



DUPLICATE

Annual Report
1996-1997



CALM's MISSION

We conserve and manage Western Australia's wildlife and the lands, waters and resources entrusted to the Department for the benefit of present and future generations.

What we do

Western Australia has a beautiful, diverse and supportive natural environment which provides material, aesthetic and spiritual benefits. It is an essential part of Western Australians' livelihood and quality of life.

In keeping with our mission, the Department of Conservation and Land Management has the following objectives.

Conservation: To conserve indigenous plants, animals and ecological processes in natural habitats throughout the State.

Value and Use of Resources: To optimise the value and economic return to the community of wildlife, lands, waters and resources entrusted to the Department without compromising conservation and other management objectives.

Tourism and Recreation: To identify and provide opportunities and services to the community which allows them to enjoy the wildlife, lands, waters and resources entrusted to the Department without compromising conservation and other management objectives.

Knowledge: To seek and provide an up-to-date and sound scientific and information basis for the Department's conservation and land management activities.

Community Support: To promote community awareness and appreciation of the values of the wildlife, lands, waters and resources entrusted to the Department, and to develop community understanding and support for the Department's conservation and land management activities.

Human Resources: To recruit, develop, reward and retain knowledgeable and talented staff, and to provide a stimulating, safe, productive and supportive work environment where staff can pursue individual goals consistent with those of the Department.

Corporate Efficiency: To optimise the efficiency, effectiveness and responsiveness of the Department in the achievement of conservation and other management objectives.

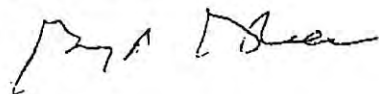


CALM is committed to developing a range of services which meet the needs of our many customers, and at the same time are consistent with our responsibilities for conservation and land management in WA.

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and Land Management
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HON MINISTER FOR THE ENVIRONMENT

In accordance with Section 62 of the Financial Administration and Audit Act 1985, I submit for your information and presentation to Parliament the annual report of the Department of Conservation and Land Management.



Syd Shea
EXECUTIVE DIRECTOR

30 August 1997

HIGHLIGHTS

- ☆ Marine Reserves legislation passed by Parliament (pp. 4 and 12)
- ☆ State Salinity Action Plan launched (pp. 2 and 7)
- ☆ 'Western Shield' fox control program expanded (pp. 1 and 9)
- ☆ Signing of Deferred Forest Agreement between State and Commonwealth (p. 15)
- ☆ Opening of the Valley of the Giants and the Tree Top Walk (pp. 3 and 26)
- ☆ Gngangara Park—Perth's largest conservation and recreation park (pp. 5 and 27)

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Integration—More than a Marriage of Convenience

CALM's formation in 1985 marked a major change in the way in which the conservation estate—national parks, nature reserves, marine reserves, State forests and so on—was managed. The change stemmed from the fact that the conservation, tourism and recreation and production management responsibilities came under the umbrella of one organisation.

This integrated approach has its detractors, several of whom will never be dissuaded from their views. As the years have rolled by, however, CALM's operations have become increasingly more integrated than many thought possible.

The activities of the past 12 months provide a plethora of examples of the links across CALM's programs to achieve its mission—to conserve and manage WA's wildlife and the lands, waters and resources entrusted to the Department for the benefit of present and future generations.

CALM's initiative under the Salinity Action Plan is just one. Land for Wildlife recognises the conservation efforts of private landholders and managers and helps them do more to conserve native plants and animals on their lands. By conserving—and in some cases re-establishing—native vegetation, private landowners can create wildlife habitat. Planting deep-rooting woody perennials, such as maritime pines or native species, serves to draw down water tables, thereby lessening the threat or impact of salinity. This not only helps restore

cleared farmland to a productive state, it also protects the remnant vegetation landholders are conserving for native wildlife. If landowners take the next step, and carry out rabbit and fox control, a further threatening process to wildlife is removed.

So what may appear to be separate programs—wildlife conservation and tree farming—are indeed an integrated approach to issues of critical environmental importance: conservation of wildlife and its habitat, and mitigating the impacts of salinity on the social, economic and ecological values of regional Western Australia.

Tourism and recreation developments such as the Tingle Experience in the Valley of the Giants near Nornalup provide a further example of this integrated approach. The Tree Top Walk enables visitors to experience the forest in a way which was not possible before. The walk, and the Ancient Empire boardwalk around the tingle forest floor, both help protect the delicate surface roots of the majestic trees from soil compaction. In other words, the walks are protecting the very things that people have come to see. The project has integrated tourism and recreation with the conservation of the tingle forest.

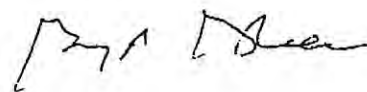
This integrated approach is based on the ability to create synergies. Such partnerships have existed in nature for aeons. The success of Western Shield—CALM's wildlife

conservation program that aims to bring 30 species of native animals back from the brink of extinction—hinges on a partnership between the 'poison peas' and native animals' ability to tolerate high levels of the peas' toxin.

Visitors to our conservation estate will be able to see the fauna that once roamed freely before the introduction of the fox and feral cat drove them to the edge. So Western Shield is more than a nature conservation program—it will create one of the greatest nature-based tourism experiences in the world. And with nature-based tourism comes economic and social development which in turn pays for the conservation of our natural attractions.

Another ingredient in this integrated approach is enthusiasm. This is something which, I am always proud to say, is never lacking among CALM's 1200 staff, several hundred contractors and the many hundreds of volunteers who help us with a wide range of activities over a wide range of environments.

I thank them all for their contribution in what has been a most eventful year in CALM's history.



Syd Shea
EXECUTIVE DIRECTOR
30 August 1997

That was the Year . . . 1996–97

The Program sections in this annual report describe some of CALM's achievements in detail. Here is a review of some of the highlights of the year that took the public's attention.

WESTERN SHIELD: THE FIRST YEAR

The period under review marks the first full 12 months of Western Shield—CALM's innovative program that aims to ensure the recovery of 30 native animal species that have been pushed to the brink of extinction, largely because of introduced predators such as the European fox and feral cat.

CALM research over many years has shown that where fox and feral cat numbers are controlled, native animal populations bounce back. The success of the program hinges on one of Western Australia's great natural advantages—the poison peas (*Gastrolobium* spp.)—which contain a toxin that was the curse of the early pioneers trying to establish livestock enterprises. Native animals have evolved alongside these species, and have developed a high level of tolerance to their toxicity. Introduced species such as foxes and cats, however, are susceptible to minute amounts.

The naturally occurring poison in the peas is manufactured synthetically under the name '1080', a compound that can be used with little or no effect on native species. The compound is injected into dried meat baits and dropped from the air over State forests, national parks, nature reserves and other lands CALM manages.

Throughout the year, 3.4 million hectares were regularly baited, making Western Shield and its associated programs such as Project Eden at Shark Bay and Operation Foxglove—a joint initiative with

CALM is an integrated agency. The Department manages lands and waters to conserve the native plants and animals they sustain, for the recreation and tourism they can support, and for the renewable resources they provide.

CALM's primary responsibility is to manage these lands and waters on an ecologically sustainable basis so that the needs of the present are met without compromising the choices of future generations.

Alcoa of Australia in the northern jarrah forest between Julimar and Dwellingup—the biggest nature conservation initiative ever undertaken in Australia.

THE COMMUNITY PLAYS ITS PART

Community-based feral predator baiting programs in the south-west land division are playing a key role in expanding the effectiveness of Western Shield. Local organisations such as catchment groups, Land Conservation District Committees and volunteer bush fire brigades have been taking part in baiting programs to protect agricultural and wildlife values on farms. In some areas, more than 90 per cent of farmers—many of them CALM's neighbours—are baiting their properties.

One example of this co-operative program is the efforts of the Malleefowl Preservation Group, AgWA and CALM in the Jerramungup area where the group encouraged farmers to bait areas to conserve malleefowl populations.

COASTAL STORM TAKES TO THE SKIES

Coastal Storm is the latest extension to Western Shield. It is the code-name for feral predator control in the magnificent Shannon and D'Entrecasteaux national parks, which cover a combined area of almost 168 000 hectares and are renowned for their scenic beauty, coastal heathland wildflowers and some of the finest stands of old growth forest.

Coastal Storm has been made possible by a three-year corporate sponsorship worth \$180 000 by the WA mining company Cable Sands. The start of this phase of the native species conservation initiative means that all major CALM-managed lands in the south-west are now under a comprehensive baiting regime.

Baiting also was extended into the Sunklands of the Blackwood, the Donnelly Catchment and other areas of the south-west and south coast.

MONTEBELLO RENEWAL: A BLAST FROM THE PAST

Western Shield moved offshore during the year when a team of CALM staff and volunteers achieved something that even nuclear tests in the 1950s couldn't—eradication of black rats and feral cats on the Montebello Islands off the State's north-west coast.

The introduction of feral cats and black rats to the islands about 100 years ago caused the local extinction of at least four native animals—the spectacled hare-wallaby, golden bandicoot, black-and-white fairy-wren and spinifex-bird.

The first phase of the project involved eradicating rats. Drawing on CALM's experience on other islands, a series of bait stations were laid in a grid pattern about 50 metres apart on the islands. These bait stations allowed the entry of rats but prevented birds having access to the poison. The stations were re-baited over the following six to seven days and then left for several months

before being cleaned up in August. The private sector is generously sponsoring this project. The major sponsor is West Australian Petroleum (WAPET), which provided \$35 000 in transporting all heavy equipment to the Montebello Islands and flying CALM staff and volunteers to Barrow Island free of charge. Apache Energy provided up to \$10 000 in helicopter support and fresh food. ACI Plastics Packaging donated 13 000 plastic bottles worth \$4000 free of charge for the bait stations. The chemical company ICI Crop Care has provided a \$5000 discount on the price of 3.5 tonnes of rat bait, and Selleys Chemical Company has donated silicon.

SALINITY ACTION PLAN: RESTORING NATURE'S BALANCE

Salinity is the single biggest environment problem facing Western Australia. Already, 1.6 million hectares of agricultural farmland have been taken out of production because of rising water tables and the resulting increased soil and water salinity. If left unchecked, the area of farm land lost to salt will total more than 11 million hectares. However, while those statistics reveal the potential economic cost of the 'AIDS of the earth', there is a much bigger environmental cost: the loss of half of the remnant native vegetation in the wheatbelt. This would be devastating for the region's biological diversity, which is among the richest in the State.

In November, the State Government released a 30-year plan to arrest the spread of salinity and restore nature's balance. The Salinity Action Plan represents a whole-of-Government approach to the problem and sets out a strategy that involves landowners, the private sector, local communities and Government agencies.

As part of the Action Plan, CALM has initiated a program that over the next 10 years will see 150 000 hectares of maritime pines (*Pinus pinaster*) established on cleared

farmland in the intermediate rainfall zone (400–600 mm a year). Seedlings produced at the Department's Manjimup Plant Propagation Centre will be planted out in small woodlots so they are integrated into existing farm operations.

The aim of this sharefarming program is to establish deep-rooting woody perennials that will draw down water tables and help in the land and water restoration process. The project means that from the year 2000, about 22.5 million maritime pines will be planted each year in the intermediate rainfall zone.

LAND FOR WILDLIFE AS WELL AS TREES

Land for Wildlife is a voluntary program under the Salinity Action Plan that recognises the conservation efforts of private landholders and managers and helps them do more to conserve native plants and animals on their lands by protecting, expanding or creating suitable habitat.

In the first five months since Land for Wildlife was launched in early February, 105 landowners from Northampton to Esperance expressed interest in being a part of the scheme. In that period, CALM officers assessed more than 9000 hectares of remnant vegetation on 24 of these properties. About 2600 ha of this have been registered under the scheme and are being managed especially for wildlife conservation. These areas range in size from 2000 square metres to 1000 ha. Combined, they equal the size of Yanchep National Park near Perth.

A noticeable aspect of the scheme has been that some of the individual properties assessed have shown outstanding commitment and progress in managing wildlife habitat, with owners erecting around 50 km of fencing from their own resources and others hand-pulling hectares of weeds and specially planting areas to provide food and shelter for bandicoots.

THE 'MOTHER' OF ALL PLANTS

Western Australia is further cementing its role as the premier nursery of the nation's tree planting industry as it steps up its seedling production to meet the increased opportunities for tree crops on the State's cleared farmland.

Advances through genetic selection and plant propagation techniques, and partnerships with private nurseries, are enabling CALM to lift its capacity from 25 million plants a year to 40 million over the next three years, making it one of the biggest tree nurseries in the world. The Department is using the best genetic material from its tree breeding program and the latest propagation techniques to produce 'elite' trees and increase the rate at which genetic gains are made available to tree farmers. Maritime pines and bluegums are being produced from genetically superior cuttings from 'mother plants' as well as seed orchards.

Last spring, 126 000 maritime pine mother plants were planted and will produce trees with 40 per cent greater volume growth than unimproved maritime pine stock. At the same time, a new generation of mother plants also is being produced using controlled pollination techniques. The genetic gains from these plants are resulting in a more than 70 per cent improvement in growth. This will be of immense benefit to farmers in the intermediate zone with rainfall of 400–600 mm a year who will be able to plant rapidly growing maritime pine for timber production and to combat environmental problems such as rising water tables and the resultant salinity.

CALM also is stepping up the production of Western bluegums, a genetically superior strain the Department has developed from Tasmanian bluegums. Western bluegums have growth rates of up to 40 per cent greater than unimproved bluegum stock.

TREE CROPS—THE RECORDS TUMBLE

A record 32 million tree seedlings were planted as tree crops and in native forests in winter. Total plantings covered around 25 000 hectares and represent an investment of more than \$40 million by private landowners, forestry companies and the State Government.

This year's plantings brings the number of seedlings planted in the past four years to well over 100 million, putting WA at the forefront of farm forestry and tree crop establishment in Australia.

CALM this year supplied more than 24 million seedlings from its Manjimup and Narrogin nurseries for tree growers and CALM's native forest regeneration and pine plantation programs. It is estimated a further eight million seedlings were produced by private companies. Bluegums again were the single biggest species planted, with around 20 million seedlings from CALM's Manjimup nursery and private companies.

CALM produced 10 million Tasmanian bluegums and two million Western bluegums. Bluegum stock being produced in WA is now in demand in South Australia and Victoria, which this year imported 1.7 million seedlings, reflecting the technological and genetic advances of CALM's bluegum breeding.

Three million maritime pine seedlings were produced, most of which were used to establish tree crops on farms in the intermediate rainfall belt. A further 2.5 million radiata pine seedlings were planted in CALM's second rotation plantations.

Karri seedling output this year was 3.5 million, which will be used to regenerate 1550 hectares of State forest.

CALM's Narrogin nursery produced almost 1.6 million seedlings, most of them oil mallees for planting in hedgerows and blocks in the drier zones of the wheatbelt. A further 500 000 mallees produced in 'mini-plugs' by CALM were grown on to the seedling stage by private nurseries in the wheatbelt.

FOREST TOURISM AMONG THE TREE TOPS . . .

CALM's nature-based tourism activities took to the air in September when the Tree Tops Walk in the Valley of the Giants tingle forest was officially opened. The \$2 million, 600-metre-long walk wends its way through the tingle canopy, at stages taking visitors to almost 40 metres above the forest floor.

The walk has become recognised as one of the premier tourism attractions in the south-west forests. To the end of June, 1997, about 150 000 people had visited the site.

The tree top walk is one of three components of the tingle forest tourism experience. The others are the Ancient Empire—a boardwalk around the forest floor—and the Tingle Shelter interpretive centre. Together, they have created a tourism facility unparalleled anywhere in Australia.

In October, the tourism experience was recognised by the Australian Institute of Landscape Architects with one of that organisation's premier accolades—a National Project Award. The citation praised the project for its sensitivity to the natural surroundings and the protection of the forest, and for creating a sustainable tourist attraction through careful design.

. . . AND ON THE ROAD

A new nature-based tourism activity that takes in some of the most spectacular old growth forest in the south-west was another ecologically sustainable forest tourism initiative during the year.

The Great Forest Trees Drive, in the Shannon National Park between Pemberton and Walpole, is a 48 km drive along former logging roads, railway lines and strategic firebreaks. The drive is suitable for family cars and includes its own 'radio station'. People can tune their car radios into the FM station while they drive and listed to information about the Shannon's wildlife, ecology, history and culture. The radio system operates through solar-powered batteries. A Search and Rescue team from CALM's Pemberton District Office used single rope climbing techniques to install the solar panels up to 30 metres above the ground on karri trees.

CALM also has produced a special Map and Drive Guide which includes additional information on the forest, pictures to help people identify plants and animals as well as detailed maps of each section of the drive.

Shannon National Park, which covers more than 53 000 hectares of karri, jarrah and marri country, is particularly special as it is one of the few reserves to encompass a whole catchment. It also covers a diverse range of various stages of forest ages from regrowth to virgin areas which have never been logged.

As well as the drive, camping and picnic sites in the park have been improved and parking areas provided to minimise the impact on the surrounding environment. Boardwalks were installed at some sites, including Snake Gully and Big Tree Grove. The walks protect the fragile roots of centuries-old trees as well as giving visitors better access to the old growth forest.

A LODGE IN THE WILDERNESS

Bringing people in contact with native wildlife is one of CALM's priorities in managing conservation lands. If people can see plants and animals in the wild, they can gain a greater appreciation of the immense diversity of the State's natural attractions.

A new wilderness lodge and bunkhouse in one of the State's most important nature conservation areas is designed to do just that. The complex is part of the Forest Ecology Centre in the Perup Nature Reserve east of Manjimup. The facility is available to nature-based tourism operators, community organisations, schools, tertiary institutions and private visitor groups.

Financed by CALM, the South West Development Commission and the Commonwealth Department of Tourism's Forest Ecotourism Program, the facility meets the objective of an environmentally and ecologically sustainable nature-based tourism experience in what is one of the great nature conservation areas in the south-west.

NEW HORIZONS FOR MARINE MANAGEMENT

The foundations of a world-class marine conservation system around the State's 12 500 km coastline were laid with the passage of legislation through State Parliament to create a special Marine Parks and Reserves Authority.

The Authority is the organisation in which marine conservation reserves will be vested and is one of the key objectives in the Government's New Horizons marine management strategy. It will have a key role in advising the Minister for the Environment, developing policies on conservation and management of marine fauna and flora and marine and estuarine environments, overseeing the development of reserve management plans, and monitoring the implementation of management plans and the management of marine conservation reserves by CALM.

Other key legislative changes to the CALM Act provided for the adoption of a three-tiered approach to marine conservation reserve categories—Marine Nature Reserves, Marine Parks and Marine Management Areas; specific guidelines for access

by industry in relation to the various categories of marine conservation reserves and the zones within marine parks; and specific guidelines for fishing, aquaculture, pearling and petroleum and mining interests in certain categories of marine conservation reserves.

A specialist scientific advisory committee to advise the Authority also has been created.

OPERATION FIREBIRD: FIREFIGHTING TAKES OFF

Operation Firebird swung into action in January as two aerial water bombers were used for the first time to help combat a wildfire in outer metropolitan Perth.

The aircraft had been engaged the next three months as part of Operation Firebird, a joint initiative co-ordinated by CALM, the Fire and Rescue Service and the Bush Fires Board. The introduction of the planes followed months of extensive training of fire fighters and support personnel from the three agencies and several hundred volunteer fire brigade members. In all, around 1000 staff and volunteers from Dwellingup to Gingin were trained in the practical operations of using water bombers.

It was the first time fixed-wing planes—these were Polish-built Dromaders, each with a capacity to drop 3000 litres of water-foam mix in a single load—had been used in WA fire fighting.

The aim of Operation Firebird was to evaluate the technique's application under WA conditions, which are among the world's worst fire environments. The trial will continue for a further three years.

CALM VOLUNTEERS: IN THE LINE OF DUTY

The conservation estate managed by CALM is about 20 million hectares—that's about 50 per cent the size of Japan and more than 70 per cent of the size of New Zealand. And

yet, CALM's staff totals around 1200 people who are involved in management and administration of these conservation lands and waters. So the question arises—how can so few look after so much so well?

Enthusiasm is an ingredient. But there must be something else.

There is. Collectively it is the CALM volunteers who play such a crucial role every year in assisting the Department in an amazing array of programs right across the conservation estate.

CALM's volunteer program in itself is an enormous undertaking. For example, in 1996, more than 1500 people volunteered for CALM in more than 80 projects. The total number of hours contributed was almost 70 000—that's the equivalent of 9600 people-days. And it doesn't include the hours given by volunteer members of advisory committees or by the 170 wildlife carers registered with CALM, who do not record their hours.

Overall, the contribution of volunteers last year increased 34 per cent over the previous year's level and indicates the enthusiasm and commitment that not only volunteers have to CALM, but the same enthusiasm and commitment CALM has for our volunteers. This is further highlighted by the fact that CALM received 800 new volunteer registrations during the year.

In recognition of the outstanding contribution of our volunteers, CALM has implemented a new system of showing our appreciation to all volunteers. Volunteers who contribute a minimum of 50 hours to a particular project in one year may be awarded an annual local parks pass. The system has been graduated to recognise high levels of contribution. For example, 500 hours of volunteering will be acknowledged with a Gold Star Pass—this is an annual all-parks pass and a year's subscription to *LANDSCOPE*.

NATUREBASE: BRINGING CALM TO THE WORLD

The internet has given people around the world access to a range of experiences at the click of a computer mouse button. CALM's internet site, NatureBase, has opened the window on WA's natural attractions to anyone, anywhere with access to the 'net.

News about CALM's activities is posted as it happens. An electronic edition of *CALMNews* is now available; and school children throughout the world have direct access to the full range of educational programs and services such as Aboriginal Heritage Activities, Exploring Wheatbelt Woodlands and the Western Shield Action Pack.

The site was recognised as among the leaders in internet design and technology with several major awards, including an inaugural *Telstra-Financial Review* Internet Award, an International Association of Business Communicators Award, and a best Website award from a major internet software provider.

However, CALM's range of informative publications also continue to be a winner with readers. The Bush Books series of pocket-size field guides to WA's native flora, fauna and landforms was further extended. The series now covers 16 topics ranging from *Hazardous*

Creatures of the North West to *Landforms of the Kimberley* and *Animals of Shark Bay*, the State's only World Heritage Listed Area.

The Bush Books have been complemented by a 'Discovering' series which covers national parks such as Yanchep near Perth and Nambung near Cervantes. And another book, *Dive & Snorkel Sites in Western Australia*—which helps people discover the State's marine environment—was presented with a Sir David Brand Tourism Award in the media category.

PARKS FOR THE NEXT MILLENNIUM

Plans were unveiled for a 50 000 hectare park extending from Gnangara to the Moore River, an area more than 100 times the size of Kings Park and described as a reserve for the 'children of the next millennium'.

Under the plan, the pine plantations, which extend over 23 000 ha, will be progressively harvested and the area revegetated to create the biggest major native bushland reserve in any major city in Australia. As part of the vision for Gnangara Park, certain areas will be transformed into a living conservation ark for plants that currently are rare and hovering on the brink of extinction. As well, species from other parts of WA will be grown so that every day there will be native

WA plants in flower throughout the area.

The conservation ark concept will extend to native animals: 8000 ha will be enclosed inside a feral-proof barrier to create a sanctuary in which colonies of species that once roamed freely will be available for visitors to see.

Another major initiative was the announcement of a major commitment to bolster the regional parks and greenways network throughout the metropolitan area. It includes introducing legislation to give regional parks legal standing and vesting them in the National Parks and Nature Conservation Authority. Management of the parks will be progressively transferred to CALM. The regional parks include Canning River, Beeliar, Yellagonga and Herdsman Lake. Further funding arrangements will be put in place to enable the transfer of responsibility for an additional four parks. These parks are Rockingham Lakes, Jandakot Botanic Park, Darling Range and Woodman Point.

Comprehensive management plans for each of the parks will be prepared in close consultation with local government and the community. Each of the parks will have its own community-based advisory committees.

That was the Year . . .

Nature Conservation Management Program 1

Our objective is to conserve indigenous plants, animals and ecological processes in natural habitats throughout the lands and waters of the State.

This Program involves the production and implementation of area management plans, policies and management programs for wildlife (fauna and flora) conservation and protection. It also involves research into wildlife and ecological communities and regulation of human activities which involve protected wildlife, including aviculture, commercial wildlife interactions (eg. whale watching) and scientific research licensing, as well as encouragement for conservation initiatives on private property and roadsides, prevention of illegal taking of protected wildlife, emergency actions such as rescues of stranded whales or oiled seals, and public information and liaison programs.

Wildlife management programs are developed for species and communities which are threatened, are commercially exploited, or have a high public profile or public interaction interest, according to the principles of ecological conservation and sustainability.

Lands and waters are reserved and managed to conserve viable representative samples of the State's natural ecosystems and their inherent natural processes, as well as for the protection of their flora and fauna.

The Program focuses on three areas:

- 1. conservation of the State's wildlife;*
- 2. planning and research, to provide the basis for management;*
- 3. public awareness and liaison, to enhance appreciation of nature conservation needs and processes, and private contributions to nature conservation.*

HIGHLIGHTS

- ☆ Marine Reserves legislation passed by Parliament (p. 12)
- ☆ State Salinity Action Plan launched (p. 7)
- ☆ 'Western Shield' fox control program expanded (p. 9)
- ☆ Land for Wildlife Scheme launched (p. 12)

The Roadside Conservation Committee operates within the overall Nature Conservation Program to coordinate and promote the conservation and effective management of native vegetation on road and rail reserves for the benefit of the environment and the people of Western Australia. CALM meets the cost of servicing the Committee and obtains contributions towards the Committee's operations from Main Roads Western Australia and Westrail.

STATE SALINITY ACTION PLAN

In November 1996 the State Government launched a major initiative: the Salinity Action Plan.

The Government views salinity as the single most important environmental issue for the south-west. The Salinity Action Plan provides for coordinated activities across CALM, AgWA, the Department of Environmental Protection, and the Water and Rivers Commission. Works are to include major tree planting programs, better drainage planning, better native vegetation retention and replanting, better catchment salinity management targets, improvements in ground water usage by crops and other means, a key wetlands and natural diversity recovery program, rural towns infrastructure and rescue programs, launch of the Land for Wildlife scheme, and improved monitoring programs for salinity levels and wetland health and conservation.

Major progress has been made in this cross-Program activity. Some 40 farmers have entered sharefarming agreements to plant 1 200 ha under maritime pines, and have been given a range of native species to plant. Land for Wildlife also attracted strong interest; in the first five months of the project, 20 farmers set aside areas of remnant vegetation totaling 2 600 hectares mainly for nature conservation. Nearly 100 farmers have expressed interest in being part of this scheme, and new enquiries are received regularly.

CONSERVATION OF WILDLIFE

A new Threatened Species Scientific Committee (TSSC) was established by the Minister for the Environment to provide expert scientific advice on the species of flora and fauna requiring special conservation protection under the *Wildlife Conservation Act 1950*.

The Committee held its first meeting in February 1996, when it considered a number of revisions to the State lists of threatened flora and fauna. Following a 1996 review of flora species that were thought to be possibly rare, but needing survey, a total of 134 taxa were identified as requiring urgent population status survey. After detailed survey, 35 of these species were submitted to the TSSC for consideration as possibly threatened species.

The CALM Threatened Flora Seed Store, in conjunction with Kings Park and Botanic Garden, has established a seed store for taxa threatened by dieback, and other critically endangered or poorly known taxa. As at 30 June 1997, the Threatened Flora Seed Store had 452 accessions from 175 taxa of declared rare flora and priority flora. In the coming year there are plans to use seed from the TFSS to begin necessary actions on a range of critically endangered taxa. Dieback remains a major threatening process for our unique flora. Application of the dieback-inhibiting chemical, phosphite, has moved out of the experimental stage and is increasingly being used to manage the threat. Eleven threatened flora species in the South Coast Region, and one in the Wheatbelt Region, have been treated by aerial spraying or with backpack sprays.

In 1995 the first-ever ranking of Western Australia's threatened flora and fauna was carried out according to internationally accepted criteria developed by IUCN (the World Conservation Union). Forty-six taxa were categorised as Critically Endangered. Under CALM policy, Interim Recovery Plans must be prepared within one year of a taxon being classified as Critically Endangered. Priority has been given to preparing plans for forty-three of these taxa that did not have existing Recovery Plans.

At the end of the year, the Department was operating 27 recovery teams to coordinate the recovery of threatened species of plants and animals. There are five teams for declared rare flora, eleven teams for threatened fauna, three for threatened ecological communities, three regional flora recovery teams and five district recovery teams. Seven new recovery plans were completed during the year, with nine in draft form. A further sixteen Interim Recovery Plans had been completed and 48 more were in draft form. There are four completed Regional or District Threatened Flora Management Programs and a further four are being prepared.

DEFINITIONS

Declared Rare Flora—Extant Taxa: Taxa which have been adequately searched for and are determined to be either rare, in danger of extinction, or otherwise in need of special protection in the wild, and have been declared under section 23F of the *Wildlife Conservation Act 1950* to be 'rare flora'.

Declared Rare Flora—Presumed Extinct Taxa: Taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been declared under section 23F of the *Wildlife Conservation Act 1950* to be 'rare flora'.

Critically Endangered: Taxa (declared as rare flora) that are facing extremely high probability of extinction in the wild in the immediate future and are in need of immediate research and/or management actions.

Endangered: Taxa (declared as rare flora) that are not critically endangered but are facing a very high probability of extinction in the near future and are in need of urgent research and/or management actions.

Vulnerable: Taxa (declared as rare flora) that are not critically endangered or endangered but are facing a high probability of extinction in the wild in the medium-term future and are in need of research and monitoring.

Priority One—Poorly Known Taxa: Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

Priority Two—Poorly Known Taxa: Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

Priority Three—Poorly Known Taxa: Taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora' but are in need of further survey.

Priority Four—Rare Taxa: Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5-10 years.

The Recovery Plan to ensure the survival of the Wyalkatchem Foxglove, *Pityrodia scabra*, continued this year. Two of the three remaining plants of this critically endangered species died during the summer of 1996-97. Of the 119 plants translocated to the wild in 1995, only 10 are surviving, though these represent at least three different genotypes from the original plants. A further planting of 53 plants was undertaken in 1996, and as at 30 June 1997, 11 were still alive. The total number of plants of this species is thus one naturally occurring, and 21 translocated.

Work on identifying and databasing threatened ecological communities (TECs) in the South West Botanical Province was completed. A list of 110 possible TECs was constructed, 38 of which were ultimately entered on the database. Of these, 16 are critically endangered, seven endangered, and 10 vulnerable; five are considered data deficient. Communities have been ranked according to the degree of threat. Recovery teams have been established for three communities: Toolibin Lake, Holocene Dune Swales, and Lake Richmond thrombolite community. During the

year CALM purchased land (with assistance from the Commonwealth Government under the National Reserves Systems Program) which contains an example of the critically endangered southern ironstone community, and upgraded fencing to protect an example of another TEC in the form of a mound spring on Muchea limestone.

Consultation between CALM and non-Government organisations involved in threatened species and communities issues continued during the year with four meetings of the Threatened Species and Communities Consultative Committee.

Commercial Use of Wildlife and Wildlife Licensing

Licences are issued under the Wildlife Conservation Act 1950 and regulations for taking, processing and dealing in protected fauna, and also for the commercial picking of protected flora from Crown land and the sale of flora taken from private land. A total of 6 556 fauna (other than damage) licences were issued during the year, a decrease of 5.7% from the previous year (see Appendix 14). The decrease was due to general variability in licence issue, and could not be attributed to any specific factor. The number of commercial flora licences issued decreased in 1996-97 by 4.8%, with a 25.3% decrease in licences to harvest from Crown land, and a 9.6% decrease in the number of scientific and prescribed purposes licences issued (see Appendix 14).

Management of the commercial harvesting of kangaroos continued throughout the year, with input from the Kangaroo Management Advisory Committee. Kangaroo management operated under the management plans approved by the State and Federal Ministers for the Environment for the period 1995-97.

KANGAROO SPECIES	Red	Western Grey	Euro
1996 population estimate	724 400	406 400	>168 000
1996 quota	160 000	80 000	10 000
1996 commercial harvest	123 000	62 500	7 500
1997 quota	180 000	70 000	12 000

Under these programs, commercial harvest quotas were set for each species for the 1997 calendar year.

During 1996 aerial kangaroo population surveys were undertaken over an area approximately one-third of the rangeland area normally surveyed in triennial surveys (the southern kangaroo rangelands). The revised population estimates for the three harvested species of kangaroo are shown below, along with the 1996 commercial harvest quotas and actual harvests, and the quotas set for 1997. In addition to the aerial surveys, statistics on the make-up of the commercial harvest are also reviewed for population trend information.

The management program for saltwater crocodiles and freshwater crocodiles in Western Australia continued in accordance with the Management Program for Saltwater Crocodile and Freshwater Crocodile (1996-98). The management program covers all aspects of crocodile management, including crocodile population surveys and regulation of crocodile harvests, farming, processing and export.

Population estimates for non-hatchling (non-h) *C. porosus* within surveyed areas of Cambridge Gulf, from spotlight and helicopter surveys undertaken by G. Webb Pty. Ltd. in July 1992 and Wildlife Management International Pty Ltd in July 1993, 1994, 1995 and 1996.

Year	West Arm	East Arm/ Ord River	Total
	non-h	non-h	non-h
1992	198	379	577
1993	153	410	563
1994	100	370	470
1995	173	422	595
1996	139	382	521

The management program for the commercial harvesting of protected flora in Western Australia was approved by the Commonwealth Minister for the Environment following a major revision

undertaken by the Department. The Western Australian Flora Industry Advisory Committee (WAFIAC) met twice during the year. The intensive management of brown boronia harvesting has continued, with a further reduction in quotas from Crown land as a result of the death of plants in the wild due to successive dry summers. Following a recommendation from WAFIAC, it was decided to implement the first program of flora tagging in the 1996 boronia season, and this proved to be a very effective means of restricting the avenue for illegal marketing of boronia sprays. *Corynanthera flava* was identified as requiring specialised management due to conservation concerns related to levels of harvesting, and as of June 1997 harvesting of this species from Crown land has been prohibited.

Environmental Protection

Liaison with the mining industry continued. Staff reviewed numerous annual reports for mining operations on CALM-managed lands, and assisted other agencies to review reports and proposals that impacted on conservation values off reserves. The Department continues to identify land to replace/offset mined land and to bring these to the attention of mining companies. A total of \$2.85 million was received in mining compensation payments.

Environmental Protection Branch coordinated CALM's comments on environmental reviews and reports prepared by the Department of Environmental Protection and Environmental Protection Authority.

CALM has been purchasing pastoral leases as a means of extending the reserve system in the rangelands in response to the recognition that there are major gaps in the conservation estate in this vast area of the State. These leases are destocked and managed for the conservation of wildlife and the restoration of the land and habitats where degradation has occurred. CALM has purchased seven pastoral leases, which are now managed primarily for conservation but often include a range of other

activities, such as tourism and recreation, education and research. CALM's activities in the rangelands will involve a broad range of people from the community with interests in conservation, including pastoralists, mining companies, Aboriginal people, conservation groups and the tourism and recreation industry. It is hoped that considerable funding for land purchase will come from the allocation of funds through the Federal Government's Natural Heritage Trust.

There are also opportunities to manage land for conservation purposes on leasehold and other land through voluntary agreements with land holders. CALM is involved on cooperative management activities with a number of mining companies which currently hold pastoral leases, and further agreements with pastoralists and Aboriginal people are being sought.

Western Shield: Fauna Recovery

CALM's predator control and fauna recovery program Western Shield was expanded this year, more than 3.2 million hectares of the State being baited to control foxes and cats. More than 700 000 poison baits have been used to date.

This expanded program now incorporates the 500 000 hectares covered under Operation Foxglove. Alcoa Australia Limited continue their generous support of this program in the northern jarrah forest with funding of \$120 000 per annum, and on 29 June 1997 the Minister for the Environment announced that the mining company Cable Sands (WA) Pty Ltd had provided a sponsorship of \$60 000 per year for a 3-5 year period. This has allowed CALM to extend Western Shield to the D'Entrecasteaux/Shannon area, incorporating a further 200 000 hectares of land.

The objective of Western Shield is to control introduced predators so that populations of native fauna can recover. During the past year, populations of chuditch and woylie were re-introduced to Lake Magenta Nature Reserve, numbats to Dragon Rocks Nature Reserve and the northern jarrah forest (Mount Dale), woylies to the northern jarrah forest (Hills Forest), quenda to Leschenault Conservation Park, western ringtail possums to Lane Poole Reserve and Keats Forest block, Shark Bay mouse to Doole Island, western swamp tortoise to Ellen Brook Nature Reserve, and malleefowl to Francois Peron National Park. In addition, two breeding colonies of bilbies have been established to provide animals which can later be released to sites where predators have been controlled.

Three new mainland quokka populations have been discovered in areas that are being baited to control foxes. These populations are now being studied to determine how extensive they are and what management is required to allow them to increase. Alcoa Australia has provided additional support for fox control in the areas where these new populations have been found.

As part of the Western Shield program, an education package was developed for primary schools. The Western Shield Action Pack was distributed to all primary schools in WA. Feedback from teachers has indicated that the package was well received, as was the competition run in conjunction with the action pack, which offered "Nights with the Woylies" as prizes.

A database package was developed to store the results of all fauna monitoring conducted by CALM as part of Western Shield. Copies of the software have been distributed to all regions where fauna monitoring is in progress and staff have been trained in its use.

Joint research between CALM and Curtin University has developed a simple, rapid and inexpensive bioassay for 1080 toxin. It is being used to determine the longevity and rate of degradation of 1080 in fox baits.

Considerable advances have been made on broadscale feral cat control research. Bait medium, bait size and attractants have been developed, and work is proceeding co-operatively with the Victorian Institute of Animal Science and Environment Australia on the development of a cat-specific toxin. More information is now available on baiting effectiveness in the arid zone, and this has been applied on Peron Peninsula to reduce feral cats by approximately 80 per cent in preparation for fauna translocations under Project Eden. Highly effective feral cat trapping techniques have also been developed using audio and scent attractants.

Flora Recovery

Trials conducted by CALM, with funding assistance from Environment Australia and the Mineral and Energy Research Institute of WA, have shown that the fungicide phosphite is a highly effective tool that can be widely applied in the management of dieback (*Phytophthora*) for the protection of native vegetation. Applications of 20-40% phosphite protect heath and shrublands for at least three years. Application rates have also been determined and depend on the structure and age of the community being treated.

A review of the extent of weed invasions in populations of threatened flora in the south-west has been undertaken. Field trials are now under way into effective weed control techniques to conserve these fragmented populations. A field guide to the more than 1000 weeds of Western Australia prepared by CALM and Agriculture WA was completed during the year and will be released in spring 1997. This will greatly aid identification of weeds for control purposes.

Ecological Survey, Shark Bay to Carnarvon

CALM Science and Information Division staff, with funding assistance from Environment Australia, have recently completed field work sampling plants, animals and physical attributes of numerous sites in the Shark Bay-Carnarvon region. While many interesting occurrences of plants and animals were discovered, it was also found that 50 per cent of the ground-dwelling pre-European indigenous mammal fauna of the region is extinct in this part of the mainland. Survey data are being used to help assess the current reserve system in terms of patterns in bio-diversity, and for making recommendations for future management of conservation values in the study area.

Other surveys were conducted of the greenstone ranges of the Goldfields and limestone ranges of the Kimberley and the Darling Scarp, and flora lists were compiled for all 80 reserves of the Swan Coastal Plain, all with assistance from Environment Australia, the Heritage Commission and the CRC for Tropical Savannas. More than 10 new species of vascular plant were discovered during these surveys. These will greatly aid land use planning in these contested areas.

Wetlands

With funding from Environment Australia, CALM began a major survey of the aquatic biota of the Muir wetland system, east of Manjimup. Information obtained will contribute to better management of these outstanding freshwater wetlands and their catchments, and wider recognition of their importance.

Monitoring of salinity, depth and other qualities of 60 wetlands from Eneabba to Esperance has continued. This program, which began in 1978, provides valuable information on trends in salinity of internationally,

nationally and regionally significant wetlands across the south-west. The program also makes an important contribution to implementation of the recently launched, multi-agency Salinity Action Plan for Western Australia.

Roebuck Bay, near Broome, supports at least 800 000 shorebirds each year. It is one of the top three migratory shorebird sites in the entire East Asian-Australasian Flyway. During 1996-97, CALM staff provided support for a study of the distribution and abundance of the shorebirds' prey, and of the geo-chemistry of the intertidal sediments in which these animals are found. This work is planned to continue during the coming year.

Marine mammal strandings and entanglements

Departmental officers attended 17 reported whale and dolphin strandings throughout the year, involving both live and dead animals and including two mass strandings. These strandings involved seven species, including a 20-metre fin whale, a pygmy sperm whale, a spinner dolphin, false killer whale and two humpback whales. In August, an estimated 320 long-finned pilot whales stranded in shallow water near Dunsborough. Twenty animals died but the remainder were successfully returned to the sea. In March, six stranded

bottlenose dolphins were rescued from Lake Goegrup, near Mandurah, and were transported and released in Peel Inlet. A record of subsequent sightings is being maintained.

Officers also attended 14 pinniped strandings throughout the year, including five sub-antarctic fur seals, three leopard seals, one elephant seal and seven Australian sea lions. In most cases, these animals were ill or injured.

Two humpback whales were reported entangled in craypot ropes. Neither animal has been resighted. One bottlenose dolphin was reported entangled in crab net rope and appears to have freed itself. A dead bottlenose dolphin was recovered from the beach entangled in fishing line, which had prevented the animal from feeding.

Wildlife Interactions, Licences and Compliance with Legislation

A total of 73 whale-watch boat-tour operators were licensed State-wide, an increase of 38 per cent on last year. Returns from licensees show that 29 412 passengers were conveyed from various centres around the State, but principally from Perth (72 per cent, a decrease of 27 per cent from last year). While these tours were primarily based on humpback whales, southern right whales are the focus of whale-watching activities in the Albany area. Boat trips by

1995-96 Reported Offences			1996-97 Reported Offences	
	30-6-96	Revised		As at 30-6-97
Total Offences Reported	279	489	Total Offences Reported	280
Convictions	32	194	Convictions	10
Dismissals	0	4	Dismissals	1
Letters of Warning	69	146	Letters of Warning	43
No Further Action	34	77	No Further Action	39
Pending	144	68	Pending	187
Total Fines	\$11 750	\$31 170	Total Fines	\$3 200
Total Costs	\$3 258.50	\$15 035	Total Costs	\$1 200

Note 1: Figures for 1995-96 reported offences are updated from those included in last year's report under the Revised column.

Note 2: See Appendix 16 for details of 1996-97 offences.

Note 3: Wildlife Protection Section also processed 22 offences under the CALM Act and Regulations for various offences.

metropolitan-based operators decreased by nine per cent to 380, while country-based boat trips increased by 18 per cent to 642.

During the year, Departmental staff provided guidance to a large number of people about the legal requirements of activities with wildlife. Verbal warnings were issued as appropriate, and 280 offences under the Wildlife Conservation Act and Regulations were the subject of written reports. To date, action in 93 matters has been completed. A summary of reported offences is presented below (see also Appendix 16 for further details of offences).

Shark Bay World Heritage Area

A number of activities took place during the year.

- The Shark Bay Marine Reserves Management Plan was released and implementation commenced.
- A draft Terrestrial Reserves Management Plan was prepared in consultation with community and interest groups and other agencies.
- Funding of \$490 000 was received from the Commonwealth Government for management projects, including conservation activities for the banded hare-wallaby, western barred bandicoot and rufous hare-wallaby, a baseline water quality survey and an ongoing oceanographic survey, biological studies of loggerhead turtles and dugongs, a visual resource assessment study, community education activities, and implementation of goat control measures within the World Heritage Area.
- Permanent long-term monitoring sites were established within the Shark Bay Marine Park to ensure that recreation and tourism activities are ecologically sustainable.
- Fire buffers were further developed within Francois Peron National Park to provide habitat protection.

- A census of breeding seabirds on small islands within Shark Bay was begun.

Toolibin Lake Recovery Project

Last spring, the bund/gate constructions at Toolibin Lake were tested for the first time. The salty rainwater run-off upslope from farming land was diverted around the lake. When the run-off was sufficiently diluted, the gates were opened and water directed into the lake to help lower the salinity level in the lake while allowing it to recharge. Major engineering works continued with the installation of eight air displacement pumps on the lake bed to pump hypersaline groundwater from under the lake. The water is to be transported via 6.5 km of pipeline to Lake Taarblin (a salt lake). Biological monitoring at Toolibin Lake has shown the lake still has a rich fauna, but salt-tolerant species are beginning to appear.

Off-Reserve Conservation

The Department undertook the annual assessment of the applications to the Remnant Vegetation Protection Scheme by evaluating the nature conservation value of those applications. A total of 133 applications were assessed, with 127 being recommended for funding at a cost of \$740 809. A total of 7 554 hectares were recommended for fencing at an average cost of \$98 per hectare.

With the passing of the Commonwealth Bill to create the Natural Heritage Trust, the Department was involved in the development of the new funding programs for community and agency grants. The amalgamation of the Save the Bush, One Billion Trees and National Corridors of Green Programs into the National Vegetation Initiative has provided the Department with a major coordination role in off-reserve conservation in the State. The Department was involved in the development of the funding

guidelines for the National Vegetation Initiative, and in the planning, administration and assessment of the community grants component of the Natural Heritage Trust.

CALM's new *Land for Wildlife Scheme* was launched by the Minister for the Environment in February. The principal aim of this voluntary scheme is to increase the area of privately owned wildlife habitat actively managed for conservation. To achieve this, private landowners are invited to register their properties in the scheme. An assessment is made of the quality of the wildlife habitat and advice is provided to property owners. Advice is also provided to allow landholders to obtain assistance in fencing, replanting and managing wildlife habitats. To date, 105 landowners have applied to be registered with the scheme and 22 properties have been registered.

Following the April 1995 State Cabinet decision relating to increased controls over land clearing in Western Australia, an Interim Working Group was established during 1996 to provide advice on land clearing proposals. The Department is represented on this Working Group as an adviser on nature conservation impact. Since the establishment of the Group, 102 applications have been received by the Department for comment, and comments have been provided on 88.

In March, 1997, the chief executive officers of CALM, Agriculture WA, the Department of Environmental Protection and the Water and Rivers Commission, together with the Commissioner for Soil and Land Conservation and the Chairman of the Environmental Protection Authority, signed a Memorandum of Understanding for the protection of remnant vegetation on private land in the agricultural region of Western Australia. The MOU sets the framework for interdepartmental assessment of land clearing applications, based on soil, water and nature conservation considerations.

Marine Conservation

The major achievement in 1996–97 was the passage of the Acts Amendment (Marine Reserves) Act 1997 through Parliament in May 1997. This significantly amended the existing marine reserve provisions in the CALM Act and was the culmination of several years effort.

The Act provides an improved statutory framework to establish a Statewide system of multiple-use marine conservation reserves in Western Australia, and establishes new consultative protocols in relation to creating new reserves. It also establishes a new statutory body in which existing and new marine reserves will be vested, the Marine Parks and Reserves Authority (MPRA), a Scientific Advisory Committee to the MRPRA, and a new reserve category (*Marine Management Area*) to complement the two existing categories of *Marine Nature Reserve* and *Marine Park*.

The Herbarium

CALM's WA Herbarium mounted 34 410 new specimens, adding them to its database. This high figure was the result of the effort of the Herbarium volunteers group.

The total number of records in the WAHERB specimen database at 30 June 1997 is 407 766 and is comprised of the following numbers of specimens of all the plant groups curated in the State Collection.

Algae	4 641
Mosses	3 332
Liverworts	667
Fungi	5 530
Lichens	3 580
Gymnosperms	1 226
Pteridophytes	2 383
Monocotyledons	60 998
Dicotyledons	325 409
Total	407 409

The Western Australian Census of Plants (WACENSUS) is an electronic database of WA plant names, both current names and synonyms. The Census is a CALM corporate database which ensures that names of plants are up to date and that the information is easily accessible. The number of species names in current use is 12 442 in 1 544 genera and 220 families.

Specimen loans were transacted with 32 national and international institutions, with 8 010 WA specimens being loaned and 2 848 herbarium specimens received on loan from other herbaria. Also, 2 945 herbarium specimens were distributed on exchange to other institutions, and 1 405 herbarium specimens of WA flora were received from other institutions to add to the collection.

This year CALM established the Molecular Biodiversity and Biotechnology Unit to provide expertise in molecular genetics and biotechnology. The unit, which is based at the Herbarium, will provide expertise to the Nature Conservation and Forest Resources Programs. Molecular techniques will be used to assess genetic diversity and to prioritise management activities in threatened species. Molecular genetic techniques will also be used in tree breeding programs, genetic fingerprinting and identification of germplasm.

In the latter part of 1995 the Herbarium embarked upon a program of sampling WA's native flora with a view to establishing a database of potential pharmaceutical taxa. Vouchers were collected by a team of three using logical methodology, with all material processed and retained at the herbarium (7 000 specimens). These collections have resulted in numerous range extensions, new taxa, increased information recordings, and species variations not previously known.

Roadside Conservation Committee

The past year has seen further changes to the membership of the Roadside Conservation Committee (RCC). Mr Wyre has resigned as Chairman and been succeeded by Dr Ken Atkins, CALM Wildlife Branch Principal Botanist. Other new members joining the RCC in the past year were Councillor Antenna Ietto from the Shire of Esperance and Councillor Brian Kavanaugh from the Shire of Bridgetown-Greenbushes as local government representatives. In recognition of the importance of local government input to the RCC, Mr Mick McCarthy, Manager Environmental Services with the Eastern Metropolitan Regional Council, has been appointed to fill a new position on the RCC as local government professional officer representative.

In November 1996 the then Minister for the Environment, Mr Peter Foss, opened the RCC display at the Perth Zoo. He also officially launched the Minister for the Environment's "Environmental Weed List". This list identifies weeds considered to be a threat to the environment of the roadside.

Now in its sixth year, the RCC mapping of conservation values of roadside vegetation has continued, with maps in the Shires of Morawa and Goomalling being recently completed. The Goomalling LCDC concern about the impact of roadside weeds led to a survey of roadside weeds in addition to the native vegetation. These data were used to develop a series of overlying maps that provide valuable tool for roadside weed control. Such maps provide local government authorities and community groups, e.g. Landcare, with a valuable planning and management tool. This is particularly so when the information is viewed in conjunction with data from other agencies, e.g. Agriculture WA's remnant vegetation data.

Forest Resources Management Program 2

Our objective is to sustain and profitably manage the forest resources entrusted to the Department in ways compatible with conservation and other management objectives.

The program includes sustainable regeneration, protection, management and harvesting of native forests and plantations while maintaining or enhancing nature conservation, water, recreation, landscape or other values in the long term; managing the sandalwood industry on Crown land; and developing public awareness, understanding and community support for the Forest Resources Management Program.

FOREST MANAGEMENT

The Deferred Forest Agreement (DFA) and a Scoping Agreement for the Regional Forest Agreement (RFA) were signed this year by the State and Commonwealth Governments. Under the DFA, the State is deferring timber harvesting from specific areas of forest pending comprehensive regional assessments. The assessments will identify biodiversity, old growth, wilderness, endangered species, national estate, world heritage, social values, wood resources, and other economic values of the forest including minerals, water, tourism and recreation.

An assessment of ecologically sustainable forest management is also being undertaken across all tenures and land uses of forest in the region. The RFA process is placing a heavy demand upon staff and other resources across a wide range of branches. The outputs from the assessments will provide the scientific and technical basis for the signing of a long-term (20 year) agreement pertaining to forest allocation and management.

HIGHLIGHTS

- ☆ Signing of Deferred Forest Agreement between State and Commonwealth (p. 15)
- ☆ Kingston project results promising (p. 15)
- ☆ Maritime pine project linked to State Salinity Action Plan (p. 17)

NATIVE FOREST

State Forest Resources

The State Forest Resources Business Unit is responsible for the commercial harvesting, associated regeneration and commercial sales of log timber from native hardwood on State forests and timber reserves in accordance with the Forest Management Plan 1994–2003.

In 1996, 22 320 ha of jarrah forest were harvested with the following silvicultural objects:

	Hectares
Thinning	1 900
Release of regeneration	4 910
Establishment of regeneration	9 870
Single tree selection	1 700
Selective	1 900
Other	2 040
TOTAL	22 320

Regeneration of 1 220 ha of the above area was achieved by the commercial harvesting operations. Silvicultural objectives for a further 12 470 ha harvested in this or previous years were achieved by follow-up treatment.

In 1996, 1 300 ha of karri forest were clearfelled or cut to seed trees and 60 ha were thinned. Regeneration was completed on 1 560 ha harvested in either this or previous years by the following methods:

	Hectares
Hand planted	1 557
Natural seed fall	3
TOTAL	1 560

Preliminary analyses of results from the Kingston project, a study designed to investigate the impacts of logging on jarrah forest ecosystems, indicate that there is no significant impact by logging and associated burning activities on medium-sized mammals in the jarrah forest. Mammal species and abundance remain similar in forests harvested for timber and in forests which were not harvested. Radiotelemetry has provided important information on refuge requirements of arboreal species. In the presence of fox control, both brushtail possums and ringtail possums make significant use of sites other than hollows in standing trees for daytime refuge. These include hollow logs and stumps, nests in grass trees, and burrows. A detailed investigation into the formation of hollows in trees and logs, and the use of these hollows by fauna, is under way. Data collected on the effects of timber harvesting on birds, small vertebrates, litter-dwelling invertebrates and vegetation is being collected, collated and analysed. Monitoring of the impacts of timber harvesting on karri forest birds, which began in 1982, is continuing.

Disease in Native Forest

The presence of dieback disease (*Phytophthora cinnamomi*) and its predicted impact on the forest is mapped prior to operations such as harvesting, mining and the provision of public utilities such as roads, reservoirs and powerlines. Mapping is done either from interpretation of

large-scale colour photographs or from intensive ground survey. In both cases interpretation is supported by laboratory analysis of plant and soil samples. With this information and the implementation of strict hygiene measures, operations can proceed with minimal spread of the disease. Because of the potential of the disease to spread naturally, the maps have a limited reliable life. In some instances areas mapped several years earlier must be completely re-mapped before operations begin.

During 1996–97, CALM staff mapped the presence and predicted impact of dieback on 35 110 ha of forest and rechecked the boundaries of 7 700 ha previously mapped. Interpreters under contract to Alcoa of Australia mapped or rechecked the boundaries on 6 780 ha. CALM staff monitored the interpretation and mapping standards of this work.

A further 860 ha were mapped on a recoup basis for mining companies and other agencies.

Wood Utilisation

CALM Timber Technology (formerly Timber Utilisation Centre) has continued to promote and support adding value to WA timber through research and development, information and education; and via limited fee-for-service operations.

The continued focus on the equipment, knowledge and skills needed to dry timber reflects a conviction that correctly dried timber is a prerequisite of many value-added timber products. Continued improvements are being made to the CALM solar kiln, including the development of a suitable gas burner to augment the solar contribution. Four timber-drying courses for industry, run over seven days, were well subscribed. In addition, detailed advice is given to a wide range of people within the timber industry on timber drying and kiln operations. The manufacture of VALWOOD® at Harvey continued. Samples of other timber products using similar gluing techniques were produced in conjunction with timber processors.

SILVICULTURE

The Jarrah Forest

Harvesting in the jarrah forest is undertaken using a variety of silvicultural objectives (silviculture is the art and science of establishing and tending forests). Where there is a predominance of vigorously growing trees, the stand is thinned; where this is not the case the stands are harvested with the object of regenerating them. This is achieved either by harvesting in a way that will release existing lignotubers to grow unimpeded into saplings; or, where there are inadequate lignotubers, harvesting to create a shelterwood under which seedlings are established. The proportion of each area that is harvested to each of these objectives, and the degree of intermixing, vary according to the existing stand structure and condition.

In many areas the desirable silvicultural objective is achieved completely or nearly completely by the harvesting operation itself. A proportion of the remainder is completed by silvicultural tending operations one or two years after harvesting. In more marginal forest types harvesting is done by selective cutting. In some areas harvesting precedes clearing for mining

or the construction of public utilities such as reservoirs or power lines. Cleared areas are not regenerated immediately but where possible are rehabilitated later.

The Karri Forest

Karri forest harvesting is also dependent on the structure and age of the existing forest, though it is less complex than jarrah harvesting. Patches of even-aged and vigorously growing forest which are greater than two hectares in size are identified for thinning. When the stand is old enough to yield saleable products, it is thinned to an appropriate density by commercial harvesting. No further tending is necessary.

Mature forests and forests of mixed structure created by past logging activities are harvested under a clearfelling system. Regeneration following harvesting is achieved within the following year or two by means of temporarily retained seed trees, by planting with nursery raised seedlings, or by broadcast seeding. Seed trees are the preferred method, but planting is used in the years when there are inadequate seed crops available in the karri forest. Broadcast seeding is only used to a limited extent.

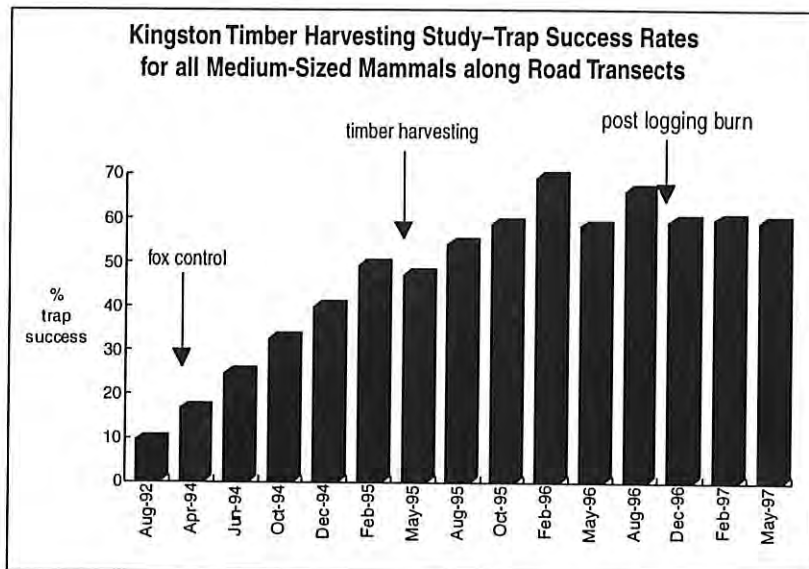
Research into the basic wood properties and the drying and processing characteristics of Wheatbelt and Goldfields species continued. Other sections within CALM also used the facilities and staff at Harvey to assist with the development of new hardwood and softwood products.

Research continued on the drying of marri and karri. The main challenge with marri drying seems to be the variability of moisture within the

dried pieces, while karri can be successfully dried in the solar-assisted kilns provided it is protected from drying in the open air prior to kilning.

Log Timber Sales

The quantity of log timber harvested from Crown land was 1 433 919 m³, comprising veneer logs, sawlogs, speciality logs, poles, fencing, chiplogs and other residue logs.



Sandalwood Business Unit

The Sandalwood Business Unit was restructured during 1996–97 to provide dedicated staff and resources to the management of the state's sandalwood resource.

Harvesting, carting and processing, conducted under contract, achieved their targets.

The first stage of a two-year inventory program was completed that will provide accurate data on the status and distribution of the native sandalwood population.

A full-time research officer has been appointed to undertake specific studies of *Santalum spicatum*.

Sandalwood Production (tonnes)			
	1994–95	1995–96	1996–97
Crown Land			
green	1 024	926	1 029
dead	871	974	742
Total	1 895	1 900	1 771
Private Property			
Total	198	217	208

Exports for 1996–97 totalled 1 073 tonnes compared with 1 827 tonnes the previous year.

PLANTATIONS

The plantations sub-program consists of a group of four business units. The group aims to maximise financial and environmental benefits by efficiently managing Western Australia's public plantation assets.

Softwood Business Unit

A total of 1 286 ha of State-owned coniferous plantation were established in 1996–97. This included 1252 ha of replanted *P. radiata* and 27 ha of *P. pinaster*. (See Appendix 3 for details.)

A two-stage inventory of the coniferous estate was continued for the Swan Region and should be finalised in 1997–98. As part of the Department's strategy to optimise value and growth on its existing

estate, approximately 13 000 ha of plantations were fertilised.

The demand for the softwood log products remained flat during 1996–97 (see Softwood Log Production graph). Downward pressure on prices continued as expected, as the activity in domestic home construction was at a very low level. This resulted in softwood sawlog stumpage revenue being reduced and one softwood sawmill closing. There was also poor demand for domestic and export panel board. The outlook for sawlog stumpages in 1997–98 is cautiously optimistic with home building activity likely to increase.

CALM Sharefarms Business Unit

A new major initiative in establishing plantations of Maritime pine (*P. pinaster*) on farmland was announced as a key feature of the State's Salinity Action Plan. CALM is responsible for establishing up to 150 000 ha of sharefarm plantations on farmland over the next 10 years. A total of 695 ha of *P. pinaster* was planted in 1996–97 (see Appendix 3). Reforestation of agricultural land is essential to begin the recovery process from the environmental problems of overclearing, particularly salinity and erosion. The commercial program with *P. pinaster*

is accompanied by the investigation of potentially commercial species such as *Corymbia maculata*, *Santalum spicatum* and *Casuarina obesa*. Additionally, non-commercial species are planted to complement other landcare objectives. CALM is managing 7 262 ha of *P. radiata* under sharefarm agreement.

During the winter of 1996 CALM established a total of 6 210 ha of *E. globulus* plantations on behalf of Albany Plantation Forest Company of Australia Pty Ltd, Hansol Australia Pty Ltd and Bunbury Treefarms Pty Ltd, all of which are overseas investors.

CALM is currently managing 14 057 ha of *E. globulus* plantations for both Government and private agencies and 7 617 ha of CALM-owned plantations.

Private companies reported establishment of 14 185 ha of *E. globulus* plantations in 1996.

Private afforestation companies reported establishment of 606 ha of *P. radiata* and 299 ha of *P. pinaster*. The total area of private coniferous plantations reported to the Department at 31 December 1996 was 905 ha.

Residue Production 1995–96 (tonnes)			
Log Source	1994–95	1995–96	1996–97
Forest Residue			
from Crown land			
- Firewood	36 871	53 426	46 178
- Charcoal logs	95 423	86 017	94 008
from Private property			
- Firewood	1 294	8 100	900
- Charcoal logs	2 952	817	668
TOTAL	136 540	148 360	141 754
Sawmill Residue			
from Crown land	872 687	878 995	440 808*
from Private property	1 520	905**	462
TOTAL	874 207	479 032	441 270

* July–Dec 1996 figures only, Jan–June 1997 data not yet available.
 ** amended with inclusion of additional data from late returns.

Sawmill figures for 6 months July–Dec 1995 published in the 1995–96 Annual Report have been updated to include January to June amounts, to give a final annual figure for 1995–96. Above data includes all sawmill residue produced for:- Solid wood, Bark, Sawdust and Shavings, Wood Chips, Edgings, and Other—for sale, own use and not used.

Farm Forestry Unit

The Farm Forestry Unit's role is to develop new tree crop opportunities for farmland and to provide information on all aspects of farm forestry.

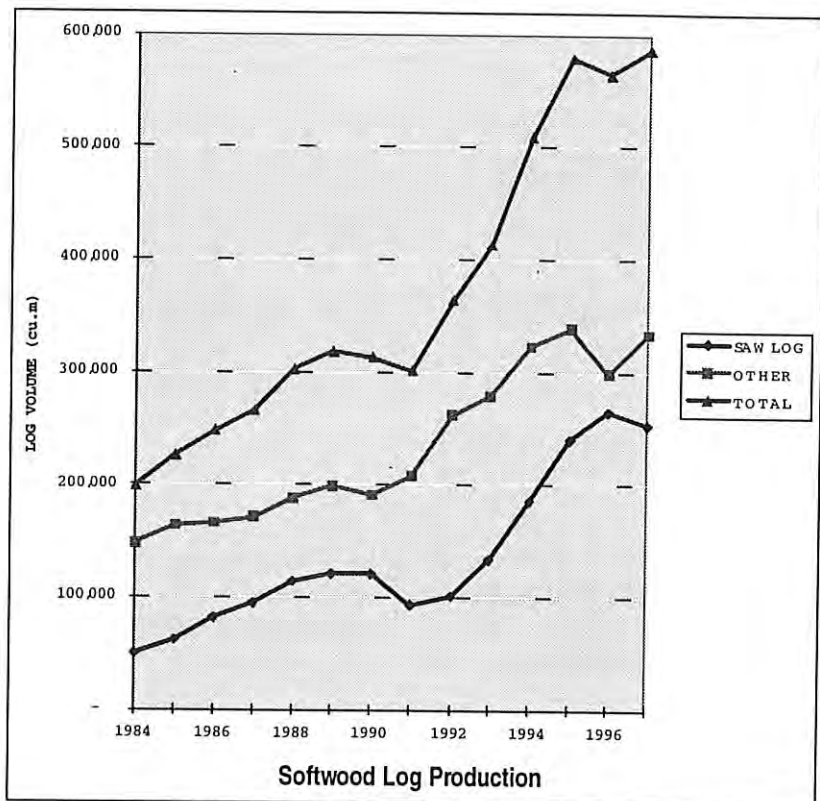
The major current activity is the Oil Mallee Project. This project aims to create a dual purpose (commercial plus landcare) tree crop for the Wheatbelt. The crop is mallee eucalypts and aims to reduce cost of production, such that the excellent solvent properties of the oil might be developed for large scale, but low priced, industrial uses.

The initial development stage of the project has now been completed. In winter 1996, 2.86 million oil mallee seedlings were planted in six Wheatbelt locations. The project has demonstrated that large scale growing of oil mallee can be successfully implemented. Industry development has been facilitated by the growers' representative body, the Oil Mallee Association. The Association now coordinates planting operations.

In 1996-97 the Farm Forestry Advisory Service was established in conjunction with Agriculture WA. This service will focus on establishing farm forestry in high rainfall areas and ensure that information is regularly updated and distributed. The Service aims to stimulate interest amongst farmers by developing and promoting better farming techniques. Several sites have been planted using both *E. globulus* and maritime pine. These sites will be used as demonstration plots.

Plant Propagation Business Unit

During the 1996-97 season the Plant Propagation Centre at Manjimup raised over 21 million seedlings and 600 000 cuttings. The breakdown of the species is as follows:



Number of Seedlings and Cuttings ('000)

HARDWOOD	
<i>E. globulus</i>	9 863
<i>E. diversicolor</i>	3 550
Western Bluegum	2 060
<i>E. marginata</i>	98
Mixed species	895
SOFTWOOD	
<i>P. radiata</i>	2 125
<i>P. pinaster</i>	3 110

Approximately four million of these seedlings were sold for private sale.

The Manjimup Nursery expanded its hardwood container nursery to hold an additional two million seedlings. An area of 5.5 ha of mother plants

was established to provide cuttings for the Maritime Pine Project. A lateral irrigator for the mother plants was purchased to cater for the extra area.

During the 1996-97 season the nursery at Kununurra produced 9 208 seedlings. The breakdown is as follows:

Number of Seedlings

<i>Cathorium umbellatum</i>	2 300
<i>Khaya senegalensis</i>	1 530
<i>Acacia trachycarpa</i>	1 152
<i>Cassia siamea</i>	1 152
<i>Sesbania formosa</i>	1 024
<i>Santalum album</i>	1 000
Other Mixed species	1 050

Hardwood Sawlog and Veneer Log Production from Crown Land 1996-97

Species	High Quality Sawlogs (m ³)	1st Grade Sawlogs (m ³)	Bole Logs (m ³)	Other Sawlogs (m ³)	Total (m ³)
Jarrah	3 488	381 964	4 216	77 089	466 757
Karri	410	151 794		38 225	190 429
Marri	40	0		7 192	7 232
Other Species	2 941	2 132		361	5 434
Total	6 879	535 890	4 216	122 867	669 852
Species	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
Jarrah	4 549	502 283	5 544	100 689	613 065
Karri	508	187 626		47 398	235 532
Marri	51	0		8 918	8 969
Other Species	3 013	2 804		466	6 283
Total	8 121	692 713	5 544	157 471	863 849

Softwood Production from Crown land 1996-97											
SPECIES		SAWLOGS					Sub-Total Sawlogs	Veneer logs	Industrial* Wood	Pine Rounds	Grand Total
		Scanner Logs	by mid. Diam. class	2nd Grade	3rd Grade	Small					
RADIATA	m ³	170 310	11 216	8 188	36	33 261	223 011	1 126	219 704	5 579	449 420
	tonnes	170 310	11 216	8 188	36	33 261	223 011	1 126	219 704	5 579	449 420
PINASTER	m ³	11 306	0	1 701	85	16 495	29 587		107 726	219	137 532
	tonnes	11 306	0	1 701	85	16 495	29 587	0	117 756	219	147 562
TOTAL	m ³	181 616	11 216	9 889	121	49 756	252 598	1 126	327 430	5 798	586 952
	tonnes	181 616	11 216	9 889	121	49 756	252 598	1 126	337 460	5 798	596 982

* including particleboard logs. In addition 3 843 Christmas Trees were sold.

Production of containerised stock from the Narrogin Nursery included 37 453 potted stock and 885 000 in multi-celled containers for on-farm revegetation programs within the Wheatbelt and the south-west. It also grew a million oil mallee mini-plugs for private nurseries.

SEED CENTRE

Seed Handling

Seeds of the principal species needed for CALM's forest plantings, rehabilitation and conservation projects, as well as for public sales, were acquired, processed and stored at the Manjimup Plant Propagation Seed Centre. A total of 580 native and exotic species totalling 3 200 kg are stored at the Centre.

Seed Despatch

Weight of seed despatched for 1996-97 totalled 1 180 kg. The percentage breakdown of seed despatched within Australia is as follows:

Western Australia	88.6%
Queensland	6.3%
New South Wales	1.4%
Victoria	1.3%
South Australia	1.1%

Other than seed orders within Australia, seed was exported to Kuwait, New Zealand, Germany, South Africa and Zimbabwe.

Seed Acquisition

A total of 1 651kg was acquired through collection and purchase.

<i>Eucalyptus diversicolor</i>	28 kg
<i>Eucalyptus globulus</i>	250 kg
Other <i>Eucalyptus</i> species	80 kg
<i>Pinus radiata</i>	132 kg
<i>Pinus pinaster</i>	756 kg
<i>Leguminaceae</i> species (e.g. <i>Acacias</i> , <i>Kennedias</i>)	319 kg
<i>Proteaceae</i> species (e.g. <i>Banksia</i> , <i>Hakeas</i>)	6 kg
Other species	79 kg

Seed Orchards

First production seed crop of 40 per cent volume improved western bluegum was harvested for sowing in January 1998.

A seed orchard (1ha) of dieback-resistant *Eucalyptus marginata* was established at the Plant Propagation Centre.

First successful grafts of *Corymbia maculata* (spotted gum) were produced at the Wanneroo Grafting Unit.

Seed yield from our *P. pinaster* seed orchard at Manjimup was better than expected, providing 560 kg (8.4 million seeds).

Tree Breeding

Tissue culture is being used to multiply the number of plantlets available from the best genetic quality *E. globulus* and *P. pinaster* seed. These plantlets will provide stock for the establishment of future seed orchards.

E. globulus has been successfully crossed with a number of other eucalypts to produce hybrids, from which it is hoped the vigour of *E. globulus* is maintained while providing additional traits such as drought and salt tolerance.

A number of yield trials and genetic archives have been established to prove the genetic gains achieved and maintain the original parent material.

Hardwood Chipwood Production from Crown Land and Private Property 1996-97						
	Crown Land		Private Property		Total	
	(m ³)	(tonnes)	(m ³)	(tonnes)	(m ³)	(tonnes)
Marri Logs:-						
bolewood	449 439	551 612	48 669	59 903	498 108	611 515
branchwood	0	0	0	0	0	0
Karri Logs:-						
bolewood	148 924	180 502	8 854	10 576	157 778	191 078
branchwood	11 825	14 663	0	0	11 825	14 663
Total	610 188	746 777	57 523	70 479	667 711	817 256

Production from CALM-Owned Hardwood Plantation 1996-97							
SPECIES		Sawlogs	Chiplogs	Fencing	Firewood Material	Chopping	TOTAL Log
Globulus	m ³	473	6 729			1	7 203
	tonnes	563	7 873			1	8 437
Muellerana	m ³	72					72
	tonnes	85					85
Mallet	m ³			170	1 028		1 198
	tonnes			203	1 028		1 231
TOTAL	m ³	545	6 729	170	1 028	1	8 473
	tonnes	648	7 873	203	1 028	1	9 753

Sawn Production From Crown Land and Private Property 1995-96			
	Hardwood m ³	Softwood m ³	Total m ³
Sawn Timber Production			
- Crown land	230 065	106 530	336 595
- Private property	3 975	18 168	22 143
Sawn Sleeper Production			
- Crown land	9 799		9 799
- Private property	296		296
Total	244 135	124 698	368 833

Final figures for 1996-97 not yet available. These will be published in the next annual report.

Note: The trend in the production of sawn timber is shown in Appendix 7.

Log Production From Crown Land and Private Property 1996-97

TYPE	Crown Land		Private Property		Total	
	(m ³)	(tonnes)	(m ³)	(tonnes)	(m ³)	(tonnes)
SAWLOG TIMBER*						
Jarrah	466 757	613 065	4 234	5 566	470 991	618 631
Karri	190 429	235 532	1 536	1 904	191 965	237 436
Marri	7 232	8 969	1 412	1 751	8 644	10 720
Blackbutt	2232	2 916	53	66	2 285	2 982
Wandoo	521	685	59	73	580	758
Sheoak	2676	2 676	199	199	2 875	2 875
Other	5	6	12	15	17	21
Total Native Hardwood	669 852	863 849	7 505	9 574	677 357	873 423
Globulus	473	563	819	974	1 292	1 537
Mallet	0	0	0	0	0	0
Muellerana	72	85	0	0	72	85
Total Plantation Hardwood	545	648	819	974	1364	1 622
Pine Sawlogs and Veneer Logs	253 724	253 724	42 944	42 944	296 668	296 668
TOTAL SAWLOGS	924 121	1 118 221	51 268	53 492	975 389	1 171 713
OTHER LOG MATERIAL						
Native Hardwood						
Chiplogs	610 188	746 777	57 526	70 479	667 711	817 256
Industrial wood	3 294	4 085	1 725	2 139	5 019	6 224
other**	16 338	19 761	1 135	1 385	17 473	21 146
SubTotal Native Forest/Other	629 820	770 623	60 383	74 003	690 203	844 626
Plantation Hardwood						
Chiplogs	6 729	7 873	36 051	42 179	42 780	50 052
Industrial wood	0	0	0	0	0	0
other**	1 196	1 228	0	0	1 196	1 228
SubTotal Hardwood Pltn/Other	7 925	9 101	36 051	42 179	43 976	51 280
Softwood						
Industrial wood	327 430	337 460	106 146	106 373	433 576	443 833
Pine rounds	5 798	5 798	27 785	27 785	33 583	33 583
SubTotal Softwood/Other	333 228	343 258	133 931	134 158	467 159	477 416
Total Other Material	970 973	1 122 982	230 365	250 340	1 201 338	1 373 322
TOTAL LOGTIMBER	1 895 094	2 241 203	281 633	303 832	2 176 727	2 545 035

* Sawlog timber from all sources, including veneer, but not including chiplogs, particleboard, industrial wood, firewood, fencing material, poles, piles and minor forest products.

** Includes poles, bridgetimbers, burls, chopping logs, mining timber, pegging logs and fencing material.

Note: The trends in the production of logs are shown in Appendices 5 and 6.

Tourism and Recreation Management Program 3

Our objective is to identify, provide and maintain opportunities and services to the community which allow them to enjoy the wildlife, lands, waters and resources entrusted to the department without compromising conservation and other management objectives.

This Program deals with tourism and recreation in the natural environment on lands and waters managed by CALM. It includes preparing and implementing management plans and the provision, management and maintenance of appropriate access, recreation opportunities and facilities, protecting visitors and facilities from fire, training of staff and CALM volunteers, designing and initiating educational information and activities concerning tourism and recreation in the natural environment, and developing public awareness, understanding and support for the tourism and recreation management program, services and policies.

The Department's operations are guided by a Recreation and Tourism Strategy (published as People in CALM Places). The strategy describes the vision of CALM's Recreation and Tourism Program and outlines a number of focuses and strategic actions in relation to managing natural areas for public use. It proposes ways of measuring effectiveness and efficiency in delivering recreation and tourism services and facilities and the effect recreation and tourism have on the natural environment. One of the key aims of this strategy is to articulate the Department's commitment to providing sustainable recreation and tourism opportunities of the highest quality on the lands and waters managed by CALM, and to communicate this to the community.

The strategy also provides the basis for more detailed regional action

HIGHLIGHTS

- ☆ Opening of the Valley of the Giants and the Tree Top Walk (p. 26)
- ☆ Opening of the Great Forest Trees Drive (p. 26)
- ☆ Construction of stage 1 of the Bibbulmun Track (p. 29)
- ☆ Opening of the Penguin Island Research and Management Centre (p. 27)
- ☆ Gnangara Park to be Perth's largest conservation and recreation park (p. 27)
- ☆ CALM to manage Perth's Regional Parks and Greenways (p. 27)

plans which describe the steps to be taken in achieving Recreation and Tourism Program objectives throughout this State.

RECREATION PLANNING AND DESIGN

Area and Regional Plans

CALM aims to increase the area of CALM-managed estate covered by statutory plans. To that end, final management plans for Wanjarri Nature Reserve and Shark Bay Marine Reserves have been gazetted this year. Draft management plans for the Swan Estuary Marine Park and Adjacent Nature Reserves and the Stirling Range and Porongurup National Parks were released for public comment in accordance with CALM Act requirements. Work continues on 18 draft and final plans, all of which provide recreation and conservation strategies. During the year public comment was also sought on plan amendments for a section of the Walpole-Nornalup National Park

Management Plan and the Fitzgerald River National Park Management Plan in accordance with CALM Act procedures.

The State government announced in June 1997 that CALM had been given the task of coordinating the management of regional parks. Part of this task will include the preparation of management plans for four parks: Canning River, Beeliar, Yellagonga and Herdsman Lake.

The following tables list the area of each tenure category managed by CALM for which management plans are now completed. It also lists the status of plans in preparation or already approved as at 30 June 1997.

Approximately 68 per cent of visits to CALM-managed lands were to sites covered by management plans, either approved or in preparation (but excluding regional plans). The number of visits to the total CALM-managed estate to 30 June 1997 was 6.3 million.

Areas Covered by Management Plans			
Tenure classification	Area covered by plan (ha)	Total tenure area (ha)	% covered
National Park	951 357.0	4 873 906.0	19.5
Nature Reserve	81 047.7	10 770 692.0	0.8
Marine Reserve	1 115 799.0	1 145 940.0	97.3
Other Recreation/ Conservation Reserves	87 384.3	263 017.0	33.2
Total CALM Conservation Estate	2 235 588.0	17 053 555.0	13.1

CALM Management Plan Status at 30 June 1997			
Approved (gazetted) management plans	Date of gazettal	Final plans in preparation	Draft plans in preparation
NATIONAL PARKS			
Cape Range	23-03-90	Nambung	Millstream-Chichester
Fitzgerald River	19-07-91	Karijini	Serpentine
Leeuwin Naturaliste	21-04-89	Stirling Range & Porongurup	François Peron
Shannon D'Entrecasteaux	08-01-88		
Walpole-Nornalup	03-07-92		
Yanchep	29-09-89		
John Forrest	19-08-94		
West Cape Howe	04-08-95		
Yalgorup	15-08-95		
Lesueur	13-10-95		
Purnululu	05-03-96		
NATURE RESERVES			
Benger Swamp	12-02-88	Wanagarren	Esperance Lakes
Dampier Archipelago	31-08-90	Nilgen	Lake Muir Unicup
Forrestdale Lake	10-07-87	Southern Beekeepers	Perup
Mooradung	21-02-86	Alfred Cove	Shark Bay Terrestrial Reserves
Nature Reserves of Shire of Wyalkatchem	10-07-87	Milyu	Muiron Islands
Nature Reserves of Shires of York and Northam	10-07-87	Pelican Point	
Coomallo	13-10-95		
Two Peoples Bay	07-06-96		
Wanjarri	02-07-96		
MARINE PARKS			
Ningaloo	24-11-89	Swan Estuary	Rowley Shoals
Marmion	15-05-92	Shoalwater Islands	
Shark Bay	07-03-97		
OTHER RESERVES			
Lane Poole Reserve	14-12-90	Canning River Regional Park	Shark Bay World Heritage
Matilda Bay Reserve	21-05-93	Monkey Mia Reserve	Area Strategic Plan
Shoalwater Islands	20-10-92	Leschenault Conservation Park	Jurabi & Bundegi Coastal Parks
Hamelin Pool	07-03-97		
STATE FOREST			
Logue Brook Reservoir and Catchment Area	16-03-90		
Waroona Reservoir and Catchment Area	16-03-90		
Dryandra Woodland	14-11-95		
REGION PLANS			
Central Forest Region	12-02-88		Wheatbelt Region
Northern Forest Region	12-02-88		Kimberley Region
Southern Forest Region	12-02-88		
Forest Management Plan 1994	22-03-94		
South Coast Region	13-03-92		
Goldfields Region	24-02-95		

Regional Management Plans

CALM region	Area (millions of ha)	% of WA (total area)
Swan	2.1	0.8%
Central Forest	1.8	0.7%
Southern Forest	1.4	0.6%
South Coast	20.0	7.9%
Goldfields	82.0	32.5%
Total	107.3	42.5%

Note: Regions are as delineated in Forest Management Plan 1994-2003 for Forest Regions. Area figures are of the total area within a region, not just CALM-managed lands.

Landscape Management

The landscape management section undertook a broad range of projects designed to maintain the positive experience of visitors to CALM-managed lands.

Data on scenic values were prepared for the Regional Forest Agreement process. Data on road reserves in the karri forest was reviewed and updated

to include changes to visitor use. An assessment and planning advice was provided for harvesting proposals at Cooke Plantation and work also commenced on assessment of the Dryandra forest blocks to assist with the planning of mallet harvesting. Guidelines were provided for the rehabilitation of roadside forest near Collie which was burnt by wildfire. Mapping was undertaken as part of the planning for the proposed

Gnangara Park and advice was provided for a number of coupe plans in the Forest Regions.

Assessments and planning advice was also provided for a number of other developments, including communications towers at Mundaring and Prevelly. The Section continued work with the Leeuwin-Naturaliste Planning Review, in conjunction with the Ministry for Planning, and finalised the Leeuwin-Naturaliste Landscape Assessment Study, Stage 1 Report which was released with the Statement of Planning Policy for the region. Reports were also finalised for integrated land management studies for two Alcoa operation sites. An overview of CALM's landscape planning procedure was prepared and landscape assessment guidelines were prepared for a UN publication dealing with coastal management.

Planning and assessment expertise was also provided for studies on the future management of Caves Road, and the Moresby Ranges near Geraldton. Guidelines and detailed plans were provided to Western Power to assist in the rehabilitation and visual enhancement of their transmission corridors. Work on a set of landscape management guidelines continued and lectures on landscape management were provided for local tertiary courses. Technology improvements were made to allow the Section to undertake a broad range of computerised mapping, analysis, modelling and simulation work.

Recreation Site and Facility Plans

Recreation assessments were completed this year for Goldfields Region; Licensing for Commercial Operations in Purnululu National Park (Kimberley); Wayside stops on new Mt Bruce - Mt Windell Road (Karijini National Park); Visitor Services and Recreation Facilities at Millstream - Chichester National Park (Pilbara); Recreation Development and Management Plan for Weeli Wolli Springs (for BHP near Hamersley Range); and Alas Purwo National Park (East Java).

Recreation Master Plans were completed for Karijini National Park (Pilbara Region); Kalgoorlie Arboretum (Goldfields Region); Vasse Wonnerup/Port Geographe Wetland Conservation Reserve (Busselton); Interim Guidelines for Management for Lancelin and Edwin Island's Nature Reserve (Mid West Region); revised Coalmine Beach Caravan Park (Walpole); and Conto's Field (Leeuwin Naturaliste National Park).

Concept Plans were completed for recreation sites through Millstream-Chichester National Park (Pilbara Region); Wildlife Enclosure (Dwellingup); Kimberley Regional Headquarters; Visitor Facilities at Dryandra Wildlife Enclosure (Wheatbelt); Fern Pool Deck (Karijini National Park); and Planting at Hoffman Mill (Central Forest Region).

Site Development Plans were completed for Mandalay Beach Car Park, Circular Pool, Valley of the Giants Picnic Ground, Founders Forest, Boorara Tree and Lane Poole Falls, Salmon Beach, King Jarrah, Perup Ecology Centre (Southern Forest Region); Wrights Bridge Entry (Blackwood District); Workers Pool (Blackwood District); Monkey Mia Land Use (Gascoyne District); Peron Homestead Area (Peron National Park); Wave Rock Parking Area, Hippo's Yawn and Hyden Dam Site (Shire of Kondinin); John Forrest Tavern Planting (John Forrest National Park); Congelin Dam Camping Area (Dryandra); Albany Headquarters (South Coast Region); Two Peoples Bay Visitor Centre (South Coast Region).

Design and Construction Documentation Drawings were completed for Barbecues (Yanchep National Park); Pinnacles Desert Lookout Platform (Nambung National Park); Barrabup Pool Swimming Platform (Blackwood District); Grace Town Stairs (Capes District); Nornalup Sleeping Hut (Bibbulmun Track); and Mount Wells Lookout Tower and Hut (Dwellingup).

In addition to planning and design, the section provided information and support to CALM staff across a wide spectrum of recreation facility construction, maintenance and presentation issues. Topics included mountain bike facilities in the Swan Region, roads works at Hamelin Bay Day Use Area, storm damage at Penguin Island, review of Pickering Brook Ropes Course, platforms in Kalbarri National Park, coastal access steps at Injidup, and contract documentation for the Gap Walkway in Torndirrup National Park.

TOURISM AND RECREATION OPPORTUNITIES

Regional Achievements

This year CALM continued to improve facilities and services for visitors throughout the State.

South Coast: The Stirling Range and Porongurup National Parks Draft Management Plan was released for public comment in April and public submissions are now being analysed. Capital works were carried out at the Gap and the Natural Bridge in Torndirrup National Park, funded under the Commonwealth National Ecotourism Program. Rehabilitation and construction works to the Mount Trio Path, funded under the Commonwealth Sites of National Tourism Significance Program, were completed in Stirling Range National Park.

The WA Hang Gliders Association funded and constructed a take-off and landing ramp at West Cape Howe, which is one of the State's premier hang-gliding locations. CALM was pleased to be able to supervise the project, which will provide a safer recreational environment.

Major road modifications and parking areas were initiated at Two Peoples Bay Nature Reserve in accordance with the provisions of the reserve management plan. Old road areas were rehabilitated and modifications made to the Heritage Trail.

CALM's regional and district staff have combined with Albany's Residency Museum to provide environmental interpretative walks. Staff from the Perth Observatory have assisted the program and conducted an astronomy night.

Southern Forest: The Valley of the Giants in Walpole-Nornalup National Park was officially reopened in September 1996 by the Premier, marking the completion of the renovation of the old walk trails to create the Ancient Empire, and the construction of the Tree Top Walk and Tingle Shelter. By 14 October the Tree Top Walk was announced as the national winner of the National Project Award by the Australian Institute of Landscape Architects. The project was cited for its sensitivity to the natural surrounds, protection of the forest and for creating a sustainable tourist attraction through careful design.

The redevelopment of the Valley of the Giants, one of WA's favourite tourist stops for decades, reflects the revolution in recreation site design and management which is turning tired, degraded old sites into ecologically sustainable tourism icons.

The creation of the Tree Top Walk has minimised visitor impact on the forest, and provides rewarding, challenging and exciting experiences. A business plan predicted that the Tree Top Walk had the potential to generate enough revenue to subsidise the development and management costs of many other visitor facilities in the Southern Forest Region. After the first ten months of operation around 150 000 people had passed over the Tree Top Walk. The business plan's predicted visitation has proven to be accurate to within 10 per cent, with the revenue returns slightly higher than predicted due to good figures from sales of souvenirs and mementos.

The Wilderness Lodge at the Perup Forest Ecology Centre was opened by Minister Peter Foss in September. The Perup is regarded as unique in

Australia as a place where such an abundance of rare wildlife can be easily observed. Visitors may see at least four, and possibly five rare or threatened animals, and several other more common species, during a one-night stay at the Wilderness Lodge. As a module of the South West Development Commission Ecomuseum project, Perup is part of an important network of nature-based attractions in the region.

The Great Forest Trees Drive in Shannon National Park was also opened during the year. The 44-kilometre loop takes visitors through some of the most spectacular forest scenery in the south-west, and to gain the most from their experience there is an accompanying guide book, and eight short-range radio stations along the drive, each with a different story about the forest.

Campground hosts at Shannon last summer have reported the popularity of the Great Forest Trees Drive, estimating several thousand cars having done the circuit during the holiday period. There are many features along the drive, including 'the other treetop walk' (a 30-metre elevated boardwalk to a lookout at Snake Gully) and the giant karri trees at Big Tree Grove.

Partnerships have been forged with several commercial tourism operators, but particularly noteworthy is the arrangement with Karni Valley Resort. CALM has an agreement to assist with nature-based tourism programs such as a junior ranger program and wildlife research and monitoring. This partnership will become a model for nature-based tourism operators to develop quality activity programs that enhance the tourist experience, whilst making a positive contribution toward our research and understanding of the natural environment.

Central Forest: Significant work has been carried out with the redevelopment of the Bibbulmun Track. Several commercial lease agreements requiring capital works have been administered.

In other areas, Hoffman camping area has had extensive upgrading with the restoration of a historic railway bridge for pedestrian use, provision of reticulated water, barbecues and toilet facilities. The Canebrake Pool site has had a major upgrade including a day visitor and camping area. At Wharncliffe Mill Forest Camp a bush kitchen has been constructed and the planning for a bunkhouse has been completed. At Cape Naturaliste further work has been undertaken on the stairways and walkways at the Whale Lookout, and the Bunk Bay Lookout is now completed.

The northern half of section 2 of the Cape to Cape Walktrail between Wyadup and Quininup has been completed by students from the Busselton Senior High School, and Margaret River Senior High School students have completed section 4 of the walktrail from Hamelin Bay to Redgate.

At Giants and Brides Caves, an ablution facility has been provided. Improvements have been made to the entry/exit to Bride and Calgardup Caves on Caves Road. A further 100 metres of elevated walkway have been completed within Calgardup Cave.

The Southpoint vehicle and foot access has been improved and substantial rehabilitation of dunes has begun.

At Injidup a viewing platform has been completed adjacent to the carpark and a new stairway to the beach has been started. At Quininup a coastal viewing platform on the Cape to Cape Walktrail has been completed and a major stabilisation project south of the Quininup Brook has begun. Primary dunes have been built, frogmatted and planted, and four-wheel-drive access to the coast has been provided.

At Hamelin Bay a major new carpark for boats and vehicles to the water's edge has been completed. At Twinems Bend the foreshore area for ski boats has been enlarged and

improved with the assistance of two ski clubs who utilise the area.

Swan Region: This year saw a consolidation of capital works programs funded by CALM and the private sector, including commencement of the redevelopment of the Matilda Bay Kiosk, renovation and upgrade to the Yanchep Inn, extensions to camping facilities at the Hills Forest Activity Centre to accommodate the needs of disabled people, upgrading of the John Forrest National Park Tavern and entry station, completion of the Bibbulmun Track projects and the opening of the Western Mining Corporation sponsored research and management centre at Penguin Island.

The 'Penguin Experience' Wildlife Discovery Centre, built in 1995-96 as a model environmental interpretive facility was a finalist in the environment category of the WA Tourism Awards, and it has received very favourable public support.

The draft Swan River Marine Estuaries Management Plan was released for public comment and work completed on the Canning River Regional Park Management Plan and the draft Serpentine National Park Management Plan.

The Hills Forest Activity Centre continues to provide a valuable interpretive service for Perth residents and tourists wishing to improve their understanding of the natural systems of the jarrah forest. More than 580 activities were conducted, using contract staff to provide hands-on experiences for 18 500 visitors. An open-air cinema, operating under lease from CALM adjacent to the Hills Forest Activity Centre, saw over 1 400 people attend screenings of Australian films during the summer.

John Forrest National Park had capital works undertaken in accordance with the management plan. Ranger staff shifted into a new ranger station located amongst the main facilities; this has enabled a

significant improvement of service to park visitors, as reflected in customer satisfaction surveys.

The Government announced that CALM would undertake two of the most significant conservation initiatives for the Perth metropolitan area. From 1 July 1997 CALM is to be responsible for the coordination of management of regional parks that have been progressively acquired by the Ministry for Planning during the last 30 years. These areas extend over a wide range of landscape types, including lands managed by 13 Local Government Authorities and containing remnants of natural bush.

Gnangara Park, extending over 50 000 hectares, will be created as the Gnangara pine plantation is progressively harvested and replaced with native species. This bold vision will be achieved over the next 20 years and see the continued protection of one of Perth's most important groundwater sources. Additional opportunities will be provided for tourism, recreation and the protection of our endangered species. The park will provide a back-up habitat for rare plants that are threatened in their natural settings.

Wheatbelt: A new campground was constructed at Dryandra Woodland, including new facilities such as picnic tables, barbecues, shelters and toilets.

Activity programs were successfully piloted at Dryandra in the October and April school holidays with more than 250 participants. These activities were planned to introduce visitors staying at the Lions Dryandra Village to the natural and cultural attractions of the woodland. The response from visitors was overwhelming.

Staff from CALM's Aboriginal Nature Based Tourism, Education and Training Unit, assisted by regional officers, conducted a four-day Nyoongar cultural interpretation workshop for local Nyoongar TAFE students. The participants have been trained to a standard that will enable

them to conduct future cultural tourism programs at Dryandra and meet growing tourist demand.

A tourism industry familiarisation program for 16 operators from 12 companies resulted in several operators adding Dryandra to their tours. CALM's linking of tourism operators with trained Aboriginal tourist guides will continue to provide economic, social and conservation benefits to the participants. The improvement to Aboriginal employment is of particular importance.

Goldfields: A maintenance and improvement program continued for Goongarrie Homestead.

The Kalgoorlie Arboretum site design and redevelopment program was finalised. A new sealed carpark was opened and dual-use path completed through the arboretum, linking to the Kalgoorlie-Boulder dual-use paths that are used by pedestrians and cyclists.

Midwest: The final management plan for Shark Bay Marine Reserves in the Shark Bay World Heritage Area was released. Work continued on the preparation of a draft management plan for the World Heritage Area's terrestrial reserves and an overarching strategic plan.

Road sealing was completed to the Pinnacles turnoff in Nambung National Park and additional visitor facilities built, including a boardwalk and lookout funded under the Commonwealth National Tourism Development Program. The Pinnacles carpark was sealed.

The Commonwealth National Tourism Development Program awarded \$400 000 of matching funds to enable public facilities and a visitor centre to be built at Monkey Mia. Architects have prepared concept plans and will progress to working drawings during 1997-98.

Main Roads WA sealed 24 kilometres of roads in the coastal section of Kalbarri National Park. CALM

upgraded pedestrian access at Natural Bridge and conducted road stabilisation trials on the Loop/Z Bend road.

Green Corps, with 10 participants, assisted with the construction of ablution facilities and development of a visitor centre at the François Peron National Park Homestead. They also played an important role with various works associated with Project Eden, including the construction of fauna enclosures and monitoring of feral cats and native fauna.

Interpretive and information panels were provided at Kennedy Range and Mount Augustus National Parks. Ranger-guided walks and slide shows were conducted at Mount Augustus, and *LANDSCOPE* Expeditions were conducted to Burnerbinmah Station and François Peron National Park.

Implementation of the Government's Squatter Management Policy continued at Wedge Point and Grey on the Midwest coast.

Pilbara: Site evaluation and the conceptual planning have been completed for the permanent visitor centre at Karijini National Park. Final planning of building and facilities design has begun. Extensive consultation with Aboriginal elders and the Pilbara Development Commission was required.

CALM has entered into negotiations with Auster Developments Pty Ltd for the provision of accommodation within Karijini National Park. A master recreation plan has been developed in association with this project.

The Australian Trust for Conservation Volunteers (ATCV) returned to carry out annual maintenance on the Mt Bruce interpretive walk. ATCV also completed a 10-day recreation maintenance program on lands jointly vested in CALM and the Exmouth Shire at Jurabi on the North West Cape.

CALM has been allocated \$80 000 from the National Tourism Development Program for the redevelopment of the Oxer/Weano area in Karijini National Park. The site plan for Oxers has been completed, as has the plan for a lookout into Hancock Gorge. Construction of this lookout has started and is expected to be completed in early 1997-98.

Construction of a sealed road through Karijini National Park has continued. This is expected to significantly increase visitation to the park. Approximately nine kilometres of internal park road have also been sealed. Several of the internal park roads have been renamed to recognise the traditional custodians and the destination of side roads.

Fern Pool within Karijini National Park has been upgraded at a cost of \$20 000. Decking and access to the pool have been provided.

The Millstream-Chichester National Park Management Plan is being implemented. A master recreation plan has been developed for both the northern and southern portion of the park.

Seven kilometres of Yardie Creek Road within the Cape Range National Park have been sealed and a further one kilometre has been prepared for scaling.

The Department of Land Administration has been asked to extend Cape Range National Park eastwards, following an agreement reached between the Minister for the Environment and Minerals and Energy about limestone reserves in Cape Range.

Exmouth District successfully applied for assistance from the Green Corps Program. Green Corps will be involved in six months work within Cape Range National Park and Ningaloo Marine Park doing recreation development and maintenance.

Kimberley: The West Kimberley has been very successful in creating employment for two full-time Aboriginal positions based on their cultural links with managed lands and developed enterprises. 1997 also marked the end of a four-year program culminating in the creation of the full and independent operation of the Darngku Heritage Cruise at Geikie Gorge. CALM and the Darlingunaya Aboriginal Corporation worked in partnership to develop the cruise and position it in the market place. Another Bunaba Aboriginal guide now runs the cruise quite independently of CALM, but with our full support.

A Rubibi Cultural Ranger is part of a Department of Land Administration, CALM and Rubibi joint management initiative at Waterbank north of Broome. A Bunaba Cultural Ranger has been appointed to add a cultural dimension to CALM's boat cruise operations at Geikie Gorge National Park.

Purnululu National Park's annual visitation rate continued to climb, with 14 000 visitors in 1996 compared with 13 000 in 1995. A \$27 500 grant from the Office of National Tourism was expended on a major upgrade of visitor facilities at the park. Volunteers managing the verandah shop have provided quality service to visitors coming into the park and have given rangers more time to attend to park duties.

COMMERCIAL TOURISM INTERESTS

Leasing - Tourism

Commercial leases have been finalised for an outdoor cinema at the Hills Forest near Mundaring. Ecotel Pty Ltd have been granted leases for the upgrade and management of forest cottage settlements at Lewana, Myalup and Wellington Mills. These will provide an improved standard of tourist accommodation than the previous camps run by the Ministry for Sport and Recreation.

Negotiations are continuing with proponents for Logue Brook Caravan Park, visitor services at Woody Island Nature Reserve, the development of accommodation facilities at Karijini National Park, and other services complementary to CALM's Hills Forest Program.

During the year it was necessary to appoint interim managers to the John Forrest National Park Tavern and Tearooms and the Yanchep Inn, Yanchep National Park. This situation arose from difficulties encountered with lease negotiations for the two facilities, however, it is expected that long term leases will be executed during the coming year.

An extensive maintenance and upgrade of the Yanchep Inn, which necessitated its temporary closure, took place in 1996-97. The works were preceded by the completion of a Conservation Plan by a recognised conservation architect. At 30 June 1997, all works were completed and arrangements were being made to reopen the Inn.

Commercial Tourist Operators

All private tour operators conducting commercial tourist activities on conservation areas are required to obtain a licence in accordance with the CALM Amendment Regulations 1993. All tourism activities are required to be consistent with approved management plans, or in the absence of a management plan, to be either compatible or necessary operations as specified in the CALM Act.

As of 30 June 1997, a total of 198 commercial tour operators were licensed to operate on CALM managed land and waters with a further 60 applications being assessed. This represents an increase of 32 operators.

CALM has continued to develop opportunities for private sector involvement in nature-based tourism on CALM-managed land and waters. During this year, expressions of interest were advertised for the licensing of all commercial activities

to Shark Bay Marine Reserves. A licence was issued for helicopter tours in Purnululu National Park. Licences have been offered for commercial charter tours to Rowley Shoals and approval has been given to renew the Whale Shark Interaction tours for a further year.

Touring Western Australia, an industry newsletter, was launched by CALM to let members of the tourist industry know what is happening on CALM land and what new products are being developed. The newsletter is distributed widely throughout the tourism and travel industry, published quarterly, and includes an annual feedback form to assess CALM's ability to service its commercial tourism customers. The feedback obtained in the first year was very favourable.

During the year CALM increased its marketing information to commercial tourist operators and attended several trade functions, including the Australian Tourism Exchange, where favourable responses were obtained to our new products such as the *Wild About Western Australia* CD ROM.

Leases

At the end of the financial year, CALM was managing 288 leases and is in the process of issuing an additional 103. Of the leases in place, 209 are on State forest or timber reserves, 29 are on conservation estate, 42 are located on freehold and eight on other land tenures. During the year, 12 new leases were issued and several more are being finalised.

Lease purposes include grazing, house occupancy, dam sites, communication facilities, gravel extraction utility (eg pumping station, sewerage treatment works, tank site, explosives distribution centre, prison), recreation, sporting, scientific, rubbish disposal and commercial (caravan parks, resorts, restaurants).

A new fee schedule for forest leases was approved by the Minister and will be implemented during 1997-98.

Bibbulmun Track Project

The Bibbulmun Track Project was established by CALM in October 1993 to oversee a significant upgrade, realignment and extension to the track, Western Australian's premier long-distance walk.

During this financial year the joint ventures and partnerships with other agencies, private enterprise and community groups have grown. Over \$450 000 of 'in kind' contributions have been provided from DEET programs, the Armed Forces and community groups, including Service clubs.

The Ministry for Justice continued its joint venture agreement to provide 'in prison' prefabricated facilities for the track. A whole range of infrastructure is constructed in prison workshops, including shelters, toilets, tables, barbecues, sign trailers and information panels. Field workcrews from low security prisons then assist with the track construction and installation of facilities. The subsequent benefit to the track users and prisoners is substantial, with more than \$800 000 of 'in kind' contributions coming from the Ministry of Justice. The project has secured \$1.38 million of Commonwealth funding and \$350 000 of State funding to date, and the construction schedule is being achieved. In 1996-97, 460 kilometres of new track was constructed, with major crossings completed over the Donnelly River, Harris River, Canning River and Balingup Brook. Numerous smaller crossings were completed.

Twenty-three campsites were completed in the northern half of the track and three in the southern half. The northern half of the track will be completed and officially opened early in the 1997-98 year.

All community groups, sponsors, volunteers and agencies that have contributed to the track are acknowledged in a quarterly newsletter, which is distributed State-wide and provides readers with an up-to-date progress report on the projects.

PROGRAM ACHIEVEMENTS

Staff Training

During the year, the Department conducted two courses for staff on recreation planning and management in natural areas. The first course was held on Rottnest Island at the invitation of the Rottnest Island Authority, and the second was held at the Ministry of Sport and Recreation's Point Walter Conference Centre. A Recreation Design, Construction and Facility Maintenance course for Central Forest Region AWU staff was also held at Margaret River.

Department officers presented lectures on recreation planning and management to students at Edith Cowan and Murdoch Universities. Two of CALM's staff also spent their leave running a five-week design studio on several projects in the Shark Bay World Heritage Area for final year Landscape Architecture students at the University of Canberra.

RecData

Work on the Department's Recreation and Tourism Information System (RATIS) continued during the year with the development of a computerised recreation asset inventory known as RecData. RecData is concerned with the recording of detailed data on all recreation and tourism facilities on more than 700 sites managed by CALM across the State. Earlier in the year operations staff began collecting information on individual assets, ranging from signs, picnic tables and barbecues to major items such as information centres. When completed in the spring of 1997, the RecData system will enable field staff to input, update and retrieve information for budgeting and facility management and maintenance purposes. This information will also be used for accrual accounting purposes.

Outback Safety and Bushcraft Course

A significant milestone was reached in November 1996 with the successful completion of the 50th Outback Safety and Bushcraft Course. Conducted by Bob Cooper Outdoor Education staff in conjunction with CALM, this course is designed to provide people with the attitudes, knowledge and skills to protect both themselves and the environment from harm. Since the first course was held in 1989, more than 1000 participants have received hands-on training on various topics including trip planning, minimal impact camping, map reading and navigation and survival techniques. The course is widely acclaimed and has previously been awarded the Safety Institute of Western Australia's Certificate of Excellence in Safety Education.

VISITOR INTERPRETATION SERVICES

Environmental interpretation assists visitors gain a better appreciation and understanding of our natural environment.

During the year concept plans were prepared for Monkey Mia Visitor Centre and the Peron Peninsula Visitor Centre within the Shark Bay World Heritage Area. Interpretation officers were involved with the provision of interpretive facilities and services within recreation development plans. CALM's Sign Design Studio continued to meet regional needs for signs and displays in managing visitors to CALM Estate. Designs were prepared for 114 projects and 96 produced.

Interpretive products of particular note were the involvement with the mural at Wave Rock; Lake Clifton interpretive panels; Penguin Island Discovery Centre interpretive signs; Bibbulmun Track directional, camp identification and dieback area signs. Risk signs continued to be in demand as part of CALM's risk management program.

A number of contracts for professional services from CALM's Visitor Interpretation Section were provided to produce interpretive signs for the Shire of Kondinin at Wave Rock; Main Roads Department at Grigson's Lookout on the new coastal highway between Cervantes and Jurien; Shire of Yilgarn for Mount Hampton Dam; Kalgoorlie-Boulder Landcare Group at the Kalgoorlie Demonstration Garden. In addition professional advice was given to a number of shires towards developing sign products.

Interpretive activity programs aimed at enriching visitor experiences were conducted at Yanchep National Park, Mirima and Purnululu National Parks in the Kimberley. More than 16 000 people attended The Hills Forest 'Go Bush' Program.

Training

CALM's nationally accredited Interpretive Activities Design Workshop was conducted in collaboration with the University of Notre Dame. Professional development participants and students of Environmental Interpretation and Management (ES180) were involved in the four-day workshop. A booklet was produced of activities designed by course participants and is held in the university library.

Running Activity Programs: A Guide to Interpreting the Natural and Cultural World for Visitors and *Visitor Interpretation Manual: Guidelines, Standards and Practices for Managing Recreation and Tourism* were published in 1996. They were sold out, verifying the growing professional interest in environmental interpretation. A new book, *Best Recipes for Interpreting Our Heritage: Activities for Ecotour Guides*, is currently in preparation, along with the Interpretation Activities Workshop Leaders Manual.

CALM's Ecology Courses continued to attract interest with participants at Dryandra Woodland and at Perup Forest.

Wild about Western Australia: CD-ROM

Production of Western Australia's premier nature-based tourism CD-ROM continued with the collaboration of CALM and the Development Unit for Instructional Technology from the University of Western Australia. A four-month trial of the product was conducted through CALM's WA Naturally shopfront in Fremantle, where visitors explored the natural attractions of the State and planned their holidays.

The CD-ROM lists booking details for commercial tourist operators and country tourism bureaux. It has been well received at tourism meetings and trade shows and will be released to the market in August 1997.

VISITOR RESEARCH

The visitor research program continued, with 137 sites monitored by traffic counters.

There were 5.3 million recorded visits for the 68 parks, State forests and reserves throughout the State during the year. This represents an increase from the previous year's recorded five million visits (amended figure) and reflects a continuous interest by the public in visiting CALM-managed areas.

There were an estimated 6.3 million visits to CALM-managed lands and waters.

Year	Recorded Visits to CALM- Managed Land and Waters		
	Data collection sites	Recorded visits (million)	Estimated no. of visits ¹ (million)
1992-93	116	4.4	4.8
1993-94	124	4.8	5.8
1994-95	128	5.8	5.8
1995-96	129	5.0 ²	6.0 ²
1996-97	137	5.3 ³	6.3 ³

¹ Visitor data are collected at selected sites and it is necessary to extrapolate the total number of visits to CALM-managed areas.

² Amended from last financial year as additional data became available.

³ Provisional estimate, based on limited data and subject to future amendment.

The Visitor Comment Card survey continued to obtain feedback from the public on their recreational experiences and the facilities and services provided by CALM. On average, 95 per cent of respondents were 'most satisfied' with their visit. This indicates a significant improvement in visitor satisfaction (up 76 per cent over the previous year) and may best be explained by continued upgrading of visitor facilities and customer service training for staff.

The Dryandra Woodland Survey continued in 1996-97 and will provide important information on visitor recreational experiences, facilities and services, as well as socio-economic information.

COMMUNITY INVOLVEMENT

CALM encourages public cooperation to assist in the management of recreation and tourism projects. Community groups and individuals are encouraged to take part in the development of appropriate tourism and recreation projects on conservation lands and waters.

Aboriginal Tourism, Education and Training Unit

The Aboriginal Tourism Education and Training Unit provides people with the opportunity to experience Aboriginal heritage, with Aboriginal people, in the natural environment.

A five-year strategic plan for the Unit and a business plan are both close to completion. The unit continues to develop cultural learning experiences for all people but with a focus on interactive activities in the bush, leading towards an understanding of the four key natural communities around Perth (forest, woodland, wetland and the coast) from an Aboriginal perspective. These programs are also designed to provide employment opportunities for Aboriginal people.

CALM has established links with the Education Department of Western Australia towards developing

Aboriginal heritage programs that follow current secondary and primary school curriculum. These programs are conducted at The Hills Forest. In addition, seventy-two talks on Aboriginal perspectives, activities and experiences were conducted in the schools around Perth to aid understanding by students and the professional development of teachers.

A variety of employment and training programs continued to be provided to Aboriginal trainees. The number of Aboriginal employees on traineeships, permanent or contract employment fluctuated between 28 and 32. Employment and training programs continued to focus on creating Aboriginal employment opportunities and identifying areas where Aboriginal skills and information could be used to increase Aboriginal involvement in CALM.

Two Aboriginal Cultural Interpretive Activities Workshops were conducted this financial year with a total of twenty-two students graduating with knowledge and skills that will help them gain employment in cultural tourism and ecotourism.

CALM continued its involvement with Aboriginal individuals and corporations throughout the State, including the Karijini Aboriginal Corporation, Southern Aboriginal Corporation, Manjimup Aboriginal Corporation, Kimberley Aboriginal Tourism Association, Lake Jasper Project, Narrogin Aboriginal Corporation, Bibelmen Mia Aboriginal Corporation, Purnululu Aboriginal Corporation, and the Wheatbelt Aboriginal Corporation. CALM's South Coast Region continue to provide on-the-job training for one Aboriginal man, who will soon graduate with Certificate IV of Land Management, and CALM West Kimberley have appointed an Aboriginal Cultural Ranger based in Broome.

The ranger training program continues at Millstream-Chichester National Park with one of the two trainees graduating to park ranger. Other Aboriginal traineeships included the continuation of two

Inwork trainees at Nannup under the Lake Jasper Project, and one trainee tour guide based at CALM's Fremantle office.

Advisory Committees

Advisory committees continue to assist CALM as prime liaison bodies with the general public for the management of the CALM estate. The committees meet regularly to assist in information exchange between CALM and the community and to advise the Department about management proposals. The membership of the committees is made up of local representatives and Government and local Government officers, selected by the Hon Minister for the Environment.

Currently, there are 25 advisory committees relating to the management of CALM lands and waters and the flora and fauna on the CALM estate. Several committees were reorganised during the year to allow for three-year appointments of members on a rolling basis to maintain continuity of the committee.

Volunteers

The Department's Community Volunteer program has expanded and grown in most sections over the last twelve months.

During the period, 36 new projects were initiated. These new projects, coupled with ongoing or renewed projects, maintained many opportunities for community involvement. As many as 1 926 volunteers contributed 84 405 hours to the Department. The number of volunteers registered with the Department has increased to 3 293.

New activities coming from the expansion of the Marine Branch and the inclusion of the Perth Observatory have increased volunteer involvement in interpretation, research and surveys, but volunteers still help with the Operation Foxglove and Western Shield programs, wildlife care, campground hosting, park rehabilitation and clean-ups, and general curation at the Herbarium.

CALM works in close association with Volunteering Western Australia, the peak volunteer body in the State. CALM's Volunteer Coordinator is a Councillor of the Institute of Volunteer Management in WA.

Year	CALM Volunteers	
	No. registered	Hours contributed
1990-91	980	31 000
1991-92	900	40 000
1992-93	1 260	40 000
1993-94	1 773	44 000
1994-95	1 921	38 000
1995-96	2 677	58 000
1996-97	3 293	84 000

External Funding

Grants and sponsorships remain the two major sources of CALM's external funding. However, this year has seen considerable changes to grant programs due to the major restructuring of the Commonwealth Environment Portfolio and the establishment of the Natural Heritage Trust (NHT).

The NHT will be providing more than \$1.2 billion for the next five years for environmental, natural resources and sustainable agriculture programs. It is administered by the Commonwealth Ministers for the Environment and Primary Industries and Energy and their respective agencies (Environment Australia and the Department of Primary Industries and Energy). Environment Australia is the new agency incorporating the environment programs of the Department of the Environment, Sport and Territories, the Australian Nature Conservation Agency (ANCA) and the Australian Heritage Commission.

Due to this major restructure, limited funding was available for new initiatives. Most funding met commitments under existing contracts. This enabled the 1996-97 phase of previously approved projects to continue. Unfortunately several programs are no longer available, though CALM was successful in gaining support from the National Tourism Development Program and the newly amalgamated Coastwest/Coastcare Program.

In 1996-97 the Commonwealth initiated the Green Corps Grants Program which provides an accredited 26-week employment project to young Australians to work in high priority conservation projects.

In 1996-97 Commonwealth grants totalled \$5.14 million.

Commonwealth Grants	
Year	Amount (million \$)
1990-91	1.70 m
1991-92	2.25 m
1992-93	3.06 m
1993-94	3.98 m
1994-95	4.95 m
1995-96	4.80 m
1996-97	5.14 m

CALM received a further \$0.7 million in special purpose grants from State Government agencies, with Main Roads Western Australia being the major contributor.

CALM continued to receive valued support through corporate sponsorship for conservation, education and infrastructure projects. The Western Shield campaign received a major boost from Cable Sands (WA) Pty Ltd for component Coastal Storm. Kanowna Belle Gold Mines sponsored a significant landcare program to develop CALM's Kalgoorlie Arboretum. The Research and Management Centre on Penguin Island, sponsored by Western Mining Resources, was officially opened in October 1996. Alcoa continued to be a major supporter of recreation and conservation projects within the Swan and Central Forest Regions. The Bibbulmun Track sponsors included Hedges Gold Pty Ltd (subsidiary of Alcoa of Australia) and Scotch College.

The BankWest LANDSCOPE Visa Card raised approximately \$23 000 for endangered species and ecological communities conservation. Projects funded during the year included 'Selection for resistance to *Phytophthora cinnamomi* in threatened native plants' and 'Protection of the microbiolite communities in the Leeuwin-Naturaliste National Park'.

Astronomical Services Management Program 4

Our objective is to meet the demand for general and specialised up-to date astronomical information and services from the public, business and educational community while furthering scientific research in astronomy in conjunction with other observatories and local tertiary institutions.

Centenary celebrations of the foundation of Perth Observatory—Australia's only fully operational State government-funded astronomical observatory—continued in the second half of 1996.

The highlight of these celebrations was the formal ceremony in September, at which the Premier unveiled a stone plaque to commemorate the Observatory's 100 years of continuous operation. Speakers included the Minister for the Environment, the Executive Director of CALM, the Director of Lowell Observatory (the USA's largest private observatory), and the Trustee of Lowell Observatory. Also on that day, the Observatory announced the naming of four asteroids (discovered at Perth Observatory) after four people who have actively supported the institution's endeavours over the years.

In July 1996, a scientific highlight of the Centenary was Perth Observatory's role as host of the annual conference of the Astronomical Society of Australia, the body that represents Australia's professional astronomers. It was the first time this conference has been conducted in WA in the 30-year history of the Society.

Free star-viewing nights were continued as another important Centenary celebration activity. More than 1000 people viewed night-sky objects from the city of Perth during

HIGHLIGHTS

- ☆ Centenary commemorated in September 1996 (p. 33)
- ☆ Four asteroids named (p. 33)
- ☆ Annual conference of the Astronomical Society of Australia hosted (p. 33)
- ☆ Record numbers of visitors and enquiries received (p. 33)
- ☆ Scientific programs established on 10-inch robotic telescope (p. 33)

WA week and the Fremantle Festival. Three similar events conducted in the first half of 1997 were an 'Astrofest' (held in conjunction with the local astronomical community), viewing the bright Comet Hale-Bopp from Scarborough Beach, and a 'Sun and Stars' Festival at Yanchep National Park. In rural areas, Observatory staff provided telescope viewing at many schools and to visitors at national parks around the State. Altogether, 5 100 people viewed the stars with Observatory telescopes that were transported to their locality for one of these astronomy 'field nights'.

Visitors attending Observatory tours in 1996–97 set new records. Numbers attending night tours nearly doubled, and day tour numbers returned to the level normal in past years. Also, customer satisfaction remained high, with nearly 97 per cent satisfied with their tour. The number of people who joined our tours, called our information service, attended talks, or attended an astronomical field night, tallied more than 22 800, beating the previous year's record number of 17 900. Also, an estimated 6 000 people telephoned the Observatory for information, and others were informed of astronomical events in interviews for television (5), newspapers (64), and radio (115).

Night tour numbers were mainly increased by the establishment of the Observatory's volunteer program.

One volunteer project provides assistance to permanent staff conducting night tours, thus permitting more visitors per tour. The success of this project has spawned two others: assistance with astronomical field nights and assistance in the preservation of the Observatory's archives (some of which are more than 100 years old). It is planned to train more volunteers each year in what is turning out to be a very popular and productive program.

The Centenary celebrations prompted an upgrade in the display material in our museum and telescope domes, and fostered many restoration projects. The most significant, and the one from which the public most directly benefit, is the restoration of the 12½-inch Calver Telescope. Observatory workshop staff have carefully restored this telescope, which was purchased so that the public of WA could view Halley's Comet—in 1910! Current night visitors thoroughly enjoy climbing up a ladder to view objects through this venerable scientific instrument. Another instrument was also ordered, a 16-inch aperture Schmidt-Cassegrain telescope. This will have a dual purpose: sky viewing of very faint objects for the public during night tours, and, eventually, automated scientific operation at other times.

The workshop also carried out upgrades to the 10-inch robotic telescope and the 24-inch Lowell telescope. These will facilitate telescope automation so that observation and data acquisition can now occur with minimal operator intervention. To achieve this capability, automatic weather sensors were constructed, and are now being tested and calibrated so that domes can be opened and closed, telescopes parked or reactivated, depending on the presence of rain or cloud. Astronomical staff also tested software that will be used to remote-control the computers, which in turn control the telescopes.

Significant scientific research continued. Five refereed research papers were published, along with nine other reports and minor publications. One supernova star explosion (designated SN1997z) was discovered, and the Observatory continued its collaboration with other astronomers (working in Tasmania, the Netherlands, Chile and South Africa) to monitor the brightness variations of stars. These variations occur when a faint object passes in front of a distant star; such events tell us more about this unseen material, which poorly tested cosmological theories suggest compose much of the matter in the universe.

Also, our long-standing international collaboration as one of the very few Southern Hemisphere observatories to monitor the positions of comets and asteroids continued. One of these objects was Comet Hale-Bopp, mentioned above; its brightness was such that it was of great interest to the public and media.

All of the above work could not have been accomplished without the dedication of all Observatory staff, both permanent and volunteer.

Facts and Figures—General Information

The Department is headed by an Executive Director, who is also a member of the Lands and Forest Commission, a member of the National Parks and Nature Conservation Authority, and Chairman of the Forest Production Council. In keeping with the varied interests of CALM there is also a Corporate Executive, which consists of eight directors working with and reporting to the Executive Director. Regional, branch and other specialist officers often attend meetings of the Corporate Executive.

The Department gives responsibility to its staff whenever possible, depending on skills and potential. Provided there is opportunity, there is no impediment to the progress of a capable individual in the organisation.

The detailed structure of divisions, regions and branches is shown in Figure 1. The names and qualifications of the officers occupying senior positions are shown on the opposite page.

REGIONAL ACTIVITIES

CALM is committed to regionalisation. There are nine regions which, according to the intensity of activity, are subdivided into districts. Accordingly, the Department is spread over many locations. The map over shows CALM regional boundaries and the location of regional offices, as well as the types of lands and waters the Department manages.

Management structures are in place at nine regional, 18 district and six local offices. Within the regions there are national park rangers at 32 other locations, and a district wildlife officer at one other.

Because of community concern for protection of the natural environment and an increasing desire to experience its values, the roles of

WHAT STANDARD OF SERVICE CAN OUR CUSTOMERS EXPECT?

While fulfilling our conservation and land management responsibilities, CALM places a great deal of importance on community and customer relations. We aim to increase our customer focus and provide a range of services that meet customer needs. Our customers can expect:

- ☆ positive, courteous and friendly service;
- ☆ competent and efficient assistance;
- ☆ timely and accurate information; and
- ☆ confidentiality where commercially sensitive issues are concerned.

More specifically, our customers can expect that:

- ☆ CALM staff will be well trained, competent and helpful; will wear name badges when in direct contact with the community; and will identify themselves by name when answering the telephone.
- ☆ Requests for information or assistance will be met directly or referred to the appropriate person for answering as soon as possible.
- ☆ Telephone calls to our main offices will be answered on average within six rings. Telephone messages will normally be returned by the next business day.
- ☆ A contact name, address and telephone number will be given in all correspondence for future enquiries. Where it is not possible to respond to correspondence fully, an acknowledgement will be sent, advising of the current situation and when a reply may be expected.
- ☆ Brochures and other information materials will be easily understandable, accurate and up-to-date.
- ☆ Recreational facilities in national, conservation and marine parks, reserves and State forests will be well maintained and kept clean.

regional managers and their staff are most important. Satisfactory experiences for the 6.3 million visitors (1996–97 estimated figures) to CALM-managed lands and waters, drawn from interstate and overseas as well as from all over Western Australia, are largely in their hands. Regional staff are also responsible for the conservation of native flora and fauna within regional boundaries. The three forest regions in the south-west of the State have a large commitment to manage wood resources, and to regenerate and protect the forests for a wide range of other values. The Goldfields region (and to some extent the midwest) has a similar commitment

to sandalwood resources, as have the South Coast and Wheatbelt regions to economic tree crops that can be integrated into farming practice.

Regional managers have a degree of autonomy. Each is responsible under corporate direction for developing the region's annual works program, and for managing the region's budget allocation. Liaison with local groups, especially Aboriginal communities, other Government agencies and the community in general, is extensive. There are often advisory committees established with a focus on parts of CALM-managed lands and waters. The committees make input into the preparation of management plans

and, after their approval, advise on management. It is mostly the regional managers and their staff who are responsible for this important interface with the local community.

SPECIALIST AND SERVICE ACTIVITIES

Operations throughout the State are directed by the Corporate Executive and supported by specialist and service staff. Their responsibilities are as follows.

Science and Information Division provides up-to-date, scientifically sound information to uphold effective conservation and land management in Western Australia. Three science groups address CALM's scientific needs: to discriminate and document the biota, ecological processes and biological resources of the State; to conserve threatened species and ecological communities by minimising inimical processes; and to ensure that lands, waters and biological resources are used sustainably.

Corporate Relations Division plans, coordinates and implements CALM's public information and public relations activities, produces publications, displays, media releases and audiovisuals, coordinates community education programs, and conducts public affairs and market research.

CALMfire sets fire management standards, coordinates the preparation of fuel reduction and suppression plans, provides detection communications, aircraft and other fire support services, and conducts fire training.

Environmental Protection Branch prepares guidelines and procedures for protection from dieback, weeds and feral animals, evaluates mining and development proposals, and advises on rehabilitation of CALM-managed lands and waters, and on environmental protection generally.

Financial Services Branch maintains, operates and develops

financial systems and procedures and provides users with financial training, expertise, reports and budgeting information.

Forest Management Branch carries out resource inventories, disease mapping, and database maintenance for the Native Forests and Plantation Business Units. It maintains corporate resource information and GIS databases relating to forest areas in the South West and prepares strategic resource plans.

Forest Resources Services Branch controls and manages the harvesting of timber and the collection of royalties and other charges. It advises on timber quality, wood technology and related matters.

Human Resources Branch provide strategic planning, policy development and formulation, advice and coordination in the management of the Department's human resources. Services are provided by the Branch in the functional areas of personnel, payroll, labour relations, training and development, and risk management.

Information Management Branch plans, coordinates and implements CALM's information systems support, and is responsible for corporate document and records management. The Branch maintains CALM's Geographic Information System (GIS), and provides a land-related information service.

Management Audit Branch reports to the Executive Director, providing systematic audits of management systems to advise on their effectiveness, efficiency, economy and compliance with legislation, policies and procedures.

Marine Conservation Branch provides policy, strategic and scientific advice for marine conservation and management, and advises marine reserves planning teams.

Park Policy and Tourism Branch develops policies and strategies for recreation and tourism, including

business development, leases and licences, external funding and community involvement. It coordinates policies and programs concerning Aboriginal and other special interests, and visitor research and surveys.

Planning and Visitor Services Branch incorporates land administration, management plans, recreation planning and design, landscape management, and visitor interpretation.

Plantations Group develops silvicultural guidelines and practices for coniferous and broadleaved plantations and advises on their implementation. It manages CALM nurseries and seed supplies.

State Forest Resources Business Unit manages the silvicultural practices, regeneration, and harvesting of native forest, and the sale of log timber. It advises on timber quality, wood technology, and marketing.

Sandalwood Business Unit manages the sandalwood industry including research into plantation development for Western Australian and Indian sandalwood.

Timber Utilisation Centre conducts research and develops commercial applications which increase the value-adding and utilisation of the State's timber resources.

Wildlife Branch develops policies and provides information and advice on wildlife protection and management throughout the State, administers wildlife licences and permits, enforces the Wildlife Conservation Act and Regulations, maintains and manages databases on wildlife resources and conservation status, and ensures compliance with legislation and licence conditions.

Threatened Species and Communities Unit coordinates and assists with Departmental programs for threatened species and communities, including preparation and implementation of recovery plans.

CALM DISABILITY SERVICE PLAN

As reported last year, CALM has prepared a plan to help ensure that people with disabilities are better able to enjoy our State's natural areas and facilities within them. Our plan has six key objectives:

- adapt services to ensure that they are accessible to people with disabilities;
- make offices, visitor centres and other key contact points accessible to people with disabilities;
- where practicable and appropriate, provide outdoor recreation areas and facilities that meet the needs of everyone including people with disabilities;
- ensure that advice and services are delivered by CALM staff who are aware of and understand the needs of customers with disabilities;
- enable people with disabilities to take part in decision-making processes, public consultations and complaint mechanisms; and
- provide and maintain equal employment opportunities for people with disabilities.

In 1996-97, approximately 30 of CALM's front counter and recreation and tourism staff attended a series of one-day disability awareness and access audit training workshops. They were organised at various regional centres around the State. Five more courses are planned for 1997-98.

Officers have also begun collecting detailed information on the type, location, condition and value of all CALM's recreation areas and

CUSTOMER FOCUS 1996-97

Customer service for CALM is about developing and providing a range of services which meet the many needs of our customers, and which are also consistent with CALM's responsibilities to conserve and manage the the State's wildlife and the lands and waters entrusted to CALM for the benefit of present and future generations.

To achieve its goals, CALM places a great deal of importance upon community and customer relations.

During 1996-97, CALM took a number of steps to improve its customer focus.

These included the following:

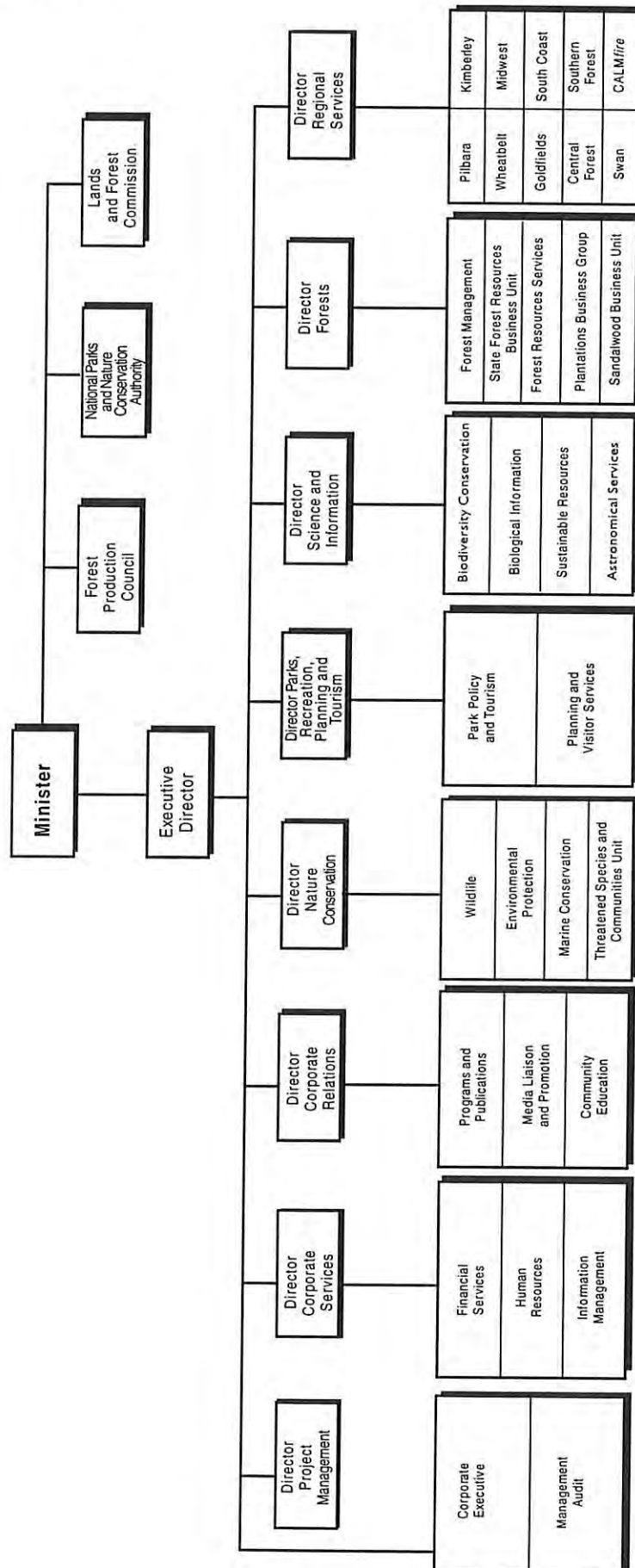
- training to increase staff skills in customer relations, in understanding what customers want, and in using customer feedback to provide responsive services;
- creating more opportunities to work cooperatively with the community on a range of conservation and management issues;
- improving access to information and services at CALM offices and facilities and remotely via the Internet; and
- creating new, and upgrading existing, recreation and tourism facilities in national parks and state forests, and by constructing these facilities where possible for people with disabilities.

facilities. Once compiled, this computerised asset inventory will better enable staff to provide all visitors, including those with disabilities, with accurate, up-to-date advice as to the accessibility of the nature-based recreation and tourism attractions and facilities managed by the Department.

During the year, the Department worked to improve public access and upgrade facilities at a number of existing and new sites so they can be enjoyed by all members of the community. Of particular note is the wheelchair-accessible tent camping area and campers' kitchen being developed in the Hills Forest near Mundaring with the support of ACROD WA. Construction work on these facilities, which started last year, is nearly complete and the camping area will be opened to the public in the spring of 1997.

Work has also begun on several other major recreation infrastructure projects on CALM-managed lands. These include the development of a new visitor information centre, wheelchair-accessible trails and a picnic area which incorporate universal access design principles at Two Peoples Bay near Albany. Further access improvements have also been made to the Department's Operational Headquarters at Como, including the construction of a new bus stop and a sealed path which has enabled one of the Department's employees with a visual impairment to get to work unassisted. This latter project was undertaken with the assistance of the Department of Transport, the City of South Perth and the Town of Victoria Park in a cooperative effort to help eliminate barriers to public access.

FIGURE 1
ORGANISATIONAL STRUCTURE



CORPORATE EXECUTIVE

EXECUTIVE DIRECTOR

S R Shea BSc, MSc, PhD

DIRECTOR, REGIONAL SERVICES

C Haynes BSc

DIRECTOR, NATURE CONSERVATION

K J McNamara B Nat Res (Hons)

DIRECTOR, PARKS, RECREATION, PLANNING & TOURISM

J R Sharp B Ed, Dip PE, M Ed

DIRECTOR, FORESTS

D J Keene Dip For, BSc

DIRECTOR, SCIENCE & INFORMATION

N D Burrows BSc For, PhD

DIRECTOR, PROJECT MANAGEMENT

F H McKinnell Dip For, BSc, PhD

DIRECTOR, CORPORATE SERVICES

J C Byrne MBA, PhD, FCPA

DIRECTOR, CORPORATE RELATIONS

R A Kawalilak BA

OTHER SENIOR STAFF

REGIONAL MANAGER, CENTRAL FOREST

R Chandler BSc

REGIONAL MANAGER, GOLDFIELDS

I G Kealley BSc

REGIONAL MANAGER, KIMBERLEY

C C Done BSc

REGIONAL MANAGER, MIDWEST

E G Leaman B App Sc

REGIONAL MANAGER, PILBARA

C Muller Dip For, BSc For

REGIONAL MANAGER, SOUTH COAST

J R Watson BSc, Grad Dip Rec, PhD

REGIONAL MANAGER, SOUTHERN FOREST

P Keppel Cert For Mngmt

REGIONAL MANAGER, SWAN

B E Harvey BSc For

REGIONAL MANAGER, WHEATBELT

K J Wallace Dip Ed, BSc (Hons)

MANAGER, BIODIVERSITY CONSERVATION GROUP

K D Morris* BSc, MSc

MANAGER, BIOLOGICAL INFORMATION GROUP

N G Marchant BSc (Hons), PhD

MANAGER, CALMfire

R Sneeuwjagt BSc, MSc

MANAGER, CALM TIMBER TECHNOLOGY

I D Rotheram BSc For, MSc Nat Res

MANAGER, ENVIRONMENTAL PROTECTION BRANCH

F E Batini Dip For, BSc, MSc

MANAGER, FINANCIAL SERVICES BRANCH

M J Neilson BA, Grad Dip Acc, CPA

MANAGER, FOREST AND TREE CROPS GROUP

J F McGrath BSc (Hons), PhD

MANAGER, FOREST MANAGEMENT BRANCH

F J Bradshaw Dip For, BSc

MANAGER, FOREST RESOURCES SERVICES

J Clarke BSc

MANAGER, HUMAN RESOURCES BRANCH

C W Gillam BA (Hons), MA, PG Dip Bus, CMAHRI

MANAGER, INFORMATION MANAGEMENT BRANCH

C J Pearce BSc (Hons), PhD

MANAGER, MANAGEMENT AUDIT BRANCH

P Jones BSc For

MANAGER, MARINE CONSERVATION BRANCH

C J Simpson B App Sci (Biol), G Dip Nat Res, PhD

MANAGER, PARK POLICY AND TOURISM BRANCH

C B Ingram B App Sc

MANAGER, PLANNING & VISITOR SERVICES BRANCH

A J Williamson Dip For, BSc, M For, MSc

MANAGER, PLANTATIONS GROUP

G M Butcher BSc For

MANAGER, PROGRAMS & PUBLICATIONS

R F Bailey BA (Hons), PhD

MANAGER, REGIONAL FOREST AGREEMENT

A W Walker BSc For (Hons)

MANAGER, STATE FOREST RESOURCES BUSINESS UNIT

J H Murch BSc (Hons)

MANAGER, WILDLIFE BRANCH

G J Wyre B Nat Res (Hons)

SCIENCE ADVISOR

I J Abbott BSc (Hons), PhD, DSc

GOVERNMENT ASTRONOMER

J Biggs BSc (Hons), PhD

DIRECTOR, WA THREATENED SPECIES & COMMUNITIES UNIT

A A Burbidge BSc, PhD

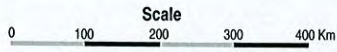
* Acting

CALM-MANAGED LANDS AND WATERS

AS AT 30th JUNE 1997

Legend

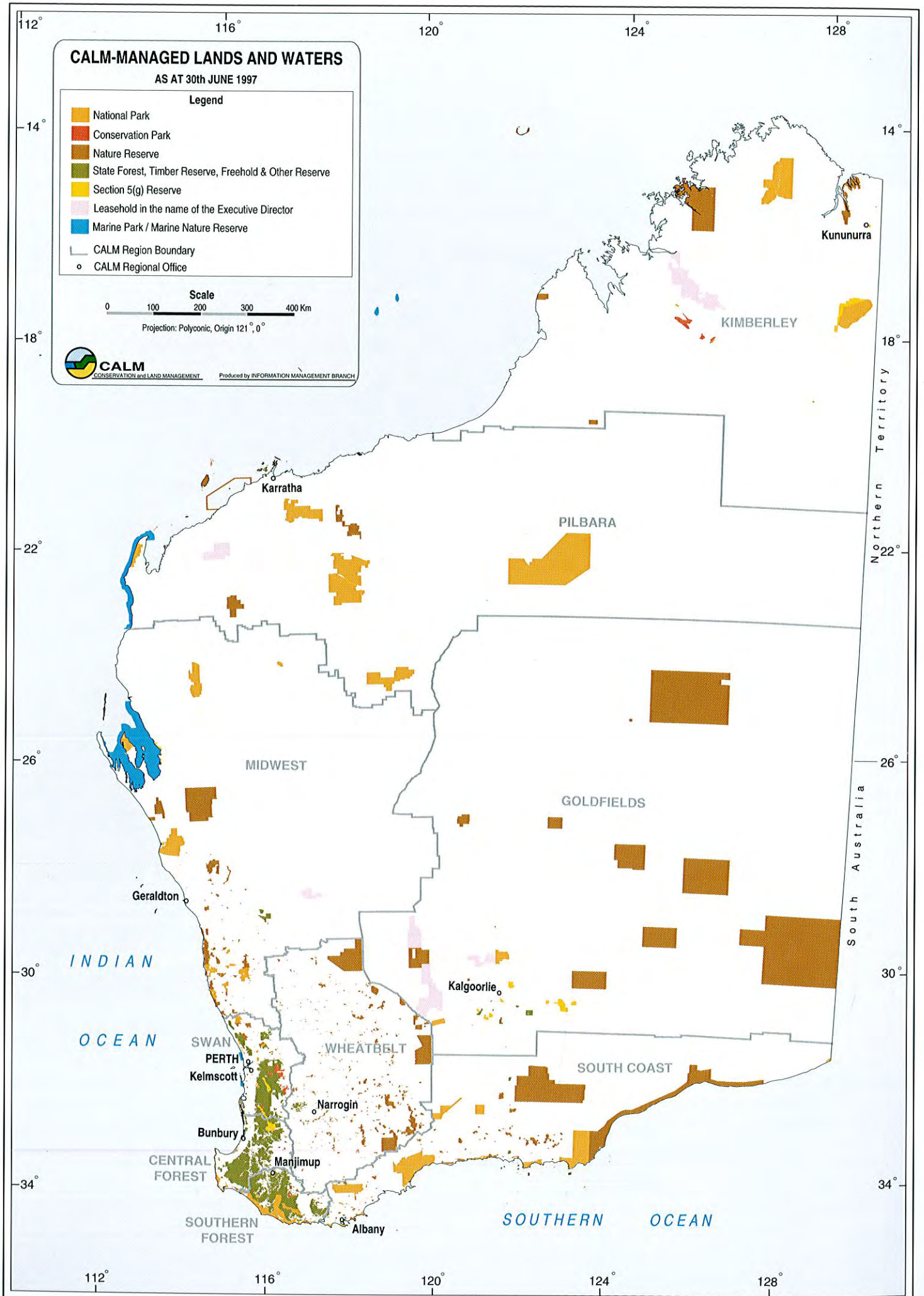
-  National Park
-  Conservation Park
-  Nature Reserve
-  State Forest, Timber Reserve, Freehold & Other Reserve
-  Section 5(g) Reserve
-  Leasehold in the name of the Executive Director
-  Marine Park / Marine Nature Reserve
-  CALM Region Boundary
-  CALM Regional Office



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Produced by INFORMATION MANAGEMENT BRANCH



CALM-MANAGED LANDS AND WATERS

The area figures reflected in the following statements represent the gazetted or legal areas and include additions and excisions.

Total Estate

As at 30 June 1997 the total area under CALM's care was 20 260 961 ha. This was a decrease of 15 813 ha during 1996-97.

The terrestrial area (i.e. not including marine reserves) is approximately 7.6 per cent of the land area of Western Australia.

The table below provides a summary of all tenure classifications.

National Parks

National parks are for wildlife and landscape conservation, scientific study, preservation of features of archaeological, historic or scientific interest, and enjoyment by the public. They have national or international significance for scenic, cultural or biological values.

The area of the 63 national parks at 30 June 1997 was 4 873 906 ha.

The major change to the national park estate was an increase in area of D'Entrecasteaux National Park (881 ha), the recalculation of Eucla National Park (218 ha) and Fitzgerald

River National Park (843 ha) as a result of a land purchase.

Conservation Parks

Conservation parks have the same purposes as national parks, but they do not have the same national or international significance. They have significant local or regional value for conservation and recreation.

The area of conservation parks at 30 June 1997 was 117 316 ha.

Nature Reserves

Nature reserves are for wildlife and landscape conservation, scientific study, and preservation of features of archaeological, historic or scientific interest. Recreation which does not harm natural ecosystems is allowed.

The area of nature reserves at 30 June 1997 was 10 770 692 ha, representing a decrease of 14 059 ha in 1996-97. The major excision of 16 442 ha was from the Gibson Desert Nature Reserve, while notable additions included 605 ha to Yeal Nature Reserve in Swan Region and several new reserves totalling about 1 815 ha in the Wheatbelt Region.

State Forest

State forests are managed for multiple purposes, including water catchment protection, recreation, timber production on a sustained yield basis, and conservation. Provision is also made for public

utilities and mineral production, where these activities are imposed.

Within State forests, designated areas are managed for specific purposes, such as conservation or optimum yield of exotic plantings.

The area of State forest at 30 June 1997 was 1 725 036 ha, an increase of 82 ha in 1996-97.

Timber Reserves

Timber reserves declared under the CALM Act are managed on the same basis as State forests. The category is transitional; as reserves are evaluated they may be changed to a more appropriate tenure, e.g. State forest or nature reserve.

The area of timber reserves at 30 June 1997 was 141 550 ha, an increase of 63 ha in 1996-97.

Marine Reserves

Marine parks are managed for conservation and recreation, with areas zoned for commercial fishing on a sustained yield basis. Marine nature reserves are managed for the conservation of marine and terrestrial flora and fauna and their habitats. Fishing and collecting are not permitted.

The area of marine parks at 30 June 1997 was 1 013 940 ha (approximately). The area of marine nature reserves at 30 June 1997 was

Tenure Classification	Central Forest	Goldfields	Kimberley	Midwest	Pilbara	South Coast	Southern Forest	Swan	Wheatbelt	Total
National Park	27 458	86 397	696 876	504 808	2 396 630	891 477	223 880	45 088	1 292	4 873 906
Conservation Park	580	405	54 670	3 641	1 466	-	-	56 554	-	117 316
Nature Reserve	9 194	6 267 610	809 497	732 096	250 585	1 585 340	32 724	48 894	1 034 752	10 770 692
Marine Park	-	-	23 250	748 735	225 564	-	-	16 391	-	1 013 940
Marine Nature Reserve	-	-	-	132 000	-	-	-	-	-	132 000
State Forest	653 981	781	-	-	-	4 055	547 212	490 941	28 066	1 725 036
Timber Reserve	33 765	28 576	-	26 338	-	5 231	19 139	28 501	-	141 550
5g Reserve	30 897	81 617	79 623	2 316	8 130	-	634	26 768	466	230 451
Miscellaneous Reserve	354	<1	61	517	1 779	3 813	470	5 950	7	12 952
Freehold (Exec Dir)	22 470	<1	<1	<1	<1	63	5 226	3 887	<1	31 647
Leasehold (Exec Dir)	-	575 987	427 729	59 908	147 847	-	-	-	-	1 211 471
Totals	778 699	7 041 374	2 091 706	2 210 359	3 032 001	2 489 979	829 285	722 974	1 064 584	20 260 961

Source: Information Management Branch (TENIS)

National Parks Vested in the National Parks and Nature Conservation Authority

NAME	AREA (ha)	NAME	AREA (ha)	NAME	AREA (ha)
Alexander Morrison	8 500	Greenmount	58	Scott	3 273
Avon Valley	4 366	Hassell	1 265	Serpentine	4 360
Badgingarra	13 121	<i>Hidden Valley</i>	2 068	Shannon	52 598
Beedelup	1 786	John Forrest	2 676	Sir James Mitchell	497
Boorabbin	26 000	Kalamunda	375	Stirling Range	115 920
Brockman	49	Kalbarri	183 004	Stokes	9 726
Cape Arid	279 382	Karijini	627 445	Tathra	4 322
Cape Le Grand	31 578	Kennedy Range	141 660	Torndirrup	3 936
Cape Range	50 581	Leeuwin-Naturaliste	19 037	Tuart Forest	2 049
Collier Range	235 162	<i>Lesmurdie Falls</i>	56	<i>Tunnel Creek</i>	91
D'Entrecasteaux	116 668	Lesueur	26 987	Walpole-Nornalup	15 861
Drovers Cave	2 681	Millstream-Chichester	199 736	<i>Walyunga</i>	1 812
Drysdale River	448 264	Moore River	17 540	Warren	2 982
<i>Eucla</i>	3 560	Mount Augustus	9 168	Watheroo	44 474
Fitzgerald River	329 882	Mount Frankland	30 830	<i>Waychinicup</i>	3 982
Francois Peron	52 529	Nambung	18 362	<i>West Cape Howe</i>	3 517
Frank Hann	67 550	Neerabup	1 069	William Bay	1 734
Geikie Gorge	3 136	Peak Charles	39 959	Windjana Gorge	2 134
Gloucester	875	Porongurup	2 511	Wolfe Creek Crater	1 460
Goongarrie	60 397	Purnululu	239 723	Yalgorup	13 001
Gooseberry Hill	33	Rudall River	1 283 706	Yanchep	2 842
				TOTAL	4 873 906

* Names shown in italics are not yet gazetted

132 000 ha (approximately). There were no changes during the year.

5(g) Reserves

Within the meaning of the CALM Act, land categorised as 5(g) reserve is land reserved under the Land Act (1933) which is vested in the NPNCA or the LFC. These reserves are not national park, conservation park, nature reserve or marine reserve. Immediately before the commencement of the CALM Act some were vested in, or under the control and management of, the National Parks Authority but not as a national park, e.g. Matilda Bay Reserve. Predominantly they have a conservation/recreation purpose.

The area of 5(g) reserves at 30 June 1997 was 230 451 ha, a net decrease for the year of 1 486 ha. An area of 1 400 ha was excised from one reserve in the Goldfields Region.

Miscellaneous Reserves

There are some remaining reserves managed by CALM which do not fall

within any of the above discrete categories. The purposes of reserves within this category are varied and may include settlements and offices for the Department's operations. The area of miscellaneous reserves as at 30 June 1997 was 12 952 ha, a decrease of 26 ha during the year.

Other Land

The area of freehold land held by the Executive Director at 30 June 1996 was 31 647 ha, a decrease of 2 223 ha during the year. The major portion of this land is committed to commercial softwood forestry.

The area of pastoral leases held by the Executive Director at 30 June 1997 was 1 211 471 ha. There were no changes during the year.

Conservation Land Acquisitions

The Department acquired several areas of land for future addition to the conservation estate. The major land-purchases for the year were the Cane River Pastoral Lease, of 147 847 ha, about 100 km south-east

of Onslow, and Burnerbinmah Pastoral Lease, of 59 908 ha, about 100 km south-west of Mt Magnet. These acquisitions are important in protecting biological communities unrepresented or poorly represented in the State's reserve system.

The other acquisitions are as follows: an area of 843 ha was bought as an addition to Fitzgerald River National Park; east of Chidlow, an area of 263 ha, formerly proposed as an industrial park, has been bought for conservation from Landcorp; two small areas of land, near Muchea and Gingin, were bought to preserve special plant associations on the highly cleared eastern side of the Swan Coastal Plain; and 40 ha of bushland south-west of Mt Barker was bequeathed to the Department in the estate of the late S.J. Gill.

CALM gratefully acknowledges money contributed by the Commonwealth, through the Australian Nature Conservation Agency, towards the purchases of Cane River Station and the Muchea and Gingin properties.

CORPORATE SERVICES

Financial Services

Over the past 12 months, staff of the Financial Services Branch have:

- upgraded financial information provided to CALM's Corporate Executive and line managers;
- implemented best practice costing systems (a full labour on-cost system was implemented on 1 July 1997);
- improved efficiency in the corporate budget process;
- progressed the valuation of CALM's forest assets;
- improved support for district purchasing processes;
- introduced payment of customers by EFT and outsourced cheque production;
- introduced commercial payment terms through the Accounts Payable system.

Human Resources

The Human Resources Branch has continued to improve its services. The CONCEPT computerised personnel and payroll system has been markedly improved, and a detailed homepage has been developed on the CALM intranet. The information on the homepage will be supplemented when the Premier's Award-winning HR Best Practices Manual, purchased from the Department of Family and Children's Services, is consolidated into a manual of CALM-specific HR policies and procedures, and made available on-line. In addition, job vacancy details are now available on the Internet.

Forty salaried staff achieved career advancement through promotion via advertised vacancies. Twenty-five salaried staff were reclassified into higher level positions, and three achieved advancement through criteria progression.

The Public Sector Standards Commissioner, pursuant to his obligation under Section 21(1)(d) of the Public Sector Management Act 1994, began a Review and Evaluation

of CALM's compliance with Public Sector Standards in March 1997. The report of the Commissioner detailing the outcome of this Review and Evaluation had not been provided to the Executive Director at 30 June. The outcome of the Review and Evaluation will be reported in the 1997-98 Annual Report.

Only one application for a review of the standards was lodged during the reporting period of 1 July 1996 to 30 June 1997. This application alleged that breaches of the recruitment and selection standard had occurred in the filling of two vacant positions. Review by an independent assessor subsequently found that the allegations were without substance.

Employee Relations

Enterprise Bargain Agreements with four of the five unions having Awards to which CALM is respondent were concluded and either registered or certified in May and June of 1996. Milestones to be reached in respect of salary increases available under those Agreements, in particular the dress code and a productivity measurement system, have been attained and the salary increases contingent on them have been delivered. Further workplace reform will be sought in the next round of bargaining to begin early in the 1997-98 year.

Bargaining with the union representing the fifth group of employees began in March 1997 and is expected to result in a new Agreement in the first quarter of 1997-98.

Workplace reform has also been progressed via the medium of Workplace Agreements, which 518 employees had entered by 30 June 1997. Of these eligible employees, 61 had entered into flexible remuneration packaging arrangements introduced in CALM on 1 January 1997. A further 43 employees have formally indicated their intention to enter into such arrangements.

CALM has appeared in one conciliation conference in the WAIRC, and is currently respondent in a matter under arbitration in the AIRC. These have been the only tribunal matters in 1996-97.

Risk Management

As part of the overall visitor risk management strategy within CALM, a steering committee has been formed to provide the following functions:

- review and update existing policy;
- monitor and measure performance;
- receive and analyse risk assessments and recommend on their adequacy and priorities;
- prepare and issue instructions and guidelines;
- train staff in visitor risk management assessment and management principles and procedures.

Occupational Safety and Health

A key goal identified for 1996-97 was to lift performance and awareness in the field. The following indicators show the success of that focus, with the all-injury frequency rate being at its lowest level in the history of the Department:

A total of 110 work groups achieved safety performance targets and were presented with awards under the IFAP/GIO Safeway Award Scheme. For the fourth successive year, CALM was the most successful participating organisation.

CALM recognises the benefit of a safe working environment and acknowledges the interaction of health, fitness (physical and mental) and safety. The health and fitness program therefore aims to:

- Increase the knowledge and awareness of a healthy lifestyle;
- Provide support to employees who choose to adopt a change of lifestyle;
- Promote self-responsibility and ownership of the program.

Facts and Figures

Forty health and fitness peer leaders have been trained to provide assistance at their respective work centres. These staff conducted 229 personal health assessments, and performed 190 task-based fitness assessments to determine the capacity of employees to carry out bushfire suppression duties.

CALM's Employee Assistance Program has continued to provide support to staff following personal trauma or critical incidents. There is now a formal peer support network, with 16 employees receiving formal training in this area.

Training and Development

Fourteen Environmental Management graduates from various tertiary institutions were appointed in June 1996 as CALM Field Officers: 12 as Forest Officers, one as Assistant Training Officer, and one as Trainee Wildlife Officer.

All of the recruits had access to 10 weeks of skills-based training. These programs included: 4-Wheel-Drive Operator's course; Field Engineering; Fire Management; Recreation; Planning and Design; Chainsaw Operator's course; Disease Management; Forest Silviculture; and Senior First Aid. Each of these training programs has recognition by the Australian National Training Authority.

A Management Training Needs Analysis has been conducted to determine interest in offering the Frontline Management Initiative (FMI) to all present and aspiring managers. Results indicate the FMI will be made available to CALM staff in 1997-98.

Planning and Policy

CALM's Human Resource Reference Group has carried out a review and evaluation of human resource management issues relevant to CALM's business objectives. The Reference Group provides input to the processes of policy development and formulation, a key responsibility of Human Resources Branch.

Occupational Safety and Health Performance Indicators:		
	1996-97	1995-96
Lost Time Injury Frequency Rate	10	17
All Injury Frequency Rate	49	64
Number of Lost Time Incidents	32	50
Number of Days Lost	987	1 232
Annual Workers' Compensation Premium	\$903 266	\$689 672

Information Management

Information Services Section expanded the data communications infrastructure, resulting in improved service to 33 offices throughout the State. Key offices now connected include Perth Observatory, Busselton, Narrogin, Harvey and Mundaring. The first phase of the computer policies and procedures project was completed, and the central customer help service was upgraded.

Corporate Information Section developed a new CALM Thesaurus for indexing records, greatly improving access to corporate information. Specifications are being assembled for a new records management system to enable the implementation of CALM-wide standards and procedures. An archival project was also begun, to ensure that regional offices comply with requirements for the disposal of public records.

Geographic Information Services Section extended the new operational graphics series from 49 to 124 map sheets, giving complete coverage of the south-west forests. This information is being shared with the WA Fire and Rescue Service, with benefit to both CALM operations and emergency service agencies. Coverage by the regional operational graphics was extended to the Geraldton, Merredin, Moora and Katanning areas and the Goldfields sandalwood area.

Four new map sheets of the CALM Land Management series were published, along with the five maps of a major new series depicting Forest Associations in the south-west. The map series for the Bibbulmun Track was also completed.

The Section continued to provide a tenure information service to the Department, as well as mapping and information support for the management of the State's plantations, and for projects such as Western Shield and Operation Firebird. GIS assistance was provided in developing information systems for tourism and recreation and for threatened flora management, and the Section's remote sensing analysis service was employed to monitor vegetation regeneration, biomass levels, and fire disturbance in the Kimberley, Pilbara and Goldfields regions.

CALM fire MANAGEMENT

Wildfires

The 1996-97 fire season was uncharacteristically mild. The total of wildfires attended was 293, approximately 29 per cent below the ten-year average. Wildfires on CALM-managed lands throughout the State burnt 142 690 hectares in parks, forests and reserves. CALM forces with assistance from local bushfire brigades and Fire and Rescue Service personnel controlled major fires at John Forrest National Park, Wooroloo/Wundowie, Collie basin, Stirling Range, Torndirrup, Pink Lake near Esperance and numerous fires in the outer metropolitan area of Perth.

In total 110 241 hectares of national parks throughout the State were burnt by wildfires. The worst fires occurred in the Stirling Range National Park (17 228 ha), John Forrest National Park (1 000 ha), Cape Le Grande National Park (2 500 ha), Karijini National Park (44 000 ha) and Torndirrup National Park (610 ha). Previously burnt

buffers in the Torndirrup National Park helped save large sections of the Park and the coastal settlement of Goode Beach from destruction by the wildfire.

Fire Suppression

This year saw the introduction of aerial suppression trials in Perth's metropolitan and rural urban areas using two agricultural aircraft (Dromaders) based at Perth Airport. The water bombers attended 47 fires involving 303 drops within 50km radius of Perth Airport. The trial proved to be highly successful as the aircraft were assessed to be responsible for saving houses and other structures and community assets. The trial has realised significant savings in fire suppression costs as well as the protection of houses, valuable plantations and metropolitan reserves.

CALM, the Fire and Rescue Service and Bush Fires Board continued to improve fire management integration and cooperation throughout Western Australia. The achievement of interagency fire prevention and suppression objectives and strategies were substantially enhanced by the establishment of the fire agencies' the Chief Executive Officer's

Steering Committee, which in turn was supported by Strategy Groups for Fire Prevention and Planning, Operations, Human Resources and Training.

Prescribed Burning

A total of 208 006 hectares of prescribed burning was completed within south-west forests, parks and other reserves. The rigorous application of smoke management systems and procedures in south-western forest areas has minimised smoke haze in Perth from CALM prescribed burning. However, because of the large number of days when conditions were conducive to smoke accumulation in Perth, the burning achieved by the program was well below target.

Prescribed burning in national parks and nature reserves, mainly in the south-west, Pilbara, Goldfields, Midwest and Kimberley Regions, was undertaken over 166 490 hectares for a range of land management objectives including protection of life, property and nature conservation values. Narrow burn buffers were created by aerial ignition on CALM-managed reserves in the Kimberley including Drysdale River National Park, Prince Regent Nature Reserve, Purnululu National Park and Mt Hart pastoral lease. Ground

crews established additional buffers with smaller prescribed burns. Satellite imagery showed that wildfires burning in Purnululu National Park, Drysdale National Park and Prince Regent Nature Reserve were stopped by buffers established in the previous year.

Training Programs

CALM training programs were further developed in 1996-97. In particular substantial progress was made in the development and delivery of National Incident Control System training programs: Fire Operations Management, Logistics Management and Catering, and prescribed burn operations.

Equipment Development

CALM continued its equipment development and technology sharing programs throughout Australia and New Zealand. The CALM-designed four-wheel-drive heavy-duty fire pumper and light slip-on pump unit have been adopted as the standard for rural fire brigades throughout the State. The CALM design for the aerial ignition incendiary machine has created great interest throughout Australia, and four machines have been recently sold to interstate fire management agencies.

CALMfire PERFORMANCE INDICATORS FOREST REGIONS 1996-97

Key Effectiveness Indicators

1. Prescribed Burning

The reduction of fuels in Priority 1 zones to a satisfactory condition in 90% of designated areas and in Priority 2 zones in 75% of designated areas.

Region	Priority 1 (%)		Priority 2 (%)	
	95-96	96-97	95-96	96-97
Swan Region	48.8	45.6	49.1	45.8
Central Forest Region	89.0	82.8	83.6	77.3
Southern Forest Region	69.7	67.7	71.0	68.9

Notes:

The base data have been collected manually from region and district plans and from CALM's Fire Support System and associated MS Access relational database programs.

The Performance Indicators assume (i) jarrah to be tolerant to prescribed fire from age 10 years and karri from age 20 years and that (ii) 80% of jarrah fire tolerant regrowth exceeding 10 years and 50% of karri

fire tolerant regrowth exceeding 20 years is returned to prescribed burning programs.

1995-96 and 1996-97 Performance Indicators exclude areas that are not available for burning due to the presence of (i) fire sensitive regeneration and mining rehabilitation (ii) hardwood and softwood plantations (iii) stream reserves and temporary exclusion zones and (iv) No Planned Burn and scientific study reference areas.

Prescribed burning achievements relative to CALM's Wildfire Threat Analysis (WTA) benchmarks were influenced in 1995-96 and 1996-97 by increased burn complexity, the need to maintain the above mosaic of fire free areas and substantial air quality management constraints.

Definitions:

Priority 1 refers to "essential prescribed burns" necessary for the protection of human life, community values and rare, threatened and fire vulnerable species of flora and fauna

and major forest plantations. *Priority 2* refers to "important prescribed burns" necessary for the protection of broad nature conservation values.

Satisfactory condition means forest fuels available for burning will not exceed 7.5 to 8.5 tonnes per hectare in jarrah and 15.0 to 19.0 tonnes per hectare in karri. Under these fuel conditions headfire attack will be successful on days except when the fire danger is very high or extreme.

The 90% and 75% fuel reduction limits provide the minimum level considered necessary for the protection of community and nature conservation values.

Designated areas are forests where prescribed burning is an allowed landuse and where areas are available for burning. The need to protect jarrah and karri regeneration after timber harvesting renders these areas unavailable for prescribed burning for between 10 and 20 years.

2. Fire Suppression

In 95% of fires attended under 95 percentile weather conditions, the commencement of attack with effective suppression forces, before fires exceed 1 hectare in Priority 1 areas and 2 hectares in Priority 2 areas.

Region	Priority 1 (%)			Priority 2 (%)		
	94-95	95-96	96-97	94-95	95-96	96-97
Swan Region	98	95	100	100	80	100
Central Forest Region	100	100	100	90	100	100
Southern Forest Region	100	100	100	92	100	100
CALM Average	99	98	100	94	93	100

Definitions:

Suppression forces are prescribed in CALM's Red Book Dispatch Tables for fire crews and equipment and by Wildfire Threat Priority Classes.

The 95 percentile weather conditions are days when Jarrah Forest Fire Danger is below Very High and Extreme. Firefighters work safely and effectively under these conditions in standard forest fuels.

Key Efficiency Indicator

1. Prescribed Burning	Year	Cost (in 1996-97 \$)	Area (ha)	Unit Cost (\$/ha)
The 5-year-averaged rolling cost of achieving prescribed burning to meet Key Effectiveness Indicator 1 should not exceed \$10.00 per hectare.	92-93	1 151 339	270 682	4.25
	93-94	1 764 178	250 830	7.03
	94-95	2 208 906	260 846	8.47
	95-96	2 269 720	233 758	9.71
	96-97	1 956 643	157 721	12.41
Notes:	Averaged Rolling Cost (over five years)			8.37
The rolling average for unit costs has been reduced from 10 to 5 years because salaries and wages components including leave, leave loading, workers compensation and overheads were previously allowed in CALM's central budget. Because these cost components are now included in the fire management budget only the last five years				
provide meaningful comparisons. The unit burning cost standard has been adjusted to take account of increases in on-site vehicle hire costs (5%) and wages and salaries (7%). Consumer Price Index movements (All Groups Perth) of 0.2% from				
June 1996 to June 1997 were used to adjust previous years costs to 1996-97 values.				
<i>Averaged rolling costs</i> allow comparisons between fire seasons by smoothing environmental and operational variations.				

2. Fire Suppression

The cost of meeting Key Effectiveness Indicator 2 shall not exceed the 4-year-averaged rolling costs for fire suppression and preparedness in the forest regions.

Year	Region	Preparedness Cost	Year	Region	Actual Suppression Cost
PREPAREDNESS		\$	SUPPRESSION		\$
93-94	Swan Region	827 732	93-94	Swan Region	633 469
	Central Forest Region	1 543 750		Central Forest Region	681 596
	Southern Forest Region	957 776		Southern Forest Region	787 900
Total		3 329 258	Total		2 102 965
94-95	Swan Region	884 154	94-95	Swan Region	1 634 521
	Central Forest Region	1 426 592		Central Forest Region	1 069 870
	Southern Forest Region	1 134 216		Southern Forest Region	436 883
Total		3 444 962	Total		3 141 27
95-96	Swan Region	1 181 119	95-96	Swan Region	817 909
	Central Forest Region	1 910 472		Central Forest Region	542 460
	Southern Forest Region	1 811 112		Southern Forest Region	293 726
Total		4 902 703	Total		1 654 095
96-97	Swan Region	1 449 425	96-97	Swan Region	696 087
	Central Forest Region	1 883 548		Central Forest Region	319 603
	Southern Forest Region	1 827 556		Southern Forest Region	150 726
Total		5 160 529	Total		1 166 416
Four Year Averaged Preparedness Costs		4 209 363	Four Year Averaged Suppression Costs		2 016 188

Notes:

Effective fire suppression preparedness limits fire suppression activity. The cost of fire suppression preparedness should therefore balance or exceed the cost of fire suppression.

Preparedness costs for 1996-97 were increased due to additional pre-suppression planning, water point and fire equipment maintenance and increased prescribed burning costs.

Definitions:

Preparedness costs comprise

prescribed burning firebreak and water point installation and maintenance, fire detection, the construction and maintenance of firefighting equipment, fire standby and detention and fire planning and training.

Legislation and Compliance 1996-97

ACTS ADMINISTERED

- *Conservation and Land Management Act 1984*
- *Sandalwood Act 1929*
- *Wildlife Conservation Act 1950*

On behalf of the people of Western Australia, the department manages national parks, conservation parks and marine parks, State forests and timber reserves, nature reserves and marine nature reserves, and any associated fauna, flora and forest produce. It is also responsible for conserving flora and fauna throughout the State.

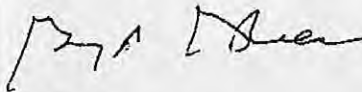
The *Conservation and Land Management Act 1984* (CALM Act) established CALM and three State controlling bodies: the Lands and Forest Commission, the National Parks and Nature Conservation Authority, and the Forest Production Council. All are responsible to the Hon Minister for the Environment. Their functions are described in separate annual reports.

MINING AND GOVERNMENT AGREEMENTS ACTS

The CALM Act does not protect land managed by the department from mining or development projects. Section 4 of the CALM Act states that nothing in the Act shall take away from the operation of any Act relating to minerals or petroleum or any Agreement Act for a development project. Agreement Acts (eg the *Alumina Refinery Agreement Act 1961*) are administered by the Minister for Resources Development. The CALM Act cannot impose restrictions on mining or on development projects subject to an Agreement Act. The requirements for mining and development projects with respect to land managed by the department are stated in the *Mining Act 1978* and the individual Agreement Acts. The requirements of the *Environmental Protection Act 1986* also need to be satisfied with

STATEMENT OF COMPLIANCE WITH WRITTEN LAW

We have attempted to comply with the requirements of relevant written law, as originally enacted and as variously amended. Steps have been taken to rectify minor errors and omissions detected during 1996-97. The relevant Acts and amendments are noted in this section of the annual report.



Syd Shea
Executive Director
30 August 1997

such projects on land managed by the department.

The following mining and petroleum Acts prevail over the CALM Act: *Mining Act 1978*; *Petroleum Act 1967*; *Petroleum Pipelines Act 1969*; *Petroleum (Submerged Lands) Act 1982*.

Agreement Acts which involve clearing land managed by CALM, or which require access to forest resources, also include specific responsibilities for the department. The bauxite and coal operations predominantly require permission to be given by the department for the companies to harvest the timber before mining.

The Agreement Acts with specific departmental responsibilities include: *Alumina Refinery Agreement Act 1961*; *Alumina Refinery (Worsley) Agreement Act 1973*; *Collie Coal (Griffin) Agreement Act 1979*; *Collie Coal (Western Collieries) Agreement Act 1979*; *Dardanup Pine Log Sawmill Agreement Act 1992*; *Silicon (Kemerton) Agreement Act 1987*; *Wesply (Dardanup) Agreement Authorisation Act 1975*; *Wood Chipping Industry Agreement Act 1969*.

The *Mineral Sands (Eneabba) Agreement Act 1975* affects the department's management of the land involved in the project.

The establishment of hardwood plantations by way of timber sharefarming agreements with CALM under section 34B of the CALM Act have been ratified by the following *Agreement Acts*: *Albany Hardwood Plantation Agreement Act 1993*; *Bunbury Treefarm Project Agreement Act 1995*; and the *Collie Hardwood Plantation Agreement Act 1995*.

OTHER RELEVANT ACTS

The Act which probably influences the management of land by CALM most frequently is the *Bush Fires Act 1954*, which has requirements for the department with respect to fires on land managed by the Department.

Other State Acts which have relevance to CALM's operations and role as an employer include: *Aboriginal Heritage Act 1972*; *Aerial Spraying Control Act 1966*; *Agriculture and Related Resources Protection Act 1976*; *Agriculture Protection Board Act 1950*; *Beekeepers Act 1963*; *Control of Vehicles (Off-Road Areas) Act 1978*; *Country Areas Water Supply Act 1947*; *Dividing Fences Act 1961*; *Energy Corporation's (Powers) Act 1979*; *Electricity Corporation Act 1994*; *Environmental Protection Act 1986*; *Equal Opportunity Act 1984*; *Explosive and Dangerous Goods Act 1961*; *Financial Administration and Audit Act 1985*; *Fish Resources*

Management Act 1994; Freedom of Information Act 1992; Government Employees Housing Authority Act 1964; Health Act 1911; Heritage of Western Australia Act 1990; Industrial Relations Act 1979; Labour Relations Amendment Act 1997; Land Acquisition and Public Works Act 1902; Land Act 1933; Local Government Act 1960; Long Service Leave Act 1958; Metropolitan Water Supply, Sewerage and Drainage Act 1909; Minimum Conditions of Employment Act 1993; Misuse of Drugs Act 1981; Mutual Recognition (Western Australia) Act 1995; Occupational Safety and Health Act 1984; Occupiers Liability Act 1985; Public Sector Management Act 1994; Reserves Act 1994 and Reserves Act (No. 2) 1994; Soil and Land Conservation Act 1945; State Employment and Skills Development Authority Act 1990; State Supply Commission Act 1991; Swan River Trust Act 1988; Timber Industry Regulations Act 1926; Town Planning and Development Act 1928; Water Agencies Restructure (Transitional and Consequential Provisions) Act 1995; Water and Rivers Commission Act 1995; Water Corporation Act 1995; Water Services Coordination Act 1995; Workers' Compensation and Rehabilitation Act 1981; Workplace Agreements Act 1993.

Commonwealth Acts relevant to the Department's activities: *Arts, Territories and Environment Act 1975; Native Title Act 1993; Superannuation Guarantee Act 1990; Training Guarantee Administration Act 1990; Whale Protection Act 1980; Wildlife Protection (Regulation of Exports and Imports) Act 1982; Workplace Relations Act 1996; World Heritage Properties Conservation Act 1983.*

International agreements relevant to the Department's activities: *Agreement between the Government of the People's Republic of China and the Government of Australia for the Protection of Migratory Birds and their Environment; Agreement between the Government of Japan and the Government of Australia for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment; Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Agreement); Convention on International Trade in Endangered Species of Wild Fauna and Flora; Convention for the Protection of the World Cultural and Natural Heritage; Convention on the Conservation of Migrating Species of Wild Animals; Convention on Biological Diversity.*

CHANGES IN LEGISLATION

Minor Amendments to Acts

The *Fish Resources Management Act 1994* made minor amendments to the CALM Act and the *Wildlife Conservation Act 1950*. Similarly minor amendments to the CALM Act were made by the *Water Agencies Restructure (Transitional and Consequential Provisions) Act 1995*.

Visitors and Camping in State Forests and Timber Reserves

The *Forest Management Regulations 1993* were amended by the *Forest Management Amendment Regulations 1996* to enable the collection of visitor fees to State forests and timber reserves and particularly for the Tree Top Walk located within the Valley of the Giants, Walpole. Management of

camping was also refined and infringement notices were introduced for camping offences and the failure to pay fees.

Firewood Collection

The *Forest Management Regulations 1993* conditions regarding public firewood areas were amended by the *Forest Management Amendment Regulations (No. 2) 1995* and the *Forest Management Amendment Regulations (No. 2) 1996*. The weight of each load taken from a public firewood area and the frequency with which the loads can be taken were refined in these amendments.

Sandalwood

The *Sandalwood Regulations 1993* were amended by the *Sandalwood Amendment Regulations 1996* to require licence applicants to provide evidence of lawful authority to clear certain land; to enable licences to be issued for a term of up to five years; and to remove a transitional provision which ceased to be relevant one year after the regulations came into effect in 1993.

Public Sector Management

Public Sector Management (Review Procedures) Regulations 1995, made under the *Public Sector Management Act 1994* became operative 1 January 1996. The regulations provide for application of the process of independent review of alleged breaches of the Public Sector Standards gazetted in September 1995 and operative, with one exception, from 1 January 1996. The Public Sector Standard on Performance Management became operative from 1 March 1996.

Performance Indicators Management Programs

NATURE CONSERVATION MANAGEMENT PROGRAM 1

Objective

To conserve indigenous plants, animals and ecological processes in natural habitats throughout the lands and waters of the State.

Note

CALM uses the National Strategy for the Conservation of Australia's Biological Diversity definition of 'conservation', ie "the protection, maintenance, management, sustainable use, restoration and enhancement of the natural environment".

The performance of the Program can be best measured by effectiveness and efficiency indicators in the three key output areas:

1. Wildlife and habitat management.
2. Wildlife utilisation.
3. Threatened species management.

Key Effectiveness Indicators

1. Wildlife and habitat management.

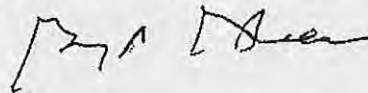
Land is set aside for the management of wildlife and habitat. Management strategies are developed to ameliorate threatening agents, such as fire, pests, weeds and diseases, which can impact on the functioning of native ecosystems, and threaten the survival of species.

Performance Indicator

Example population estimates of native fauna following control of a threatening process.

Research by CALM scientists demonstrated in 1988 that fox predation was a major cause of small fauna decline in the south west of Western Australia. This led to the baiting for foxes in selective areas of

I certify that these performance indicators are based on proper records and fairly represent the performance of the Department of Conservation and Land Management for the year ended 30 June 1997.



Syd Shea
Executive Director
15 August 1997

CALM estate which resulted in the recovery of several species of threatened fauna at those sites. In 1994 the baiting program was extended as Operation Foxglove, where 500 000 ha of the northern jarrah forest was baited on a regular basis. In 1996, this program was further expanded as Western Shield to cover over 3 million hectares of CALM estate.

If baiting for foxes is successful in reducing fox predation as a threatening process, then it would be expected that fauna in the size range susceptible to fox predation would firstly stabilise, and then recover to an equilibrium level for the area of suitable habitat in an area. To monitor the implementation of Western Shield, monitoring sites are being established across the range of the baiting program.

Measure

Population estimates for native fauna susceptible to fox predation in areas where fox baiting is occurring, as shown by monitoring sites in each CALM region where Western Shield is operating.

Note

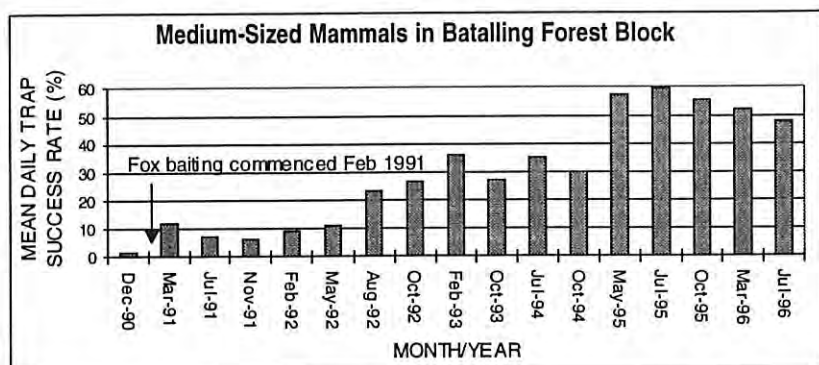
As the full Western Shield program only commenced in 1996, monitoring data is not available for CALM Regions where baiting was not previously undertaken. Such data will be able to be presented in subsequent years. An example set of data from an area baited under Operation Foxglove is presented below.

Note

Approximately three million hectares of CALM-managed land is being baited under Western Shield, out of a potential area of 17 062 378 hectares of CALM-managed lands within the distribution of the fox in Western Australia. The latter represents 89 per cent of the terrestrial land area managed by CALM.

Note

The diagram below shows the recovery following fox baiting, of medium-sized mammals that are prone to fox predation, from Batalling Forest Block in CALM's Mornington District, east of Collie. Fauna included in the data are the Woylie, Chudich, Quenda and Brush-tail Possum.



2. *Wildlife utilisation.*

Species such as kangaroos, crocodiles and a number of flora species (excluding timber) are commercially utilised and must be managed to ensure the use is sustainable.

Performance Indicator

Example population levels of harvested wildlife.

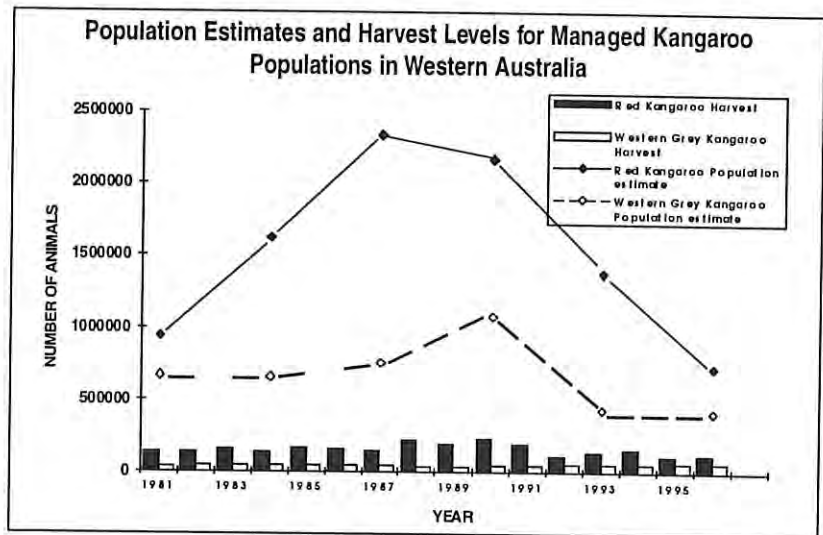
The management of flora is based on the non-destruction of the harvested plants and is therefore sustainable. Limited harvesting of breeding crocodiles, eggs and hatchlings occurs from the wild. Kangaroo harvesting, however, involves the taking of larger numbers of animals from the wild, and must, therefore, be managed in a manner that does not threaten the wild populations.

The management programs for red and western grey kangaroo harvesting were first published in 1973. These programs outline the basis of sustainable harvesting using population estimates and harvest quotas.

From 1981 to 1993, triennial aerial surveys were undertaken for red and western grey kangaroos over the pastoral region of Western Australia. Since 1995 the surveys have been done annually, covering one third (one million km²) of the pastoral region. These data are used to estimate the populations of these species which are subject to commercial harvest.

Annual population estimates are calculated from the survey data, with the estimates for the between-survey areas being extrapolated using population trend information. Sustainable harvest quotas have been determined from historical monitoring, and are set at a maximum of 25 per cent of the population estimate for red kangaroos, and 15 per cent for western grey kangaroos, with the actual quota based on:

- current population trends;
- seasonal conditions;



- review of previous harvests;
- the proportion of the habitat and population not subject to harvesting;
- current land use practice and trends in land use; and
- significance of the take outside the commercial quota.

Measure

The management of harvest levels that allow for the maintenance of kangaroo populations in areas where commercial harvesting is occurring.

Note

The variation observed in the population of the kangaroo species is due to variation in rangeland condition, primarily as determined by rainfall, and is not affected by the level of harvest permitted. As a natural feature of kangaroo population data, this fluctuation is taken into account over the longer term in setting sustainable harvest levels.

3. *Threatened species management.*

A management system is in place to identify, protect and recover flora and fauna that is threatened with extinction or otherwise in need of special protection.

Performance Indicator

The identification and management of wildlife taxa that are threatened or requiring special conservation attention.

This indicator may be addressed through two management phases:

The management of threatened taxa for their conservation in Western Australia is based firstly on the identification and listing of these taxa in appropriate categories as determined by the level of threat and the level of available knowledge.

- The number of the State's wildlife taxa listed as either threatened or requiring special conservation attention, compared to previous years.

Measure

A total of 2584 taxa (2280 flora and 304 fauna) were declared to be specially protected, or included on the Department's priority flora and fauna lists, at the end of 1996-97. This represents an increase of 4.3 per cent in the number of taxa listed as requiring special conservation status compared to 1995-96.

Notes

Migratory bird species listed under Schedule 3 of the fauna notice are not included in the numbers of taxa requiring special protection as most are not Western Australian species.

A taxon (plural taxa) is a term for any classificatory group of organisms, including species, subspecies and varieties. The indicator refers to the number of the State's wildlife taxa that are either:

- declared to be specially protected by the Minister for the Environment under the *Wildlife Conservation Act 1950*, that is, taxa that are considered to be either rare, likely to become extinct, or otherwise in need of special protection; or
- listed by the Department as priority flora or fauna, that is, taxa that are either poorly known but potentially in need of special protection based on the information available, or rare but not currently threatened and in need of monitoring.

The increase in the number of taxa listed is a reflection of the Department attaining a better knowledge base of the State's wildlife through taxonomic study, curation of collections, databasing of information, and field investigations, and does not in itself represent a change in the conservation status of the State's wildlife.

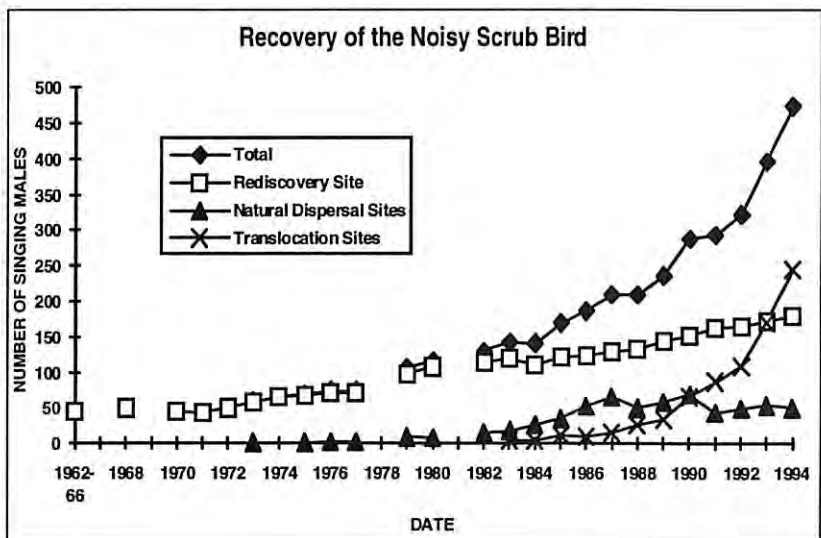
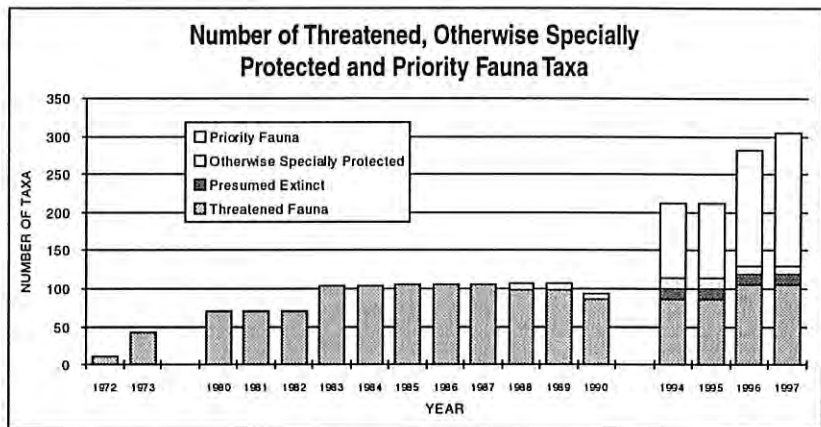
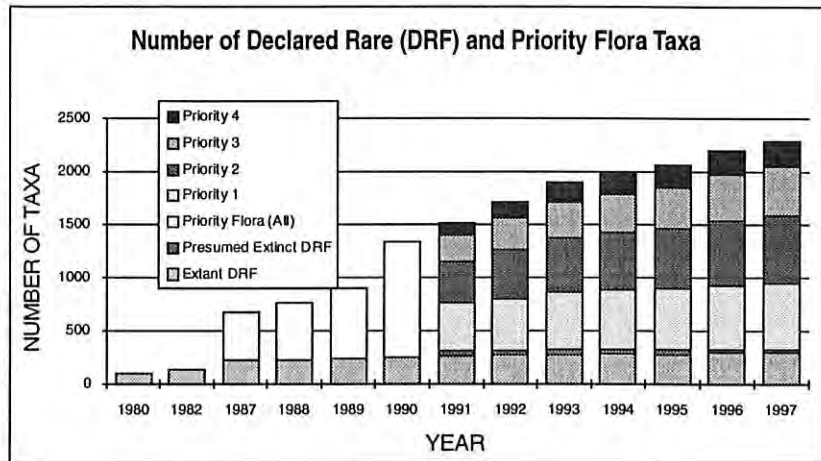
The objective of threatened taxa management is to enable threatened taxa to be de-listed, or re-listed in less threatened categories, and to obtain the necessary information for poorly known taxa to categorise them properly.

Given the probabilistic nature of the categories of threat, and the long term nature of threatened taxa recovery, significant management actions may occur before a taxon moves from one category to a lower risk category. The measure of such movements thus will occur over long time periods.

- The recovery of threatened taxa as a consequence of specific management actions as demonstrated through case examples.

Measure

- Noisy Scrub Bird, *Atrichornis clamosus*, has been the subject of a long history of management through the preservation of suitable habitat and amelioration of threatening processes at the Mt Gardner, Two Peoples Bay Nature



Reserve site, and through the translocation of birds to new protected sites on the south coast. As a consequence of these actions, since the species was rediscovered at Mt Gardner, in 1961, it is now established at 5 localities with 8 subpopulations.

While the Noisy Scrub Bird is retained on the threatened fauna list, its conservation status has

improved since its rediscovery from being presumed extinct, through being endangered to its current conservation status ranking of vulnerable.

Note

The above diagram presents data on the implementation of the Noisy Scrub Bird Recovery Plan. Data for 1995-96 is currently unpublished and is not available for presentation.

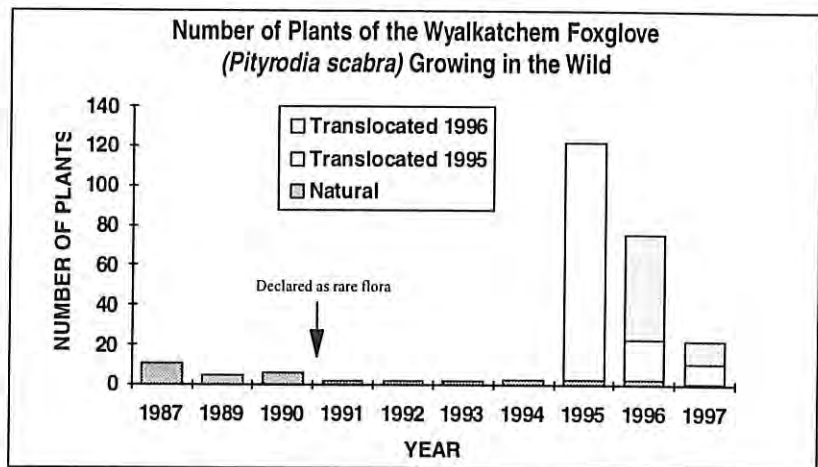
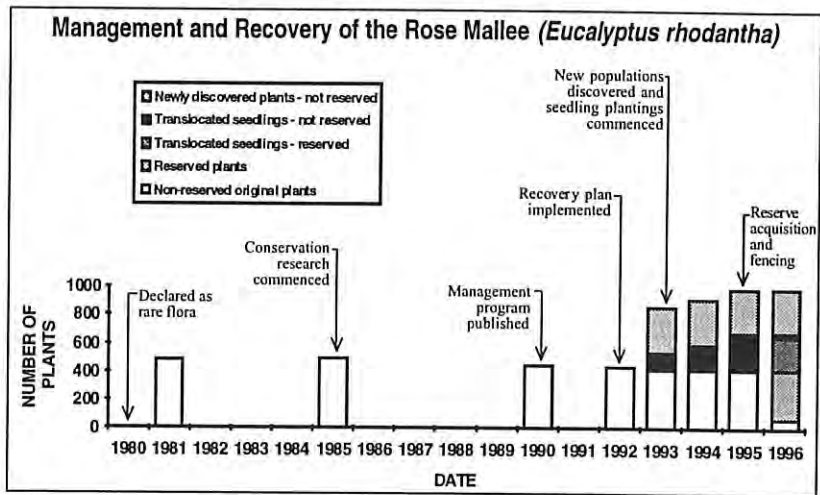
ii) The Rose Mallee, *Eucalyptus rhodantha*, has been subjected to a series of specific management actions since being declared as rare flora. These actions have included a research phase during which the necessary information was developed on which to base sound ecological management of this species. Following the preparation of a management program and recovery plan, specific management actions have occurred that have helped to secure the long term future for this species. These actions have included effective publicity and community involvement, translocation of seedlings to secure sites, and the reservation of a major population. A diagrammatic representation of the recovery actions for the Rose Mallee is presented below.

Note

While the recovery actions have provided increased security for the Rose Mallee, the species is still considered to be threatened and is thus retained on the schedule of declared rare flora at this time.

iii) The Wyalkatchem Foxglove, *Pityrodia scabra*, is only known from one natural stand in the wild. From 1987, the species was observed to be in decline at this site, and was threatened with imminent extinction. It was declared as rare flora in 1990, and management actions taken to conserve the species. The road and rail side plants were sign posted, and private property plants were fenced. Attempts were made to stimulate regeneration of the species, but these were unsuccessful, possibly due to the degraded nature of the habitat. Propagation material was collected from all remaining plants in 1994.

In 1995 a translocation program was undertaken to establish new plants at the private property site, and to establish a new population on a protected area. While the



attempted translocation to the protected site was not successful due to rabbit and weed impacts, this program has been successful in establishing plants in the wild at the original site, thus reducing the risk of this species becoming extinct in the wild. A further translocation of plants to the original site was undertaken in 1996, and this has provided further surviving plants at this site. The wild plants have now declined to only a single survivor following the death of two plants as a result of summer drought stress and the age of one of the plants. The management strategies of collecting reproductive material and growing and translocating plants to the site have thus been instrumental in safeguarding this species from imminent extinction. The species, however, is still regarded as being critically endangered, and is retained on the schedule of declared rare flora.

Key Efficiency Indicators

The key efficiency indicators are relating CALM management parameters to the Program's key outputs introduced in the 1997-98 Budget process in accordance with Treasury guidelines. Trends will emerge and be reported in future years.

1. *Wildlife and habitat management.*
The cost per hectare of managing estate under the CALM Act.

Measure—Efficiency indicator:
 \$1 434 per 1000 hectares

2. *Wildlife utilisation.*
The cost of managing the harvesting and utilisation of wildlife per licence issued.

Measure—Efficiency indicator:
 \$388 per licence

3. *Threatened species management.*
The cost of management per listed taxon of threatened or other taxa requiring special conservation attention.

Measure—Efficiency indicator:
 \$3 079 per taxon

FOREST RESOURCES MANAGEMENT PROGRAM 2

Objective

To sustain, regulate and profitably manage the forest resources entrusted to the Department in ways compatible with conservation and other management objectives.

Key Effectiveness Indicators

1. The harvest from the native hardwood forest will be maintained at a sustainable level.

(a) Quantity of log timber harvested.

Notes

The sustainable level is the average quantity of timber available for harvest each year which can be continued in the long term.

Forest areas available for timber harvesting are measured using specially designed inventory plots to determine the quantity of timber available and the rate at which it is growing.

Based on independent analysis of this information, the Government determined the estimated sustainable level of harvest approved for the term of the current Forest Management Plan.

Harvest means the commercial extraction and sale of log timber for processing and value-adding.

Measure

The quantity of log timber harvested compared with the estimated sustained yield determined by Government.

Quantities for this year were jarrah 499 936 m³, marri 459 659m³ and karri 342 410 m³. Trends over recent years are shown in the graph above.

(b) Area of forest regenerated.

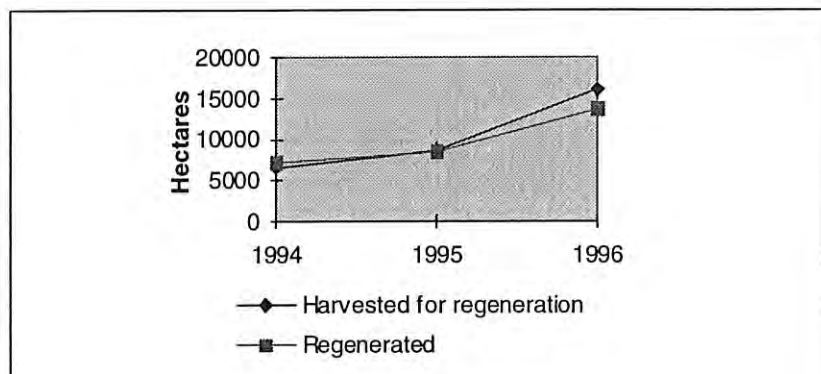
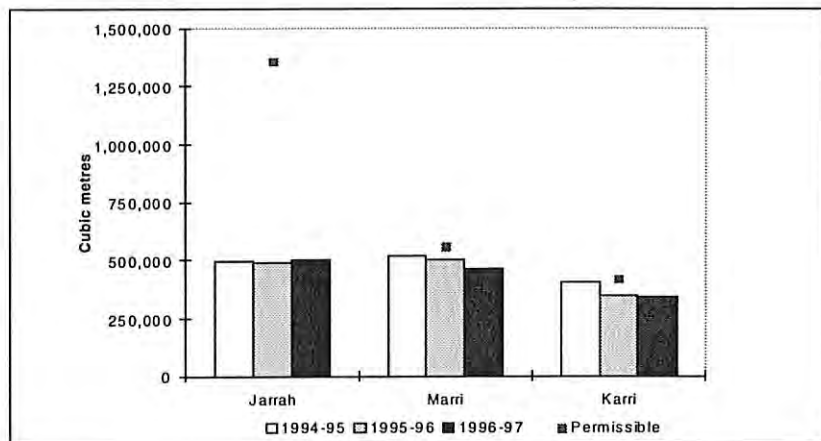
Definitions

Sustain means to manage forest resources in a way which can be continued indefinitely.

Regulate means to control the average quantity of log timber sold such that the available sustainable resource is not exceeded over a period of time.

Profitably manage means to generate a level of revenue from the sale of forest resources which exceeds the program expenditure.

Forest Resources comprises native hardwood forest on State Forest and Timber Reserves, plantations on Crown Land, sharefarm plantations on private land and sandalwood resource on Crown Land.



Notes

Forest is harvested using a variety of silvicultural prescriptions, some of which involve thinning to increase growth, and others which involve removal of trees and renewing those areas of forest by regeneration.

Regeneration takes place over a period of time and regeneration actually completed in any one year may include parts of areas harvested over a number of preceding years.

Measure

The area of forest actually regenerated compared with the area of forest harvested for regeneration.

The area of forest harvested for regeneration this year was 16 080 ha, while a total of 13 570 ha was regenerated from this or previous year's cutting. Trends over recent years are shown in the lower graph above.

Performance Indicators

2 The quantities of sawlogs harvested each year from Crown land will be regulated by contractual agreements.

Notes

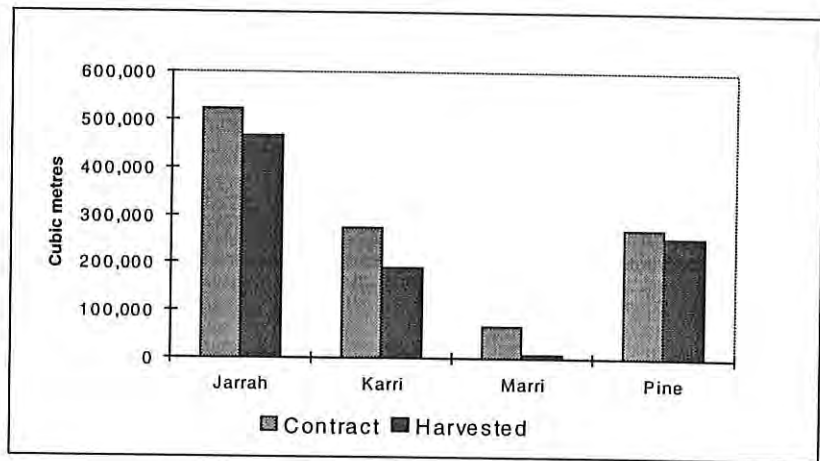
Regulate means to control the average quantity of log timber sold such that the available sustainable resource is not exceeded over a period of time.

The quantity of timber harvested is controlled by sale contracts.

Measure

The actual quantities of sawlogs harvested compared with the quantities specified in sale contracts.

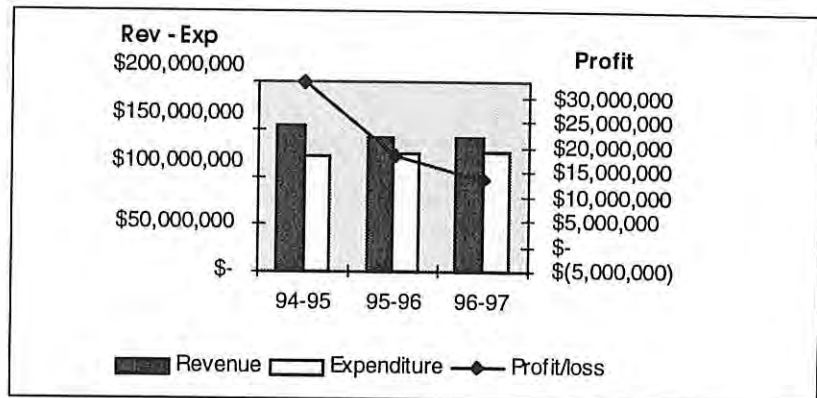
Quantities for this year were jarrah 466 575 m³, marri 7163m³, karri 190 400 m³ and pine 253 551 m³. Comparisons with contracted quantities are shown in the top graph opposite.



3 The Forest Resources management program will be managed profitably.

Notes

Program expenditure comprises the capital and recurrent cost of managing, growing and protecting the forest resource, the cost of harvesting, delivering and sales of log timber. Corporate overheads are included.



Program revenue comprises the sales of log timber which includes royalties, stumpages and other log timber charges related to harvesting, delivery and log sales.

The 1994-95 revenue and expenditure was calculated on a cash basis and is not comparable to 1995-96 and 1996-97. This is due to the change in Government policy to accrual accounting.

Figures for 1995-96, 1996-97 and in future will be on an accrual basis.

Measure

Comparison between Program revenue and operating expenditure.

Total revenue this year was \$140 386 000 compared with expenditure of \$126 841 000. Trends over recent years are shown in the centre graph above.

4 The area of plantations established will meet defined objectives.

Note

Plantations are established on both Crown land and Private land directly for the Government and acting as agents for private companies.

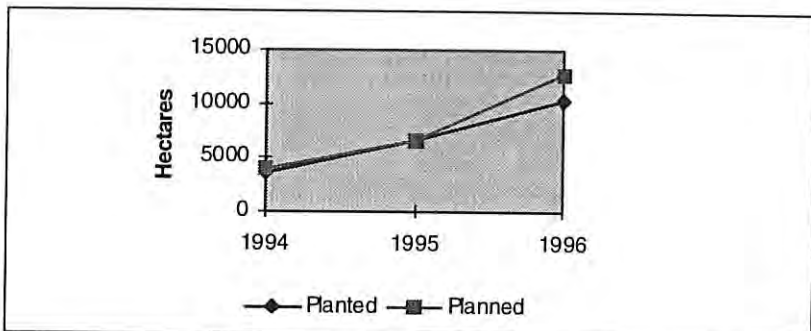
Measure

Area of plantations established compared with the target area planned for planting to meet the defined objectives. Figures are presented for the last complete planting year.

Total area planted this year was 10 278 ha compared with a target of 12 700 ha. Trends over recent years are shown in the bottom graph above.

Note

The main shortfall was 2 000 ha in the oil mallee program where the original estimate of 4 200 ha was not achieved due to budget reductions and land availability.



Key Efficiency Indicators

1. Cost of harvesting and sales compared with revenue generated.

Notes

These are costs incurred in managing the harvesting delivery and sales of log timber and should be fully recouped from the revenue generated, equating to a ratio of not less than 1.0.

Measure

Ratio of revenue to expenditure for harvesting and sales (in-forest costs, roading, administration, harvesting and delivery).

Revenue for this year was \$60 689 000 compared with expenditure of \$59 014 000. Trends over recent years are shown in the top graph opposite.

2 Cost of management compared with revenue from royalties and stumpages.

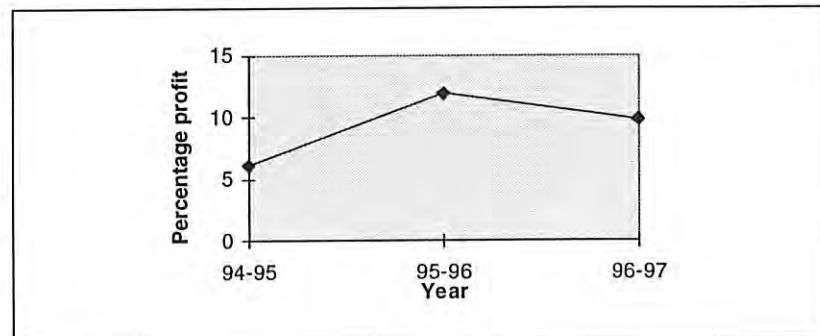
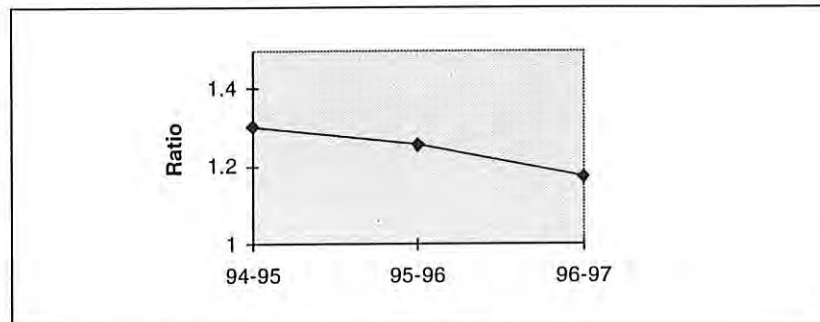
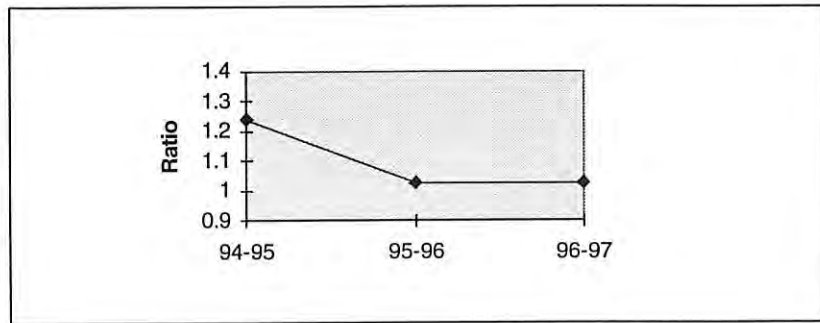
Notes

Royalties and stumpages are the value per unit of log timber by which the forest owner recoups the cost of managing, growing and protecting the forest whilst achieving a profitable rate of return over time.

Measure

The ratio of revenue from royalties and stumpages to expenditure on managing, growing and protecting the forest.

Revenue for this year was \$79 697 000 compared with expenditure of \$67 827 000. Trends over recent years are shown in the centre graph above.



3. Profit compared with total sales.

Notes

The percentage profit in 1994-95 is shown on a cash basis, while 1995-96 and 1996-97 are on an accrual basis.

Measure

Profit as a percentage of total sales. Profit for the year was \$13 545 000 from sales of \$137 997 000. Trends over recent years are shown in the bottom graph above.

General Note

Comparison with other organisations is not possible for the whole Forest Resources Program due to the unique combination of resources and management requirements.

TOURISM AND RECREATION MANAGEMENT PROGRAM 3

Objective

To identify, provide and maintain opportunities and services to the community which allow them to enjoy the wildlife, lands, waters and resources entrusted to the Department without compromising conservation and other management objectives.

Key Effectiveness Indicators

1. The extent to which the community are satisfied with the condition and standard of CALM-managed recreation areas, facilities, services and programs.

Measure

CALM conducted visitor surveys throughout the State. Five hundred and forty five usable survey returns were analysed to measure the levels of satisfaction obtained by visitors, the aspects of their visits that were most (least) satisfying and their attitude on the adequacy of existing facilities and services. See top graph opposite.

Note

Visitors were satisfied with their visits, however there was a clear indication for better access roads, toilets and information signs.

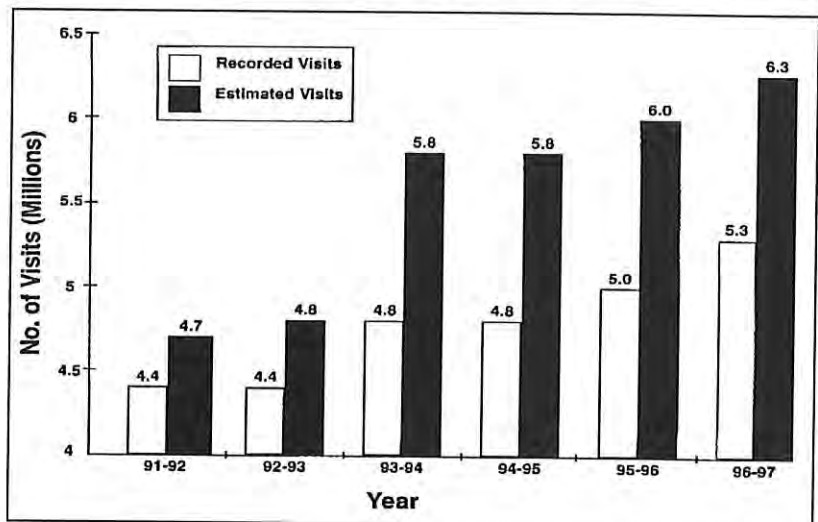
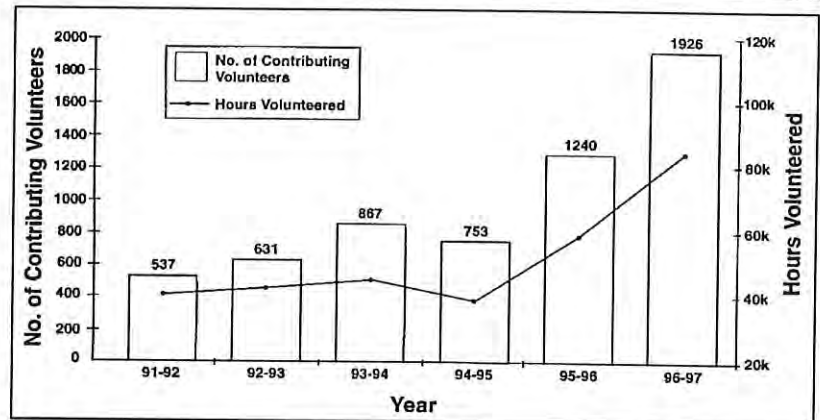
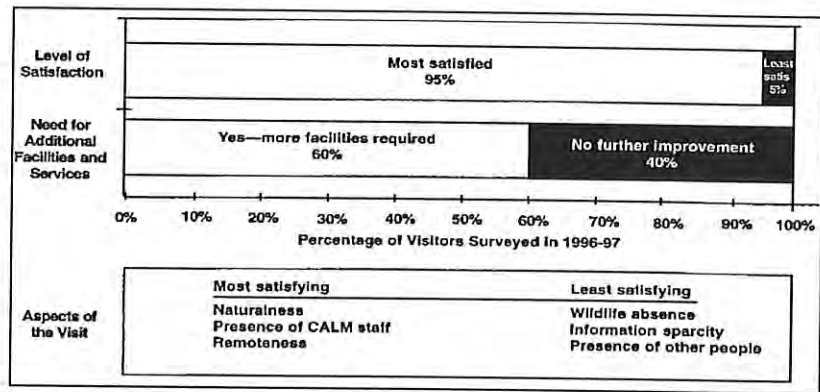
2. The extent to which the public has shown interest/support for CALM's tourism and recreation program.

Measure

Thirty six new community volunteer projects were initiated in 1996-97. The number of volunteer hours spent on tourism and recreation programs this year was 84 405. The number of registered volunteers has increased to 3 293. See centre graph opposite.

Note

The level of volunteer involvement indicates continued public support



for CALM's management programs and the agency's ability to balance competing landuses to aid public enjoyment and protect conservation values.

3. The number of visits to CALM managed areas.

Measure

Visitor statistics indicate that the number of recorded visits to CALM lands and waters for 1996-97 was 5 321 000. This a six per cent increase over last financial year's recorded visits of 5 million. See bottom graph above.

Note

Data are collected throughout the year at 137 registered sites around the State. The estimated total number of visits to CALM-managed areas is inferred from the recorded figures. The estimated total number of visits in 1996-97 is 6.3 million as compared to an estimated total of 6 million in 1995-96.

Note

The 1996-97 data is a provisional estimate, based on limited data and subject to future amendment. The provisional figures published in 95-96 have been corrected in this report.

Trends

In order to more accurately monitor trends in visitor use levels and patterns, we have chosen to report the visitor levels of three 'indicator' parks. The parks selected are Cape Le Grand, Nambung and Purnululu, all of which have controlled entry points and effective visitor recording systems in place. See table opposite.

These parks were chosen because (a) they represent (by WA standards) low, medium and high visitor numbers; and (b) they have one controlled entry point which facilitates collection of visitor data.

Key Efficiency Indicator

1. Cost per visit.

Measure

The cost of providing CALM's tourism and recreation services in 1996-97 was \$3.72 per visit. The two most recent years cannot be compared to 1993-94 and 1994-95 because those and previous years figures are based on cash accounting whereas accrual accounting is now standard for CALM. See graph opposite.

Note

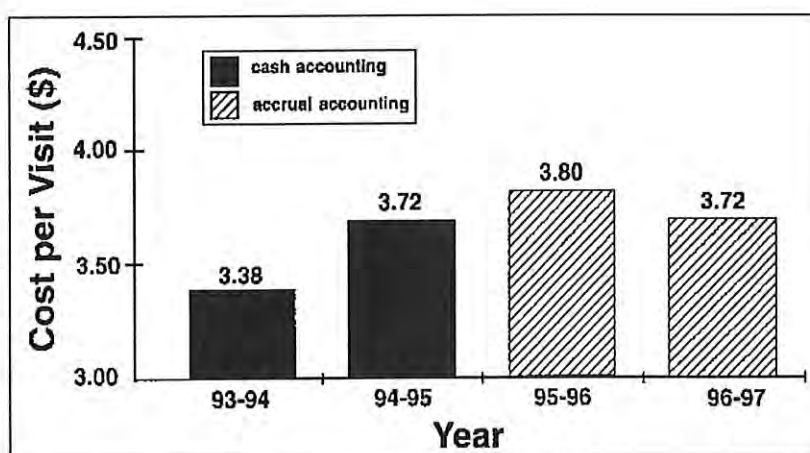
The 1995-96 and the 1996-97 index of efficiency is based on the net cost of services of the Program from the Program Schedule of Expenses and Revenues in relation to the total number of recorded visits to CALM-managed lands. The 1993-94 and the 1994-95 figures are based on net total recurrent expenditure adjusted in line with the Consumer Price Index.

Note

The 1995-96 index of efficiency has been corrected since the 1995-96 Annual Report using updated visitor numbers. The 1996-97 figure uses provisional visitor numbers and will be corrected in next year's Annual Report.

National Parks	1994-95	1995-96	1996-97
Cape Le Grand	57 000	71 000	72 000*
Nambung	120 000	134 000	145 000*
Purnululu	11 000	13 000	14 000

* Provisional estimate, based on limited data and subject to future amendment.



**ASTRONOMICAL SERVICES
MANAGEMENT PROGRAM 4**

Objective

To meet the demand for general and specialised up-to-date astronomical information and services from the public, business and educational community while furthering scientific research in astronomy in conjunction with other observatories and local tertiary institutions.

Effectiveness Indicators

1. *The level of customer satisfaction with the services provided by the Observatory.*

During 1996-97, 8 855 people visited the Observatory, 3 064 people used the recorded information line, and 11 529 people telephoned seeking information.

The level of customer satisfaction with the services provided by Perth Observatory was measured by survey. See graph opposite. The survey asked questions on many areas of the Observatory's services with the overall satisfaction being determined by the answer to the question "How satisfied were you with the services provided by Perth Observatory?"

Note

The survey was a paper questionnaire. The survey forms were distributed to visitors at the conclusion of their tour at the Observatory. between October 1996 and May 1997. The number surveyed was 554.

2. *The extent to which visitors perceive the information presented during their tour of the Observatory increased their knowledge and awareness of Astronomy.*

The indicator relates to the educational role of the Observatory in meeting the demand by the community for information on astronomy and measures the extent to which that demand is met.

Overall Satisfaction with Perth Observatory					
Response	1992-93 (%)	1993-94 (%)	1994-95 (%)	1995-96 (%)	1996-97 (%)
Very satisfied	68.1	68.0	70.1	75.2	69.6
Satisfied	30.3	31.0	25.2	23.1	26.8
Neither satisfied or dissatisfied	1.2	1.0	2.9	1.7	3.0
Dissatisfied	0.4	0.0	1.3	0.0	0.4
Very dissatisfied	0.0	0.0	0.5	0.0	0.2

Increased Knowledge and Awareness of Astronomy					
Response	1992-93 (%)	1993-94 (%)	1994-95 (%)	1995-96 (%)	1996-97 (%)
Strongly Agree	55	46	45	50.4	48.7
Agree	43	52	51.3	47.9	46.1
Neither agree or disagree	2	2	2.6	1.7	4.2
Disagree	0	0	0.5	0	1.0
Strongly disagree	0	0	0.3	0	0

Costs per Visit				
Tour Type	1993-94	1994-95	1995-96	1996-97
Day Tour	\$0.91	\$0.94	\$1.01	0.97
Night Tour	\$2.20	\$1.94	\$2.60	1.67
Weekend Tour	\$3.25	\$2.50	\$2.51	3.05

The extent to which visitors perceived they had increased their knowledge and awareness of astronomy was measured by survey. Results related to the question "To what extent do you agree that the information presented on the tour increased your knowledge of and awareness of astronomy?"

The extent to which visitors perceive the information presented during their tour of the Observatory increased their knowledge and awareness of Astronomy.

3. *Research Findings published in Internationally recognised journals*

One of the aims of Perth Observatory is to further scientific research in astronomy. One method of measuring the contribution to scientific research is to determine the number of articles published in internationally recognised scientific journals. The publishers of these journals independently evaluate articles submitted to ensure they meet appropriate standards and criteria. To have articles published

in these journals would indicate that the Observatory is adding to the body of scientific knowledge and therefore furthering scientific research.

During 1996-97, the Observatory had 28 articles published. Of these, 5 were scientific papers in internationally recognised journals. The other articles were papers related to scientific data on astronomical positions of objects, articles in educational journals or popular magazines, newsletters or internal reports.

Efficiency Indicator

1. *Average cost to the Observatory per visitor per tour type (before ticket sales).*

The Perth Observatory conducts a very popular on-site educational program through its tours for school groups, tourists and the general public. The number of people visiting the Observatory and participating in tours in 1996-1997 was 8855 - there were 120 night tours, 87 day tours, and 49 weekend tours.



Auditor General

To the Parliament of Western Australia

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT PERFORMANCE INDICATORS FOR THE YEAR ENDED JUNE 30, 1997

Scope

I have audited the performance indicators of the Department of Conservation and Land Management for the year ended June 30, 1997 under the provisions of the Financial Administration and Audit Act 1985.

The Executive Director is responsible for developing and maintaining proper records and systems for preparing and presenting performance indicators. I have conducted an audit of the performance indicators in order to express an opinion on them to the Parliament as required by the Act.

My audit was performed in accordance with section 79 of the Act to form an opinion based on a reasonable level of assurance. The audit procedures included examining, on a test basis, the evidence supporting the amounts and other disclosures in the performance indicators and the assessment of the relevance of the performance indicators to the program objectives, and the appropriateness of the performance indicators in assisting users to assess the Department's performance. These procedures have been undertaken to form an opinion as to whether, in all material respects, the performance indicators are relevant and appropriate having regard to their purpose and fairly represent the indicated performance.

The audit opinion expressed below has been formed on the above basis.

Audit Opinion

In my opinion, the performance indicators are relevant to the objectives of the Department of Conservation and Land Management. The indicators are appropriate for assisting users to assess the Department's performance and fairly represent the indicated performance for the year ended June 30, 1997.

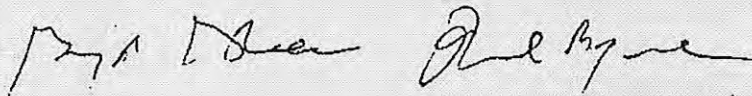
A handwritten signature in black ink, appearing to read 'D D R Pearson'.

D D R PEARSON
AUDITOR GENERAL
August 27, 1997

Financial Statements 1996-97

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 1997 and the state of affairs as at 30 June 1997.

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
15 August 1997

PRINCIPAL ACCOUNTING OFFICER
15 August 1997

**DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
OPERATING STATEMENT
FOR THE YEAR ENDED 30 JUNE 1997**

	Note	1996-97 (\$ 000)	1995-96 (\$ 000)
COST OF SERVICES			
OPERATING EXPENSES			
Salaries and wages		55 218	49 856
Superannuation	4	4 138	3 753
Interest	5	10 461	13 263
Harvesting costs		59 014	57 049
Depreciation		4 793	4 676
Administration	6	6 623	5 497
Accommodation		2 495	1 145
Other operating expenses	7	45 214	42 187
Loss on sale of assets	8	1 348	0
Total Cost of Services		<u>189 304</u>	<u>177 426</u>
REVENUES FROM SERVICES			
OPERATING REVENUE			
Royalties and timber sales	9	116 820	123 570
National parks and recreation		4 131	3 384
Recoupable works	10	20 664	15 996
Other operating revenue	11	5 963	5 154
Profit on sale of assets	8	0	1 753
Total Operating Revenue		<u>147 578</u>	<u>149 857</u>
Net Cost of Services		<u>(41 726)</u>	<u>(27 569)</u>
REVENUES FROM GOVERNMENT			
Appropriations	12	37 293	34 867
Resources received free of charge	13	991	608
Grants - Commonwealth		5 131	4 823
- State	14	769	1 584
Interest on investments		535	818
Total Revenues from Government		<u>44 719</u>	<u>42 700</u>
Change in Financial Position as a result of operations		2 993	15 131
Increase in net assets arising from restructuring		0	3 944
Change in Financial Position		<u>2 993</u>	<u>19 075</u>

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
STATEMENT OF FINANCIAL POSITION
AS AT 30 JUNE 1997

	Note	1996-97 (\$ 000)	1995-96 (\$ 000)
CURRENT ASSETS			
Cash and amounts in suspense	15	10 622	9 507
Restricted funds	16	1 833	1 409
Receivables	17	17 267	15 134
Inventories	18	5 589	3 242
Prepayments	19	219	207
		<u>35 530</u>	<u>29 499</u>
NON-CURRENT ASSETS			
Property plant and equipment	20	1 349 522	1 349 167
		<u>1 385 052</u>	<u>1 378 666</u>
CURRENT LIABILITIES			
Accounts payable		2 210	1 299
Accrued salaries/wages		601	376
Accrued superannuation		1 037	1 739
Accrued logging costs		2 549	1 450
Borrowings	21	4 557	4 594
Accrued loan interest		2 149	3 232
Employee entitlements	22	9 457	8 159
Contractors deposits		1 255	1 403
Withholding tax		5	6
Unearned revenue		311	159
		<u>24 133</u>	<u>22 417</u>
NON-CURRENT LIABILITIES			
Borrowings	21	89 939	101 697
Employee entitlements	22	2 333	2 107
		<u>92 272</u>	<u>103 804</u>
		<u>116 405</u>	<u>126 221</u>
EQUITY			
Reserves		1 327 916	1 314 707
Accumulated Deficit		(59 269)	(62 262)
		<u>1 268 647</u>	<u>1 252 445</u>
TOTAL LIABILITIES AND EQUITY	23	<u><u>1 385 052</u></u>	<u><u>1 378 666</u></u>

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
STATEMENT OF CASH FLOWS
FOR THE YEAR ENDED 30 JUNE 1997

	1996-97	1995-96
	(\$ 000)	(\$ 000)
CASH FLOWS FROM OPERATING ACTIVITIES		
Payments		
Employee entitlements	(53 853)	(50 073)
Superannuation	(4 840)	(3 175)
Interest	(11 544)	(13 751)
Harvesting costs	(57 788)	(57 930)
Administration	(5 313)	(4 657)
Accommodation	(2 462)	(1 129)
Other	(55 116)	(45 720)
Receipts		
Royalties	56 621	61 249
Commercial operations	59 123	61 485
Recoupable projects	19 826	12 451
Other revenues	14 028	13 896
NET CASH USED IN OPERATING ACTIVITIES	<u>(41 319)</u>	<u>(27 354)</u>
CASH FLOWS FROM INVESTING ACTIVITIES		
Payments for the purchase of non-current assets	(4 674)	(10 139)
Proceeds from the sale of non-current assets	15 228	9 682
NET CASH USED IN INVESTING ACTIVITIES	<u>10 554</u>	<u>(457)</u>
CASH FLOWS FROM FINANCING ACTIVITIES		
Borrowing repayments to WA Treasury Corporation & Other	(17 275)	(13 195)
Borrowing proceeds from WA Treasury Corporation	5 479	-
NET CASH USED IN FINANCING ACTIVITIES	<u>(11 796)</u>	<u>(13 195)</u>
CASH FLOWS FROM GOVERNMENT AND OTHER		
Receipts from appropriations		
Recurrent	25 790	25 996
Capital	11 364	8 872
Other	674	818
Grant receipts - Commonwealth	5 143	4 806
- State	705	1 830
NET CASH PROVIDED BY GOVERNMENT	<u>43 676</u>	<u>42 322</u>
Cash at the beginning of the reporting period	9 507	8 191
Net increase in cash held	1 115	1 316
Cash at the end of the reporting period	<u>10 622</u>	<u>9 507</u>

**DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
PROGRAM SCHEDULE OF EXPENSES AND REVENUES
FOR THE YEAR ENDED 30 JUNE 1997**

	ASTRONOMICAL SERVICES (\$ 000's)		NATURE CONSERVATION (\$ 000's)		TOURISM AND RECREATION (\$ 000's)		FOREST RESOURCES (\$ 000's)		TOTAL (\$ 000's)	
	1996-97	1995-96	1996-97	1995-96	1996-97	1995-96	1996-97	1995-96	1996-97	1995-96
OPERATING EXPENSES										
Salaries and wages	(561)	(191)	(16 706)	(14 560)	(12 131)	(11 130)	(25 820)	(23 975)	(55 218)	(49 856)
Superannuation	0	(14)	(1 480)	(1 096)	(981)	(838)	(1 677)	(1 805)	(4 138)	(3 753)
Interest	0	0	(424)	(513)	(1 167)	(1 383)	(8 870)	(11 367)	(10 461)	(13 263)
Harvesting costs	0	0	0	0	0	0	(59 014)	(57 049)	(59 014)	(57 049)
Depreciation	(296)	0	(1 529)	(1 591)	(1 034)	(1 075)	(1 934)	(2 010)	(4 793)	(4 676)
Administration	(34)	(17)	(2 348)	(1 943)	(1 453)	(1 239)	(2 788)	(2 298)	(6 623)	(5 497)
Accommodation	(26)	0	(832)	(293)	(904)	(390)	(733)	(462)	(2 495)	(1 145)
Other operating expenses	(270)	(44)	(10 346)	(8 990)	(9 568)	(10 123)	(25 030)	(23 030)	(45 214)	(42 187)
Loss on sale of assets	0	0	(458)	0	(310)	0	(580)	0	(1 348)	0
Total Cost of Services	(1 186)	(266)	(34 125)	(28 986)	(27 549)	(26 178)	(126 445)	(121 996)	(189 304)	(177 426)
OPERATING REVENUE										
Royalties and timber sales	0	0	0	0	0	0	116 820	123 570	116 820	123 570
National park collections	0	0	0	0	4 131	3 384	0	0	4 131	3 384
Recoupable works	97	27	1 242	2 265	2 781	2 803	16 544	10 901	20 664	15 996
Other operating revenue	0	0	510	436	820	562	4 633	4 156	5 963	5 154
Profit on sale of assets	0	0	0	596	0	403	0	754	0	1 753
Total Operating Revenue	97	27	1 752	3 297	7 732	7 152	137 997	139 381	147 578	149 857
Net Cost of Services	(1 089)	(239)	(32 372)	(25 689)	(19 817)	(19 026)	11 552	17 385	(41 726)	(27 569)
REVENUES FROM GOVERNMENT										
Appropriations	617	268	20 680	19 800	15 996	14 799	0	0	37 293	34 867
Resources received free of charge	5	2	351	205	217	140	417	261	991	608
Grants - Commonwealth	-	0	3 080	2 664	258	1 687	1 793	472	5 131	4 823
- State	-	0	64	6	632	1 578	73	0	769	1 584
Interest on Investments	0	0	369	756	61	13	105	49	535	818
Total Revenue From Government	622	270	24 544	23 431	17 164	18 217	2 389	782	44 719	42 700
Change in Financial Position as a result of operations	(467)	31	(7 828)	(2 258)	(2 653)	(809)	13 941	18 167	2 993	15 131

**DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
PROGRAM SCHEDULE OF ASSETS AND LIABILITIES
AS AT 30 JUNE 1997**

	ASTRONOMICAL SERVICES (\$ 000's)		NATURE CONSERVATION (\$ 000's)		TOURISM AND RECREATION (\$ 000's)		FOREST RESOURCES (\$ 000's)		TOTAL (\$ 000's)	
	1996-97	1995-96	1996-97	1995-96	1996-97	1995-96	1996-97	1995-96	1996-97	1995-96
CURRENT ASSETS										
Cash and amounts in suspense	19	4	8 464	8 237	437	261	1 702	1 005	10 622	9 507
Restricted Funds	6	0	173	0	126	0	1 528	1 409	1 833	1 409
Receivables	0	0	266	14	222	161	16 779	14 959	17 267	15 134
Inventories	0	0	0	0	868	999	4 722	2 243	5 589	3 242
Prepayments	1	0	55	45	48	54	114	108	219	207
NON-CURRENT ASSETS										
Property plant and equipment	3 456	3 944	148 067	145 260	215 371	214 260	982 628	985 703	1 349 522	1 349 167
Total Assets	3 482	3 948	157 026	153 556	217 071	215 735	1 007 472	1 005 427	1 385 052	1 378 666
CURRENT LIABILITIES										
Accounts payable	27	0	542	341	368	311	1 273	647	2 210	1 299
Accrued salaries / wages	4	1	156	110	137	84	305	181	601	376
Accrued superannuation	0	5	351	509	242	388	445	837	1 037	1 739
Accrued logging costs	0	0	0	0	0	0	2 549	1 450	2 549	1 450
Borrowings	0	0	184	185	507	511	3 866	3 898	4 557	4 594
Accrued loan interest	0	0	87	130	239	359	1 823	2 743	2 149	3 232
Employee entitlements	90	31	3 032	2 383	2 116	1 821	4 219	3 924	9 457	8 159
Contractor's deposits	0	0	0	0	0	0	1 255	1 403	1 255	1 403
Withholding tax	0	0	0	0	0	0	5	6	5	6
Unearned revenue	0	0	0	0	0	0	311	159	311	159
NON CURRENT LIABILITIES										
Borrowings	0	0	3 634	4 104	10 001	11 312	76 305	86 281	89 939	101 697
Employee entitlements	22	8	748	615	522	471	1 041	1 013	2 333	2 107
Total Liabilities	143	45	8 733	8 377	14 132	15 257	93 397	102 542	116 405	126 221

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
STATEMENT OF APPROPRIATIONS AND REVENUE ESTIMATES
FOR THE YEAR ENDED 30 JUNE 1997

SOURCE OF FUNDS	1996-97 Estimates \$	1996-97 Actual \$	Variation \$	1995-96 Estimates \$	1995-96 Actual \$	Variation \$
Opening Balance		929 205	929 205	744 000	743 894	(106)
Item 128 Amount provided for recurrent services for the year	26 441 000	25 790 000	(651 000)	22 632 000	25 604 943	2 972 943
Amount authorised by other statutes	133 000	139 183	6 183	133 000	132 656	(344)
Item 218 Amount provided for Capital Services for the year	11 364 000	11 364 000	0	11 240 000	8 871 757	(2 368 243)
Retained Revenues (Section 23A Financial Administration and Audit Act	124 917 000	130 659 425	5 742 425	119 932 000	129 175 746	9 243 746
Contributions from industry and other sources.	11 387 000	27 567 300	16 180 300	11 367 000	24 225 088	12 858 088
Commonwealth recoups	2 137 000	206 197	(1 930 803)	2 137 000	4 873 967	2 736 967
Income from national and recreation parks	2 230 000	3 641 841	1 411 841	2 000 000	2 893 042	893 042
Interest & Other	1 700 000	593 505	(1 106 495)	1 306 000	648 000	(658 000)
EXPENDITURE	180 309 000	200 890 656	20 581 656	171 491 000	197 169 093	25 678 093
RECURRENT						
Ministers' Office	375 000	713 037	338 037	375 000	219 076	(155 924)
Astronomical Services Program	739 000	794 380	55 380	0	276 896	276 896
Nature Conservation Program	24 059 000	28 148 854	4 089 854	23 008 000	28 156 911	5 148 911
Forest Resources Management Program	122 921 000	130 530 774	7 609 774	116 738 000	129 948 541	13 210 541
Management for Tourism and Recreation Program	19 151 000	24 559 253	5 408 253	18 080 000	25 296 510	7 216 510
Total Recurrent Expenditure	167 245 000	184 746 298	17 501 298	158 201 000	183 897 934	25 696 934
CAPITAL						
Astronomical Services Program	124 000	110 191	(13 809)	0	21 396	21 396
Nature Conservation Program	200 000	17 841	(182 159)	200 000	628 755	428 755
Forest Resources Management Program	10 760 000	10 754 210	(5 790)	10 760 000	9 016 664	(1 743 336)
Management for Tourism and Recreation Program	1 500 000	1 691 906	191 906	1 500 000	2 507 969	1 007 969
Plant and Equipment	480 000	2 234 778	1 754 778	830 000	425 170	(404 830)
Total Capital Expenditure	13 064 000	14 808 926	1 744 926	13 290 000	12 599 954	(690 046)
GRAND TOTAL	180 309 000	199 555 224	19 246 224	171 491 000	196 497 888	25 006 888
CLOSING BALANCE	0	1 335 432	1 335 432	0	671 205	671 205
REVENUE						
Territorial	178 000	140 424	(37 576)	178 000	94 991	(83 009)
Departmental	380 000	370 692	(9 308)	380 000	479 560	99 560
	558 000	511 116	(46 884)	558 000	574 551	16 551

NOTES TO THE FINANCIAL STATEMENTS

1. DEPARTMENTAL OBJECTIVES AND FUNDING

(a) Objectives and Funding

The Department of Conservation and Land Management's mission is to conserve and manage Western Australia's wildlife and the lands, waters and resources entrusted to the Department for the benefit of present and future generations.

The Department is predominantly funded by Parliamentary appropriations and retained revenues from timber sales and other activities. It provides the programmes as disclosed at Note 3. The fees charged are determined by prevailing market forces and Government policy. The financial statements encompass all funds through which the Department controls resources to carry on its functions.

In the process of reporting on the Department as a single entity, all intra-entity transactions and balances have been eliminated.

(b) Funds Held in Trust

The Department holds some moneys in a trust capacity. Where these moneys are used by the Department for the achievement of its objectives, the transactions are included in the financial statements.

Other moneys are held in an administrative capacity as performance deposits from contractors and payroll and taxation deductions from both employees and contractors.

2. SIGNIFICANT ACCOUNTING POLICIES

(a) General Statement

The financial statements constitute a general purpose financial report which has been prepared in accordance with Australian Accounting Standards and Urgent Issues Group (UIG) Consensus Views as applied by the Treasurer's Instructions. Several of these are modified by Treasurer's Instructions to vary application, disclosure, format and wording. The Financial Administration and Audit Act and the Treasurer's Instructions are legislative provisions governing preparation of financial statements and take precedence over Australian Accounting Standards and UIG Consensus Views. The modifications are intended to fulfil the requirements for general application to the public sector, together with the need for greater disclosure and also to satisfy accountability requirements.

If any such modification has a material or significant financial effect upon the reported results, details of that modification and, where practicable, the resulting financial effect are disclosed in individual notes to these financial statements.

The 1995-96 Annual Report was the first prepared on an accrual basis. There has been a refining of the process

during 1996/97 and consequently some of the comparative 1995/96 figures in this report differ from those previously published.

(b) Basis of Accounting

The financial statements have been prepared in accordance with Treasurer's Instruction 1101A and are based on the provisions of Australian Accounting Standard AAS 29 "Financial Reporting by Government Departments" as if the relevant aspects were applicable to the department as an accounting standard.

The statements have been prepared on the accrual basis of accounting using historical cost accounting, with the exception that certain non-current physical assets have been introduced at written down current cost or market value as at 30 June 1996. Additions to non-current physical assets since valuation are stated at cost.

(c) Appropriations

Appropriations whether recurrent, capital or other, are recognised as revenues in the period in which the Department gains control of the appropriated funds.

The Department gains control of appropriated funds at the time those funds are drawn down by the Department. Appropriations which are repayable by the Department to the Treasurer are recognised as liabilities.

The Department operates under a Net Appropriation Agreement. This is an agreement pursuant to Section 23A of the Financial Administration and Audit Act, between the Treasurer and the Accountable Officer of the Department for the financial year ending 30 June 1997 which provides for the retention of the following moneys received by the Department:

- Proceeds from contract of sale of forest products - Sections 88(1)(b) and 92(2) Conservation and Land Management Act
- Proceeds from sale of real property - Blackwood Valley Land
- Proceeds from the sale of motor vehicle fleet
- Proceeds from the disposal of equipment and other non-real property

The proceeds from sale of forest products, and disposal of property (other than real property) and equipment are to be applied in the first instance to the purposes and functions authorised by the Conservation and Land Management Act with any surpluses over and above this requirement applied to the retirement of debt. Proceeds from disposal of real property (Blackwood Valley Land) are to be applied towards reducing loan liabilities.

During the year Cabinet modified the debt retirement goals to allow some of the proceeds from disposal of real property to be applied to funding for salinity control.

(d) Depreciation of Non-Current Assets

Depreciation has been provided for on a straight line basis, using rates which are reviewed annually. Major depreciation periods are:

• Buildings	20 - 40 years
• Furniture	10 years
• Office equipment	6 - 7 years
• Computer equipment	4 years
• Aircraft	5 - 6 years
• Boats	5 years
• Plant and machinery	5 - 10 years
• Heavy fleet vehicles	5 years

(e) Valuation of Assets

The valuation of land is in accordance with an independent valuation undertaken by the Valuer General's Office in Western Australia and other assets are stated at historical or cost current market value.

The following assets have not been included in the Statement of Financial Position but are considered significant assets.

Plantations and Forests - The operations of the Department include establishment and maintenance of tree plantations and forests for which future economic benefits will accrue through sale of felled trees. At present no valuation has been made of the Department's standing timber. The Department is awaiting the development of an appropriate Accounting Standard dealing with the valuation of regenerating assets. As a result, plantation and forestry expenditure have been expensed.

- Infrastructure Assets (Roads, Bridges, Drains etc) - The Department's Capitalisation Policy on infrastructure assets is under review.
- Heritage Assets
- Intellectual and Other Property

(f) Recognition of Revenue

The Department's general policy is to recognise revenue when an invoice is issued.

Other revenues such as proceeds from the sale of motor vehicles, land sales and miscellaneous revenue are recognised at the time of receipt.

(g) Leases

The Department has entered into operating lease agreements for buildings, office equipment and motor vehicles where the lessors effectively retain all of the risks and benefits incidental to ownership of the items held under the operating leases. Equal instalments of the lease payments are charged to the operating statement over the lease term as this is representative of the pattern of benefits to be derived from the leased property.

The Department had no finance lease commitments during 1996-97.

(h) Inventories

Inventories have been valued at the lower of cost and net realisable value.

(i) Employee Entitlements*Annual and long service leave*

Employee entitlements are calculated at current remuneration rates. A liability for long service leave is recognised after an officer has completed four years service of a seven year long service leave term and six years service of a ten year long service leave term.

The provisions of Australian Accounting Standard AAS30 "Accounting for Employee Entitlements" have been complied with except for the following:

1. Discounting of long service leave liability.
2. Non vesting of sick leave.

The Department believes that the application of discount factors and ancillary changes to the non current long service leave liability is likely to have an insignificant impact on the financial results of the Department and that without the input of a qualified actuary it is not possible to establish the liability for non current long service leave and non vesting sick leave. Any attempt to comply further with AAS30 at this time would not be cost-benefit efficient.

The Department has carried out an exercise based on AAS 30. The figure calculated was found to be not materially different from the figures described in these statements.

Superannuation

The contributions made to superannuation funds are charged against net income from services.

Staff contribute to the Superannuation and Family Benefits Act Scheme (a pension scheme closed to new entrants) or the Gold State Employees Superannuation Scheme (a lump sum benefit scheme also closed to new entrants) which are both defined benefit schemes. All staff who do not contribute to either of these schemes become non contributory members of the West State Superannuation Scheme, an accumulation fund complying with the Commonwealth Government's Superannuation Guarantee (Administration) Act 1992. The Department is responsible for employer contributions under both lump sum schemes.

Employer contributions have been paid to the Gold State Superannuation Scheme since the inception of the scheme in 1987.

The total unfunded liability assumed by the Treasurer for current employees in the Gold State Superannuation Scheme for pre 1987 service is \$15.4M.

The total unfunded liability assumed by the Treasurer in respect for pensions that will be payable to current employees when they retire is \$2.33M.

The superannuation expense does not include payment of pensions to former employees who have retired as this does not constitute part of the cost of services provided by the Department in the current year.

(j) Amendments to 1995–96 financial statements

Presentation enhancements to the current year's financial statements has resulted in a number of adjustments to the comparative figures presented in the 1995–96 financial statements :

- Forest management works of \$2 304 000 included in Harvesting costs was re-classified to Other expenses. This is now reflected in note 7 to the accounts.
- Administered revenues of \$580 000 which were presented separately on the face of the operating statement for 1995–96 have been reclassified as Other operating revenue and disclosed in note 11 as Royalties and fees. Payment of Administered revenues have been included as operating expenses.
- Private grants amounting to \$3 299 000 and included in Other operating revenue has been reclassified under Recoupable works. Refer to notes 10 and 11 for disclosure.
- Internal nursery sales proceeds of \$2 207 000 have been eliminated from Other operating revenue and Other operating expenses in accordance with accounting policy. This is reflected in Proceeds from nurseries Note 11 and Materials Note 7.
- There has been a reclassification within Note 7 Other operating expenses to more accurately reflect the expenditure incurred.

3. Programs of the Department

The purpose and objective of each major program undertaken by the Department during the reporting period are:

Nature Conservation

To conserve indigenous plants, animals and ecological processes in natural habitats throughout the lands and waters of State.

Forest Resources Management

To sustain, regulate and profitably manage the forest resources entrusted to the Department in ways compatible with conservation and other management objectives.

Management for Tourism and Recreation

To identify, provide and maintain opportunities and services to the community which allows them to enjoy the wildlife, lands, waters and resources entrusted to the Department without compromising conservation and other management objectives.

Astronomical Services

To meet the demand for general and specialised up to date astronomical information and services from the public, business and educational community while furthering scientific research in astronomy in conjunction with other observatories and local tertiary institutions.

Information about the expenses, revenues, assets and liabilities are set out in the Program Schedules.

	1996–97 (000 s)	1995–96 (000 s)
4. SUPERANNUATION		
Cash expense	4 840	3 175
less: Accrued previous year	(1 739)	(1 161)
add: Accrued current year	1 037	1 739
Total expense for the year	<u>4 138</u>	<u>3 753</u>
5. INTEREST		
WA Treasury Corporation	11 086	13 018
Commonwealth Dept. of Finance	448	710
Other financial institutions	10	14
less: Accrued previous year	(3 232)	(3 712)
add: Accrued current year	<u>2 149</u>	<u>3 232</u>
	<u>10 461</u>	<u>13 263</u>
6. ADMINISTRATION		
Administration expenses for the reporting period include:		
Resources received free of charge	991	608
Bad debts	4	100
Telephones postage couriers	1 978	1 352
Travel expenses	1 911	1 785
Other	<u>1 739</u>	<u>1 652</u>
	<u>6 623</u>	<u>5 497</u>
7. OTHER OPERATING EXPENSES		
Other operating expenses for the reporting period include:		
Maintenance costs	2 911	3 341
Operating lease costs	6 731	5 178
Materials	9 407	11 721
Services and contracts	18 371	7 826
Forest management work	2 295	2 304
Other	<u>5 500</u>	<u>11 237</u>
	<u>45 214</u>	<u>41 607</u>
8. (LOSS) / GAIN ON SALE OF ASSETS		
Land	0	19
Motor Vehicles	(1 050)	1 734
Plant & Equipment	<u>(298)</u>	<u>0</u>
	<u>(1 348)</u>	<u>1 753</u>

	1996-97 (000 \$)	1995-96 (000 \$)		1996-97 (000 \$)	1995-96 (000 \$)
9. ROYALTIES AND TIMBER SALES			16. RESTRICTED FUNDS		
Hardwood royalties	36 264	35 662	Contractors' Deposits	1 255	1 403
Softwood stumpages	12 337	13 644	Payroll Deductions	573	0
Sandalwood sales	7 530	13 201	Withholding Tax	5	6
Hardwood logging cost recovery	46 377	46 743		<u>1 833</u>	<u>1 409</u>
Softwood logging cost recovery	14 312	14 320			
	<u>116 820</u>	<u>123 570</u>	17. RECEIVABLES		
10. RECOUPABLE WORKS			Receivables	17 467	15 334
Sharefarming income	12 707	8 813	Less provision for doubtful debts	(200)	(200)
Other recoups	7 957	7 183		<u>17 267</u>	<u>15 134</u>
	<u>20 664</u>	<u>15 996</u>	18. INVENTORIES		
11. OTHER OPERATING REVENUE			Publications	868	999
Mining compensation	2 781	2 811	Nursery stock	3 026	2 243
Sale of publications	615	588	Sandalwood	1 696	0
Proceeds from nurseries	1 215	1 065		<u>5 589</u>	<u>3 242</u>
Royalties and fees	522	580	Sandalwood inventory on hand was valued for the first time in 1996-97		
Other revenues	831	110	19. PREPAYMENTS		
	<u>5 963</u>	<u>5 154</u>	Motor vehicle licences & insurance	171	172
12. APPROPRIATIONS			Accommodation	5	35
Consolidated Fund			Administration	4	0
Recurrent	25 790	25 863	Other	37	0
Capital Works	11 364	8 871		<u>219</u>	<u>207</u>
Salaries & Allowances Tribunal	139	133	20. PROPERTY PLANT AND EQUIPMENT		
	<u>37 293</u>	<u>34 867</u>	Land - at valuation 1996 (a)	1 311 786	1 314 927
13. RESOURCES RECEIVED FREE OF CHARGE				<u>1 311 786</u>	<u>1 314 927</u>
Resources received free of charge have been determined on the basis of the following estimates provided by agencies:			Buildings at valuation	17 508	2 541
Office of the Auditor General-audit services	180	175	less: Accumulated depreciation	(127)	
Treasury Department	120	120		<u>17 381</u>	<u>2 541</u>
Dept. of Land Administration	690	312	Buildings at cost	2 476	
State Repository	1	1	less: Accumulated depreciation	(81)	
	<u>991</u>	<u>608</u>		<u>2 394</u>	
14. GRANTS - STATE			Plant & Equipment at cost (b)	10 651	8 639
Commissioner of Main Roads	545	1 064	less: Accumulated depreciation	(2 417)	(543)
Other	224	520		<u>8 234</u>	<u>8 096</u>
	<u>769</u>	<u>1 584</u>	Plant and Equipment at valuation (b)	7 343	7 394
15. CASH AND AMOUNTS IN SUSPENSE			less: Accumulated depreciation	(3 878)	(3 350)
Cash on hand (CALM Fund)	9 616	9 004		<u>3 465</u>	<u>4 044</u>
Petty Cash	37	35	Vehicles at cost	9 943	20 709
Lane Poole Memorial Trust	13	15	less: Accumulated depreciation	(3 810)	(2 487)
Cash in suspense	371	27		<u>6 133</u>	<u>18 222</u>
Accrued Salaries			Work In Progress		
Suspense Account	585	426	Treetop Walk		1 337
	<u>10 622</u>	<u>9 507</u>	Other	129	
			Total Property, Plant and Equipment	<u>1 349 522</u>	<u>1 349 167</u>

	1996-97 (000 s)	1995-96 (000 s)
(a) Land		
The Valuer General's Office provided a land valuation of all land under the Department's control as at 30 June 1996 and this valuation, less the value of the land sold has also been used for 30 June 1997.		
(b) Plant and equipment		
Plant and equipment has been brought to account at cost. Where cost amounts were not known they have been brought to account at independent valuation.		
21. BORROWINGS		
Current		
Commonwealth Dept. of Finance	132	132
WA Treasury Corporation	4 387	4 166
Financial institutions	38	35
	<u>4 557</u>	<u>4 594</u>
Non-Current		
Commonwealth Dept. of Finance	1 014	6 352
WA Treasury Corporation	88 883	95 265
Financial institutions	42	80
	<u>89 939</u>	<u>101 697</u>
22. EMPLOYEE ENTITLEMENTS		
Current		
Provision for annual leave	4 528	4 046
Provision for long service leave	4 929	4 113
	<u>9 457</u>	<u>8 159</u>
Non current		
Provision for long service leave	2 333	2 107
	<u>2 333</u>	<u>2 107</u>
23. EQUITY		
Equity represents the residual interest in the net assets of the Department. The Government holds the equity interest in the Department on behalf of the community.		
(a) Accumulated (Deficit)		
Balance at the beginning of the year	(62 262)	0
Change resulting from initial application of AAS29		(81 337)
Change in net assets resulting from operations	2 993	19 075
	<u>(59 269)</u>	<u>(62 262)</u>
Balance at the end of the year		
(b) Reserves		
Asset Revaluation Reserve		
Balance at beginning of year	1 314 707	0
Increase resulting from initial application of AAS 29	13 209	1 314 707
Balance at end of year	<u>1 327 916</u>	<u>1 314 707</u>

	1996-97 (000 s)	1995-96 (000 s)
For the purposes of the initial application of AAS 29 "Financial Reporting by Government Departments" buildings under the control of the Department are progressively being brought to account via an increment to the Asset Revaluation Reserve.		
Had these buildings been brought to account through the Accumulated Deficit the closing Accumulated Deficit at 30 June 1997 would have been (\$46.060M) and the Asset Revaluation Reserve would have been \$1 311.566M.		
This treatment is considered appropriate as the Department has historically not been required to record the cost of buildings it controls.		
24. RECONCILIATION OF NET CASH USED IN OPERATING ACTIVITIES TO NET COST OF SERVICES		
(a) For the purposes of the statement of cash flows cash includes cash revenue from operating activities cash in suspense and C.E Lane Poole Memorial Trust.		
(b) Net cash used in operating activities,		
Statement of Cash Flows	(41 319)	(27 354)
Depreciation	(4 793)	(4 676)
Accrued employee entitlements	(1 364)	217
Accrued superannuation	702	(578)
Accrued interest	1 083	488
Other accrued expenditure	7 333	1 931
Net profit on sale of assets	(1 348)	1 753
Other accrued revenue	(2 020)	650
Net Cost of Services from Operating Statement	<u>(41 726)</u>	<u>(27 569)</u>
(c) No non cash financing or investing activities have been undertaken during the financial year.		
(d) There were no additional credit facilities available which were undrawn at balance date.		
25. COMMITMENTS FOR CAPITAL EXPENDITURE		
At the reporting date the Department had not entered into any material contracts for capital expenditures.		
26. CONTINGENT OBLIGATIONS		
Various claims for damages have been lodged against the Department. The Department has denied liability and the Accountable Officer is of the opinion that no material loss will be incurred.		

	1996-97 (000 s)	1995-96 (000 s)
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27. RESOURCES PROVIDED FREE OF CHARGE

During the year the following resources were provided to other agencies free of charge for functions outside the normal operations of the Department.

Police Department (Herbarium)	22	40
Other	25	27
	<u>47</u>	<u>67</u>

28. REMUNERATION AND RETIREMENT BENEFITS OF SENIOR OFFICERS

Remuneration of Senior Officers

The number of Senior Officers whose total of fees salaries and other benefits received or due and receivable for the financial year falls within the following bands:

\$	1996-97	1995-96
70 000 - 80 000	1	2
80 000 - 90 000	8	6
90 000 - 100 000	0	1
130 000 - 140 000	1	1

The total remuneration of senior officers is:
\$ 918 699 \$ 861 927

Retirement Benefits

In respect of Senior Officers the following amounts were paid for the financial year.

Contributions to Government Employee Superannuation Act scheme \$ 95 847 \$ 91 166

At 30 June 1997 eleven employees of the Department were members of the Superannuation and Family Benefits Act scheme.

No Senior Officers were members of the Superannuation and Family Benefits Act scheme.

29. SUPPLEMENTARY FINANCIAL INFORMATION

* Losses of public moneys and public or other property.

Irrecoverable amounts	3 859	20 523
Other	2 573	2 203
General (includes thefts reported to Police, lost property and stock taking deficiencies)	<u>20 304</u>	<u>7 745</u>
	<u>\$ 26 736</u>	<u>\$ 30 471</u>

* Public and other property, revenue and other debts due to the state written off in accordance with Section 45 of the Financial Administration and Audit Act 1985.

	1996-97	1995-96
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Approved by the Executive Director	26 736	19 393
Approved by the Hon. Minister		11 078
	<u>\$ 26 736</u>	<u>\$ 30 471</u>

30. OPERATING LEASE COMMITMENTS

At the reporting date, the Department had the following obligations under non-cancellable operating leases (these obligations are not recognised as liabilities):

Not later than one year	2 115
Later than one year and not later than two years	2 115
Later than two years and not later than five years	5 999
Later than five years	8 850
	<u>19 079</u>

This is the first year in which information in regard to Operating Lease Commitments has been disclosed.

31. EXPLANATORY STATEMENT

The Statement of Appropriations and Revenue Estimates discloses appropriations and other statutes expenditure estimates, the actual expenditure made and revenue estimates and payments into Consolidated Fund, all on a cash basis.

Intra-entity transactions are included in this statement.

The following explanations are provided in accordance with Treasurer's Instruction 945:

As mentioned in Note 2 (c), the Department operates under a Net Appropriation Agreement whereby moneys received under the agreement are retained as a source of funds for its operation.

At the time the budget was framed in February 1996 it was expected that the proceeds from the sale of the vehicle fleet would be received in 1995/96 however this did not eventuate and these were not received until this financial year resulting in the retained revenue being higher than forecast.

The contribution from Industry and Other Sources comprise;

Recoupable Works	\$ 18 630 836
Commissioner of Main Roads	\$ 499 000
Saleable Publications	\$ 619 169
Nursery Sales	\$ 5 033 045
Mining Compensation	\$ 2 785 250

Generally these moneys are for works of a recoupable nature and the extent of the work involved is not easily predictable. Consequently large variations can occur between the estimates and the actual amount received.

Commonwealth Recoups are grants provided by the Commonwealth Government mainly for wildlife and other research projects. Opportunities for these grants arise during the year and amounts involved are not easily predicted. They do not bear any comparison in dollar terms to previous years.

Under the Net Appropriation agreement CALM's expenditure program is reliant on revenue collected. Consequently any variation to revenue collected is reflected in the expenditure programs of the Department.



Auditor General

To the Parliament of Western Australia

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT FINANCIAL STATEMENTS FOR THE YEAR ENDED JUNE 30, 1997

Scope

I have audited the accounts and financial statements of the Department of Conservation and Land Management for the year ended June 30, 1997 under the provisions of the Financial Administration and Audit Act 1985.

The Executive Director is responsible for keeping proper accounts and maintaining adequate systems of internal control, preparing and presenting the financial statements, and complying with the Act and other relevant written law. The primary responsibility for the detection, investigation and prevention of irregularities rests with the Executive Director.

My audit was performed in accordance with section 79 of the Act to form an opinion based on a reasonable level of assurance. The audit procedures included examining, on a test basis, the controls exercised by the Department to ensure financial regularity in accordance with legislative provisions, evidence to provide reasonable assurance that the amounts and other disclosures in the financial statements are free of material misstatement and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion as to whether, in all material respects, the financial statements are presented fairly in accordance with applicable Accounting Standards, other mandatory professional reporting requirements (Urgent Issues Group Consensus Views) and the Treasurer's Instructions.

The audit opinion expressed below has been formed on the above basis.

Audit Opinion

In my opinion,

- (i) the controls exercised by the Department of Conservation and Land Management provide reasonable assurance that the receipt, expenditure and investment of moneys and the acquisition and disposal of property and the incurring of liabilities have been in accordance with legislative provisions; and
- (ii) the Operating Statement, Statement of Financial Position, Statement of Cash Flows, Program Schedules and Summary of Consolidated Fund Appropriations and Revenue Estimates and the Notes to and forming part of the financial statements are based on proper accounts and present fairly in accordance with applicable Accounting Standards, other mandatory professional reporting requirements and the Treasurer's Instructions, the transactions for the year ended June 30, 1997 and the financial position at that date.

D D R PEARSON
AUDITOR GENERAL
August 27, 1997

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APPENDIX 1 TREND IN THE AREA OF NATIVE FOREST HARVESTED

	Jarrah Forest	Jarrah/Wandoo	Karri Forest	
		Forest	Clearfelled or cut to seed trees	Thinned
	ha	ha	ha	ha
1976–77	32 320	1 170	2 610	-
1977–78	26 020	740	4 450	-
1978–79	25 540	530	2 710	-
1979–80	25 150	860	2 110	60
1980–81	22 930	1 440	2 080	180
1981–82	24 680	610	2 180	320
1982–83	23 740	330	990	190
1983–84	21 540	580	1 490	260
1984–85	20 010	1 440	2 360	500
1985–86	22 640	650	1 590	340
1986	19 340	1 150	1 090	490
1987	17 180	1 380	1 310	700
1988	23 400	490	1 180	840
1989	15 130	200	1 510	910
1990	12 960	100	1 560	340
1991	10 910	-	1 920	230
1992	13 990	30	1 540	310
1993	14 250	40	1 630	80
1994	14 050	50	1 440	-
1995	17 830	30	2 410	-
1996	22 320	50	1 300	60

APPENDIX 2
AREAS OF EVEN-AGED KARRI REGENERATION

Year of Regeneration Area (ha)	Multiple Use Forest		Conservation Forest		Totals	
	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
	Total (ha)	Area (ha)	Total (ha)	Area (ha)	Total (ha)	Area (ha)
Before 1900	60	60	1 200	1 200	1 260	1 260
1900-09	-	60	-	1 200	-	1 260
1910-19	140	200	30	1 230	170	1 430
1920-29	170	370	50	1 280	220	1 650
1930-39	5 800	6 170	460	1 740	6 260	7 910
1940-49	710	6 880	460	2 200	1 170	9 080
1950-59	560	7 440	160	2 360	720	9 800
1960-65	230	7 670	-	2 360	230	10 030
1966	160	7 830	-	2 360	160	10 190
1967	210	8 040	80	2 440	290	10 480
1968	690	8 730	130	2 570	820	11 300
1969	1 290	10 020	310	2 880	1 600	12 900
1970	80	10 100	-	2 880	80	12 980
1971	80	10 180	10	2 890	90	13 070
1972	1 110	11 290	1 380	4 270	2 490	15 560
1973	190	11 480	-	4 270	190	15 750
1974	140	11 620	30	4 300	170	15 920
1975	630	12 250	430	4 730	1 060	16 980
1976	1 770	14 020	50	4 780	1 820	18 800
1977	1 630	15 650	220	5 000	1 850	20 650
1978	1 630	17 280	310	5 310	1 940	22 590
1979	1 920	19 200	310	5 620	2 230	24 820
1980	2 090	21 290	120	5 740	2 210	27 030
1981	2 950	24 240	300	6 040	3 250	30 280
1982	2 310	26 550	150	6 190	2 460	32 740
1983	1 930	28 480	370	6 560	2 300	35 040
1984	1 750	30 230	470	7 030	2 220	37 260
1985	2 400	32 630	-	7 030	2 400	39 660
1986	1 910	34 540	-	7 030	1 910	41 570
1987	1 110	35 650	-	7 030	1 110	42 680
1988	1 460	37 110	-	7 030	1 460	44 140
1989	1 110	38 220	-	7 030	1 110	45 250
1990	1 300	39 520	-	7 030	1 300	46 550
1991	1 270	40 790	-	7 030	1 270	47 820
1992	1 400	42 190	-	7 030	1 400	49 220
1993	1 930	44 120	-	7 030	1 930	51 150
1994	2 300	46 420	-	7 030	2 300	53 450
1995	1 530	47 950	-	7 030	1 530	54 980
1996	1 560	49 510	-	7 030	1 560	56 540
Totals	49 510	49 510	7 030	7 030	56 540	56 540

APPENDIX 3
AREA OF STATE-OWNED CONIFEROUS PLANTATIONS AS AT 31-12-96

Planting Year	Pinus Radiata			Pinaster & Other Species			All Species	
	First Rotation (ha)	Replanted Areas (ha)	Cumulative Total (ha)	First Rotation (ha)	Replanted Areas (ha)	Cumulative Total (ha)	Year Total (ha)	Cumulative Total (ha)
<1959	429	-	429	3 519	7	3 526	3 955	3 955
1959	77	-	506	261	-	3 787	338	4 293
1960	102	-	608	315	-	4 102	417	4 710
1961	96	-	704	450	-	4 552	546	5 256
1962	148	-	852	394	-	4 946	542	5 798
1963	139	-	991	304	-	5 250	443	6 241
1964	324	-	1 315	579	9	5 838	912	7 153
1965	356	-	1 671	454	-	6 292	810	7 963
1966	468	-	2 139	776	-	7 068	1 244	9 207
1967	765	-	2 904	929	-	7 997	1 694	10 901
1968	745	-	3 649	1 269	-	9 266	2 014	12 915
1969	971	-	4 620	1 547	2	10 815	2 520	15 435
1970	990	-	5 610	1 384	-	12 199	2 374	17 809
1971	926	-	6 536	866	-	13 065	1 792	19 601
1972	1 019	-	7 555	686	-	13 751	1 705	21 306
1973	1 238	36	8 829	520	-	14 271	1 794	23 100
1974	1 360	2	10 191	333	-	14 604	1 695	24 795
1975	1 293	-	11 484	1 239	-	15 843	2 532	27 327
1976	1 460	-	12 944	1 124	-	16 967	2 584	29 911
1977	1 330	4	14 278	864	-	17 831	2 198	32 109
1978	1 963	10	16 251	469	-	18 300	2 442	34 551
1979	1 397	368	18 016	556	-	18 856	2 321	36 872
1980	1 515	12	19 543	899	-	19 755	2 426	39 298
1981	1 370	113	21 026	894	5	20 654	2 382	41 680
1982	1 422	75	22 523	480	6	21 140	1 983	43 663
1983	1 339	48	23 910	700	-	21 840	2 087	45 750
1984	1 867	3	25 780	511	8	22 359	2 389	48 139
1985	1 697	124	27 601	516	2	22 877	2 339	50 478
1986	1 064	-	28 665	628	-	23 505	1 692	52 170
1987	1 490 (735)	152	30 307 (735)	669	85	24 259	2 396 (735)	54 566 (735)
1988	1 877 (1 436)	119	32 303 (2 171)	221	-	24 480	2 217 (1 436)	56 783 (2 171)
1989	893 (330)	466	33 662 (2 501)	-	43	24 523	1 402 (330)	58 185 (2 501)
1990	773 (630)	368	34 803 (3 131)	-	5	24 528	1 146 (630)	59 331 (3 131)
1991	1 263 (1 185)	537	36 603 (4 316)	5	17	24 550	1 822 (1 185)	61 153 (4 316)
1992	1 787 (1 779)	568	38 958 (6 095)	13	342	25 905	2 710 (1 779)	63 863 (6 095)
1993	757 (690)	993	40 708 (6 785)	22	280	25 207	2 052 (690)	65 915 (6 785)
1994	405 (406)	670	41 783 (7 191)	-	182	25 389	1 257 (406)	67 172 (7 191)
1995	71 (71)	1 132	42 986 (7 262)	266 (266)	136	25 791 (266)	1 605 (337)	68 777 (7 528)
1996	7	1 252	44 245 (7 262)	695 (695)	27	26 513 (961)	1 981 (695)	70 758 (8223)
TOTAL	37 193 (7 262)	7 052	44 245 (7 262)	25 357 (961)	1 156	26 513 (961)	70 758 (8 223)	70 758 (8 223)

Areas shown in brackets have been established under sharefarm agreements. They are included in the totals.

**APPENDIX 4
AREA OF STATE-MANAGED BROADLEAVED PLANTATIONS
AS AT 31-12-96**

PLANTING YEAR	CALM-OWNED		CALM-MANAGED		TOTAL			
	<i>E. globulus</i> (ha)	Other Eucs. (ha)	Owned by other Govt.	Privately owned	Year Total		Cumulative Total	
			<i>E. globulus</i> (ha)	<i>E. globulus</i> (ha)	<i>E. globulus</i> (ha)	Other Eucs. (ha)	<i>E. globulus</i> (ha)	Other (ha)
<1987	29	6 516 (0)	502	0	531	6 516	531	6 516
1987	0	67 (0)	58	0	58	67	589	6 583
1988	1 558 (1 554)	23 (0)	24	0	1 582	23	2 171	6 606
1989	3 058 (3 042)	32 (14)	25	0	3 083	46	5 254	6 652
1990	600 (546)	24 (0)	83	45	728	24	5 982	6 676
1991	670 (666)	68 (0)	138	24	832	68	6 814	6 744
1992	1 020 (1 011)	5 (2)	97	32	1 149	7	7 963	6 751
1993	262 (237)	0 (0)	139	1 411	1 811	0	9 775	6 751
1994	150 (150)	0 (0)	54	1 751	1 955	0	11 730	6 751
1995	176 (173)	0 (0)	4	3 460	3 640	0	15 370	6 751
1996	94 (94)	1 (1)	0	6 210	6 304	2	21 674	6 753
Total	7 617 (7 473)	6 736 (17)	1 124	12 933	21 674	6 753	21 674	6 753

Plantation areas have been adjusted to account for areas harvested, replanting and renegotiations of plantation boundaries. Areas in brackets have been established under sharefarm agreements. They are included in the total.

**APPENDIX 5
TRENDS IN LOG PRODUCTION**

Year Ended 30 June	HARDWOOD			SOFTWOOD			TOTAL		
	Crown Land	Private Property	Total	Crown Land	Private Property	Total	Crown Land	Private Property	Total
	(m ³)	(m ³)	(m ³)	(m ³)	(m ³)	(m ³)	(m ³)	(m ³)	(m ³)
1829-1916*									18 783 700
1917-1969							46 841 700	15 844 500	62 686 200
1970	1 040 100	174 170	1 214 270	81 280	1 500	82 780	1 121 380	175 670	1 297 050
1971	1 058 910	160 400	1 219 310	86 250	1 590	87 840	1 145 160	161 990	1 307 150
1972	1 005 480	105 680	1 111 160	90 760	1 310	92 070	1 096 240	106 990	1 203 230
1973	959 940	101 980	1 061 920	100 420	1 010	101 430	1 060 360	102 990	1 163 350
1974	961 070	90 710	1 051 780	123 390	1 170	124 560	1 084 460	91 880	1 176 340
1975	967 270	87 890	1 055 160	129 090	60	129 150	1 096 360	87 950	1 184 310
1976	1 089 100	111 760	1 200 860	105 570	-	105 570	1 194 670	111 760	1 306 430
1977	1 308 630	106 520	1 415 150	120 860	330	121 190	1 429 490	106 850	1 536 340
1978	1 319 910	118 030	1 437 940	125 550	1 680	127 230	1 445 460	119 710	1 565 170
1979	1 312 570	123 540	1 436 110	176 940	6 130	183 070	1 489 510	129 670	1 619 180
1980	1 390 660	160 240	1 550 900	191 360	4 830	196 190	1 582 020	165 070	1 747 090
1981	1 391 960	158 980	1 550 940	201 550	2 990	204 540	1 593 510	161 970	1 755 480
1982	1 218 750	112 990	1 331 740	173 480	14 830	188 310	1 392 230	127 820	1 520 050
1983	1 049 180	97 290	1 146 470	176 620	5 650	182 270	1 225 800	102 940	1 328 740
1984	1 134 760	131 360	1 266 120	198 280	3 560	201 840	1 333 040	134 920	1 467 960
1985	1 290 010	169 930	1 459 940	225 950	18 040	243 990	1 515 960	187 970	1 703 930
1986	1 331 830	127 010	1 458 840	247 640	29 120	276 760	1 579 470	156 130	1 735 600
1987	1 338 700	158 860	1 497 560	266 770	24 830	291 600	1 605 470	183 690	1 789 160
1988	1 427 620	174 520	1 602 140	302 450	31 160	333 610	1 730 070	205 680	1 935 750
1989	1 432 530	135 380	1 567 910	318 530	56 750	375 280	1 751 060	192 130	1 943 190
1990	1 319 250	80 560	1 399 810	312 520	105 860	418 380	1 631 770	186 420	1 818 190
1991	1 170 230	116 580	1 286 810	301 250	85 640	386 890	1 471 480	202 220	1 673 700
1992	1 247 730	120 560	1 368 290	363 420	85 410	448 830	1 611 150	205 970	1 817 120
1993	1 258 250	116 070	1 374 320	412 540	94 660	507 200	1 670 790	210 730	1 881 520
1994	1 261 130	88 940	1 350 070	509 390	115 220	624 610	1 770 520	204 160	1 974 680
1995	1 406 840	102 340	1 509 180	578 850	146 710	725 560	1 985 690	249 050	2 234 740
1996	1 359 230	134 300	1 493 530	564 290	211 150	775 440	1 923 520	345 450	2 268 970
1997	1 308 140	104 760	1 412 900	586 950	176 880	763 830	1 895 090	281 640	2 176 730

* Estimated

**APPENDIX 6
TREND IN CHIPLOG PRODUCTION FROM NATIVE AND PLANTATION FORESTS**

Year Ended 30 June	CROWN LAND							Total Private Property (m ³)	Combined Crown land & Private Property (m ³)	Percentage Private Property to Total (%)
	Sawmill (t)	Residue Branchwood (t)	Subtotal (t)	Marri (m ³)	Bolewood + Branchwood Karri (m ³)	Other (m ³)	Total Crown land (m ³)			
cumulative* total:	1 711 215	68 278	1 779 493	6 667 278	2 164 279	5 150	8 836 707	1 020 104	9 856 811	10.3
1994	82 684	5 690	88 374	405 111	164 949		570 060	74 395	644 455	11.5
1995	91 410	10 251	101 661	505 655	166 919	2 076	674 650	92 219	766 869	12.0
1996	72 666	34 498	107 164	492 484	161 206	13 519	667 209	119 104	786 313	15.1
1997	69 544	14 663	84 207	449 439	160 749	6 729	616 917	93 574	710 491	13.2%
Total	2 027 519	133 380	2 160 899	8 519 967	2 818 102	27 474	11 365 543	1 399 396	12 764 939	11.0%

* 1976 to 1993 inclusive

Note: figures include native hardwood and plantation hardwood chiplogs

**APPENDIX 7
TRENDS IN THE PRODUCTION AND USE OF SAWN TIMBER**

Year Ended 30 June	Sawn Production		Total (m ³)	Overseas Timber Exports (m ³)	Apparent Local Use (m ³)
	Hardwood (m ³)	Softwood (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	273 584	N/A	N/A
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	9 356	309 296
1989	289 665	53 240	342 905	12 965	329 940
1990	265 587	56 962	322 549	20 035	302 514
1991	222 125	41 264	263 389	13 220	250 169
1992	216 673	42 703	259 376	19 936	239 440
1993	230 945	65 564	296 509	16 644	279 865
1994	256 112	86 657	342 769	18 119	324 650
1995	264 390	124 070	388 460	20 346	368 114
1996	244 135	124 698	368 833	18 589	350 244

Source of export statistics: Australian Bureau of Statistics

APPENDIX 8
TRENDS FOR W.A. OVERSEAS IMPORTS AND EXPORTS OF FOREST PRODUCE

Year Ended 30 June	Timber and Wood Manufacture		Essential Oils and Tannin	
	Imports (\$)	Exports (\$)	Imports (\$)	Exports (\$)
1970	10 968 170	9 568 246	447 015	317 553
1971	6 761 806	6 914 644	279 188	343 512
1972	5 578 819	8 809 273	371 749	348 762
1973	8 326 939	9 640 753	592 249	337 736
1974	11 738 861	11 136 170	691 723	433 627
1975	14 053 751	9 212 370	1 107 743	479 019
1976	19 960 421	10 816 236	504 846	214 918
1977	24 857 792	10 355 198	642 962	45 767
1978	24 039 952	13 434 413	913 289	41 422
1979	18 200 508	18 682 636	614 676	61 525
1980	26 801 716	12 857 407	643 045	255
1981	28 691 997	13 746 212	512 254	2 361
1982	26 068 548	11 270 550	572 629	NIL
1983	23 738 070	9 930 788	342 276	300
1984	N/A	N/A	N/A	N/A
1985	37 871 360	7 524 771	460 064	2 099
1986	37 858 904	7 875 694	403 522	318
1987	47 950 173	5 164 413	559 085	N/A
1988	52 762 401	6 386 708	N/A	N/A
1989	38 419 979	7 335 552	630 776	N/A
1990	41 600 052	9 674 191	476 152	N/A
1991	25 301 336	8 915 635	379 765	N/A
1992	29 877 000	15 417 000	681 000	N/A
1993	35 873 000	14 391 000	658 000	N/A
1994	44 095 000	20 091 000	858 000	N/A
1995	53 451 000	25 648 000	740 000	1 400
1996	42 734 000	26 220 000	523 000	3 000

Source: Australian Bureau of Statistics

Note: The 1995 values of imports and exports for timber and wood manufacture have been amended to include wooden furniture).

APPENDIX 9
OFFENCES UNDER THE CALM ACT AND FOREST MANAGEMENT REGULATIONS

Charges	Offences Investigated	Letter of Warning	Prosecutions Pending
CONSERVATION AND LAND MANAGEMENT ACT			
Without authority cut and removed forest produce	30	19	11
FOREST MANAGEMENT REGULATIONS			
Without authority fell a tree marked for retention	1		1
Without authority took a potential carrier into a disease risk area	31	20	11
Failed to comply with a disease risk area signpost or gate	3		3
Removed log timber without a completed log delivery note	1		1
Failed to ensure an original and 3 copies of a log delivery note were made	1		1
Without authority had possession of a firearm	5	1	4
Unregistered person employed in the timber industry	2	2	-
Operated a potential carrier in contravention of conditions in DRA	6	5	1
Totals	80	47	33

**APPENDIX 10
AREA OF PRESCRIBED BURNS 1994-95 TO 1996-97**

	1994-95	1995-96	1996-97
Indigenous Vegetation - Hand Burning (ha)			
State forest			
• handburns	9 413	25 961	11 468
• clearing burns	-	-	-
National parks	5 579	28 611	31 866
Nature reserves	235	7 048	12 735
Other Crown land and private property	-	3 580	4 040
Total	15 227	65 200	60 109
Indigenous Vegetation - Aerial Burning (ha)			
State forest	133 597	126 825	112 695
National parks	37 386	38 023	110 434
Nature reserves	15 579	91 830	16 955
Other Crown land and private property	23 881	-	97 750
Total	210 443	256 678	337 834
Indigenous Vegetation - Silviculture Burning (ha)			
• Jarrah	26 801	32 212	43 752
• Karri	1 516	2 144	1 845
• Wandoo	1 300	-	-
Total	29 617	34 356	45 597
Softwood Plantation - Burning (ha)			
State forest			
• fuel reduction	5 313	6 909	4 712
• second rotation clearing burns	246	66	949
Total	5 559	6 975	5 661
Grand Total	260 846	363 209	449 201

**APPENDIX 11
WILDFIRES 1994-95 TO 1996-97
NUMBER AND AREA BY LAND CATEGORY
NUMBER AND PERCENT BY CAUSE**

	Number			Area Burnt (ha)		
	1994-95	1995-96	1996-97	1994-95	1995-96	1996-97
State forest						
• native hardwood	198	121	76	10 461	2 978	5 675
• softwood plantation	73	96	39	1 160	349	70
National parks	65	45	50	17 977	184 199	110 241
Nature reserves	26	23	16	44 036	65 900	26 774
Other Crown lands	90	66	51	21 018	143 638	8 183
Private property	131	83	61	7 040	3 835	17 250
Total	583	434	293	101 692	400 899	168 192

CAUSES

	Number			Per cent		
	1994-95	1995-96	1996-97	1994-95	1995-96	1996-97
Deliberately/illegally lit	220	145	85	38	33	29
Escapes—CALM burns	22	22	12	4	5	4
Escapes—other burning	49	47	20	8	11	7
Accidental—timber industry	7	4	1	1	1	0
Accidental—other industries	39	21	23	7	5	8
Accidental—recreationists	33	26	27	6	6	9
Lightning	75	50	38	13	12	13
Unknown	107	83	67	18	19	23
Other causes	31	36	20	6	8	7
Total	583	434	293	100	100	100

**APPENDIX 12
PURPOSES FOR PRESCRIBED BURNING BY FOREST REGION FOR 1996-97**

Dominant purpose	Region	Winter		Spring		Summer		Autumn		Years since last burnt
Fuel reduction*	Swan	4 195		34 680		-		3 990		9 -14
	Central Forest	533		17 826		-		9 087		6 -14
	Southern Forest	-		36 607		9 500		15 936		6 -14
			4 728		89 113		9 500		29 013	
Silviculture **	Swan	-		5 686		-		6 910		5 -12
	Central Forest	-		16 864		-		7 250		6 -9
	Southern Forest	-		6 702		1 105		1 080		5 -26
			-		29 252		1 105		15 240	
Nature *** Conservation	Swan	-		3 925		-		1 940		10
	Central Forest	-		-		-		-		N/A
	Southern Forest	-		2 560		-		900		10 -20
			-		6 485		-		2 840	
Tourism and Recreation	Swan	-		1 113		-		30		11 -15
	Central Forest	-		70		-		-		11
	Southern Forest	-		15 510		1 218		5 389		8 -26
			-		16 693		1 218		5 419	
Grand Total (ha)			4 728		141 543		11 823		52 512	

Notes * Fuel reduction burning also protects nature conservation values.

** Years since last burnt applies to jarrah silviculture only.

*** Nature conservation burning also provides community protection benefits.

Data supplied pursuant to the Minister's Statement (24.12.92) under the Environmental Protection Act (1986) that the proposed amendments to the 1987 Forest Regional Management Plan and Timber Strategy may proceed.

**APPENDIX 13
NUMBER OF PRESCRIBED BURNS CONDUCTED IN NATIVE FORESTS
WITHIN FOREST REGIONS IN EACH SEASON FOR VARIOUS PURPOSES—1996-97**

Dominant purpose	Region	Winter		Spring		Summer		Autumn		No. of escapes
		Aero	Hand	Aero	Hand	Aero	Hand	Aero	Hand	
Fuel reduction*	Swan	9	25	14	24	-	-	-	3	2
	Central Forest	-	5	8	9	-	-	2	3	-
	Southern Forest	-	-	12	-	3	-	6	9	2
			9	30	34	33	3	-	8	9
Silviculture	Swan	-	-	3	-	-	-	2	1	3
	Central Forest	-	-	8	1	-	-	3	2	-
	Southern Forest	-	-	6	10	1	15	-	14	2
			-	-	17	11	1	15	5	17
Nature Conservation	Swan	-	-	-	2	-	-	-	2	1
	Central Forest	-	-	-	-	-	-	-	-	-
	Southern Forest	-	-	1	-	-	-	-	1	-
			-	-	1	2	-	-	3	1
Tourism and Recreation	Swan	-	-	1	3	-	-	-	3	-
	Central Forest	-	-	-	1	-	-	-	-	-
	Southern Forest	-	-	4	1	1	1	1	2	1
			-	-	5	5	1	1	1	5
Total		9	30	57	51	5	16	14	34	11
Aero Burns (% by season)		11		67		6		16		
Hand Burns (% by season)			23		39		12		26	

* Fuel reduction burning also protects nature conservation values.

Data supplied pursuant to the Minister's Statement (24.12.92) under the Environmental Protection Act (1986) that the proposed amendments to the 1987 Forest Regional Management Plan and Timber Strategy may proceed.

**APPENDIX 14
AREA AND NUMBER OF WILDFIRES WITHIN
THE THREE FOREST REGIONS—1996-97**

Region		State forest native hardwood	State forest softwood plantation	National parks	Nature reserves	Crown lands and private property	Total
Swan	Area (ha)	503	44	1 402	395	10 593	12 936
	Number	39	31	17	2	59	148
Central Forest	Area (ha)	684	26	5	15	161	892
	Number	24	8	3	1	15	51
Southern Forest	Area (ha)	4 489	-	16	-	110	4 615
	Number	13	-	2	-	6	21
Totals	Area (ha)	5 676	70	1 423	410	10 864	18 443
	Number	76	39	22	3	80	220

**APPENDIX 15
WILDLIFE LICENCES ISSUED IN 1995-96**

Fauna Licences	Licences Issued	Fauna Licences (Cont.)	Licences Issued
SCIENTIFIC		KANGAROO	
Scientific Collection (Reg 17)	325	Take Kangaroos for sale (Reg 6)	202
Bird/Bat Banding (Reg 23)	159	Deal in carcasses (Reg 8)	26
		Skin Dealing (Reg 10)	22
EDUCATION & PUBLIC (to take) (Reg 15)	284	Processing (Reg 7)	24
		EXPORTS INTERSTATE	
EDUCATION & PUBLIC (to hold) (Reg 16)	123	Skins of fauna (or other dead fauna)	121
		Fauna (live) other than emus	266
			387
AVIAN FAUNA		EXPORT OVERSEAS	
Keep & breed in captivity (Reg 12)	3 683	Skins of fauna (or other dead fauna) from WA	221
Deal (Reg 13)	65	Emu eggs or products (personal items) from WA	19
Breed for Commercial Purposes (Reg 14)	2	Fauna (avian) from WA (live)	13
Trap (Reg 11)	4		253
		IMPORTS INTERSTATE	
FAUNA		Skins of fauna (or other dead fauna) into WA	12
Keep in Captivity (Reg 12A)	155	Australian fauna (live)	442
		Live exotic birds and other animals	257
			711
EMUS		Flora Licences	
Emu Farming (Reg 14)	87	COMMERCIAL PURPOSES	592
Dealing (Reg 8)	4	COMMERCIAL PRODUCERS	511
Dealing (Emu eggshells Reg 13)	20	SCIENTIFIC/PREScribed PURPOSES	917
Skin Dealing (Reg 10)	1	PERMITS TO TAKE DECL. RARE FLORA	78
Processing (Reg 7)	13		2 098
CROCODILES			
Crocodile Farming (Reg 14)	3		
Processing (Reg 7)	3		

**APPENDIX 16
AVIAN FAUNA TRAPPED COMMERCIALY UNDER WILDLIFE
CONSERVATION REGULATION 11 LICENCES ISSUED IN 1996-97**

Species Trapped Commercially	Number taken
Twenty-eight Parrot	720
Red-capped Parrot	175
Western Rosella	218
Galah (E. States ssp.)	61
Red-brownd finch	33

APPENDIX 17
SUMMARY OF DAMAGE LICENCES ISSUED IN 1996-97

	No. of Licences Issued	Total No. of Each Species Authorised to be Taken		No. of Licences Issued	Total No. of Each Species Authorised to be Taken
WATERFOWL			OTHER AVIAN FAUNA		
Wood Duck	15	517	Australian Raven	24	166
Black Duck	6	345	Long-billed Corella	2	10 + 100 trap
Coots	1	250	Wedge-tailed Eagle	1	Scare only
Sacred Ibis	1	Scare only	Galah	3	75
Mountain Duck	1	Scare only	Little Corella	5	125
Cormorant	8	22 + scare only	Tawny-crowned Honeyeater	1	(trap/relocate)
EMUS	13	425	Kookaburra	1	Scare only
DANGEROUS FAUNA			Silvereye	2	30
Magpie	89	105	Silver Gull	8	2 670 + 50 eggs
Salt Water Crocodile	4	5	Twenty Eight Parrot	12	310
Butcher Bird	1	1	Welcome Swallow	5	95 (trap/relocate)
MAMMALS			Western King Parrot	1	10
Australian Sea-lion	1	Scare Only	White-tailed Black Cockatoo	12	Scare only
New Zealand Fur Seal	1	Scare Only	Red-tailed Black Cockatoo	1	Scare only
Long-haired Rat	1	No set quota			

APPENDIX 18
OFFENCES UNDER THE WILDLIFE CONSERVATION ACT AND REGULATIONS

Charges	Recomm'd Charges	Con-victions	Fines \$	Cost \$	Dismissed	Letter of Warning	No. Further Action	Pending
WILDLIFE CONSERVATION ACT								
Use of illegal devices in taking fauna.	3	0	0	0	0	0	0	3
Illegal taking or possession of protected fauna.	47	5	1 200	225	1	9	5	27
Illegal importation, selling or taking for sale of fauna.	13	0	0	0	0	3	2	8
Offences relating to the taking or possession of rare or threatened fauna.	18	0	0	0	0	1	0	17
Illegal taking of protected flora.	109	6	2 500	1 400	0	17	18	68
Offences relating to the sale of protected flora.	33	1	0	0	0	6	1	25
Taking declared rare flora without the Minister's consent.	10	0	0	0	0	2	0	8
Offences against wildlife officers.	4	0	0	0	0	0	0	4
Failing to comply with licence conditions.	18	0	0	0	0	3	2	13
WILDLIFE CONSERVATION REGULATIONS								
Offences relating to the possession, control and disposal of avian fauna.	8	0	0	0	0	0	5	3
Offences relating to activities on Nature Reserves.	17	0	0	0	0	2	6	9
TOTALS	280	12	3 700	1 625	1	43	39	185

APPENDIX 19
PUBLICATIONS PRODUCED IN 1996–97

GENERAL

A Commitment to Customer Service (leaflet)
Annual Report of the Department of Conservation and Land Management 1995–96
CALM Internal Telephone Directory 1997
CALM Book News (leaflet, 4 issues)
CALM News (newspaper, 7 issues)
CALMScience Vol 2 No 2 (journal)
Christmas Catalogue 1996
Employee Information (leaflet)
Esperance Lakes Nature Reserve—Draft Management Plan 1997
Gnangara Park (newspaper)
How You can be Involved in the Recreational Fitness Agreement in WA (booklet)
LANDSCOPE advertising insert (numerous)
LANDSCOPE Calendar 1997
LANDSCOPE Expeditions Program 1997
LANDSCOPE Expedition Reports (6 issues)
LANDSCOPE Magazine (4 issues)
National Parks and Nature Conservation Authority Annual Report 95–96
Perth Observatory (Leaflet)
The Internet and the CALM Web: Policy and Procedures Manual
Training and Development Manual '97

NATURE CONSERVATION

Animals of Shark Bay—Bush Book
Aviary Birds—Information Sheet 1–96
Common Plants of the Pilbara (Bush Book)
Conservation of Threatened Species and Ecological Communities—CALM Briefing Paper 1/96
Crocodiles (leaflet)
Dryandra Woodland Ecology Course (leaflet)
Dryandra Woodland Ecology Course (poster)
Experience Whale Sharks in Ningaloo (leaflet)
Geology and Landforms of the Kimberley—Bush Book
Interim Recovery Plans 4–16 for Western Australian Critically Endangered Plants and Animals (report)
Land for Wildlife (leaflet)
Nuytsia Vol 2 No 1 1996 (journal)
Operation Western Shield (leaflet)
Operation Western Shield Action Pack (education kit)
Operation Western Shield Newsletter (2 issues)
Project Eden (Newsletter)
Return to Eden (leaflet)
Threatened Plant Communities on the Swan Coastal Plain (leaflet)
Watching Whales (leaflet)
Whale Watching Log Book
Whalesharks in Ningaloo Marine Park (leaflet)
Western Shield Speaker's Kit
Wildflowers of the South Coast—Bush Book
Wildlife Notes Nos 1, 2 and 3 (leaflets)

TOURISM AND RECREATION

Bibbulmun Track Project (leaflet)
Building a Better Bibbulmun Track (leaflet)
Carnac Island (leaflet)
Coastal Plain Walk Trail (leaflet)
Coastal Plain Walk Trail (flyer)
Coorow—Midwest Wildflowers (leaflet)
Coorow Shire — Leseur Area (leaflet)
Discovering Nambung National Park (book)
Discovering Shark Bay Marine Park (book)

Discovering Yanchep National Park (book)
Exploring the Hills Forest (leaflet)
Exploring Woodlands with Nyoongars (leaflet)
Family Walks in Perth Outdoors (book)
Forestdale Lake Nature Reserve (leaflet)
Forest Trees Drive (booklet)
Forest Walk 96 (leaflet)
Geikie Gorge National Park Darnngku Heritage Cruise (flyer)
Geikie Gorge National Park Darnngku Heritage Cruise (poster)
Go Bush (leaflet)
Go Bush—Native Animal Encounters (leaflet)
Go Bush Gets Adventurous (leaflet)
Golden Valley Tree Park (leaflet)
Jarrahdale Parks and Forests (leaflet)
John Forrest National Park (leaflet)
Kalbarri National Park (leaflet)
Karijini National Park (leaflet)
LANDSCOPE Wilderness Survival Card
Lesueur National Park (leaflet)
Monkey Mia (leaflet)
Nambung National Park (leaflet)
National Parks (leaflet)
North West Bound (book)
One Hundred Years of Stargazing (leaflet)
People in CALM Places (booklet)
Porongurup National Park (leaflet)
Purnululu National Park Self Registration (tags and envelope)
Shannon National Park (leaflet)
Shark Bay (booklet)
Shark Bay Visitor's Guide (booklet)
Stars and Telescopes (leaflet)
Swan Estuary Marine Park (leaflet)
Touring Western Australia (newsletter, 4 issues)
Visitor Interpretation Manual
WA Naturally (leaflet)
Welcome to Forest Walk '96 (ticket)
Win a Night Out With the Woylies, Possums or Wallabies (flyer)
Yanchep National Park (leaflet)
Yanchep National Park visitor Guide

FOREST RESOURCES MANAGEMENT

A Forest is a Very Busy Place (school kit)
Arbor Day Poster 1997
Catchment Carers Trail 1997 (flyer)
Code of Practice for Timber Harvesting in Western Australia (report)
Code of Practice for Timber Plantations in Western Australia (report)
Creative Workshops Inspired By the Jarrah Forest (leaflet)
Fighting Fire with Fire (leaflet)
Have Your Say on the WA Regional Forest Agreement (flyer)
In Search of the Perfect Pine (leaflet)
Lower West Sharefarms (folder)
Lower West Sharefarms—Branch out with CALM (booklet)
Maritime Pine Sharefarm (letterhead)
Review of Dieback No 1 (report)
Saving the Giants (leaflet)
Seasoned with Fire (leaflet)
Sharefarm folder
Sharefarm folder (inserts)
Sharefarmers (leaflet)
South Coast Sharefarms (folder)
South West Sharefarms—Branch out with CALM (booklet)
Specialty Timbers of the Goldfields (leaflet)
The Tree Grower's Information Kit

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