Western Australia. This system will allow more accurate monitoring and control of the taking of kangaroos.

A package to handle wages payroll and costing was purchased and is being installed on the Department's computer. This system, when operational, will save considerable time during payroll preparation and project costing, particularly in district offices. The wages payroll is now completely reconciled on computer, which has eliminated time-consuming manual checking.

A system is also being developed to process creditors' transactions. This system will improve the recording of committed funds and process transactions more quickly.

The Department has started using PIMS, the Public Service Board's personnel management system. This system will assist the Personnel Branch to monitor staffing levels within the Department.

### Hardware

The computer communications network was rationalised during the year to make more efficient use of the available facilities. Software was developed which enables micro-computers to be used as terminals for the main-frame computer and to transfer data to other micro-computers. These programs have resulted in more efficient use of micro-computers and terminals in the Department.

A further 20 micro-computers were installed in the Department. Use of these included research applications, word processing, spreadsheet analysis and data management.

The Departmental Concurrent 3240 computer was enhanced during the year to handle the increasing workload. A new disc drive was purchased and the main memory was enlarged. An additional seven terminals and five remote printers were purchased for the systems that have been completed during the year. Despite these improvements the Concurrent remains overloaded and a new computer is needed urgently.

A contract was let to consultants Arthur Young International to carry out a review of the Department's information management requirements. The project will also review plans for improving the Department's computer network.

## **Economics Branch**

Projects this year included:

### **Commonwealth Grants Commission**

Several submissions were prepared for the Commonwealth Grants Commission's 1988 review of tax sharing arrangement between the Commonwealth and States. The submissions covered national parks and wildlife services, forestry and fire protection. In addition other States' submissions were examined and comments prepared for the Commission.

### **Sawlog Royalties**

Western Australian hardwood and softwood sawlog royalties were comprehensively reviewed. Meetings were held with the timber industry to discuss the findings of the review, and written replies were made to industry submissions. As a result hardwood royalties were increased by an average of 22.5 per cent in real terms, with further increases likely.

### **Timber Demands/Softwood Afforestation Requirements**

A review was made of future world, Australian and Western Australian timber demands. Connected with this, an analysis was made of future softwood afforestation requirements for the State.

### **Operations Research**

Further modelling and associated work was undertaken, aimed at formulating economic guidelines for management of the Central Forest Region's radiata pine resource. This operations research work is being extended to the Northern Forest Region's pinaster pine resource.

### **Softwood Sharefarming Scheme**

The scheme was extended to the South Coast Region, and principles were developed for calculating payments for land offered to the Department in that area. Payments were calculated for a number of properties offered to the Department, and contracts were negotiated with a number of landowners.

Following is a summary of 1986/87 developments.

#### Contracts completed for 1987 plantings

Central Forest Region	151 ha
Southern Forest Region	424 ha
South Coast Region	565 ha
TOTAL:	1 140ha

#### Contracts completed for 1988 plantings

Central Forest Region	245 ha
Southern Forest Region	505 ha
TOTAL:	750 ha

#### New areas offered and under assessment

TOTAL:	1 938 ha
--------	----------

#### **Other**

Other work included calculation of compensation payable to the Department for a sand mining operation in the Northam Shire, preparation of submissions to the Australian Bureau of Statistics on the Department's statistical needs, and preparation of material for the timber strategy document "Timber Production in Western Australia (Draft)".

The Branch has a relatively small number of staff, making it difficult to cope with a wide range of economics work. Staff numbers fell during the year.

## **Engineering Services Branch**

### **Fleet Management and Workshops**

The Department continued to upgrade its vehicle fleet with 196 new replacement and 23 new additional vehicles being put into service.

Included in the upgrading are seven heavy duty 4x4 fire trucks, a larger bulldozer based at Kirup for fire protection in the Blackwood Valley plus two low loader prime movers.

The operating costs of the fleet declined in real terms.

Regional workshops at Manjimup, Collie and Mundaring carried out normal fleet maintenance, major plant repairs and specialised equipment development and fabrication. Ten small district workshops in the forest areas undertook normal fleet maintenance. Private workshops were used where Departmental workshops could not provide the necessary service.

### **Housing and Building**

A works program of about \$1 200 000 was completed. Major jobs included the construction of a new store for the Wanneroo District Office, the amalgamation of services for the Kirup District with the construction of a new store, amenities block and workshop, an office and boat shed for Fitzroy Crossing, and housing at Hamersley and Millstream.

Investigation and preparation of briefs for future works continued. Notable among these were the continued planning for the Narrogin Regional and District Offices, the extensions to the Research Complex at State Operations Headquarters and the Ningaloo Marine Park Visitor Centre and associated support buildings and services.

Development of an asset register continued along with the administration of housing rentals and other housing responsibilities already with the Branch.



### **Stores**

A computer supported stores management system became operational on 3 February 1987. From the implementation date to the close of the financial year Stores Branch had a throughput of 7 258 issues, 642 receipts and 16 credits.

The system is supported by a comprehensive catalogue available stock. A total of 1 264 stock lines comprising 509 publications, 391 forms and 364 stationery items are held. A questionnaire on user acceptance to the new stores management system indicated that it has been well received.

### **Consulting Services**

Mechanical engineering consulting was limited due to increased workloads in other areas. Officers of the Branch provided advice for setting up and maintaining equipment for the new pine planting program at Albany.

Electrical consulting services included the design for upgrading Hamersley power station, and preparation for the extending the electrical reticulation at Millstream.

Consultant work on buildings, telephones, accommodation and properties continued.

## **Environmental Protection Branch**

### **Weeds**

A policy for control of weeds was issued in November 1986. Close liaison was maintained with the Agricultural Protection Board, its regional advisory committees and zone control authorities.

### **Feral Animals**

The Branch assisted in the development of operational programs for fox control to protect rare animals. Assistance was provided to several districts in pig and goat control programs.

An inter-Departmental committee was formed to consider implications and control needs, after the discovery of hydatids in kangaroos and pigs in the water catchments of Jarrahdale and Mundaring.

### **Dieback**

The dieback and logging policy was updated in September 1986 and the revised Hygiene Manual issued. Liaison with regions, districts and industry was maintained by field visits and inspections. A report on the hygiene logging trials has been prepared.

### **Mining**

Dealing with the issues associated with mining continues to be a sensitive, time-consuming facet of the Branch's work. A Departmental response to the Bailey Committee Report, and a review of public submissions were prepared.

The Branch dealt with many tenement applications and their fate is summarised in the table.

	Opposed		Recommended		Pending	
	Exploration Prospecting	Mining	Exploration Prospecting	Mining	Exploration Prospecting	Mining
National Park and Nature Reserve	2	4	2 *	3 *	41	6
State forest and other land tenures	4	8	32	17	33	15

\* All were tenements being converted from the 1904 Mining Act.

Major submissions dealt with during the year were for silica sands at Gngangara, and gold mining and processing in three timber reserves at Kalgoorlie, Norseman and Rاندalls.

The Branch worked closely with the Mines Department and the Environmental Protection Authority. It represented the Department on the working group examining conservation and rehabilitation in the minerals sands industry and on the Mining and Management Planning Liaison Group (Alcoa). Procedures for the administration of mining compensation were prepared and distributed.

#### **Rare Flora**

District registers were updated and a number of surveys were undertaken. Operational guidelines for activities on Departmental lands were prepared.

#### **Water and Salinity**

A report examining logging in stream reserves and its effect on water quality has been completed. Procedures for assessing drainage into Departmental lands have been prepared. The Branch also provided assistance in evaluating drainage/salinity problems at McCarley's Swamp and Lake Toolibin. Departmental submissions on the Gngangara ERMP and Harris Dam ERMP were prepared.

### **Finance Branch**

#### **Accounts**

During the year 95 000 debit and 33 000 credit vouchers were processed. Other duties included provision of financial statements for the Treasury Department and for management at executive, regional and district levels.

#### **Budgeting**

The "cost centre" concept was introduced during the previous financial year, and operated throughout 1986/87. Defined as a unit of financial management, it encourages all 64 cost centre managers to budget and manage their finances with precision and responsibility. A new innovation was for all cost centres to allocate their budget to the individual expenditure items using the central computer. Once allocated all data was collated into the appropriate Treasury headings.

A second innovation implemented during the year permitted managers to transfer budget monies between items, utilising the computer facility. This resulted in a speedy and accurate preparation of financial reports.

#### **Financial Systems**

During the year, considerable improvements were made in financial reporting based on the General Ledger System and in preparation of relevant documentation. Systems implemented were the abovementioned budget system and a subscriber system for Landscape recipients.

Regular visits were made to field offices by Finance Branch staff to ensure conformity of standards in presentation and regular contact was maintained with Commonwealth and State Departments.

## **Fire Protection Branch**

### **Policy, Plans and Training**

The Department's fire management policy was issued as Policy Statement No. 19 in May 1987. The fire policy embraces two management objectives:

"To protect community and environmental values, on lands managed by the Department, from damage or destruction by wildfire;" and

"To use fire as a management tool to achieve land management objectives in accordance with designated land use priorities".

Further, the statement contains guidelines for the major aspects of bushfire control, including prevention through public awareness, liaison and interaction with neighbours and other organisations, detection systems, suppression priorities, use of planned fire and fire research activities.

Interim guidelines for necessary operations including fire protection, have been developed and approved for seven national parks and two nature reserves and a further 11 are now in various stages of preparation.

Fire Control Working Plans (fire preparedness plans) have now been developed for all forest districts and for the south-western regions.

Three fire training courses, at intermediate and advanced levels, were conducted during September 1986. They were attended by a total of 78 Departmental staff plus nine persons from other organisations, including one overseas and several interstate foresters. A series of two-day regional fire seminars were held in November and these were attended by 147 Departmental staff plus 18 officers from the Bush Fires Board, WA Police Force and the State Emergency Service. Training courses for 20 navigators and incendiary machine operators were held at Dwellingup and Manjimup during August 1986. This Department's staff have also been included in fire training by other organisations.

### **Services**

Fire Protection Branch provided the following services to districts and regions:

- Detection - Nine aircraft were employed on fire surveillance duties at six bases in the south-west portion of the State. A total of 7 579 hours were flown at a cost of \$537 270. Four lookout towers in key pine forest areas were manned and a further 20 towers were maintained in readiness to provide emergency backup to the aircraft.
- Weather forecasts - A comprehensive forecasting service was provided by a private meteorological company for the duration of the fire season at a cost of \$46 000. This included regular daily forecasts for 10 nominated locations in the South-West plus spot forecasts for other areas throughout the State.
- Aerial prescribed burning - Two fixed wing aircraft were contracted for aerial ignition of prescribed burns. A total of 484 hours were flown and 113 ignition jobs were undertaken for an area burnt totalling 203 177 ha. Further details are in Appendix 10.
- Computer services - Daily weather forecasts and predicted fire behaviour are entered into the Department's computer to assist district staff throughout the

fire season. Ms J. Beck, a Canadian forestry graduate specialising in computer technology was contracted to review and further develop the fire suppression computer model for use in fire training for controllers.

- Information system - Statistics and other reference material on fire control topics are now being compiled and microfilmed by the Branch on an ongoing basis. These are in increasing demand by departmental users and the public.

### **Research and Development**

Branch personnel have been involved in the design, development and testing of a wide range of fire systems, facilities and equipment. Of particular interest are:

Fire suppression organisation - A new instruction booklet was developed which details the full range of duties and responsibilities of the staff functions associated with large fire organisations. New developments include a Fire Resources Recording System; re-organisation of field control point layout; and improved reporting arrangements.

A preliminary study of Helitorch technique for ignition of slash fuels and scrub fuels was conducted by Mr Gerard van Didden during his study tour of eastern States fire organisations. It is planned to develop a prototype this year designed to suit Western Australian conditions.

A portable pumper unit stand was designed to facilitate the safe handling and storage of fire pumper units at remote bases.

A range of new moisture meters for measuring the fuel moisture content have been tested and modified for use in prescribed burning and fire suppression planning.

### **Equipment**

The Branch is responsible for the purchase, manufacture and testing of the Department's fire equipment, including pumpers, tools, hoses and consumable items. A summary of the Department's fire fighting equipment is given in Appendix 11.

### **Suppression of Wildfires**

A total of 341 wildfires were attended by this Department; 287 of these occurred in the forested South-West of the State and 54 burned in areas outside the forest regions.

The conditions causing fires in the forested areas were about average with extended dry conditions in autumn. The total number of wildfires in the State hardwood forests was 139 and these burned an area of 9 400 ha. This compares with a ten-year average of 129 fires with a total area burnt of 5 700 ha.

Of the area burnt this year, 5 300 ha were the result of three separate fires in the proposed Shannon-D'Entrecasteaux National Park. Another fire in the Walpole-Nornalup National Park burnt almost 1 600 ha of karri-tingle forest and flats and threatened the town of Walpole.

In addition, there were 34 fires in Departmental pine forests covering a total area of 25 ha. A further 88 of the fires attended by the Department in the South-West, burned some 5 000 ha of private property and other lands adjoining Departmental lands.

In the areas outside the south-west forest regions, 54 wildfires burnt over a total area of 218 500 ha of which 154 000 ha were burnt by a fire in the Hamersley Range National Park.

Details of all wildfires are given in Appendix 12.

## **Information Branch**

### **Advisory Services**

With the growing need and interest in establishing, regenerating and maintaining trees and other species in the farm community, the demand exceeded the capacity of the Rural Advisory Service. Most of the extension work was done by three officers situated at Como, Narrogin and Geraldton who liaise closely with the Department of Agriculture. Assistance was willingly supplied by staff from regional and district offices, and nursery staff. The services requested were assistance in species selection, planting and regeneration techniques for shelter and fodder, erosion control, amelioration of salinity and for nature conservation and aesthetic reasons.

In order to service the heavy demand for information there was a strong emphasis on field days and farm demonstrations. The number of individual advisory contacts exceeded 1 200, included 232 farm visits, and the total involvement with groups was 61 talks, demonstrations, meetings and other activities. Trial work on various problems was carried out in co-operation with researchers, and advisory publications on topical subjects were published and current ones reviewed.

Responsibility for advice on commercial plantation production and agro-forestry in the South-West was transferred to Silviculture Branch, who appointed an officer based at Manjimup.

### **Community Education and Interpretation**

The information display shelters project commenced in 1986 has continued with placement of displays in all major national parks from the Kimberley to Nambung. Construction of 25 display shelters by Engineering Branch and the purchase of production equipment has considerably reduced cost. The shelters have been distributed to the regions in preparation for displays both proposed and undergoing production

A special display shelter was produced for Flinders Bay, Augusta to commemorate the acclaimed whale rescue of July-August 1986, and to provide information on whales, whale watching and caring for stranded whales. Other display shelters were completed for forest areas.

Interpretative planning was well established for the Ningaloo Marine Park visitor centre and display.

Thirteen Resource Notes, a new series of information sheets for teachers and students have been published and many more are in production or planned.

Consultation with various groups within and outside the Department has continued:

- Of particular note has been the involvement, with the Landscape and Recreation Branch, in conducting recreation management workshops in the Kimberley, Pilbara, Northern Forest, Central Forest and Southern Forest regions.
- Assistance through advice, training and resources for regional staff involved with educational activities programs has continued. Summer park interpretative activities programs were initiated at Walpole-Nornalup and Leeuwin-Naturaliste National Parks.
- New interpretative publications for children (the Explorer series), students of natural history (the Exploring series) and visitors to Departmental land (nature trails), were planned and production commenced.

- In co-operation with other branches, Perup forest ecology courses, the expedition skills course and the Earth Education course, have been provided for teachers.
- Assistance to community groups, teachers' associations, and individual teachers, in the form of resources, speakers and advice has continued.
- Public participation in interpretative and educational projects has been encouraged. Morley Senior High School now assists with the administration of Icy Creek bush camp. The Westonia Shire and local branch of the Country Women's Association initiated the Sandford Rocks nature trail project.
- An interpretative and educational activities program was commenced in collaboration with University Extension. A number of successful activities were piloted.

### **Public Enquiries**

During the year an Information Branch officer was re-assigned to the enquiries/reception/licensing module at Como so that contact between the public and the Department could be monitored and improved. At the same time front office staff throughout the Department could be better advised in their handling of recreational and national park enquiries.

The existing receptionist item was transferred to the Information Branch to consolidate the public enquiries function in one Branch. Regular training sessions were held for various district and metropolitan front counter reception staff to improve the handling of public enquiries and implement the procedures of publication distribution and revenue collection. Promotion of the Department and its services is pressing for even greater efficiencies in the Como reception/enquiries office.

During the year the section was inundated with an increased volume of written and verbal enquiries together with the distribution and sale of many new publications.

### **Media Relations**

The output of informative media stories continued at a high level, with a large number of regional management and research staff participating. Although the Department and its management activities and policy decisions continued to receive critical scrutiny via the press and adverse comment from various sectors of the community, a favourable balance between the two types of articles was maintained.

### **Public Participation**

The Co-ordinator, Public Participation was seconded to Planning Branch for most of the year. However, the branch played a major role in the campaign to inform the general public of the proposals in the draft management plans for the three forest regions, and the timber strategy. An extra-ordinary number of public submissions resulted.

### **Publications**

There was about a 50 per cent increase in the number of publications titles produced in 1986/87. In all 125 were published, (excluding reprints) and they are listed in Appendix 13. The national park brochure series started in 1985/86 was largely completed. Educational publications were updated with commencement of the Resource Notes series (for secondary schools) and the Explorer series (younger children), and a new presentation for wildlife brochures.

However, the major initiatives for the year were the publishing of *Beating About the Bush* -- a guide to recreation sites in national parks and forest areas fringing the Perth metropolitan area -- and the sale of *Landscape* by subscription. By the end of the financial year about 4 000 copies of *Beating About the Bush* were sold via bookstores, newsagents and Departmental offices. About 3 500 *Landscape* subscriptions had been

received by year end, and 1 700 and 1 400 copies of the first two saleable editions were sold via newsagents.

In June 1986 approval was given for acquisition of computing equipment and software to allow "desktop publishing" in the Section.

### **Displays and Audio-visual Production**

The Department again mounted a major exhibit at the Holiday WA Expo, this year promoting the *Beating About the Bush* book. Displays were produced for other occasions (e.g. declaration of Marmion Marine Park, launch of regional management plans) and in support of branch and regional activities.

An audio-visual featuring the functions and responsibilities of the Department, and showing the attractions of national parks and forests under our control, was completed. It is widely available to the general public through regional and district offices.

Photographic work continued in support of Landscape, displays, audio-visual production and other publications.

### **Internal Audit Section**

A staff cutback reduced the 1986/87 program. However, the performance of outstations has generally been of a satisfactory standard, with the main problems being those of a procedural nature. Internal auditing of State Operation Headquarters was conducted on a continuing basis.

### **Inventory Branch**

#### **Forest Resource Measurement**

A strategy has been developed for an extensive inventory of 1.25 million hectares within the production zones of State forest by 1992. A trial to test the feasibility of inventory using 1:4 500 scale aerial photographs was completed on 4 500 ha of jarrah forest near Dwellingup.

In the Northern and Central Forest Regions 19 500 ha of native forests were sampled and yield estimates derived for the preparation of logging plans. Approximately 32 000 ha of jarrah forest were sampled to assess the volume of firewood available for a proposed silicon smelter project. Assessments of minor forest products provided estimates for posts, rails, strainers, domestic firewood and small jarrah sawlogs suitable for joinery wood.

Ninety permanent plots were remeasured to monitor growth in karri regrowth forest. Permanent plots were established in recently cut-over forest in the Dwellingup district for the purpose of evaluating the response of regeneration to various silvicultural treatments.

A comprehensive data base containing all relevant tree measurements has been compiled for the development of a growth and yield simulation model for regrowth karri.

An inventory of the mallet plantation in Dryandra State forest was carried out to provide information for planning the future of the timber industry in the area. In Central Forest Region pine forests 109 plots were established to monitor the Department's fertiliser program while 29 plots were established to determine the growth differences between fuel reduced buffers and normal plantation tending regimes. Approximately 1 500 ha of pine forests were routinely sampled to update resource information.

The Branch hosted the 1986 meeting of the Directors of Research Committee's Working Group No. 2 (Mensuration and Management) on the theme "Forest Management Planning Models". The meeting attracted 16 delegates from interstate and overseas and provided a useful forum for the exchange of ideas on techniques and progress in forest inventory and modelling.

#### **Operational Control**

Vertical 70 mm photography was programmed on a regional basis and used to map the boundaries of operations in both hardwood and pine forests. The Hardwood and Pine Operations Control Systems (HOCS and POCS) were maintained for the recording of all logging and tending operations, together with regeneration and rehabilitation details.

Sixty-five truck loads of jarrah sawlogs, 13 loads of mature marri chiplogs and 25 loads of karri regrowth logs were measured to monitor the relevant weight/volume ratios.

#### **Land Classification**

Vegetation types were mapped in conjunction with dieback interpretation where required for the planning of hardwood logging operations. Some interpretation of coastal vegetation in the Wanneroo district was carried out using aerial photographs and ground survey.

The Branch played a major role in the preparation of the land use maps for the draft regional management plans. This involved input at all stages from categorising land to the production of the final map product.

A project comparing southern jarrah forest types and CSIRO landforms of the South Coast and hinterland was carried out to investigate the future impact of dieback on the area. The project involved sampling vegetation and soil information from 42 high impact sites and 32 low impact sites.

#### **Disease Management**

230 mm format photography covering 13 400 ha was acquired through the services of the Department of Land Administration. Interpreters based in the three forest regions produced dieback-free and hygiene maps covering 21 600 ha of State forest. In the Northern Forest Region an additional 2 000 ha was mapped by ground stripping due to the unavailability of aerial photographs. Interpreters mapped dieback occurrence in several national parks and many nature reserves located between Nambung National Park in the Greenough Region and Cape Arid in the South Coast Region.

Inventory staff supported districts with the implementation of hygiene constraints. This involved dieback demarcation and road pegging as well as some training of district staff on disease recognition and sampling procedures.

#### **Operational Planning**

In both the Northern and Central Forest Regions detailed annual plans have been prepared and four-year rolling plans updated for hardwood and softwood logging operations. The equivalent plans in the Central Forest Region cover two and five year periods. Three conceptual 10-20 year resource/logging plans were produced for the silicon smelter project proposed in the Northern and Central Forest Regions.

#### **Information Systems**

A new map based information system, known as CALMIS (Conservation and Land Management Information System) was written to replace FMIS (Forest Management Information System). It will be closely linked to the Department's other geographic information systems.

The Branch provided area, resource and map information for inclusion in the draft regional management plans and timber strategy documents. It also responded to parliamentary, public and departmental enquiries.



### **General Services**

Photography missions for projects such as dieback and drought monitoring, recreation site planning, boundary settlements and inventory research were completed. Assistance was given to regional project such as evaluation of proposals for the next major hills water source, compensation claims and assessment of jarrah leaf miner infestation on some permanent increment plots.

### **Library Section**

The Library continued to provide an information service to members of the Department, students and the general public.

The main collection at Woodvale was expanded by the acquisition of books, pamphlets and periodicals and the "branch libraries" at regional and district offices, and research centres were also maintained, material for them being acquired and catalogued by the main Library. All cataloguing and indexing data was entered onto a database on the Library computer.

In addition to providing loans and information on request, the library published and circulated "CALM ALERT" which consisted of copies of the contents pages of periodicals received and lists of books catalogued and articles indexed for the month. Numerous on-line literature searches of DIALOG databases were made and the dial-up facility to the Australian Bibliographic Network was used extensively, mainly to locate items available for borrowing through the inter-library loan system.

The library committee met four times during the year to discuss such matters as the review of the list of journal titles to which the Library subscribed. The committee also considered reports on the progress of automating the library systems.

### **Mapping Branch**

#### **Map Products**

The Mapping Branch continued its program of working towards complete map coverage of the Department estate. Eight 1:50 000 forest maps were revised and printed in colour, and maps produced for four national parks.

Maps were provided in support of the many diverse functions of the Department and the following statistics summarise the work done:

- Aerial surveillance mapping: 1 067 map sheets revised, 6 maps screen printed to indicate vegetation clearing.
- Compensation mapping: Vegetation clearing for both bauxite and gold mining mapped from aerial photography.
- Prescribed burn plans: 94 maps prepared.
- Disease control mapping: 9 maps prepared for dieback impact and hygiene plans, 21 flight indexes of aerial photography prepared for map base data and interpretation purposes.
- Softwood forests mapping: 5 new plans produced and numerous routine amendments done, 40 management maps and 42 soil survey maps prepared.
- Hardwood Operations Control System: 127 base maps prepared.

- Legal mapping: 5 new tenure maps prepared and 181 revised; 6 certified maps, 58 apiary site maps, 6 tower boards; 4 co-ordination boards and 4 large wall maps prepared.
- Topographical mapping: 11 map sheets prepared to forest mapping specifications.
- Project mapping: Both thematic (e.g. vegetation) and topographical to meet special project needs.
- Recreation mapping: Information brochures - 17 maps prepared; management plans - 9 prepared; display panels for national parks - 27 prepared.

### **Operational Changes**

Several changes were instituted in 1986/87 to meet the growing needs for mapping, while reducing response times to service demands and coping with reduced resources.

Mapping services and storage have been decentralised to the three forest regions, with the relocation of a mapping officer to each regional centre. Early indications were that this change was successful. A new organisational structure was implemented to shift the Branch away from its preoccupation with forestry mapping, and allow adequate response to other mapping needs. Mapping policies and strategies were specified. There was further emphasis on technical and management training, particularly to foster most efficient use of available technology.

Work had started on the use of other agencies' base data to prepare management maps on a small scale for all areas beyond those covered by the forests series. The preparatory work was completed for new colour design and specifications to meet the national standards for management mapping, and to facilitate use of computerised data. An electronic lettering device was purchased to reduce time and expense on smaller typesetting needs.

## **Personnel Branch**

### **Staff**

The establishment of the Department expressed in full time equivalents has been determined at 1420.5 as at the 30 June 1987. This figure is made up of 390.9 Public Service Act staff, 377.78 employed under the Conservation and Land Management Act, 636.82 wages staff and 15 positions filled under the other contract arrangements.

A breakdown on a full time equivalent basis of total numbers by division, branch, region and district is provided in Appendix 14.

During the year there were:

- 34 new appointments;
- 18 appointments made permanent;
- 11 retirements;
- 4 deceased;
- 29 reclassifications; and
- 11 promotions.

Further details are provided in Appendix 15.

### **Industrial Relations**

Significant progress was made in 1986/87 towards achieving equitable, consistent and compatible working conditions and industrial arrangements for various groups within the Department. These objectives will continue to be a major priority.

Broadbanding for Public Service Act staff has been completed and a draft determination will shortly be available for CALM Act field staff. Broadbanding of field staff has

necessitated changes to the structure, classification and criteria progression of field staff positions.

Major amendments were made to the Rangers' (National Park) Award. In particular work-value changes resulting from staff training, wider responsibilities and a shift in work emphasis provided an improved wage and career structure as well as new opportunities for progression and promotion. The structure includes a two year traineeship for a park management certificate. An earlier amendment to the Rangers' Award this year was the inclusion of a 'park-maintenance worker' category.

An improved structure for wildlife officers has also been introduced as has a formalised system of criteria progression for technical officers at Woodvale.

Use of Public Service-based salary scales for forest, wildlife protection and park ranger staff will create wider opportunities for personnel to choose careers in the Department. Graduates with the Certificate in Conservation and Land Management will now be able to choose careers in these fields.

### **Training**

With the increase in the extent of responsibilities and diversity in expertise required by Departmental personnel, the need for efficient and effective training and staff development continues to be important. In an era of rapid change, increased demands from industry and the community, it is necessary to equip Departmental personnel with the skills to cope in a professional manner.

While the Department continued to use external training agencies to provide information and training otherwise not available, there is a strong commitment to the development of training programs based on personnel with training expertise from within the Department.

Some new courses which have been developed by Departmental personnel include the law enforcement training course, Outdoor Expeditions Skills course, and a firearms safety and use course.

The Personnel Training and Development Committee has been restructured and given major responsibilities to review and assess training needs, ensure appropriate training courses are properly programmed, and ensure the resources required to carry out training courses are available. The committee has also completed a review of the training and development policy and the strategies required to ensure the objectives of the policy are met.

The annual Training and Development Manual has this year been expanded to include information about a wide range of courses available as in-service training or at external agencies.

### **Field Cadets**

Twelve cadets completed the first year of their training in November 1986.

A new group of 12 first year cadets, selected from 174 candidates in January 1987, commenced their course at the College of the South West, Bunbury in February 1987. This group included six people who had successfully completed Conservation and Land Management traineeships.

Thirteen second year cadets commenced at Dwellingup in January 1986. This group included the recipient of the inaugural Executive Director's Scholarship, which provides incentive for Departmental employees to apply for Field Officer Cadetships.

The second year syllabus has been reviewed and the park and wildlife management subjects have continued to be expanded. Highlights of the practical component of the course were the construction of a footbridge at One Tree Bridge in Manjimup District, a fortnight's project in Torndirrup National Park which resulted in an upgraded recreation site at Sharp Point, plus one week's work experience with wildlife officers. Traditional working periods at pine forests were continued and the 'camps' in the Southern Forest Region were extended from four weeks total in 1984/85 to seven weeks total in 1986/87.

Ten cadets who completed their second year cadetship in December 1987 received their Certificate in Conservation and Land Management at a graduation ceremony on 1 May 1987. The ceremony was held at the Regional Headquarters, Bunbury. The prizes and certificates were presented by Mr Philip Smith, MLA. Nine cadets were appointed forest rangers and one appointed as a wildlife officer. Of the nine forest rangers, seven were posted to operations, one to field research and one to Landscape and Recreation. The Keyne's memorial Prize was awarded to Murray Carter and the Executive Director's Prize to Scott Howson.

### **Traineeships**

Developed as a joint Commonwealth/State Government initiative, the Australian Traineeship System (ATS) was designed to provide eligible young people the opportunity of 12 months structured on and off-the-job training. Generally available to 16 to 18 year olds, who have left school without completing Year 12, ATS traineeships incorporate both job-specific and job-transferrable work skills, aimed at making participants more competitive in the labour market.

The CALM office/clerical and land management traineeships were developed in mid 1985 and in early 1986, a total of 111 young people were welcomed into the Department in two intakes. The Department also had the responsibility for training 13 Public Service Board office/clerical trainees and two data processing trainees.

Of the 38 CALM office/clerical trainees who started in 1986, 29 graduated 12 months later, nine withdrew during the 12 months and 22 (combined total) have obtained employment to date. Out of 73 CALM land management trainees, 48 graduated, 25 withdrew and 43 have obtained employment to date; eight with this Department.

Graduate trainees receive a certificate issued by the State Training Authority, a detailed certificated Traineeship Record book and TAFE recognition of academic progress made during the off-the-job component of the traineeship.

### **Occupational Health, Safety and Welfare**

1986/87 has resulted in the all accident frequency rate for the year being at the lowest point since the inception of the occupational health, safety and welfare program in the Department in 1966. Details are shown in Appendix 16.

Accident prevention activities during the year included:

- 5 two day general safety training schools for 87 personnel;
- 3 three day schools for 38 St John's First Aid attendants;
- 599 personnel audiometrically tested;
- 137 personnel inducted in manual handling;
- 1 four day Chemical Users' school for 22 personnel;
- 41 groups within the Department qualified for the IFAP/Bunnings Safeway Awards;
- 8 personnel were awarded Alligator Club membership by wearing safety trousers and saving their legs from injury.

Personnel from a number of other government agencies, two American foresters and the Safety Co-ordinator for the Forest Commission of NSW have visited the Safety Section at Como during the year to obtain detailed information on our occupational health, safety and welfare program and copies of our Chemical Users' Instruction Manual.

## **Planning Branch**

### **Planning Advice and Liaison**

Advice has been given to other organisations who have prepared management plans on land in the vicinity of Departmental land and to Shires wanting to prepare management plans for reserves in their area. Comments have been provided to the State Planning Commission on subdivision proposals for land adjacent to Departmental land. Such proposals often cause extra management costs due to increased attention needs for fire control, fences, feral animal control, weed control and illegal removal of resources.

Liaison has chiefly been with three organisations, the State Planning Commission (SPC), the Water Authority of Western Australia (WAWA) and the Waterways Commission. The projects involved were: the Leeuwin-Naturaliste Region Plan, the Kimberley Region Study, the Shark Bay Region Study, the Rural Consultative Committee, the Rural Strategy Advisory Committee, and regional parks (all SPC projects); Big Brook, Waroona, Logue Brook and North Dandalup reservoirs (all with WAWA); the Swan and Canning River Management Strategy Task Force (with the Waterways Commission).

A liaison committee dealing with water and related land planning has been established with membership from the SPC, WAWA, this Department, the Environmental Protection Authority (EPA) and Agriculture Department. The committee will provide a co-ordinating role in the development of plans for the many water catchment areas of the WAWA which involve the Departmental estate.

### **Management Plans**

Management plan activity during the year has been:

#### **Final Plans Approved**

Forrestdale Lake Nature Reserve - 29 April 1987  
Nature Reserves of the Shires of York and Northam - 19 May 1987

#### **Draft Plans Prepared and Released for Public Comment**

Benger Swamp Nature Reserve  
Cape Range National Park  
Lane Poole Reserve  
Shannon Park and D'Entrecasteaux National Park  
Northern Forest Region  
Central Forest Region  
Southern Forest Region

#### **Draft Plans Currently being Prepared**

Bungle Bungle National Park  
Nature Reserves of the Dampier Archipelago  
Fitzgerald River National Park  
Hamersley Range National Park  
Herdsman Lake  
Leeuwin-Naturaliste National Park  
Marmion Marine Park  
Ningaloo Marine Park  
South Coast Region

## Two Peoples Bay Nature Reserve Yanchep National Park

Some highlights during the year include:

- The project team approach continued to work well with at least one member of each team being from the local region or district and one member from Planning Branch. The assistance from those members taking part is gratefully acknowledged.
- The need to continue to use a small number of consultants, supervised by Planning Branch, to assist in preparing management plans so that increased inroads can be made on the workload.
- The use of consultant landscape architects to contribute to the preparation of the draft management plan for Yanchep National Park.
- Completion of a management orientated reserve information system for the South Coast Region.

### **Public Involvement**

Specific initiatives in planning consultation have been described earlier. The general objective of public participation was advanced by the establishment of advisory committees, representing local communities, to assist in preparation of many management plans. Also, liaison has been established with all local government authorities affected by Departmental management plans.

The role of Planning Branch is evolving and diversifying. While need for management plans is a statutory commitment, the involvement of other agencies in the planning process and Departmental staff in external planning initiatives is an increasing trend. This interactive involvement of planning staff is essential to ensure a wider perspective of land management planning.

The broadening expertise in public participation techniques will continue to ensure that the public has a high degree of involvement in planning.

### **Radio Communications Section**

The Department has an extensive radio communication network (1 000 radios) providing communication throughout the State between base stations, mobile, marine and aircraft. The radio systems are valued at approximately \$2 000 000.

### **Development**

During the past 12 months the Branch has completed the following development projects:

- The District office at Esperance was fitted with high frequency (HF) and very high frequency (VHF) radio to provide mobile contact with local authorities and district officers.
- To improve radio communication in the Fitzgerald River National Park a radio repeater station was installed in the Ravensthorpe range. Six other repeater stations had their antennae systems upgraded.
- The sixth and seventh radio channels were introduced to the VHF network to overcome interference problems in the Busselton and Nannup Districts.
- VHF mobile radios at Dwellingup and Jarrahdale districts were replaced. The new radios have many new features including scan facility, simplex and duplex modes and up to 60 channels. These features enable effective communication with local authorities and bush fire brigades.

- All vehicles were checked for wiring and radio installation. In addition 273 new radio installations were carried out in a wide range of vehicles and four departmental vessels were fitted with marine radios to assist with management and patrol of coastal reserves and marine parks.

### **Training**

Radio communications courses were conducted throughout the Department with over 400 staff receiving training in radio procedures and operations. Training was extended to the efficient and effective use of radios at large fire operations involving other fire fighting organisations.

### **Records Section**

Implementation of the Records Management System (RMS) was completed in 1986/87. It is a computer-based system designed to identify, locate and track files and documents. The on-line operations of RMS commenced on 5 January 1987 with the change over of all current files to the new system and the tracking of all active files.

The previous manual system is still available but has not been maintained.

With the introduction of information technology in the form of RMS and the continued efforts by the staff an increasingly effective Records service will develop.

### **Recreation and Landscape Branch**

#### **Staff Training**

In liaison with officers from Information Branch and the Policy Directorate, Branch personnel conducted six Recreation Management Workshops for operations staff in the following regions:

Kimberley Region  
 Pilbara Region  
 Northern Forest Region  
 Central Forest Region.

The Branch also conducted a 10 day recreation training program for the second year field cadets in conjunction with staff from the South Coast Region.

#### **Recreation Planning and Landscape Assessment/Planning Projects**

Branch staff provided assessment planning and design assistance to the many projects undertaken in forest, parks and reserves in 1986/87. The major projects were described earlier in this Report.

#### **Recreation Information System**

With the transfer of an officer from Research Division, the Branch commenced work on the development of a Departmental-wide system for collecting, processing and utilising information on visitor use. A project steering committee has been established to guide this work. To date, operations staff from all regions/districts of the State have been interviewed to establish the type and range of visitor data which is currently being collected and to identify future information needs for planning and management purposes.

#### **Provision of Technical Advice and Assistance**

During the year, Branch staff prepared design specifications and processed orders for a large range of Departmental signs. Included were distinctive entry signs for Windjana Gorge, Geikie Gorge, Wolfe Creek Crater, Nambung, John Forrest, Serpentine, Walyunga and Yanchep National Parks.

Technical advice was also provided to a number of operations staff on matters ranging from recreation facility design and placement to landscape rehabilitation projects.

Branch officers also continued their involvement in the preparation of draft management plans for the Leeuwin-Naturaliste National Park and Two Peoples Bay nature Reserve. The Branch also participated with regional and Planning Branch staff in overseeing consultancies for the preparation of recreation master plans for John Forrest and Yanchep National Parks.

### **Public Liaison**

Branch personnel represented the Department through:

- Membership on eight inter-departmental committees or advisory groups: Expedition Skills Training Committee, Outdoor Pursuits Course Advisory Board, Outdoor Education Committee, Star Swamp Advisory Committee, the Water Resources Council's Water Conservation Manual Working Party and the Access and Mobility Committee of Australia's Council on Disability.
- Involvement in the organisation and running of four Expedition Skills Courses in association with Department for Sport and Recreation and Education Department staff.
- Participation in Arbor Day activities.
- Participation in the Royal Automobile Club's training program for 4WD owners.
- Talks to various groups and associations.
- Involvement in the preparation of the Water Resources Council's publication and video "Water Conservation Through Good Design".
- Participation in work experience programs with Curtin University's Industrial Design Course, WA College of Advanced Education's Recreation Degree Course and Swanview Senior High School.

### **Silviculture Branch**

During 1986/87 the Branch continued the emphasis on staff training in jarrah silviculture and with assisting districts in establishing a consistent approach to silvicultural practice. This has been assisted by the revision and reprinting of the training brief on this subject. The Branch has also assisted in the development of efficient methods of the follow-up jarrah stand improvement work.

Participation in the task force undertaking karri growth modelling confirmed, and forests districts were assisted with the development of methods of wandoo and jarrah regeneration.

A review of Departmental nurseries was completed, which resulted in a program of rationalisation of nursery production into fewer locations so that economies of scale will reduce costs. A report was prepared on the requirements for a new nursery capable of producing pine seedlings and cuttings with options for expansion to include hardwood seedling production.

The Branch assisted with the radiata pine cuttings program at Gngangara and Manjimup nurseries and commenced work on a strategy plan for the co-ordination of the Department's program of improved seed, seedling and cuttings production.

A herbicide manual was prepared to complement the Chemical Users Manual to improve the effectiveness of the Department's weed control program. This is expected to be issued for use early in the new year.



There was continued work on the review of pine thinning and pruning strategies.

A tree advisory position in the Branch was created with the role of promoting the establishment and management of forests on private property for timber production purposes (both pine and hardwood) and the support of other reforestation projects. The role of tree planting for other purposes remains the function of Information Branch. To date the work has involved establishing contacts, liaison with other bodies with similar interests, and developing the potential scope, policies and strategies for this area.

## **Timber Production Branch**

The Branch was heavily involved in the many developments in 1986/87 to set up a more streamlined and rational provision of forest resource to sawmills, at a scale of prices to cover the cost of forest replacement, and using computerised systems to handle transactions quickly. For instance:

All existing forest produce (sawmilling) licences issued under the provisions of the repealed Forests Act were re-issued under the Conservation and Land Management Act and made subject to the recently revised "Code of Hardwood Logging Practice". The two remaining sawmilling permits which had been in existence since 1929 were also converted to licences under the Act.

The Branch assisted in a general log royalty re-appraisal after which hardwood log royalties were increased by 22.5 percent from 1 August 1986 as a first stage towards revenue covering the cost of replacement of the forest. In addition, the normal indexation adjustment was applied from 1 January 1987, resulting in an average increase of 6.7 percent.

Development of the hardwood computer logging system continued with all hardwood logging districts being linked to the computer for input of major products. This now enables logging contractors to be paid bi-monthly from the district office. 1986/87 was the first full year in which the system operated. Development is approximately 12 months behind schedule.

Some 45,000 m<sup>3</sup> of various classes of sawlogs were sold by auction to tender, in 29 separate lots, giving a number of the smaller sawmills the opportunity to obtain their resource of logs from State forest. The auctions included two parcels, approximately 100 m<sup>3</sup> each, of sawlog material salvaged from the landing at the Manjimup chip mill.

In effect, 1986/87 was a year of review and scrutinizing. Prices for log products, rates for contractors, credit provisions, and log supply by contractors were all closely examined and changes implemented.

An essential role for the Branch is to assist districts and regions with hardwood and softwood log harvesting operations, conditions of supply, log specifications and operational requirements for customers and logging contractors. Specifically, several documents were revised and combined into an integrated "Code of Hardwood logging Practice". The Timber Inspection Service confirmed for round and sawn timber, to ensure timber quality met the Australian, industry and customer standards.

### **Research**

The Wood Utilisation Research Centre at Harvey operated four programs during the year. The major program involved the efficient utilisation of regrowth eucalypts, with joint funding by the Commonwealth, State Government and industry over a four year period. Studies of log stockpiling, sawmilling, drying of sawn timber and wood quality were carried out.

The mature hardwood program continued with strength tests of jarrah, karri and marri. A pine sawmilling study compared timber from agroforestry stands with conventionally grown timber. The commercial program included trials of drying forest residues for firewood.

The Manager of the Wood Utilisation Research Centre visited Europe with members of the Guild of Furniture Manufacturers. He has recommended ways of developing an expanded furniture manufacturing sector, while promoting jarrah and other eucalypts as high quality cabinet timbers for export.

#### **Liaison**

The Branch has a continuous liaison with many levels of most companies and members of the timber industry. It :

- participated in the WA Regional Committee of the Australian Timber Research Institute, in the committees of the WA Softwood Producers' Association, and in the WA Timber Industry Training Committee.
- in association with CSIRO and Forest Products Association (WA), organised a major seminar on "Western Australia's Wood Resources - Commercial Opportunities" held at Como in April.
- in association with Forest Products Association (WA), arranged joint seminars by visiting Victorian researchers (one CSIRO and one Caulfield Institute of Technology).

#### **Timber Industry Regulation And Employment**

At 31 December 1986 a total of 134 mills were registered under the provisions of the Timber Industry Regulation Act: 64 mills on Crown land and 70 mills on private property. The average number of persons employed in timber mills each month throughout the year was 1 835, an increase of 69 on last year's figure of 1 766.

The district inspectors made 1 043 mill inspections and 840 bush inspections. There were 138 notifiable accidents during the period. None of these were fatal. A notifiable accident under Section 14 of the Timber Industry regulation Act is comparable with a lost time accident as defined by the Australian standard. The number of accidents per 100 persons employed was 7.52. This is equivalent to a frequency rate of approximately 41. (The frequency rate is calculated as the number of lost time accidents per 1 000 000 man hours worked).

The cost of administering the Timber Industry Regulation Act for the year was as follows:

Salaries:	\$71 711
Travel allowances, plant costs and sundries:	<u>\$24 899</u>
Total	\$96 610

The overall employment in forest-based industries for 1986/87 was estimated as follows:

Sawmilling employees, including bush workers (employees of registered sawmills only:	1 835
Other wood reprocessing industries (includes employees "working in wood" as defined under the Factories and Shops Act (1963)):	3 000
Firewood, mining timber and pole cutters working under licence or contract:	39
Sandalwood workers:	75
Apiarists (2 224 sites registered):	183
Total	<hr/> 5 132

## Wildlife And Land Administration Branch

Details of land transactions are given in an earlier section of this Report - The Land Estate.

During 1986/87 1270 licences were issued to allow protected flora to be commercially picked, mainly from Crown land and State forest areas. Further details are included in Appendix 17. A Wildflower Industry Review Committee was established in January 1987 and its tasks included assessing the spread of dieback disease by pickers, considering a plan for heavily exploited species such as Boronia, and the financial contribution by the industry towards research and management. The Branch assisted in these reviews.

There were no changes to the 132 declared rare flora species, gazetted under the Wildlife Conservation Act. The Branch maintained records on a further 650 species regarded as rare or in need of special protection.

The fauna declared to be rare or otherwise in need of special protection remained unchanged during 1986/87.

Open seasons were declared for finch trapping, waterfowl hunting and waterfowl population management. Details are provided in Appendix 18. Existing open seasons were in force for Red Kangaroo, Euro, Emu, Agile Wallaby, Grey Kangaroo, White-tailed Black Cockatoo, Black and Pied Cormorant, Brown and Stubble Quail, Red-capped (Western King) Parrot, Ring-necked (Twenty-eight or Port Lincoln) Parrot, Western Rosella, certain species of birds of prey, crow species, Silvereyes and various venomous front-fanged land snakes and all Sea Snakes.

Many thousands of licences were issued for the taking, keeping, export or import of fauna and fauna products. Details are provided in Appendix 17. A significant commitment was given to rationalizing the Department's avian fauna licensing system in conjunction with the Wildlife Protection Branch. Computerisation of the bulk of the Branch's licences is also well underway.

### Offences

Seven breaches of the Forest Disease Regulations under the Conservation and Land Management Act were reported. In five cases, offenders were prosecuted and fines amounting to \$620 were imposed.

There were ten cases of illegal removal of forest produce, five of which resulted in prosecution and the imposition of fines totalling \$1 200. There was also one case of unauthorised destruction of forest produce involving four offenders. Prosecution was undertaken and fines totalling \$1 500 were imposed together with restitution of \$190.

Eight breaches of the Forest Regulation pertaining to unlawful carrying or use of firearms in State forest also occurred. In four cases, offenders were prosecuted and fines amounting to \$200 were imposed.

Warnings were issued to all offenders not prosecuted.

Three breaches of the National Parks Regulations under the Conservation and Land Management Act were reported. In two cases, the offenders were warned and in the other case the offender was prosecuted and a fine of \$50 was imposed.

## **Wildlife Protection Branch**

During the year various offences against the Wildlife Conservation Act and Regulations occurred. Verbal warnings were given by wildlife officers in many instances. More serious offences resulted in 35 letters of warning and 129 cases are pending prosecution. Matters dealt with by the Court to date include 16 cases resulting in fines totalling \$2 960 with \$505.80 costs. Two cases were dismissed. A detailed summary of the offences appears in Appendix 19.

Serious offences which involve the collecting and smuggling of reptiles continue to be detected and are causing concern. Other serious offences include large scale commercial flora exploitation on nature reserves, a practise which, despite regular patrols, appears to be widespread. Concern is also held in regard to bird nest robbing (particularly parrots), dolphin and sea-lion deaths on the south and west coast and mass mortality of fauna caused by the cyanide in ponds in the Goldfields.

Regular patrols were conducted to detect and deter illegal activities. Nature reserve surveillance was maintained to prevent the illegal removal of flora, hunting and collecting fauna, stock grazing, camping, building, rubbish dumping and removal of timber and gravel.

Offshore islands, many of which are nature reserves were regularly patrolled. A replacement 6.5 metre patrol vessel "Pseudorca" was commissioned during the year and has been used extensively for island work between Augusta and Jurien Bay. Licensed activities including flora picking, open seasons for ducks, parrots and finches, reptile displays and kangaroo culling were closely monitored. Kangaroo shooters, chillers, processors and skin dealers were checked regularly by wildlife officers. Rare flora and fauna, populations of flora and fauna of particular significance and wetlands were also monitored. Departmental staff provided support to wildlife officers in a number of field activities including the opening of the duck shooting season. Wildlife officers have assisted operational staff in a number of areas including policing Disease Risk Areas and detecting forest offences.

Wildlife officers provided guidance to the general public, government and non-government bodies on rare flora and fauna, dangerous fauna, fauna causing damage and sick, derelict and injured fauna. Fauna rescues were coordinated during the year and included the retrieval of oiled birds affected during the Fremantle oil spill. Liaison with various wildlife interest groups continued and advice in regard to provisions of the Wildlife Conservation Act was provided frequently.

Law enforcement seminars were conducted by Branch personnel for rangers, forest officers and other operational staff at Perth, Busselton and Yanchep. Wildlife officers continued to attend the Cadet School and lecture on wildlife management and enforcement matters. Cadets were also deployed in the field with wildlife officers for work experience.

Late in July, wildlife officers attended the mass stranding of 114 false killer whales at Augusta and coordinated rescue operations. The four day operation, which involved up to 500 volunteers successfully returned 96 of the whales to the sea. Based on the Large

Fire Organisation, the operation required mobilisation of a large contingent of personnel and equipment. The rescue was conducted in accordance with the National Contingency Plan for Cetacean Strandings and special equipment purchased with funds made available by the Australian National Parks and Wildlife Service.

During the year wildlife officers attended 13 other cetacean strandings involving 17 whales and dolphins. Species included humpback whale, southern right whale, minke whale, pilot whale, scamperdownn whale, sperm whale and striped, common and bottlenose dolphins. Twelve pinniped strandings involving five leopard seals and seven Australian sea-lions were also attended.

Six incidents involving crocodiles were investigated by the Kimberley based wildlife officer during the year. Saltwater crocodile attacks resulted in one fatality, one injured man, a near-miss and the taking of a dog. Freshwater crocodile incidents resulted in a minor injury to one man and minorinjuries to a small dog. Reports of problem crocodiles (saltwater crocodiles whose behavioural pattern represent a threat to public safety) were also investigated and attempts were made to remove offending animals. A crocodile attack contingency plan has been developed and crocodile management policy and operations plan are currently being developed.

During the year the Branch was restructured. This provided a flatter hierarchy and formed a senior corporate group comprising the Chief Wildlife Officer and four Supervising Wildlife Officers. The result has been to improve Branch efficiency and communications effectiveness and in the long term it will provide improved promotional prospects for field staff.

Relocation of wildlife officers into regional offices is continuing as office accommodation becomes available. This year officers moved from Wyndham to Kununurra and Pingelly to Narrogin. Some major districts are still unmanned by wildlife officers. Current staff levels are insufficient to maintain the desired level of control in obtaining compliance with the Wildlife Conservation Act.

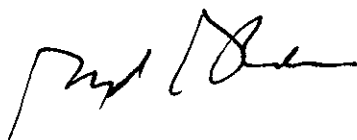
## FINANCIAL STATEMENTS

---

We hereby certify that the accompanying financial statements of the Department of Conservation and Land Management are based on proper accounts and records and have been prepared in accordance with the Financial Administration and Audit Act 1985.

In our opinion the financial statements present fairly the financial transactions for the financial year ending June 30 1987 and the state of affairs of the Department of Conservation and Land Management as at June 30 1987.

At the date of signing we are aware of no circumstances which would render any particulars included in the financial statement misleading or inaccurate.



ACCOUNTABLE OFFICER



PRINCIPAL ACCOUNTING OFFICER



ACCOUNTANT

August 13, 1987

**TRUST GOVERNMENTAL  
CONSERVATION AND LAND MANAGEMENT TRUST FUND  
STATEMENT OF RECEIPTS AND PAYMENTS  
FOR THE YEAR ENDED 30th JUNE 1987**

<u>'85/86</u>	<u>RECEIPTS</u>	<u>'86/87</u>
\$	\$	\$
1 645 679 51 225 300 1 213 923 137 688 1 146 377 371 837 15 957  14 897 731 830 904 1 053 681 167 098 1 058 629 384 058 <u>43 099</u> 74 191 961	Balance Brought Forward (1) Consolidated Revenue Fund (2) Mining Compensation Main Roads Department Grant (3) Community Employment Program (4) Youth Trainee Scheme (5) Saleable Publications (6) Aboriginal Community Development Program (7) Ningaloo Bicentennial Grant (8) Private Borrowings (9) Sale of Assets (10) Recoupable Projects (11) Wildlife Special Projects Recoups (11) Income from National Parks (3) Other Nature Conservation & National Parks A/c (12)	1 698 341 61 652 000 1 496 986 1 332 163 511 325 712 453 120 308 136 308 11 893 13 192 000 1 484 009 1 570 071 295 643 779 505 99 798 <u>126 612</u> 85 219 415
	<u>PAYMENTS</u>	
2 217 305 7 700 877  967 535 826 880 2 054 580  2 120 028 27 433  <u>15 914 638</u> (39 683)  21 733 500  16 736 616 4 811 339  1 942 560 2 589 755 2 086 056 5 907 040 452 983 45 441  7 632  <u>305 743</u> 72 493 620  <u>1 698 341</u>	Capital - Hardwood Forests - Est. & Tending (13) Softwood Forests - Est. & Tending (13) Softwood Sharefarming Scheme (13) Access Road Construction (13) Land Purchases (13) Housing & Buildings (13) Plant & Equipment (13) Less Depreciation Sawmilling & Seasoning Plant (13) Ningaloo Marine Park (13).  Plant Workshop - Operating Costs Recurrent Expenditure - Salaries Less - Charged to Capital Works (14) Central Administration Less - Charged to Capital Works (14) Environmental Protection (15) Natural Disasters (15) Engineering Services Recreation & Tourism Services (16) Planning & Research Commercial Operations (17) Information Services Nature Conservation & National Parks A/c (12) Refund to Tsy of Funds Incorrectly Credited in 1984/85 Cash Order Balance  Balance June 30 (18)	2 232 090 6 153 529 361 783 1 080 042 2 519 052 1 878 141 4 453 994 <u>1 830 000</u> 2 623 994 4 963 <u>23 787</u> 16 877 381 (62 059) 24 459 147 <u>1 628 000</u> 22 831 147 21 070 198 <u>966 000</u> 20 104 198 4 244 142 692 725 2 173 114 1 907 899 1 913 987 8 614 399 412 384 42 198  <u>(15 109)</u> 79 736 406  <u>5 483 009</u>

The accounts for the Department of Conservation and Land Management are prepared on a cash basis and rounded to the nearest dollar.

The purpose of the Conservation and Land Management Trust Fund is to hold funds derived under Sections 64 and 68 of the Conservation and Land Management Act 1984.

(1) Includes :

Nature Conservation & National Parks Trust Account

01/07/85                      \$118 008

01/07/86                      \$115 666

- (2) The increase of \$10,476,000 in the allocation from CRF over the 1985/86 allocation was due primarily to the Department's increased liability for loan repayments (\$3,310,000), increased activity in Commercial Operations (\$5,702,960) and increased salary costs (\$1,205,500).
- (3) Main Roads Department grants for National Parks Roads in 1985/86 were reflected in the Income from National Parks figures.
- (4) The Community Employment Program was wound down in 1986/87 resulting in fewer funds for these projects.
- (5) The Youth Trainees Scheme was operational for the full year in 1986/87 as against the six months in 1985/86.
- (6) During 1986/87 the Department successfully launched a marketing campaign for its saleable publications.
- (7) The Aboriginal Affairs Planning Authority provided funds for this program in 1986/87 and it will continue for 1987/88.
- (8) A grant from the Australian Bi-Centennial Authority was received to assist with the establishment of the Ningaloo Marine Park. Work on this project commenced late in the financial year.
- (9) Private Borrowings

The outstanding principal at June 30, 1986 was \$43,431,809. During the year loans to the value of \$13,192,000 were raised.

Principal repayments, interest and sinking fund instalments during the year amounted to \$1,661,529, \$5,781,533 and \$15,420 respectively. In addition, proceeds from sinking fund investments with the Treasury amounting to \$1,061,310 were applied to the reduction of principal on loans due to the WA Treasury Corporation. The outstanding principal at June 30, 1987 was \$53,900,970.

Sinking funds held at Treasury and private banks totalled \$501,540.

Softwood Forestry Agreement Loans

Between the years 1966/67 and 1982/83 the Commonwealth Government provided loans of \$10,078,510 for the purposes of establishing and tending softwood plantations. The outstanding principal at June 30, 1986 was \$9,311,508. During the year principal and interest payments amounted to \$210,929 and \$777,524 respectively. The outstanding principal at June 30, 1987 was \$9,100,579.



- (10) The increase in funds from the sale of assets was due to vehicles realising a higher price than expected resulting in a greater number of vehicles being sold.
- (11) A greater level of activity in these areas contributed to the increased receipts.
- (12) Nature Conservation and National Parks Trust Account.

Section 68 of the Conservation and Land Management Act 1984 provides for the establishment of the Nature Conservation and National Parks Trust Account within the Conservation and Land Management Trust Fund.

The account is credited with money derived under the Wildlife Conservation Act 1950 and income from investments, gifts, devises, bequests and donations. The funds may be applied to research or any other purpose relating to the conservation of fauna and flora, or the management of national parks, nature reserves, marine nature reserves or marine parks subject to compliance with any conditions imposed in connection with any gifts or bequests.

The balance at June 30, 1986 was \$115,666. During the year receipts totalled \$126,612 and payments amounted to \$42,198 leaving a balance of \$200,080 at June 30, 1987.

Proceeds from Duck Licenses realised \$21,000 more than 1985/86.

Bequests and gifts to the Account totalled \$51,700 against Nil in 1985/86.

As a result of these increased funds the interest from investments was \$7,300 greater than for 1985/86.

- (13) The Capital Works priorities are set annually and do not necessarily bear any relationship to previous year's expenditure.
- (14) Salaries and Central Administration Expenses

Salaries and Central Administration Expenses are allocated to Capital Works on a predetermined basis after analysis of resources applied to Capital Works.

The following allocations were made during the period.

	1985/86		1986/87	
	Salaries \$	Admin	Salaries \$	Admin
H/Wood Forests	312,000	193,000	340,000	200,000
S/Wood Forests	908,400	564,000	990,000	585,000
Access Rds Const.	67,200	41,000	70,000	43,000
Housing & Bldg	104,400	67,000	108,000	69,000
Plant & Equip.	108,000	67,000	120,000	69,000
	<u>1,500,000</u>	<u>932,000</u>	<u>1,628,000</u>	<u>966,000</u>

- (15) For 1985/86 "Natural Disasters" was included under Environmental Protection. Natural Disasters includes expenditure on wildfires and other emergency operations for which no budget was provided.

(16) In 1985/86 there was an overspending of \$396,755 attributed to expenses for establishment of the Marmion Marine Park, the provision of toilet facilities at the Dwellingup Recreation Park and expenses of park management generally. The lower level of expenditure in 1986/87 reflects the cost of ongoing management programs.

(17) The increased level of activity in the timber industry is reflected in the increased expenditure on this item for 1986/87.

(18) Includes :

Nature Conservation and National Parks Trust Account

30/06/86                      \$115 666

30/06/87                      \$200 080

(19) Comparative Figures

Expenditure figures for 1985/86 have been amended to include \$191 640 relating to the Timber Bureau and \$99 788 relating to Mycological Research which were transferred from the Department of Premier and Cabinet and the Department of Conservation and Environment respectively. Expenditure of \$129 357 relating to the Censorship Office and \$112 771 relating to the Heritage Committee now included under the Department of the Arts and the State Planning Commission respectively have been excluded from the 1985/86 figures.

**CONSOLIDATED REVENUE FUND  
STATEMENT OF REVENUE AND EXPENDITURE  
FOR FINANCIAL YEAR JULY 1 1986 TO JUNE 30 1987**

REVENUE	Estimate	Actual	Variation
	\$	\$	\$
<u>Territorial Revenue</u>			
Log Royalties (1).	12 207 000	11 929 097	277 903 -
Sandalwood (2).	2 000 000	2 853 553	853 553
Other (1)	<u>5 524 000</u>	<u>5 147 081</u>	<u>376 919 -</u>
	19 731 000	19 929 731	198 731
<u>Departmental Revenue</u>			
Fees (1)	1 455 000	1 264 901	190 099 -
Pine Conversion Sales (1)	7 478 000	7 002 105	475 895 -
H/Wood Conversion Sales (1)	6 312 000	4 348 534	1 963 466 -
Recoupable Projects (1)	240 000	227 129	12 871 -
Wildlife (1)	133 000	108 094	24 906 -
Sale of Assets (3)	<u>1 500 000</u>	<u>47 498</u>	<u>1 452 502 -</u>
	17 118 000	12 998 261	4 119 739 -
 GRAND TOTAL -	 <u>36 849 000</u>	 <u>32 927 992</u>	 <u>3 921 008 -</u>

**CONSOLIDATED REVENUE FUND  
STATEMENT OF REVENUE AND EXPENDITURE  
FOR FINANCIAL YEAR JULY 1 1986 TO JUNE 30 1987(continued)**

EXPENDITURE	Estimate	Actual	Variation
	\$	\$	\$
Amount required for services for the year (paid to Conservation and Land Management Trust Fund)	<u>61 652 000</u>	<u>61 652 000</u>	<u>Nil</u>
being			
Salaries & Allowances (4)	22 939 000	22 831 147	107 853 -
Other Staffing Costs	3 323 000	3 266 766	56 234 -
Communications	1 006 000	1 026 103	20 103
Services & Contracts (5)	2 147 000	2 274 716	127 716
Consumable Supplies	1 366 000	1 393 452	27 452
Mtce of Plant & Equip	325 000	330 183	5 183
Purch. of Plant & Equip	239 000	242 812	3 812
Grants, Subsidies & Transfer Payments (6)	11 006 000	11 570 166	564 166
Environmental Prot (7)	4 336 000	4 936 868	600 868
Engineering Services	2 243 000	2 173 114	69 886 -
Rec & Tourism Serv (8)	1 786 000	1 907 899	121 899
Research & Planning (9)	2 391 000	1 913 987	477 013 -
Commercial Operations (10)	11 610 000	8 614 399	2 995 601 -
Information Services (11)	<u>278 000</u>	<u>412 384</u>	<u>134 384</u>
	64 995 000	62 893 996	2 101 004-
Less Contributions from Industry & Other Sources (12)	<u>4 061 000</u>	<u>5 077 702</u>	<u>1 016 702</u>
	60 934 000	57 816 294	3 117 706-
Plus consequential increase in Trust Fund Balance	718 000	3 835 706	3 117 706
Payment to Conservation and Land Management Trust Fund	<u>61 652 000</u>	<u>61 652 000</u>	<u>Nil</u>
Special Acts			
Salary of Executive Director	80 000	78 750	1 250

## Variation from Estimates

### Revenue

- (1) The increase in the level of activity in the timber industry was less than anticipated when the budget was framed in early 1986. As a consequence the Department's revenue collections were short of the budgetted amount.
- (2) Sandalwood collections exceeded the budget by \$853,553 due to a substantial increase in rates applicable from 1/1/87 which were not known at the time the budget was framed.
- (3) Sale of Assets (Houses) was short of the budget by \$1,452,502 due to delays in obtaining the necessary approvals and legislation to enable the houses to be sold.

### Expenditure

- (4) Expenditure was \$2,101,004 less than the estimate of \$64,995,000. Net savings of \$107,853 were achieved on the payment of Salaries and Allowances after allowing for an excess of \$288,449 on Retiring Allowances. These figures reflect the effect of the government's 3% staff reduction policy.
- (5) An excess of \$127,716 occurred in the Services and Contracts item due primarily to the necessity to pay two premiums on the Department's public risk insurance policy to bring it into line with the financial year.
- (6) The Grants, Subsidies and Transfer Payments item exceeded the budget by \$564,166.

This was the net result of several unbudgetted items of expenditure totalling \$1,299,831 offset by a saving of \$612,064 on Loan Repayments. The balance of \$123,601 was caused by several minor savings.

The unbudgetted expenditure of \$1,299,831 was as follows:-

\$265,000 grant to the Shark Bay Shire Council for the Monkey Mia dolphins tourist facility.

\$161,456 for the Aboriginal Community Development Program. (This expenditure is recoupable).

\$818,375 for wages incurred on the Youth Traineeship Scheme and the National Employment Strategy for Aboriginals. (Both these items are fully recoupable).

\$55,000 on Workers' Compensation Wages. (Recoupable in full to CRF).

The saving on the Loan Repayments was due to a decision to delay the Department's Capital Works Program reducing the requirement for capital funds in the first half of the financial year.

- (7) Environmental Protection exceeded the budget by \$600,868 due to unbudgetted expenditure on Fire Suppression. In future years this expenditure will be recorded under the category "Natural Disasters".
- (8) Recreation and Tourism Services exceeded the budget by \$121,899 due mainly to unbudgetted expenditure on Parks Management.

- (9) Savings of \$477,013 were achieved in the Research and Planning category some of which were used to offset over-expenditure in Recreation and Tourism and Information Services.
- (10) A saving of \$2,995,601 was achieved in the Department's Commercial Operations due to the lower than anticipated increase in activity in the timber industry resulting in a corresponding loss of revenue.
- (11) Information Services exceeded the budget by \$134,384 due primarily to un-budgeted expenditure on the launch of Draft Regional Management Plans for the South West and the Timber Industry, and the demand for publicity information during the America's Cup.
- (12) Funds retained by the Department to finance its expenditure program exceeded the estimate by \$1,017,058. Recoupable Project revenue was \$431,562 greater than expected and this together with excesses of \$131,509 for recoups for salaries of officers employed on outside projects, \$175,643 for Wildlife Special Projects recoups and \$129,505 Income from National Parks account for the bulk of this increase.

CRF Revenue due but uncollected at the 30th June 1987 was \$4,347,047 and it is expected that all but approximately \$1,300 will be collected.

Expenditure claims for CRF on hand but unpaid at the end of the financial year totalled \$134,583.

The following amounts were written off under the provisions of Section 45 of the Financial Administration and Audit Act.

<b>Revenue</b>			
Irrecoverable amounts	\$ 181.75		
Uncollected (Yanchep Boat Hire)	9 558.00		
Theft (Dwellingup)	102.50		
Other	<u>20.00</u>	9 862.25	
<b>Stocktaking Deficiencies</b>			
Fuel - Unlead	498.81		
Publications	254.00		
General	3 362.00	4 114.81	
			\$13 977.06

**DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT  
COMPARATIVE ANALYSIS OF CONSOLIDATED REVENUE FUND FOR  
1985/86 AND 1986/87 FINANCIAL YEARS**

<u>'85/86</u>		<u>'86/87</u>
\$	<u>REVENUE</u>	\$
	<u>Royalties</u>	
10 955 726	Logs	11 929 097
3 411 155	Chip Logs	4 491 547
501 212	Poles and Piles	282 679
29 753	Mining Timber	36 244
20 639	Firewood	67 026
78 518	Posts	120 381
1 687 247	Sandalwood (1)	2 853 553
12 986	Gravel Sand & Shale	21 222
58 086	Apiary Sites Leases	63 136
26 619	Forest Leases	41 900
6 531	Other Rents	21 444
<u>12 446</u>	Miscellaneous	<u>1 502</u>
16 800 918		19 929 731
	<u>Pine Conversion (2)</u>	
5 554 695	Pine Logs	7 002 105
<u>182</u>	Milled Timber	<u>Nil</u>
5 554 877		7 002 105
	<u>Hardwood Conversion (2)</u>	
1 839 926	Logging	4 341 005
<u>Nil</u>	Milled Timber	<u>7 529</u>
1 839 926		4 348 534
	<u>Other Sales, Fees &amp; Recoups</u>	
22 297	Seed Sales	28 303
467 217	Tree Sales	505 241
112 207	Inspection Fees	156 335
329 421	House Rents	420 571
72 627	Wildlife License Fees	67 009
48 532	Sale of Tags	41 085
Nil	Sale of Houses	47 498
270 437	Workers' Comp. Recoups (Wages Employees) (3)	227 129
268 763	Other Miscellaneous Revenue	154 451
<u>27 725</u>	Censorship Office Revenue	<u>Nil</u>
1 619 226		1 647 622
<u>25 814 947</u>		<u>32 927 992</u>
	<u>EXPENDITURE</u>	
<u>51 225 300</u>	Funds Required for Services	<u>61 652 000</u>
	<u>Special Acts Expenditure</u>	
<u>76 307</u>	Salary of Executive Director	<u>78 750</u>

**NOTES:**

- (1) The increase in revenue from Sandalwood was due to a substantial increase in rates applicable from January 1 1987.
- (2) The increased level of activity in the timber industry together with royalty increases contributed to the rise in the level of revenue from Pine and Hardwood Conversion.
- (3) Workers' Compensation Recoups - The figures for 1985/86 include recoups for salaried employees which cannot be separately identified. Approval was gained for these recoups to be credited to CALM Trust Fund from July 1 1986.

**CAPITAL WORKS  
FOR FINANCIAL YEAR JULY 1 1986 TO JUNE 30 1987  
CONSERVATION AND LAND MANAGEMENT TRUST FUND  
STATEMENT OF REVENUE AND EXPENDITURE**

	Estimate	Actual	Variation
	\$	\$	\$
<b>Expenditure</b>			
Establishment & Tending			
Hardwood Forests	3 019 000	2 232 090	786 910 -
Softwood Forests	6 357 000	6 153 529	203 471 -
Access Rds - Construction	1 009 000	1 080 042	71 042
Land Purchase	4 582 000	2 519 052	2 062 948 -
Plant & Equipment	3 850 000	4 453 994	603 994
Housing & Buildings	1 642 000	1 878 141	236 141
Sawmilling & Seasoning Plant	15 000	4 963	10 037 -
Ningaloo Marine Park	500 000	23 786	476 214 -
Softwood Sharefarming Sch	<u>220 000</u>	<u>361 783</u>	<u>141 783</u>
	21 194 000	18 707 380	2 486 620 -
<b>Source of Funds</b>			
Commonwealth Grant - Bicentennial Trust Fund	250 000	11 893	238 107 -
Borrowings	14 832 000	13 192 000	1 640 000 -
Contribution - Main Roads Department	472 000	407 863	64 137 -
Internal Funds & Balances	<u>5 640 000</u>	<u>5 095 624</u>	<u>544 376 -</u>
	21 194 000	18 707 380	2 486 620 -

**GENERAL LOAN AND CAPITAL WORKS FUND**

Building Management Authority - Moneys raised by the Western Australian Building Management Authority for capital works undertaken by them were expended on the following projects:

	Estimate	Actual	Variation
	\$	\$	\$
<b>Addition and Improvements</b>			
Katanning	10 000	16 303	6 303
Manjimup	381 000	428 863	47 863
Administration	<u>Nil</u>	<u>33 966</u>	<u>33 966</u>
	391 000	479 132	88 132

Additions and Improvements were financed from borrowings and Administration costs from General Loan and Capital Works Fund.



## Variations from Capital Estimates

### Conservation and Land Management Trust Fund

#### 1. Source of Funds

As the Department budgets only to raise sufficient funds to support its spending program any reduction in spending is reflected in funds being sought to finance the program. The Commonwealth Grant from the Bicentennial Trust Fund relates solely to expenditure on the Ningaloo Marine Park.

#### 2. Expenditure

The total underspending of \$2 486 620 relates almost entirely to the Land Purchase and Ningaloo Marine Park items.

The proposed visitors information centre at the Ningaloo Marine Park was not commenced as early as anticipated. This expenditure will now be incurred in 1987/88.

Land purchases were not proceeded with at the rate anticipated when the budget was framed resulting in a saving.

All other variations were a result of the reallocation of priorities that became apparent after the budget was framed.

### General Loan and Capital Works Fund

#### 1. Expenditure

Expenditure on Additions and Improvements to Katanning and Manjimup offices exceeded the estimates due to construction problems not anticipated at the time the budget was framed.

**TRUST GOVERNMENTAL  
CONSERVATION & LAND MANAGEMENT LOAN SINKING FUND  
STATEMENT OF RECEIPTS & PAYMENTS  
FOR THE YEAR ENDED 30th JUNE 1987**

<u>'85/86</u>		<u>'86/87</u>
\$ 379 263	Balance Brought Forward	\$ 1 259 244
	<u>Receipts</u>	
<u>892 196</u> 1 271 459	Interest and Contributions	<u>89 094</u> 1 348 338
	<u>Payments</u>	
<u>12 215</u> 1 259 244	Matured Loans Balance as at June 30	<u>1 018 760</u> 329 578

**NOTES:**

As from July 1 1986 the WA Treasury Corporation has applied the proceeds of all sinking funds to the consolidated departmental debt rather than reinvest as they mature.

The purpose of this fund is to hold sinking fund contributions in order to service the repayment of loans.

**TRUST PRIVATE  
DIEBACK RESEARCH TRUST FUND  
STATEMENT OF RECEIPTS & PAYMENTS  
FOR THE YEAR ENDED 30th JUNE 1987**

<u>'85/86.</u>		<u>'86/87</u>
\$		\$
359	Balance Brought Forward	571
	<u>Receipts</u>	
130 417	Alcoa	105 000
41 925	Worsley Alumina	30 000
33 765	Forest Products Association	25 000
<u>1 700</u>	Interest on Investments	<u>1 974</u>
208 166		162 545
	<u>Payments</u>	
63 000	McComb - Murdoch University	43 000
-	Gilkes - University of WA	12 870
110 118	Dept of Conservation & Land Management	93 045
15 607	Equipment	-
6 800	Dell - Murdoch University	-
<u>12 070</u>	Visit by Dr Heather	-
207 595		<u>148 915</u>
571	Balance as at June 30	13 630

**NOTES:**

Research projects are being scaled down and the Dieback Research Committee Trust Fund is expected to be wound up around April 1988.

The purpose of this fund is to hold funds for research projects as approved by the Dieback Research Fund Committee.

**TRUST PRIVATE  
C.E. LANE POOLE MEMORIAL TRUST  
STATEMENT OF RECEIPTS & PAYMENTS  
FOR THE YEAR ENDED 30th JUNE 1987**

<u>'85/86.</u>		<u>'86/87</u>
\$ 6 316	Balance Brought Forward	\$ 4 278
	<u>Receipts</u>	
<u>848</u>	Interest on Investments	<u>674</u>
7 164		4 952
	<u>Payments</u>	
<u>2 886</u>	Travel Costs Associated with Award	<u>4 853</u>
4 278	Balance as at June 30	99

**NOTES:**

Two awards were granted for 1986/87 as against one in 1985/86.

The purpose of this fund is to assist with extending the knowledge and experience of awardees by study and for travel in Australia or overseas, on topics of value to the Department of Conservation and Land Management.

**TRUST PRIVATE  
SPONSORED PROJECTS  
STATEMENT OF RECEIPTS & PAYMENTS  
FOR THE YEAR ENDED 30th JUNE 1987**

<u>'85/86.</u>		<u>'86/87</u>
\$ 20 472	Balance Brought Forward	\$ 4 170
	<u>Receipts</u>	
<u>22 388</u>	World Wildlife Fund	<u>25 452</u>
42 860		29 622
	<u>Payments</u>	
<u>38 690</u>	Dept of Conservation & Land Management	<u>29 622</u>
4 170	Balance as at June 30	Nil

**NOTES:**

Funds were received from the World Wildlife Fund after June 30 1987 to enable the Numbat Re-establishment Project to continue until September 1987.

The purpose of this fund is to hold moneys for the purpose of funding the establishing of a breeding colony of the numbat.

**TRUST PRIVATE  
RESEARCH CO-ORDINATING COMMITTEE  
STATEMENT OF RECEIPTS & PAYMENTS  
FOR THE YEAR ENDED 30th JUNE 1987**

<u>'85/86</u>		<u>'86/87</u>
\$		\$
46	Balance Brought Forward	60 095
	<u>Receipts</u>	
62 900	Alcoa	10 000
482	Interest on Investments	6 438
<u>38 600</u>	Adjustment to Account	<u>Nil</u>
102 028		76 533
	<u>Payments</u>	
41 933	W.A. Water Authority	Nil
<u>Nil</u>	Dept of Conservation & Land Management	<u>72 799</u>
41 933		72 799
60 095	Balance as at June 30	3 734

**NOTES:**

Alcoa paid the W.A. Water Authority direct in 1986/87 rather than through the Trust Fund.

The \$72 800 paid to CALM in 1986/87 represented two years salary costs (1985/86 and 1986/87) for the research officer employed specifically for this project.

The purpose of this fund is to hold funds for research projects as approved by the Research Co-ordinating Committee.

**TRUST PRIVATE  
KEYNES FORESTRY PRIZE  
STATEMENT OF RECEIPTS & PAYMENTS  
FOR THE YEAR ENDED 30th JUNE 1987**

<u>'85/86</u>		<u>'86/87</u>
\$ 332	Balance Brought Forward	\$ 292
	<u>Receipts</u>	
<u>34</u> 366	Interest on Investments	<u>10</u> 302
	<u>Payments</u>	
<u>74</u>	Annual Prize	<u>Nil</u>
292	Balance as at June 30	302

The purpose of this fund is to provide an award for the most outstanding achievement by a student at the Department's Cadet School.

**SUSPENSE  
RECEIPTS IN SUSPENSE  
STATEMENT OF RECEIPTS & PAYMENTS  
FOR THE YEAR ENDED 30th JUNE 1987**

<u>'85/86</u>		<u>'86/87</u>
\$		\$
227 782	Balance Brought Forward	832 207
<u>10 371 567</u>	Receipts for Financial Year	<u>11 273 694</u>
10 599 349		12 105 901
<u>9 767 142</u>	Payments for Financial Year	<u>11 119 368</u>
832 207	Balance as at June 30 1987	986 533

**NOTES:**

The Receipts in Suspense Account is used as a clearing account for Salaries and Wages Taxation deductions and Wages medical and insurance deductions as there is no suitable alternative trust fund.

For 1986/87 these deductions accounted for receipts of \$10 245 060 and payments totalling \$10 298 400.

The bulk of the balance of receipts and payments related mainly to moneys from the Commonwealth for research projects which was transferred to the Commonwealth Grants and Advances Ledger, prepaid accounts and hardwood and softwood log levy collections.

More detailed accounts were not kept for 1986/87 due to confusion over the requirements of the Financial Administration and Audit Act. These accounts will be kept for 1987/88.

The purpose of the Receipts in Suspense Account is to hold funds pending identification of the purpose for which those moneys were received pursuant to section 9 (2)(c)(iv) of the Financial Administration and Audit Act.



**TRUST PRIVATE  
CONTRACTOR'S DEPOSITS  
STATEMENT OF RECEIPTS & PAYMENTS  
FOR THE YEAR ENDED 30th JUNE 1987**

<u>'85/86</u>		<u>'86/87</u>
\$		\$
28 632	Balance Brought Forward	52 176
46 159	Deposits Lodged During Year	126 875
<u>1 323</u>	Interest from Investments	<u>3 773</u>
76 114		182 824
<u>23 938</u>	Deposits Refunded During Year	<u>31 848</u>
52 176	Balance as at June 30	150 976

**NOTES:**

The higher amount for deposits lodged in 1986/87 was due to one contractor being required to lodge \$100 000 before deliveries of logs would be made. This contractor previously had a Bank Guarantee lodged with the Department.

The purpose of this fund is to hold deposits lodged by contractors to the Department of Conservation and Land Management.

**TREASURER'S ADVANCE  
SUSPENDED DEBIT POSTINGS ACCOUNT  
STATEMENT OF RECEIPTS & PAYMENTS  
FOR THE YEAR ENDED 30th JUNE 1987**

<u>'85/86</u>		<u>'86/87</u>
\$		\$
Nil	Balance Brought Forward	Nil
<u>44 751</u>	Receipts for Financial Year	<u>37 318</u>
44 751		37 318
<u>44 751</u>	Payments for Financial Year	<u>37 318</u>
Nil	Balance as at June 30	Nil

The purpose of this account is to hold the Department's debit postings which are not readily identifiable pending identification of and subsequent posting to the correct account.

**SUSPENSE  
SUSPENDED CREDIT POSTINGS ACCOUNT  
STATEMENT OF RECEIPTS & PAYMENTS  
FOR THE YEAR ENDED 30th JUNE 1987**

<u>'85/86</u>		<u>'86/87</u>
\$ Nil	Balance Brought Forward	\$ Nil
<u>1 914 826</u>	Receipts for Financial Year	<u>760 116</u>
1 914 826		760 116
<u>1 914 826</u>	Payments for Financial Year	<u>760 116</u>
Nil	Balance as at June 30	Nil

The purpose of this account is to hold the Department's credit postings which are not readily identifiable pending identification of and subsequent posting to the correct account.



office of the  
AUDITOR GENERAL

REPORT OF THE AUDITOR GENERAL FOR WESTERN AUSTRALIA

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

The accounts of the Department of Conservation and Land Management have been audited for the period July 1, 1986 to June 30, 1987 under the provisions of the Financial Administration and Audit Act 1985.

Due to the level of errors in salary payments that had been detected through testing, the department is now in the process of checking all salary payments since March 1985 to staff records. Further errors have been detected through this checking, indicating inadequacies in salary processing controls.

Except for this matter, the accounts were found to be in order and, in my opinion

- (i) the financial statements of Receipts and Payments and the notes thereto are based on proper accounts and records and have been properly drawn up so as to present fairly transactions for the period; and
- (ii) the controls exercised by the Department of Conservation and Land Management were sufficiently adequate to provide reasonable assurance that the receipt and expenditure of moneys and the acquisition and disposal of property and the incurring of liabilities have been in accordance with legislative provisions.

The Treasurer has granted the Executive Director an exemption from the requirement to publish performance indicators for the period July 1, 1986 to June 30, 1987.

N.E. SMITH  
ACTING AUDITOR GENERAL

October 13, 1987

**CONSERVATION AND LAND MANAGEMENT ACT 1984**  
**REPORTS OF THE CONTROLLING BODIES**  
**1ST JULY 1986 TO 30TH JUNE 1987**

**LANDS AND FOREST COMMISSION**  
**NATIONAL PARKS AND NATURE CONSERVATION AUTHORITY**  
**FOREST PRODUCTION COUNCIL**

c/- Department of Conservation  
and Land Management  
50 Hayman Road  
COMO

The Hon B J Hodge, MLA  
MINISTER FOR CONSERVATION  
AND LAND MANAGEMENT

In accordance with Section 31(1) of the Conservation and Land Management Act, Annual Reports of the Controlling Bodies are presented for the period 1 July 1986 to 30 June 1987.

B J Beggs



CHAIRMAN  
LANDS AND FOREST COMMISSION



N J Halse  
CHAIRMAN  
NATIONAL PARKS AND NATURE CONSERVATION AUTHORITY



S R Shea  
CHAIRMAN  
FOREST PRODUCTION COUNCIL

# THE LANDS AND FOREST COMMISSION

---

## Chairman's Report

The Deputy Chairman, Mr N. Halse, retired on 21 March 1987 at the end of his term of appointment. I take this opportunity to thank him for his contribution to the Commission's activities. I was pleased to welcome Professor A J McComb as successor to Mr Halse on the Commission.

The main activity of the Commission during the year has been directed to the preparation of the draft management plans and the timber strategy by Departmental staff. In addition to consideration of ongoing issues, recommendations were made on a number of tenure changes on relatively small areas of land vested in the Commission. The most significant of these was for the Bolebelup Timber Reserve to be declared a nature reserve and vested in the National Parks and Nature Conservation Authority.

I attended the meetings in Perth and Manjimup on Monday, 13 and Tuesday, 14 April 1987 where the management plans and timber strategy were formally released and commend the Government and the Department for their efforts to ensure that these documents were available to all forest users embracing special interest groups, industry, local government and the public generally.

The unanticipated delay in the release of these proposals occasioned by the need to examine carefully the overall effect of the new initiatives and the Government's decision to grant an extension of one month in the time available for public comment, will result in me being absent from Australia on an extended overseas visit at the time when the Commission should be considering its recommendations to Government. In view of this, on 17 June I reluctantly submitted advice of my intention to resign from the position of Chairman of the Commission as from 31 July 1987. I wish the Commission well in its future deliberations.

## Authority and Legislation

The Commission is responsible to the Hon Barry Hodge, MLA, Minister for Conservation and Land Management.

The Commission is established as a Controlling Body under Section 18 of the Conservation and Land Management Act, 1984.

## Commission Membership

The Lands and Forest Commission is made up of three members who are appointed under the provisions of Sections 20 (1), 20 (2) and 20 (3) of the Conservation and Land Management Act as:

1. a) two persons appointed by the Governor, on the nomination of the Minister; and  
b) the Executive Director, Department of Conservation and Land Management.
2. One of the members appointed under subsection (1) (a) shall, on the nomination of the Minister, be appointed by the Governor as chairman and the other as deputy chairman.

3. The Minister shall not nominate a person for appointment under subsection (1) (a) unless, in his opinion, the nominee has a knowledge of, and experience in, matters relevant to the management of land for conservation, recreation and forest production.

#### **Appointed Members**

1. a) Mr B J Beggs, ISO, Chairman  
Mr N J Halse, Deputy Chairman\*  
Associate Professor A J McComb, Deputy Chairman\*\*

\* from 1 July 1986 until 21 March 1987

\*\* from 22 March 1987

#### **Ex Officio Member**

1. b) Dr S R Shea, Executive Director, Department of Conservation and Land Management.

Re-appointment of the Chairman and the appointment of Professor McComb as Deputy Chairman for periods of one year from 22 March 1987 were made by the Lieutenant Governor and Deputy of the Governor in Executive Council on 20 March 1987.

### **The Functions and Objectives of the Commission**

The functions of the Lands and Forest Commission are prescribed in Section 19 (1) of the Conservation and Land Management Act and are:

- (a) to have vested in it State forest and timber reserves and relevant land referred to in Section 5(g);
- (b) to develop policies to achieve or promote the objectives described in Section 56 (1)(a), (b) and (e);
- (c) to consider, in accordance with Section 17, any cancellation, change of purpose or boundary alteration in respect of land vested in it;
- (d) to submit proposed management plans to the Minister as provided in Part V in respect of land vested in it;
- (e) to monitor the carrying out of management plans by the Department in respect of land vested in the Commission;
- (f) to inquire into and to advise the Minister on any matter on which the advice of the Commission is sought by the Minister;
- (g) to provide advice, upon request, on matters relating to land vested in it to any body or person, if the provision of advice is in the public interest and it is practicable for the Commission to provide it;
- (h) with the approval of the Minister, to cause study or research to be undertaken for the purposes of paragraph (b).

The objectives of the Commission are to maintain close liaison with the Minister and the Department of Conservation and Land Management in matters pertaining to those State forests and Timber Reserves which are vested in the Commission.



## **The Powers of the Commission**

The Lands and Forest Commission does not have executive powers or functions. Its role is advisory but with direct approach to the Minister being allowed for.

## **Staff**

The Commission is serviced by officers of the Department of Conservation and Land Management.

## **Funding of the Commission**

The costs of the Commission activities are met from the Consolidated Revenue Fund. Financial administration is undertaken by the Department of Conservation and Land Management.

## **Activities During the Year**

The Lands and Forest Commission held five regular meetings and one special meeting during the year.

The principal workload involved was that of consideration given to the draft management plans for the three forest regions and a draft strategy for timber production in Western Australia. These had been prepared for the Commission by the Department of Conservation and Land Management.

The statutory requirement for a Controlling Body being a non-executive body to be responsible for the preparation of the documents gave some cause for concern because of the great difficulties in achieving the requirement. This was particularly so because commercial sensitivities must preclude a Controlling Body being responsible for preparing the plans.

It was accepted that because of this situation, the plans must, of necessity be put forward by the Department of Conservation and Land Management. The role of the Lands and Forest Commission was accepted to be that of considering public arguments and to incorporate them into a final plan to be submitted to the Minister by the Commission itself.

Accordingly the Minister was advised that:

- the Lands and Forest Commission has considered the Management Plans for the three forest regions and the Strategy for Timber Production in Western Australia;
- the Commission believes the documents to be a tremendous step forward in planning for management of the resources available within the three forest regions of the State;
- as a result of the proposed initiatives contained in the plans as presented, the Commission is of the view that there is a need for an overall integrated management strategy. The changes proposed highlight the need for the views of either controlling body to be shared to facilitate co-ordinated management of the areas in question;
- the Executive Director and other departmental staff are to be commended on the concepts advanced and the great effort that has been necessary to prepare these documents to this stage;
- following expiration of the period allowed for the submission of comments from the public, the Commission will again review the plans and submit its recommendations.

# THE NATIONAL PARKS AND NATURE CONSERVATION AUTHORITY

---

## Chairman's Report

During its second full year of activity, the National Parks and Nature Conservation Authority has met its obligations as a controlling body established by the Conservation and Land Management Act.

It has been pleasing and indeed rewarding for the Authority to have been able to consider the particularly diverse range of issues dealing with land management in Western Australia.

In particular, I wish to refer to the extension of the Authority's activities to meet with members of the Conservation Council. This provided forum for frank exchanges of views and led to consensus being reached on a number of issues.

The membership of the Authority changed on 22 March 1987 with the retirement of the Deputy Chairman, Professor A J McComb. Dr J M Bailey was appointed to succeed Professor McComb in this office.

Dr E M Mattiske was appointed as a member of the Authority on 22 March 1987.

I wish to record the valuable contribution made to the Authority by Professor McComb during the past 2 years.

Finally, I express my thanks to all members of the Authority who have made valuable contributions during the year and helped make the year a great success.

## Authority And Legislation

The Authority is responsible to the Hon Barry Hodge, MLA, Minister for Conservation and Land Management.

The Authority is established as a Controlling Body under Section 21 of the Conservation and Land Management Act, 1984.

### Authority Membership

The National Parks and Nature Conservation Authority is made up of 14 members who are appointed under the provisions of Sections 23(1) and 23(2) of the Conservation and Land Management Act comprising:

- (1) a) Four ex officio members being -
  - (i) the Executive Director;
  - (ii) the Director of Nature Conservation;
  - (iii) the Director of National Parks;
  - (iv) the Director of Forests;
- b) Ten persons appointed by the Governor on the nomination of whom -

- (i) two shall be representative of voluntary organisations having a special interest in conservation, being organisations that are affiliated with the Conservation Council of Western Australia Inc.;
  - (ii) two shall be representative of voluntary organisations having a special interest in the use of land, flora and fauna for recreation purposes;
  - (iii) one shall be representative of tertiary education institutions in the State and shall be a person with special knowledge of, and experience in, a discipline relevant to nature conservation;
  - (iv) one shall be representative of bodies or persons the members of which, by reason of their profession, are concerned with nature conservation;
  - (v) two shall be representative of local government and shall be at the time of nomination elected members of a local authority;
  - (vi) one shall be representative of fishing interests; and
  - (vii) one shall be a person employed in the Department, not being an ex-officio member, whose duties relate principally to the management of land vested in the Authority.
- (2) One of the members appointed under subsection (1) (b) shall, on the nomination of the Minister, be appointed by the Governor as chairman and another as deputy chairman.

#### **Ex Officio Members**

- (1) (a) (i) Dr S R Shea, Executive Director, Department of Conservation and Land Management.
- (1) (a) (ii) Dr B R Wilson, Director of Nature Conservation, Department of Conservation and Land Management.
- (1) (a) (iii) Mr C D Haynes, Director of National Parks, Department of Conservation and Land Management.
- (1) (a) (iv) Mr P N Hewett, Director of Forests, Department of Conservation and Land Management.

#### **Appointed Members**

- (1) (b) (i) Mr N J Halse, Chairman  
Dr J M Bailey\*  
Dr E M Mattiske\*\*
- (1) (b) (ii) Mrs M I Blackwell  
Mr I J Maley
- (1) (b) (iii) Associate Professor A J McComb\*, Deputy Chairman  
Dr J M Bailey\*\*, Deputy Chairman
- (1) (b) (iv) Mr R Aitken, OAM
- (1) (b) (v) Mr J H Towie  
Mr A J Fewster
- (1) (b) (vi) Mr W R Bailey
- (1) (b) (vii) Mr R Neal

\* from 1 July 1986 until 21 March 1987

\*\* from 22 March 1987

Appointments of the Chairman, Deputy Chairman and members for the periods of one year from 22 March 1987 were made by the Lieutenant Governor and the Deputy of the Governor in Executive Council on 20 March 1987.

### **Changes of Membership**

Professor McComb retired as Deputy Chairman during the year and Dr Bailey was appointed to succeed him as Deputy Chairman. Dr E Mattiske was appointed as a member during the year.

### **The Functions and Objectives of the Authority**

The functions of the National Parks and Nature Conservation Authority are prescribed in Section 22(1) of the Act and are:

- (a) to have vested in it national parks, nature reserves, marine nature reserves, marine parks and relevant land referred to it in section 5 (g) and to have the joint function provided for by section 7 (4);
- (b) to develop policies -
  - (i) for the preservation of the natural environment of the State and the provision of facilities for enjoyment of that environment by the community;
  - (ii) for promoting the appreciation of flora and fauna and the natural environment; and
  - (iii) to achieve or promote the objectives described in section 56 (1) (c), (d) and (e);
- (c) to consider, in accordance with section 17, any cancellation, change of purpose or boundary alteration in respect of land vested, whether solely or jointly with an associated body, in the Authority;
- (d) to submit proposed management plans to the Minister as provided in Part V in respect of land vested, whether solely or jointly with an associated body, in the Authority;
- (e) to monitor the carrying out of management plans by the Department in respect of land vested, whether solely or jointly with an associated body, in the Authority;
- (f) to advise the Minister on the development of policies for the conservation and management of the flora and fauna of the State, whether on public land or private land;
- (g) to inquire into and, subject to subsection (4), to advise the Minister on any matter on which the advice of the Authority is sought by the Minister;
- (h) to provide advice, upon request, on matters relating to land vested, whether solely or jointly with an associated body, in the Authority to any body or person, if the provision of advice is in the public interest and it is practicable for the Authority to provide it; and
- (i) with the approval of the Minister, to cause study or research to be undertaken for the purposes of paragraph (b).

The objectives of the Authority are to maintain close liaison with the Minister, the Department of Conservation and Land Management and the public in matters pertaining to those areas which are vested in it.

### **The Powers of the Authority**

The National Parks and Nature Conservation Authority does not have executive powers or functions. Its role is advisory but with direct approach to the Minister being allowed for.

### **Staff**

The Authority is serviced by officers of the Department of Conservation and Land Management.

### **Funding of the Authority**

The costs of the Authority activities are met from the Consolidated Revenue Fund. Financial Administration is undertaken by the Department of Conservation and Land Management.

### **Activities During the Year**

The National Parks and Nature Conservation Authority held twelve regular meetings and three special meetings during the year.

The issues considered were particularly diverse and are reported as follows.

#### **Changes in Land Vested in the Authority**

During the year, the net area of national parks vested in the Authority increased by some 208 459 hectares. During the same time, the area of marine parks, flora and fauna reserves and conservation/recreation reserves increased by 448 107 hectares.

Details of these areas are embodied in the Annual Report of the Department of Conservation and Land Management.

#### **Excision of Land Vested in the Authority**

Members considered requests to excise a number of small areas of land vested in the Authority. Endorsements of the proposals were as follows.

Hamersley Range National Park - the excision of a small area for the purpose of constructing a roadhouse was agreed to. However, endorsement was given conditional upon the concurrent rationalisation of the boundaries of the Wittenoorn - Roy Hill Road and adjustment of the boundaries of the Juna Downs Station.

Reserve Pt A1720 (Kings Park being the Site of "Bernies Hamburger Bar") - disposal of the site was agreed to.

Reserve A1737t (Matilda Bay) - agreement in principle was given to the eventual transfer of the vesting of appropriate parts of the Reserve to another appropriate body but subject to the final outcome being contingent on the decision of Government on metropolitan open space.

Bulla Road Nature Reserve (near Wagerup) - agreement was reached to take 0.1 hectares for the purpose of road construction.

Koorda Nature Reserve (near the Koorda Townsite adjoining the bulk handling facilities) - agreement was reached to widen an existing road involving the taking of a strip of the Reserve.

Dowerin Nature Reserve (19910) - agreement was reached to retain part of the reserve for purposes other than a nature reserve.

Canna Nature Reserve (29289) - agreement was reached for the excision of a small strip of land required by the Main Roads Department.

Overshot Hill Nature Reserve (27525) - agreement was reached for the excision of a 20 metre road reserve and an area containing the Lions Club barbecue site.

Mirima Hidden Valley National Park - agreement was reached for the excision of a small area from the park for the purpose of improving access to the Kununurra Cemetery.

Wandi Nature Reserve (36110) - agreement was reached for the excision of a very small area to allow for development of a road adjoining the reserve.

#### **Excision of Part of the Walpole/Nornalup National Park**

The Authority expressed its concern about the excision of some 2,500 hectares of the Walpole/Nornalup National Park. Although it was recognised that the area was to be revested as part of the D'Entrecasteaux National Park, this action had not been taken simultaneously with the excision.

Because of this situation and the need seen for the Authority to act in the interests of the public to safeguard the security of the area, the problem was brought to the attention of the Minister.

As a result of representations made, the revestment procedures were expedited and the area was revested as part of the D'Entrecasteaux National Park and Gazetted on 3 April 1987.

#### **Preparation of Management Plans**

Progress made with the preparation and release of management plans has been most pleasing. During the year the Minister approved two final plans. These were for:

- Forrestdale Lake Nature Reserve - 29 April 1987
- Nature Reserves of the Shires of York and Northam - 19 May 1987.

The Minister also released a further seven draft plans for public comment being for:

- Benger Swamp Nature Reserve
- Cape Range National Park
- Lane Poole Reserve
- Shannon Park and D'Entrecasteaux National Park
- Northern Forest Region
- Central Forest Region
- Southern Forest Region

At the close of the year nine management plans were in the course of preparation and were for:

- Bungle Bungle National Park
- Dampier Archipelago Nature Reserve
- Hamersley Range National Park
- Herdsman Lake
- Leeuwin-Naturaliste National Park
- Marmion Marine Park
- Ningaloo Marine Park
- South Coast Region
- Two Peoples Bay Nature Reserve

It should be recorded that although the preparation of management plans and submissions of these plans to the Minister is a statutory requirement of the Authority, the greater part of the preparation was carried out by the planning staff of the Department of Conservation and Land Management. The Authority wishes to express its appreciation to the work done on its behalf and to thank the planning staff for the assistance and co-operation it extended during the year.

Although the management plans were approved relatively late in the year, implementation of the prescriptions was initiated.

It is pleasing to report that

- for the Forrestdale Lake Nature Reserve that
  - some radial firebreaks were established
  - part of the reserve was fenced
  - a number of signs were placed
  
- for the Nature Reserves of the Shires of York and Northam that
  - a number of necessary firebreaks were established.

#### **Management Plan for the Marmion Marine Park**

The Authority deferred consideration of a management plan for the Marmion Marine Park. This deferment was considered to be necessary because of the proposed revision of classification and categorisation of areas vested in the Authority and the subsequent legal requirements that would be necessary.

#### **Vesting And Management of Islands in the Dampier Archipelago**

The Minister sought the views of the Authority on future vesting and management of those islands in the Dampier Archipelago that were not already vested in the Authority.

In its response, the Authority agreed that it would accept the vesting and foreshadowed that it would seek a national parks classification of the islands. The Authority also pointed out that resources to manage the islands would be necessary and that a need existed to solve current problems of conflicting interest in the use of the islands.

#### **Classification and Categorisation of National Parks and Nature Reserves**

Members of the Authority considered the classification and categorisation of national parks and nature reserves that is currently contained in the Conservation and Land Management Act. Some changes were considered to be desirable and necessary. Accordingly, a proposed new schedule of categories was drafted and submitted to the Minister for his consideration.

It was also recommended to the Minister that the Authority's proposals be released for public comment. However, as a consequence of the release of the draft Forest Region management plans for public comment and given that these draft plans contained the new categories proposed, the need for a separate public release of the Authority's proposals was considered to be unnecessary.

#### **The Stockyard Gully National Park**

Problems associated with disturbance to the cave entrance in the Stockyard Gully National Park were discussed and subsequently a visit was made to the Park by an Authority member and Departmental staff to assess the situation.

It was reported that removal of limestone boulders from the entrance to the cave had allowed stock to enter the cave itself. The need to redress the situation was agreed to and the Department of Conservation and Land Management was requested to take action necessary to correct the mis-use that had taken place.

### **Use of North West Islands for Oil Storage Purposes**

The Authority noted with some concern that requests had continued from oil exploration companies to establish storage facilities on islands, off the north west coast of Western Australia.

Particular concern was expressed that the requests to occupy the islands had been made with very little notice and that construction activities had commenced almost immediately after the occupancy request had been made. To allow a policy for future occupancy to be considered and established, the Authority proposed an interdepartmental committee which would examine the question of the conservation and development of the north west islands and recommend conditions to apply to any new applications that might be made.

### **Gracetown Water Supply**

A proposal by the Western Australian Water Authority to take water from the Ellen Brook to supply Gracetown was considered. Because of the alternative sources that were seen to be available and the need to protect Ellen Brook from any further development, members of the Authority registered opposition to the proposals.

### **Urban Development Near Thomson's Lake**

The State Planning Commission and the Environmental Protection Authority were informed of the Authority's opposition to any proposal to drain water, arising from development proposals, into Thomson's Lake which is a reserve vested in the Authority.

### **Airlie Island - Proposal for its use as an Oil Tank Farm**

Members noted the intention of the Commonwealth Government to transfer ownership of Airlie Island to the State subject to it becoming a nature reserve. However, it was also noted that prior to the land being transferred to the State, permission would have been given to establish an oil tank farm on the Island. In anticipation of the Island being vested in the Authority, the Authority was requested to prescribe conditions that would apply at that time.

The very short period which had been given to the Authority to frame the conditions was objected to but, a special meeting was held to meet this requirement.

The Authority initially agreed that it would accept the Island as a Nature Reserve notwithstanding the fact that it will have oil storage facilities established at the time of vesting. The Authority also provided conditions that it would expect to be applied from the time the company involved actually established itself on the Island.

### **Mining in National Parks**

The Report of the Committee on Exploration and Mining in National Parks and Nature Reserves was considered. The Authority responded with a submission which was presented in March 1987. The Authority also released the submission for public information. This was publicised in a press statement.

In its submission to the Committee, the Authority stated that it was opposed in principle to mining in national parks and nature reserves. It held this position because it was obliged to ensure that such reserves are managed for the purpose for which they are vested but also because the Authority believed that this position reflected the community's attitude to the matter.

The Authority also recognised that mining may be strategically important or may, in particular cases, bring significant benefit to the State. The Authority believed that such decisions to mine in national parks and nature reserves should be made only at the highest level of Government.

The Authority welcomed the establishment of any procedures that would assist the understanding of the scientific conservation values of national parks and nature reserves and, where incompatible land use pressure exists, allow for informed rational assessment of



such values. Similarly, it recognised the important need for such procedures to identify and assess the specifically human values associated with such reserves.

#### **Rudall River National Park - Mining Activity**

The Authority considered a proposal by Esso to carry out exploration on existing tenements in the Rudall River National Park.

Because the tenements had been applied for prior to the proclamation of the new Mining Act and had been subject to a transitional section of the Act, they had subsequently been approved by the Minister for Minerals and Energy. This had taken place only after consultation with and agreement of the Minister for Conservation and Land Management who had stipulated conditions that would apply to the activities of Esso.

In recognising the situation, the Authority nevertheless believed that the Department of Conservation and Land Management should approve the exploration in stages and that inspection of each stage by the Department take place and be approved before a new stage was commenced.

It was also resolved that the costs of these inspections be met from funds which the company had offered to make available.

#### **Eastern Corridor Major Roads Study**

Proposals to re-align the Great Eastern Highway were considered because two of the alternative routes had been proposed to pass through the John Forrest National Park. The Authority endorsed the view that major road construction should not take place in National Parks and opposed construction of the two routes suggested to pass through the John Forrest National Park. The Department of Conservation and Environment was informed of this resolution.

#### **The Role of the Authority in Policy Development and Management Planning**

The Authority noted that the policies of the former National Parks Authority and the former Wildlife Authority would continue until such time as they were changed or amended. However, the desirability of the Authority and the Department of Conservation and Land Management to have similar views on new policy developments was discussed. Arising from these discussions, the Department requested that the Authority adopt the same policies. This occurred for the following:

- Conservation of Endangered Flora in the Wild
- Rehabilitation of Disturbed Land
- Protection of Aboriginal Sites
- Arbor Day
- Taking of Protected Flora in the Kimberley Region
- Weeds on CALM Lands
- Recreation
- Fire Management

#### **Formation Of A Sub Committee To Consider Fauna Issues**

The Minister endorsed an Authority proposal to establish a Fauna Committee, the purpose of which was to make recommendations on issues and policies that related to fauna management.

Membership was established as

Dr B R Wilson ( National Parks and Nature Conservation Authority) Chairman  
Dr J Bailey (National Parks and Nature Conservation Authority)  
Mr A W Hogstrom (Agriculture Protection Board)

with Mr K McNamara and Dr A Burbidge (Department of Conservation and Land Management) appointed as observers.

For the purpose of considering the specific issue of kangaroo management further appointments were made of

Ms K McRoberts - representing conservation interests

Mr W Lacy - representing pastoral interests

Mr A Fewster - representing the National Parks and Nature Conservation Authority

#### **Captive Emu Farming**

The Authority gave endorsement in principle to captive emu farming on the basis of it being biologically and technically feasible and provided that there is no threat to the conservation status of emus in the wild.

#### **Commercial Rabbit Farming in Western Australia**

The Minister sought the views of the Authority on a proposal to farm rabbits commercially in Western Australia. Members agreed that they did not see any serious disadvantages in the proposal or a potential to interfere with conservation values. The Minister was advised accordingly

#### **Wetlands of International Importance - The Ramsar Agreement**

The Authority endorsed a proposal to nominate under the RAMSAR Agreement eleven areas of wetlands in Western Australia that were of International importance. Endorsement was given for reasons of conservation. The Minister was informed of this endorsement.

#### **Management of the Silver Gull Population in Western Australia**

The Authority expressed concern about the silver gull situation in Western Australia and its effect on other birds. Arising from this concern, the Department of Conservation and Land Management agreed to investigate the initiation of control measures.

#### **The 1987 Management Programmes and Quotas for Red Kangaroos, Grey Kangaroos And Euros**

The Authority advised the Minister that:

1. with respect to management programmes
  - (a) on the advice of its Fauna Committee, it agreed with the draft 1987 management programmes for Red and Western Grey Kangaroos and recommended that they be forwarded to the Commonwealth Minister;
  - (b) in view of the lack of quantitative information about Euro populations and the damage which they may cause, it suggested that the draft 1987 management programme for Euros not be forwarded to the Commonwealth Minister;
2. there is a need for research into the impact of kangaroos on the natural environment and on primary production, and there is a need for monitoring of and research into populations of kangaroos. The magnitude of the research programme required is beyond the existing capacity of the relevant organisation, CALM, APB and the Department of Agriculture unless there is substantial redeployment of resources;
3. the Authority will address the philosophical questions which underlie public concern about kangaroo conservation and management, and that for this purpose the Fauna Committee, in the interim period pending the availability of new research information, be requested to undertake a review of existing information on the conservation and management of Red Kangaroos, Western Grey Kangaroos and Euros, and in particular to address itself to the questions of:-

(a) whether there is a need to manage kangaroo populations in order to either lessen damage caused by them to the natural environment or to primary production:

(b) if there is such a need, options which should be considered include:

- i) a commercial kangaroo shooting industry;
- ii) non-commercial shooting undertaken by landholders or leaseholders, or by Government officers;
- iii) the taking of kangaroos by means other than shooting;
- iv) other means not involving the taking of kangaroos, such as the use of land management techniques.

The Authority determined that the Fauna Committee should be enlarged for this purpose to include a representative from the conservation movement and from primary industry.

4. with respect to 1987 quotas:-

(a) the Authority agreed with the recommended 1987 quota for Red Kangaroos of 200,000 including 30,000 to be held in reserve for use in specific areas subject to rangeland rehabilitation programmes;

(b) agreed with the recommended 1987 quota for Western Grey Kangaroos of 45,000; and

(c) following from 1(b) above, the Authority suggested that no quota recommendation for Euros be forwarded to the Commonwealth Minister.

#### **Keeping of Cetaceans in Captivity**

The Authority responded to the Report of the Senate Select Committee on Animal Welfare titled "Dolphins and Whales in Captivity".

#### **Taking of Penguins from the Wild for the Bunbury Big Swamp Bird Park**

The Minister was advised that the Authority could not support the application of the Bunbury Big Swamp Bird Park to capture penguins from the wild.

#### **Transfer of Captive Numbats to Zoos**

A proposal to transfer captive numbats to zoos was considered and it was agreed that this could take place. Approval was given on the basis of the captive breeding programme allowing for future release of the species into the wild and not being used as zoo "currency" and traded with outside zoos that were not involved in the breeding programmes.

#### **Conservation of the Species *Regelia megacephala***

The Authority noted the intention of the Silicon Trust to establish a quarry near Moora at which site the species was common. While recognising that the plant was not endangered but nevertheless limited in its locality it was proposed that the Company be asked to protect the plant in areas where mining was not intended.

#### **Application to take Rare Flora**

The Authority approved an application from the Cranbrook Tourist Promotion Group to take blooms of the Cranbrook Bell from the Stirling Range National Park. The approval was given after careful consideration of the very limited effects the taking would have on the maintenance of the species.

### **Beaching of Whales on the Town Beach of Augusta**

The Authority noted with much satisfaction the timely and effective rescue operation that had been mounted to save a large percentage of whales that had beached at Augusta. It was resolved that the Authority's gratitude should be extended to the Department of Conservation and Land Management and to the public who were involved in the rescue operation.

### **Taking of Stromatolites - Shark Bay**

The Authority noted that permission had been granted by the Department of Conservation and Land Management for a single stromatolite specimen to be taken from Shark Bay by the Royal Ontario Museum for scientific purposes. Although the permission given was not objected to, the Authority recorded its objection to permission being given to remove any further specimens

### **Application by Atlantis Marine Park to Capture Seals**

The Authority debated at length an application made by Atlantis Marine Park to take seals from the wild to replace those that were to be destroyed because of their being infected with tuberculosis. It was resolved that given the current population status of the New Zealand Fur Seal and the Sea Lion in Western Australian waters, that the Authority could not recommend that permission be granted to capture either species in WA for commercial display purposes.

Members noted that the Government had subsequently issued permits to take the seals and that a payment of \$5,000 had been charged for each seal taken and that this payment would be made to the National Parks and Nature Conservation Trust Account.

### **Replacement of the Gloucester Tree Lookout**

The deteriorating condition of the Gloucester Tree lookout was noted and consideration was given to a proposal to establish a new lookout. Study of alternative sites indicated that the only accessible and suitable trees were located in the Warren National Park.

In recognising the desirability of a new structure, the Authority agreed to the proposal in principle but stipulated that the views of the Pemberton residents must be canvassed before final agreement would be given.

### **Visit to Barrow Island by Members of the Authority**

At the invitation of West Australian Petroleum, Mrs M Blackwell and Mr A Fewster visited Barrow Island on behalf of the Authority during the week 4 - 8 May 1987.

Save for a number of very minor suggestions to improve the already high standards of environmental management on the Island, the members expressed their satisfaction of the way in which the Company was occupying and managing the area.

### **Visitors**

During the year, Departmental Officers attended meetings and addressed members on a number of matters.

Dr P Christensen presented a paper on a Research Review of the Ecology of the Karri Forest. His address was provided in response to a South West Forest Defence Foundation statement that research deficiencies existed with respect to the karri forest.

Dr A Start provided details of a fine stand of mulga that existed outside the south east boundary of the Hamersley Range National Park. Arising from this address, the Authority recommended action to have the area reserved.

Ms S Worley, Mr K Goss and Mr G Field addressed the Authority on the work being carried out by the Department's Information Branch.

Planning Group members of the Department led by Mr J Williamson addressed the Authority on the progress being made on a number of draft management plans which they were preparing for the Authority.

Mr F Batini spoke to members on two occasions on matters relating to mining activities taking place on lands that were vested in the Authority.

Dr B Wilson and Mr C Haynes, directors of Nature Conservation and National Parks respectively, addressed each meeting in these capacities and provided ongoing reports of their activities.

As well as the Departmental officers, the Authority welcomed an address given by Mr B Carbon, Chairman of the Environmental Protection Authority. Mr Carbon spoke on the interactions of his Authority with other Government departments and authorities.

The Authority also welcomed the attendance of Mr G Rundle and Mr C Harris of the Conservation Council of Western Australia. At this meeting issues were proposed for future discussions in an open forum between the Authority and the Conservation Council's affiliated bodies. This meeting was subsequently held on 13 February 1987.

#### **Endorsement of Grants Made from the National Parks and Nature Conservation Trust Account**

Although the Conservation and Land Management Act provides the Executive Director, Department of Conservation and Land Management with the sole responsibility to disburse funds, the Minister agreed that consultation in the allocation proposals take place with Authority members. The Authority agreed with proposals made by the Executive Director to allocate finance for projects to be undertaken by Murdoch University, the Royal Australian Ornithological Union, the University of Western Australia and the Australian Museum.

# **THE FOREST PRODUCTION COUNCIL**

---

## **Chairman's Report**

The year 1986/87 was of major significance to the forest industries of Western Australia. During this year the Department completed the preparation of a draft timber strategy which sets out a plan to take the industry into the Twenty-first Century.

The Forest Production Council throughout the year has been an extremely valuable forum of the Department in providing advice on all aspects of the industry, and in particular, has provided assistance and guidance in the formation of the timber strategy.

I am pleased to acknowledge the contribution of the Council throughout the year.

## **Authority And Legislation**

The Council is responsible to the Hon Barry Hodge, MLA, Minister for Conservation and Land Management.

The Council is established as a Controlling Body under Section 24 of the Conservation and Land Management Act 1984.

## **Council Membership**

The Forest Production Council is made up of 14 members who are appointed under the provisions of Section 26 of the Conservation and Land Management Act comprising:

- (a) two ex officio members being -
  - (i) the Executive Director, who shall be the Chairman of the Council; and
  - (ii) the Director of Forests, who shall be the deputy chairman of the Council;

and

- (b) twelve persons appointed by the Governor on the nomination of the Minister of whom -
  - (i) one shall be a person who is a member of the Water Resources Council established by the Western Australian Water Resources Council Act 1982;
  - (ii) seven shall be representative of timber industries or industries which are significant users of timber or timber products;
  - (iii) one shall be representative of primary producers, not coming within subparagraph (ii), associated with forests;
  - (iv) one shall be representative of bodies of persons the object of which, or the members of which by reason of their profession, are concerned in the management of forests;
  - (v) one shall be representative of country interests and be a person with special skill or experience relevant to the functions of the Council; and

(vi)one shall be a person having special experience in commercial forestry production.

**Ex Officio Members**

- (a) (i) Dr S R Shea, Executive Director, Department of Conservation and Land Management.
- (a) (ii) Mr P N Hewett, Director of Forests, Department of Conservation and Land Management.
- (b) (i) Mr K J Kelsall, A.M.
- (b) (ii) Mr R G Bunning  
Mr F J Gillman  
Mr R D McInnes  
Mr B T Ray  
Mr A Gosatti  
Mr G J Shepherd  
Mr A V Wheatley
- (b) (iii) Mr R O Pollard
- (b) (iv) Mr D Spriggins
- (b) (v) Mr P J McNamara
- (b) (vi) Mr G Airey\*

\* until 21 March 1987.

Re-appointment of members for periods of one year from 22 March 1987 were made by the Lieutenant Governor and Deputy of the Governor in Executive Council on 20 March 1987.

**Changes of Membership**

Mr Airey did not seek re-appointment and this vacancy remained unfilled.

**The Functions and Objectives of the Council**

The functions of the Forest Production Council are prescribed in Section 25 of the Act and are to advise the Minister:

- (a) generally on matter pertaining to production from State forest and timber reserves;
- (b) on the improvement of -
  - (i) such production on ways consistent with the maintenance of other forest values; and
  - (ii) the use, processing and marketing of forest produce;
- (c) on the need for, and form of, research to achieve or promote the objectives described in section 56 (1) (a) and (b);
- (d) on the contents of proposed management plans for State forest and timber reserves

### **The Powers of the Council**

The Forest Production Council does not have executive powers or functions. Its role is advisory but with direct approach to the Minister being allowed for.

### **Funding of the Council**

The costs of Council activities are met from the Consolidated Revenue Fund. Financial Administration is undertaken by the Department of Conservation and Land Management.

### **Activities During the Year**

The Forest Production Council held four regular meetings and two special meetings during the year.

The following matters were considered.

#### **Readjustment of Log Prices**

The Council considered the intention of Government to increase the royalty rates of logs taken from State forests. Discussions extended over a number of meetings. The Government's reasons to increase royalties were explained by senior Departmental officers.

They advised that the basis of the new royalty rates were those of the costs of growing the forests, the capacity of industry to pay and the auction/tender prices that had been obtained on the open market. Interim royalty increases of some 22.5 percent were applied from 1 August 1986.

While industry acknowledged that the costs of growing the forests should be met, acceptance of the methods used to calculate these costs did not follow. Agreement had still not been reached by the end of the year.

The ramifications of further royalty increases on the industry and in particular the housing and furniture sectors were debated. It was argued that with very competitive prices existing for imported timber, any increases of local timber prices brought about by additional royalty rates would be to the detriment of the Western Australian Industry.

As a consequence of representations made to the Minister, the CPI indexation component of royalties was deferred until 1 January 1987 when a 4.8 percent increase on target royalties was applied. Further indexation was not applied during the remainder of the year.

#### **Deregulation of Rail Transportation of Timber**

In accepting that log prices would eventually increase, the Council recommended that deregulation of rail transportation of timber should take place. The Council believed that deregulation would result in lower transport costs and thereby lessen the impact of the intended higher log prices. The Minister was informed of the recommendation.

#### **Timber Production in Western Australia (Draft) - A Strategy to Take WA's Forests into the 21st Century**

During a special meeting of the Council members were briefed on the objectives of a draft timber production strategy that had been prepared for public comment by the Department of Conservation and Land Management on behalf of the Lands and Forest Commission.

#### **Public Interest Project**

Members noted with appreciation the progress that had been achieved in the project which was being carried out at the Harvey Wood Utilisation Research Centre. A shortage of staff with necessary expertise in timber utilisation research had however existed during the earlier part of the year and to overcome this problem, industry made some of its own staff available for limited periods on contract.



## **Sub Committees**

### ◦ Timber Products Panel

The panel which had been established to promote timber products was inactive during the year. Notwithstanding this situation, discussion of the need to co-ordinate the role of the panel with other existing promotional organisations took place and at the close of the year, this requirement was being followed up.

### ◦ Promotion Of Forest Production

This sub committee was particularly active during the year. The sub committee was established to promote within the framework of multiple use management of forests, the concept of wood production as an important and environmentally acceptable use of State forests.

Membership of the sub committee was

Mr D Spriggins  
Mr C Kneen  
Mr T Blain  
Mr K Goss  
Mr L Owens  
Mr R McInnes  
Mr A Gosatti  
Mr D Keene

The sub committee's work included the co-ordination of all available promotion information that existed. This included publications, tourist promotion, video presentations and forest tours and inspections.

### ◦ Research Panel

Problems associated with an appointment of a Chairman of the Research Panel were experienced during the year. However, the matter was close to finality at the end of the year and an appointment was expected to follow.

## **Field Inspection**

Council members visited the Harvey Wood Utilisation Research Centre on 6 February 1987 and inspected the work that was being conducted under the aegis of the public interest project funded by the Commonwealth Government, the State Government and the West Australian timber industry. Progress was noted and appreciation of this was expressed by the Council.

# ROADSIDE VEGETATION CONSERVATION COMMITTEE

---

## Terms of Reference

The terms of reference of the RVCC are: to co-ordinate and promote the conservation and effective management of rail and roadside vegetation for the benefit of the environment and the people of Western Australia.

## Committee Membership

Mr J. Blyth (Chairman)  
Mr P. Hewett (Deputy Chairman)  
Mrs J. Seabrook  
Cr A. Hillier (appointed Dec 1986)  
Mr K. Lindbeck  
Mr P. Martinovich  
Cr C. Moore (resigned Dec 1986)  
Cr J. North  
Mr J. Robley  
Mr R. Shaw

## Staff

The Committee was serviced by an Executive Officer based in the Department of Conservation and Land Management.

## Meetings

Seven meetings were held during the year, on 6 August 1986, 1st September 1986, 28th October 1986, 15th December 1986, 17th February 1987, 28th April 1987, 15th June 1987. The September meeting was held at Morawa and the April one at Manjimup, and both involved excursions to view areas of interest.

Several standing Sub-Committees have been appointed which meet as and when necessary.

1. **Materials Sub-Committee** (to consider policy on the extraction of road making materials)  
Chairman: Cr J. North  
Date of Meetings: 20th October 1986, 28th January 1987.

This Committee has determined a policy (attached) which has been endorsed by the Country Shire Council's Association and is being discussed with individual Local Government Authorities.

2. **Research Sub-Committee** (to consider priorities for the allocation of research funds)  
Chairman: Mr J. Blyth  
Date of Meeting: 29th January 1987.

During 1986/87 the following research projects were funded:

- To evaluate a method for spot eradication of *Phytophthora dieback*.
- To evaluate the use of fire in regeneration of *Banksia cuneata*.
- To compile a register of roads with vegetation of conservation value.

## Publications

The results of two previous research projects have been published:

- "Roadside Vegetation Bibliography"
- "Roadside Vegetation - Inventory of Current Research"
- "A Survey of Vegetation and its Relationship to Vertebrate Fauna Present in Winter on Road Verges in the Kellerberrin District, W.A."

Three brochures have been printed and widely distributed:

- "Dieback Kills Wildflowers"
- "Roadside Marking of Special Environmental Areas"
- "Revolutionise Revegetation" (in conjunction with Greening Australia).

A simple leaflet about *Banksia cuneata* has been produced.

## General Activities

The Committee has liaised extensively with the Country Shire Council's Association, individual Local Government Authorities, Government Departments and Conservation Groups, concerning both general and specific matters.

Together with Greening Australia, a "Roadside Certificate of Merit" has been initiated, which will be awarded alongside the John Tonkin Tree Awards in 1987.

The Chairman and the Executive Officer have given a number of talks outlining the importance of roadside conservation and the role of the Committee.

The Committee has defined a "Flora Road" as: "a road which has conservation value by reason of the vegetation occurring on the road reserve". This concept has been endorsed by the Country Shire Council's Association. A Register of possible Flora Roads is being compiled during 1987-88 and a number of Local Government Authorities have indicated interest in adopting the concept to assist with their roadside management and the encouragement of tourism.

## Finance

Funds for servicing the Committee were provided from the budget of the Department of Conservation and Land Management and the Main Roads Department.

During the financial year 1986/87, the funds expended were:

	<u>CALM</u>	<u>MRD</u>	<u>TOTAL</u>
Salary	13 000	13 000	26 000
Members fees, travel	3 610	Nil	3 610
Publications	3 165	Nil	3 165
Research	<u>5 000</u>	<u>10 000</u>	<u>14 815</u>
	24 775	23 000	47 590

# ROADSIDE VEGETATION CONSERVATION COMMITTEE

## POLICY

### OBTAINING ROAD CONSTRUCTION MATERIAL FROM THE ROAD RESERVE

1. That the RVCC discourages the taking of road-building material from road reserves outside the designated construction and maintenance area, and recommends a procedure to ensure that alternative supplies have been adequately considered.
2. That road-making authorities should be encouraged to conduct pre-construction assessments on road projects involving the destruction of native vegetation, including a report on alternative sources of road construction material. These pre-construction assessments will be incorporated in a Bulletin being jointly revised by DCE, MRD and the RVCC, which will be distributed to all LGAs.  

Pre-construction assessments are especially desirable if the road in question has been identified and agreed to as a Flora Road.
3. That this pre-construction assessment should include consideration of ways to preserve as much as possible of the natural vegetation and also include the disturbance or rare flora, the possibility of plant disease risk and the spread of declared and other unwanted plants.
4. That the method used by Esperance Shire be recommended to all LGAs as a practical and satisfactory approach to the problem of obtaining road construction material from private land.
5. That, subject to a materials resource assessment, road construction material reserves be created as a matter of priority.
6. If, after consideration of all alternatives, it is considered essential for road construction materials to be obtained from road reserves, then
  - a. care must be taken not to remove all of one soil type along the road
  - b. a pre-construction assessment should be carried out
  - c. hygiene methods to control the spread of disease or declared plants, as outlined by the appropriate bodies, should be followed.
  - d. progressive rehabilitation techniques, as outlined by MRD, should be used.
7. That, wherever road construction material is taken, appropriate extraction, rehabilitation and regeneration methods should be applied as part of the works.
8. That LGAs be encouraged to investigate ways of creating a rehabilitation fund, such as that used by the Augusta-Margaret River Shire.

# **APPENDICES**

**Appendix 1**  
**Trend in Area of Karri Forest Cut Over**

Year (calendar year)	Clearfelled or cut to seed trees (ha)	Removal of seed trees (ha)	Thinning regrowth forests (ha)
1976	3,521	832	—
1977	2,053	2,460	—
1978	2,656	863	—
1979	2,281	400	—
1980	2,045	743	140
1981	1,455	1,463	256
1982	1,221	1,348	262
1983	1,735	617	267
1984	2,120	945	393
1985	1,530	802	324
1986	1,094	1,203	491

Note: The areas from which seed trees are removed are the same areas accounted for under "Cut to Seed Trees", either in this or a previous reporting period. They are not additional areas of cutting.

**Appendix 2**  
**Trend in Areas of Even-Aged Karri Regrowth**

Year of Regeneration	Area (ha)
Before 1966	8,940
1966	180
1967	320
1968	850
1969	1,670
1970	70
1971	100
1972	1,840
1973	180
1974	230
1975	1,190
1976	1,720
1977	1,880
1978	1,810
1979	2,310
1980	2,300
1981	3,350
1982	2,520
1983	2,340
1984	2,180
1985	2,360
1986	1,990

**Appendix 3**  
**Trend in Pine Plantings**

Year (calendar year)	Radiata (ha)	Pinaster & Other Species (ha)	Total (ha)
1976	1,792	1,139	2,931
1977	1,883	880	2,764
1978	2,254	556	2,810
1979	1,973	561	2,534
1980	1,617	978	2,595
1981	1,600	996	2,596
1982	1,548	642	2,190
1983	1,390	827	2,207
1984	1,996	537	2,534
1985	1,770	519	2,289
1986	1,406	610	2,016



## Appendix 4 Trend in Log Production

Year	Crown Land (m <sup>3</sup> )	Private Property (m <sup>3</sup> )	Total (m <sup>3</sup> )
Brought forward	6,821,873	15,844,520	* 81,469,989
1970	1,121,396	175,686	1,297,082
1971	1,145,161	161,990	1,307,151
1972	1,096,236	106,993	1,203,229
1973	1,060,359	102,992	1,163,351
1974	1,084,463	91,884	1,176,347
1975	1,096,356	87,957	1,184,313
1976	1,194,667	111,761	1,306,428
1977	1,429,493	106,848	1,536,341
1978	1,445,465	119,706	1,565,171
1979	1,489,515	129,665	1,619,180
1980	1,582,018	165,076	1,747,094
1981	1,593,512	161,966	1,755,478
1982	1,392,227	127,825	1,520,052
1983	1,225,798	102,942	1,328,740
1984	1,333,037	134,922	1,467,959
1985	1,515,956	187,975	1,703,931
1986	1,579,468	156,127	1,735,595
1987	1,605,463	183,689	1,789,152

\* Includes 18,783 m<sup>3</sup> estimated cut prior to 1917.

Note: As in previous years this total includes log material used for reconstituted wood and chipwood. The increase since 1976 is due to the use of marri and karri by WA Chip and Pulp Co Pty Ltd.

**Appendix 5**  
**Trend in Pine Log Output**  
**(including Particleboard Logs)**

Year	Crown Land (m <sup>3</sup> )	Private Property (m <sup>3</sup> )	Total (m <sup>3</sup> )
1970	81,283	1,514	82,797
1971	86,246	1,594	87,840
1972	90,161	1,306	92,067
1973	100,419	1,015	101,434
1974	123,393	1,167	124,560
1975	129,086	63	129,149
1976	105,567	—	105,567
1977	120,859	335	121,194
1978	125,548	1,677	127,225
1979	176,944	6,127	183,071
1980	191,363	4,827	196,190
1981	201,552	2,988	204,540
1982	173,474	14,834	188,308
1983	176,618	5,468	182,086
1984	198,281	3,559	201,840
1985	225,945	18,042	243,787
1986	247,637	29,121	276,758
1987	266,766	24,831	291,597

**Appendix 6**  
**Trends in the Production and Use of Sawn Timber**

Year Ended 30 June	Sawn Production (m <sup>3</sup> )			Export	Local Use
	Hardwood	Softwood	Total		
1970	425 295	16 893	442 188	96 275	345 914
1971	420 777	21 595	442 372	79 437	362 935
1972	379 006	21 733	400 739	101 191	299 548
1973	375 135	23 283	398 418	111 547	286 871
1974	374 899	26 534	410 433	98 200	303 233
1975	368 844	27 086	395 930	100 127	295 803
1976	383 010	16 258	399 268	94 136	305 132
1977	369 151	16 685	385 836	77 352	308 484
1978	347 111	18 669	365 780	58 833	306 947
1979	331 135	18 145	349 280	66 420	282 860
1980	331 411	21 400	352 811	71 955	280 856
1981	330 863	22 954	353 817	65 109	288 708
1982	320 915	22 190	343 105	48 448	294 657
1983	252 124	13 216	265 340	41 789	223 551
1984	258 861	14 723	273 584	19,318*	254,015
1985	291 683	21 632	313 315	22,112*	291,203
1986	295 160	33 816	328 976	21,497*	307,479
1987	280 146	36 512	316 658	N/A	N/A

\* Figures for interstate export of jarrah and karri timber, sawn lengthwise, sliced or peeled, but not further prepared, of a thickness exceeding 5 mm, are excluded because of confidentiality restrictions applied by the Australian Bureau of Statistics.

**Appendix 7**  
**Trend in Hardwood Chiplog Production from Crown Land**

Year	Old Growth Forest				Regrowth Forest			Total m <sup>3</sup>
	Marri m <sup>3</sup>	Karri m <sup>3</sup>	Other m <sup>3</sup>	Subtotal m <sup>3</sup>	Marri m <sup>3</sup>	Karri m <sup>3</sup>	Subtotal m <sup>3</sup>	
1975/76	77,655	20,712	3	98,370				98,370
1976/77	241,207	135,814	—	377,021				377,021
1977/78	329,190	105,187		434,377				434,377
1978/79	353,928	100,168		454,096				454,096
1979/80	439,666	116,975	1,476	558,117	292	3,882	4,174	562,291
1980/81	386,664	105,604	3,448	495,716	1,794	17,565	19,359	515,075
1981/82	255,069	90,734		345,803	1,728	21,676	23,404	369,207
1982/83	284,670	100,608		385,278	3,137	23,702	26,839	412,117
1983/84	339,389	78,371		417,760	2,961	24,293	27,254	445,014
1984/85	400,828	71,613		472,441	2,263	22,176	24,439	496,880
1985/86	428,514	54,448		482,962	555	30,918	31,473	514,435
1986/87	444,076	52,364		496,440	500	55,753	56,253	*552,693
<b>Cumulative Total</b>	<b>3,980,856</b>	<b>1,032,598</b>	<b>4,927</b>	<b>5,018,381</b>	<b>13,230</b>	<b>199,965</b>	<b>213,195</b>	<b>5,231,576</b>

\* In addition, during 1986/87 88,111 tonnes of sawmill residue was converted into woodchips.

Production of woodchips from reject marri and karri logs began at the Diamond Mill, Manjimup, in September 1975.

Commercial thinning of regenerated karri forest commenced in May 1980.

**Appendix 8**  
**Summary of Exports of Forest Produce**

Year	Timber		Wood Manufacture Value (\$)	Essential Oils and Tanning Materials (\$)
	(m <sup>3</sup> )	Value (\$)		
Brought forward	13,081,830	177,786,912	8,536,935	17,386,964
1968	84,569	4,947,595	3,016,850	280,806
1969	86,455	4,984,098	3,802,927	267,565
1970	96,275	5,661,547	3,906,699	317,553
1971	79,362	4,803,842	2,110,802	343,512
1972	101,191	6,439,732	2,369,541	348,762
1973	111,547	7,036,637	2,604,116	337,736
1974	98,200	7,366,709	3,769,461	433,627
1975	100,127	9,080,092	132,278	479,019
1976	94,136	9,823,037	993,199	214,918
1977	77,352	10,150,025	205,173	45,767
1978	58,833	8,809,324	4,625,089	41,422
1979	66,420	10,560,052	8,122,584	61,525
1980	71,955	12,265,737	591,670	255
1981	65,109	12,331,467	1,414,745	2,361
1982	48,448	9,599,222	1,671,328	—
1983	41,798	8,295,949	1,634,839	300
1984	19,318	5,284,658	<sup>1*</sup> 9,910,609	3,138
1985	22,112	7,172,934	<sup>2*</sup> 351,837	2,099
1986	21,497	7,328,350	<sup>2*</sup> 547,344	318

<sup>1\*</sup> Includes interstate cork and wood not elsewhere included. This incorporates interstate jarrah and karri timber sawn lengthwise, sliced or peeled, but not further prepared, of a thickness exceeding 5 mm.

<sup>2\*</sup> Does not include interstate cork and wood (which is not elsewhere included either) because of confidentiality restrictions applied by the Australian Bureau of Statistics.

Source: Australian Bureau of Statistics.

**Appendix 9**  
**Summary of Imports of Forest Produce**

Year	Timber Woodware (\$)	Tanning Materials (\$)	Essential Oils (\$)
Brought forward	63,937,163	1,344,397	4,600,226
1968	8,135,532	75,657	143,696
1969	8,731,114	109,905	206,309
1970	10,968,170	153,169	293,845
1971	6,761,806	103,857	175,331
1972	5,578,819	144,219	227,530
1973	8,326,939	225,463	366,786
1974	11,738,861	420,010	271,713
1975	14,053,751	465,884	641,859
1976	19,960,421	373,331	131,515
1977	24,857,792	603,819	39,143
1978	24,039,952	912,669	620
1979	18,200,508	614,628	48
1980	26,801,716	641,927	1,118
1981	28,691,997	512,128	126
1982	26,068,548	571,183	1,446
1983	23,738,070	341,138	1,138
1984	26,480,449	610,625	6,257
1985	37,871,360	450,477	9,587
1986	37,858,904	402,564	958

Source: Australian Bureau of Statistics

## Appendix 10

### Area of Prescribed Burning

<u>Indigenous Vegetation</u> - hand burning (ha)	
State forests	
Hand burns	25 220
Slash and regeneration	6 966
Indigenous areas within pine plantation zones	395
Clearing burns for pine establishment	1 073
National Parks	3 281 *
Nature Reserves	1 471 **
Other Crown Lands and private property	3 385
Total	41 791

\* plus 234 km buffer strips

\*\* plus 33 km buffer strips

<u>Indigenous Vegetation</u> - aerial ignition (ha)	
State Forest Hardwood	196 271
National Parks	2 184
Nature Reserves	1 445
Other Crown Lands and private property	2 240
Total	202 140

<u>State Forest Softwoods</u> (ha)	
Winter burning under pines	6 429
Total	6 429

**Appendix 11**  
**Fire Fighting Equipment by Regions — July 1987**

Region	Heavy Duties	Gang Trucks	Light Patrol	Portable Units
Metro	1	0	7	3
Northern Forest	18	10	24	14
Central Forest	27	18	12	23
Southern Forest	15	14	8	9
South Coastal	4	0	18	4
Wheatbelt	2	2	8	3
Greenough	3	0	7	0
Goldfields	1	0	3	0
Pilbara	1	0	3	0
Kimberley	0	0	2	0
<b>Total</b>	72	44	92	56

Heavy Duty — High performance pump — 2700 to 3600 litre tank.

Gang Truck — Personnel carrier with 5HP/40mm pump 900 to 1900 litre tank.

Light Patrol — Light 4x4 (up to 1 tonne) 3.7kW/40mm pump 450 to 680 litre tank.

Portable Unit — Either high performance for relay pumpint or standard 3.7kW/40mm pump.

**Hygiene Washdown Units by Regions — July 1987**

Region	Mobile HP/LV Trailer or Vehicle	Fixed HP/LV DHQ Electric or Petrol	Washdown Pad/Ramp
Metro	1	0	1
Northern Forest	3*	1	3
Central Forest	2	3	6
Southern Forest	4*	3	3
South Coastal	4	1	5
Wheatbelt	1	0	2
Greenough	2	0	1
Goldfields	0	0	0
Pilbara	0	0	0
Kimberley	0	0	0
<b>Total</b>	18	8	21

\* Includes (1) air compressor type.



## Appendix 12

### Wildfires

#### Number of Wildfires and Areas by Land Categories

	Number	Area Burnt (ha)
State Forest Hardwood	139	9,408
State Forest Softwood	34	25
National Parks	30	175,900
Nature Reserves	17	1,437
Other Crown Lands	69	41,467
Private Property	52	7,441
<b>Total</b>	<b>341</b>	<b>235,678</b>

#### Causes

	Number	Per cent
Deliberately and illegally lit	136	40
Escaped from departmental prescribed burns	31	9
Escaped from other burning off	41	12
Accidental by timber industry	4	1
Accidental by other industries	12	4
Accidental by recreational visitors	34	10
Lightning	12	4
Unknown	46	13
Other causes	25	7
<b>Total</b>	<b>341</b>	<b>100</b>

## Appendix 13

### Publications Produced in 1986/87

#### Annual Report

Department of Conservation and Land Management 1986

#### Landscape

- Volume 2 No. 2
- Saving the Whales
  - Bungle Bungle: Birth of a National Park
  - Snowscapes, W.A.
  - Herdsmen Lake: Inner City Sanctuary
  - Wetland Reflections - a photo essay
  - Burning from Experience
  - Dragonflies - Desert Jewels
  - Crocodiles - A Conservation Conundrum
- Volume 2 No. 3
- Home on the Range
  - Garden for Wildlife
  - Diplomats from Day One: W.A.'s Stromatolites
  - Exploits at Icy Creek
  - A Year in Lilliput
  - The Writing on the Wall
  - Wildfire
  - Gimlets and Gold - The Story of Kalgoorlies's Woodlines
  - A Swamp for all Seasons
- Volume 2 No. 4
- Down by the Riverside
  - Vanishing Desert Dwellers
  - Relics of a Long Lost Land
  - Wiluna's Fashion Farm
  - Old Charley's Legacy
  - Blueprints for the Future
  - The Chuditch: A Spot-on Marsupial
  - On the Verge
  - Mangroves

#### CALM News

12 monthly editions

#### Recreation

- The South Coast Region
- Cape Range National Park
- Mirima - Hidden Valley National Park
- Nambung National Park
- Kalbarri National Park
- Fitzgerald River and Frank Hann National Parks
- Millstream-Chichester National Park
- Walpole-Nornalup National Park (interim brochure)
- Devonian Reef National Parks
- Bungle Bungle National Park
- Marmion Marine Park
- Cape Range National Park - Lightfoot Heritage Trail
- Geikie Gorge National Park Bird List
- Fitzgerald River National Park Dieback
- The Old Mill
- Lane Poole Reserve at Easter

Donnelly Drive Manjimup  
Timber Getter Trail (revised)  
Forest Tours No. 1 - Pine Creek Road  
Walpole Bushwalks  
Bushfires and Safety  
Two Peoples Bay Nature Reserve Self-guiding Tour  
Sandford Rocks Discovery Trail  
Garden Island

Education           The Woylic  
Marine Turtles  
Living with Turtles  
Mammals of the Stirling Ranges - Past and Present  
Trees of the South West Forests  
Forest Explorer - Goldie and the Riddles of Life  
Icy Creek Camp

#### Resource Notes

No. 1           Marsupials in the Forests in the South-West of W.A.  
No. 2           Birds you are likely to see or hear in the Jarrah Forest of W.A.  
No. 3           Some Frogs in the South-West of W.A.  
No. 4           Snakes and Lizards of W.A.'s South-West Forests.  
No. 5           Red-Capped Parrots, Marri & Apple Orchards - Adaption  
                  and Pre-adaption.  
No. 6           The Tammar Wallaby and Fire  
No. 7           The Effect of Fire on Reptiles of Arid and Semi-arid areas.  
No. 8           Seabird Islands  
No. 9           The Noisy Scrub Bird  
No. 10          Reasons for Rarity  
No. 11          What is Dieback?  
No. 12          Controlling Dieback in W.A.'s National Parks and Forests  
No. 13          Western Swamp Tortoise

#### Advisory

Agroforestry - An Alternative Approach to Farming  
Roadside Marking for Special Environmental Areas (R.V.C.C.)  
Dieback Kills Wildflowers (R.V.C.C.)

#### Information Sheets

1/87           Natural Regeneration of Bush areas in W.A.  
2/87           Pine Trees for Timber Under W.A. Conditions  
3/87           Tree Planters Guide  
4/87           Mistletoe in South Western Australia: Identification,  
                  Spread and Control  
5/87           Native Seed Collection and Storage

#### Industry

W.A.'s Wood Resources - Commercial Opportunities  
Jarrah - Beauty and Elegance  
The Wood Utilisation Research Centre  
Duck Shooters Guide 1987

## Books

Beating About the Bush

## Posters

Arbor Day 1987  
Marmion Marine Park  
Minimum Impact Bushwalking (reprint)

## Management Plans

Northern Forest Region Draft  
Central Forest Region Draft  
Southern Forest Region Draft  
Northern, Central and Southern Forest Regions Supporting Papers  
Timber Production in Western Australia (Draft)  
What Future For Our Forests?  
Cape Range National Park Draft  
Benger Swamp Nature Reserve Draft  
No. 3 Forrestdale Lake Nature Reserve Management Plan 1987-1992  
No 4. Nature Reserves of the Shires of York and Northam  
Management Plan 1985-1995

## Research Bulletin

No. 1 Ecology of (*Eucalyptus marginata*) in the Jarrah  
Forest of Western Australia. I. Abbott and O. Loneragan

## Research Paper

No. 1 Survival of *Pinus pinaster* Ait. Seedlings on Second  
Rotation (2R) Sites in Gnangara Plantation North of Perth,  
Western Australia.

## Technical Reports

- 10 Wood Residue Combustion and Gasification in a Fluidized Bed.  
M van Doornum and P. Shedley.
- 11 Sawmilling Study of *Pinus pinaster* Ait. (Landes Provenance) in  
Western Australia. D.J. Donnelly and G.R. Siemon
- 12 Research for the Fire Management of Western Australian State  
Forests and Conservation Reserves. A.M. Gill
- 13 Rainfall Distribution on the Northern Swan Coastal Plain.  
T.B. Butcher
- 14 Annotated Bibliography of Forest Entomology in Western  
Australia to 1985. I. Abbott, J.D. Majer and Z. Mazanec.
- 15 Probable Effect of Increased Salinity on the Waterbirds of  
Lake Toolibin. S.A. Halse.
- 16 Stream and Groundwater Response to Logging and Subsequent  
Regeneration in the Southern Forest of W.A. H. Borg,  
G.L. Stoneman and C.G. Ward.

## Landnotes

- 6/86 Backburning in Forest Areas. N.D. Burrows  
7/86 Murray River Recreational Site Protection and Rehabilitation.  
C.C. Portlock and R. Bone.  
8/86 Guide to Research Findings on Biology and Ecology of the  
Karri Forest. P.C. Christensen.  
1/87 The Husky Hunter - A Portable Computer for Recording Data  
in the Field. F.H. Yung, W. Boardman and T. Westcott.  
2/87 Thinning a Small Jarrah Forest Catchment: Streamflow and  
Groundwater Response after 2 years. G.L. Stoneman.  
3/87 Wood Generated by Thinning in the Northern Jarrah Forest.  
G.L. Stoneman.  
4/87 The Occurrence of Vascular Plants on a Granite Outcrop  
in Serpentine National Park. K. Holmwood.

## Other Technical Papers

Beekeeping and Land Management - Proceedings of a Workshop

## Internal Directory, Manuals, etc

Catalogue of Publications  
Research Division Five Year Plan Draft  
Wildlife Research Branch Summary of Research  
Southern Forest Region Operations Manual  
Southern Forest Region Industry Control Specifications  
Fire Tables (revised)  
Treemarking and Silviculture in the Jarrah Forest (revised)  
Personnel Training and Development Manual  
Officer Trainer  
CALM Alert (monthly issue)

## Appendix 14

### Summary of Personnel Employed at 30 June 1987 in Divisions, Regions, Districts and Branches

Division/Branch/ Region/District	Public Ser- vice Act	CALM Act Field Staff	Other	National Park Rangers	Forest, Res- erve, Work- shop & other Wages	Total
Minister's Office	9	—	—	—	—	9
Policy Directorate	20	1	1	—	1.53	23.53
Operatns Directorate	11	—	—	—	1	12
Research Division	59.9	65.53	—	—	18.3	143.73
Economics	4	—	—	—	—	4
Planning	8	—	—	—	3	11
Engineering	10	4	—	—	11.1	25.1
Finance	32	—	—	—	—	32
Internal Audit	2	—	—	—	—	2
Records	13	—	—	—	—	13
Wildlife & Land Administration	18	1	—	—	—	19
Personnel	9	8	—	—	0.48	17.48
Computing	7	—	—	—	—	7
Environmental Protection	3	2	—	—	—	5
Fire Protection & Communications	4	18.4	—	—	5	27.4
Information	8	14.4	—	—	1	23.4
Inventory	12	39	—	—	2.5	53.5
Mapping	30	—	—	—	—	30
Recreation & Landscape	4	2	—	—	—	6
Timber Production	11	12	—	—	—	23.87
Silviculture	5	2	—	—	—	7
<b>Central Forest</b>	8	8	—	—	1	17
Busselton	1	15	—	4	33.54	53.54
Collie	1	15	—	—	31	47
Harvey	1	14	—	1	32.25	48.25
Kirup	1	13	—	—	33.15	47.15
Nannup	1	14	—	—	42.25	57.25
<b>Gascoyne</b>	1	—	—	4	—	5
<b>Goldfields</b>	1	3	—	—	2	6
<b>Greenough</b>	2	—	—	6	1.0	9
Moora	2	—	—	—	0.4	2.4
<b>Kimberley</b>	2	3	—	10	3.73	18.73
<b>Metropolitan</b>	5	1	—	7	4	17
<b>Northern Forest</b>	5	4	—	—	2	11
Dwellingup	2	15	—	1	32.82	50.82
Jarrahdale	1	12	—	1	20.41	34.41
Mundaring	2	11	—	8	26.7	47.7
Wanneroo	3	13	—	18	49.8	83.8

**Summary of Personnel Employed at 30 June 1987  
in Divisions, Regions, Districts and Branches  
(continued)**

Division/Branch/ Region/District	Public Ser- vice Act	CALM Act Field Staff	Other	National Park Rangers	Forest, Res- erve, Work- shop & other Wages	Total
<b>Southern Forest</b>	6	6	—	—	—	12
Manjimup	2	21	—	—	48.55	71.55
Pemberton	2	13	—	2	34.50	51.5
Walpole	1	11	—	3	19.50	34.5
<b>Pilbara</b>	2	4	—	8	5	19
<b>South Coast</b>	3	3	—	—	—	6
Albany	3	2	—	10.16	0.25	15.41
Esperance	—	2	—	4	3.1	9.1
<b>Wheatbelt</b>						
Narrogin	4	7	—	—	13.50	24.50
<b>Wildlife Protection</b>	32	—	—	—	—	32
	373.9	379.33	1	87.16	485.23	1326.62

Cadets — Field	13.48
— Professional	2
Education Officer seconded from Education Department	1
	<u>1343.10</u>

**APPENDIX 15  
CHANGES IN SENIOR DEPARTMENTAL STAFF**

**Public Service Act**

BURBIDGE A.A.	DIVISIONAL MANAGER	PROMOTED
EDWARDS C.J.	DIVISIONAL MANAGER	PROMOTED
PEET G.B.	REGIONAL MANAGER	RECLASSIFIED
SNEEUWJAGT R.J.	PRINCIPAL FIRE OFFICER	PROMOTED
HEBERLE G.W.	FOREST RESOURCE PLANNING OFFICER	PROMOTED
FRAME I.J.	ACCOUNTANT	PROMOTED
TIPPETT J.T.	SENIOR RESEARCH OFFICER	RECLASSIFIED
KEALLEY I.G.	SENIOR DISTRICT FORESTRY OFFICER	RECLASSIFIED
DEBRAGANCA L.F.	DISTRICT FORESTRY OFFICER	RECLASSIFIED
BROWN P.H.	DISTRICT FORESTRY OFFICER	RECLASSIFIED
BUTCHER G.M.	DISTRICT FORESTRY OFFICER	RECLASSIFIED
ARMSTRONG R.I.	DISTRICT FORESTRY OFFICER	RECLASSIFIED
HEARN R.W.	DISTRICT FORESTRY OFFICER	RECLASSIFIED
LOW K.C.	DISTRICT FORESTRY OFFICER	RECLASSIFIED
McCAW A.G.	DISTRICT FORESTRY OFFICER	RECLASSIFIED
STONEMAN G.L.	DISTRICT FORESTRY OFFICER	RECLASSIFIED
WARDELL-JOHNSON G.	DISTRICT FORESTRY OFFICER	RECLASSIFIED
HENDERSON P.A.	DISTRICT FORESTRY OFFICER	RECLASSIFIED
FREWER P.S.	PLANNING OFFICER	RECLASSIFIED
BREIDAHN R.D.	DISTRICT MANAGER	RECLASSIFIED
HANLY P.J.	DISTRICT MANAGER	RECLASSIFIED
HAGAN R.P.	DISTRICT MANAGER	RECLASSIFIED
ALLEN D.G.	DISTRICT MANAGER	RECLASSIFIED
SEYMOUR A.P.	DISTRICT MANAGER	RECLASSIFIED
CHEVIS H.W.	DISTRICT MANAGER	RECLASSIFIED
RAVEN A.G.	DISTRICT MANAGER	RECLASSIFIED
GOODSELL J.T.	RESEARCH OFFICER	RECLASSIFIED
IRELAND W.J.	ADMINISTRATION OFFICER	RECLASSIFIED
WHITE B.J.	REGIONAL MANAGER	RETIRED
HIDE K.G.	SENIOR ADMIN OFFICER	RETIRED
HODGE B.J.	ACCOUNTANT	DECEASED
MUIR B.G.	PLANNING OFFICER	RESIGNED
KRAVAINIS H.	DISTRICT FORESTRY OFFICER	DECEASED
DAVEY A.S.	DISTRICT FORESTRY OFFICER	RESIGNED
WELLS E.J.	SENIOR TIMBER INSPECTOR	DECEASED
REYNOLDS J.	SENIOR MECHANICAL SUPERVISOR	RETIRED



## Conservation and Land Management Act

WOOD T.H.	REGIONAL FORESTER	PROMOTED
EVANS J.S.	DISTRICT FORESTER	PROMOTED
KESNERS A.	REGIONAL FORESTER	RETIRED
PRIDHAM F.	REGIONAL FORESTER	RETIRED
GILCHRIST J.C.	REGIONAL FORESTER	RETIRED
COWCHER B.T.	SENIOR FORESTER	RETIRED
DEADMAN M.J.	DISTRICT FORESTER	RETIRED

## APPENDIX 16

### DEPARTMENT'S SAFETY RECORD FOR THE LAST 26 YEARS

YEAR	MAN-HOURS WORKED	NO. OF ACCIDENTS			FREQUENCY RATE			DAYS LOST
		LOST TIME ACCID.	MEDICAL TREAT. ACCID.	TOTAL	LOST TIME ACCID.	MEDICAL TREAT. ACCID.	BOTH	
1960/61		188			140			3 015
1961/62		188			142			2 516
1962/63		200			154			2 763
1963/64		172			135			2 498
1964/65		181			153			3 700
1965/66		179			144			2 455
1966/67		185			100			3 244
1967/68	1 895 000	124	312	436	65	164	230	1 701
1968/69	2 019 568	96	155	251	48	76	124	1 738
1969/70	1 901 020	70	129	199	37	67	104	721
1970/71	1 808 406	48	158	206	27	76	110	458
1971/72	1 759 888	40	128	168	23	72	95	275
1972/73	1 728 577	45	112	157	26	64	90	414
1973/74	1 651 621	45	119	164	27	72	99	359
1974/75	1 748 219	55	127	182	31	72	104	634
1975/76	1 762 693	31	113	144	17.5	64	82	383
1976/77	1 707 635	32	157	189	19	92	111	620
1977/78	1 764 519	26	151	177	15	86	100	731
1978/79	1 835 917	44	143	187	24	76	100	810
1979/80	1 826 452	32	125	157	17.5	68	86	983
1980/81	1 897 463	24	135	159	13	71	84	490
1981/82	1 915 684	19	141	160	10	74	84	459
1982/83	1 931 192	27	134	161	14	69	83	849
1983/84	2 144 995	43	198	241	20	92	112	819
1984/85	2 093 453	30	189	219	14	90	105	776
1985/86	2 649 390	41	204	245	15	77	92	1 477
1986/87	2 505 789	28	127	155	11	50	61	1 382*

\* Of the 1 382 days lost, 660 were carried over from 9 accidents sustained during the previous year.

## APPENDIX 17

### LICENCES ISSUED IN 1986/87

FAUNA LICENCES	LICENCES ISSUED
1. SCIENTIFIC	116
2. EDUCATION & PUBLIC (to take) (Reg 15)	36
Purpose:	
Care of derelict fauna	2
Collection and study	4
Display and study	6
Education	1
Miscellaneous	19
Photography	4
3. EDUCATION & PUBLIC (to hold) (Reg 16)	57
4. AVIAN FAUNA	5,237
Keep and breed in captivity (Reg 12)	5,147
Deal (Reg 13)	79
Trap (Reg 11)	11
Species Trapped: Parrots	
Western Rosella	418
Western King Parrot	453
Twenty Eight Parrot	4,270
White-tailed Black Black Cockatoo	20
Little Corella	1
Species Trapped: Finches	
Long-tailed (Black heart)	5,407
Masked	3,004
Star	982
Crimson (Blood)	1,115
Double-barred Mannikin	1,907
Chestnut-breasted Mannikin	1,712
Pictorella	4,577.5
6. GAME	3,042
Duck	2,957
Quail	85
7. KANGAROOS	
Purpose:	
Take kangaroos for sale	119
Deal in carcasses	25
Deal in skins	11
Process	19

8. EXPORTS - Interstate

BIRDS

Finches:

Crimson (Blood)	312
Chestnut-breasted	345
Double-barred	620
Long-tailed (Black-heart)	2,538
Masked	1,496
Pictorella	520
Star	496
Black Throated	10

Parrots:

Rigneck (Twenty eight)	856
Western Rosella	206
Red-capped (WA King)	247
Purple-crowned Lorikeet	2
Elegant	54
Mulga	5
Northern Rosella	5
Regent	20
Superb	2
Cockatiel (Weero)	20
Red-tailed Black Cockatoo	7
White-tailed Black Cockatoo	9
Galah	20
Little Corella	6
Long-billed Corella	6
Sulphur-crested Cockatoo	5
Rainbow Lorikeet	2
Rock Parrot	14
Bourke Parrot	1
Hooded	1
Blue Bonnet	4
Red Winged Parrot	6
Red Collared Lorikeet	4
Major Mitchell	6
Eclectus	1
Swift	3

Other Species:

Red Plumed Pigeon	24
Little Quail	18
Spinifex Pigeon	2

Mammals:

Short-nosed Bandicoot	5
Ooldea Dunnart	3
Euro	2
Western Grey Kangaroo	1

Reptiles:

Brown Snake	2
Taipan	3
Tiger Snake	2
Peninsula Tiger Snake	2
Western Tiger Snake	23
Chappell Island Tiger Snake	2

Death Adder	3
Northern Death Adder	2
Gwadar	3
Mulgar Snake	2
Carpet Python	2
Centralian Carpet Python	2
Olive Python	2
Childrens Python	2
Woma	2
Black Headed Python	4
Diamond Python	2
Saltwater Crocodile	1
<u>Other:</u>	
Dugong Carcass	1
Red Kangaroo skins	23,132
Western Grey Kangaroo skins	12,022
Euro skins	2,824
Numbat (frozen)	1
<u>Overseas:</u>	
<u>Birds:</u>	
New Holland Honeyeaters	4
Galah	7
Red Tailed Black Cockatoo	2
Laughing Kookaburra	2
Little Corella	3
Blue Winged Kookaburra	4
Little Black Cormorant	3
Australian Pelican	4
<u>Mammals:</u>	
King River Eptesicus	1
Eastern Wallaroo	2
Antilopine Kangaroo	3
Gould's Wattled Bat	1
Koala	2
Common Sheathtail Bat	1
<u>Reptiles:</u>	
Burton's Legless Lizard	10
Gunther's Toadlet	27
Orange Crowned Toadlet	21
Geocrina Rosea	5
Uperoleia Talka	1
<u>Others:</u>	
Red Kangaroo skins	133,417
Western Grey Kangaroo skins	24,979
Emu skins	102
Emu eggs	38
Arenophryne Rotunda Eggs	20
Myobatrachus Gouldii Eggs	19
Red Kangaroo meat	24.741 tonnes

9. IMPORTS - Interstate:

<u>Birds:</u>	
Finches:	
Gouldian	227
Blue-faced	6
Star	27
Painted	268
Masked	34
Blackheart	12
Double-barred	12
Plum-headed	5
Black Throated	36
<u>Parrots:</u>	
Blue -winged	8
Princess	41
Blue-bonnet	34
Weero	16
Eastern King	63
Regent	4
Ringneck	7
Red-Rumped	22
Adelaide Rosella	29
Crimson Rosella	34
Eastern Rosella	20
Pale-headed Rosella	9
Turquoise	50
Yellow Rosella	17
Gang Gang	12
Eeectus	3
Scaly-breasted Lorikeet	14
Sarlet-chested	47
Long-billed Corella	3
Hooded	4
Superb	25
Musk Lorikeet	12
Bourke	59
Rainbow Lorikeet	48
Little Corella	149
Galah	278
Sulphur-crested Cockatoo	6
Major Mitchell	29
Little Lorikeet	12
Golden-shouldered	7
Red-winged	29
Green Rosella	13
Varied Lorikeet	2
Red Browed Fig Parrot	2
<u>Other Species:</u>	
Blue Billed Duck	4
Brown Quail	2
Peaceful Dove	18
Regent Bower Bird	2
Bronzewing Pigeon	7
Bustard	1
Welcome Swallow	7

<u>Exotics:</u>	
Melba Finch	155
Cordon Bleu Finch	166
Aurora Finch	64
Orange-breasted Waxbill	72
Cuban Finch	29
Jacarini	27
Hooded Siskin	1
Alexandrine Parakeet	6
Masked Dove	15
Feach-faced Lovebird	113
Masked Lovebird	60
Cutthroat Finch	12
Siskin	12
Nyassa Lovebird	50
Red-crested Cardinal	1
Madagascar Weaver	2
Red Lory's	9
Rose Ring Parakeet	18
Siamese Fireback Pheasant	2
Peach Fronted Conure	6
Grey Parrots	2
Ostrich	6
St Helena Waxbills	8
African Firetail Finch's	34
Strawberry Finch	72
White-breasted Ground Dove	4
Derbyan Parakeets	5
Chattering Lorikeets	2
Bleeding Heart Pigeon	6
Fishers Lovebird	42
Slatey-headed Parrot	2
Plum-headed Parrot	25
Nanday Conure	4
Sun Conure	4
Red-fronted Kakariki	35
Janday Conure	5
Mandarin Ducks	1
Golden-breasted Waxbills	70
White -throated Munia	2
Lilac Fronted Amazon	1
Red-headed Finch	4
Ruddy Ground Doves	5
Red-faced Parrot Finch	8
<u>Mammals:</u>	
Hairy-nosed Wombat	1
Grey Kangaroo	1
Red Kangaroo	2
<u>Reptiles:</u>	
Death Adder (Frozen)	30
Common Taipan	2
Tiger Snake	2
Brown Snake	2
Chappell Island Tiger Snake	2
Death Adder	2
Northern Death Adder	2
Western Brown Snake	2
Dugite	2

Mulga Snake	2
Carpet Python	3
Centralian Carpet Python	2
Olive Python	2
Childrens Python	2
Water Python	2
Woma	2
Black-headed Python	2
Diamond Python	2
Rosenbergs Goanna	4
Gwarda	2
Peninsula Tiger Snake	2
Small-scaled Snake	2
Scrub Python	1
Brown Tree Snake	2

Carcasses:

Red Kangaroo	12,100
Grey Kangaroo	900

Exotic:

Reptiles:

Reticulated Python	1
Cobra	3
American Alligator	2

10. EMUS

Process:

Emu eggshells	3
---------------	---

11. FLORA

During the twelve months ending 30 June 1987 the following licences were issued.

Commercial Purposes Licence

1171 licences were issued authorising the taking of protected flora for sale from Crown land.

Commercial Producers Licence

99 licences were issued authorising the taking of protected flora for sale from Private land.

Scientific or Other Prescribed Purposes Licence

637 licences were issued authorising the taking of protected flora from Crown land for the following purposes:

Scientific, educational, hobby, propagation, personal enjoyment.

Holders of this licence are not permitted to sell flora taken.



## APPENDIX 18

### OPEN SEASONS DECLARED IN 1986/87

	Government Gazette
Finch Trapping Season 1 September to 15 November 1986	29/8/86
Waterfowl Hunting Season (Kimberley, North West and Eastern Land Divisions) 1 January 1987 to 31 December 1987	12/12/86
Waterfowl Hunting Season (South West and Eucla Land Divisions) 11 January 1987 to 8 February 1987	12/12/86
Waterfowl Population Management (South West and Eucla Land Divisions) (Mountain Duck) 1 January 1987 to 10 January 1987 and 9 February 1987 to 31 December 1987	12/12/86

## Appendix 19

### Offences Under the Wildlife Conservation Act 1986/87

No. Offences x Section of Act	Offence														
53 x S.16(1)	<p style="text-align: center;">Illegal taking of protected fauna.</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">1 Tawny Frogmouth</td> <td style="width: 50%;">1 Button Quail</td> </tr> <tr> <td>1 Rainbow Lorikeet</td> <td>25 Grey Kangaroos</td> </tr> <tr> <td>16 Galahs</td> <td>23 Ring-necked Parrots</td> </tr> <tr> <td>55 Black Duck</td> <td>13 Grey Teal</td> </tr> <tr> <td>2 Red Kangaroos</td> <td>2 Major Mitchell Cockatoos</td> </tr> <tr> <td>1 Emu</td> <td>1 Stimsons Python</td> </tr> <tr> <td>1 White-tailed Black Cockatoo</td> <td>1 Brown Goshawk</td> </tr> </table>	1 Tawny Frogmouth	1 Button Quail	1 Rainbow Lorikeet	25 Grey Kangaroos	16 Galahs	23 Ring-necked Parrots	55 Black Duck	13 Grey Teal	2 Red Kangaroos	2 Major Mitchell Cockatoos	1 Emu	1 Stimsons Python	1 White-tailed Black Cockatoo	1 Brown Goshawk
1 Tawny Frogmouth	1 Button Quail														
1 Rainbow Lorikeet	25 Grey Kangaroos														
16 Galahs	23 Ring-necked Parrots														
55 Black Duck	13 Grey Teal														
2 Red Kangaroos	2 Major Mitchell Cockatoos														
1 Emu	1 Stimsons Python														
1 White-tailed Black Cockatoo	1 Brown Goshawk														
24 x S.16A(1)	<p style="text-align: center;">Unlawful possession of protected fauna.</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">19 Galahs</td> <td style="width: 50%;">13 Ring-necked Parrots</td> </tr> <tr> <td>1 Freshwater Crocodile</td> <td>41 Shingle-backed Skinks</td> </tr> <tr> <td>1 Blue-tongue Lizard</td> <td>2 Western Dragon Lizards</td> </tr> <tr> <td>5 Geckos</td> <td>8 Skinks</td> </tr> <tr> <td>1 Olive Python</td> <td>4 Childrens Python</td> </tr> <tr> <td>2 Little Corellas</td> <td>1 Carpet Python</td> </tr> <tr> <td>4 Desert Death Adders</td> <td>48 Black Duck</td> </tr> </table>	19 Galahs	13 Ring-necked Parrots	1 Freshwater Crocodile	41 Shingle-backed Skinks	1 Blue-tongue Lizard	2 Western Dragon Lizards	5 Geckos	8 Skinks	1 Olive Python	4 Childrens Python	2 Little Corellas	1 Carpet Python	4 Desert Death Adders	48 Black Duck
19 Galahs	13 Ring-necked Parrots														
1 Freshwater Crocodile	41 Shingle-backed Skinks														
1 Blue-tongue Lizard	2 Western Dragon Lizards														
5 Geckos	8 Skinks														
1 Olive Python	4 Childrens Python														
2 Little Corellas	1 Carpet Python														
4 Desert Death Adders	48 Black Duck														
3 x S.16A(2)	<p style="text-align: center;">Possession of untagged fauna.</p> <p style="text-align: center;">11 Grey Kangaroos</p>														
6 x S.17(2)(c)	<p style="text-align: center;">Illegal Import of fauna.</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">4 Little Corellas</td> <td style="width: 50%;">4 Hooded Parrots</td> </tr> </table>	4 Little Corellas	4 Hooded Parrots												
4 Little Corellas	4 Hooded Parrots														
7 x S.17(2)(e)	<p style="text-align: center;">Selling fauna or taking or purpose of sale without a licence.</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">24 Galahs</td> <td style="width: 50%;">Ring-necked Parrots</td> </tr> <tr> <td>7 Western Rosellas</td> <td>Grey Kangaroos</td> </tr> <tr> <td>3 Weeros</td> <td></td> </tr> </table>	24 Galahs	Ring-necked Parrots	7 Western Rosellas	Grey Kangaroos	3 Weeros									
24 Galahs	Ring-necked Parrots														
7 Western Rosellas	Grey Kangaroos														
3 Weeros															
3 x S.17(2)(f)	<p style="text-align: center;">Import of animals whose habits or nature may become injurious to other fauna.</p>														
1 x S.17(2)(g)	<p style="text-align: center;">Processing fauna without a licence.</p> <p style="text-align: center;">Grey Kangaroos</p>														
1 x S.17(3)(b)	<p style="text-align: center;">Permit the use of illegal devices.</p>														
2 x S.17B(2)(a)	<p style="text-align: center;">Taking game species contrary to proclaimed notice.</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">9 Grey Teal</td> <td style="width: 50%;">1 Mountain Duck</td> </tr> </table>	9 Grey Teal	1 Mountain Duck												
9 Grey Teal	1 Mountain Duck														
39 x S.23B(1)	<p style="text-align: center;">Illegal taking of protected flora from Crown Land</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"><i>Eucalyptus salmonophloia</i></td> <td style="width: 50%;"><i>Anigozanthos manglesii</i></td> </tr> <tr> <td><i>Anigozanthos pulcherrimus</i></td> <td><i>Banksia prionotes</i></td> </tr> <tr> <td><i>Melaleuca hamulosa</i></td> <td><i>Banksia hookerana</i></td> </tr> <tr> <td><i>Banksia menziesii</i></td> <td><i>Verticordia</i> sp.</td> </tr> <tr> <td><i>Verticordia brownii</i></td> <td><i>Eucalyptus gomphocephala</i></td> </tr> <tr> <td><i>Melaleuca</i> sp.</td> <td><i>Eucalyptus</i> sp.</td> </tr> </table>	<i>Eucalyptus salmonophloia</i>	<i>Anigozanthos manglesii</i>	<i>Anigozanthos pulcherrimus</i>	<i>Banksia prionotes</i>	<i>Melaleuca hamulosa</i>	<i>Banksia hookerana</i>	<i>Banksia menziesii</i>	<i>Verticordia</i> sp.	<i>Verticordia brownii</i>	<i>Eucalyptus gomphocephala</i>	<i>Melaleuca</i> sp.	<i>Eucalyptus</i> sp.		
<i>Eucalyptus salmonophloia</i>	<i>Anigozanthos manglesii</i>														
<i>Anigozanthos pulcherrimus</i>	<i>Banksia prionotes</i>														
<i>Melaleuca hamulosa</i>	<i>Banksia hookerana</i>														
<i>Banksia menziesii</i>	<i>Verticordia</i> sp.														
<i>Verticordia brownii</i>	<i>Eucalyptus gomphocephala</i>														
<i>Melaleuca</i> sp.	<i>Eucalyptus</i> sp.														

	<i>Eucalyptus macrocarpa</i>	<i>Banksia attenuata</i>
	<i>Banksia coccinia</i>	<i>Conospermum incurvum</i>
	<i>Caladenia patersonii</i>	<i>Anigozanthos</i> sp.
	<i>Dryandra formosa</i>	<i>Agonis</i> sp.
3 x S.23D(1)	Illegal taking of protected flora from private property.	
	<i>Anigozanthos manglesii</i>	<i>Chamalaucium uncinatum</i>
3 x S.23E(1)	Selling flora without a licence.	
	<i>Verticordia brownii</i>	<i>Anigozanthos manglesii</i>
1 x S.23F	Illegal taking of gazetted rare flora.	
	<i>Banksia tricuspis</i>	
8 x S.25(1)(a)	Wilfully obstructing a wildlife officer.	
1 x S.25(1)(e)	Stating false name and address.	
2 x S.25(1)(g)	Failure to observe the conditions of a licence.	
1 x R.8A(1)(a)	Unregistered kangaroo chiller.	
1 x R.12(7)(e)	Disposal of avian fauna without an authority.	
1 x R.13(7)(1)	Sale by bird dealer to person not licensed.	
2 x R.28(1)	Keeping protected fauna without a licence.	
2 x R.44(1)	Dumping of rubbish on a nature reserve.	
2 x R.44(2)(a)	Camping on a nature reserve.	
1 x R.44(2)(b)	Placing a structure on a nature reserve.	
1 x R.46(a)	Disturbing soil on a nature reserve.	
1 x R.46(b)	Taking of flora from a nature reserve.	
4 x R.46(g)	Operating a vehicle on a nature reserve.	
1 x R.46(i)	Disturbing fauna on a nature reserve.	
4 x R.46(j)	Carrying a firearm on a nature reserve.	
1 x R.46(k)	Taking a dog onto a nature reserve.	
1 x R.52	Consigning of immature avian fauna.	