



Department of Conservation and Land Management

ANNUAL REPORT



1st July 1987 to 30th June 1988

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 1988.

Included in this Annual Report for the first time are performance indicators by which the effectiveness and efficiency of Departmental operations will be measured in the future. These are as prescribed in the Financial Administration and Audit Act.

Development of these indicators to take account of all primary and supporting programs is continuing.

Meanwhile, this Report contains general statistics, tables and appendices which convey the Department's performance for the year and provide a comparison against previous years.



Syd Shea

EXECUTIVE DIRECTOR



This document contains the annual reports of the:

- Department of Conservation and Land Management
- Roadside Conservation Committee

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EXECUTIVE DIRECTOR'S REVIEW

The Department of Conservation and Land Management is responsible for managing over 70 million hectares of public land and waters throughout Western Australia, and has a staff of over 1400 people involved in many different conservation and land management activities. Consequently, any summary review of the Department's performance over the previous 12 months inevitably involves sins of omission. Therefore, from the outset, I would like to record my appreciation of the dedication and commitment of all the Department's staff over the past 12 months.

CALM continues to be involved in numerous new initiatives throughout the State, as well as maintaining existing programs. In the three general areas of its responsibility - conservation, recreation and forest management - major progress has been made.

Inevitably, as a consequence of the adoption by Government of the forest management plans and timber strategy for the south-west of the State, a focal point has been the south-west. CALM has responsibility for managing more than 2 million hectares of forest, wetlands and woodlands in the south-west. The success of the forest management plans and the timber strategy consequently will have a major impact on this densely populated area. I am pleased to report that there has been major progress in implementing the plans and strategy.

Very significant additions to the conservation estate of the State are in process of being realised, including the reservation of the Shannon River Basin and the Mt Frankland National Park; the Tuart Forest National Park is a reality. When this reservation system is completed there will be a 300 per cent increase in the conservation and national park estate in the south-west of the State.

Major progress has also been made in implementing the timber strategy. Over 50 timber resource contracts have been signed with private sawmillers. The general response by the timber industry to the strategy has been very positive. Currently the Department is evaluating nearly 200 million dollars of investment proposals in the timber industry, sawmilling and value added processing sector. The major problems in resource supply to the softwood sawmilling industry which confronted CALM shortly after its formation have been resolved. Contracts have been signed which will lead to the construction of three new major softwood sawmills strategically located in the south-west. When these sawmills are in operation, they will provide 500 new permanent jobs and yield revenue of over 100 million dollars to the community over the contract period.

One of the major successes of the previous year was the implementation of a pilot hardwood afforestation program on private cleared farmland. The Department was able, with a very short lead time, to establish 2 000 hectares of *Eucalyptus globulus* (Tasmanian blue gum). The hardwood afforestation program, in addition to providing a resource base for major new industries, will make a significant contribution to the amelioration of salination and phosphate pollution in the south-west. This was part of an annual 6 million tree planting program.

While the south-west of the State has been a focus of activity, considerable effort has been made to improve the Department's capacity to manage land under its control in the remainder of the State. There has been a deliberate policy adopted to improve staffing levels in regions such as Kalgoorlie, Kununurra and the south coast. Increasingly, there are additional demands on the Department to provide services in those regions. For example, the Department is in the process of completing management plans for the new Ningaloo marine Park and the Bungle Bungles. It is initiating a number of innovative aboriginal training programs and devoting considerable effort to improving recreational activities throughout the State.

A reflection of the Department's commitment to recreation is the publication of two major recreation guides. *Beating About the Bush* which has sold over 11 000 copies, provides a guide to over 80 recreation sites within a day's drive of Perth. More recently, the Department has published *Wild Places, Quiet Places*, a guide to over 300 recreation areas throughout the south-west of the State.

The Department has been involved in extensive conservation management and research programs over the past 12 months. Two of the most innovative are those associated with an investigation of the Kimberley rainforests and attempts to use fire in the eastern desert areas of the State to restore habitat for endemic fauna.

In addition to the new programs, the Department was confronted with the normal range of duties which is part of its charter. For example, the summer of 1987/88 was extremely dry, and as a consequence the Department was confronted with a very difficult fire control season. There were several serious fires, some resulting from arson, which threatened large areas of native vegetation and involved a major fire control effort. I particularly record my appreciation of the staff involved in fire protection in the previous summer as they worked long hours, often in very dangerous conditions to minimise the effect of wildfires.

A major objective of the Department since its formation has been to reduce the drain on the State's Treasury for funds by improving its capacity to earn revenue. Despite the fact that CALM has over the past 12 months had its portfolio of responsibilities increased significantly in areas where it is impossible to earn revenue, I am pleased to record that the proportion of its total budget which is subsidised by Treasury continues to be reduced. In its year of formation 55 per cent of CALM's expenditure was in the form of a subsidy from Treasury. In the coming year, it is expected this will be reduced to 40 per cent.

The Department expects, because it is often involved in controversial areas, that it will be the subject of criticism from various sectors of the community and the media. I must record my concern, however, of the increasing incidence of what I regard as unfair attacks on the Department and its staff. It is perfectly legitimate and part of the democratic process for criticisms to be made on policies and Departmental activities where they are demonstrably wrong. I do not believe, however, that unsubstantiated attacks questioning the integrity of the Department and its officers are fair. I will continue as I have in the past to vigorously rebut such charges, but I do wonder at the impact they have on the morale of the Department, which I believe is providing an excellent service to the State.

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 bodies¹ and the Department. In brief the functions of the Lands and Forest Commission, in which State forests and timber reserves are vested, are:-

- consider changes to the purpose, boundary and area of vested lands;
- develop policies to achieve or promote the multiple use and sustained yield of the indigenous forest resource for the satisfaction of long term social and economic needs, and for exotic species, the optimum yield in production;
- process and monitor land management plans for vested areas;
- advise the Minister for Conservation and Land Management when requested;
- provide advice to the public on matters related to vested lands.
- instigate policy research.

The function of the National Parks and Nature Conservation Authority, in which national parks, nature reserves, marine parks and marine nature reserves are vested, are:-

- consider changes to the purpose, boundary and area of vested lands;
- 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 vested lands;
- process and monitor land management plans for vested lands;
- advise the Minister on the development of policies for the conservation and management of flora and fauna when requested;
- provide advice to the public on matters related to vested lands;
- instigate appropriate research.

The Forest Production Council's functions 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;

¹While the functions of the three controlling bodies are reported here, their activities and achievements for 1987/88 are described in a separate report.

- improvement in use, processing and marketing of forest produce;
- research to achieve multiple use and sustained yield of the forest resource;
- contents of proposed management plans.

The function of the Department of Conservation and Land Management are:-

- 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 cooperate 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, which empowers it to record, investigate and secure safe working practices in the bush and mill operations of the timber industry.

Sandalwood Act 1929, 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 is involved in drawing up the conditions for mining activity.

Other Acts under which the Department has specific responsibilities are:

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

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

- Aboriginal Heritage Act, 1972
- Aerial Spraying Control Act, 1966
- Agriculture and Related Resources Protection Act, 1976
- Agriculture Protection Board Act, 1950
- Control of Vehicles (Off Road Areas) Act, 1978
- Country Areas Water Supply Act, 1947
- Environmental Protection Act, 1986
- Land Act, 1933
- Local Government Act, 1960
- Main Roads Act, 1930
- Metropolitan Water Supply Sewerage & Drainage Act, 1909
- Mineral Sands (Western Titanium) Agreement Act, 1975
- Mining Act, 1978
- Petroleum Act, 1967
- Petroleum Pipelines Act, 1969
- Rights in Water and Irrigation Act, 1914
- Soil and Land Conservation Act, 1945
- State Energy Commission Act, 1979
- Town Planning and Development Act, 1928

Several Commonwealth statutes or Acts are relevant to the Department's activities:

- 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
- Convention for the Protection of the World Cultural and Natural Heritage
- Australian Heritage Commissions Act, 1975
- Wildlife Protection (Regulation of Exports and Imports) Act, 1982
- World Heritage Properties Conservation Act, 1983

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 West Australians, a statement of mission adopted for the Department of Conservation and Land Management is:-

TO CONSERVE WESTERN AUSTRALIA'S WILDLIFE AND MANAGE 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 those renewable resources that Government decides should be used, 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 group 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 work 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 supporting or service branches 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 recruitment and maintenance of a well motivated and competent staff.
- The provision of programs for staff development, health, safety and training.
- Ensuring liaison, cooperation 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 cooperation 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, chemicals, 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 and maintenance of demonstration areas (e.g. 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 use of their habitat.
- Managing rare animal populations to ensure their survival.

Prepare and implement strategies to promote and encourage development of the forest production requirements of the State.

This will involve:

- Continuous review of supply and demand data for forest 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.
- Intensive management of the highest quality hardwood forest to maximise timber production.
- Re-forestation of cleared lands with hardwood forests to supplement production from native forests and to assist in soil and water conservation.

Manage approved commercial operations on renewable natural resources according to the following principles:

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

Prepare and implement strategies to promote and encourage recreational use of lands and waters entrusted to the Department in ways which:

- are consistent with the purpose of the area;
- produce a return to the Department for services and amenities provided;
- 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.

Five research locations, 15 specialist branches and 11 regions are responsible to the Operations Directorate. The detailed structure of divisions, branches and regions, current at 30 June 1988 is shown in Figure 1. The names and qualifications of the officers occupying managerial positions are shown in the table and regional boundaries are shown in Figure 2 (p.25).

Divisional and Branch Responsibilities

The essential tasks for divisions and branches are as follows:

Economics Branch - advises the Executive Director on economics, socio-economics and long-term strategic management planning across all functions and activities of the Department. The work directly influences the magnitude of the Department's revenues and expenditures, and the management of forests and other resources.

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

Internal Audit - responds directly to the General Manager, providing regular management oriented appraisals of operations and activities within the Department.

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. In particular, issue plans and wildlife management programs are based on research findings which are related to operational practice.

Services Division

Planning Branch - prepares management plans in draft and final form according to requirements of the Act and provides planning advice.

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
 ORGANISATIONAL STRUCTURE AS AT JUNE 30, 1988

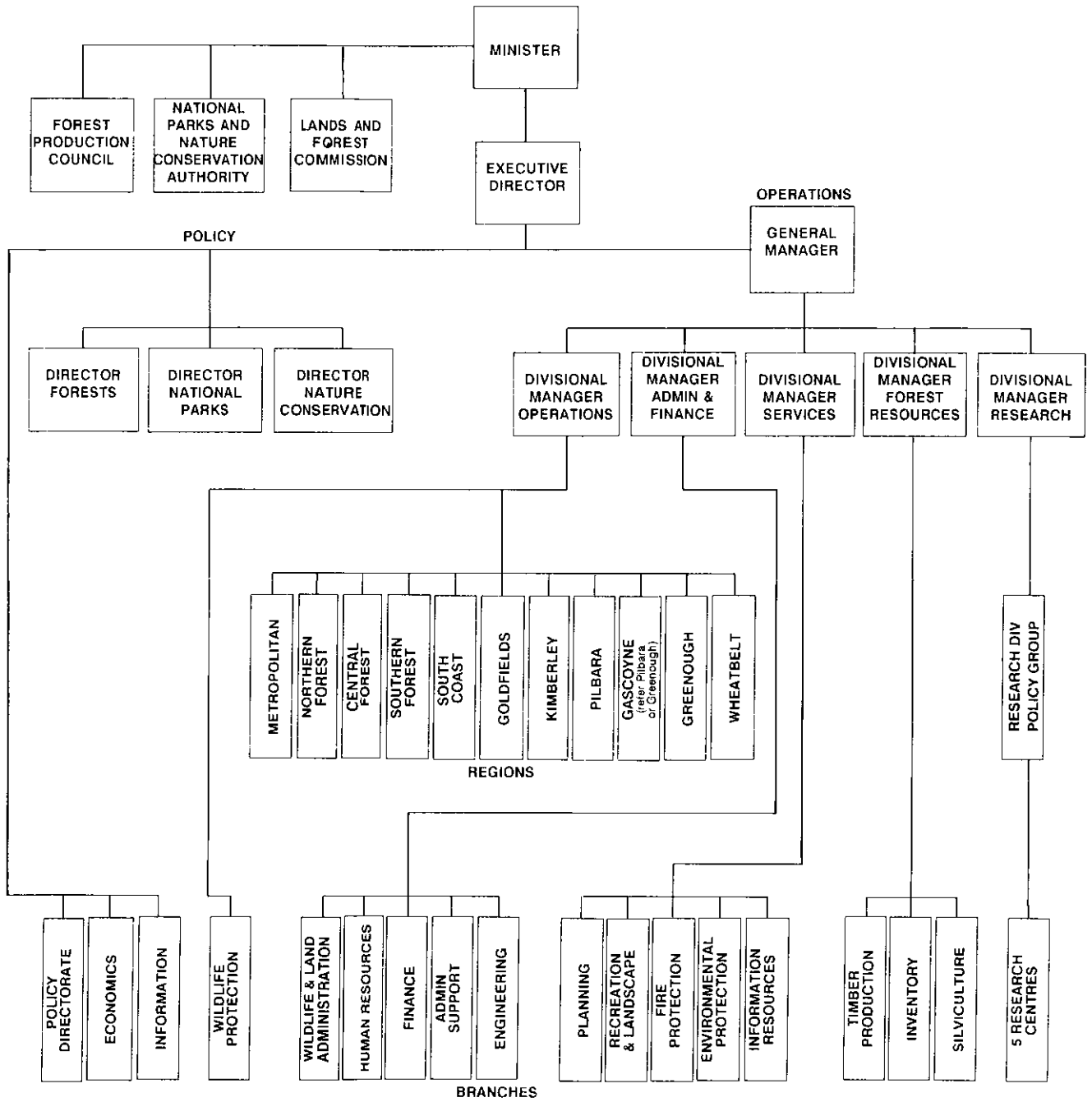


Figure 1

SENIOR DEPARTMENTAL OFFICERS

POLICY DIRECTORATE

Executive Director	S R Shea Ph D, MSc, BSc
Director of Forests	P N Hewett BSc, BA, Dip For
Director of National Parks	C D Haynes BSc For
Director of Nature Conservation	B R Wilson PhD, BSc, FTS
Chief Liaison Officer	E R Hopkins PhD, BSc For
Manager, Policy Councils and Committees	Vacant
Manager, Policy Directorate	D B Johnston M App Sci, Dip Cart
Manager, Economics Branch	G Malajczuk PhD, MSc, BSc
Manager, Information Branch	K F Goss MA Comm, BSc Agric Hons

OPERATIONS DIRECTORATE

General Manager	R J Underwood M For, BSc, Dip For
Divisional Manager, Operations	C J Edwards BSc For
Divisional Manager, Admin & Finance	A G Errington AIT Pub Admin
Divisional Manager, Services	F H McKinnell PhD, Dip For
Divisional Manager, Forest Resources	D J Keene BSc For
Divisional Manager, Research	A A Burbidge PhD, BSc Hons
Principal Operations Officer	P C Kimber BSc For Hons
Manager, Wildlife Protection Branch	D J Mell AATA
Regional Manager, Metropolitan	D A Haswell MSc, BSc For
Regional Manager, Northern Forest	G B Pect MSc, BSc, Dip For
Regional Manager, Central Forest	D Spriggins BSc For
Regional Manager, Southern Forest	A Walker BSc For Hons
Regional Manager, South Coast	J R Watson PhD, BSc ARIC
Regional Manager, Goldfields	I G Keally BSc For
Regional Manager, Kimberley	C C Done BSc For
Regional Manager, Pilbara/Gascoyne	Vacant
Regional Manager, Greenough/Gascoyne	G Mercer B App Sci, Grad Dip (Env Studies), Dip T
Regional Manager, Wheatbelt	K J Wallace BSc Hons, Dip Ed
Manager, Wildlife and Land Administration	D R Hampton B Econ
Manager, Human Resources Branch	R G Cooper BA
Manager, Finance Branch	A R Hill BSc For
Manager, Engineering Services Branch	I R Darragh AIT Mech Eng
Manager, Planning Branch	A J Williamson M For, MSc, BSc
Manager, Recreation and Landscape Branch	W G Schmidt M For, BSc
Manager, Fire Protection Branch	J K Smart BSc For
Manager, Environmental Protection Branch	F E Batini MSc, BSc For
Manager, Information Resources Branch	Vacant
Manager, Timber Production Branch	J B Sclater BSc For
Manager, Inventory Branch	H Campbell BSc For
Manager, Silviculture Branch	F J Bradshaw BSc For
Senior Principal Research Scientist	P E Christensen PhD, BSc Hons
Senior Principal Research Scientist (Science)	S D Hopper PhD, BSc Hons
Principal Research Scientist (Science)	I J Abbott PhD, BSc Hons
Principal Research Scientist (Research Applications)	A N Start PhD, BSc ARIC
Principal Research Scientist, Special Projects	J R Bartle BSc Agric

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 of CALM land.

Information Resources Branch - co-ordinates the management of the Department's corporate information resources; facilitates its computerisation and flow throughout the Department; provides and maintains a digital computing facility with networking to major country locations; provides management maps and a specialist mapping service for operational and public information requirements.

Forest Resources Division

Timber Production Branch - controls and monitors the harvesting of timber and collection of royalties; advises on timber quality, wood technology and related matters.

Silviculture Branch - develops silvicultural guidelines and practices, advises on their implementation and manages 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 land tenure and transactions, wildlife licences and permits, offences, and mining applications on CALM lands.

Human Resource Branch - provides 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 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 operation 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 11 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, Recreation and Landscape branches, the Metropolitan Region, as well as a group of Wildlife Officers, are located at Canning Bridge. Research laboratories are at Woodvale, Como, Dwellingup, Manjimup and Busselton.

Regional boundaries are shown in Figure 2 (p.25).

On 30 June 1988, the Department had officers placed at many other locations, as follows:

district offices	17 locations
sub-district offices	2 locations
national park rangers	29 locations
wildlife officers	2 locations, other than district offices
nurseries	5 locations

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 telephone 367 0333.
- subscribing to Landscape, a quarterly conservation, wildlife and forests magazine published by the Department, which features current policy and management issues.

CHANGE AND ORGANISATIONAL DEVELOPMENT

Government Policy and Legislative Changes

DURING 1987/88 the following major activities were committed to the Department by Government decisions:

1. Exploration and mining policy for national parks and nature reserves - review of tenure of all nature reserves; accelerate implementation of Conservation Through Reserves Committee recommendations; additional staff and funding for park management.
2. Bluegum plantations project - establish pilot hardwood share farming project in Peel-Harvey catchment; plan for an expanded plantation project.
3. Woodchip licence renewal - review road, river and stream reserves.
4. Emu farming - establish policy and guidelines for commercial production.
5. Management of saltwater crocodiles - prepare policy for protection and management on a sustainable basis.
6. Conservation of native vegetation in rural areas - propose policy.
7. Greenhouse effect - task force to co-ordinate Government response.
8. Functional review - assist preparation of Phase 1 report.
9. WA Herbarium transfer - implement transfer of functions and staff to CALM.
10. Equal Opportunity employment - prepare management plan.

In addition, work continued on the following Government initiated projects:

- implementing the Regional Management Plans
- implementing the Timber Strategy
- advice on WA Silicon Trust proposal
- input to revisions of Shark Bay Region Plan
- liaison on Houtman Abrolhos Islands planning issues
- liaison on proposals for metropolitan regional parks

There were no enacted changes to the Conservation and Land Management Act or other Acts for which the Department is responsible. However, both the CALM Act and the Wildlife Conservation Act have been reviewed, and a whole range of proposed legislative changes were prepared during 1987/88 for Government and parliamentary approval.

Organisational Change

The Department co-operated with Mr Peter Newman, a consultant with the Public Service Commission, to prepare the Phase I report for the Functional Review Committee. The data produced have proved to be valuable for other tasks, including a revision of the accounting system to facilitate transition to a program budgetting system.

Following the imposition of a "staff ceiling" in 1986/87, expressed in full-time equivalents, a co-ordinated procedure for re-allocation of vacant positions to the highest priority needs has been instituted. The priorities are reviewed regularly by the Policy Directorate.

For instance, re-allocation of vacant positions has allowed the Department to establish three new districts based at Merredin (Wheatbelt Region), Denham (Gascoyne Region) and the Bungle Bungle National Park (Kimberley Region). The district manager position for Merredin has been advertised and filled.

As a result of a consultancy on strategic information in the Department it was decided to establish an Information Resources Branch to co-ordinate the management of corporate information resources. Implementation of the new structure has commenced.

A recommendation from the functional review of the Department of Agriculture was implemented - the transfer of the W.A. Herbarium to this Department to take effect from 1 July 1988. A steering committee and several sub-committees were formed to co-ordinate the transition and advise the necessary changes for amalgamation of the two agencies for maximum effectiveness. The transfer of 21 staff and \$634 000 budget was smooth.

The rationalisation of nursery operations continued with the closure of Karratha nursery and transfer of its productive capacity to Broome, and the leasing of Hamel Nursery to Greening Australia (WA).

Planning has commenced for a larger nursery near Manjimup, and the transfer of the Seed Centre from Como to the Manjimup site.

POLICY DEVELOPMENT

Mining On National Parks And Nature Reserves

AFTER a period of review and public comment on the Bailey Report the Government announced its decision on this issue in a booklet "Mining and the Environment, Balancing the Scales". The booklet outlines 19 policy points and protection plans - detailed processes governing approval or otherwise of exploration and mining within national parks and nature reserves. Exploration or mining will only occur on these reserves after exhaustive evaluation and will require the approval of Parliament.

In releasing the policy the Government stressed the values of the system of national parks and nature reserves, as manifested by the following initiatives:

- a \$5 million program of capital works for national parks. Two million dollars will be available in 1988/89, \$2 million in 1989/90 and \$1 million in 1990/91, and will result in substantial upgrading of facilities in parks throughout the State;
- Three additional planning officers and nine field staff for national parks and nature reserves;
- Six new staff to implement the exacting requirements of the policy;
- a task force to accelerate implementation of outstanding recommendations of earlier Conservation Through Reserves Committee (CTRC) Reports started work within weeks of the announcement. Dr Steve Hopper, Senior Principal Research Scientist, represents the Department on the task force which is being convened by the Environmental Protection Authority;
- the foreshadowed review of the status of all nature reserves, classified as Class B or Class C in the Land Act, was commenced immediately by an officer of the Department, Mr Robert Powell.

Interests of Aboriginal People

During the year the continuing need for interaction between the Department and Aboriginal people and communities was further recognised in the appointment of a policy adviser within the Policy Directorate. The appointee, Mary Colreavy, has had long experience in this area and took up duty in April.

Earlier initiatives in the training and employment of Aboriginal people were strengthened through the appointment of two training officers, Peter Hutchinson and Peter McGlew, working in the Western Desert and in the East Kimberley. This was made possible by funds provided through the Government's Aboriginal Community Development Program and further substantial assistance of the Australian National Parks and Wildlife Service.

Collaborative exercises in several areas, including the management of dugongs and the land management in the Buccaneer Archipelago, are currently being planned between the Department and Aboriginal groups.

The Department is well advanced with the development of a written policy to cover this area of its activities.

Emu Farming

There was considerable interest in expansion of the emu farming industry during the year. The number of emu farms licensed under the Wildlife Conservation Act increased from two to six, following an auction of captive-bred chicks from the Ngangganawili Aboriginal community's emu farm at Wiluna. Capture of emus from the wild was not permitted. There was continuing development of policy for emu farming through an interdepartmental committee on which the Department was represented.

Rare Flora

A complete review of Departmental and Government policy on rare plants will result in the gazettal of a revised list of 226 declared rare plants.

Kangaroo Management

After consultation with the Kangaroo Management Advisory Committee and the National Parks and Nature Conservation Authority, a kangaroo management program was forwarded to and approved by the Commonwealth Government. The commercial quotas for the 1988 calendar year were 230 000 red kangaroos, 45 000 western grey kangaroos and 10 000 Euros.

Duck Shooting Moratorium

In December 1987 the Minister for Conservation and Land Management announced that there would be no duck shooting season in 1988 or 1989, because of concern about the declining condition of wetland habitats.

New Committee on Aquatic Ecosystems (non-marine)

An Aquatic Ecosystems Research Sub-Committee of the Research Steering Committee on land-use and water supply was established in April 1988 under Departmental chairmanship, with representation from five Government agencies and the three universities.

The Sub-Committee aims to identify important gaps in knowledge which hinder the effective management of aquatic ecosystems, and to encourage and co-ordinate research which will fill these gaps.

External Participation in Policy Development

Development of policy related to land management and nature conservation continues to be by 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 the karri forest, Shark Bay, Marmion and Ningaloo Marine Parks, Herdsman Lake, the Peel-Harvey Estuary, and for the kangaroo management program.

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. They also contribute to national policy co-ordination and consultation with various interest groups through their membership of the Standing Committees and working groups of two Ministerial Councils (Council for Nature Conservation Ministers and Australian Forestry Council) and other bodies such as the Australian Committee for the International Union for the Conservation of Nature and Natural Resources.

Policy Statements

Specific policy statements developed and approved during the year are:

- 9 Conservation of Endangered Flora in the Wild September 1987
- 21 Communications August 1987
- 25 Community Education and Interpretation January 1988
- 26 Equal Employment Opportunity February 1988

Several others are being developed.

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

THE LAND ESTATE

Forest Areas

DURING 1987/88 there was a 1 600 ha reduction in the area of State forest. This decrease was mainly due to the excision of portions of State forest Nos. 1 and 2 near Ludlow to enable the creation of a national park.

The total area of timber reserves rose by 4 ha.

Freehold land vested with the Executive Director was increased by 449 ha during 1987/88. The bulk of this land was acquired for 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 1988.

TYPE	AREA (Ha)
Jarrah	1 398 000
Karri	155 000
Wandoo	104 000
Mallet	8 000
Tuart	1 000
Goldfields' species	54 000
Radiata pine	35 000
Pinaster pine	29 000
Exotic eucalypts	4 000
Very open areas	209 000
	1 997 000

Note: This does not include about 800 ha of Radiata and 100 ha of Pinaster pine which are managed by the Department but are growing on land under the control of other Government agencies. This additional area is included under the Section "Establishment and Tending of Pine Forests".

Description of Forest Types

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 powderbark 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.

STATE FORESTS

State Forests are managed for multiple uses including water supplies, recreation, sustainable timber production and wildlife conservation. They also provide for public utilities and mineral production, where these activities are imposed.

Area of State Forest as at 30 June 1988 - 1 820 365 ha.

NATIONAL PARKS

National Parks are for the purposes of wildlife and landscape conservation, scientific study, preservation of features of archeological, historic or scientific interest, together with recreational enjoyment by the public. They have national or international significance for scenic, cultural or biological values.

Area of National Parks as at 30 June 1988 - 4 652 106 ha.

NATURE RESERVES

Nature reserves are for the purposes of wildlife and landscape conservation, scientific study and preservation of features of archeological, historic or scientific interest. Wildlife values may not be commercially exploited, and no recreation which damages natural ecosystems is allowed.

Area of "conservation of flora and fauna" reserves as at 30 June 1988 - 9 994 972 ha.

MARINE PARKS

Marine Parks are managed for marine conservation and recreation, with areas zoned for commercial fishing on a sustained yield basis. Note that marine national parks and marine nature reserves can be designated, where controlled exploitation is not allowed.

Area of marine parks as at 30 June 1988 - 233 350 ha (approx).

OTHER RESERVES

Miscellaneous and timber reserves are normally a transitional classification, and in the interim may be managed for wildlife conservation, recreation or sustainable timber production.

Area of other reserves as at 30 June 1988

conservation/recreation reserves - 190 412 ha

timber reserves - 144 855 ha.

Area of freehold land vested with the Executive Director as at 30 June 1988 - 32 243

TOTAL CALM ESTATE

As at 30 June 1988 total area was 17 068 303 ha.

This was a net increase of 11 094 ha for 1987/88.

The terrestrial area is 6.7 per cent of the land area of Western Australia.

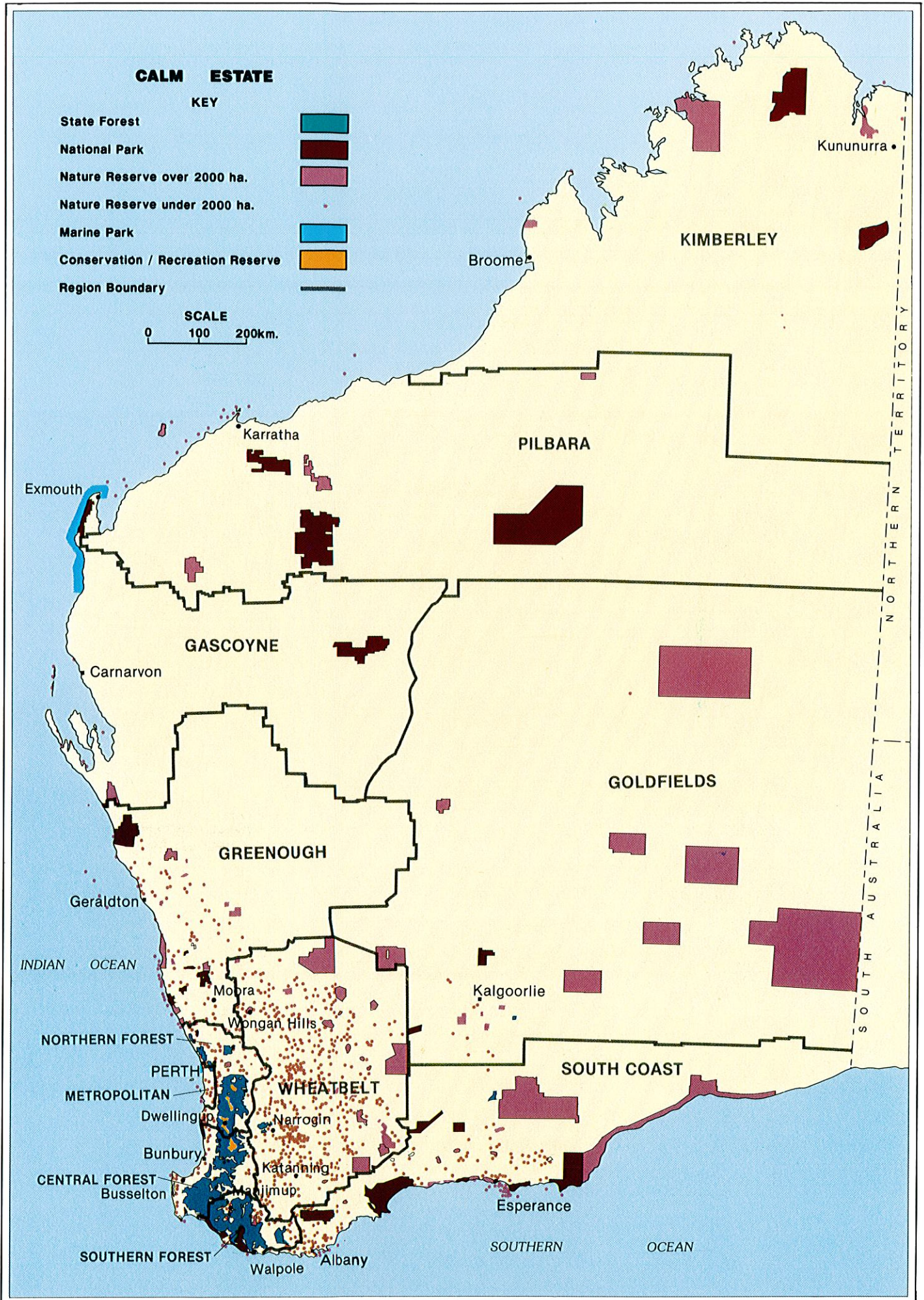


FIG. 2

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 16 October 1987, 1785 ha of tuart forest at Ludlow was reserved and vested in the National Parks and Nature Conservation Authority. This National Park protects the finest stand of tuart in the world.

As at 30 June 1988, there were 57 national parks vested with the National Parks and Nature Conservation Authority with the following areas:

National Park	Area (ha)	National Park	Area (ha)
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	1 082
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	Tuart	1 785
Goongarrie	60 356	Tunnel Creek	91
Gooseberry Hill	33	Walpole-Nornalup	15 877
Greenmount	58	Walyunga	1 812
Hamersley Range	617 602	Warren	1 355
Hassell	1 265	Watheroo	44 512
Hidden Valley	1 817	West Cape Howe	3 517
John Forrest	1 508	William Bay	1 739
Kalamunda	375	Windjana Gorge	2 134
Kalbarri	186 071	Wolfe Creek Crater	1 460
Leeuwin-Naturaliste	16 172	Yalgorup	11 819
		Yanchep	2 799
TOTAL AREA			4 652 106

Marine Parks

There are two marine parks reserved and vested under the Conservation and Land Management Act, 1984.

The Ningaloo Marine Park covers an area from just north of Exmouth, on North West Cape 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. Commonwealth waters are managed by the Australian National Parks and Wildlife Service.

The Park also includes a coastal strip of 40 m between high water mark and the adjacent pastoral stations. The State's component of the Ningaloo Marine Park is approximately 224 000 ha.

The Marmion Marine Park extends from just south of Trigg Island to just north of Burns Rock, adjacent to Perth's northern suburbs, but does not include any mainland component. It covers 9 350 ha.

Conservation of Flora and Fauna Reserves

The area in these categories as at 30 June 1988 was 9 994 972 ha; an increase of 6 597 ha during the year. Important reserves were created or enlarged at Jerdacuttup Lakes, Morawa, Jilakin Rock and Capercup.

Conservation and Recreation Reserves

Conservation and recreation reserves with an area of 3 270 ha were created over West Lewis, East Lewis and a portion of Malus Islands in the Dampier Archipelago.

Purchases of Freehold Land

The Department purchased the following areas of freehold property for addition to the land estates:

- 1 983 ha of uncleared bush located within the boundaries of the d'Entrecasteaux National Park for inclusion in the Park.
- 600 ha of predominantly cleared farmland in the Blackwood Valley, north of Nannup, near Balingup and north east of Kirup, for the establishment of pine forests.
- 400 ha of uncleared land on the banks of the Jerdacuttup River to be included in the Jerdacuttup Lake Nature Reserve.
- 182 ha of uncleared land adjoining Pingerculling Nature Reserve, south east of Brookton, for addition to the reserve.
- 128 ha of land to be included in the Lake Toolibin Nature Reserve and subject to a program of rehabilitation.
- 43 ha of uncleared bush east of Howatharra, north of Geraldton, to be reserved for conservation.
- 27 ha of mostly wetland for addition to the Lake Mealup Nature Reserve.

- 19 ha of uncleared land to be included in Lake Wannamal Nature Reserve.
- 4 ha of land at Bengier Swamp as part of the program to buy the remaining freehold land within the swamp.

Additionally, two pastoral leases within the d'Entrecasteaux National Park boundaries and with an area of 5 505 ha were purchased and will now be managed for conservation and recreation.

LAND MANAGEMENT

Forest Regions

DURING 1987/88 regional management plans and strategies for timber production, and for conservation and recreation were approved for the three forest regions of the State (see Figure 2, p.25). While these plans incorporate all land tenures in the regions which are managed by the Department, the area is largely forested.

The objectives, policies and strategies laid down in these documents now supercede those of the General Working Plan No 87 1982.

The timber strategy states that the forests of the South-west are to be managed according to seven main principles:-

1. That a representative system of conservation reserves is designated which is equitable in area allocation and has security of tenure and purpose;
2. That all other forest land be designated for multiple use with similar security of tenure and purpose;
3. Forest areas harvested for timber production will be regenerated, and previously regenerated forests will be silviculturally managed to optimise the management objective;
4. The cost of regenerating, establishing, and managing both native forests used for timber production and exotic pine plantations will be recouped from the sale of harvested logs;
5. The harvest from forest areas 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 of Conservation and Land Management.

Review of Road, River and Stream Reserves

Road, river and stream reserves, in which clearfelling operations are excluded, were established prior to 1975 in the woodchip licence area and occupy 16 per cent of the karri forest. Research studies of their role and effectiveness have indicated that changes to the original system are needed.

Following a detailed review a number of recommendations were made to the Environmental Protection Authority. Their recommendations will be submitted to the Minister.

If agreed to in principle, a detailed management plan dealing with this issue will be prepared by CALM, and made available in draft form for public review.

Planning and Consultation

On 14 December 1987, the following documents were approved by the Minister for Conservation and Land Management:

- Northern Forest Region Management Plan
- Central Forest Region Management Plan
- Southern Forest Region Management Plan
- Summary of Public Submissions
- Timber Production in Western Australia
- Strategies for Conservation and Recreation on CALM lands in Western Australia.

Their finalisation was an exhaustive process lasting six months. The public comment period closed in July 1987 and 3976 public submissions were received of which 564 were substantial documents, and the remainder were 30 different types of proforma documents. This was a very high degree of public involvement.

A major component of the regional management plans is the proposed tenure changes for about 230 reserves, to provide greater assurance of security for areas not destined for timber production and to add vacant Crown Land and other leasehold and freehold land to the conservation estate. The details of these proposals are listed in the planning documents.

During 1987/88, the Department started co-ordinating these many and complex tenure changes. The process will take many years. One strategy is to identify those transactions likely to take the shortest time, and give them priority attention.

As part of the regional management plans:

- the tuart forest at Ludlow was gazetted as a national park;
- State forest blocks east of the Shannon Park were in the process of being converted to become Mt. Frankland National Park;
- lands adjacent to d'Entrecasteaux National Park were acquired to become extensions to the Park;
- proposed changes to the Conservation and Land Management Act were being refined to accommodate the new category of "conservation park" and to strengthen security of purpose for vested lands;
- all areas were being managed consistent with their new designation.

Draft management plans for Waroona Catchment and Logue Brook Catchment were prepared jointly with the Water Authority of Western Australia. A successful workshop was conducted at Waroona during the preparation of the draft plans.

By way of implementation of the management plan for the Shannon Park and d'Entrecasteaux National Park, a zoning plan for boat use on Lake Jasper was prepared following consultation with community groups. A committee of hut owners and local Government representatives has been formed to consider the future for huts in both parks.

Landscape Planning

A Visual Resource Management program for the Southern Forest Region is being developed. This required mapping the landscape character types, determining scenic quality rating, sensitivity zones and the landscape management zones. Visual quality objectives were prepared and field trials undertaken. Public perception studies were initiated. Forest operations are being modified to include findings of the Visual Resource Management Program.

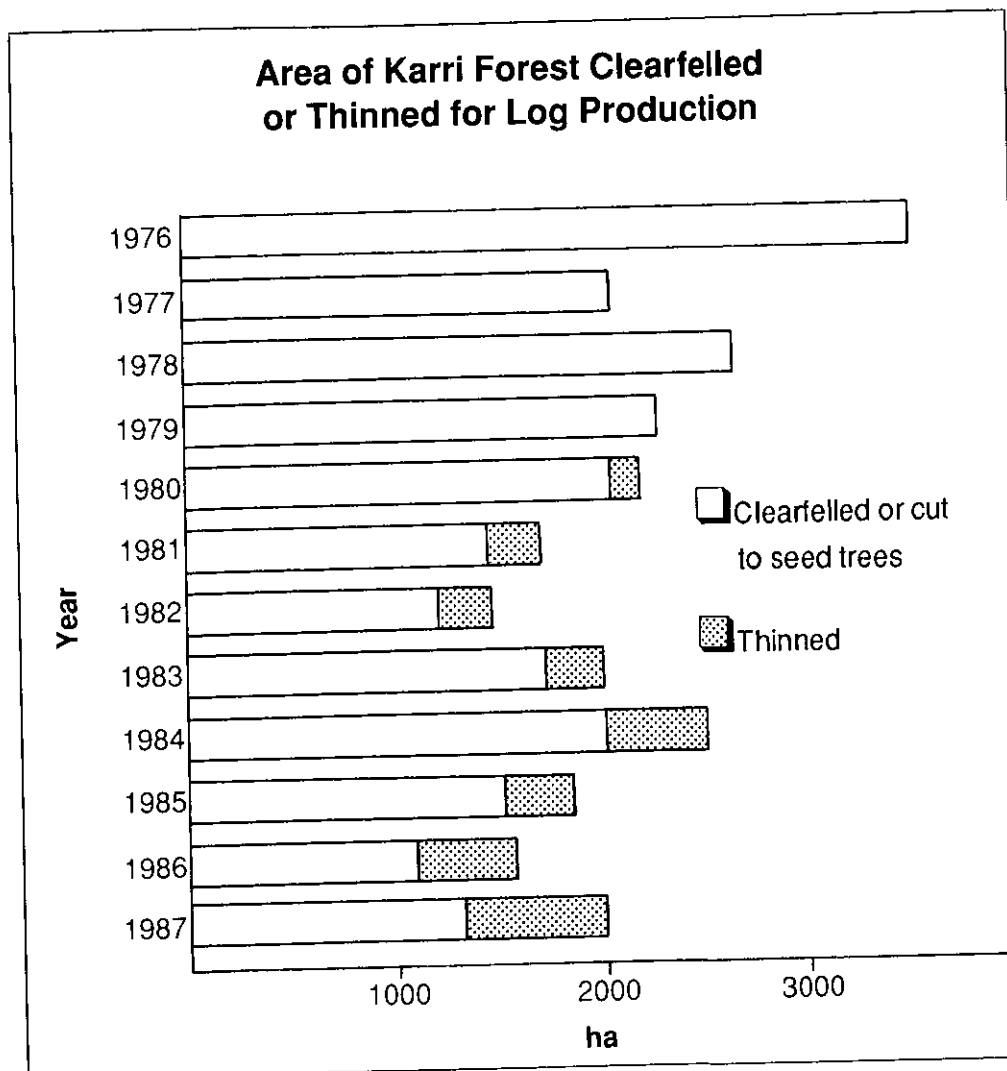
Regeneration and Tending of Hardwood Forests

Forest Areas	1986	1987
Jarrah - Selection cut	18 824	16 732
- Clear felled, awaiting regeneration	514	448 *
Jarrah/Wandoo - Selection cut	1 145	1 376
Karri - Clear felled or cut to seed trees, awaiting regeneration	1 094	1 311
- Removal of seed trees	1 203	827
- Thinned	491	702
Mallet - Thinned	123	90
Pine - Clear Felled	123	166**
- Thinned	3 176	3 122

* Cleared for mining.

** Includes 23 ha clear felled for Christmas trees.

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.



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

The long-term trend in the rate of felling and regeneration of the karri forest is shown in Appendix 1.

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 minimise the effects of dieback. During 1987, 1 232 ha of jarrah forest were treated.

Jarrah Stand Improvement (JSI) is a silvicultural program to increase productivity of hardwood forests. The work includes thinning of regrowth stands and removal of unsaleable old growth trees to make way for regeneration. In 1987, 2 319 ha of jarrah forest were treated.

1 262 ha of forest were regenerated to karri during 1987. This included 596 ha from natural seed fall, 100 ha by sowing with seed and 566 ha hand planted with nursery seedlings. On 56 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 clear-felling is shown in Appendix 2.

Establishment and Tending of Pine Forests

At 31 December 1987, the areas of State owned pine forests were 36 708 ha *Pinus radiata* and 29 572 ha *Pinus pinaster* and other species, totalling 66 280 ha. This includes 1 104 ha of Radiata pine planted on private property under a Softwood Sharefarming Scheme which enables the Department to grow pine in partnership with private land owners.

For the calendar year 1987 planting details were as follows:

	1986	1987
Area planted with pines (ha)	2 016	3 281
Radiata	1 406	2 180
Pinaster and other species	610	1 101

Districts Planting Pines (ha)

District	Radiata	Pinaster & Other Species	Total
Wanneroo	—	622	622
Harvey	88	445	533
Kirup	556	—	556
Busselton	326	34	360
Nannup	32	—	32
Manjimup	373	—	373
Pemberton	215	—	215
Albany	590	—	590
Total	2 180	1 101	3 281

The above figures include:

- pine forests established on private land with sharefarming agreements in Kirup (151 ha), Manjimup (363 ha) and Albany (590 ha) districts
- Second rotation planting as follows:

Radiata - Harvey 88 ha, Kirup 105 ha, Nannup 6 ha.
Pinaster and other species - Wanneroo 78 ha.

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

The following pine forest tending was carried out during 1987/88:

Weed control	54 ha
Scrub control	2 606 ha
Refertilising	5 765 ha
Pasture improvements	50 ha
Low pruning	2 132 ha
High pruning	2 035 ha
Perimeter spraying	12 km

Commercial Plantings and Woodlots on Private Property

Information supplied to the Department from private sources indicate that the private forest estate increased by about 940 ha for softwood and 920 ha for hardwood in the 1987 calendar year. Major forest management companies contributed most of this. In addition, many farmers and land owners planted shelterbelts, woodlots and small plantations totalling approximately 150 ha.

The total area of private plantations at 31 December 1987 is about 15 400 ha of softwood and about 2 100 ha of hardwood.

Mining

In 1987/88, a new gold mining project at Hedges Block near Boddington got started. The very wet autumn caused difficulties for the company in meeting its mine development schedule while adhering to the Department's hygiene requirements.

Plans have progressed for relocation of ALCOA's mining activity at Del Park and Huntly to the new areas north-east of Huntly. A system was developed for giving priority to mine sites which have the highest probability for rehabilitation to a jarrah dominant forest, and with clearing and stripping of top soil under dry conditions there would be minimal impact of dieback in the surrounding forest.

A key to successful integration of mine and forest planning is accurate data on dieback distribution five years in advance of mining.

Rehabilitation

During 1987/88, 431 ha of mine pits, access roads and other clearings associated with bauxite mining were rehabilitated by planting or seeding with eucalypt and scrub species.

Twenty-three hectares of gravel pits were rehabilitated.

Protection

An area of 234 200 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 203 700 ha and hand burning by ground crews 30 400 ha. A further 4 534 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 activities are reported later in this Report.

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

Noxious weeds, including blackberry, cottonbush, arum lily, and variegated thistle were treated in accordance with existing policies and recommended control techniques.

In the Northern and Central Forest Regions, 161 pigs were destroyed by trapping or hunting. Organ samples from pigs taken in the Helena catchment area were sent to Murdoch University for hydatids testing. Pamphlets on hydatids prepared by the Health Department were distributed to the public from district offices to warn of the potential risk to human health of illegal pig hunting with dogs. Other feral animal control included dogs (20 were killed in the Northern Forest Region), foxes and rabbits.

District registers with records of the location and extent of populations of declared rare flora were updated with information on additional species taken from field surveys. A management program for the Northern Forest Region has been prepared.

Infestation by *Ips grandicollis* (pine bark beetle) was severe in Lewana, Ellis, Folly and Milward pine plantations. The below average rainfall for the year placed the trees under stress which pre-disposed them to insect attack.

Extensive erosion control works were necessary on two properties purchased near Bridgetown for pine forest establishment. Over grazing of the properties by the landowner after the commitment was made by the Department to purchase the land, was the cause. A charge has been made against the former owner for a breach of the Soil Conservation Act and the case is pending.

Negotiations were commenced to remove grazing from a small number of timber and sandalwood reserves in the Goldfields to upgrade their conservation value.

Recreation

The re-aligned Bibbulmun Track was virtually completed by 30 June 1988, including its extension to Walpole. The installation of signs and markers had commenced. Mapping and text for a completely revised guide book are under way.

A range of recreation site plans and developments were carried out in 1987/88:

- Fred Jacoby Park - A recreation area development plan was prepared;
- Mundaring - The Kattamordo Heritage Trail was planned;
- Lane Poole Reserve - The Tony's Bend camping area was redeveloped.

- Cascades - The site was redesigned, including construction of viewing deck and timber walkways, and relocated toilets;
- Manjimup - A 900m wheelchair accessible Heritage Trail has been constructed to the King Jarrah, along with a new car park and access road, viewing platform, sheltered rest area and information display;
- Big Brook Dam - Extensive works were done to develop this as a major day use area, including toilets, car parks, picnic facilities, beach and information shelters;
- One Tree Bridge/Glenoran Pool - This extensively redesigned area now has additional picnic facilities, new car parks, pedestrian underpass, drainage control and rehabilitation, new toilet block and a large information shelter.

A successful workshop was held at Parkerville to discuss recreation planning issues with the public. Following the workshop, which attracted over 50 participants, a Northern Region Forest recreation plan was commenced. The plan aims to reconcile the range of recreation demands and the land capabilities to meet these demands.

National Parks

Planning and Consultation

Work continued on the preparation of management plans for a number of national parks throughout the State.

Some of the highlights during the year were:

- Shannon Park and d'Entrecasteaux National Park management plan was approved by the Minister for Conservation and Land Management on 2 December 1987.
- Cape Range National Park management plan was approved by the Minister on 1 December 1987.

The following draft management plans were released for public comment:

- Leeuwin/Naturaliste National Park
- Yanchep National Park

Extensive public participation programs were conducted during preparation of these draft plans.

The Fitzgerald River National Park Advisory Committee was formed to assist in drafting the management plan.

Work continued on the Hamersley Range National Park management plan.

Work commenced on the Rudall River National Park draft management plan.

The visitor survey for the Bungle Bungle National Park was completed and a report was published in March 1988.

A project team was formed to prepare a management plan for Herdsman Lake which is a proposed conservation park. The team is guided by advice from an advisory committee with members from several Government organisations as well as other interest groups. A very

successful open day was held at the Lake to give interested members of the public a chance to meet the project team and discuss their views.

Aboriginal employment projects, funded by the Australian National Parks and Wildlife Service, for Millstream-Chichester and Hamersley Range National Parks, have further involved Pilbara Aboriginal communities and strengthened liaison.

Conservation and Protection

A summary of fuel reduction burning carried out to help protect values from wild fires is provided in Appendix 9.

A successful burn was conducted in the Porongurup National Park, resulting in a mosaic of burnt and unburnt patches. An experiment in modifying fuel by chaining was established in Kalbarri National Park. Results are being assessed. Expanded patch burning of spinifex communities has continued in the Pilbara national parks. Many national parks were protected by hundreds of kilometres of burnt buffer strips and fire breaks.

Dieback hygiene, regulation and monitoring measures continued according to existing policies. The occurrence of *Phytophthora* species other than *P. cinnamomi* (jarrah dieback) was monitored in the Moora District, Kalbarri National Park and Fitzgerald River National Park. Dieback maps were produced for seven national parks in the South Coast Region. Large scale aerial photography for dieback interpretation and mapping has been obtained for Nambung and Watheroo National Parks.

Noxious weeds were treated in accordance with existing policies. In Windjana Gorge National Park, a helicopter was used to transport men and equipment into the area during the wet season when control was most effective for *Achyranthes aspera* (chaff flower), *Alternanthera pungens* (khaki weed), *Bidens pilosa* (cobblers' peg), and *Cenchrus echinatus* (Mossman River grass). In Porongurup National Park, good progress was made in controlling blackberry infestations by herbicide spraying. A re-introduction of the blackberry rust was made for biological control. At Millstream-Chichester National Park about 1 000 mature date palms were removed from Deep Reach, Crossing Pool and the delta areas. *Parkinsonia* (a prickly tree indigenous to Central America) outbreaks were also controlled.

Eradication of feral animals from national parks, including foxes, pigs, horses, donkeys, camels, goats, cats and rabbits, continued in co-operation with the Agriculture Protection Board. Poison baiting (1080) programs for fox control on turtle breeding beaches in Cape Range National Park, and to reduce predation pressure on rock wallabies, were carried out. Rangers in Kalbarri National Park trapped 35 feral pigs and shot 450 goats. About 2,000 goats were mustered from the Zuytdorp National Park and 850 from Cape Range National Park.

In conjunction with the Agriculture Protection Board, 1 600 donkeys, 77 horses, 4 camels and 760 cattle were shot from helicopters in the Bungle Bungle National Park and Hamersley Range National Park. Fifteen kilometres of fencing were constructed at strategic locations within the Bungle Bungle National Park to control the movement of cattle and donkeys from adjacent pastoral properties into the park.

Landscaping and Recreation Facilities

Among the projects for 1987/88 were:

- Geikie Gorge National Park - drafting of redevelopment plan; road construction
- Windjana Gorge/Tunnel Creek National Park - drafted redevelopment plan
- Millstream-Chichester National Park - conversion of homestead for visitor centre
- Cape Range National Park - development of the Mangrove Bay site; new roads
- Shark Bay/Monkey Mia - redevelopment site works around the visitor centre
- Kalbarri National Park - relocation of car parks and new facilities; coastal gorge roadworks
- Nambung National Park - new signage and information; coastal recreation redevelopment
- Walyunga National Park - planned recreation redevelopment
- Leeuwin-Naturaliste National Park - planning for redevelopment around campgrounds and historic features
- Cape Arid National Park - planned campground redevelopment and rehabilitation.

Also availability of special funding through the Heritage Committee has allowed work to proceed on 17 Heritage Trails.

A 1987 John Tonkin Tree Award was presented to the Southern Forest Region for work done on facility development and rehabilitation at the former Shannon River town site.

Nature Reserves

Planning and Consultation

The management plan for Benger Swamp Nature Reserve was approved by the Minister for Conservation and Land Management on 1 December 1987. Work proceeded on the Dampier Archipelago draft management plan.

Conservation and Protection

A summary of prescribed burning for fire protection is provided in Appendix 9.

In the Goldfields trial buffer burning was carried out at Wanjarri Nature Reserve, and research burns were conducted at Gibson Desert Nature Reserve and Queen Victoria Springs Nature Reserve.

Dieback and Armillaria disease infections were monitored and hygiene measures implemented to minimise the risk of spreading these soil-borne diseases.

Remedial drainage works were carried out at Beelaring Springs near Toodyay Road to reduce waterlogging of Morangup Nature Reserve.

The recommendations made in the final report by the Northern Arthur River Wetlands Committee on Lake Toolibin have been implemented. A test bore was established in a saline section of the lake, with a pump drawing ground water out to lower the water table. This discharge water is being piped six kilometres and into an already saline lake system.

A proposal to drain run-off water from adjoining farmland into Welsh Nature Reserve east of Narembeen was opposed by the Department because the detrimental effects on the reserve would be substantial, and alternatives involving earthworks on the private property are possible to achieve amelioration of the problem.

In Kadathinni Nature Reserve near Three Springs a rehabilitation project was completed in association with the Department of Agriculture. A series of levee banks were constructed to control erosion, and bare areas were revegetated by direct sowing with seed collected from parent plants in the reserve.

Feral animal control programs were continued. In Barlee Range Nature Reserve in the Pilbara Region, 83 feral donkeys were destroyed by shooting from a helicopter. Foxes and rabbits were removed from Ellen Brook Nature Reserve, Twin Swamps Nature Reserve and Thomsons Lake Nature Reserve in the Metropolitan Region.

Rubbish piles have been removed or buried on 20 nature reserves in the Wheatbelt Region. Continued reserve inspection, general rubbish removal and reserve rehabilitation has led to an appreciable drop in rubbish dumping on nature reserves. For instance, in the Katanning District there was a 50 per cent reduction. Also, 20 ha of gravel pits were rehabilitated.

Recreation

The first nature trail on a nature reserve in the Wheatbelt Region was opened by the Minister for Conservation and Land Management. This was on Sandford Rocks Nature Reserve near Westonia. The trail is a self guiding tour of a granite rock and incorporates a handbook so that no on-site signage was required.

Recreation sites at Burra Rock, Victoria Rock, Cave Hill and Rowles Lagoon were maintained, preliminary site and development plans were prepared.

Marine Parks

Planning and Consultation

A management plan for the Marmion Marine Park was completed and will be released when changes required in the Conservation and Land Management Act are approved by Parliament.

The Shoalwater Bay Islands draft management plan was commenced during the year. A well known island included in the group is Penguin Island.

The Ningaloo Marine Park draft management plan was released to the public for comment in May 1988, following extensive liaison with the Ningaloo Marine Park Advisory Committee and local community participation.

Conservation and Protection

Data is being collected on the biology of the marine snail *Drupella cornis* which occurs in the Ningaloo Marine Park. The snail is a coral predator and more information is needed to

decide whether control treatments are necessary to ensure long term protection of coral reefs.

Recreation and Landscape Facilities

The Milyering Bicentennial Visitor Centre was ready for display fitting. It is part of a larger park headquarters funded in the main by the Australian Bicentennial Authority. Potential boat launching ramps throughout the length of Ningaloo Marine Park are being evaluated with the Marine and Harbours Department. Planning has commenced on the recreational management of the Coral Bay Foreshore Reserve and environs.

RESOURCE PRODUCTION

Wood Production

Timber Strategy

A major task for 1987/88 was implementation of the Timber Strategy, following its approval by Government in December 1987. To ensure coordination of Departmental activities there was a two-day seminar at Bunbury and an in-service training course at Busselton early in 1988.

The recommended changes to the system of allocating the forest resource, through revised contracts of sale, tenders and auctions, were largely implemented and further details are provided in the Services Section of this Report (see Timber Production Branch). Other commitments of the Timber Strategy which are described elsewhere in this Annual Report are:

- Hardwood sharefarming (see p. 43)
- Softwood sharefarming (see p. 34)
- Jarrah inventory (see p. 76)
- Karri growth modelling (see p. 57)
- Jarrah thinning (see p. 34, 84)
- Modelling timber utilisation (see p. 85)

Hardwood Sharefarming Pilot Scheme

During the year, Government approved a pilot operational trial of Tasmanian bluegum (*Eucalyptus globulus*) plantations in the catchments of the Peel-Harvey estuary and the Wellington reservoir.

The Peel-Harvey catchment area has a serious nutrient seepage which is causing eutrophication of the estuary and this in turn, devalues the estuary as a tourist destination.

The Wellington reservoir catchment is severely affected by saline ground water, and reforestation has been shown to be able to counter this trend. The salinity level of the reservoir water has now peaked and further plantings will eventually reverse the salinity balance.

Although the scheme was launched only in Spring 1987, 1,952 ha were prepared for planting in the winter of 1988 with seedlings of several provenances raised, mainly in the Manjimup nursery. Monitoring the scheme has been funded in part, by the Commonwealth's National Afforestation Program over a three year period, and contract staff were recruited to carry out the work. The pilot studies are in collaboration with the Water Authority of Western Australia and the Department of Agriculture.

The future of the hardwood afforestation program is currently under review. It is estimated however that there are more than 100 000 ha of cleared agricultural land of suitable quality in moderate to high rainfall zones available for this project.

Firewood

Considerable damage has been done by the public scavenging for winter firewood in the Northern Forest Region. Attempts were made to reduce this by:

- designating areas of forest where firewood could be gathered with minimal damage;
- providing access to disease risk areas in summer only, under conditions where risk of dieback spread is minimal;
- hauling log debris from thinning operations to a central point where the public could obtain a load of wood at a small charge.

The scheme was a moderate success.

Log Production

The production of hardwood sawlogs for 1987/88 is summarised in the following table, and can be compared with the projected intake.

Hardwood Sawlog Production from Crown Land 1987/88 Cubic Metres (m³)

Species	1st Grade		2nd Grade		Regrowth Thinnings		Veneer Logs	Other	Total	
	Actual	Projected*	Actual	Projected	Actual	Projected	Actual	Actual**	Actual	Projected
Jarrah	463 794	504 000	37 610	56 500	326			217	501 947	560 500
Karri	152 287	168 000	35 603	20 000	28 425	50 000	3 129		219 444	238 000
Marri	3 536	30 000	1 095		11			419	5 061	30 000
Wandoo	1 371		—		—				1 371	
Blackbutt	2 456		79		19				2 554	
Sheoak	128		78		—				206	
Other	—		74		—				74	
Total	623 572	702 000	74 539	76 500	28 781	50 000	3 129	636	730 657	828 500

* Projected intakes are average for 1987 & 1988 as set out in the Timber Strategy, Tables 14, 15 & 17.

Note: there is no separate projected figure for minor species.

** Includes mill construction logs & reject logs.

With the adoption of the Timber Strategy in 1988, the existing system of annual licences issued by State Operations Headquarters is progressively being replaced by longer term contracts of sale. In previous annual reports the "allowable cut" was calculated from the total of the licences issued, all for the supply of average quality sawlogs known in the industry as General Purpose logs.

A new system of log grades has been established with the Timber Strategy. The G.P. log is now described as the first grade log while logs of lower quality, previously known as salvage logs, are described as second grade logs. The basis for this grading is the proportion of the log suitable for milling.

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 1.73 million cubic metres for 1987/88. Another 205 608 cubic metres of log materials were taken from private property.

Log Production from Crown Land and Private Property 1987/88

(m ³)	Crown Land (m ³)	Private Property (m ³)	Total
Sawlog Timber *			
Jarrah	501 947	33 887	535 834
Karri	219 444	16 829	236 273
Marri	5 061	5 405	10 466
Blackbutt	2 554	2 024	4 578
Wandoo	1 371	2 317	3 688
Sheoak	206	19	225
Other	74	1 154	1 228
Total hardwood	730 657	61 635	792 292
Pine	114 496	13 060	127 556
Total sawlog	845 153	74 695	919 848
Other Log Materials**			
Hardwood	696 967	112 884	809 851
Softwood	187 951	18 101	206 052
Total Log Timber	1 730 071	205 680	1 935 751

* 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 146 599 cubic metres to 1 935 751 cubic metres, and pine logs by 42 011 cubic metres to 333 608 cubic metres. Long term trends are shown in Appendices 4 and 5.

The volume of sawn timber produced from Crown Land decreased by 2 383 cubic metres to 266 382 cubic metres for 1987/88.

Sawn Production from Crown Land and Private Property

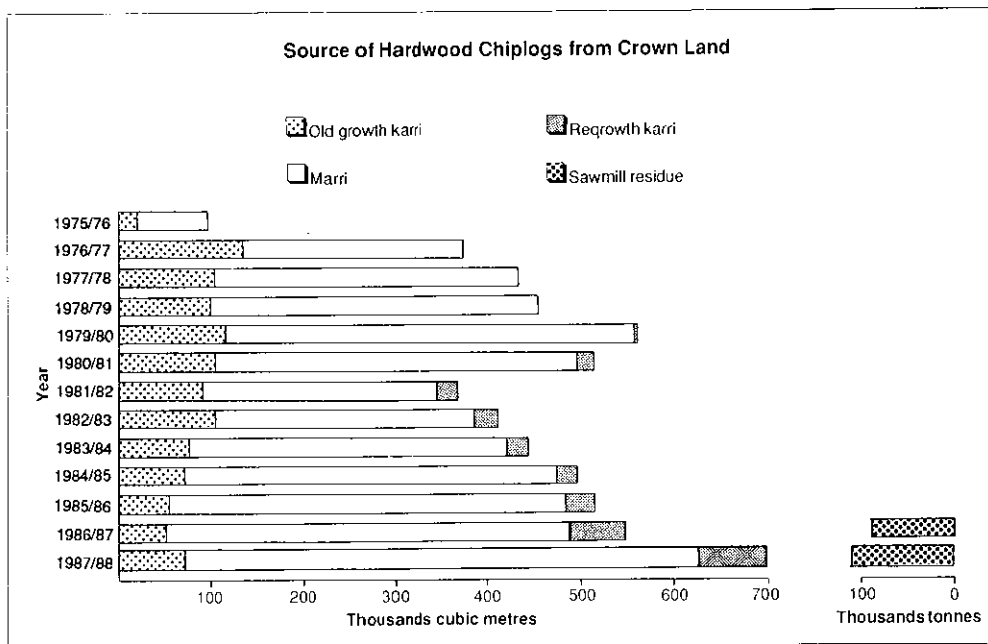
	1986/87 (m ³)	1987/88 (m ³)
Sawn Timber Production		
Crown Land	268 764	266 382
Private Property	21 854	27 279
Sawn Sleeper Production		
Crown Land	25 334	24 321
Private Property	706	670
Total	316 658	318 652

The supply of high quality karri logs for production of veneer increased by 1 023 cubic metres to 3 129 cubic metres.

Veneer Log Production

	1986/87 (m ³)	1987/88 (m ³)
Karri	2 106	3 129
Jarrah	—	—
Pine	5 039	5 397
Total	7 145	8 526

The supply of marri and karri chiplogs from Crown land increased by 144 274 cubic metres to 696 967 cubic metres. In 1987/88, 79 per cent of the total were marri, 10 per cent were karri from "old growth forests" while 10 per cent was produced from thinnings from regrowth forests. The W.A. Chip and Pulp Co. Pty Ltd also obtained 112 884 cubic metres from private property; an increase of 12 961 cubic metres from 1986/87. Sawmill residues contributed 106 950 tonnes to woodchip production.



Hardwood Chiplog Production from Crown Land and Private Property

	1986/87		1987/88	
	(m ³)	per cent	(m ³)	per cent
Crown Land				
Old growth forest		89.8		89.6
Marri	444 076	80.3	551 673	79.2
Karri	52 364	9.5	72 490	10.4
Regrowth forest (thinning)		10.2		10.4
Marri	500	0.1	764	0.1
Karri	55 753	10.1	72 040	10.3
Subtotal	552 693	100	696 967	100
Private Property				
Marri	82 384		101 695	
Karri	17 539		11 189	
Total	652 616		809 851	

Longer term trends for hardwood chiplog supply from Crown land are shown in Appendix 6.

Mining timber production in the Goldfields increased by 245 tonnes to 1 709 tonnes, comparable to the level of activity achieved in 1985/86.

Thinning operations in the mallet forest at Narrogin yielded 29 300 pieces of fence post material and 488 tonnes for tool handles.

Sandalwood production increased to 2 008 tonnes due to seasonal harvesting effects and increased production from private property. Production from Crown land included 29 tonnes by pastoralists under the economic hardship provisions and 178 tonnes of deadwood salvage and chip material not previously accepted as marketable.

Sandalwood Production

	1986/87	1987/1988
	t	t
From Crown land		
Green sandalwood	762	642
Dead Sandalwood	996	1159
From Private Property	107	207
Total	1 865	2 008

Licences to obtain sandalwood were issued to 26 contractors:
10 full time, 10 part time, 3 pastoralists and 3 private property.

Exports totalled 1 816 tonnes for 1987/88 compared with 1 810 tonnes for the previous year.

Firewood Production & Consumption

		1986/87	1987/88
Crown land sawmills	For Sale	43 687	39 876
	For own use	1 176	697
Firewood contractors	Local Firewood Permit	2 446	718
	Forest Produce Licence	28 321	21 702
Industrial use		N/A	N/A
Sub total		75 630	62 993
Private property sawmills	For sale	4 876	6 667
	For own use	293	244
Total		80 799	69 904

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

These figures do not take into account the private collection of firewood from the forest by members of the public for their own use.

Other Forest Produce

		1986/87	1987/88
South West Division			
Agricultural Areas			
Mining timber (m ³)	Crown land	3 750	2 051
	Private property	N/A*	N/A
Piles, poles & bridge timbers (m)	Crown land:		
	Hardwood	47 810	108 318
	Softwood	28 501	13 746
	Private Property	26 909	10 485
Fence posts & rails (no.)	Crown land	186 876	169 635
	Private property	14 389	19 902
Strainer posts (no.)	Crown land	19 749	12 204
	Private property	N/A	N/A
Goldfields Area			
Mining timber (t)	Crown land	1 464	1 709
Fence posts & rails (no.)	Crown land	9 811	9 654
Strainer posts (no.)	Crown land	576	1 170

The supply of poles increased markedly from its 1986/87 figure, and was approaching the higher level of two years ago.

The increase in mining timber production to 1 709 tonnes was the result of improved gold and nickel prices and redevelopment of some underground workings requiring more mining timber.

The updated summaries of exports and imports of forest produce, taken from figures supplied by the Australia Bureau of Statistics, are shown in Appendices 7 and 8.

Timber Industry Regulation and Employment

At 30 June 1988 a total of 122 sawmills were registered under the provisions of the Timber Industry Regulation Act: 55 mills receiving logs from Crown land, 24 mills receiving logs from both Crown land and private property and 43 mills receiving log supplies solely from private property. The average total number of persons employed in timber mills each month throughout the year was 2 273.

The district inspectors made 933 mill inspections and 828 bush inspections. There were 119 notifiable accidents during the period, one being 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 5.23. This is equivalent to a frequency rate of approximately 28.4. (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:	71 757
Travel Allowances, plant costs and sundries:	26 631
TOTAL	\$98 388

The overall employment in forest-based industries for 1987/88 was estimated as follows:

Sawmilling employees, including bush workers (employees of registered sawmills only):	2 273
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:	20
Sandalwood workers:	75
Apiarists (2 230 sites registered):	186
TOTAL	5 554

Tree Nurseries

The first stage of the nursery rationalisation occurred in 1987/88 with the closure of Karratha nursery and the leasing of Hamel nursery to Greening Australia (W.A.). The five remaining nurseries are at Broome, Narrogin, Gnangara, Nannup and Manjimup. Broome and Narrogin are primarily commercial nurseries producing plants suitable for rural revegetation in the semi arid tropics and the Wheatbelt, South Coast and Goldfields regions. Pine nurseries at Gnangara and Nannup produce plants for Departmental and private use. Manjimup produces most of the Department's eucalypt seedlings as well as providing plants for the revegetation program in the Wellington catchment and large scale private contracts.

A substantial increase in potted stock production at Manjimup occurred as a result of the transfer of Departmental seedling production from Hamel and the establishment of the hardwood (bluegum) sharefarming scheme. Included in Narrogin's Departmental production was 20,000 seedlings for the Lake Toolibin project using seed collected from the site.

Departmental Nursery Production 1987/88

Nursery	For Sale to Public			For Departmental Use			Total
	Potted Stock	Open Rooted Stock	Cuttings	Potted Stock	Open Rooted Stock	Cuttings	
Commercial							
Broome	46 500			1 500			48 000
Karratha	9 200			1 800			11 000
Narrogin	270 600			31 400			302 000
Hardwood							
Manjimup	418 000	40 000		2 592 000	400 000	20 000 (Pine)	3 470 000
Pine							
Gnangara		622 000			4 318 000	403 000	5 343 000
Nannup		20 000			1 700 000		1 720 000
Total	744 300	682 000		2 626 700	6 418 000	423 000	10 894 000

Seed Production

Seeds of the major species needed for Departmental forest plantings, rehabilitation and conservation works, as well as for public sales, were processed and stored at the Como Seed Centre and Manjimup Seed Store.

A total of 210 kg of seed of mixed species was collected for processing at Como, and 510 kg of mainly pine and karri seed for processing at Manjimup.

Disbursement of seeds from both centres for sales and Departmental sowings amounted to 1 235 kg. Receipts from public sales totalled \$36 326.

RESEARCH

THE past year has seen a consolidation in activities and direction of the Research Division. Four senior appointments were made, finalizing the organizational structure of a corporate team of two Senior Principal Research Scientists and two Principal Research Scientists headed by the Divisional Manager.

New appointments were:

- Dr Stephen Hopper to Senior Principal Research Scientist (Science)
- Dr Ian Abbott to Principal Research Scientist (Science)
- Dr Anthony Start to Principal Research Scientist (Research Applications)

In addition, Mr John Bartle was appointed Principal Research Scientist, Special Projects.

A major review of all existing research programs was conducted by the Research Division Policy Group during March and April. This review re-assessed objectives and priorities of research to ensure that any re-allocation of staff and finances among programs in the 1988-89 fiscal year would have a sound and equitable base. Changes made as a result of this review will be incorporated in the next revision of the Research Division's rolling Five Year Plan.

Accommodation

One major problem identified during 1987/88 was the critical shortage of laboratory and office space at three major research centres - Wildlife Research Centre, Woodvale, Como Research Centre and Dwellingup Research Centre. No immediate resolution has been found.

Collaboration between the two metropolitan research centres and the three country research centres continued throughout the year. This collaboration ensures that maximum value is obtained from the resources available.

External Liaison

It is pleasing to record the excellent cooperation among Government departments and between Government departments and private organisations. Research staff have often been called upon in a consultative capacity over the year. Work is currently being conducted with the Environmental Protection Authority, Water Authority of Western Australia, ALCOA, CSIRO and various other bodies.

External funds were received to carry out and continue with a number of research projects throughout the year. Major funding bodies during 1987/88 were Australian National Parks and Wildlife Service (\$130,055), World Wildlife Fund - Australia (\$43,100), Australian Biological Resources Study (\$2,800), Western Australian Heritage Committee (\$4,000), Department of the Arts, Sport, the Environment, Tourism and Territories - National Rainforest Conservation Program (\$151,000), Department of Primary Industries and Energy - Federal National Afforestation Program (\$234,000). In addition \$20,000 was received from the Western Australian Department of Agriculture as part of the National Soil Conservation Program for a three-year research project at Esperance.

Further elaboration in the wide range of work undertaken by the Research Division is given in the summarised reports of each of the research programs which follows.

Biogeography

Fifty-four projects are currently being carried out by the Biogeography Program. Progress was made on most of these projects during the year. In particular, the Dampier Archipelago Nature Reserve management plan was passed through the Policy Directorate and will be released for public review shortly; data for the management plan for the Burrup Peninsula was compiled; and quadrats established throughout the Cape Arid National Park.

A grant for \$151,000 was received from the Department of the Arts, Sport, the Environment, Tourism and Territories to carry out the second year of the ecological survey of rainforest communities in the Kimberley. Field work was carried out in the east Kimberley in May 1988 and in the north-west Kimberley in June 1988. By analysing the data collected during the 1987 survey, 16 rainforest patches were selected to represent the diversity of types. At each of these patches geomorphology, plants, vertebrates and selected invertebrate groups were sampled.

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

The flora and fauna of the proposed Boonanaring Nature Reserve.

Insights for conservation provided by the Nullarbor data base: a case-study of a broad-scale survey.

Papers were published on:

- Classification and evaluation of sites in karri regeneration.
- A floristic classification of the Walpole-Nornalup National Park.
- Biogeography and its use for setting priorities for management.
- Western Australian rainforests.

Fauna Conservation

The project addressing the impact of fox predation on relic mammal fauna looked at fox density and patterns of dispersal. The knowledge gained is providing a foundation to develop and implement an effective and economic program of fox control in conservation priority areas.

The experimental translocation of numbats to the Boyagin Nature Reserve commenced in 1986 has been a success. Three generations of animals are now present on the Reserve and animals can be sighted with reasonable frequency. Further translocation of numbats to the eastern wheatbelt is in progress.

The second season of the marine turtle project coincided with a higher level of nesting for green turtles. Nearly 2 000 turtles were tagged this season, about double the number for 1986/87. The main tagging sites were again the Lacepede Islands and Barrow Island Nature Reserves. Aboriginal people from west Kimberley communities again assisted with the Lacepede Islands work. Five additional green turtles, all tagged at the Lacepedes were recovered - two inside King Sound, W.A., one in Napier Broome Bay (Kalumburu), W.A., and two more in Northern Territory waters. The three individuals recovered in Western Australian waters and one of the Northern Territory recoveries made on the north-east Arnhemland coast were tagged during the second season of work. The fifth animal

recovered was tagged in the 1986/87 season and made south of Melville Island. This is in the same general area as the first recovery of a turtle from the 1986/87 group which was reported in 1987.

The failure to recover any Barrow Island nesters over the past two seasons is puzzling.

Support from the World Wildlife Fund Australia and Australian National Parks and Wildlife Service enabled a consultant to be engaged to study captive breeding of the endangered western swamp Tortoise (short-necked tortoise). WWFA has also supported a CSIRO-based project on conservation of the Boodie (Burrowing Bettong).

Studies on the Chuditch (Western Quoll) by volunteer workers partially supported by the Department have indicated the vital importance of areas of jarrah forest for conservation of residual populations of this formerly widespread species.

Accidental introduction of the house mouse to Thevenard Island Nature Reserve off the Pilbara coast and the subsequent population increase has posed a problem for conservation of the islands population of Forrest's mouse. Research to address the problem was commenced in July 1987.

Interestingly, external research by University of Western Australia scientists has suggested that the presence of house mice on a west coast island nature reserve in association with the Dibbler may be beneficial to populations of that small carnivorous marsupial, but perhaps harmful to an associated species of dunnart. This situation contrasts with the apparent impact occurring on Thevenard Island.

Externally funded and conducted research on dolphin and dugong populations in the Shark Bay area continues to provide valuable information applicable to conservation and management of those species. Research by CSIRO and Murdoch University personnel supported by the Department and addressing questions related to conservation of sea-lion and fur seal populations was commenced.

Flora Conservation

Surveys of rare and poorly known flora were conducted on major field trips to Cape Arid and Cape Le Grand National Parks, Toolinna Cove area, Hopetoun-Ravensthorpe Range area, Hyden-Newdegate area, Albany-Bremer Bay area, metropolitan Perth, Dongara-Eneabba area, Kalbarri-Geraldton area and the Walpole area. New populations of both declared rare species and a number of poorly known species were located including the presumed extinct *Pimelea rara* and *Tetratheca deltooides*.

Three of the four field guides for the rare eucalypt atlas project were finalised and most of the initial field surveys completed. A computerised data base for rare and threatened flora was established. The Northern Forest Region wildlife management program for declared rare flora was completed and is expected to be released within the next few months.

A report on the distribution and commercial utilisation of *Boronia megastigma* and *Boronia heterophylla* was completed and submitted for publication by the Department.

Conservation genetic and population ecology studies were initiated on declared rare species *Banksia goodii*, continued on *B. brownii* and are near completion for *Banksia cuneata* and *Banksia oligantha*. Similar studies were started on two widespread but declining species *Nuytsia floribunda* and *Banksia ilicifolia*. Seed material for germ plasm storage has been collected from all populations of *Banksia cuneata* and *Banksia oligantha*. Bud material for

conservation genetic studies was collected from the declared rare species *Grevillea prostrata*, *Grevillea involucreta* and *Grevillea dryandroides* and cryopreserved in liquid nitrogen.

Training courses for the establishment of field herbaria were carried out at Karratha, Esperance, Walpole, Pemberton and Bunbury. There are now 51 fully operational field herbaria, 13 with district wildlife officers, 27 in national parks and 11 in district offices in forest regions.

Fire

Fire Ecology

Regular sampling of vertebrates and invertebrates has continued on several wheatbelt nature reserves including Tutanning, Durokoppin and East Yorkrakine. A considerable amount of pre-treatment data has been gathered. Prescribed burns are planned for autumn 1989 (Tutanning and Durokoppin) and autumn 1990 (East Yorkrakine).

Research into the long-term effects of various fire regimes on forest understorey vegetation and ground-dwelling invertebrates is well advanced. Pre-burn measurements of vegetation structure and floristics have been carried out and several plots have been burnt. In the Perup Nature Reserve regular pitfall sampling of invertebrates is continuing, while post-burn seedling counts have revealed massive regeneration following an autumn burn. Sample plots were fenced to minimize the impact of grazing. Further burns are planned in the karri forest near Manjimup.

Assessment of heartleaf (*Gastrolobium bilobum*) thicket regeneration as a potential habitat for the tammar wallaby (*Macropus eugenii*) was carried out following an autumn prescribed burn. Research into the post-fire regeneration of heathland vegetation at Tutanning, Two Peoples Bay and Mt Lesueur Nature Reserves, and of *Eucalyptus wandoo* woodland, is continuing.

Preliminary planning and site selection for an integrated fire effects/fire behaviour study in heathlands and mallee shrublands within the Stirling Range National Park were completed (see below). The fire effects component will involve work on vegetation, reptiles, frogs and small mammals. Sampling will commence in spring 1988.

The study of the interactions between fire, vegetation and small vertebrates in the arid zone has continued, with regular seasonal sampling in Queen Victoria Springs Nature Reserve. Studies utilising aerial patch burning to create a habitat mosaic have commenced in the Gibson Desert Nature Reserve; the effects of this burning strategy on birds, reptiles and small mammals are being monitored, along with the fire behaviour studies described below.

Fire Behaviour

Research into the prescribed burning of even-aged karri regrowth and studies of fire behaviour and fuels in jarrah forest are now close to completion and final publication. Similarly, the work on using prescribed burning in *Pinus radiata* plantations to remove flammable post-thinning slash fuels, and to reduce the abundance of pine wildings, has been written up for publication and operational guidelines are now being tested. This work will continue to be monitored and the guidelines refined if necessary.

Fuel and fire behaviour studies in Banksia low woodlands are continuing. Preliminary investigations of fuel accumulation rates and fire behaviour models have been prepared for publication, and site selection for further studies is now underway.

A new research initiative to study fuels, vegetation and fire behaviour characteristics in heathland and mallee shrubland vegetation has commenced in the Stirling Range National Park; this work will integrate with fire effects studies on the same sites (see above). A detailed research proposal was prepared in early 1988 and experimental sites have been selected. Preliminary investigations have concentrated on techniques for measuring fire spread. Plot construction and sampling will commence in spring 1988.

Monitoring of the effects of fuel modification along buffers in northern sandplain national parks is continuing.

A second major fire behaviour study is now well underway in hummock grasslands of the arid zone. Advances have been made in understanding fire behaviour in spinifex vegetation in desert nature reserves. A series of experiments to develop a fire behaviour prediction model for spinifex is a necessary step towards recreating a patch burn mosaic in the desert reserves. There is strong evidence that a patchwork of fire-induced successional stages is important for the habitat of a number of rare and endangered desert mammals.

Fire Management

Three projects concerning fire management are currently underway, each concentrating on a different major biome. Extensive collection of field data on Tutanning Nature Reserve in the semi-arid wheatbelt region has continued, with the aim of developing a computerised fire management system which has broad applicability throughout the region. In the forest regions of the south-west, a system for predicting fire behaviour and effects and devising wildfire suppression strategies is in the preliminary stages of development. A project to document Aboriginal knowledge of fire behaviour and traditional management practices in the desert hummock grasslands is proceeding, utilising extensive taped interviews with Aboriginal elders and information collated from literature and fieldwork. This work is critical to the success of the fire behaviour/fire effects research in these desert reserves.

Jarrah Forest

Silviculture and hydrology

A method has been developed to estimate the leaf area of jarrah trees and stands. A trial of two other methods showed that both require considerably more development. Thinning of a small jarrah forest catchment was found to increase tree and stand growth, and to increase streamflow and groundwater level.

Entomology

Quarterly sampling of jarrah crowns (begun January 1986) for gumleaf skeletonizer and other invertebrates was completed in January 1988. Sorting of samples has been completed and the data are being analysed.

A survey of jarrah forest around Greenbushes last September found skeletonizer to be widespread, though not in outbreak. These populations are some 20km north of the current outbreak area, and may indicate that the outbreak is moving north.

Dr. J. Farr was appointed in February to take charge of research into skeletonizer, particularly the feasibility of using biological control.

Studies in jarrah forest round Collie have shown that measurable deterioration in jarrah crowns has occurred within five years of severe infestation by jarrah leafminer. Leaf samples have been tagged in this forest to measure the extent of defoliation caused by leafminer. A workshop involving the Department and CSIRO staff reviewed research completed on jarrah leafminer. It does not appear that biocontrol of leafminer is practicable.

Wood Utilisation

Regrowth jarrah can be successfully stockpiled under waterspray, using a regime of one hour on and three hours off. This represents a 75 per cent saving in water and energy to operate pumps compared to continuous spraying.

Three different sawing patterns for regrowth jarrah were tested with no difference in recoveries among patterns. The larger the log diameter the better the recovery achieved.

A batch kiln was commissioned, and operation and technical manuals were completed. Seasoning research (pre-drying) with regrowth and mature jarrah was commenced.

Using different wood adhesives, a number of pilot panel gluing trials were completed.

A pulping study with the CSIRO Division of Forestry and Forest Products, using regrowth jarrah from a bauxite mining rehabilitation site, was commenced.

Strength tests have indicated that regrowth and mature jarrah timber have similar properties. A durability study which includes regrowth and mature jarrah was commenced in co-operation with CSIRO Division of Forestry and Forest Products.

Genetics

A provenance trial was established at Huntly Minesite containing seven outlying populations of jarrah.

The levels of resistance of several lines of jarrah seedlings to the dieback fungus, *Phytophthora cinnamomi*, have been compared in glasshouse and field trials. The lines performed consistently. Some were highly resistant while others were susceptible to varying degrees. Detailed analysis of the data is now under way and should clarify the level of genetic control of the resistance.

In a collaborative project with Dr J. McComb (Murdoch University), selected plants have been micro-propagated for further testing.

Physiology

Water stress and growth were measured at a range of sites in the northern jarrah forest. The short-term aim is to quantify the effects of silvicultural thinning and dieback on forest production. In the longer term the information will be used to predict changes in production on sites not yet treated or affected.

Thinning relieved summer water stress at four of six sites in the high rainfall zones of the northern jarrah forest.

Dieback was associated with increased water stress and decreased annual tree growth. Measurements are being continued and extended into the intermediate and low rainfall zones.

Karri Forest

Silviculture

A land classification system, based on edaphic climatic and floristic attributes has been developed and validated. The system enables definition of homogeneous land units, which will allow more efficient management of the forest.

A classification of the Walpole-Nornalup National Park has been completed to publication stage. It provides a basis for interpretation of the distribution of the flora of the area.

Data has been collected from a spacing experiment in 17 year old karri regeneration. The maintenance and measurement of two thinning and fertilization experiments were completed. Planning for the establishment of two new thinning and fertilization experiments was finished. The new experiments will be stratified on the basis of the homogeneous land units defined by the classification system.

Utilisation and Pathology

Growth stress measurements were made in standing trees and logs of regrowth karri in cooperation with CSIRO Division of Forestry and Forest Products. Sawmilling studies included a trial to assess the effect of site quality on sawn graded recoveries from regrowth karri, and a trial to test sawing patterns to minimize the effect of growth stresses in the sawn product.

Strength tests in cooperation with Curtin University of Technology indicated that strength properties of regrowth and mature karri are similar.

A study of the causes of brown wood in regrowth karri commenced. Sections of brown wood have shown fungal hyphae in the vessels and tannins (hence the brown colour) in the ray cells. Fungal hyphae were not seen in unaffected wood. Inoculation trials set up during summer should indicate whether one fungus causes only one set of symptoms, and whether one set of symptoms is caused by only one fungus.

Plant Diseases and Pests

Encouraging results have been obtained in the first year of testing two methods for the control of dieback (*Phytophthora cinnamomi*). Soil fumigation eradicated *P. cinnamomi* from surface soil and greatly reduced levels of the fungus at depth within the soil profile. Phosphoric acid injected into trunks inhibited lesions of *P. cinnamomi* in the susceptible host *Banksia grandis*. Survival of *P. cinnamomi* following treatment will continue to be monitored.

The use of non-destructive indicators to measure sub-lethal damage to jarrah has been evaluated. Dawn water potential and midday stomatal conductance were the most useful measures of dieback severity in declining trees. Change in trunk girth was less sensitive to short-term changes in dieback severity than was tree water status. Subjective assessment of crown form was the least reliable separator of dieback severity of the three methods tested.

Large lesions of *P. cinnamomi* were found in the lower trunk or major lateral roots of a quarter of the trees with crown decline and other visible symptoms of infection.

Considerable progress has been made in scientific understanding of the *Phytophthora* species in coastal woodlands and heaths. Symptoms and impact of *P. citricola*, *P. megasperma* var. *megasperma*, *P. megasperma* var. *sojajae* and unnamed *Phytophthora* species have been described for dying vegetation between Perth and Jurien Bay. Over the last year, *P. cinnamomi* has been monitored in a number of coastal communities south of Perth.

The distribution and impact of *Armillaria luteobubalina* in the jarrah forest have been described. More than 200 infection centres were identified during the five year period between 1981 and 1985. The fungus attacked the roots of 34 plant species. Primary attack was evident as notable differences in the patterns of invasion in roots and stems of the various species studied. Wandoo invariably died once infection reached the collar, while *B. grandis*, marri, tuart and jarrah resisted to varying degrees.

Members of the program diagnosed disease problems as they arose. Of the 2000 samples processed by the dieback detection service, 680 were forwarded for identification of *Phytophthora* species. In addition to *P. cinnamomi*, *P. citricola*, *P. cryptogea*, *P. megasperma* var. *megasperma*, *P. megasperma* var. *sojajae* and *P. nicotianae* var. *parasitica* were identified. *Sphaeropsis sapinea*, not previously recorded from Western Australia, caused tip dieback and stem cankers in *Pinus pinaster* and *P. radiata* cuttings. *Botryosphaeria ribis*, *P. cryptogea*, *Rhizoctonia* and *Botrytis* were also isolated from container grown *P. radiata*. *Botrytis* also caused cankers on *Eucalyptus globulus* and marri seedlings.

Pine

Tree Breeding

Large scale progeny tests of selections made during the "plus tree" search carried out in 1985-6 were planted at Busselton and Kirup. Seedlings of the best Australian genotypes were also planted at Kirup. These young trees will be used as donors in the Department's cutting program.

Planting of the *P. radiata* hedged artificially pollinated seed orchards (HAPSO) continued at West Manjimup. Research into chemical emasculation to control pollen production on clonal rows commenced.

Sub-lethal effects of *P. cinnamomi* on the growth of *P. radiata* have been quantified.

Results from a yield trial of *P. pinaster* comparing selected with routine unselected genotypes showed an additional 20 cubic metres per hectare volume production by selected trees at age 11. This 36 per cent increase in volume and the doubling of the number of trees with acceptable form, highlights the gains from the first generation of tree breeding. Establishment of the second-generation seed orchard continued at Manjimup.

Silviculture

A preliminary survey of drought related pine deaths in the Blackwood Valley was carried out in late 1987. Deaths were more common on shallow soils and on slopes with northerly aspects. Proportionally more sub-dominant and suppressed trees died.

Collection of data for the pine growth model continued and highlighted the lack of information on thinning and fertilizer responses over a range of ages and sites.

Experiments examining the interaction between thinning and fertilization on the growth of *P. radiata* have commenced. Further data from experiments examining the response of thinned *P. radiata* to fertilization demonstrates that substantial responses to fertilization are maintained for at least three years after application. In the second and third year after treatment the basal area increment of fertilized and thinned trees was up double that of unfertilized and thinned trees.

Trials aimed at improving establishment techniques for *P. radiata* in the south coast sharefarming areas were established.

Utilisation

Pine posts must be dried to about 30 per cent moisture content before treatment with copper-chrome-arsenic preservative. Kiln drying schedules were tested to find one which dries logs quickly with little degrade.

Rehabilitation Program

Work undertaken with the Water Authority of W.A. has shown that some forest tree species from the Eastern States combine good water use potential with pulpwood production potential. This opens the possibility of developing commercially attractive tree cropping practices for farmland in the greater than 600mm rainfall area of the South-West. The increased water use under such tree crops would improve stream water quality in areas affected by salinity and phosphate pollution. The need for non-commercial treatments could, therefore, be greatly reduced at considerable cost saving to the State.

This development is of such potential value that the Department has adapted its forestry sharefarming scheme to undertake some 2000 ha of planting of *Eucalyptus globulus* (Tasmanian bluegum) on farms during winter 1988. A grant has been obtained under the Federal National Afforestation Program to develop the technical aspects of the integration of tree cropping into farming systems. The Government is undertaking a detailed feasibility study for a major pulpwood industry to be based on farm plantings.

The rapid development of this proposal has also increased the scope for application of recent research into tree planting on farms, especially agroforestry and genetic improvement of potential pulpwood species.

Wetlands and Waterbirds

Members of the wetlands and waterbirds program have continued to devote a large proportion of their time to management problems (for example, midge control on Perth's wetlands, monitoring pesticide levels at Herdsman Lake) and to giving advice to a host of outside organisations. Major achievements for the year include:

- A list of wetlands to be nominated as Wetlands of International Importance was finalized.
- A joint CALM-RAOU expedition to Lake MacLeod and Shark Bay counted 150 000 waterbirds of 62 species in September-October 1987. A similar expedition to the lower Fitzroy, lower Ord and Lake Gregory in May 1988 found 100 200 waterbirds of 69 species. These wetlands have now been demonstrated to be of international importance.

- A study of the relative conservation importance of different habitats at Leschenault Inlet was undertaken to help plan environmentally sound mosquito control.
- The analysis, funded by the Australian National Parks and Wildlife Service, of duck-banding data collected by the former Department of Fisheries and Fauna was completed and is being prepared for publication.
- A paper describing the breeding seasons of waterbirds in south-western Australia (using data from the Royal Australasian Ornithologists Union waterbird survey) has been submitted for publication.
- Methods of wetland classification, inventory and trends analysis were studied in Canada and the US.
- The Midge Research Steering Committee, with representation from State and Local Government and under Departmental chairmanship, was formed. Research into more effective and more environmentally acceptable methods of midge nuisance control was funded to \$60,000. This is a three year program.
- The third annual assessment of waterfowl (ducks, swans and coots) in south-western Australia was jointly undertaken by the Department and the RAOU in March 1988. More than 1300 wetlands were surveyed by 213 observers. The number of waterfowl counted (226 500) was 10 per cent lower than in 1987.
- The great importance of Wonnerup and Vasse Estuaries for waterbirds was confirmed, with surveys in January 1988 producing a further 29 900 birds of 43 species.

Research Computing

Data Management

Owing to training courses, officers have become much more proficient in the organisation and capture of their data. This has facilitated data management considerably. Computers have become indispensable tools in managing and analysing the vast quantities of information produced by research.

Training

A number of courses in database, spreadsheet and statistical softwares were presented. These have increased the computer literacy of research staff and have saved thousands of dollars because training has been in-house.

Information Dissemination

Hardware and software integration has provided staff with the ability to collate and consolidate information electronically and present it in graphical and textual form. Also, the Research Division has recently acquired desktop publishing facilities. This has significantly increased the professionalism of publications and alleviated production bottlenecks.

Field Data Capture

Research staff have become more proficient in the use of data loggers, laptops and portable computers, resulting in more efficient usage of computers in the field. The amount and quality of data collected, have therefore increased.

SERVICES

Computing Branch

SEVERAL vacancies were filled during the year, greatly increasing support of specialised computing areas.

Two consultants from Arthur Young and Associates carried out a review of the Department's information management requirements, and a Corporate Data Model and a Strategic Information Plan were produced. This included a significant review of the staffing, hardware and software strategies in the Department. As a result, increased resources were made available to the Branch and major initiatives to improve information management were commenced.

Systems

A wages payment and costing system was installed on the Department's computer reducing the time taken to pay employees' wages each fortnight, and then job cost the payments.

The payroll system has also been adapted to cost salaries to jobs, which will provide staff information to the Policy Directorate for improved management of the Department's resources. It will also allow initial steps to be taken toward program accounting.

The preparation of documents by district staff for the costing of vehicles and plant has also been simplified.

A computer system to process, store, renew and print all licences issued by the Department was developed. The system has also been designed to process returns from kangaroo shooters, and to accurately monitor all aspects of the industry. It also provides information to research staff allowing determination of the status of the State's kangaroo population. This information is used to determine the annual cull rates.

An information retrieval program is being used to store and retrieve Parliamentary questions referred to this Department and the answers. This will greatly reduce the search time to find previous questions and answers for cross-referencing.

The Hardwood Logging System was upgraded during the year to calculate prices, provide improved statistics and management reports and automate audit controls. The system was also changed to process contractor payments and monitor performance so that the Timber Strategy could be implemented sooner.

A small system was provided to store the cost history for all properties in the Softwood Sharefarming Scheme. This will be used for cost projections and economic analysis of the scheme.

A staff member was assigned to the maintenance of computer systems, reducing the number of outstanding requests. This also allowed the improvement of several old systems to meet current requirements more adequately.

Hardware

The Department increased its computer power significantly during the year by the purchase of two new computers and additional micro-computers.

Computer mapping has been done for many years externally, but following the purchase of a small Intergraph Vax Computer this work is being integrated and processed within the Department. This new computer is being used for the analysis of maps and land related data to provide information to senior management for strategic planning and policy decisions. It is also being used for scientific work including graphics.

The Department's Concurrent 3240 computer was replaced by a model 3280 computer with more than double the power. This change was needed to process the new systems being developed.

Forty-three micro-computers for word processing in district offices, data storage and analysis in the Research Division and some special computing tasks were purchased.

Eight of these machines are part of a desktop publishing system used to prepare a range of documents and brochures.

The Department's computer data network was extended during the year. All regional offices throughout the State are now connected to the Department's computers and have available the full range of automated procedures.

Economics Branch

Hardwood and Softwood Sharefarming Schemes

A Hardwood Sharefarming Scheme developed along the same principle as the Softwood Sharefarming Scheme which involves joint ventures between the State Government and landowners, has been introduced.

Payments were calculated for a number of properties offered to the Department for Hardwood and Softwood Sharefarming and contracts were negotiated with landowners. Full details of 1987 plantings appear in the Land Management Section of this Report.

Softwood Plantations

An analysis of the State Government's existing softwood resources to determine their value and to formulate guidelines for future development and management has started.

Hardwood Forestry

Sandalwood and karri timber production regimes were analysed. Some planning was undertaken with regard to the Department's nurseries at Hamel and Manjimup.

Management Unit Costs

The monitoring of unit costs incurred by each district, which will assist management control and the determination of efficient work techniques, has started.

Public Interest Project Modelling

Supervision and assistance was given to develop a model for the State's hardwood processing industry. This work is part of a Public Interest Project, funded jointly by local industry and the Commonwealth and State Governments.

Non-Wood Economics

Royalty calculations were initiated for wildflowers and seed collected from Crown land. A report on the emu industry was reviewed and several recreational reserves valued. There was also some participation in the Social Research Project (visitor statistics).

Other

Other work included a review of the Department's accounts system and assistance to external agencies including the Water Authority.

Engineering Services Branch

Fleet Management and Workshops

The Department maintained the standard of its vehicle fleet with 198 new replacement and fourteen additional vehicles were put into service.

Included in the replacements were three heavy duty 4x4 fire trucks and three 4x4 Gang Trucks, plus two rubber tyred loaders.

The current vehicle and plant fleet consists of 892 vehicles.

The operating costs of the fleet declined in real terms when corrected for the additional fortnightly costing period in 1987/88. This continuing trend reflects the Department's sound fleet management practices.

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. A total of 30 tradespersons and 11 engineering trades apprentices are employed in Departmental workshops.

Housing and Building

A works program costing about \$850 000 was completed. Major work included the construction of a house at Milyering in the Cape Range National Park, and the completion of work at Hamersley and Millstream National Parks.

Contracts for the Milyering Bicentennial Visitor Centre and associated support buildings to serve Ningaloo Marine Park, were let on the Department's behalf by the Building Management Authority. This Australian Bicentennial project was nearing completion at 30 June 1988.

Investigation and preparation of briefs for future works continued. Notable among those was the planning for the Narrogin Regional and District offices and building developments at Como and Woodvale.

Development of an asset register continued.

Stores

The Stores Management System was maintained throughout the financial year.

14,519 issues, 749 receipts and 107 credits went through the Stores Section during the year. The Herbarium publications were received in March from the Department of Agriculture, increasing the value of stock to more than \$1,000,000.

At the close of the financial year stock had been reduced to an asset value of \$900,000. 1411 stock lines are held comprising 595 publications, 370 stationery items and 446 forms.

An information and co-ordination service was maintained in relation to product source and supply, disposal matters, transport, materials handling and inventory control.

Consulting Services

A Mechanical Engineering consulting service was provided to set up and maintain equipment for the softwood and hardwood planting schemes.

Assistance was also provided on various other Departmental activities including nursery operations and pine pruning programs, the upgrading of the Penguin Island power supply and more efficient power supplies at Hamersley and Millstream-Chichester National Parks.

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

Environmental Protection Branch

Dieback Disease

Mapping of dieback in forest districts for planning road access, logging, mining and recreation facility development operations continued.

Several national parks and nature reserves were surveyed and mapped by dieback interpreters.

Liaison with regions, districts and industry on the implementation of hygiene controls for dieback disease management, was maintained.

Armillaria luteobubalina infections have been noted in forests and some national parks.

Mining

In February, the Government announced its policy on exploration and mining in national parks and nature reserves. Legislative changes are being drafted by the Department of Mines. To date, there have not been any applications to "open" areas for exploration.

Standard conditions for exploration and mining on various tenures of land have been negotiated with the Department of Mines.

A number of tenement applications were dealt with. The current backlog is partly due to the moratorium which existed while Government policy on exploration and mining was being developed. Other tenements were delayed while standard conditions were being negotiated and procedures for monitoring field operations and for enforcement were being established.

Referrals Under Section 24 of Mining Act

	Opposed		Recommended		Pending	
	Exploration Prospecting	Mining	Exploration Prospecting	Mining	Exploration Prospecting	Mining
National Park and Nature Reserves	0	0	0	0	92	9
State Forest and other Land Tenures	1	0	4	10	65	25

The Branch was heavily involved with the Petroleum Branch of the Mines Department and industry, inspecting operations (Barrow, Airlie, Thevenard Islands), preparing leases (Airlie, Thevenard), evaluating environmental reports (Varanus, Thevenard, Airlie) and assessing exploration proposals (Cape Range).

A number of projects were reviewed to determine their environmental impact. These were for the Hedges gold, Cooljarloo mineral sands, Channar iron ore, Rudall River uranium exploration, Kaltails gold projects. Field inspections were carried out to ensure compliance with conditions, and staff were trained.

Compensation is now an integral part of conditions on mining tenements or new Agreement Acts. More than \$1.3 million was raised from this source and allocated towards the cost of purchasing land for conservation or timber production.

The Branch worked closely with the Mines Department and the Environmental Protection Authority. It represented the Department on a number of working groups - for example, extractive industries, petroleum seismic surveys, mining and management planning.

Weeds

The Department's weed control policy was implemented within budget constraints. Liaison was maintained with the Agriculture Protection Board (A.P.B.), its regional advisory committees, and zone control authorities. These committees expressed some concern at the reduced level of funding for blackberry control in the South-west. During 1987/88, \$224,721 was spent on weed control programs in the forest districts, which was 8.9 per cent more than 1986/87.

In Porongurup National Park good progress is being made in controlling all blackberry infections by herbicide spraying. A re-introduction of the blackberry rust was made for biological control.

At Millstream-Chichester National Park approximately 1,000 mature date palms were removed from Deep Reach, Crossing Pool and the delta areas. Parkinsonia (a prickly tree indigenous to Central America) outbreaks were also sprayed.

Rare Flora

A policy and guidelines on rare flora management were issued. District registers for recording the location and extent of rare flora populations were updated, and the results of new surveys were incorporated.

In the Wheatbelt Region, in particular, co-operation by landowners has enabled some populations of rare flora on private property to be fenced with assistance from the Department. During the year, 14 populations were fenced at a cost of \$7,470.

Feral Animals

Guidelines for control of feral animals were issued.

In conjunction with the A.P.B., aerial shooting from a helicopter was conducted to remove the following feral animals from conservation lands in the Kimberley and Pilbara Regions:-

In Cape Range National Park approximately 800 feral goats were removed with assistance from the W.A. Field and Game Association.

	Horses	Donkeys	Cattle	Camels
Bungle Bungle National Park	—	1 500	759	4
Hamersley Range National Park	77	—	—	—
Barlee Range National Park	—	83	—	—

Baiting programs to protect turtle breeding beaches in Cape Range National Park, and to reduce predation on rock wallabies were also carried out. Liaison was maintained with the A.P.B. to prepare baits to appropriate specifications and minimise the impact on other animals.

Feral pigs were trapped from forest districts, mainly near Mundaring, and pig organs were supplied to Murdoch University for hydatids testing. Pamphlets on hydatids prepared by the Health Department were distributed to the public from district offices to warn of the potential risk to human health of illegal pig hunting with dogs.

Insects

A training seminar was conducted for staff and the public involved in pine forest management, on Ips and Sirex insect recognition and control strategies.

Further release of insect predators and parasitoids of Ips were made to consolidate biological control of this pest.

A prescription for implementing a program for monitoring for the introduction of Sirex to Western Australian pine forests was prepared, and also a contingency plan which details the control actions which will need to be implemented immediately should Sirex be detected. This pre-planning will ensure that we are in the best possible position to minimise the economic impact of Sirex should it inadvertently be introduced into the State's pine forests. The impact of jarrah leaf miner and gum leaf skeletoniser on the jarrah forest was monitored. Liaison is being maintained with Research Division on investigations of management treatments which might minimise the impact of these insect pests on the health and vigour of the jarrah forest.

Water Erosion and Salinity

Remedial drainage works on a nature reserve in Toodyay Shire were carried out.

The recommendations made in the final report by the Northern Arthur River Wetlands Committee on Lake Toolibin have been implemented. A test bore has been established in a saline section of the Lake, with a pump drawing saline ground water out to lower the water table. This discharge water is being piped six kilometres and into an already saline lake system.

A proposal to drain run-off water from adjoining farmland into Welsh Nature Reserve east of Narembeen, was opposed by the Department because the consequent detrimental effects on the reserve would be substantial, and alternatives involving earthworks on the private property are possible to achieve amelioration of the problem.

Fire Protection Branch

Plans

The Fire Protection Branch provided information for the development of draft fire management plans and interim guidelines for necessary operations for 11 national parks, and eight nature reserves. Seven of these plans have been approved and the remaining 12 are in various stages of preparation and approval. Fire control working plans for fire emergency preparedness have been reviewed and approved for all forest districts and south-western regions.

Services

The following services have been provided to districts and regions:

- Detection - Nine aircraft were employed on fire surveillance duties at six bases in the South-west. 7677 hours of aerial surveillance were flown at a cost of \$75 a flying hour. 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 during the fire season at a cost of \$48,300. This service included regular daily forecasts for 11 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. 580 hours were flown and 126 burns covering 222,747 ha were undertaken. Further details are in Appendix 9.
- Computer services - Daily weather and fire behaviour forecasts were entered into the Department's computer to assist district staff during the fire season.
- Information system - Statistics and other reference material on fire control topics were compiled and micro-filmed by the Branch. These are in increasing demand by Departmental users and the public. Fire reports received from all centres over the past three years have been entered onto a computer file. Reports from as far back as the 1960s will gradually be included also.

Training and Accreditation

A series of fire management related courses and workshops for Departmental staff as well as for representatives of other fire combat and support organisations was conducted. The courses conducted included:

2 Fire Weather Courses	Aug/Sep 1987	61 participants
5 Large Fire Organization Workshops for Regions	Nov-Dec 1987	120 participants
1 Navigators/Incendiary Machine Operators Course	Sept 1987	16 participants
1 Level 1 Fire Management Course	June 1988	30 participants
4 Structural Fire Sessions	Various	130 participants
8 Radio Communications Sessions	All Districts	150 participants

The Bureau of Meteorology provided two meteorologists for the technical lectures on the fire weather courses. Accreditation of senior staff engaged in fire suppression operations has taken place at Departmental, regional and district level. The accreditation system is based on past training, experience and performance, and is designed to ensure that the appropriate staff are allocated to the key fire control roles, and to ensure that weaknesses and training needs are identified and resolved.

Research and Development

The Branch has been responsible for the design, development, testing and implementation of a range of fire systems, facilities, equipment and publications. Of particular interest are:

A vehicle has been modified and equipped for use as a control centre at very large fires, or at fires involving a number of other fire organisations. The nine metre caravan is equipped with communications, mapping, recording and other administrative facilities, and will be used in conjunction with each of the districts' control point vans.

Two new aerial ignition incendiary machines were designed and constructed for prescribed burning operations. One machine was purchased by the Bush Fires Board for use throughout Western Australia particularly in the Kimberley and South Coast Regions.

A system of recording and monitoring the status of all fire suppression resources at large fires was developed and introduced to all forest districts and south-western regions. This Fire Resources Recording System (FRRS) was adapted from a similar system developed by the Department of Conservation, Forests and Lands, in Victoria.

A number of training booklets outlining operational guidelines have been revised and distributed. These include Safety in Fire Control, Fire Suppression Organisation Booklet, and a Draft Fire Management Manual. A pine fire training manual has been written in conjunction with the Bush Fires Board for use by bush fire brigades in the softwood sharefarming areas.

Equipment

The Branch is responsible for the testing, purchase and manufacture of the Department's fire equipment, including pumps, tools, hoses and consumable items. A summary of the Department's fire fighting equipment and its locations is given in Appendix 10.

Suppression of Wildfires

362 wildfires were attended by the Department during 1987/88. Of these 279 were in the south-west forests while 83 were outside the forest regions.

Weather conditions were extremely dry from early spring to late autumn and the length of the fire season was one of the longest on record. Owing to the very dry conditions, fires burned with higher intensity and were much more difficult to control.

127 wildfires in State hardwood forests burned 11,134 ha, which is higher than the ten-year average of 120 fires with over 6,245 ha burnt.

14,000 ha of the Kalbarri National Park was burnt. The fire was started by lightning strikes and burned for two days before being brought under control. Another large fire, also caused by lightning, occurred in the Shannon Park and d'Entrecasteaux National Park. This fire burned 19,400 ha and threatened the settlement at the mouth of the Donnelly River. Owing to the inaccessible nature of the country it took several days to control. For the first time a helicopter was used on this fire to move people and equipment, and for patrol and reconnaissance work.

In addition there were 35 fires in Departmental pine forests covering 230 ha. Two deliberately lit fires destroyed 217 ha of pine forest at Nannup which was valued at more than \$750,000. Much of the fire-killed pine has been successfully salvaged.

141 fires were deliberately lit which represents about 39 percent of total causes and cost more than \$200,000 to put out. Damage to timber values alone exceeded \$1 million. These fires are a concern to the Department and the combined efforts of all fire control and policing organisations will be required to reduce the incidence.

Details of all wildfires are given in Appendix 11.

Liaison

The Branch continues to represent the Department on the Bush Fires Board and on the State Counter Disaster Advisory Committee. In addition training sessions have been provided at courses held by the Bush Fires Board, State Emergency Service and the Australian Counter Disaster College.

The Department hosted a number of international and interstate groups of fire controllers, researchers and senior administrators. These included:

- The Fire Control Officer Group which includes the chief fire control representative from each Australian State land management agency. This group is sponsored by and reports to the Australian Forestry Council.
- Five Asian and two African foresters studying fire control throughout Australia spent one week in WA in November 1987. This group was sponsored by the Food and Agricultural Organisation (F.A.O.) of the United Nations.

- Six U.S. and Canadian fire control foresters who visited Western Australia for one week in February 1988 as part of an exchange program between the three nations. A group of four foresters and researchers from the Chinese People's Republic who inspected fire management and forest operations in May 1988.

Human Resources Branch

Staff

The staff establishment figure for the Department, expressed in full time equivalents, was 1 424.25 as at 30 June 1988.

A summary of personnel employed by division, branch, region and district is provided in Appendix 12.

During the year there were:

- 51 new appointments
- 2 appointments made permanent
- 5 retirements
- 3 resignation
- 16 reclassifications and
- 26 promotions.

Further details are provided in Appendix 13.

Industrial Relations

Work continued on the achievement of equitable, consistent and compatible working conditions and industrial arrangements for various groups within the Department, and was given high priority.

Broadbanding of the CALM Act field staff classifications was completed during the year.

A 4 per cent Second Tier productivity claim was successfully negotiated for all officers with industrial coverage provided by the Civil Service Association.

A 4 per cent Second Tier productivity claim was developed for all wages personnel in the Department, who are covered by other unions. The claim on behalf of the Australian Workers' Union and the Miscellaneous Workers' Union has been ratified. There are outstanding matters awaiting hearings on behalf of the engineering trades and other occupational groups covered by the Miscellaneous Workers' Union.

The Commuted Overtime Award for Wildlife Officers was re-negotiated although the date of commencement has yet to be determined

Training

To meet the demand resulting from changes in procedures, equipment, and roles, training courses were conducted by both experienced Departmental personnel and external training agencies.

New inservice training programs have been developed for the Certificate in National Park Management course, which is conducted by TAFE and is registered with the Western

Australian Council for Tertiary Awards (WACTA). These are short duration courses (2 to 3 days) and include search and resource techniques, driver training, work safety, and basic chainsaw maintenance and handling. Participants are required to meet a minimum level of knowledge or skill before being credited as having met the course objectives.

Training courses have been conducted in various regions, to improve access to the Departmental training program.

During the year, a new approach to training and education for all Departmental personnel was developed and approved by the Policy Directorate. Designed to replace the previous promotional exam system, it is to be applied to all jobs within the Department, and to give individuals greater scope to acquire new knowledge and skills in the course of their work. The objectives of this new system are to:

- ensure effective, efficient and equitable training and education programs,
- ensure training and educational needs are carefully linked to the performance review and career development system, and
- maximise productivity, satisfaction and motivation of all personnel.

This new approach is currently being developed for the field staff - operations job grouping, and has already been applied to forest district managers.

During the year a training course in performance management was conducted, and it is intended that further training will be continued by those who attended. The objective is that supervisors will be better prepared to conduct performance appraisals.

The annual Training and Development Manual was expanded, reflecting the changing roles of Departmental personnel and is now published on a calendar-year basis.

Field Cadets

Ten cadets who successfully completed their two years of training in December 1987 received their Certificate in Conservation and Land Management at a graduation ceremony on 22 April 1988. The ceremony was held at the Bunbury Regional Headquarters and the Certificates were presented by the Hon. B. J. Hodge, Minister for Conservation and Land Management. The graduates were appointed Forest Rangers on 11 January 1988; four were posted to the Northern Forest Region, two to the Central Forest Region and one each to the Southern Forest Region, the South Coast, the Wheatbelt and the Goldfields. The Keynes Memorial Prize was awarded to Geoff Rolland and the Executive Director's Prize to Wayne Burton.

Eleven cadets successfully completed the first year of their training at the Bunbury Institute of Advanced Education in November 1987. They and three others commenced the second year of the course at the Dwellingup Cadet School. The inclusions were the recipient of the Executive Director's Scholarship, an overseer from Hamel Nursery and a previously unsuccessful first year cadet who later qualified.

The second year syllabus is under continuous review and a significant inclusion was a four day training program in marine park management. Traditional working periods at pine districts continue to provide opportunities for cadets to witness and participate in activities necessary for their development, as do the opportunities provided by the work experience with wildlife officers and the 'camps' in the Southern Forest Region.

A new group of thirteen first year cadets, selected from 173 candidates in January 1988, commenced their course at the Bunbury Institute of Advanced Education in February 1988. This group included one whose training is being financed by W.A. Chip and Pulp Pty Ltd. On successful completion of the two year cadetship he will be eligible for appointment to the company.

Traineeships

Developed as a joint Commonwealth/State initiative, the Australian Traineeship System (ATS) provides eligible young people 12 months structured training, both on and off-the-job. 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.

In early 1988, 51 young people were welcomed into the Department in three intakes. The 35 office/clerical and 16 land management trainees, are working to an improved program refined as a result of experience with previous intakes. The Department also is training two technology trainees.

In June 1988, an Aboriginal office/clerical trainee graduated following on-the-job training in Wildlife Protection Branch, Mount Pleasant. He now works for the Department of Premier.

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

Occupational Health, Safety and Welfare

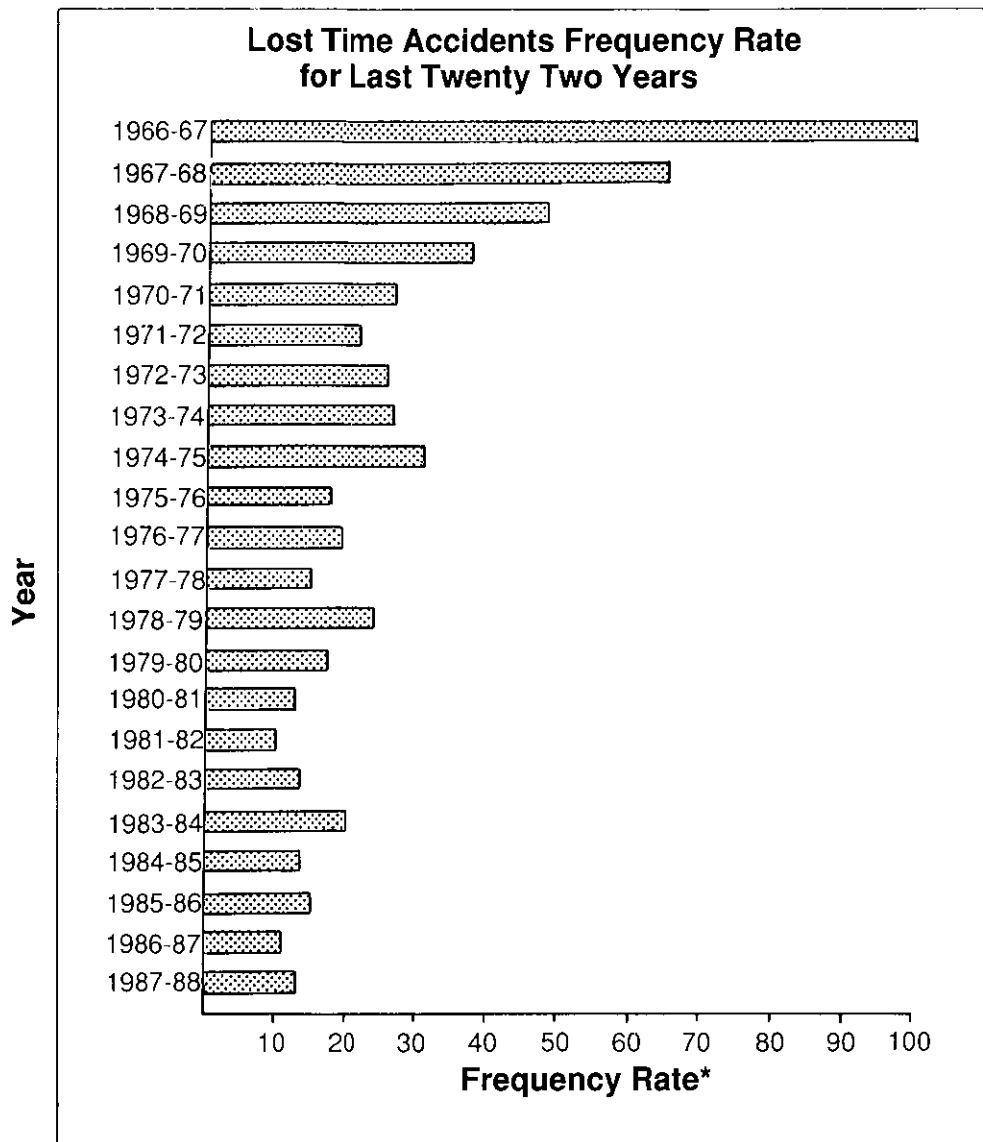
The all accident frequency rate for 1987/88 is the lowest annual rate ever recorded in the history of this Department's occupational health, safety and welfare program which extends over nearly 30 years. Details are shown in Appendix 14.

Accident prevention activities during the year included:

- 5 two-day safety training schools for 103 personnel
- 24 three-day schools for 230 St. John's First Aid attendants
- 1 four-day firearm school for 18 staff
- 307 personnel were audiometrically tested
- 103 personnel were inducted in the correct methods in manual handling
- 1 person was awarded Allegator Club membership by having his legs saved from serious injury when wearing safety trousers during chainsaw operations.

A large number of groups and districts participated in the Industrial Foundation for Accident Prevention/FAI Insurance Safeway 87 Achievement awards and 82 were successful in achieving their nominated targets. 120 companies throughout Western Australia entered this program and this Department achieved the outstanding result of having the third highest number of successful units.

Under the banner of the CALM Fit program, a team competition called the "Tabloid Olympics" was held at Como during Spring of 1987 and Autumn of 1988. One lunch period was set aside each week for sixteen weeks and eleven teams of five members each competed in a variety of different sporting and novelty activities.



Information Branch

Advisory Services

The strong demand for information on tree species selection, establishment, and regeneration and maintenance of vegetation in the wheatbelt areas and on CALM lands was serviced by three specialist officers based at Como, Narrogin and Geraldton. There was an increase in demand from shires outside the wheatbelt areas. The growing concern about land degradation (salinity, wind erosion) in rural areas added to requests for species selection and establishment techniques from farmers, Department of Agriculture officers and our own Departmental officers.

To cope most effectively with the heavy demands for information there was emphasis on field days and farm demonstrations, as well as individual visits.

The increase in tree planting on farms has resulted in a heavy demand for seedling trees, and schools, shires and farmers are establishing small nurseries in response. Advice on species propagation techniques and hygiene management was provided by the advisory officers. These small nurseries were encouraged to raise a large proportion of their output as indigenous species and instructed in seed collection, extraction and germination techniques.

A training school was conducted at Busselton for Departmental field staff, to spread the expertise available to the public. Twenty officers attended plus four from Greening Australia (W.A.).

Community Education and Interpretation Section

The Community Education and Interpretation Section was consolidated with the appointment of an Interpretation Officer as Section co-ordinator on a permanent basis. A Regional Information Officer was placed in the Northern Forest Region. The initial two year secondment of a teacher from the Ministry for Education as Education Officer was completed, and a new appointment made. A displays production unit was established within the Section.

The Community Education and Interpretation Policy was approved by the Policy Directorate and was included, along with other policies, in the "Strategy for Conservation and Recreation on CALM Lands in W.A."

Training of Departmental staff in public communication techniques continued with further involvement with Recreation and Landscape Branch conducting recreation management workshops. A statewide program was completed with workshops for Gascoyne, South Coast, Goldfields and Wheatbelt Regions. Interpretive activities workshops were held at Dryandra and Yanchep for staff involved with public contact programs. The Perup Field Ecology, Expedition Skills and Earth Education Courses were once again successfully promoted by the Department for staff, teachers and group leaders.

Consultation with the regions and branches, and with other Government departments, authorities and private organisations and community groups has continued, with demands on the Section having increased substantially.

The production of six new Resource Notes and the reprinting of the other 13 has expanded this series of information sheets for students and teachers.

The publication of the Granite Outcrops - Living Rocks educational poster has set the standard for proposed series on the natural systems of Western Australia.

A major task for 1987/88 was the production of many displays for both on-site interpretation and off-site promotion.

- 13 standard information shelters and 2 large shelters installed in parks and forests
- 12 displays for CALM offices, and special events, including Holiday Australia Expo, Health and Fitness Expo, release of forest management plans, declaration of Ningaloo Marine Park, and opening of Underwater World (Marmion Marine Park)
- large scale display projects for Milyering Bicentennial Visitor Centre, Walpole Tourist Centre and Manjimup Timber Park
- As part of the Bicentennial Heritage Trails Network, 19 projects are under way for CALM lands, usually consisting of signage and brochures. Two books were in

preparation. These will substantially increase the facilities and materials available for CALM's visitors.

- Videos were produced for the Ningaloo Marine Park and to promote personal safety and environmental care in bushwalking. Production was under way for the interactive video project for the Milyering Bicentennial Visitor Centre for Cape Range National Park and Ningaloo Marine Park.
- The public awareness campaign about the dangers of crocodile attacks was enhanced with the production and dissemination of warning signs, drinks coasters, and a community service television announcement. Assistance was given to the ABC in the production of a special 'Earthwatch' program on land management in Western Australia.

Public Participation

A trend continued to the Departmental regions, districts and Planning Branch taking responsibility for public consultation and volunteer involvement. The Branch continued its co-ordination role and the development of a database in support of the program and consulting on strategies and techniques.

The Department hosts a repertoire of advisory and consultative committees, particularly where contentious planning issues need resolution or management plans are in preparation. There has been an increase in the use of volunteers in projects. For instance, visitor guidance and information at Penguin Island last summer, was very successfully conducted by voluntary guides, all with knowledge and concern about conserving the island habitat.

Public Enquiries

As a measure of the growing public identity of the Department, the number of written and verbal enquiries continued to grow rapidly and often exceeded the capacity of the two receptionists. Specific campaigns, such as firewood collection from designated areas in State forest, resulted in several hundred calls over a three day period. Back up assistance was provided through allocation of two trainees to this area.

Publications

During 1987/88 139 publications titles were published and they are listed in Appendix 15. A significant proportion of publishing was revision and reprinting of existing brochures, the inevitable outcome from the previous growth in publications output.

A major goal for the year was to consolidate publications marketing and sales. Revenue was \$191 000, an increase of \$71 000 from 1986/87 and \$41 000 more than the budget.

Landscape subscriptions and sales increased to about 7 500, and the magazine continued to get high praise from its recipients.

Large publishing jobs included the forest regions' management plans, timber, and conservation and recreation strategies, and preparation of a recreation guide to the South-west and South Coast of the State.

In its first full year of application, the desktop publishing computer system allowed for revolutionary changes in publication production. Text entry and editing is far less labour intensive, production time has been reduced, presentation of documents has improved, and costs of reports reduced.

Inventory Branch

Forest Resource Management

A new extensive inventory of the jarrah forest began in January 1988. The project is of high Departmental priority with a requirement to complete 1.25 million hectares of forest by 1992.

In the initial photography phase 400,000 ha of forest were covered, mainly in the Central Forest Region. Approximately 8,000 stereoscopic photo-plots were produced from computer controlled cameras on a helicopter, making use of a satellite navigation system. This enabled the location of the photo-plots to be accurately determined. The interpretation of the photo-plots has been evaluated and will be undertaken in the latter half of 1988. By 30 June 1988, 500 of the plots had been measured on the ground and preliminary analysis to produce estimates of gross bole volume carried out.

In the Northern Forest Region 2,000 ha of native forests were sampled and yield estimates derived for the preparation of logging plans. Assessments of minor forest products provided estimates for posts, rails, strainers, domestic firewood and small jarrah sawlogs suitable for joinery wood. Within Dwellingup district information obtained from these assessments was used when the forest produce within proposed bauxite mining pits was sold by tender. In the Central Forest Region assessment of all forest products on private property subject to possible purchase or land exchange, was carried out.

In the Jarrahdale district seedling and lignotuber growth was measured on 74 plots previously established to monitor the success of jarrah forest regeneration. Havel vegetation classification has been determined on 192 permanent increment plots throughout the Northern Forest Region. In the Central Forest Region 16 new increment plots were established while in the Southern Forest Region 77 plots were remeasured to monitor growth in karri regrowth forest.

In the Central Forest Region pine forests 110 plots were remeasured to monitor the Department's fertiliser program, while 29 plots were measured to determine the growth differences between fuel reduced buffers and normal plantation tending regimes. Fifty three plots were remeasured to monitor the response to silviculture treatment. About 1,500 ha of pine forests throughout the three forest regions were routinely sampled to update resource information.

Operational Control

Vertical 70mm photography was used to map the boundaries of logging and regeneration operations in both hardwood and pine forests. This information, together with other commercial and tending operation details, was incorporated in regional Hardwood and Pine Operations Control Systems (HOCS and POCS). A major review of POCS has been carried out in the Central Forest Region.

The Inventory Branch updated and maintained the computerised Hardwood Logging System within each Forest Region, providing training for district staff as required.

In the Southern Forest Region, 73 loads of karri sawlogs were measured and analysed for the establishment and monitoring of weight-volume conversion factors for karri sawlog products. Weight scaling for jarrah sawlogs was introduced with measurements taken at a sawmill in the Busselton district.

Land Classification

In the Northern Forest Region vegetation types were mapped in conjunction with dieback interpretations, where required for the planning of hardwood logging operations.

Disease Management

230 mm format aerial photography covering 31,000 ha of State forest was acquired from the Department of Land Administration. Hygiene maps covering 16,500 ha were produced following photo interpretation, while dieback-free maps covering 10,000 ha were produced from ground survey. Interpreters mapped dieback occurrence within 12 nature reserves and 10 national parks. An impact map was produced for the walk trail from Cape Leeuwin to Augusta through the Leeuwin-Naturaliste National Park. Over 1,200 km of roads were surveyed for the presence or absence of dieback disease.

Inventory staff supported districts in matters of dieback hygiene and demarcation, and staff training. Missions ranged from inspection of proposed mining areas to a survey of potential environmental impact on the World Rally route through State forest.

Operational Planning

In both the Northern and Central Forest Regions detailed two year plans have been prepared and five year rolling plans updated for hardwood logging and regeneration operations. The equivalent plans in the Southern Forest Region cover one and four year periods. Annual plans for softwood logging operations in both the Northern and Central Forest Regions were prepared.

Relevant resource data was provided for inclusion in the Department's Strategy for Timber Production.

Information Systems

The old Forest Management Information System (FMIS) was decommissioned. It has been replaced by a more powerful system of the same name which runs on the Department's new Inter Vax computer. It has links with the Intergraph and ESRI geographic systems.

The Intergraph system was used to produce the maps supporting the management plans for the three forest regions. With the growing recognition of the potential of computerised mapping, the Intergraph system is now being used to capacity producing high quality maps for a variety of special projects.

At regional offices micro-computer systems have been developed to manage administrative and forest resource data projects.

General Services

The branch responded to parliamentary, public and departmental enquiries during the year.

Aerial photography missions for projects such as monitoring fire and drought effect, recreation site planning, forest visitor survey and silviculture and reserve management were completed.

Library Section

The Library catalogued 497 books, of which 163 were processed for the new Library Resource Centre at Como, while 542 older books were recatalogued onto the micro-computer database. Book loans from the main library at Woodvale totalled approximately 3,500, while inter-library loans totalled 875 (inwards) and 153 (outwards). Loans have diminished since 1986/87; the ordinary loan figure cannot be determined, but inter-library loans were 1,101 (inwards) and 279 (outwards) in 1986/87.

Journal articles photocopied as a result of Departmental requests following current awareness information in the Library's monthly publication "CALM Alert" totalled 2,830.

Library services to the State Operations Headquarters at Como have been enhanced by the provision of a Library Resource Centre office in the Information Branch, as from January, and although the collection of books, journals, films and videos is rudimentary, the foundations have been established. A good coloured slide collection and an extensive collection of historical photographs have been incorporated into the Library Resource Centre, which also receives journals acquired at Woodvale the previous week for display for one week.

These journals are then displayed at the Head Office library at Crawley, before being displayed at Woodvale. However, the journal display was the only improvement in library services at Head Office, which needs a much better service than it has been possible to provide, as yet.

The Librarian visited the Manjimup, Narrogin, Dwellingup and Bunbury offices and also the Departmental offices in Canning Bridge and Kelmscott.

Regional cooperation has been achieved in Bunbury between the Department of Agriculture and Conservation and Land Management libraries, with mutual user rights being recognised and the same qualified librarian working part-time in both libraries. It is hoped that the cooperation can be extended by the joint use of future computer facilities and exploratory discussions between library and computer personnel have given cause for optimism in this very important aspect of library service.

Given the smooth transfer of administrative responsibility for the Herbarium from the Department of Agriculture and the willing cooperation which has been displayed by the library staff in both Departments, the groundwork is being laid for an integrated and mutually beneficial library service.

The manifold problems of effective library services were addressed in the Library Strategic Plan, which was accepted by the Library Committee as a guide to future development. Apart from staffing and funding concerns, the issues were the future computer system, retrospective cataloguing, the development of the Como Library Resource Centre, the establishment of an SDI (Selective Dissemination of Information) service, the introduction of a standard indexing methodology for the Department, the development of a computerised directory of services relating to individual expertise within the Department, the transfer of Library administrative responsibility from Research Division to Services Division, the future headquarters of the Library and inter-departmental regional cooperation. Some recommendations are already being implemented.

Mapping Section

Map Products

The Mapping Section continued to provide a complete coverage of the Department's estate from available base data. Three 1:50 000 scale forest management maps were revised and printed in colour, and two 1:100 000 scale maps for Darkan and Dinninup were produced.

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

- Aerial surveillance mapping: 1 607 map sheets were revised, and one map screen printed to indicate vegetation clearing.
- Mining compensation mapping: vegetation clearing for bauxite, gold and tin mining were mapped from aerial photography.
- Prescribed burn plans: 87 maps prepared.
- Disease control mapping: 18 maps prepared for dieback impact and hygiene plans, 23 flight indexes of aerial photography for map base data and interpretation purposes were plotted.
- Softwood forests mapping: 20 management maps and 88 soil survey maps prepared.
- Hardwood Operations Control System: 86 base maps prepared.
- Legal mapping: four new tenure maps prepared and 196 revised, six certified maps, 155 apairy sites, 6 tower boards, 5 co-ordination boards, 4 large wall maps, 19 sharefarming agreement maps and 21 lease maps prepared.
- Topographical mapping: eight map sheets prepared at a scale 1:25 000 to forest mapping specifications.
- Project mapping: both thematic (e.g. vegetation) and topographical prepared to meet special project needs.
- Recreation mapping: 20 maps prepared for information brochures and 'Landscape', numerous maps for eight management plans, 45 display panels prepared, 5 maps for scientific bulletins, 32 maps for scientific reports, and 2 maps for national parks.
- Hardwood sharefarming: 40 management maps prepared.
- Vegetation mapping: a portion of the special vegetation mapping of the Kimberley Region (assisted by remote sensing products) was produced - Warrender map sheet, scale 1:100 000.
- A three dimensional relief model was prepared for the Ningaloo Marine Park.
- Three projects required extensive map preparation, these being: Bibbulmun Track (plus Interim copy), "Wild Places, Quite Places" (south-west of W.A.) and the publications associated with the Forest Regional Management Plans.

Operational Changes

Strategies and techniques continue to be modified to meet the developing and increasing map needs, and reduce response time to users.

The new colour design and specification for standard management series mapping has been introduced, and concurrently the Pinjarra map sheet has been extended to full sheet format to provide coverage of the estate abutting the coastal wetlands.

Mapping officers have been further trained to increase their operational competence and awareness of further applications of automated mapping techniques. The use of computer aided methods was increased during the year following the upgrade of the Departmental computer system referred to elsewhere.

To ensure the continuity of mapping services to forest regions, transfers were effected with another department's mapping service to staff two of these regional offices.

The electronic lettering device has proved very beneficial in the reduction of overall times for a majority of products, and to a lesser extent the actual type setting preparation times.

Research into techniques and applications has been extended by a graduate cartographic officer to meet the more complex mapping requirements of users.

Planning Branch

Planning Advice and Liaison

Planning Branch continued to have a major role in liaising with and advising other Government departments and local authorities. For instance staff attended meetings or made comments for the Country Planning Council, the Rural Consultative Committee and the Rural Strategy Advisory Committee all chaired by the State Planning Commission.

Management Plans

The following management plans have been prepared during the year:

Final Management Plans Approved	Date Approved By Minister
Northern Forest Region RMP	14 December 1987
Central Forest Region RMP	14 December 1987
Southern Forest Region RMP	14 December 1987
Benger Swamp Nature Reserve	1 December 1987
Shannon Park and d'Entrecasteaux National Park	2 December 1987
Final Management Plans Being Prepared	
Lane Poole Reserve	
Marmion Marine Park	
Leeuwin-Naturaliste National Park	
Waroona Catchment	
Logue Brook Catchment	
Draft Management Plans Released For Public Comment	
Yanchep National Park	
Ningaloo Marine Park	

Draft Management Plans Being Prepared

Bungle Bungle National Park
Dampier Archipelago
Fitzgerald River National Park
Hamersley Range National Park
Herdsman Lake
Ningaloo Coastal Reserve
Rudall River National Park
Shoalwater Bay Islands
South Coast Region
Two Peoples Bay
Walpole Nornalup National Park

Interdepartmental Planning Studies

The Department was involved in several other planning studies throughout the State in the 1987/88 year. These areas included:

- the State Planning Commission's Peel Region Study. This has involved planning group meetings, public workshops and discussions with the four shires concerned.
- the Kemerton Model Industrial Garden Estate Planning Study with Harvey Shire Council and other Government agencies participating.
- the Burrup Peninsula Planning Study. The committee comprised CALM, Environmental Protection Authority, Department of Regional Development and the North West, the Western Australian Museum, the local shire and local industry.
- the Abrolhos Islands. A report to Cabinet was commenced for the purpose of resolving conflicts between commercial fishing, conservation and tourism. Preparation of the report has included extensive liaison with local industry, local government, and interested members of the public.
- a recreational use of Wellington Dam planning study, in cooperation with various Government agencies.
- the Kimberley Region Study and the Leeuwin-Naturaliste Region Stage 2 Study, with State Planning Commission as the lead agency.

Radio Communications Section

The Department has an extensive radio communication network (1040 radios) providing communication throughout the State between base stations, mobiles, marine and aircraft facilities.

Developments

- The State Operational Headquarters was provided with state-of-the-art console communication facility with up to 24 channels. A Visual Display Unit displays the selected high frequency (H.F.) and very high frequency (V.H.F.) radios connected. The radio console system which has been designed to meet future requirements is currently connected to Wildlife Protection, Fire Protection and Communications Branches.

- During the annual radio maintenance inspection in the Pilbara and Kimberley Regions H.F. base stations were established at Broome and Fitzroy Crossing.
- To improve radio communication in the Esperance District, a radio repeater station was installed at Mt. Burdett. The installation was carried out in conjunction with the Esperance Shire Council and St. John's Ambulance which also have radio equipment at the site.
- The eighth radio channel was introduced to the V.H.F. network to overcome interference problems particularly in the Collie and Manjimup Districts.
- The V.H.F. mobile radios at Harvey District were replaced with new radios which have many new features including simplex and duplex modes and channel scan of up to 60 channels. These features enable effective communications throughout the Department's operations as well as with local authorities and Bush Fires Brigades.
- Mobile Rangers located in remote areas have been provided with upgraded H.F. radios and aerial systems for their caravans. These radios provide the essential communication links for safety and general management needs.
- The V.H.F. repeater station mast at Narrogin was increased in height from 30 to 60 metres to improve V.H.F. radio coverage in the Wheatbelt Region.
- All Departmental vehicles, aircraft and marine craft were checked for wiring and radio installations. In addition, 224 V.H.F. and 50 H.F. new installations were fitted to a wide range of vehicles, caravans and marine craft.

Training

Radio communication operators courses were conducted throughout the Department with more than 150 staff receiving training in VHF and HF radio procedure and operations. Training was extended to the effective use of radios in large fire operations involving other fire fighting organisations.

Recreation and Landscape Branch

Recreation Planning and Design

The Branch provided site assessment and design assistance on more than 40 recreation projects in forests, parks and reserves in 1987/88. Staff also assisted Planning Branch personnel in the preparation of five draft management plans during the year.

Recreation Training

Branch personnel, in association with officers from Information Branch and the Policy Directorate, conducted a further five recreation management workshops for operations staff in Gascoyne - Greenough Region, Wheatbelt Region, South Coast Region, Goldfields Region, and Metropolitan Region.

In addition, Branch officers also conducted a 10 day recreation training program for second year field cadets in conjunction with Southern Forest Region staff and held a one day seminar for the Policy Directorate and other senior staff at Point Walter.

Visitor Data Collection Program

During the year, work was completed on the design of a Department-wide system for collecting, processing and utilising information on visitor use. This entailed:

- assessment of the type and extent of visitor use information which is currently available both within and outside the Department.
- identification of visitor data needs for planning, management, marketing and economic forecasting purposes.
- development of guidelines and procedures for the collection of data from nominated 'baseline' parks, reserves and forest areas.
- field implementation of the visitor data collection program is scheduled to commence in September 1988.

Landscape Planning and Management

Assistance was provided to operations staff on a number of landscape planning issues including the assessment of proposed mining and timber harvesting operations, plantation establishment and the location and design of roads, buildings and other structures.

The Department also embarked upon the formulation of a Visual Resource Management (VRM) system in September, 1987. Work on the VRM, which is based on existing U.S. Forest Service and Victorian models, has been concentrated in the Southern Forest Region. A landscape planner has been employed on contract and is presently working with Regional, District and Branch staff to establish the system in that Region. To date, landscape inventory and classification work has been largely completed and work is well advanced on the preparation of activity and area specific management guidelines.

Provision of Technical Advice and Assistance

During the year, the Branch continued to provide technical advice, prepare design specifications and process orders for a range of Department signs and various recreation facilities and structures. Work was also commenced on the updating and revision of the Department's Sign Manual.

Liaison

Branch personnel represented the Department through:

- membership on six inter-departmental committees or advisory groups; Expedition Skills Training Committee, Expedition Leadership Advisory Board, Camping Association of W.A., Landscape Advisory Committee and the Access and Mobility Committee of the Australian Council for the Rehabilitation of the Disabled.
- involvement in the organisation and running of four Expedition Skills Courses in association with Department for Sport and Recreation, Education and Police Department staff.
- organisation of three bushcraft courses.
- participation in the RAC sponsored training program for 4WD owners.

- talks to various groups and associations and lectures to W.A. College of Advanced Education's recreation and environmental management courses.
- participation in work experience programs with Curtin University's Industrial Design Course.

Records Section

The Records Management System (RMS) has been in operation since 5 January 1987. RMS is a computer-based system designed to identify and track files and documents, and its introduction has led to a more effective and efficient records management. Throughout the year, the system has been continuously updated and additional information added.

Silviculture Branch

A review of the status of jarrah silviculture was completed during the year. The review considered the type of silvicultural system in use in each district, the degree of integration of the various commercial operations and the extent and type of silvicultural follow up of commercial operations.

The review indicated that about half of the higher quality jarrah forest which is logged now receives complete silvicultural treatment, thinnings or intensive regeneration treatment, whichever is appropriate. Increasing integration of logging operations will increase this proportion.

Detailed planning commenced on the second stage of nursery rationalisation. Broome and Narrogin nurseries are to be retained in their present form and all other nursery activity amalgamated on one site at the existing Manjimup nursery. This nursery will also cater for the expanded requirements for bluegum seedlings for the hardwood sharefarming scheme.

Most training by the Branch this year was for pine establishment techniques. Several two day and one day workshops were held for both supervisory staff and for field and plant operators involved in planting. A videotape of correct establishment techniques was produced by the Branch and incorporated in the training program. Equipment used in pine planting was reviewed in co-operation with Engineering Services Branch and this resulted in the purchase of some new planting machines and the design and construction of improved herbicide spraying equipment.

The Branch also assumed responsibility for the Pine Management Guide. It was substantially revised and extended to cover the needs of new planting areas in the Southern Forest and South Coast Regions.

Timber Production Branch

In 1987/88 the main work of the Branch has been the development of activities resulting from the acceptance by the Government of the Timber Strategy.

- Organisation of the sale of first grade sawlogs by Contract of Sale was well advanced and most contract negotiations were to be completed early in the new financial year. Similarly, Contracts of Sale for second grade sawlogs have been completed with almost all buyers approved under the Strategy. Over 40 separate contracts have now been signed.

- All Contracts of Sale have been concluded on the basis of the "cost of growing" philosophy expounded in the Timber Strategy. This will result in a substantial increase in royalty earnings in the new financial year. Also, payments of the appropriate roading charges and in-forest costs by the buyers were ensured under the new system.
- Development of the Hardwood Logging Computer System continued with a major revamp to allow the system to handle both pine and hardwood. This part of the work has been completed. Programming work to implement the various facets has now started.
- One substantial Contract to Supply tender for the Southern Forest Region was called during the year and work under the contract started early in January.
- Two pine Contract to Supply tenders were called, one in the Northern Forest Region and the other in the Central Forest Region. Both started operations in late April with the Northern Forest Region work going to a company new to pine logging.
- Preliminary planning and organisational work was done for the supply of charcoal logs to Barrack Silicon's new silicon smelter to be built at Kemerton. The Department is committed to providing resource for this new venture under the Silicon (Picton) Agreement Act.

Wood Utilisation Research

The Wood Utilisation Research Centre is engaged in developing new techniques and equipment for sawmilling, seasoning and marketing timber from regrowth and mature hardwoods and softwood plantations. Research programs continued in the areas of sawmilling, drying, product development and marketing.

The work in progress for 1978/88 included:

- Developing an objective log grading system, through scanning internal and external characteristics with video.
- Determining the optimum water spray regimes during stockpiling of logs to protect wood quality while awaiting processing.
- Examining alternative milling techniques (e.g. horizontal bandsaw) to maximise the recovery of sawn timber from a range of log sizes, and to produce different end products.
- Studying the organisms which attack timber from eucalypts which are of commercial significance.
- Calibrating the Australian Timber Research Institute's timber drying computer models for application to jarrah and karri timber.
- Developing efficient curing schedules and commercial equipment to allow defect-free drying.
- Developing a low volume, low cost dryer for seasoning of regrowth logs, and the drying schedules to be used.
- Writing and testing a computer model to simulate a whole range of log processes and products, which will facilitate efficient management of the forest resource.

- Describing the structure of timber markets in volume and value terms, and identifying those which could be supplied by timber from regrowth eucalypts or by residues from milling.
- Examining techniques for converting small timber pieces into edge and face jointed panels for furniture.
- Strength testing of sawn regrowth eucalypt structural timber.

The two reports published during the year are titled:

- Economic Utilisation of Thinnings from the Jarrah Forest by G K Brennan
- Sawing Performance in Western Australia by W M McKenzie

Wildlife and Land Administration Branch

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

The Branch has been involved with implementing Government policy arising from the Bailey Committee report on mining and the environment. Since March 1988, an officer has been assessing Class B and Class C nature reserves, to determine which reserves should be given greater protection by re-classification as Class A, and which ones should be surveyed to establish their value.

A working group has been established to develop priorities and action plans for the 230 proposed tenure and vesting changes outlined in the management plans for the three forest regions.

The Wildlife Conservation Regulations were amended to provide additional protection to endangered fauna and flora by suspending the section of the Wildlife Conservation Act which allowed Aborigines to take such fauna and flora. An exception was made for dugong, because of its traditional nutritional and cultural importance for some Aboriginal communities. There were consultations with Aboriginal communities about the status of dugong populations and management of dugong hunting.

During 1987/88, 1251 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 16. The Wildflower Industry Review Committee established in January 1987 has now submitted its final recommendations to the Policy Directorate.

There were 94 additions to the declared rare flora species, gazetted under the Wildlife Conservation Act this year. The fauna declared to be rare or otherwise in need of special protection remained unchanged during 1987/88.

There was only one open season declared this year and that for waterfowl population management. Details are provided in Appendix 17. 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 16.

Forest Offences

Twelve breaches of the Forest Disease Regulations were reported. In 11 cases, offenders were prosecuted and fines amounting to \$1,760 were imposed.

There were four cases of illegal removal of forest produce, all of which resulted in prosecution and the imposition of fines totalling \$500.

Three breaches of the Forest Regulation for unlawful carrying or use of firearms in State forest also occurred. In two cases, offenders were prosecuted and fines amounting to \$150 were imposed. Warnings were issued to all offenders not prosecuted.

National Park Offences

One breach of the National Parks Regulations was reported; the unauthorised use of a vehicle in a National Park. The offender was prosecuted and a fine of \$250 was imposed.

Wildlife Protection Branch

Various offences against the Wildlife Conservation Act and Regulations occurred during the year. Wildlife officers gave verbal warnings in many instances. More serious offences resulted in 63 letters of warning and 103 cases are pending prosecution. Sixteen cases dealt with by the Court resulted in penalties totalling \$12,200 with \$285.80 costs. A summary of offences appears in Appendix 18.

Serious offences such as the collecting and smuggling of reptiles, large scale commercial flora exploitation on nature reserves, bird nest robbing (particularly parrots), and bird trapping continue to be detected and are causing concern.

Lucrative returns for native flora is causing much activity on Crown land which is difficult to control. Picking pressure has contributed to the deterioration of areas of Crown land, including reserves, through damage to plant communities, soil compaction, weed infestation and the spreading of pathogens such as *Phytophthora*.

Regular patrols were conducted to detect and deter illegal activities. Nature reserve patrols were maintained to prevent the illegal removal of flora, hunting of fauna, stock grazing, camping, building, rubbish dumping and removal of timber and gravel. Declared rare flora populations were protected through patrols and data collected from monitoring programs. During the year the number of declared rare flora species was increased from 132 to 226. The dramatic increase in population sites has implications for management when resources remain static.

The patrol vessel "Pseudorca" conducted regular patrols of offshore islands between Augusta and Jurien Bay, and various estuaries south of Perth, during the year, assisted in research projects along the coast and participated in three rescues of people in disabled boats. They were also involved in searching for sea-lions snared in bait bands and the release of a number of seabirds, one sea-lion and dolphin back into the wild.

Close monitoring continued for the wildflower industry, avicultural industry and kangaroo management programs. Management of the fledgling emu farming industry was expanded with the introduction of four new licences. Rare fauna populations and wetlands were monitored and surveys of flora and fauna populations continued.

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 co-ordinated throughout the year. Liaison with various wildlife interest groups continued and advice in regard to the provisions of the Wildlife Conservation Act was provided frequently.

During the year wildlife officers attended 15 cetacean strandings involving 17 whales and dolphins. Species included minke whale, bottlenosed dolphin, humpback whale, cuiviers whale, sperm whale, pilot whale, common dolphin and striped dolphin. Seventeen pinniped strandings involving 1 leopard seal, 14 sea-lions and 4 sub-antarctic fur seals were also attended. Sea-lion deaths and the mass mortality of shearwaters along the south coast are a cause for concern.

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

Several incidents involving crocodiles were investigated by the Kimberley and Pilbara wildlife officers during the year. No Saltwater crocodile attacks on people were recorded. However, a number of reports of problem crocodiles (saltwater crocodiles whose behavioural pattern represent a threat to public safety) were investigated. Two problem crocodiles were captured in the Kimberley. However despite a substantial effort the Port Hedland crocodile eluded capture.

A one month amnesty for unlawfully held reptiles and amphibians was successfully conducted during the year. Over 80 specimens comprising 19 Western Australian species, six Eastern State species and two overseas species were surrendered. The amnesty generated considerable public interest.

Relocation of wildlife officers into regional or district offices continued as office accommodation became available. This year an officer moved from Wongan Hills to Merredin.

PERFORMANCE EVALUATION

This Report contains general statistics, tables and appendices which convey the Department's performance for the year and provide a comparison against previous years. Development of performance indicators to comply with the Financial Administration and Audit Act is proceeding.

Program budgeting is still being developed, and it is proposed to implement this next financial year. Currently it is possible to produce management reports on the intended primary programs for most of the Department's expenditure.

At this stage of development, five primary programs have been chosen. These represent all direct and indirect departmental activities on the ground. The primary programs have multiple links to the primary objectives of the Department's strategic plan (see General Information - Corporate Objectives).

Supporting programs indicate the Department's endeavours to support the primary programs.

Functions within the primary programs are being developed, and will be modified and extended as necessary. For each function there has been careful consideration of the tasks involved and the problem to be solved before developing an objective. Indicators for each objective have been developed.

Collection of data to provide base data and performance evaluation will commence in 1988/89.

The development of objectives, effectiveness, efficiency and workload indicators will be continued and refined in consultation with the Office of the Auditor General.

Primary Programs

Resource Management Wildlife

Wildlife Conservation

Objective

To conserve the State's biota.

Performance Indicators

Effectiveness

The extent to which:-

- the biology of different species of native flora and fauna is understood and management requirements for habitat are known;
- the resource of native flora and fauna are known (what is it, where is it?);
- the survival of rare or threatened flora and fauna is assured; and
- illegal exploitation of native flora and fauna is eliminated.

Industry Control and Regulation

Objective

Where Government directs that commercial exploitation of native species shall occur, to manage that exploitation to ensure equitable allocation of the resource, long-term survival of the species, minimal impact on other conservation values, and a financial return for the services provided.

Performance Indicators

Effectiveness

The extent to which:-

- licensing systems have allowed equitable allocation of the resources;
- the various "industries" are covered by an approved and current management program;
- management program strategies are fulfilled and quotas not exceeded;
- monitoring of the exploited resources is maintained;
- the status of the exploited resource is shown by monitoring to be within the desired parameters for conservation;
- the financial return at least balances with the cost of services provided; and
- the community understands the basis for Departmental policy and supports management procedures adopted.

Resource Management Recreation

Recreation Management

Objective

To provide appropriate recreation opportunities on CALM lands and waters and the most satisfying experience to participants.

Performance Indicators

Effectiveness

The extent to which:-

- public expectations of opportunity and experience are satisfied (social survey and other comments);
- implementation of publicly endorsed recreation strategies and prescriptions from approved management plans has been achieved;
- recreation resource values are maintained and protected from inappropriate or excessive levels of use;
- costs are recovered from users; and

- costs are minimised and standards are improved by planning and staff training.

Marine Management

Objective

To understand, maintain and preserve ecosystems in a representative system of marine reserves while facilitating public awareness and public recreation in that environment in a safe manner.

Performance Indicators

Effectiveness

The extent to which:-

- the full complement of marine environments around the coast of Western Australia have been scientifically identified;
- recommendations for reservation represent the marine biota of the State;
- recommendations for reservation have been implemented;
- approved management strategies (including zoning) have been introduced;
- monitoring indicates maintenance or improvement of the environments in marine conservation reserves; and
- the public safely partake of recreation in marine reserves according to Fisheries and other regulations.

Resource Management Timber

Timber Industry Control and Regulation

Objective

In conjunction with private commercial forest interests to satisfy the State's long-term social and economic needs for timber and an efficient timber industry, and to control and regulate the supply of timber resources from natural areas on a sustainable basis.

Performance Indicators

Effectiveness

The extent to which:

- increment of hardwood and softwood forest growth exceeds the volumes logged in identical periods;
- the contracts of sale allow equitable supply of resource to the industry based on the production capacity of each purchaser;
- detrimental environmental consequences, from harvesting, (for example, spread of disease, turbidity in water supplies, erosion) are avoided;
- the standards applied to utilisation of both tree in the bush and log in the mill have been improved; and

- the industry self-regulates.

Eucalypt Forest Regeneration and Timber Growing

Objective

To ensure continuity of native hardwood forests by appropriate regeneration techniques and to maximise the quality and quantity of products grown on production forests.

Performance Indicators

Effectiveness

The extent to which:-

- all cut-over production forest has been successfully regenerated;
- the regeneration needs of other areas have been identified and appropriate techniques developed and implemented;
- the thinning program is being met;
- the fertilising program is being met;
- the annual increment on all areas approaches the site maximum; and
- the tree breeding program is being met.

Pine Forest Establishment and Tending

Objective

To grow sufficient pine forest to meet Government commitments to the softwood timber industry in an environmentally satisfactory manner.

Performance Indicators

Effectiveness

The extent to which:-

- the current planting program is met;
- previous plantings (2-4 years) have survived;
- the annual increment approaches the site maximum on all areas;
- sawlog quality satisfies the industry;
- tending achieves the silvicultural schedule; and
- there are no associated environmental problems.

Supply of Logs

Commercial Timber Operations

Objective

To ensure a negotiated and even flow of log products to the timber industry while recovering costs for the service supplied, establishment and growth of the replacement resource, and to maximise profit to the State.

Performance Indicators

Effectiveness

The extent to which:-

- the supply of logs has kept pace in quantity and quality with the commitments to the various industries;
- the market has been tested for the maximum price payable for the product; and
- revenue exceeds service, re-establishment and growth costs.

Supply of Services

This program will deal with specialist or scientific services supplied by the Department to internal and external organisations.

Supporting Programs

Research

Objective

To develop a scientific basis for conservation and land management in Western Australia by conducting research and providing expert advice.

Performance Indicators

Effectiveness

The extent to which:-

- the management planning process is supported by sufficient and adequate scientific information;
- operational planning and techniques are supported by sufficient and adequate scientific knowledge;
- fundamental scientific knowledge of the State's plants and animals is increased and promulgated through publication;
- external sources of funds for research are maximised; and
- external research agencies concentrate on problems relevant to CALM.

Environmental Protection

Objective

To keep wildlife, lands and waters entrusted to the Department free from adverse environmental impacts and where that is not possible to minimise such impacts.

Performance Indicators

Effectiveness

The extent to which:-

- proposals which impinge on CALM lands are assessed for environmental consequences;
- activities on CALM lands are carried out with appropriate hygiene and environmental procedures; and
- damage or degradation of wildlife and lands are avoided, minimised or repaired.

Fire Management

Objectives

To protect the community and environmental values on and near CALM lands from damage or destruction from wildfire; to use fire as a management tool to achieve land management objectives, in accordance with designated land use priorities.

Performance Indicators

Effectiveness

The extent to which:-

- serious fire damage on community and environmental values is avoided;
- fire management plans exist over the CALM estate;
- the fire management programs and objectives for individual areas are achieved;
- operational research needs are determined, solved and the results implemented; and
- there is harmonious interagency and neighbour co-operation on fire prevention and suppression operations.

Planning

Objective

To achieve the Department's objectives in an accountable way by co-ordinated and integrated planning based on the best scientific information available and public input.

Performance Indicators

Effectiveness

The extent to which:-

- the Department meets the planning requirements of Government;
- there is acceptance of CALM land/water management plans by outside organisations;
- the CALM estate is covered by approved management plans;
- production requirements are met within environmental protection constraints; and
- organisational structure meets the operational requirements of the Department.

Environmental Education

Objective

To achieve an environmental ethic in the community where respect and concern for the natural environment are held by all and where there is good understanding and support for the Department's management policies and strategies.

Performance Indicators

Effectiveness

The extent to which:-

- there is a measurable growth in informed public comment on environmental issues and management planning;
- the public have attended or sought the community education and interpretation activities and facilities; and
- there is evidence of less community impact on the natural environment, in proportion to population pressure.

Liaison and Public Participation

Objective

To ensure a good public participation process, to take account of and reconcile varying public desires and to gain understanding and acceptance by the public and government authorities of proposed management strategies.

Performance Indicators

Effectiveness

The extent to which:-

- the public has become or been involved (number of submissions, public meetings, workshops, management plans, other);
- consultative and advisory committees have reached agreement on issues and/or strategies;
- there is public support for approved management plans and programs (volunteer projects, friends groups); and
- agreement on policies, strategies etc have been reached with other authorities.



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, 1987 to June 30, 1988 under the provisions of the Financial Administration and Audit Act 1985 and found to be in order.

The statement of Receipts and Payments, Conservation and Land Management Trust Fund, includes under "Payments" the item of "Plant and Equipment, \$4 281 065, less depreciation, \$1 900 000." The term depreciation is incorrect and also inappropriate in a cash based accounting system and consequently does not fairly present the financial transactions so described. The amount of \$1 900 000 represents the total of funds for plant replacement recovered through hire charges allocated against appropriate cost centres.

In my opinion subject to the above matter

- (i) the statements of Receipts and Payments are based on proper accounts and records and have been properly drawn up so as to present fairly the transactions for the period; and
- (ii) the controls exercised by the Executive Director 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 audit of performance indicators in the public sector is linked with a necessary phased development of performance management. I have therefore adopted a phased audit approach concentrating initially on the establishment of programme objective setting and measurement frameworks which will support the development of performance measurement.

Consistent with this phased audit approach I have not given an opinion this year on the relevance, appropriateness and fair representation of indicated performance.

However, in my opinion, the objectives of the Department of Conservation and Land Management require further refinement. A purpose-based financial framework is being developed by which inputs can be related to the outputs for which they were consumed. Upon implementation of the above initiatives it should be possible, in the future, for me to give an opinion on the fair representation of performance indicated by management.

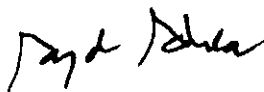
A.D. SMITH
AUDITOR GENERAL

October 7, 1988

FINANCIAL STATEMENTS

The accompanying financial statements of the Department of Conservation and Land Management have been prepared in compliance with the provisions of the Financial Administration and Audit Act 1985 from proper accounts and records to present fairly the financial transactions for the financial year ending 30 June 1988 and the state of affairs as at 30 June 1988.

At the date of signing we are not aware of any circumstances which would render the particulars included in the financial statements misleading or inaccurate.



ACCOUNTABLE OFFICER



PRINCIPAL ACCOUNTING OFFICER

**Governmental Operating & Trust Account
Conservation and Land Management Trust Fund
Statement of Receipts and Payments
for the Year Ended 30 June 1988**

86/87	RECEIPTS		87/88
\$	\$		\$
1 698 341		Balance Brought Forward (1)	5 483 009
61 652 000		Consolidated Revenue Fund	65 186 000
1 496 986		Mining Compensation	1 327 507
1 332 163		Main Roads Department Grant (2)	654 889
511 325		Community Employment Program (3)	-
712 453		Youth Trainee Scheme (4)	125 485
120 308		Saleable Publications (5)	188 354
136 308		Aboriginal Community Development Program (6)	235 298
11 893		Ningaloo Bicentennial Grant (7)	670 155
13 192 000		Private Borrowings (8)	13 460 000
1 484 009		Sale of Assets	1 899 634
1 220 071		Recoupable Projects	1 353 784
295 643		Wildlife Special Projects Recoups (9)	438 716
779 505		Income from National Parks	863 766
350 000		Wood Utilization Research Project (10)	510 000
27 788		National Employment Strategy for Aboriginals (11)	83 076
-		Heritage Trails (12)	66 913
72 010		Other	5 577
126 612		Nature Conservation & National Parks A/c	31 547
<u>85 219 415</u>			<u>92 583 710</u>
		PAYMENTS	
		Capital -	
2 232 090		Hardwood Forests - Establishment & Tending (13)	2 900 187
6 153 529		Softwood Forests - Establishment & Tending (13)	5 353 494
361 783		Forestry Sharefarming (13)	1 366 359
1 080 042		Access Road Construction (13)	1 116 419
2 519 052		Land Purchases (13)	1 304 587
1 878 141		Housing & Building (13)	856 689
	4 453 994	Plant & Equipment (13)	4 281 065
2 623 994	<u>1 830 000</u>	Less Depreciation	<u>1 900 000</u>
4 963		Sawmilling & Seasoning Plant (13)	-
23 787		Ningaloo Marine Park (13)	1 151 846
<u>16 877 381</u>			<u>16 430 646</u>
(62 059)		Plant Workshop - Operating Costs	(31 271)
		Recurrent Expenditure -	
	24 459 147	Salaries	27 094 410
22 831 147	1 628 000	Less - Charged to Capital Works (14)	1 678 000
	<u>21 070 198</u>	Central Administration	<u>24 405 201</u>
20 104 198	966 000	Less - Charged to Capital Works (14)	<u>976 000</u>
4 244 142		Environmental Protection	4 244 353
692 725		Natural Disasters (15)	1 325 836
2 173 114		Engineering Services	1 850 597
1 907 899		Recreation & Tourism Services (16)	3 251 266
1 913 987		Planning & Research	1 966 880
8 614 399		Commercial Operations (17)	11 219 396
412 384		Information Services	441 646
42 198		Nature Conservation & National Parks A/c	75 884
(15 109)		Cash Order Balance	<u>(677 329)</u>
<u>79 736 406</u>			<u>88 943 515</u>
5 483 009		Balance 30 June (18)	3 640 195

The balance of this fund is held at and invested by Treasury with the interest from the investment being credited to the Government of WA.

NOTES TO THE FINANCIAL STATEMENTS

Accounting Policies

Financial Statements of the Department of Conservation and Land Management are prepared on a cash basis in that only collections received and payments made are reflected therein.

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

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, devices, 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 1 July 1987 was \$200 080. During the year receipts totalled \$31 547 and payments amounted to \$75 883, leaving a balance of \$155 744 at 30 June 1988.

(1) Includes

Nature Conservation & National Parks Trust Account
01.07.86 - \$115 666
01.07.87 - \$200 080

- (2) The 1986/87 figure includes \$415 560 which was due in 1985/86 but not paid until early in the 1986/87 financial year.
- (3) The Community Employment Program was concluded in the 1986/87 financial year.
- (4) The Youth Trainee Scheme was suspended from July 1987 to January 1988. In addition, the Department was only recouped for expenditure for February, March and April 1988. Recoups for May and June 1988 will be made in the 1988/89 financial year.
- (5) During 1986/87 the Department successfully launched a marketing campaign for its saleable publications. The 1987/88 result reflects the results of that campaign.
- (6) The Aboriginal Affairs Planning Authority provided funds for this program commencing in 1986/87. The 1987/88 result reflects a full years' operations.
- (7) A grant from the Australian Bicentennial Authority was received to assist with the establishment of an interpretation centre at Milyering. This centre will service the visitors to the Ningaloo Marine Park and the adjacent Cape Range National park. work commenced on the project late in the 1986/87 financial year and is expected to be completed early in 1988/89.
- (8) **Private Borrowings**
The outstanding principal at 30 June 1987 was \$53 900 970.

During the year loans to the value of \$13 460 000 (including \$460 000 for refinancing loans) were raised.

Principal repayments, interest and sinking fund instalments during the year amounted to \$2 263 278, \$7 176 559 and \$14 270 respectively. In addition, proceeds from sinking fund investments with the Treasury amounting to \$88 225 were applied to the reduction of loans due to the W.A. Treasury Corporation. The outstanding principal at 30 June 1988 was \$65 009 467.

Sinking funds held at Treasury and in Private Banks totalled \$456 882.

Softwood Forestry Agreement Loans

Between the years 1966/67 and 1982/83 the Commonwealth Government provided loans amounting to \$10 078 510 for the purpose of establishing and tending softwood plantations. The outstanding principal at 30 June 1987 was \$9 100 579. During the year principal and interest payments amounted to \$241 953 and \$844 760 respectively. The outstanding principal at 30 June 1988 was \$8 858 626.

- (9) The increase is due almost entirely to greater activity on the National Rainforest Conservation Program. (1986/87 \$45 347, 1987/88 \$155 140).
- (10) This amount represents the Commonwealth Government contribution to the joint Commonwealth/State/Industry research project.
- (11) The figure for 1987/88 includes a carry-over of \$70 849 from the 1986/87 financial year.
- (12) The Heritage Trails project is a Bicentennial project and will be completed during the 1988/89 financial year.
- (13) 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.

	1986/87		1987/88	
	SALARIES	ADMIN	SALARIES	ADMIN
H/Wood Forests	340 000	200 000	355 000	203 000
S/Wood Forests	990 000	585 000	1 025 000	592 000
Access Rds Const.	70 000	43 000	70 000	43 000
Housing & Bldgs	108 000	69 000	108 000	69 000
Plant & Equip.	120 000	69 000	120 000	69 000
	<u>1 628 000</u>	<u>966 000</u>	<u>1 678 000</u>	<u>976 000</u>

- (15) The prolonged summer of 1987/88 resulted in more wildfires than usual, resulting in the higher level of expenditure.
- (16) Expenditure for 1987/88 includes expenditure for a major purchase of freehold land within the boundaries of the D'Entrecasteaux National Park.
- (17) The increase level of activity in the timber industry is reflected in the increase expenditure on this item for 1987/88.
- (18) Includes

Nature Conservation and National Parks Account

30.06.87 - \$200 080
30.06.88 - \$155 744

**Consolidated Revenue Fund
Statement of Receipts and Payments
for the Financial Year Ended 30 June 1988**

1986/87		1987/88		
\$	RECEIPTS	Estimate \$	Actual \$	Variation \$
	<u>Territorial Revenue</u>			
11 929 097	Saw Log Royalties (1)	13 370 000	12 517 065	852 935-
2 853 553	Sandalwood (2)	4 393 000	5 056 293	663 293
4 491 547	Chip Logs (1)	4 900 000	5 385 929	485 929
655 534	Other	707 000	756 551	49 551
<u>19 929 731</u>		<u>23 370 000</u>	<u>23 715 838</u>	<u>345 838</u>
	<u>Departmental Revenue</u>			
1 264 901	Fees	1 141 000	1 275 609	134 609
7 002 105	Pine Conversion Sales	7 870 000	7 664 724	205 276-
4 348 534	H/Wood Conversion Sales (3)	4 959 000	7 040 316	2 081 316
227 129	Recoupable Projects (4)	250 000	419 214	169 214
108 094	Wildlife	133 000	122 289	10 711-
47 498	Sales of Assets	100 000	89 300	10 700-
<u>12 998 261</u>		<u>14 453 000</u>	<u>16 611 452</u>	<u>2 158 452</u>
<u>32 927 992</u>	GRAND TOTAL	<u>37 823 000</u>	<u>40 327 290</u>	<u>2 504 290</u>
	PAYMENTS			
<u>61 652 000</u>	Amount required for services for the year (paid to Conservation and Land Management Trust Fund) (5) being:	<u>58 186 000</u>	<u>65 186 000</u>	<u>7 000 000</u>
22 831 147	Salaries & Allowances	24 728 000	25 416 410	688 410
3 266 766	Other Staffing Costs	3 872 000	4 761 013	889 013
1 026 103	Communications	1 008 000	1 074 500	66 500
2 274 716	Services & Contracts	2 030 000	2 101 866	71 866
1 393 452	Consumable Supplies	1 402 000	1 534 541	132 541
330 183	Mtce of Plant & Equip.	349 000	368 066	19 066
242 812	Purch. of Plant & Equip.	928 000	911 213	16 787-
11 570 166	Grants, Subsidies & Transfer Payments	12 574 000	12 678 002	104 002
4 244 143	Environmental Protection	4 143 000	4 244 353	101 353
2 173 114	Engineering Services	2 318 000	1 850 597	467 403-
1 907 899	Rec. & Tourism Services	2 093 000	3 251 266	1 158 266
1 913 987	Research & Planning	1 954 000	1 966 880	12 880
8 614 399	Commercial Operations	8 058 000	11 219 396	3 161 396
412 384	Information Services	326 000	441 646	115 646
692 725	Natural Disasters	103 000	1 325 836	1 222 836
<u>62 893 996</u>		<u>65 886 000</u>	<u>73 145 585</u>	<u>7 259 585</u>
5 077 702	Less Contributions from Industry & Other Sources	4 582 000	4 980 283	398 283
<u>57 816 294</u>		<u>61 304 000</u>	<u>68 165 302</u>	<u>6 861 302</u>
3 835 706	Consequential increase/decrease in Trust Fund Balance	(3 118 000)	(2 979 302)	138 698
<u>61 652 000</u>	Payment to Conservation and Land Management Trust Fund	<u>58 186 000</u>	<u>65 186 000</u>	<u>7 000 000</u>
	SPECIAL ACTS EXPENDITURE			
78 750	Salary of Executive Director	82 000	81 647	353

VARIATION FROM ESTIMATES AND SIGNIFICANT VARIATION BETWEEN FINANCIAL YEARS

Receipts

- (1) The areas logged in 1987/88 did not produce the level of Sawlogs anticipated but produced a higher level of Chip Logs. The result of this was a reduction in sawlog Royalties and an increase in Saw Chip Log Royalties.
- (2)
 - (a) Sandalwood collections exceeded the estimate due to substantial increases in the negotiated price from 01.01.88. The prices negotiated are subject to market forces and can be difficult to predict.
 - (b) The increase in revenue between 1986/87 and 1987/88 was due to the full year flow on of substantial increases in the negotiated price from 01.01.87 and the increase referred to above.
- (3) As a result of the greater level of activity in the timber industry the revenue from Hardwood Sales was higher than anticipated. It is anticipated that increased revenue from this level of activity will flow through to 1988/89.
- (4) During 1987/88 a concerted effort was made to reconcile the Department's Workers Compensation account with the State Government Insurance Commission and to collect the outstanding recoups. This out-turn reflects the result of that effort.

Payments

- (5) Factors contributing to excess of \$7 000 000 were:-
 - (a) Salaries and Allowances - \$688 410

The major portion of this was \$350 000 for overtime associated with fire fighting, \$165 000 for unbudgeted Retiring Allowances and insufficient funding for salary increments - \$500 000. This excess of \$1 015 000 was offset by savings in salaries due to the Department operating in the early part of the year with a lower FTE than authorised.
 - (b) Natural Disasters (Fire Suppression) - \$1 222 836.

It has been Treasury policy for some years to fund this expenditure by way of an excess on expenditure as it is impossible to predict the extent of wildfire activity during the year. The prolonged summer of 1987/88 resulted in more wildfires than usual.
 - (c) Commercial Operations - \$3 161 396.

The increased level of activity in the timber industry is reflected in the increased expenditure on this item. As a result of this expenditure, the State will gain extra revenue from Hardwood and Pine Sales although some of the extra revenue will not be received until 1988/89.
 - (d) Purchase of land within d'Entrecasteaux National Park - \$939 000.

It is the Government's policy to purchase freehold land within the boundaries of the d'Entrecasteaux National Park as it becomes available. During the year the opportunity arose to purchase a large parcel of land, for which funding had not been provided.
 - (e) Superannuation - \$578 650.

After the budget was framed the Department became liable for the employers contribution to the Government Employees Superannuation Fund. These funds had previously been met by the Treasury.
 - (f) Additional Fortnightly Costing Period - \$650 000.

Due to the decentralisation of the Department and the need to pay local accounts and wages

from District Offices, the Department has for many years operated on a fortnightly costing system.

A computerised wages system will be brought into operation for the 1988/89 financial year and for this system to operate efficiently it was necessary to bring the fortnightly costing into line with the financial year.

The \$650 000 reflects the cost of the additional costing period in 1987/88.

There were several minor savings and over-expenditures which resulted in the Department requiring a net \$7 000 000 to fund the major areas of unbudgeted expenditure.

The single line appropriation is designed to give the Department the ability to rearrange its expenditure priorities from year to year and consequently the 1987/88 out-turns are not directly comparable to the 1986/87 out-turns in the same items. The total CRF expenditure was \$10 251 000 more in 1987/88 than 1986/87.

The main contributors to this increase were:-

- (i) Salaries and Allowances of \$2 600 000 due mainly to full year flow ons of the National Wage increase of May 1987, the 4% productivity increase granted from October 1987 and the increase in Fire Overtime as a result of the extreme fire season.
- (ii) Commercial Operations increase of \$2 600 000 referred to in 5(c) above.
- (iii) An increase of \$2 100 000 in debt servicing costs.
- (iv) The \$939 000 for the purchase of land in the d'Entrecasteaux National Park referred to in 5(d).
- (v) Fire Suppression costs of \$633 000 due to the extreme fire season.
- (vi) Superannuation \$579 000 referred to in 5(e) above.
- (vii) Increase in the Workers Compensation Insurance premium of \$170 000.
- (viii) Fringe Benefits Tax of \$181 000 which was paid by Treasury in 1986/87.

SUPPLEMENTARY FINANCIAL INFORMATION

CRF revenue due but not uncollected at 30 June 1988 was \$5 281 844 and it is expected that all but \$1 900 will be collected.

Expenditure claims for CRF on hand but unpaid at the end of the financial year was \$152 800.

Losses of public moneys and public or other property

	1987/88		1986/87	
Revenue	\$	\$	\$	\$
Apiary Rentals	26 500.00			
Irrecoverable amounts	374.99		9 739.75	
Other	80.00	26 954.99	20.00	9 759.75
General (includes thefts reported to Police, lost property, Stocktaking deficiencies etc).		13 192.64		4 217.31
		\$40 147.63		\$13 977.06

Public and other property, revenue and debts due to the State, written off in accordance with section 45 of the Financial Administration & Audit Act.

	1987/88	1986/87
The Executive Director	13 647.63	13 977.06
The Hon. Minister for Conservation & Land Management	26 500.00	-
	\$40 147.63	\$13 977.06

Major bushfires between Jurien & Dongara and Yanchep & Cervantes caused damage to apiary sites in these 2 areas.

Ministerial approval was given for the Department to waive rentals in the areas affected until December 31, 1988. Total rental waived is \$26 500 for the periods:-

Jurien/Dongara - January 1984 to December 31, 1988
 Yanchep/Cervantes - January 1985 to December 31, 1988

Capital Works for Financial year 1 July 1987 to 30 June 1988 Statement of Payments

1986/87 \$	PAYMENTS	Estimate \$	1987/88 Actual \$	Variation \$
	Establishment & Tending			
2 232 090	Hardwood Forests	2 923 000	2 900 187	22 813-
6 153 529	Softwood Forests (1)	5 976 000	5 353 494	622 506-
1 080 042	Access Roads - Construction	1 055 000	1 116 419	61 419
2 159 052	Land Purchase (2)	2 875 000	1 304 587	1 570 413-
4 453 994	Plant & Equipment	4 210 000	4 281 066	71 066
1 878 141	Housing & Buildings	794 000	856 689	62 689
23 786	Ningaloo Marine Park	1 476 000	1 151 847	324 153-
361 783	Forestry Sharefarming (3)	793 000	1 366 359	573 359
4 963	Sawmilling & Seasoning Plant	Nil	Nil	Nil
18 707 380		20 102 000	18 330 648	1 771 352-
	SOURCE OF FUNDS (4)			
11 893	Commonwealth Grant - Bicentennial Trust Fund	738 000	670 155	67 845-
13 192 000	Borrowings	13 000 000	13 000 000	-
407 863	Contribution - Main Roads Dept.	51 000	-	51 000-
5 095 624	Internal Funds & Balances	6 313 000	4 660 493	1 652 507-
18 707 380		20 102 000	18 330 648	1 771 352-

VARIATIONS FROM CAPITAL ESTIMATES

- (1) The exceptional fire season and consequent diversion of resources prevented the Department carrying out all high & low pruning and scrub control planned under the Softwood Establishment and Tending item.
- (2) Many planned land purchases were not proceeded with; some of the funds were held in reserve for the planned establishment of a central nursery, while some were diverted to cover the additional cost of Forestry Sharefarming.
- (3) During 1987/88 the sharefarming scheme was expanded to include Hardwood Sharefarming; funds were diverted from the Land Purchase item to cover the additional costs.
- (4) 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.

Note: Capital Works priorities are set annually and do not necessarily bear any relationship to previous year's expenditure.

GENERAL LOAN AND CAPITAL WORKS FUND

		Estimate	Actual	Variation
	Additional Improvements			
16 303	Katanning	Nil	Nil	Nil
428 863	Manjimup	Nil	Nil	Nil
33 966	Administration	Nil	64 694	64 694
479 132				

The Building Management Authority incurred expenses of \$64 694 in salary and administrative expenses in supervising capital projects for the Department in 1987/88.

**Private Trust Account
C.E. Lane Poole Memorial Trust
Statement of Receipts & Payments
For the Year Ended 30th June 1988**

86/87		87/88
\$		\$
4 278	Balance Brought Forward	99
	RECEIPTS	
-	Wesfi	5 000
<u>674</u>	Interest on Investments	<u>446</u>
4 952		5 545
	PAYMENTS	
<u>4 853</u>	Travel Costs Associated with Award	<u>3 100</u>
99	Balance as at June 30	2 445

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.

The balance of this trust fund is held at and invested by Treasury. Proceeds from the investments are credited to the trust fund as the investments mature.

**Private Trust Account
Research Co-ordinating Committee
Statement of Receipts & Payments
for the Year Ended 30 June 1988**

86/87		87/88
\$		\$
60 095	Balance Brought Forward	3 734
	RECEIPTS	
10 000	Aloca	-
6 438	Interest on Investments	5 550
<u>76 533</u>		<u>9 284</u>
	PAYMENTS	
<u>72 799</u>	Dept. of Conservation & Land Management	<u>-</u>
3 734	Balance as at June 30	9 284

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

The balance of this trust fund is held at and invested by Treasury. Proceeds from the investments are credited to the trust fund as the investments mature.

**Treasurer's Advance
Suspended Debit Postings Account
Statement of Receipts & Payments
for the Year Ended 30 June 1988**

86/87		87/88
\$		\$
-	Balance Brought Forward	-
<u>37 318</u>	Receipts for Financial Year	<u>43 978</u>
37 318		43 978
-	Payments for Financial Year	43 978
-	Balance as at June 30	-

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.

**Private Trust Account
Dieback Research Trust Fund
Statement of Receipts & Payments
for the Year Ended 30 June 1988**

86/87		87/88
\$		\$
571	Balance Brought Forward	13 360
RECEIPTS		
105 000	Alcoa	50 000
30 000	Worsley Alumina	20 000
25 000	Forest Products Association	10 000
1 974	Interest on Investments	2 419
<u>162 545</u>		<u>96 049</u>
PAYMENTS		
43 000	McComb - Murdoch University	-
12 870	Gilkes - University of WA	10 958
93 045	Dept. of Conservation & Land Management	74 504
	Sundries	309
<u>148 915</u>		<u>85 771</u>
13 630	Balance as at June 30	10 278

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

The balance of this trust fund is held at and invested by Treasury. Proceeds from the investments are credited to the trust fund as the investments mature.

**Private Trust Account
Keynes Forestry Prize
Statement of Receipts & Payments
for the Year Ended 30 June 1988**

86/87		87/88
\$		\$
292	Balance Brought Forward	302
	RECEIPTS	
<u>10</u>	Interest on Investments	<u>52</u>
302	Balance as at June 30	354

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

The balance of this trust fund is held at and invested by Treasury. Proceeds from the investments are credited to the trust fund as the investments mature.

**Private Trust Account
Contractor's Deposits
Statement of Receipts & Payments
for the Year Ended 30 June 1988**

86/87		87/88
\$		\$
52 176	Balance Brought Forward	150 976
	RECEIPTS	
126 875	Deposits Lodged During Year	54 378
3 773	Interest from Investments	16 318
<u>182 824</u>		<u>221 672</u>
	PAYMENTS	
<u>31 848</u>	Deposits Refunded During Year	<u>9 293</u>
150 976	Balance as at June 30	212 379

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

The balance of this trust fund is held at and invested by Treasury. Proceeds from the investments are credited to the trust fund as the investments mature.

**Private Trust Account
Sponsored Projects
Statement of Receipts & Payments
for the Year Ended 30 June 1988**

86/87		87/88
\$		\$
4 170	Balance Brought Forward	-
	RECEIPTS	
25 452	World Wildlife Fund	61 090
<u>29 622</u>		<u>61 090</u>
	<u>PAYMENTS</u>	
<u>29 622</u>	Dept. of Conservation & Land Management	<u>60 774</u>
-	Balance as at June 30	316

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

The balance of this fund is held at and invested by Treasury with the interest from the investment being credited to the Government of WA.

**Private Trust Account
CALM - Income Tax Deductions
Statement of Receipts & Payments
for the Year Ended 30 June 1988**

	87/88 \$
Opening Balance	
RECEIPTS	
Income Tax Deductions	<u>10 847 737</u>
PAYMENTS	
Payments to Taxation Dept.	<u>10 000 929</u>
Balance as at 30 June 1988	846 808

The purpose of this fund is to hold all Income Tax Deductions from Salaries and Wages until the end of the month in which the deductions were made. The deductions are paid to the Australian Taxation Office at the beginning of the following month.

The balance of this fund is held at and invested by Treasury with the interest from the investment being credited to the Government of WA.

**Suspense
Suspended Credit Posting Account
Statement of Receipts & Payments
for the Year Ended 30 June 1988**

86/87 \$		87/88 \$
-	Balance Brought Forward	-
<u>760 116</u>	Receipts for Financial year	<u>2 077 199</u>
760 116		2 077 199
<u>760 116</u>	Payments for Financial year	<u>2 077 199</u>
-	Balance as at June 30	-

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

**Suspense
Receipts in Suspense
Statement of Receipts & Payments
for the Year Ended 30 June 1988**

87/87 \$		87/88 \$
832 207	Balance Brought Forward	986 533
	RECEIPTS	
	Employees Group Deductions	23 798
	Unclaimed Salaries & Wages	704
	Stamp Duties	204
	Pine Log Levy	19 781
	Hardwood Log Levy	176 182
	Declared Birds	2 400
	Prescribed Payments	6 501
	National Fire Management Course	12 688
	Wildlife Special Projects	30 041
	Payments in Advance	286 695
	Miscellaneous	430 027
11 273 694		1 975 554
12 105 901		
	PAYMENTS	
	Employees Group Deductions	698 917
	Pine Log Levy	7 116
	Hardwood Log Levy	74 674
	Declared Birds	70
	Payments in Advance	274 595
	National Fire Management Course	16 176
	Wildlife Special Projects	49 003
	Miscellaneous	568 027
11 119 368		1 688 578
11 119 368		
986 533	Balance as at 30 June	286 976

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

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

The balance of this fund is held at and invested by Treasury with the interest from the investment being credited to the Government of WA.

**Governmental Operating & Trust Account
Conservation and Land Management Loan Sinking Fund
Statement of Receipts & Payments
for the Year Ended 30 June 1988**

86/87 \$		87/88 \$
1 259 244	Balance Brought Forward	329 578
	RECEIPTS	
<u>89 094</u>	Interest and Contributions	<u>4 098</u>
<u>1 348 338</u>		<u>333 676</u>
	PAYMENTS	
<u>1 018 760</u>	Matured Loans	<u>45 676</u>
329 578	Balance as at June 30	288 000

The purpose of this fund is to hold sinking fund contributions in order to service the repayment of loans negotiated by the Central Borrowing Authority.

Monies are no longer credited to this A/c as all loans negotiated by the Central Borrowing Authority were transferred to the W.A. Treasury Corporation at 1.7.86. All interest received and matured sinking funds are paid to the W.A. Treasury Corporation as they become due.

ROADSIDE CONSERVATION COMMITTEE

Terms of Reference

THE terms of reference of the Roadside Conservation Committee (RCC) 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)
Cr A Hillier (resigned May 1988)
Mr K Lindbeck
Mr P Martinovich
Cr J North
Mr J Robley
Mrs J Seabrook
Mr R Shaw

Staff

Miss P Hussey (Executive Officer).

Change of Committee Title

The Committee has, with Ministerial agreement, changed its name from "Roadside Vegetation Conservation Committee" to "Roadside Conservation Committee".

Meetings

Six meetings were held during the year, on 10 August 1987, 19 October 1987, 14 December 1987, 8 February 1988, 11 April 1988 and 13 June 1988.

Sub-Committees

Several standing Sub-committees have been appointed which meet as and when necessary.

Research Sub-Committee

(To consider priorities for the allocation of research funds)

Chairman:

Mr J Blyth

Date of Meetings:

1 July 1987, 28 October 1987, 18 February 1988.

During 1987/88 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 undertake a survey of the conservation value of roadsides.
- to determine guidelines for the management of road verges with regard to fire.
- to investigate the impact from use of herbicides in road and rail reserves.
- to monitor the effect of fire on a roadside in Denmark Shire.

Standards Sub-Committee

(To develop a policy concerning clearance standards along country roads)

Chairman:

Mr. R Shaw

Date of Meeting:

17 May 1988

Workshops

Two workshops to which experts were invited, were held to develop a policy and define appropriate research projects.

Fire Workshop

To develop a policy and outline priorities for research

Chairman:

Mr J Robley

Date of Meeting:

10 August 1987

This workshop led to the development of a fire policy which is currently being discussed with the Country Shire Council's Association.

Herbicide Workshop

To outline priorities for research

Chairman:

Mr P Martinovich

Date of Meeting:

13 November 1987

This workshop delineated a research project on the impact of herbicides in rail and road reserves.

Publications

Four brochures have been printed and widely distributed:-

"Dandaragan Drives"
"Flora Roads"
"Ravensthorpe's Flora"
"Wide Roadsides - Flora Drives"

Together with the Department of Conservation and Land Management's Research Division, a synopsis of research entitled "Annual Revegetation Newsletter" has been produced.

Also published and distributed to Wheatbelt local government authorities was the "Report and Recommendations" from the seminar "It's the little bit of bush that counts" held at Mingenew.

Seminars

Two public seminars entitled "It's the little bit of bush that counts" have been held. One was organised in association with Greening Australia at Northam on 20 August 1987, and the other organised in association with the Shire of Mingenew at Mingenew on 22 March 1988.

International Conference/Workshop on Ecological Corridors

The Committee undertook to be co-ordinator for a major scientific conference, "Nature Conservation - the Role of Corridors", to be held in September 1989. This follows the successful conference held at Busselton, in August 1985, on the role of remnants in nature conservation.

General Activities

The Committee had extensive liaison with the Country Shire Council's Association, individual local government authorities, Government departments and conservation groups.

During a visit to Melbourne, the Chairman discussed matters of common interest with the Chairman and members of the Victorian Roadside Conservation Committee.

The Chairman and the Executive Officer have given a number of talks outlining the importance of roadside conservation and the role of the Committee.

Together with Greening Australia (W.A.), a "Roadside Certificate of Merit" was initiated as part of the John Tonkin Tree Awards. The winner for 1987 was the Shire of Pingelly.

A display was mounted (in conjunction with Greening Australia) at the Quairading Grain Expo in October 1987. It proved popular with show visitors.

A "Roadside Flora Area" is a roadside stop designed to allow travellers to safely park and enjoy the roadside wildflowers. After discussions with wildflower tour operators, three Roadside Flora Areas have been identified and discussions with various bodies are continuing concerning their development.

Finance

Funds for servicing the Committee were provided from the budget of the Department of Conservation and Land Management, the Main Roads Department and Westrail.

During the financial year 1987/88, the funds expended were:-

	CALM	MRD	WESTRAIL	TOTAL
Salary	13 650	13 650	nil	27 300
Members fees, travel	6 808	nil	nil	6 808
Publications	4 596	nil	nil	4 596
Research	10 083	10 000	3 000	23 038
	35 137	23 650	3 000	61 787

APPENDICES

Appendix 1
Trend in Area of Karri Forrest Cut Over and Regenerated

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
1987	1 311	827	702

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)	Cumulative Total (ha)
Before 1966	8 940	8 940
1966	180	9 120
1967	320	9 440
1968	850	10 290
1969	1 670	11 960
1970	70	12 030
1971	100	12 130
1972	1 840	13 970
1973	180	14 150
1974	230	14 380
1975	1 190	15 570
1976	1 720	17 290
1977	1 880	19 170
1978	1 810	20 980
1979	2 310	23 290
1980	2 300	25 590
1981	3 350	28 940
1982	2 520	31 460
1983	2 340	33 800
1984	2 180	35 980
1985	2 360	38 340
1986	1 990	40 330
1987	1 260	41 590

**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
1987	2 180	1 101	3 281

Appendix 4 Trend in Log Production

Year	Hardwood			Softwood			Total		
	Crown land (m ³)	Private property (m ³)	Total (m ³)	Crown land (m ³)	Private property (m ³)	Total (m ³)	Crown land (m ³)	Private property (m ³)	Total (m ³)
1829-1916	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18 783 746
1917-1969	45 977 967	15 824 587	61 802 544	863 756	19 933	883 689	46 841 723	15 844 520	62 686 243
1970	1 040 113	174 172	1 214 285	81 283	1 514	82 797	1 121 396	175 686	1 297 082
1971	1 058 915	160 396	1 219 311	86 246	1 594	87 840	1 145 161	161 990	1 307 151
1972	1 005 475	105 687	1 111 162	90 761	1 306	92 067	1 096 236	106 993	1 203 229
1973	959 940	101 977	1 061 917	100 419	1 015	101 434	1 060 359	102 992	1 163 351
1974	961 070	91 884	1 052 954	123 393	1 167	124 560	1 084 463	93 051	1 177 514
1975	967 270	87 894	1 055 164	129 086	63	129 149	1 096 356	87 957	1 184 313
1976	1 089 100	111 761	1 200 861	105 567	—	105 567	1 194 667	111 761	1 306 428
1977	1 308 634	106 513	1 415 147	120 859	335	121 194	1 429 493	106 848	1 536 341
1978	1 319 917	118 029	1 437 946	125 548	1 677	127 225	1 445 465	119 706	1 565 171
1979	1 312 571	123 538	1 436 109	176 944	6 127	183 071	1 489 515	129 665	1 619 180
1980	1 390 655	160 249	1 550 904	191 363	4 827	196 190	1 582 018	165 076	1 747 094
1981	1 391 960	158 978	1 550 938	201 552	2 955	204 540	1 593 512	161 966	1 755 478
1982	1 218 753	112 991	1 331 744	173 474	14 834	188 308	1 392 227	127 825	1 520 052
1983	1 049 130	97 474	1 146 654	176 618	5 468	182 086	1 225 798	102 942	1 328 740
1984	1 134 756	131 363	1 266 119	198 281	3 559	201 840	1 333 037	134 922	1 467 959
1985	1 290 011	169 933	1 459 944	225 945	18 042	243 787	1 515 956	187 975	1 703 931
1986	1 331 831	127 006	1 458 837	247 637	29 121	276 758	1 579 468	156 127	1 735 595
1987	1 338 697	158 858	1 497 555	266 766	24 831	291 597	1 605 463	183 689	1 789 152
1988	1 427 624	174 519	1 602 143	302 447	31 161	333 068	1 730 071	205 630	1 935 751

Note: This table differs from its predecessors in that hardwood and softwood log production are separately shown in one table. Consequently, Appendix 5 in the 1986/87 Annual Report is now redundant.

N/A — not available

Appendix 5
Trends in the Production and Use of Sawn Timber

Year Ended 30 June	Sawn Production			Export (m ³)	Local Use (m ³)
	Hardwood (m ³)	Softwood (m ³)	Total (m ³)		
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	273 333	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	9 547*	307 111
1988	270 723	47 929	318 652	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 6 Trend in Hardwood Chiplog Production from Crown Land

Year	Chips from Residue			Chip Logs from Thinning Regrowth Forest			Chip Logs from Old Growth Forest Operations				Total (m ³)
	Sawmill (t)	Forest (t)	Subtotal (t)	Marri (m ³)	Karri (m ³)	Subtotal (m ³)	Marri (m ³)	Karri (m ³)	Other (m ³)	Subtotal (m ³)	
1975/76	—		—				77 655	20 712	3	98 370	98 370
1976/77	32 007		32 007				241 207	135 814	—	377 021	377 021
1977/78	89 390		89 390				329 190	105 187		434 377	434 377
1978/79	114 766		114 766				353 928	100 168		454 096	454 096
1979/80	137 503		137 503	292	3 882	4 174	439 666	116 975	1 476	558 117	562 291
1980/81	187 501		187 501	1 794	17 565	19 359	386 664	105 604	3 448	495 716	515 075
1981/82	74 561		74 561	1 728	21 676	23 404	255 069	90 734		345 803	369 207
1982/83	77 486		77 486	3 137	23 702	26 839	284 670	100 608		385 278	412 117
1983/84	87 833	—	87 833	2 961	24 293	27 254	339 389	78 371		417 760	445 014
1984/85	88 297		88 297	2 263	22 176	24 439	400 828	71 613		472 441	496 880
1985/86	110 494		110 494	555	30 918	31 473	428 514	54 448		482 962	514 435
1986/87	88 111		88 111	500	55 753	56 253	444 076	52 364		496 440	*552 693
1987/88	104 750	*2 200	106 950	764	72 040	72 804	551 673	72 490	—	624 163	696 967
Cum. Tot.	1 192 699	2 200	1 194 899	13 994	272 005	285 999	4 532 529	1 105 088	4 927	5 642 544	5 928 543

* Estimate of residue taken from the forest floor and converted to woodchips, commencing part way through 1987/88.

Appendix 7
Summary of Exports of Forest Produce

Year	Timber		Wood Manufacture Value (\$)	Essential Oils and Tanning Materials (\$)
	(m ³)	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	^{1*} 9 910 609	3 138
1985	22 112	7 172 934	^{2*} 351 837	2 099
1986	21 497	7 328 350	^{2*} 547 344	318
1987	9 547	4 199 069	^{2*} 965 344	—

^{1*} 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, previously included in "Timber" in the years prior to and including 1982/83.

^{2*} 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 8
Summary of Imports of Forest Produce

Year	Timber Woodware (\$)	Tanning Materials (\$)	Essential Oils (\$)
Brought Forward	69 937 163	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
1987	47 950 173	521 401	37 684

Source: Australian Bureau of Statistics

**Appendix 9
Area of Prescribed Burning 1987/88**

Indigenous Vegetation — hand burning (a)	1988	1987
State forests		
Handburns	23 591	25 220
Slash and regeneration	6 346	6 966
Indigenous areas within pine plantation zones	172	395
Clearing burns for pine establishment	325	1 073
National parks	13 584*	3 281*
Nature reserves	2 397**	1 471**
Other Crown lands and private property	3 587	3 385
Total	50 002	41 791
Indigenous Vegetation — aerial ignition (ha)		
State forest hardwood	203 723	196 271
National parks	12 890	2 184
Nature reserves	3 884	1 445
Other Crown lands and private property	2 250	2 240
Total	222 747	202 140
State Forest Softwoods (ha)		
Winter burning under pines	4 534	6 429
Total	4 534	6 429

* plus 239 km buffer strips

** plus 118 km buffer strips

**Appendix 10
Fire Fighting Equipment by Regions — 30 June 1988**

Region	Heavy Duties	Gang Trucks	Light Patrol	Portable Units
Metropolitan	1	0	8	3
Northern Forest	18	13	21	13
Central Forest	27	18	12	23
Southern Forest	15	14	8	9
South Coast	6	0	18	4
Wheatbelt	3	2	8	3
Greenough	3	0	7	0
Goldfields	1	0	3	0
Pilbara	1	0	3	0
Kimberley	0	0	2	0
Total	75	47	90	55

Heavy Duty = 5 tonne truck with 2700 to 3600 litre tank and 11kW pump.
 Gang Truck = Personnel carrier with 900 to 1900 litre tank and 4kW pump.
 Light Patrol = Up to 1 tonne 4WD vehicle with 400 to 700 litre tank and 4kW pump.
 Portable Units = Either 11kW pump for relay pumping or standard 4kW pump.
 Delivery hoses are up to 4cm in diameter.

Hygiene Washdown Units by Regions — 30 June 1988

Region	Mobile HP/LV Trailer or Vehicle	Fixed HP/LV DHQ Electric or Petrol	Washdown Pad/Ramp
Metropolitan	1	0	1
Northern Forest	3*	1	3
Central Forest	2	3	6
Southern Forest	4*	3	3
South Coast	4	1	5
Wheatbelt	1	0	2
Greenough	2	0	1
Goldfields	0	0	0
Pilbara	0	0	0
Kimberley	0	0	0
Total	18	8	21

* Includes (1) air compressor type.

**Appendix 11
Wildfires
Number of Wildfires and Areas by Land Categories**

	Number	Area Burnt (ha)
State forest hardwood	127	11 134
State forest softwood	35	230
National parks	25	37 027
Nature reserves	17	3 215
Other Crown lands	67	18 774
Private property	91	6 163
Total	362	76 543

Causes

	Number	Percent
Deliberately and illegally lit	141	39
Escaped from departmental prescribed burns	34	9
Escaped from other burning off	47	13
Accidental by timber industry	6	2
Accidental by other industries	32	9
Accidental by recreational visitors	20	6
Lightning	40	11
Unknown	26	7
Other causes	16	4
Total	362	100

Appendix 12
Summary of Personnel Employed at 30 June 1988
in Divisions, Regions, Districts and Branches

Division/Branch Region/District	Public Service Act	CALM Act Field Staff	Other	National Park Rangers	Forest, Reserve, Workshop & other Wages	Total
Minister's Office	10	--	--	--	--	10
Policy Directorate	19	1	--	--	2.75	22.75
Operations Directorate	15	--	--	--	--	15
Research Division	59.12	64.40	--	--	20.27	143.79
Economics	6	--	--	--	--	6
Planning	9	1	--	--	1	11
Engineering	11	6	--	--	8	25
Finance	37	1	--	--	--	38
Internal Audit	1	--	--	--	--	1
Records	17	--	--	--	--	17
Wildlife and Land Administration	18.5	2	--	--	--	20.5
Human Resources	14	3	--	--	--	17
Information Resources	10	--	--	--	--	10
Environmental Protection	3	2	--	--	--	5
Fire Protection and Communications	3	14.8	--	--	2.21	20.01
Information	11.5	8.35	--	--	1	20.85
Inventory	10	39.98	--	--	--	49.98
Mapping	30	4	--	--	.25	34.25
Recreation and Landscape	5	1	--	--	--	6
Timber Production	7	11.93	--	--	--	18.93
Silviculture	4	1	--	--	--	5
Central Forest	8	8	--	--	8.45	31.45
Busselton	2	17	--	--	45.92	64.92
Collie	1	13	--	--	28	42
Harvey	2	17	--	7	41.19	60.19
Kirup	1	12	--	--	29.14	42.14
Nannup	1	13	--	--	44.58	58.58
Gascoyne	3	--	--	3	--	6
Goldfields	3	5	--	--	3	11

**Summary of Personnel Employed at 30 June 1988
In Divisions, Regions, Districts and Branches**

Division/Branch Region/District	Public Service Act	CALM Act Field Staff	Other	National Park Rangers	Forest, Reserve, Workshop & other Wages	Total
Greenough	1	2	—	} 6	2.4	11.4
Moora	2	—	—		—	2
Kimberley	3	2	—	12	9.32	26.32
Metropolitan	5	—	—	5	—	10
Northern Forest	8	4	—	} 30	3.06	45.06
Dwellingup	3	16	—		49.28	68.28
Jarrahdale	2	12	—		22.22	36.22
Mundaring	1	10	—		25.20	36.20
Wanneroo	1	9	—		50.69	60.69
Southern Forest	5	6	—	} 4	—	15
Manjimup	2	25	—		62.65	89.65
Pemberton	2	15	—		41.18	58.18
Walpole	1	9	—	18.64	28.64	
Pilbara	3	3	—	7	3.5	16.5
South Coast	3	2	—	} 17	—	22
Albany	3	4	—		5.16	12.16
Esperance	1	2	—		5	8
Wheatbelt						
Narrogin	7	7	—	—	8.19	22.19
Wildlife Protection	31	1	—	—	—	32
	405.12	375.46	—	91	542.25	1413.83
Cadets — Field						14.5
Education Officer Seconded from Education Department						1
						1429.33

Appendix 13 Changes in Senior Departmental Staff

Public Service Act

Abbott, I J (Dr)	Principal Research Scientist	Promoted
Adams, J C	Timber Contract Officer	Reclassified
Bartle, J R	Principal Research Scientist	Promoted
Berson, T L	Policy Adviser	Promoted
Bowen, P J	Senior Research Officer	Reclassified
Brabazon, M L	Executive Officer	Reclassified
Brandis, A J	Assistant Manager, Training and Development	Promoted
Breidahl, R	District Manager	Resigned
Brennan, G K	Research Scientist	Reclassified
Butcher, G M	Hardwood Silviculturist	Promoted
Campbell, H	Manager	Promoted
Clift, H F	Librarian	Promoted
Coates, D J (Dr)	Senior Research Scientist	Reclassified
Colreavy, M P	Policy Adviser	Promoted
Cooper, R G	Manager	Promoted
Fretz, M A	Sub Accountant	Promoted
Frewer, P S	Planning Officer	Promoted
Friend, G R (Dr)	Senior Research Scientist	Reclassified
Friend, J A (Dr)	Senior Research Scientist	Reclassified
Germantse, R G	District Manager	Reclassified
Halse, S A (Dr)	Senior Research Scientist	Promoted
Hammond, L F	Manager	Retired
Hammond, R B	Landscape Architect	Reclassified
Hart, A J	Senior District Forest Officer	Retired
Haswell, D A	Regional Manager	Promoted
Hoare, G L	Senior Cartographic Draftsperson	Reclassified
Hopper, S D (Dr)	Senior Principal Research Scientist	Promoted
Jennings, D L	Project Leader	Promoted
Kealley, I G	Manager	Promoted
Kelers, K	Deputy Regional Manager	Promoted
Keighery, G J	Senior Research Scientist	Reclassified
Kimber, P C	Principal Operations Officer	Promoted
Laczo, E	Librarian	Resigned
Lejeune, D	Inspector	Retired
Lush, A R	Deputy Regional Manager	Promoted
Marshall, L J	Senior Mechanical Supervisor	Retired
McDonald, T J G	Engineer	Reclassified
Moore, P J	District Manager	Reclassified
Muller, C	Senior Fire Officer	Promoted
Reid, T G	District Forest Officer	Reclassified
Sclater, J B	Manager	Promoted
Sclater, K D	District Manager	Reclassified
Scott, A A	Senior Training Officer	Promoted
Start, A N (Dr)	Principal Research Scientist	Promoted

Conservation and Land Management Act

Keppel, P	Senior Forester	Promoted
Mead, R D	Senior Forester	Reclassified
Phelps, N	Senior Forester	Retired
Simmonds, R	District Forester	Promoted

Appendix 14
Department's Safety Record Since 1960/61

Year	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
1987/88	2 500 935	34	118	152	13	47	60	590**

* Calculated on the basis of number of accidents per million hours worked.

** Of the 590 days lost, 106 were carried over from 3 accidents sustained during the previous year.

Appendix 15 Publications Produced in 1987/88

Annual Report

Department of Conservation and Land Management 1987

Landscape

Volume 3 No. 1
Spring 1987

Lest We Forget
Bush Telegraph
All My Life's A Circle
Staying Alive
Thar' She Blows
Nostalgic Naturalist
Spring Collection - Photo-Essay
A Thorny Problem - Crown of Thorns Starfish in W.A.
The Fringing Forests of Lake Argyle
Urban Antics: Snakes
Eating Up The Past
Signs Of The Times
Portfolio - Richard Woldendorp
Letters

Volume 3 No. 2
Summer 1987

Gulls
Magic Spot
Bush Telegraph
Sadwrap
Nostalgic Naturalist
W.A.'s Rainforests
Portfolio - Michael Morcombe
Local Heroes
Urban Antics: Spiders
Fire: Good Servant; Poor Master
The Shannon
Dreaming Of The Future
Letters

Volume 3 No. 3
Autumn 1988

Restoring Nature's Balance
Greenhouse Australia
Carry On Camping
Nostalgic Naturalist
Walking Through The Past
Bush Telegraph
Caves, Waves And Culture
Treated Timber - Is It Safe?
Endangered: Western Swamp Tortoise
Eye Of The Beholder - A Photo Essay
Urban Antics
From The Field And Forest: Edible Fungi
Letters

Volume 3 No. 4
Winter 1988

Beyond The Bomb: Montebellos 1988
Shark Bay
The Last Lake
Bush Telegraph

The Quiet Achievers: W.A.'s Termites
Carving The Future
Perth's Hidden Water Supply
Urban Antics: Birds
Garden Escapes
Bats, Bats And More Bats
Endangered
Letters

CALM News

12 monthly editions

Recreation

Albany - Denmark Coast National Parks
East Perth Cemetery
King Jarrah Heritage Trail - Manjimup
Lane Poole Reserve - Dwellingup (revised)
Marrinup Forest Tour
Walyunga and Avon Valley National Parks
Penguin Island
National Parks and Forests (Reprint)
Discovering Marmion Marine Park
Ningaloo Marine Park
Manjimup Pemberton National Parks and Forests
Esperance National Parks (Interim)
Walpole-Nornalup National Park (Interim Reprint)
Bungle Bungle National Park (Interim Reprint)
Shannon National Park (Reprint)
Wilderness Survival Card
Yanchep Brochure (Reprint)

Education

The Wambenger
Forest Explorer - Goldie and the Riddles of Life (Reprint)
Seabirds of Penguin Island - Crested Tern
Seabirds of Penguin Island - Bridled Tern
Take Care in Crocodile Areas
Birds of the Hamersley Range National Park (Revised)
Birds of the Cape Range National Park (Revised)
The Dibbler
Sea Lions
Geology of Kalbarri National Park (Revised)
Birds of Kalbarri National Park (Revised)
Mammals of Kalbarri National Park (Revised)
Arbor Day Leaflet
Crocodile Warning Coaster
Flora Roads (R.V.C.C.)
Dandaragan Drives (R.V.C.C.)

Resource Notes

No. 14	Parallel Adaptations - Numbat and Echidna
No. 15	Seed Dispersal in Macrozamia
No. 16	Prescribed Burns: Fighting Fire with Fire
No. 17	Some Trees of the Jarrah Forest
No. 18	The Geology of the Jarrah Forest
No. 19	Possums, Habitat Trees and Fire

Advisory

Ravensthorpe's Flora (R.V.C.C.)
The Vasse-Wonnerup Estuaries
Trees for Rural Areas - Wheatbelt (Update)
Trees for Rural Areas - South West (Update)
Firewood Gathering in State Forests - Gnangara
Firewood Gathering in State Forests - Pinjar
Firewood Gathering in State Forests - Jarrahdale
Firewood Gathering in State Forests - Dwellingup
Wide Roadsides Flora Drives (R.V.C.C.)

Information Sheets

No. 6-87	Caring for Waterbirds - with Alga Poisoning or Botulism
No. 1-88	Trees and Tall Shrubs of Perth. R. Powell
No. 2-88	Broadscale Direct Seeding of Trees on Farms

Industry

Western Australia's Wood Resources Commercial Opportunities
Timber Talk No. 1, Small Eucalypt Processing Study
Survey of Materials Used in House Construction

Posters

Arbor Day 1988
Ningaloo Marine Park
Wildlife Emblems (Reprint)
Granite Rock Outcrops
Forests For Tomorrow
CALM Logo Poster

Management Plans

Regional Management Plan 1987-1997 Central Forest Region
Regional Management Plan 1987-1997 Strategies for Conservation and Recreation on CALM Lands in Western Australia
Regional Management Plan 1987-1997 Southern Forest Region
Regional Management Plan 1987-1997 Timber Production in Western Australia
Regional Management Plan 1987-1997 Northern Forest Region
Forests for Tomorrow - Your Decisions A Summary of the Management Plans for the Northern, Central and Southern Forest Regions and the Timber, Recreation and Conservation Strategies
Regional Management Plan 1987-1997 Summary of Public Submissions
Shannon Park and d'Entrecasteaux National Park - Summary of Public Submissions, August 1987

Shannon Park and d'Entrecasteaux National Park Management Plan No. 6
 Waroona Reservoir and Catchment Area. Draft. March 1988
 Logue Brook Reservoir and Catchment Area. Draft and Supplementary Papers. November 1987
 Yanchep National Park. Draft. April 1988
 Yanchep National Park. Supplementary Papers
 Yanchep Management Plan Booklet
 No. 7 Bengier Swamp Nature Reserve - Summary of Public Submissions. July 1987
 No. 7 Bengier Swamp Nature Reserve Management Plan. 1987-1992
 Yanchep National Park Preliminary Information Sheet
 Walpole-Nornalup National Park Preliminary Information Sheet
 Fitzgerald River National Park Preliminary Information Sheet

Research Paper

No. 2 Potential of Pinus pinaster, P. radiata and P. elliottii to Rehabilitate Dieback Sites. L.F.S. de Braganca and J.J. Havel
 No. 3 Fire Caused Bole Damage to Jarrah (Eucalyptus marginata) and Marri (Eucalyptus calophylla). N.D. Burrows

Technical Reports

No. 17 The Soil Dryness Index for Use in Fire Control in the South-West of Western Australia. N.D. Burrows
 No. 18 A Survey of Vegetation And Its Relationship to Vertebrate Fauna Present in Winter on Road Verges in the Kellerberin District, W.A. Report to Roadside Vegetation Conservation Committee. C.W. Arnold, D. Algar, R.J. Hobbs and L. Atkins
 No. 19 Recovery of Forest Density After Intensive Logging in the Southern Forest Of W.A.

CALM Briefing Paper

2/87 Draft Regional Plans and Timber Strategy
 3/87 Rudall River National Park
 4/87 Training and Development in the Department of Conservation and Land Management
 5/87 Western Australia Herbarium
 1/88 Information Management Within CALM
 2/88 New Era in Training and Education for CALM

Other Technical Papers

Committee of Inquiry on the Shannon Park Basin
 An Introduction to the Fitzgerald River National Park
 Steering Committee for Research on Land Use and Water Supply
 Update - Midge Notes
 Nature Conservation Reserves in the Kimberley
 Forest Management In Australia
 Bungle Bungle National Park and Conservation Reserve Visitor Survey
 Annual Vegetation Newsletter Volume 1
 Declared Rare Flora Management Workshop Abstract Papers Presented
 Fire Management and Prescribed Burning on CALM Lands

Internal Directory, Manuals etc

Manual of Hardwood Logging Specifications
 An Introductory Guide for a Case Study on Fire Management in the Fitzgerald River National Park
 An Introductory Guide for a Case Study on Fire Management in the Hamersley Range National Park
 An Introductory Guide for a Case Study on Fire Management in the Dryandra State Forest
 An Introductory Guide for a Case Study on Fire Management in the Walpole-Nornalup National Park

Career Information
Aboriginal Ranger Training Program
Training and Development Manual
CALM Alert - Monthly Library Journals
Typing Style Handbook

Wood Utilisation Research Centre Reports

No. 1 Economic Utilisation of Thinnings from the Jarrah Forest
No. 2 Sawing Performance in W.A. Sawmills

Occasional Paper

No. 1 Ecological Theory and Biological Management of Ecosystems
No. 2 The Management of National Parks and Wilderness in the
Western USA - with Special Reference to Visitor Survey

Appendix 16 Licences Issued In 1987/88

Fauna Licences	Licences Issued	Fauna Licences	Licences Issued
<u>SCIENTIFIC</u>	121	<u>Parrots:</u>	
<u>EDUCATION & PUBLIC (to take) (Reg 15)</u>		Ringneck (Twenty-eight)	1 248
Purpose:		Western Rosella	442
Care of derelict fauna	2	Red-capped (WA King)	256
Collection and study	15	Elegant	12
Display and study	3	Mulga	7
Education	5	Northern Rosella	4
Miscellaneous	20	Regent	33
Photography	7	Cockatiel (Weero)	40
<u>EDUCATION & PUBLIC (to hold) (Reg 16)</u>	63	Red-tailed Black Cockatoo	4
<u>AVIAN FAUNA</u>		White-tailed Black Cockatoo	8
Purpose:		Yellow-tailed Black Cockatoo	1
Keep and Breed in captivity (Reg 12) 5 091		Galah	8
Deal (Reg 13) 74		Little Corella	3
Trap (Reg 11) 4		Long-billed Corella	10
Species Trapped: Parrots		Sulphur-crested Cockatoo	3
Western Rosella	604	Bourke Parrot	6
Western King Parrot	344	Hooded	4
Twenty Eight Parrot	1 540	Red Collared Lorikeet	11
Galah	37	Major Mitchell	7
<u>FAUNA</u>		Eclectus	1
Purpose:		<u>Other Species:</u>	
Keep in captivity (Reg 12A) 52		Red Plumed Pigeon	3
<u>GAME</u>		Spinifex Pigeon	2
Duck	152	White-headed Pigeon	4
Quail	30	Splendid Wren	2
<u>KANGAROOS</u>		Black-faced Cormorant	2
Purpose:		Striated Grass-wren	4
Take kangaroos for sale	138	Banded Lapwing	3
Deal in carcasses	26	Radjah Shelduck	4
Deal in skins	12	Rufous Night Heron	6
Process	19	Bush Thick-knee	4
<u>EXPORTS - Interstate</u>		<u>Mammals:</u>	
<u>Birds</u>		Euro	1
<u>Finches:</u>		Western Grey Kangaroo	1
Crimson (Blood)	14	Red Kangaroo	2
Painted Firetail	3	Eastern Wallaroo	1
Long-tailed (Black-heart)	60	Antilopine Wallaroo	2
Pictorella	131	Tammar Wallaby	20
Star	6	Kowari	8
Black Throated	22	Rufous Bettong	3
Zebra	3	Parantechinus woolleyae	6
Gouldian	4	<u>Reptiles and Amphibians:</u>	
		Brown Snake	2
		Tiger Snake	1
		Death Adder	1
		Gwadar	2
		Bobtail Skink	10
		Common Blue Snake	1
		Scrub Python	1
		Brown Tree Snake	1
		Dugite	1
		Carpet Python	6

Fauna Licences	Licences Issued	Fauna Licences	Licences Issued
Western Spiny-tailed Gecko	1	Brown Antechinus (Specimen)	2
Small Scales Snake	1	Mitchell's Hopping Mouse (Specimen)	2
Turtle Frog	1	Delicate Mouse (Specimen)	2
Humming Frog	6	Sminthopsis gilberti (Specimen)	1
Goldfields Bull Frog	1	Falsistrellus mackenzie (Specimen)	2
Heleioporus barycragus	2		
Binoes Gecko	90	<u>Reptiles:</u>	
Tree Dtella	2		
Barking Gecko	10	Bobtail Skink (Specimen)	18
Striped Skink	5	Goulds Monitor (Specimen)	5
Rock Dragon	6	Varanus caudelineatus (Specimen)	7
Central Nettle Dragon	5		
Greys Skink	1	<u>Others:</u>	
Snake eyed Skink	3		
Sand Swimmer	7	Red Kangaroo skins	192 103
Gould's Monitor	2	Western Grey Kangaroo skins	38 742
Nephurus wheeleri	4	Emu skins	81
Diplodaetylus sp.	10	Emu eggs	36
Ctenotus leonhardii	4	Red Kangaroo meat (tonne)	129.7216
Ctenotus schomburgkii	2		
Ctenophorus caudicinctus	6	<u>IMPORTS - Interstate:</u>	
Ctenophorus reticulatus	2		
Lerista muelleri	4	<u>Birds:</u>	
Notoscincus ornatus	1		
Egernia formosa	1	<u>Finches:</u>	
Varanus tristis	1		
<u>Other:</u>		Gouldian	203
Red Kangaroo skins	21 522	Blue-faced	7
Western Grey Kangaroo skins	11 522	Masked	6
Euro skins	661	Blackheart	9
Emu Eggs	6	Double-barred	60
Saltwater crocodile skins	3	Plum-headed	2
Dibbler (specimens)	19	Black Throated	14
Quokka (specimen)	1	Crimson	2
Parantechinus woolleyae (specimen)	1	<u>Parrots:</u>	
Leggadina sp. (specimen)	1		
Torresian Imperial Pigeon (specimen & tissue)	2	Blue-winged	2
Bar-shouldered Dove (specimen & tissue)	1	Princess	12
White-quilled Rock-Pigeon (specimen & tissue)	1	Blue-bonnet	24
		Naretha Blue Bonnet	1
		Weero	2
<u>Overseas:</u>		Eastern King	81
		Regent	4
<u>Birds:</u>		Ringneck	13
		Red-Rumped	9
New Holland Honeyeater	6	Adelaide Rosella	14
Galah	44	Crimson Rosella	59
Little Corella	2	Eastern Rosella	43
Blue Winged Kookaburra	3	Pale-headed Rosella	19
Major Mitchell	4	Turquoise	19
Magpie	3	Yellow Rosella	15
Musk Lorikeet	10	Gang Gang	4
Red-collared Lorikeet	12	Scaly-breasted Lorikeet	20
Crested Tern	6	Scarlet-chested	7
Splendid Wren	2	Long-billed Corella	3
		Superb	20
<u>Mammals:</u>		Bourke	84
		Rainbow Lorikeet	22
Antilopine Wallaroo	2	Little Corella	56
Koala	2	Galah	143
Tasmanian Devil	1	Sulphur-crested Cockatoo	12
Short-beaked Echidna	1	Major Mitchell	18
Common Wombat	1	Little Lorikeet	10
Red Kangaroo	5	Golden-shouldered	4
Grey-bellied Dunnart (Specimen)	2	Red-winged	27

Fauna Licences	Licences Issued	Fauna Licences	Licences Issued
Green Rosella	2		
Varied Lorikeet	3		
Glossy Black Cockatoo	1		
Red-tailed Black Cockatoo	2		
Mulga	2		
Red-collared Lorikeet	2		
Port Lincoln	1		
<u>Other Species:</u>			
Buff Back Bittern	1		
Australian Bittern	1		
Pacific Heron	2		
Brahminy Kite	1		
Bush Thick-knee	2		
Blue-faced Honeyeater	2		
Black-winged Stilt	3		
Wedge-tailed Eagle	1		
Spotted Catbird	2		
Satin Bowerbird	2		
Regent Bowerbird	3		
<u>Exotics:</u>			
Melba Finch	102		
Cordon Bleu Finch	82		
Aurora Finch	67		
Orange-breasted Waxbill	140		
Cuban Finch	10		
Jacarini	24		
Hooded Siskin	10		
Masked Dove	11		
Peached-faced Lovebird	41		
Masked Lovebird	87		
Cutthroat Finch	20		
Siskin	22		
Nyassa Lovebird	30		
Red-crested Cardinal	1		
Madagascar Weaver	19		
Rose Ring Parakeet	6		
Siamese Fireback Pheasant	4		
Grey Parrot	4		
Ostrich	2		
St Helena Waxbill	14		
African Firetail Finch	10		
Strawberry Finch	145		
Chattering Lorikeet	3		
Bleeding Heart Pigeon	1		
Fishers Lovebird	13		
Slaty-headed Parrot	1		
Plum-headed Parrot	4		
Red-fronted Kakariki	24		
Mandarin Duck	2		
Golden-breasted Waxbill	36		
Red-headed Finch	12		
Ruddy Ground Dove	23		
Red-faced Parrot Finch	12		
Blue-capped Finch	11		
Yellow-throated Miner	2		
Monk Parakeet	11		
White-backed Munia	1		
Lovebird (Hybrid)	21		
Namaqua Dove	4		
Golden Pheasant	2		
Reeves Pheasant	6		
Kalij Pheasant	2		
		<u>Mammals:</u>	
		Spinifex Hopping Mouse	10
		<u>Others</u>	
		Red Kangaroo meat	(tonne) 110
		Western Grey Kangaroo meat	(tonne) 45
		Red Kangaroo skins	12 400
		Western Grey Kangaroo skins	1 700
		Euro skins	100
		Saltwater Crocodile (Meat)	10
		Saltwater Crocodile (Skins)	30
		Freshwater Crocodile (Skins)	3
		<u>Exotic:</u>	
		<u>Reptiles:</u>	
		American Alligator	2
		<u>EMUS</u>	
		Process:	
		Emu eggshells	3
		<u>Dealing:</u>	
		Emu eggshells	(Reg. 13) 16
		<u>FLORA</u>	
		During the twelve months ending 30 June 1988 the following licences were issued.	
		Commercial Purposes Licence:	
		° 1251 licences were issued authorising the taking of protected flora for sale from Crown land.	
		Commercial Producers Licence:	
		° 126 licences were issued authorising the taking of protected flora for sale from Private land.	
		Scientific or Other Prescribed Purposes Licences:	
		° 907 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 17

Open Seasons Declared in 1987/88

**Government
Gazette**

Waterfowl Population Management
(South West and Eucla Land Divisions)
(Mountain Duck)
1 January 1988 to 31 December 1988

24/12/87

Appendix 18

Offences Under the Wildlife Conservation Act 1987/88

No. Offences x Section of Act	Offence
51 x S16(1)	Illegal taking of protected fauna
2 Major Mitchell's Cockatoos	Shingle-backed Skinks
12 Grey Teal	Spiny-tailed Skinks
3 Black Duck	Burton's Legless Lizard
2 Pink-eared Duck	16 Grey Kangaroo
6 Black Swan	Emu
1 Coot	20 Emu eggs
7 Wood Duck	3 Emus
1 White-faced Heron	1 Australian Sea-lion
1 Black-tailed Native Hen	White-tailed Black Cockatoos
63 Galahs	Ring-necked Parrots
Western Rosellas	
1 x S16(2)	Taking protected fauna contrary to a notice.
92 Emus	
7 x S16A(1)	Unlawful possession of protected fauna.
Grey Kangaroos	10 Golden Sea-snake
Emu eggs	10 Eydoux's Sea-snake
3 Kookaburras	10 Harwickes Sea-snake
1 Hydrophis sp.	
1 x S17(2)(c)	Illegal import of fauna.
Red Kangaroos.	
14 x S17(2)(e)	Selling fauna or taking fauna for sale without a licence.
3 Galahs	82 Grey Kangaroos
1 Ring-necked Parrot	Emu eggs
1 Sulphur-crested Cockatoo	1 Golden Sea-snake
1 Red-capped Parrot	2 Shark Bay Sea-snake
1 Gould's Goanna	63 Bar-bellied Sea-snake
2 Mulga Parrot	6 Olive-headed Sea-snake
50 x S23B(1)	Illegal taking of protected flora from Crown land.
<i>Anigozanthos manglesii</i>	<i>Adenanthos cygnorum</i>
<i>Agonis linearifolia</i>	<i>Eucalyptus wandoo</i>
<i>Eremophila serpens</i>	<i>Kunzea sp.</i>
<i>Eucalyptus marginata</i>	<i>Eucalyptus celestroides</i>
<i>Casuarina sp.</i>	<i>Banksia menziesii</i>
<i>Banksia attenuata</i>	<i>Eucalyptus sp.</i>
<i>Eucalyptus salmonophloia</i>	<i>Adenanthos cuneatus</i>
<i>Verticordia nitens</i>	<i>Banksia prionotes</i>
<i>Verticordia spp.</i>	<i>Agonis juniperinum</i>
<i>Pithocarpa corymbulosa</i>	<i>Agonis parviceps</i>
<i>Leptocarpus sp.</i>	<i>Restio ustulatus</i>

8 x S23D(1)	Illegal taking of protected flora from private property.
<i>Verticordia nitens</i>	<i>Lachnostachys eriobotrya</i>
<i>Acacia acuminata</i>	<i>Corynanthera flava</i>
<i>Kunzea vestita</i>	<i>Leptocarpus sp.</i>
3 x S23E(1)(a)	Illegal selling of protected flora.
<i>Sholtzia involucrata</i>	<i>Adenanthos cygnorum</i>
2 x S23F	Illegal taking of Declared Rare Flora.
<i>Grevillea dryandroides</i>	<i>Banksia cuneata</i>
1 x S25(1)(a)	Willfully misleading a wildlife officer.
1 x S25(1)(f)	Use of abusive language.
2 x S25(1)(g)	Failing to observe the conditions of a licence.
1 x R8A(3)(b)	Untagged kangaroo carcasses in a chiller.
2 x R12(7)(a)	Keeping avian fauna not applicable to licence.
2 x R12(7)(e)	Disposal of avian fauna without authority.
1 x R13(4)(a)	Failing to record avian fauna received.
1 x R13(6)	Purchase by bird dealer from unlicensed person.
4 x R28(1)	Keeping fauna in captivity without a licence.
7 x R44(1)	Dumping rubbish on a nature reserve.
4 x R44(2)(a)	Illegal camping on a nature reserve.
1 x R44(2)(b)	Placing a structure on a nature reserve.
1 x R44(4)	Failure to remove a structure from a nature reserve.
5 x R46(b)	Taking of flora from a nature reserve.
3 x R46(g)	Use of a vehicle on a nature reserve.
3 x R46(k)	Taking a dog on a nature reserve.
1 x R46(m)	Lighting a fire on a nature reserve.
4 x R47(2)	Illegally entering a prohibited area.
1 x R54(10)(a)	Use of poisonous substance.

Appendix 19
Trust Statements

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

TRUST STATEMENT NO. 1

NAME	An account called Suspended Postings shall be maintained as a Suspense Account at the Treasury.
PURPOSE	To hold the Department of Conservation and Land Management's rejected credit postings pending identification of and subsequent posting to the correct account or the creation of the required account.
RECEIPTS	Such credit amounts as are rejected by the Government Accounting System due to incorrect posting account details, shall be credited to the Account.
PAYMENTS	The funds standing to the credit of the Account shall be cleared by journal transfer to the appropriate account prior to the end of each month.
ADMINISTRATION OF ACCOUNT	The Account shall be administered by the Executive Director, Department of Conservation and Land Management in accordance with the Financial Administration and Audit Act, Financial Administration Regulations and the Treasurer's Instructions.
ACCOUNTING RECORDS	There shall be maintained by the Executive Director, a detailed record of transactions processed through the Account together with such other accounting records and procedures as are prescribed in the accounting manual.
INVESTMENT OF FUNDS	Moneys standing to the credit of the Account may be invested in accordance with sections 38 and 40(a) of the Financial Administration and Audit Act.

I have examined and agree to the provisions of this Trust Statement.

Approved



EXECUTIVE DIRECTOR



Assistant Under Treasurer

DATE 30-6-87

DATE 30 JUN 1987

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

TRUST STATEMENT NO. 2

NAME An account called Departmental Receipts in Suspense shall be maintained as a Suspense Account at the Treasury.

PURPOSE 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.

RECEIPTS Such moneys as are received by the Department of Conservation and Land Management being amounts held pending identification of the purpose for which those moneys were received shall be paid into and placed to the credit of the Account.

PAYMENTS The funds in the Account shall be cleared by:

- (i) refunding the remittance to the payer;
- (ii) transferring the funds to the correct account;
- (iii) payment to another department or statutory authority; or
- (iv) transferring the funds to the Sundry Creditors Account.

ADMINISTRATION OF ACCOUNT The Account shall be administered by the Executive Director, Department of Conservation and Land Management in accordance with the Financial Administration and Audit Act, Financial Administration Regulations and the Treasurer's Instructions.

ACCOUNTING RECORDS There shall be maintained by the Executive Director a detailed record of transactions processed through the Account together with such other accounting records and procedures as are prescribed in the accounting manual.

FINANCIAL
STATEMENT

The Executive Director shall cause to be prepared such financial statements, together with supplementary information, as are required in respect of prescribed suspense accounts in accordance with the provisions of the Financial Administration and Audit Act and Treasurer's Instructions.

INVESTMENT
OF FUNDS

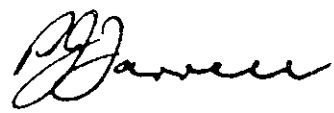
Moneys standing to the credit of the Account may be invested in accordance with sections 38 and 40(a) of the Financial Administration and Audit Act.

I have examined and agree to the provisions of this Trust Statement.

Approved



EXECUTIVE DIRECTOR



Assistant Under Treasurer

DATE 30-6-87

DATE 30 JUN 1987

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

TRUST STATEMENT NO. 3

NAME An account called Conservation and Land Management Fund shall be maintained as a Governmental Operating and Trust Account at the Treasury.

PURPOSE To hold funds; in accordance with Section 65 of the Conservation and Land Management Act (the Act), to enable the Department of Conservation and Land Management to give effect to the provisions of the Act.

RECEIPTS Such moneys as are received by the Department of Conservation and Land Management being those moneys prescribed by section 64 and 68 of the Act shall be paid into and placed to the credit of the Account.

PAYMENTS The funds in the Account shall be applied, in accordance with section 66 of the Act, to meet expenditure incurred by the Department in carrying into effect the provisions of the Conservation and Land Management Act and the Wildlife Conservation Act 1950.

ADMINISTRATION OF ACCOUNT The Account shall be administered by the Executive Director, Department of Conservation and Land Management in accordance with the provisions of the Financial Administration and Audit Act, Financial Administration Regulations and Treasurer's Instructions.

ACCOUNTING RECORDS There shall be maintained by the Executive Director a detailed record of transactions processed through the Account, together with such other accounting records and procedures as are prescribed in the accounting manual.

FINANCIAL
STATEMENT

The Executive Director shall cause to be prepared a statement of cash receipts and payments and such other supplementary information in accordance with the requirements of the Treasurer's Instructions.

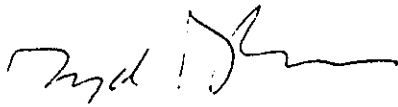
INVESTMENT
OF FUNDS

Moneys standing to the credit of the Account may be invested in accordance with:

- (i) Section 67 of the Conservation and Land Management Act 1984; and
- (ii) section 38 of the Financial Administration and Audit Act.

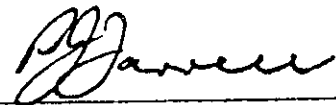
I have examined and agree to the provisions of this Trust Statement.

Approved



EXECUTIVE DIRECTOR

DATE 18 SEP 1987



Assistant Under Treasurer

DATE 5 OCT 1987

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

TRUST STATEMENT NO. 4

NAME	An account called the Research Co-ordinating Committee shall be maintained as a Private Trust Account at the Treasury.
PURPOSE	To hold funds for the purpose of conducting research projects as approved by the Research Co-ordinating Committee.
RECEIPTS	<p>Such moneys as are received by the Department of Conservation and Land Management being:</p> <ul style="list-style-type: none">(i) contributions from industry and other sources expressly for the Research Co-ordinating Committee; and(ii) interest earned on the investment of funds held in the Account <p>shall be paid into and placed to the credit of the Account.</p>
PAYMENTS	The funds in the Account shall be applied to meet costs associated with research projects authorised by the Research Co-ordinating Committee.
ADMINISTRATION OF ACCOUNT	The Account shall be administered by the Executive Director, Department of Conservation and Land Management in accordance with the provisions of the Financial Administration and Audit Act, Financial Administration Regulations and Treasurer's Instructions.
ACCOUNTING RECORDS	There shall be maintained by the Executive Director a detailed record of transactions processed through the Account, together with such other accounting records and procedures as are prescribed in the accounting manual.

FINANCIAL
STATEMENT

The Executive Director shall cause to be prepared a statement of cash receipts and payments and such other supplementary information in accordance with the requirements of the Treasurer's Instructions.

INVESTMENT
OF FUNDS

Moneys standing to the credit of the Account may be invested in accordance with section 40(a) of the Financial Administration and Audit Act.

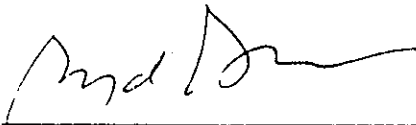
Interest payable on the minimum monthly balance shall be allowed at a rate approved by the Treasurer.

DISPOSAL OF FUNDS
ON CESSATION

Any balance standing to the credit of the account upon cessation of operations for which the Account was created shall be refunded to the contributors on a pro rata basis of funds contributed.

I have examined and agree to the provisions of this Trust Statement.

Approved



EXECUTIVE DIRECTOR



Assistant Under Treasurer

DATE 18 SEP 1987

DATE 5 OCT 1987

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

TRUST STATEMENT NO. 5

NAME An account called the Dieback Research Fund shall be maintained as a Private Trust Account at the Treasury.

PURPOSE To hold funds for research projects as approved by the Dieback Research Fund Management Committee.

RECEIPTS Such moneys as are received by the Department of Conservation and Land Management being:

- (i) contributions from industry and other sources provided expressly for the Dieback Research Fund; and
- (ii) interest earned on the investment of funds held in the Account

shall be paid into and placed to the credit of the Account.

PAYMENTS The funds in the Account shall be applied to meeting costs associated with projects authorised by the Dieback Research Fund Management Committee.

ADMINISTRATION OF ACCOUNT The Account shall be administered by the Executive Director, Department of Conservation and Land Management in accordance with the Financial Administration and Audit Act, Financial Administration Regulations and Treasurer's Instructions.

ACCOUNTING RECORDS There shall be maintained by the Executive Director a detailed record of transactions processed through the Account, together with such other accounting records and procedures as are prescribed in the accounting manual.

FINANCIAL
STATEMENT

The Executive Director shall cause to be prepared a statement of cash receipts and payments and such other supplementary information in accordance with the requirements of the Treasurer's Instructions.

INVESTMENT
OF FUNDS

Moneys standing to the credit of the Account may be invested in accordance with section 40(a) of the Financial Administration and Audit Act.

Interest payable on the minimum monthly balance shall be allowed at a rate approved by the Treasurer.

DISPOSAL OF
FUNDS ON
CESSATION

Any balance standing to the credit of the account upon cessation of operations for which the Account was created shall be refunded to the contributors on a pro rata basis of funds contributed.

I have examined and agree to the provisions of this Trust Statement.

Approved



EXECUTIVE DIRECTOR



Assistant Under Treasurer

DATE 18 SEP 1987

DATE 5 OCT 1987

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

TRUST STATEMENT NO.6

NAME	An account called the "World Wildlife - Numbats" shall be maintained as a Trust Private Account at the Treasury.
PURPOSE	To hold moneys for the purpose of funding the establishment of a breeding colony of the numbat.
RECEIPTS	Such moneys as are received by the Department of Conservation and Land Management being funds granted by the World Wildlife Fund Australia shall be paid into and placed to the credit of the account.
PAYMENTS	The funds in the Account shall be applied to meet amounts expended, in the establishment of a breeding colony of the numbat, from the Consolidated Revenue Fund.
ADMINISTRATION OF ACCOUNT	The Account shall be administered by the Executive Director, Department of Conservation and Land Management on the advice of the Minister and in accordance with the "Conditions of Grant" and the Financial Administration and Audit Act, Financial Administration Regulations and the Treasurer's Instructions.
ACCOUNTING RECORDS	There shall be maintained by the Executive Director a detailed record of transactions processed through the Account, together with such other accounting records and procedures as are prescribed in the accounting manual.
FINANCIAL STATEMENT	The Executive Director shall cause to be prepared a statement of cash receipts and payments and such other supplementary information in accordance with the requirements of Treasurer's Instructions.

INVESTMENT
OF FUNDS

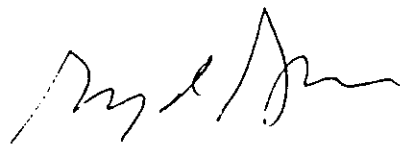
Moneys standing to the credit of the Account may be invested in accordance with section 40(a) of the Financial Administration and Audit Act.

DISPOSAL
OF FUNDS ON
CESSATION

Any balance standing to the credit of the Account upon cessation of the operations for which the Account was created shall be returned to the World Wildlife Fund of Australia.

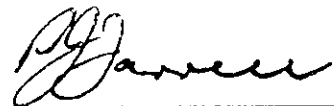
I have examined and agree to the provisions of this Trust Statement.

Approved



EXECUTIVE DIRECTOR

DATE 18 SEP 1987



Assistant Under Treasurer

DATE 5 OCT 1987

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

TRUST STATEMENT NO. 7

NAME An account called the Scholarships - C.E. Lane-Poole Memorial Trust shall be maintained as a Private Trust Account at the Treasury.

PURPOSE To hold funds for the purpose of providing awards, to extend the knowledge and experience of awardees on topics of value to the Department of Conservation and Land Management.

RECEIPTS Such moneys as are received by the Department of Conservation and Land Management being:

- (i) amounts provided by industry or any other organisation; and
- (ii) interest earned on the investment of funds held in the Account

shall be paid into and placed to the credit of the Account.

PAYMENTS The funds in the Account shall be applied to meet costs associated with awards granted by the trustees.

ADMINISTRATION OF ACCOUNT The Account shall be administered by the Executive Director, Department of Conservation and Land Management in accordance with the Financial Administration and Audit Act, Financial Administration Regulations and Treasurer's Instructions.

ACCOUNTING RECORDS There shall be maintained by the Executive Director a detailed record of transactions processed through the Account, together with such other accounting records and procedures as are prescribed in the accounting manual.

FINANCIAL
STATEMENT

The Executive Director shall cause to be prepared a statement of cash receipts and payments and such other supplementary information in accordance with the requirements of the Treasurer's Instructions.

INVESTMENT
OF FUNDS

Moneys standing to the credit of the Account may be invested in accordance with section 40(a) of the Financial Administration and Audit Act.

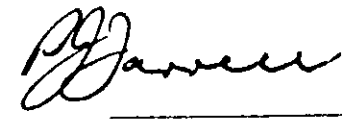
Interest payable on the minimum monthly balance shall be allowed at the rate approved by the Treasurer.

I have examined and agree to the provisions of this Trust Statement.

Approved



EXECUTIVE DIRECTOR



Assistant Under Treasurer

DATE 18 SEP 1987

DATE 5 OCT 1987

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

TRUST STATEMENT NO. 8

NAME An account called the Scholarships - Keynes-Forestry shall be maintained as a Private Trust Account at the Treasury.

PURPOSE To hold funds for the purpose of providing a trophy to be awarded for the most outstanding achievement at the Departmental school.

RECEIPTS Such moneys as are received by the Department of Conservation and Land Management being:

- (i) the original bequest; and
- (ii) interest earned on the investment of funds in the Account,

shall be paid into and placed to the credit of the Account.

PAYMENTS The funds in the Account shall be applied to meet costs associated with awards.

ADMINISTRATION OF ACCOUNT The Account shall be administered by the Executive Director, Department of Conservation and Land Management in accordance with the Financial Administration and Audit Act, Financial Administration Regulations and Treasurer's Instructions.

ACCOUNTING RECORDS There shall be maintained by the Executive Director a detailed record of transactions processed through the Account, together with such other accounting records and procedures as are prescribed in the accounting manual.

FINANCIAL STATEMENT The Executive Director shall cause to be prepared a statement of cash receipts and payments and such other supplementary information in accordance with the requirements of the Treasurer's Instructions.

INVESTMENT
OF FUNDS

Moneys standing to the credit of the Account may be invested in accordance with section 40(a) of the Financial Administration and Audit Act.

Interest payable on the minimum monthly balance shall be allowed at a rate approved by the Treasurer.

I have examined and agree to the provisions of this Trust Statement.

Approved



EXECUTIVE DIRECTOR

DATE 27/9/87



Assistant Under Treasurer

DATE 5 OCT 1987

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

TRUST STATEMENT NO. 9

NAME An account called Deposits - Conservation and Land Management shall be maintained as a Private Trust Account at the Treasury.

PURPOSE To hold funds lodged as security for the due and proper performance and completion of contractual obligations.

RECEIPTS Such moneys as are received by the Department of Conservation and Land Management being:

- (i) deposits lodged by contractors; and
- (ii) interest earned on the investment of funds held in the Account

shall be paid into and placed to the credit of the Account.

PAYMENTS The funds in the Account shall:

- (i) in the case of satisfactory completion of the contractual obligations, be refunded to the contractor concerned; and
- (ii) in the case of default or termination of the contract, be applied to meet the costs associated with the breach or termination of contract and any balance refunded to the contractor concerned.

ADMINISTRATION OF ACCOUNT The Account shall be administered by the Executive Director, Department of Conservation and Land Management in accordance with the Financial Administration and Audit Act, Financial Administration Regulations and Treasurer's Instructions.

ACCOUNTING
RECORDS

There shall be maintained by the Executive Director a detailed record of transactions processed through the Account, together with such other accounting records and procedures as are prescribed in the accounting manual.

FINANCIAL
STATEMENT

The Executive Director shall cause to be prepared a statement of cash receipts and payments and such other supplementary information in accordance with the requirements of the Treasurer's Instructions.

INVESTMENT
OF FUNDS

Moneys standing to the credit of the Account may be invested in accordance with section 40(a) of the Financial Administration and Audit Act.

Interest payable on the minimum monthly balance shall be allowed at a rate approved by the Treasurer.

DISPOSAL OF
FUNDS ON
CESSATION

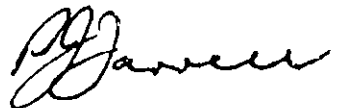
Any balance standing to the credit of the account upon cessation of operations for which the Account was created shall be refunded to the contributors on a pro rata basis of funds contributed.

I have examined and agree to the provisions of this Trust Statement.

Approved



EXECUTIVE DIRECTOR



Assistant Under Treasurer

DATE 18 SEP 1987

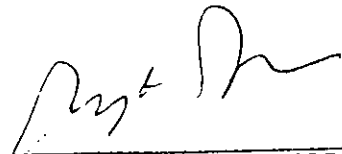
DATE 5 OCT 1987

INVESTMENT
OF FUNDS

Moneys standing to the credit of the
Account may be invested in accordance
with section 38 of the Financial
Administration and Audit Act.

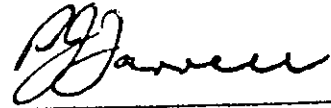
I have examined and agree
to the provisions of this
Trust Statement.

Approved



EXECUTIVE DIRECTOR

DATE 18 SEP 1987



Assistant Under Treasurer

DATE 5 OCT 1987

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

TRUST STATEMENT NO. 11

NAME	An account called the C.A.L.M. - Income Tax Deductions shall be maintained as a Private Trust Account at the Treasury.
PURPOSE	To hold P.A.Y.E. income tax instalments, deducted from salaries and wages of employees, on the Department of Conservation and Land Management payroll.
RECEIPTS	Such moneys as are received by the Department of Conservation and Land Management being P.A.Y.E. income tax instalments deducted from salaries and wages of employees on the Department of Conservation and Land Management payroll in accordance with the Income Tax Assessment Act, shall be paid into and placed to the credit of the Account.
PAYMENTS	The funds in the Account shall be applied as payments to the Commonwealth Commissioner of Taxation.
ADMINISTRATION OF ACCOUNT	The Account shall be administered by the Executive Director, Department of Conservation and Land Management, in accordance with the Financial Administration and Audit Act, Financial Administration Regulations and the Treasurer's Instructions.
ACCOUNTING RECORDS	There shall be maintained by the Executive Director a detailed record of transactions processed through the Account, together with such other accounting records and procedures as are prescribed in the accounting manual.
FINANCIAL STATEMENT	The Executive Director shall cause to be prepared a statement of cash receipts and payments and such other supplementary information in accordance with the requirements of Treasurer's Instructions.

INVESTMENT
OF FUNDS

Moneys standing to the credit of the
Account may be invested in accordance
with Section 40(a) of the Financial
Administration and Audit Act.

I have examined and agree
to the provisions of this
Trust Statement.

Approved

R. J. Inwood

N/ EXECUTIVE DIRECTOR
DATE 10/12/81

BA Jagan

A/ ASSISTANT UNDER TREASURER
DATE (ACCOUNTING)
12 JAN 1988