



Annual Report 2000–2001

Department of Conservation and Land Management

OUR VISION

A natural environment in Western Australia that retains its biodiversity and enriches people's lives.

OUR MISSION

In partnership with the community, we conserve Western Australia's biodiversity, and manage the lands and waters entrusted to us, for the appreciation and benefit of present and future generations.

OUR VALUES

In working to achieve our Mission, we endeavour to behave with:

- **Honesty and integrity** – acting ethically, legally and treating people with impartiality.
- **Respect** – understanding and respecting individual differences, valuing each other's contribution, and respecting the views and aspirations of co-workers and the community.
- **Openness** – having processes that are transparent and understandable.
- **Commitment** – being responsible, accountable and dedicated in our work.

We will demonstrate:

- **Teamwork** – working collaboratively and cooperatively with co-workers, and in partnership with the community.
- **Leadership** – being progressive, showing initiative and creativity in meeting our objectives.
- **Professionalism** – acting in a professional, courteous and fair manner, and using up-to-date and sound scientific principles and accurate information in our work.
- **Value** – delivering the best possible result for conservation through continual improvement of our efforts.

OUR PRINCIPLES

In making decisions we will be guided by the following principles:

- *The diversity and health of ecological communities and indigenous species throughout WA will be maintained and restored.*
- *Where there are threats of serious or irreversible damage, the lack of full scientific certainty shall not be used as a reason for postponing measures which seek to prevent loss of biodiversity.*
- *Users of the environment and resources will pay fair value for that use.*
- *Use of wildlife will be on the basis of ecological sustainability.*
- *Outcomes will be delivered in the most effective and efficient way.*
- *Cooperation, sharing and integration of resources and knowledge within CALM and between communities and agencies will be promoted.*
- *We will adopt a flexible and responsive approach to management and operations and be receptive to change.*

OUR OBJECTIVES

Conserving Biodiversity – To protect, conserve and, where possible restore, Western Australia's natural biodiversity.

Creating sustainable community benefits – To generate social, cultural and economic benefits through the provision of a range of services that are valued by the community and are consistent with the principles of ecological sustainability.

Maintaining community involvement and support – To develop community awareness and appreciation of the biological and physical diversity natural to Western Australia and promote community involvement in and support for its protection, conservation and restoration.

Improving the way we do business – To foster a positive work culture of trust, continuous improvement and anticipation of biodiversity conservation issues and customer needs, and deliver core business activities in the most effective and efficient manner.

OUR RESPONSIBILITIES

The Department of Conservation and Land Management is part of a greater conservation community and has distinct State government responsibilities within that community. Conservation is a collective role.

We have the lead responsibility for conserving the State's rich diversity of native plants, animals and natural ecosystems, and many of its unique landscapes. On behalf of the people of Western Australia, we manage more than 23 million hectares, including more than 8.8 per cent of WA's land area: its national parks, marine parks, conservation parks, regional parks, State forests and timber reserves, nature reserves, and marine nature reserves.

As an agency with integrated responsibilities, we manage lands and waters for the conservation of biodiversity at ecosystem, species and genetic levels, including management for the renewable resources they provide, and for the recreation and visitor services they can sustainably support.

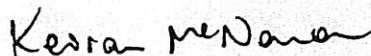
We assist the Conservation and Land Management Act statutory bodies (Conservation Commission, Marine Parks and Reserves Authority, and Marine Parks and Reserves Scientific Advisory Committee) to carry out their statutory functions.

We work closely with the Forests Products Commission to ensure that all activities in State forests and timber reserves are consistent with the protection of community, nature conservation, recreation, cultural, catchment and physical values.

We also contribute to national and international programs through national Ministerial Councils, the Natural Heritage Trust, the work of organisations such as the IUCN (the World Conservation Union), and to the implementation of international conservation treaties in WA.

**HON MINISTER FOR
THE ENVIRONMENT AND
HERITAGE**

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.



Keiran McNamara
ACTING EXECUTIVE DIRECTOR
30 August 2001

CONTENTS

WHAT WE DO	opposite
EXECUTIVE DIRECTOR'S REVIEW	4
HIGHLIGHTS OF THE YEAR	5
OUTPUT 1: NATURE CONSERVATION	10
OUTPUT 2: SUSTAINABLE FOREST MANAGEMENT	21
OUTPUT 3: PARKS AND VISITOR SERVICES	26
OUTPUT 4: ASTRONOMICAL SERVICES	36
GENERAL INFORMATION	38
Regional Activities	38
Specialist and Service Activities	39
CALM Disability Service Plan	40
Organisation Structure	42
Corporate Executive and Other Senior Staff	43
CALM-Managed Lands and Waters (Map, p. 44)	45
Corporate Services	47
CALM <i>fire</i> Management	50
CALM <i>fire</i> Performance Indicators	52
LEGISLATION AND COMPLIANCE	53
PERFORMANCE INDICATORS	55
FINANCIAL STATEMENTS	69
APPENDICES	86



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.

THE OPINIONS OF THE AUDITOR GENERAL APPEAR AFTER THE PERFORMANCE INDICATORS AND THE FINANCIAL STATEMENTS.

EXECUTIVE DIRECTOR'S REVIEW

The Department of Conservation and Land Management has entered the 21st Century with an unequivocal charter to conserve the State's biological diversity.

While this challenge has been a long-standing one for the Department and its predecessors, the creation of the Conservation Commission and transfer of the Department's native forest commercial activities to the new Forest Products Commission in November 2000 have provided the Department with a much clearer focus on its primary activity.

This distinct separation of responsibilities will improve the openness and transparency of the management of the State's conservation estate including national parks and nature reserves, conservation parks, State forests and marine conservation reserves.

The Department has clearly defined the approach it will take to its new mandate through a five-year Corporate Plan that was released in November 2000.

This plan outlines four key strategic directions and objectives. These are:

- **Conserving biodiversity** – to protect, conserve and where possible restore Western Australia's natural biodiversity.
- **Creating sustainable community benefits** – to generate social, cultural and economic benefits through the provision of a range of services that are valued by the community and are consistent with the principles of ecological sustainability.

- **Maintaining community involvement and support** – to develop community awareness and appreciation of the biological and physical diversity natural to Western Australia and promote community involvement in and support for its protection, conservation and restoration.
- **Improving the way we do business** – to foster a positive work culture of trust, continuous improvement and anticipation of biodiversity conservation issues and customer needs, and deliver core business activities in the most effective and efficient manner.

Each of these directions involves a number of strategies through which the Department will achieve its objectives. The Department also has defined a series of yardsticks against which its performance can be measured.


The adoption of this plan reinforces the Department's commitment to working with the community in the conservation and enjoyment of our biodiversity and natural environment.

Changes as a result of the Machinery of Government recommendations accepted by the State Government in June provide further challenges and opportunities. The Department will assume additional conservation and related responsibilities from the Department of Environmental Protection, as well as the BushForever, CoastCare and CoastWest programs from the Ministry for Planning.

The Department also will assume a new identity – proposed legislative changes will mean the Department will become the Department of Conservation.

Staff across all of the Department's activities have embraced the new direction of the Department and the challenges presented by the significant restructuring that has been undertaken.

The commitment of the Department's staff is firmly based on strong partnerships with the community, in particular the several thousand volunteers who freely contribute thousands upon thousands of hours across a wide range of the Department's programs. The assistance from volunteer organisations such as local bush fire brigades and State Emergency Services units is another partnership that makes an invaluable contribution to the Department's efforts to minimise the impacts of wildfires.



Keiran McNamara
ACTING EXECUTIVE DIRECTOR

30 August 2001

HIGHLIGHTS OF THE YEAR

NEW LEGISLATION FOR CALM

New legislation passed through Parliament established a new framework for the conservation and management of the State's biological resources. The *Conservation and Land Management Amendment Act 2000* and the *Forest Products Act 2000* divided the forest harvesting and conservation roles of the Department of Conservation and Land Management and created two new statutory bodies to oversee conservation lands and manage forest products.

A new Conservation Commission of Western Australia replaced the Lands and Forest Commission and the National Parks and Nature Conservation Authority. The State's national parks, conservation parks, nature reserves, State forests and timber reserves are vested in this body - for the first time, all State native forests are part of the conservation estate.

The commercial production of forest products from publicly-managed forests and plantations became the responsibility of the new Forest Products Commission in November 2000. This has totally separated the commercial and conservation responsibilities of the Department in forests and plantations.

The Conservation Commission has its own staff, including an auditing section that monitors the Department's implementation of management plans as well as the harvesting activities by the Forest Products Commission. As part of the State Government's restructuring proposals for the public sector, as detailed in the Machinery of Government Taskforce report, more changes are due to take place in the coming year.

The Department is to be renamed the Department of Conservation and the title of Executive Director will change to Director-General. These changes require amendments to legislation. The Government has also accepted a recommendation of the Department to dispense with the statutory titles of the Directors of Forests, National Parks and Nature Conservation enabling the titles of Directors to be aligned more readily to the outputs of the Department.

Additional conservation related functions are to be given to the Department from other agencies. All conservation management functions currently undertaken by the Department of Environmental Protection are to be transferred to the Department of Conservation. Management functions arising from the Bush Forever and Coastcare/Coast West programs that are currently undertaken by the Ministry for Planning are also to be transferred. This is in line with the Department's significant role in terrestrial and marine conservation management.

Consideration is also being given to transferring the Observatory functions to the WA Museum.

Likewise, consideration is also being given to providing whole-of-portfolio Corporate Services within the Environment and Heritage portfolio. This is being examined by an interagency taskforce on which a Department representative sits.

The additions of these new functions will mean a significant change to the way the Department operates. It will have an unequivocal charter to focus on the conservation of biodiversity.

EVER EXPANDING CONSERVATION ESTATE

Western Australia's conservation network significantly increased in the past year. More than 840,000 ha was added by the creation of a series of new parks and management areas in the Kimberley, Pilbara and Goldfields.

Several of the new parks join existing parks or reserves. The Mitchell River National Park abuts the Prince Regent Nature Reserve creating an overall conservation area of 750,000 ha.

A new conservation park was established in the Pilbara. The Cane River Conservation Park extends over 148,000 ha and includes several landforms and vegetation types of particular significance not found in other conservation reserves in the region.

Other major purchases of pastoral lands for additions to the State's conservation network include Nanga, Lake Mason, Blake Range, Mooka, Cobra, Lorna Glen and part of Yaringa covering more than 884,000 ha.

OLD-GROWTH PROTECTED

Following the State election in February 2001 the incoming Government implemented its policy to immediately end logging in nearly 99% of Western Australia's old-growth forests, proposing for reservation approximately 340,500 ha of the 346,000 ha of remaining old-growth forests, and placing a moratorium on harvesting in the remaining 1% of old-growth forests.

Immediately after the election action was taken to cease timber harvesting in old-growth forests and the Department

None of the 1% placed in moratorium in case it was needed to honour contracts was accessed for timber harvesting.

As part of its forest policy the Government has committed to create 30 new national parks, including the 12 new national parks proposed under the Regional Forest Agreement, and two new conservation parks.

Work also commenced on the preparation, for the Conservation Commission, of a new Forest Management Plan for the forests in the south-west. It is anticipated that the Conservation Commission will release the Draft Forest Management Plan for public comment later in 2001 as part of a major public participation program on forest management being conducted by the Commission.

MORE RAMSAR WETLANDS

Three more of Western Australia's wetlands have been listed under the international Convention on Wetlands, commonly referred to as the Ramsar Convention. The listings also include 12 additions to four existing Ramsar sites.

The new listings are the Becher Point wetlands near Rockingham, Lake Gore near Esperance and the Muir-Byenup complex east of Manjimup. The additions are to the Ord River Floodplain, the Peel-Yalgorup system, Toolibin Lake east of Narrogin and the Vasse-Wonnerup system near Busselton.

The Convention on Wetlands is an international treaty that promotes the conservation of wetlands of international significance and the wise use of wetlands generally. It currently lists 1,038 sites throughout the world covering an area of more than 78 million hectares. Australia, one of the first signatories to the Convention, has 56 listed Ramsar wetlands, of which now 12 are in Western Australia. The Department prepared the nomination document with help from Wetlands International-Oceania. The

Commonwealth Government provided almost \$50,000 through the National Wetlands Program of the Natural Heritage Trust for the project.

Becher Point is one of the youngest wetland systems on the Swan Coastal Plain, formed only in the past 4,500 years, and has particular significance in terms of research interest in the evolution of wetlands.

Lake Gore is habitat for almost one-third of the world's population of hooded plovers and 10% of the global population of banded stilts. It also is a drought refuge for many thousands of other waterbirds.

The Muir-Byenup system includes numerous lakes and swamps and is a natural diversity recovery catchment under the State Salinity Strategy. It is habitat for tens of thousands of waterbirds – more than 51,000 individual birds have been recorded in a single survey – and has almost 650 species of native plants, many of them rare.

MORE MANAGEMENT PLANS

The preparation of management plans is a major part of the Department's activities. Draft management plans are prepared in consultation with local community advisory committees. These draft plans are released for broader community consultation before being adopted by the Conservation Commission of Western Australia and the Minister for the Environment and Heritage.

The conservation and enhancement of Perth's urban bushland received a major boost with the launch of the draft management plan for Herdsman Lake Regional Park – a significant component of Perth's open space system. It is the largest wetland – approximately 400 ha – within Perth's inner metropolitan region and forms the focus of one of Perth's premier urban wildlife sanctuaries.

A new management plan for Rowles Lagoon Conservation Park and the Clear and Muddy Lakes Nature Reserves was released, incorporating both tourism and conservation measures.

Rowles Lagoon is a semi-permanent fresh water lake – within a more extensive lake system network – 65 km north of Coolgardie. It is popular with day-trippers, campers and water sport enthusiasts and is the only Goldfields lake with a gazetted water ski and jet ski area. It also has important nature conservation values and the lake system is included in the Directory of Important Wetlands in Australia. It is under consideration for listing on the Register of the National Estate.

A masterplan for the protection of Wedge and Grey on the coast north of Lancelin was released to guide the redevelopment and future management of the area. It provides the framework for restoring and protecting the sites' conservation values while providing for nature-based recreation and tourism.

An indicative management plan for the proposed marine park at Jurien Bay was released. The plan is part of the overall process to establish a world-class marine conservation network around the State's 12, 500-km coastline. A comprehensive management plan for two coastal parks and an island group off the North West Cape was released. The plan covers the Jurabi and Bundegi coastal parks near Exmouth and the Muiron Island Reserves, 16 km north-east of the cape, all of which represent an important part of conservation and cultural values in the State's northern conservation lands.

GREATER INVOLVEMENT WITH INDIGENOUS PEOPLE

An agreement was signed between the Department and the Goldfields Land Council. This Memorandum of Understanding was part of the process that saw two former Goldfields pastoral

stations – Jaurdi and Mt Elvire pastoral leases – become State forests and nature reserves vested in the Conservation Commission of Western Australia.

The MOU allows the Department and Aboriginal groups to recognise each other's rights and to work co-operatively together. The Department will work with native title claimants on issues relating to joint management and the use of the area for traditional purposes such as hunting and camping.

A similar relationship with the Banyjima, Kurrama and Yinhawangka people saw the development and opening of a \$4 million visitors' centre in Karijini National Park in the Pilbara.

Both partnerships highlight the new direction the Department is taking in respect to Aboriginal involvement in management of the State's conservation estate. The Government plans to further strengthen this through amending the *Conservation and Land Management Act* to include a specific reference to indigenous people and joint management of conservation lands and waters.

WESTERN SHIELD

The wildlife recovery program *Western Shield* continues to progress in leaps and bounds.

The program was significantly helped by the securing of a five-year \$300,000 sponsorship from one of Western Australia's leading mining groups, Tiwest Joint Venture. The funds will be used to aerially fox-bait CALM-managed lands between Lancelin, Jurien Bay and Dandaragan. Included in the area are Nambung and Badgingarra National Parks, and Nilgen and Eneminga Nature Reserves. Tiwest's sponsorship takes the total level of sponsorship received by the *Western Shield* program to around \$1 million.

Corporate sponsorship allowed fauna rehabilitation to continue strongly in many parts of the State throughout the year.

Fifty threatened black-flanked rock wallabies were released in the Avon Valley National Park and the privately owned Paruna Sanctuary. This greatly increased the chance of survival for the species, which currently has a population of around 1000 in the State.

Native fauna was also released on private property without predator-proof fencing. A total of 40 woylies was released onto two Harvey farms as part of the Department's *Land for Wildlife* scheme – a voluntary scheme whereby landowners manage part of their property for nature conservation.

Woylies and chuditch also were released into Kalbarri National Park, which signalled the return of two native mammals to their former range in the State's mid-west.

Sixteen endangered red-tailed phascogales were transported across Western Australian borders to an Alice Springs wildlife park to help set up a captive breeding program for the species, which in the wild now number fewer than 10,000.

Twenty-five western barred bandicoots, from Bernier Island in the World Heritage Listed Shark Bay, were translocated to the Arid Recovery project at Roxby Downs in South Australia. The translocation is the first attempt to re-establish a population outside Western Australia.

The species was also reintroduced into Dryandra Woodland, northwest of Narrogin. For the first time in more than 90 years the marsupial will now exist naturally in the south-west.

The success of reintroductions has seen a dramatic increase in the number of animals. For example, quokkas have

been sighted on farms around Manjimup for the first time in half a century.

The recovery of one of the State's endangered bird species – the Western Bristlebird – was taken a further step with the translocation of seven birds to coastal shrubland near Walpole. The birds joined eight others translocated in a pilot project last year. The aim of the latest translocation is to establish a secure breeding population in areas of the bird's former range.

NEW WILDLIFE INITIATIVES

The Department ensures that wildlife-based activities are licensed in accordance with the *Wildlife Conservation Act 1950* and conducts monitoring and investigations to ensure compliance with legislation and the licences issued.

As part of this program a set of draft regulations was released to provide a framework for a licensing system that would allow native reptiles and amphibians to be kept as pets. The draft regulations, released for public comment, also cover issues such as breeding, selling, trading, capturing, importing and exporting.

As native reptiles and amphibians need special care and facilities when held in captivity, the draft regulations outlined a range of licence categories. These categories also proposed the species that could be kept under a particular licence.

Licences will vary in line with an applicant's experience in handling and caring for reptiles. In some instances, such as the keeping of venomous snakes, applicants will need to hold a lower category licence for several years or have similar experience. They also will have to satisfy conditions in relation to security, and allow their keeping facilities to be inspected before a licence is issued.

The proposals do not cover crocodiles or marine turtles, which will not be considered for private pet keeping. The draft regulations also propose amendments to current arrangements for caring for sick or injured reptiles.

A new rescue system for WA's injured native animals commenced during the year. The Department created the new service - named WILDCARE - so people have an easy way of getting help for animals. Staffed by volunteers at the Department's Kensington offices, the new service runs 24 hours a day, seven days a week, diverting to rostered home telephones after hours and at weekends.

HERBARIUM HITS HIGH NOTE

Western Australia's Herbarium had a number of significant achievements during the year in its quest to protect and conserve the State's native flora.

The number of plants in the State's native plant collection reached the 500,000 mark. The Herbarium's half-millionth specimen – an undescribed species of *Clematis*, or Traveller's Joy – means the Herbarium collection has a flora specimen for every five square kilometres of WA's 2.5 million square kilometres. In the past three years, volunteers from the Department's regional herbaria have contributed more than 10,000 specimens to the WA Herbarium's collection.

Hundreds of thousands of Western Australia's native plant seeds were delivered to the Royal Botanic Gardens, Kew, in the United Kingdom as part of a worldwide project to store seeds as insurance against plant extinctions. This delivery was part of the Millennium Seed Bank project for flora conservation, which involves the collection and storage of seeds from 24,000 species around the world. In the next 10 years, seeds from 1000 species will come from WA, which is recognised as being one of the world's

biodiversity hotspots. The main aim of the Millennium Seed Bank is to collect and conserve 10% of the world's seed-bearing plants by 2010.

A plant believed to have been extinct for more than 150 years was rediscovered in Western Australia's Wheatbelt. *Frankenia parvula* (Drummond's frankenia) was first collected in 1847 by State botanist James Drummond near Kellerberrin. There had been no official records of it since then. As a result of the discovery the number of plants presumed extinct has fallen to 16 compared with 53, 10 years ago.

A seven-year project to catalogue the State's vascular plants culminated in the release of Western Australian Flora – A Descriptive Catalogue. Every plant species known to exist in Western Australia is described in the catalogue.

NATURE-BASED TOURISM STRIDES AHEAD

Facilitating greater recreation opportunities for people visiting the State's conservation areas is a key priority for the Department. The proposed \$2 million tourist icon development in the karri forest between Nannup and Manjimup was taken a further step forward with the selection of a proposal for a sky-jetty high above the forest floor in the Donnelly River Valley.

Visitor facilities were greatly enhanced with the opening of a million-dollar visitor centre with million-dollar views at Monkey Mia in Shark Bay. The views are also beamed to the world via the Department's Internet site (www.naturebase.net) from a Dolphin Camera giving computer users the opportunity to view the famous Monkey Mia dolphins. Positioned at the edge of the beach overlooking the dolphins, the new Monkey Mia Visitor Centre will host 100,000 visitors a year with numbers expected to grow.

A \$4 million visitors' centre opened in Karijini National Park in the Pilbara. A joint project of the Karijini Park Council, the Pilbara Development Commission and the Department, the centre was another example of involving the State's indigenous people in the management of one of the State's major natural attractions.

WINNING AWARDS

The reputation of Western Australia's Valley of the Giants Tree Top Walk was further recognised when it was judged the most significant regional attraction in the national tourism awards. The Tree Top Walk is a 600 metre-long walkway that takes people 40 metres above the ground into the tingle tree canopy near Walpole on the State's south coast.

The Department's communication program, based on the CALMWeb intranet site, won a Golden Award for Excellence in Communications and Public Relations conducted by the International Public Relations Association. The Award was won for excellence in the employee relations' category, which attracted more than 70 entries worldwide.

The Department's Corporate Information Section received the inaugural J Eddis Linton Award for outstanding group contribution to the records management profession.

CALMFIRE HEADS TO THE US

Six Department of Conservation and Land Management officers crossed the Pacific to help tackle one of the United States' biggest wildfires. The six were part of an 82-strong Australian and New Zealand contingent which spent five weeks managing the worst United States forest fires in 50 years.

The Department's fire officers were based in one of the worst hit areas in northwest Montana. The uncontrolled fires raged across 13 States, burned

more than 2.7 million hectares of forests and tragically killed 11 people.

The knowledge gained and lessons learned during the United States' fires will open further opportunities for future exchanges of personnel during wildfire emergencies and other fire management activities.

Back at home, Western Australia's aerial fire fighting operations were expanded to cover the south-west, Great Southern, Avon Valley and Northern Sandplains. The expansion was part of a new contract that had been signed with Dunn's Aviation to provide five water bombers between December and April each year.

The Department's Fire Officers had a busy year on the wildfire front. The Nuyts Wilderness area of the Walpole-Nornalup National Park remained closed for several days following a wildfire that burned through 2,700 ha. The wildfire was contained by the efforts of officers from the Department's Blackwood, Pemberton and Manjimup offices.

Department fire crews also battled two big wildfires over six days in Stirling Range National Park north of Albany. The two fires, caused by lightning strikes, burned through more than 30,000 hectares.

PUBLIC PARTICIPATION

Building partnerships with the community and promoting wider public involvement with the Department in the prevention and solution of conservation and land management problems continued to be a priority for the Department.

The Department developed a public participation strategy to ensure its efforts to work in partnership with the community are as effective and efficient as possible. Public participation is a practical way of involving the community in the Department's activities and helps the community understand the Department's responsibilities.

In 2000, the Department released a Public Participation Manual to provide guidelines for staff about the best ways of involving the community in activities. The manual will evolve over time, taking into account feedback from staff and the community. Prior to the development of this manual, both staff and community feedback indicated there was a need to improve the way in which the public participated in the Department's activities.

Six two-day workshops have been held to familiarise staff with the public participation strategy and manual, and to equip them with skills and understanding to work with the community effectively. One hundred and thirty four staff (10% of them from the Forest Products Commission) attended these workshops.

The recommendation to establish an internal public participation reference group, for staff to seek advice and share experiences with their colleagues, has been accepted. The reference group will be convened later this year.

ECO-EDUCATION

Eco-education school programs were run for more than 18,000 students and

teachers at The Hills Forest Discovery Centre in Mundaring and at the Wellington Discovery Forest in the Bunbury/Collie area. Designed to teach youth about the need for and complexity of conservation management, and to appreciate and become more aware of the natural environment around them, the programs attracted students from Years 1 – 12.

In the CALM Bush Ranger program, 800 students aged from 13 to 17 contributed 105,600 hours to nature conservation projects across Western Australia. Many of the nature conservation projects carried out by Bush Rangers, which is a statewide and nationally accredited program that is part of the WA Cadets youth development scheme, targeted the major environmental issues facing Western Australia – biodiversity protection and salinity.

In addition to four issues of the Department's conservation magazine *LANDSCOPE*, 166 other publications were produced by the Department during the year. While some were of a technical nature, most were designed to create awareness, appreciation and motivation for the conservation of the State's rich diversity of native plants, animals and natural ecosystems, and its unique landscapes.

Interest in and public use of *NatureBase*, CALM's award-winning Internet site, also continued to grow. With an average of more than 45,000 'hits' a day recorded, there were more than 6,400,000 'hits' on the popular site during the year.

OUTPUT 1: NATURE CONSERVATION

HIGHLIGHTS

- Re-introduction of the Bilby (*Macrotis lagotis*) to Francois Peron National Park, the Western Barred Bandicoot (*Perameles bougainville*) to Dryandra State Forest and the Black-flanked Rock-wallaby (*Petrogale lateralis lateralis*) to Avon Valley National Park.
- Confirmation of successful breeding in the wild by Malleefowl (*Leipoa ocellata*), which was re-introduced to Francois Peron National Park in 1997 and 1998.
- More than 500 members registered under the Land for Wildlife scheme – totalling more than 90,000 ha of private land managed for conservation
- Rediscovery of five species of flora previously presumed to be extinct.
- Collaborative arrangement signed with the Royal Botanic Gardens Kew in the UK, and the Botanic Gardens and Parks Authority, Perth, for priority flora seed collection as part of the international Millennium Seed Bank Project.

OUTCOME

The conservation of indigenous plants, animals and ecological processes in natural habitats.

OUTPUT DESCRIPTION

The production and implementation of management plans and programs for flora and fauna conservation, for threatened species and ecological communities and for commercially

exploited species according to the principles of ecological sustainability, for the acquisition, conservation and protection of representative ecosystems and for conducting emergency actions to save wildlife, minimising adverse effects of fire, weeds, feral animals and disease and developing public awareness, understanding and support for the nature conservation programs, services and policies.

Note: The Department uses the National Strategy for the Conservation of Australia's Biological Diversity definition of 'conservation', i.e. 'the protection, maintenance, management, sustainable use, restoration and enhancement of the natural environment.'

The Output performance can be best measured in three key areas:

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

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. The Department meets the cost of servicing the Committee and obtains contributions towards the Committee's operations from Main Roads Western Australia and WestNet Rail.

WILDLIFE AND HABITAT MANAGEMENT

Western Shield – Fauna Recovery

The objective of *Western Shield* is to facilitate the recovery of native wildlife

populations through the removal or reduction of introduced predators. Native wildlife populations recover naturally or are assisted through re-introductions of fauna back into their natural habitats.

Under *Western Shield*, the Department continues to bait approximately 3.5 million hectares of the lands it manages to control foxes and cats, with more than 770,000 poison baits being used annually. Valuable and much appreciated corporate sponsorship has been provided to *Western Shield*, notably from Alcoa Australia Limited, Cable Sands (W.A.) Pty Ltd, Iluka Resources and Tiwest Pty Ltd. The Department thanks these sponsors.

Development of the improved fox bait 'Pro-bait' has proceeded and collaborative work on the development of a cat bait has continued.

Monitoring of fauna across the south-west continues to demonstrate the effectiveness of predator control in fauna recovery.

The community education program, which includes activities at The Hills Forest Discovery Centre such as professional development for educators and field camps for schools, maintained its successful interaction with the WA public by involving 18,000 students and teachers this year.

Salinity Action Plan

Projects begun by the Department under the 1996 Salinity Action Plan continued through the terrestrial and aquatic surveys which have contributed to the identification of Natural Diversity Recovery Catchments, the Land for Wildlife program, the Nature

Conservation Covenant program, farm forestry initiatives involving maritime pines and oil mallees, and the management of Crown reserves within the south-west.

Within the biological survey project, all sampling of the 303 terrestrial fauna sites, 235 wetlands and 750 flora sites has been concluded. All 25 monitoring wetlands have been sampled, reports prepared, and eight have been re-sampled. Most identifications were completed and databasing of results is underway.

As a result of the biological surveys, a new recovery catchment has commenced in the Buntine-Marchagee area and a further catchment is proposed in the Bolgart/Julimar area. These are in addition to the four already established - Toolibin Lake, Lake Muir-Unicup, Lake Warden and Lake Bryde-East Lake Bryde.

Land Assessment

With significant mineral resource potential on and surrounding Goongarrie Station, a comprehensive biological-sampling program commenced to determine the biodiversity of the area. This will provide the knowledge to make informed decisions on the future tenure and management for Goongarrie Station and National Park. Biological surveying will be ongoing over the next two to three years.

Wetlands

The Department continues to chair the State's Wetland Coordinating Committee (WCC) and is actively involved in the implementation of the Wetland Conservation Policy for Western Australia (1997) (WCP). A Wetland Coordinator was appointed during the year to provide executive support to the WCC and to coordinate the Department's activities in relation to the wetland conservation program and implementation of the WCP.

During the year \$191,655 was allocated across 11 wetland conservation projects, with projects contributing to the implementation of objectives and actions of the WCP. Projects included the development and implementation of management plans, research, survey, monitoring and education/information (including visitor facilities). Successful projects involved wetlands that are listed under the Ramsar Convention, the Directory of Important Wetlands of Australia, the Register of the National Estate, and as threatened ecological communities.

The Department also successfully nominated a further three wetlands for listing under the Ramsar Convention and twelve extensions to four existing Ramsar-listed wetlands. New listings are Lake Muir-Byenup Lagoon, Lake Gore and Becher Point wetlands and extensions to the Ord River Floodplain, Toolibin Lake, the Vasse-Wonnerup and the Peel-Yalgorup systems.

Land Acquisition

The land acquisition program continued in the Gascoyne-Murchison Rangeland Strategy region. The new additions mean the existing reserve system now exceeds 2.5 million hectares, bringing the total area of land in the region managed for conservation to more than 3.6 million hectares or about 6.5% of the region. The goal set out in the Strategy is to achieve land acquisitions of between 10% and 15% of the area of the region for inclusion in the reserve system. The acquisition program will continue for two more years with funding provided by the State and Commonwealth governments.

Marine Conservation

The Marine Parks and Reserves Authority (MPRA) met eight times during the year. Statewide issues considered during these meetings included: the development of a mission statement and key strategies for the MPRA; a generic framework for community advisory committees; and the identification of topics and

management issues in need of policy development. In addition, the MPRA gave consideration to site specific management issues including: endorsement of the Management Guidelines for Maud Sanctuary Zone (Ningaloo Marine Park); comments in relation to Mauds Landing resort development; endorsement of the Proposed Jurien Bay Indicative Management Plan; comments on upgrading the Useless Loop Road and assessments of other development proposals in the Shark Bay World Heritage Area; comments in relation to the Beenyup ocean outlet for waste water in Marmion Marine Park; comments in relation to the Perth Coastal Waters Environmental Protection Policy; and comments in relation to the Environmental Protection Authority draft guidance for assessment and protection of tropical arid zone mangroves along the Pilbara coastline.

Marine conservation reserve management plans developed before 1997 are being reviewed to facilitate the audit function of the MPRA. Key performance indicators, management strategies and priorities are being assigned for Shark Bay, Marmion, Shoalwater Islands and Swan Estuary marine parks.

A status report on little penguins has been prepared to assist in the development of key performance indicators and management targets for Shoalwater Islands Marine Park.

The community advisory committee for the proposed Dampier Archipelago/ Cape Preston Marine Conservation Reserve met five times during the year and considered the current usage and high conservation values of the area and deliberated on draft management objectives, strategies and targets for the proposed reserve.

The advisory committee for the Proposed Montebello/Barrow Islands Marine Conservation Reserve met three times during the year to develop management options for the area.

A new consultation initiative has been trialed during the Pilbara marine conservation reserve planning processes involving *Sector Reference Groups*, which both facilitate the provision of coordinated sector views to advisory committees, and disseminate information to grassroots members of the sector.

The planning process for the proposed marine conservation reserve in the Geographe Bay/Hardy Inlet area has commenced with a resource assessment of natural and social values of the area and a community awareness campaign.

The review process for the Ningaloo Marine Park Management Plan has commenced, with boundaries of the study area still to be finalised. Reviews of the oceanography and the ecological status of Ningaloo Reef plus an assessment of the representativeness of existing zoning were completed this year to provide essential information for the planning and management plan review process.

The draft management plan for the Rowley Shoal Marine Park and the Indicative Management Plan for the extensions to the Rowley Shoals Marine Park are almost finalised before being released for a three-month public submission period.

In anticipation of the commencement of a marine conservation reserve planning process in the Recherche Archipelago, reviews of existing literature relating to the physical oceanography and ecological values of this area have been undertaken. These reviews were funded through a National Heritage Trust grant.

The Department received \$256,000 for the purposes of purchasing and installing moorings in high use recreation areas of marine conservation reserves. These funds will allow 32 moorings to be installed at sensitive locations in Rowley Shoals Marine Park, Ningaloo Marine Park, Shark Bay Marine Park, Marmion Marine Park

and Shoalwater Islands Marine Park thereby alleviating current environmental stress from existing mooring and anchor damage.

Progress on the marine community-monitoring program has continued and the Department and the Australian Marine Conservation Society WA received a special commendation in the Outstanding Coastcare Project category at the Coastwest Coastcare Celebration for the Marine Community Monitoring Manual.

The tracking of dugongs within Shark Bay continued in both the Eastern and Western Gulfs, with confirmation of a distinct seasonal migration pattern in areas of core activity. The program will continue over the next 18 months and will be used to gain further movement information as well as providing a tool for analysis of sea grass habitat. The project continues to receive support from the local community and is seen as an important collaboration, particularly between the Department and the local Shark Bay Yadgalah Aboriginal Corporation. Information to date has been presented at a number of venues, including the Southern Hemisphere Marine Mammal Conference. The Natural Heritage Trust and World Heritage have contributed funds for running costs, while monies have been received from an Australian Research Council Research Infrastructure Equipment and Facilities Scheme (ARC REIF) grant for the purchase of more tracking tags for use in conjunction with James Cook and Edith Cowan Universities.

The monitoring of Australian sea lion colonies has continued, with pup counts on identified key islands off the south and west coasts. Preliminary analyses of counts are showing that numbers may be at maximum production levels.

Departmental officers attended 15 reported whale and dolphin strandings throughout the year, involving both live and dead animals. These strandings involved 17 individual animals and represented ten species

including: Bottlenose Dolphin, Short-finned Pilot Whale, Long-finned Pilot Whale, Blainsville's Beaked Whale, Gray's Beaked Whale, Humpback Whale, Indo Pacific Humpback Dolphin, Pygmy Blue Whale, Spinner Dolphin and Pygmy Sperm Whale. The most commonly stranded cetacean was the Bottlenose Dolphin.

There was one mass stranding and three entanglements of cetaceans during the year.

Officers also attended 11 pinniped strandings throughout the year, including two sub-antarctic fur seals, three leopard seals, one southern elephant seal and five Australian sea lions. In most cases, these animals were ill or injured. One sub-antarctic fur seal and one leopard seal were taken into captive management, rehabilitated successfully and released.

Off-reserve Conservation

The Department's Land for Wildlife Scheme is a voluntary program that aims to increase the area of wildlife habitat on lands under private management. This program was partly funded by the Natural Heritage Trust, it involves landowners or leaseholders who register their properties in the scheme. An assessment is made of the quality of the wildlife habitat and advice is provided to encourage land management based on sound ecological methods. Advice is also provided to allow landholders to obtain assistance in fencing, replanting and managing wildlife habitats.

During the year, 184 properties were inspected and assessed for registration to the scheme. The total area of the properties visited was 118,958 ha, with a total area of 17,485 ha being dedicated to wildlife habitat.

To 30 June, 529 applications have received full registration (91,602 ha of conservation land), 107 applications have been given interim registration (829 ha) and 209 properties have yet to be assessed (845 applications in total).

Staff gave talks to 51 community groups during the year, 12 education groups and put up 17 displays (five of which won awards at their respective shows) and organized 13 field days/workshops.

Four issues of the magazine *'Western Wildlife'* were produced, along with one brochure. In addition, 60 media articles have been organized.

New initiatives include: detailed collaboration with a local government authority; detailed planning with an entire catchment group; and discussions with other State government agencies holding freehold conservation land.

During the year, two formal conservation agreements between pastoralists and the Department were signed. These agreements, signed under the *CALM Act* section 16A, are for a 7,000 ha portion of Boolardy pastoral lease in the Murchison bioregion and for a 150 ha section of Credo pastoral lease in the Coolgardie bioregion. The agreements allow for the conservation management of land considered to have important conservation values and ensure the protection of these values in the long term. Further opportunities for entering into these agreements are being sought with other pastoralists.

The Department's voluntary Nature Conservation Covenant Program has been developing during the year with the appointment of a Coordinator and five regional representatives. Currently the program has covenants on nine titles covering a total of 119 ha of land. A further 22 covenants are in negotiation, covering a total of 4,439 ha of land.

The Department also continues to manage and lead the Commonwealth's Natural Heritage Trust Bushcare Program. The State Bushcare Program Coordinator and five Bushcare regional facilitators provided assistance to a range of key stakeholders in building regional and State capacity to deliver nature conservation outcomes.

Support is also provided to the Natural Heritage Trust grants' scheme, including administration support and technical assessment of applications seeking funding. Thirty-one percent of projects submitted were technically assessed. A total of \$7.5 million was provided to 103 projects during the year, with 60% of the funds going to community groups.

A Western Australian Bushcare Monitoring and Evaluation Program was commenced during the year to assess Bushcare funded projects and assist in program management. Twenty-eight projects and around 220 sites were visited to evaluate project outputs and outcomes.

The Bushcare Reference Group (BRG) met three times during the year to provide advice to the Department and Environment Australia on the delivery of the Bushcare program in the State. The BRG includes State government, non-government organization, and community group representation. Advice was provided on a range of issues, including program priorities and monitoring and evaluation.

In addition, the Department continues to engage with resource development companies regarding collaborative management of lands adjacent to CALM-managed reserves. The Department has two Memoranda of Understanding (MOU's) with mining companies who hold land as pastoral leases adjacent to CALM-managed reserves: Karijini National Park in the Pilbara, and Wanjarri Nature Reserve in the Goldfields Region. The leases subject to the MOU's cover an area of nearly 1.2 million hectares and are managed in sympathy with the core conservation reserves. Management Advisory Groups for both MOU's meet irregularly to share information on management issues and proposed actions, research and education opportunities. The MOU's will be reviewed during the next year with the view to develop more formal cooperative arrangements.

Weeds

The Department continued to be represented on the Australian Weeds Committee (AWC) and the State Weed Plan Steering Group (SWPSG) during the past year. The SWPSG oversaw the development of a draft State Weed Plan that was released for public comment in June 2000. This was a cooperative project lead by the Department of Agriculture, building on the Environmental Weed Strategy produced by CALM in 1998. A total of 3,500 copies were distributed to identified stakeholders and 90 public submissions were received on the draft. The submissions were examined, issues documented and appropriate changes incorporated in the final draft. The final draft is awaiting official release.

Mining Management

Liaison with the mining industry continued through various liaison groups including: MMPLG (Alcoa Bauxite), EMLG (Worsley Bauxite), BGEMLG (Boddington Gold), MELC, MSARC (Eneabba Mineral Sands), Pilbara Iron Ore Environmental Committee, State Gravel Strategy Management Group and State Lime Strategy Steering Committee. Staff reviewed numerous annual reports for mining CALM-managed lands and assisted other agencies to review reports and proposals that impacted on conservation values of reserves.

Environmental Protection Branch coordinated and commented on 11 formal assessments by the EPA. A total of 90 mining tenement applications were processed in consultation with the Conservation Commission of WA, and appropriate mining conditions imposed.

The Department continues to pursue conservation opportunities by identifying land to replace/offset land impacted by mining activity and bringing these to the attention of mining companies. Compensation for loss of conservation values is also sought for operations impacting upon CALM-managed lands.

THE WA HERBARIUM

The Herbarium flora collection currently comprises the following total number of specimens: -

Algae	5,442
Mosses	4,584
Liverworts	1,081
Fungi	6,869
Lichens	5,017
Ferns	2,776
Gymnosperms (Pines, Cycads)	1,567
Flowering Plants (Monocots)	79,669
Flowering Plants (Dicots)	397,514
Total number of databased specimens	504,519

Records of all specimens incorporated in the WA Herbarium are entered into the Herbarium Specimen Database (WAHERB) which is updated constantly. During the year, a total of 15,744 records were added to WAHERB. During this year the collection incorporated and databased its 500,000th specimen. Of special note, 997 Priority Flora and 190 Declared Rare Flora specimens were added to the State Collection, bringing the total collection of Priority and Declared Rare Flora to 29,837 specimens.

There were 2,921 loans of WA specimens to other institutions, and 882 loans were received from other herbaria. The WA Herbarium received 981 exchanges from other institutions to add to our collection and distributed 594 specimens.

Biosystematics and conservation studies of the flora continued, with specific work on *Leucopogon* (Epacridaceae), the grasses *Amphipogon* and *Austrostipa* being undertaken during the year, and collaborative work on Myrtaceae species, *Lomandra* and samphires (*Halosarcia* and relatives in Chenopodiaceae). Targeted taxonomic work has also been undertaken on declared rare and priority flora.

The public access Reference Herbarium in Perth now comprises 12,859

specimens, with 10,609 taxa represented. Each specimen is vouchered and linked to a databased specimen in the main herbarium collection. The Reference Herbarium is extensively used by both amateur and professional botanists, including the Wildflower Society and Landcare and Bushcare groups, for flora identification and verification. There were 1,800 visitors to the Reference Herbarium during this period.

There are now 74 active Regional Herbaria in the WA Regional Herbarium Network Scheme, which plays a most significant role in both the collection of flora information and the dissemination of this knowledge to the regional community. A number of training workshops were held and the number of trained collectors continues to increase. The scheme is making a positive impact on the location of rare and threatened plant species, with 118 reports on plants in this category being received, as well as making discoveries of new taxa. During the year 2,643 specimens were added to the WA Herbarium collection by Regional Herbarium Network volunteers.

A new initiative is the Natural Heritage Trust funded Weed Information Network (WIN). During the next two years this project will develop a comprehensive weed-watch program. In addition, a team of volunteers trained and supervised at the WA Herbarium will score and code data for presentation in FloraBase, resulting in a comprehensive online weed information system. This project is integrated with complimentary work undertaken by the WA Department of Agriculture and other groups concerned with management and documentation of weeds in WA.

The Census of Western Australian Plants (WACENSUS) now contains over 17,000 records, representing 13,250 currently recognised vascular plant taxa for the State.

The Database of Plant Descriptions (DESCAT) contains data on a small number of characters scored for each of WA's 13,250 vascular plant taxa. During the year this data set was maintained and further refined to prepare the manuscript of a hard-copy version which was published jointly by a consortium comprising the WA Herbarium, WA Wildflower Society and the Botanic Parks and Gardens Authority. This project also provides the descriptive component of FloraBase.

FloraBase is the WA Herbarium's on-line information system, which integrates corporate biodiversity information by providing global access to descriptive, nomenclatural, geographic and image data through the Internet. Registration for FloraBase was rationalized and basic users are no longer required to register. FloraBase now has 604 registered users. During the year FloraBase successfully responded to a total of 1,026,485 enquiries.

The Plant Image Database is rapidly growing, through the assistance of volunteers who scan and edit photographs before archiving them at high resolution. Twenty-five thousand images have been scanned to date. Composite images illustrating habitat, habit and detail of some 2,680 species are now available on-line via FloraBase.

Two issues of *Nuytsia* were published, providing up-to-date information on botanical matters to the scientific and broader communities. Arrangements were made for publication of the completed manuscript of the *Flora of the South-West Forest Region* with the assistance of the Australian Biological Resource Survey.

A major paper on levels of plant endemism in the south-west Land Division of the State was published, concluding three years of research. This paper updates previous figures and compares endemism in south-west Western Australia and other equivalent Mediterranean regions in the world.

Trials of the biological information and decision-support system WABiota were successfully conducted during the year and resources have been secured to transfer it to full production.

The WA Herbarium continues to benefit from a major volunteer program. During the year, 69 volunteers contributed 15,326 hours to a wide range of projects including specimen mounting, image scanning and editing, the Reference Herbarium, Regional Herbarium and Weed Information Network, geo-coding validation, specimen incorporation, and curation of plant groups of special interest. In addition, the Regional Herbarium and Weed Information Network effectively harnesses the effort of some 200 volunteers statewide.

WILDLIFE UTILISATION

The Department ensures that wildlife-based activities are licensed, in accordance with the Wildlife Conservation Act 1950, and conducts monitoring and investigations to ensure compliance with legislation and the licences issued.

Management of the commercial harvesting of kangaroos continued throughout the year, with input from the Kangaroo Management Advisory Committee. Kangaroo management operates under the management plans approved by the State and Federal Ministers for the Environment for the period 1998–2002. Under these programs, commercial harvest quotas were set for each species for the 2001 calendar year. During 2000, aerial kangaroo population surveys were undertaken over the central survey zone as part of the triennial survey program. As euros are difficult to count from the air, a baseline population estimate using air survey estimates corrected by trial ground truthing has been calculated.

The management program for saltwater crocodiles and freshwater crocodiles in Western Australia continued. The management program

covers all aspects of crocodile management, including crocodile population surveys and regulation of crocodile harvests, farming, processing and export.

Under the management program, commercial harvests of live crocodiles for farm-breeding stock, and limited harvest of eggs and hatchlings, can be approved. For management purposes, these harvests are primarily restricted to the Cambridge Gulf area, where monitoring ensures that the wild crocodile populations are conserved. Surveys were again undertaken of saltwater crocodile and freshwater crocodile populations in the Cambridge Gulf–Lake Argyle area during the year.

A total of 6,708 fauna (other than damaged, but including non-commercial) licences were issued during the year, an increase of 1.1% from the previous year (see Appendix 8). The increase was partially due to an increase in the licensing for scientific purposes and aviculture licences for native birds. The total number of flora licences/permits issued was 2,203, an increase of 1.0% from the previous year. Commercial flora licences decreased by 1.4% during the same period. This decrease was general across Crown land activities and private property, and may reflect some rationalisation within the industry, plus the licensing of multiple private properties on single licences.

The Flora Industry Data Management System has been updated. The Database is now web-based with the majority of CALM District and Regional flora industry staff being able to access the database.

Intensive management of *Banksia hookeriana*, *Boronia megastigma*, *Stirlingia latifolia* and *Verticordia nitens* continued this year. This was the first year that royalties were charged for *Banksia hookeriana* flowering stems taken from Crown land. Royalties for eucalypt stems taken for didgeridoos were increased

and a tagging system was introduced. All WA didgeridoos now need to be tagged at the point of sale, reducing the opportunity for 'illegally' sourced didgeridoos to be sold.

A Memorandum of Understanding between this Department and the Department of Land Administration in relation to Management of the Flora Industry on Unallocated Crown Land and Unmanaged Reserves was signed. This will improve the management capacity of the Department on these lands to ensure the harvesting of protected flora occurs in a sustainable manner.

Two species are currently being monitored on Crown land to determine what effects flora harvesting has on them, and what level of harvesting may be sustainable. These species are *Andersonia caerulea* and *Dasyopogon bromeliifolius*.

The Western Australian Flora Industry Advisory Committee met twice during the year to review management procedures and the setting of quotas and royalty rates for selected species.

There are currently four flora industry management teams: Southern, Swan Region, Central Forest and Northern Sandplains. These groups meet as is necessary to coordinate the industry within those regions, and to discuss management issues.

Marine Interactions

Ninety-six whale-watch boat-tour operators are licensed State wide, a decrease of eight (7.7%) on last year. Licensed operators from various centres around the State, but principally from Perth, had a total of 24,721 passengers. This is an increase of 9% from the previous season. While these tours were primarily based on humpback whales, southern right whales are the focus of whale watching activities in the Albany area. There were 54 boat-based dolphin interaction licences, three in-water dolphin

interaction licences and five boat-based dugong interaction licences issued. There were six in-water sea lion interaction licences and 21 boat-based Australian sea lion/ New Zealand fur seal interaction licences issued.

Twelve Whale Shark interaction licenses were issued for the year, with passenger numbers increasing by 34% from 2,380 (1999–2000) to 3,193 (2000–2001).

Problem Wildlife and Offences

Reports of problem crocodiles were received by officers in the Kimberley and Pilbara. Licences to remove 12 saltwater crocodiles from the wild were issued because of the threat they posed to public safety, and four animals were successfully trapped and relocated to commercial crocodile farms.

During the year, Departmental staff provided guidance to many people regarding the legal requirements of wildlife conservation legislation. Verbal warnings were issued for minor offences as appropriate and 272 offences under the Wildlife Conservation Act and Regulations were the subject of written reports. To date, action in 180 matters has been completed. A summary of reported offences is presented below.

Departmental staff also provided advice on a wide range of wildlife matters in response to many thousands of inquiries from members of the public. Calls involved sick, injured and orphaned fauna; fauna causing a nuisance, such as possums living in rooves and noise from frogs and ravens; dangerous fauna including venomous snakes and swooping magpies; and fauna, such as kangaroos, ducks and parrots, causing damage to private property and primary production. A summary of licences issued is at Appendix 7.

The total number of damage licences issued for birds was 248, an increase of 53% from 1999–2000 (see Appendix 7).

Most of this increase is attributable to the below average rainfall in the south-west that contributed to increased attention on agricultural crops from species such as emus, long-billed corellas, galahs and 28 parrots.

THREATENED SPECIES MANAGEMENT

The Threatened Species Scientific Committee met in October 2000 to make recommendations for changes to the lists of threatened flora and fauna under the Wildlife Conservation Act. These changes have been endorsed by the Minister for the Environment and Heritage, but have not yet been gazetted. The fauna listing thus remains at 120 taxa threatened with extinction, 13 presumed to be extinct, 30 bird species specially protected because of their listing under the Japan and Australia Migratory Bird Agreement and the China and Australia Migratory Bird Agreement, and 11 otherwise specially protected. The Priority Fauna List has 173 taxa.

With respect to flora there are currently 334 taxa of extant declared rare flora and 22 listed as presumed to be extinct. Five of the presumed extinct species have, however, been rediscovered during the year, and are to be transferred to the extant list. These are *Eremophila vernicosa* ms (found in 1999 during a community survey), *Frankenia parvula* and *Frankenia conferta* (found in 2000 during a Salinity Strategy survey), *Gyrostemon*

reticulatus (found in 1990 – material only recently determined) and *Nemcia lehmannii* (found in 2000 by a Bushcare support officer). Taxonomic confusion between the listed presumed extinct species *Ptilotus fasciculatus* and the closely related priority listed species *Ptilotus caespitosus* was also clarified, with the latter being determined to be the presumed extinct taxon, and the former now being considered to be extant.

A further 122 taxa were added to the Department's Priority Flora List and 49 taxa were deleted from the list on the basis of further survey and taxonomic review. A total of 2,057 taxa are listed as Priority Flora.

Volunteers continue to make a significant contribution to the survey effort for declared rare and priority flora, accounting for 10% of the year's surveys, with 28% of these coming through the Regional Herbarium program. A further increase in the surveys by staff also occurred during the year with staff accounting for 81% of the reports received. Of the 1,850 populations inspected during the year, 244 were new declared rare flora populations, and 375 new priority flora populations.

Flora and Fauna and Ecological Communities Recovery Teams

During the year implementation of recovery plans continued for the following species of threatened fauna:

1999–2000 Reported Offences			2000–2001 Reported Offences	
	30-6-2000	Revised		As at 30-6-2001
Total Offences Reported	272	334	Total Offences Reported	305
Convictions	28	71	Convictions	23
Dismissals	0	3	Dismissals	0
Letters of Warning	114	170	Letters of Warning	120
No Further Action	38	74	No Further Action	51
Pending	92	16	Pending	111
Total Fines	\$11,450.00	\$20,250.00	Total Fines	\$8,400.00
Total Costs	\$1,943.00	\$5,897.35	Total Costs	\$2,934.50

Note 1: Figures for 1999–2000 reported offences are updated from those included in last year's report under the Revised column.
Note 2: See Appendix 9 for details of 2000–2001 offences.
Note 3: Wildlife Protection Section also processed 38 offences under the CALM Act and Regulations.

Gilbert's potoroo, chuditch, numbat, western ringtail possum, dibbler, djoongari (Shark Bay mouse), south coast threatened birds (noisy scrub-bird, western bristlebird, western whiplingbird and western ground parrot), Muir's corella, Carnaby's black-cockatoo, Western Swamp tortoise, Lancelin Island skink and orange-bellied and white-bellied frogs.

The State Network for the Malleefowl continues to meet irregularly, with frequent direct contact between individual members. The National Recovery Team has not met for some years, but the National Recovery Plan was published this year.

Regional and District Threatened Flora Recovery Teams coordinated the recovery of threatened flora, and in some cases Threatened Ecological Communities, in the Central Forest, Southern Forest and Swan Regions, and the Geraldton, Merredin, Albany, Moora, Katanning and Narrogin Districts.

Ecological Communities Recovery

The project to identify and conserve Threatened Ecological Communities (TECs) in the agricultural region of southwest Western Australia, which was previously funded by the NHT for three years, is now being funded via the State Salinity Strategy until June 2002. This project concentrates on TECs in agricultural southwest WA where the threats include salinity and waterlogging. Twenty-seven Threatened or Data Deficient Ecological Communities have been identified. Interim Recovery Plans have been completed for six of the threatened communities, and another three are currently being drafted for the most threatened communities. Two other TEC projects funded by the NHT, one identifying and conserving TECs in the rangelands and the other implementing IRPs for critically endangered TECs are continuing. Recovery teams also operate for particular threatened ecological

communities: Toolibin Lake, sedgelands in Holocene dune swales, thrombolites of Lake Richmond, aquatic root mat community of caves of the Swan Coastal Plain and montane thicket and heath community (Stirling Range). The North West Cape Karst Management Advisory Committee oversees the preparation and implementation of recovery plans for Camerons Cave and Cape Range remipede (Bundera Sinkhole) communities, and the Lake Bryde Recovery Catchment Team covers two occurrences of the *Muehlenbeckia* and *Tecticornia* lake bed community.

Recovery Plans and Interim Recovery Plans

In 1997, the Department published Wildlife Management Program No. 29 *Interim Recovery Plans 4-16 for Western Australian critically endangered plants and animals*. These Interim Recovery Plans (IRPs) were prepared for a three-year period, although they continue to operate unless superseded. A review in 2001 examined whether the recovery actions prescribed in IRPs 4-16 had been implemented and whether success criteria had been met. The implementation of the 13 IRPs has progressed well. Of the 13 taxa, seven still meet criteria for ranking as Critically Endangered, four have been moved to Endangered and two have been moved to Vulnerable. No species covered by these IRPs has become extinct, although the status of the Night Parrot is still unknown. None of the taxa has been delisted.

Six Region and District Management Plans have been endorsed by the Minister for the Environment and Heritage. These include Moora, Narrogin, Esperance, Geraldton, Katanning and the Central Forest Region. These plans are the culmination of input from district, regional and scientific staff as well as many volunteers. These have been published in CALM's Wildlife Management Program series.

During the year 30 Interim Recovery Plans (IRPs) were approved by the Director of Nature Conservation, including 23 for threatened flora and seven for threatened ecological communities (TECs) (see opposite).

Information posters have been produced for the Cape Range Remipede Community and Camerons Cave Troglobitic community; both of these occur on North West Cape Peninsula.

Translocations

Translocations (including reintroductions, introductions and restocking) continue to be a very valuable method of conserving threatened species. Approved Translocation Proposals for threatened flora and fauna from July 2000 end of June 2001 are listed opposite.

Populations of conservation dependent fauna were also translocated as part of the *Western Shield* program. Woylies were reintroduced to Hadfield and Strickland State Forests, Shannon National Park and two areas of private property near Harvey. Tamar wallabies were reintroduced into the privately-operated Paruna Sanctuary, Alcoa Australia's Huntley mine lease near Dwellingup and Avon Valley National Park.

Monitoring of previous translocations is demonstrating that reintroduced populations of threatened or priority species are establishing sustainable populations where predator control is maintained. Examples are presented in the Performance Indicator section of this and previous Annual Reports. Examples include, Brush-tail Possums and Quenda in Porongorup National Park (extant populations) and Chuditch in Julimar State Forest (re-introduced population).

Western Everlasting

CALM's Threatened Flora Seed Centre continues to provide an important focus for the Department's flora

Interim Recovery Plans Approved in 2000–2001

Elegant Spider Orchid, <i>Caladenia elegans</i> ms (No. 63)	Drummond's Grass, <i>Deyeuxia drummondii</i> (No. 86)	Mountain Paper Heath, <i>Sphenotoma drummondii</i> (No. 98)
Phalanx Grevillea, <i>Grevillea dryandroides</i> subsp. <i>dryandroides</i> (No. 64)	South Stirling Morning Iris, <i>Orthrosanthus muellerii</i> (No. 87)	Heath dominated by one or more of <i>Regelia megacephala</i> , <i>Kunzea praestans</i> and <i>Allocasuarina campestris</i> on ridges and slopes of the chert hills of the Coomberdale Floristic Region (No. 65)
Narrow Curved-leaf Grevillea, <i>Grevillea curviloba</i> subsp. <i>incurva</i> (No. 67)	Long-leaved Myrtle, <i>Hypocalymma longifolium</i> (No. 88)	Perched wellands of the Wheatbelt region with extensive stands of living sheoak (<i>Casuarina obesa</i>) and paperbark (<i>Melaleuca strobophylla</i>) across the lake floor (occurrences other than Toolibin Lake) (No. 66)
Northampton Midget Greenhood, <i>Pterostylis</i> sp. Northampton (No. 68)	Granite Tetratheca, <i>Tetratheca deltoidea</i> (No. 89)	Plant assemblages of the Billeranga System (No.71)
Blue Babe-in-the-cradle Orchid, <i>Epiblema grandiflorum</i> var. <i>cyaneum</i> ms. (No. 69)	Wongan Featherflower, <i>Verticordia staminosa</i> subsp. <i>staminosa</i> (No. 90)	Plant assemblages of the Koolanooka System (No. 73)
Wongan Cactus, <i>Daviesia euphorbioides</i> (No. 70)	Maxwell's Grevillea, <i>Grevillea maxwellii</i> (No. 91)	Aquatic Root Mat Community of Caves of the Swan Coastal Plain (No. 74)
Curved-leaf Grevillea, <i>Grevillea curviloba</i> subsp. <i>curviloba</i> (No. 72)	Ironstone Petrophile, <i>Petrophile latericola</i> ms (No. 93)	Cape Range Remipede Community (Bundera Sinkhole) (No. 75)
Gillham's Bell, <i>Darwinia oxylepis</i> (No. 79)	Maroon-flowered Daviesia, <i>Daviesia glossosema</i> (No. 94)	Cameron's Cave Troglolitic community (No. 76)
Late Hammer Orchid, <i>Drakaea confluens</i> ms (No. 80)	White Featherflower, <i>Verticordia albida</i> (No. 95)	
Albany Cone Bush, <i>Isopogon uncinatus</i> (No. 82)	Stirling Range Daviesia, <i>Daviesia pseudaphylla</i> (No. 96)	
Stirling Range Beard Heath, <i>Leucopogon Gnaphalioides</i> (No. 83)	Prickly Honeysuckle, <i>Lambertia echinata</i> subsp. <i>echinata</i> (No. 97)	

Translocation Proposals Approved for threatened flora and fauna 2000–2001

Species	Source and destination
Western Barred Bandicoot	Bernier Island to Roxby Downs, South Australia
Western Barred Bandicoot	Captive breeding colonies to Dryandra Woodland
Bilby	Captive breeding colonies to Francois Peron National Park
Boodies	Bernier Island to Roxby Downs, South Australia
Chuditch	Perth Zoo to Kalbarri National Park
Western Swamp Tortoise	Perth Zoo to Mogumber and Twin Swamps Nature Reserve
Orange-bellied Frog	egg masses to creek systems in the Blackwood River
Western Bristlebird	Two Peoples Bay to Nuyts Wilderness, Walpole National Park
Scaly-leaved Feather Flower	Seed collected from existing populations to Yandanooka
Lancelin Island skink	Perth Zoo to Favorite Island, Jurien Bay
Black-flanked rock-wallaby	Re-introduction to Avon Valley National Park and neighbouring, privately-operated Paruna Sanctuary.
Wing-fruited Lasiopetalum	Introduction to Serpentine National Park
Noisy Scrub-bird	Further reintroductions to the Darling Range
McCutcheon's Grevillea	Seedlings and cuttings from adult plants and introduced to a site in the Negus Block (extension of translocation from last year)
Western Prickly Honeysuckle	Cutting material collected and introduced to Negus Block (extension of translocation from last year)
Butterfly Brachysema	From seed and cuttings to nearby reserves in the Southern Shrubland Ironstone Association near Busselton
Abba Bell	From seed and cuttings to nearby reserves in the Southern Shrubland Ironstone Association near Busselton
Laterite Petrophile	From seed and cuttings to nearby reserves in the Southern Shrubland Ironstone Association near Busselton
Phalanx Grevillea	Seed from subpopulations to a Ballidu Shire Reserve (extension of translocation from last year)
Silky Eremophila	Introduction and restocking to West Perenjori Nature Reserve

recovery programs. Currently the Centre's gene-bank holds collections from 838 populations of rare and threatened flora with 76 of the 95 critically endangered flora represented. Research conducted in the Centre has shown that seeds from rare and threatened species from the south-west of Western Australia can be stored under low temperature and low moisture conditions, with seeds of several critically endangered species being successfully regenerated for recovery work more than five years after initial storage.

The Department entered into a collaborative seed collection program with the Royal Botanic Gardens Kew, UK, and the Botanic Gardens and Parks Authority, Perth, as part of the international Millennium Seed Bank Project. This program aims to collect seed from some 60% of the State's rare and threatened flora and other plant species now known to be threatened by salinity. It is likely to target over 1,000 plant taxa. The project has an estimated life of 10 years and will be undertaken in a number of phases, with Royal Botanic Gardens, Kew to review funding at the conclusion of each phase. The project has further objectives such as undertaking and publishing collaborative seed research between Royal Botanic Gardens Kew, CALM and Botanic Gardens and Parks Authority scientists.

The survey and conservation status assessment of rare and poorly known flora continues to be a vital focus for the Department. Currently there are 1,193 flora listed by the Department as poorly known but considered to be rare and likely to be threatened (Priority 1 and 2, CALM listing). Many of these are only known from one or two sites, may be represented by only a single collection in the Western Australian Herbarium and have not been sighted for the last 10 to 20 years. Possibly as many as 10 per cent, based on current CALM estimates, are likely to be critically endangered. Confirmation of their conservation status is critical if

these taxa are to be considered for recovery actions and this requires detailed field survey, location inspection, and threat assessment of populations of each taxon.

Ongoing flora recovery research include the use of DNA based molecular markers to identify conservation units, resolve systematic problems in threatened flora, and to assess the effects of recent fragmentation and reduction in population size on genetic diversity levels in populations of critically endangered *Acacia*, *Banksia*, *Eucalyptus*, *Verticordia* and *Dryandra* species. These markers are also being used to determine patterns of mating and inbreeding within populations of critically endangered species, and how significant these events are in relation to pollinator behaviour, reproductive output and recruitment.

Experimental translocations of critically endangered plants have continued, with nine taxa completed to date. Apart from the successful establishment of new populations of critically endangered plants, these translocations are also aimed at developing appropriate translocation techniques for a range of site conditions such as soil type, landform, vegetation and climate. A second important outcome is the development of protocols for assessing and predicting translocation success based on monitoring and population modelling of each experimental translocation. To date all taxa translocated over the last three years have flowered and set seed, and one species has naturally recruited second generation plants. Translocations are currently underway for a further six taxa, and more are planned for 2002.

Research has also continued on populations of critically endangered *Acacia*, *Grevillea*, *Synaphea* and *Verticordia* taxa to investigate the physical and biological interactions which influence the dynamics within populations. It is expected that this

work will allow the construction of demographic models and population persistence probabilities, and provide guidelines on how many individuals and how many populations are necessary for taxa to persist. It will also provide practical guidelines and experimentally derived techniques for increasing population size in these critically endangered plants.

Phosphite Program

Seventeen sites covering 95 ha were aerially sprayed with phosphite during 2000–2001. Nine *Phytophthora* – susceptible declared rare flora species were treated in Albany District, five in South West Capes District, and one in Esperance District. The *Banksia cuneata* population at Poppanyinning (Narrogin District) was hand sprayed with phosphite for the fifth year, and handspraying was also undertaken at 10 sites in Walpole District.

Four new sites were added to the program, two in the Stirling Range (Mt Trio - *Nemcia luteifolia*; and South Bluff – *Daviesia glossosema*), a previously unsprayed population of *Isopogon uncinatus* at Gull Rock and the Tambellup population of *Adenanthos pungens* subsp. *effusa*. The Bell Track site was sprayed for the first time since autumn 1997, however only 35 ha at the southern end of the (225 ha) site, where the greatest risk of 'breakout' of the infestation lies, was sprayed. The newly discovered population of *Lambertia echinata* subsp. *echinata* at Lucky Bay in Esperance District was sprayed for the first time.

Wildfires burnt most of the phosphite spray sites in the Stirling Ranges. Monitoring of the regeneration at these sites will be undertaken for planning future spraying in this area. A handspray trial was carried out by Albany District staff to compare two sprays with a single spray, autumn with spring, and early season with late season applications. The results of this trial, which will compare levels of phosphite *in planta* are not available yet.

ROADSIDE CONSERVATION COMMITTEE

The Terms of Reference of the Roadside Conservation Committee (RCC) is: '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'.

Most public road reserves in this State are managed by local government authorities or Main Roads Western Australia. The RCC operates through education and liaison with these roadside managers and other agencies who may work in the roadsides, to achieve the cooperation and voluntary acceptance of management practices which maintain a safe and efficient road system, while concurrently ensuring the sustainability of the many values present within the roadside. This is achieved by funding and encouraging research; and collating and disseminating information; and undertaking training.

The Department and Main Roads Western Australia each pay half of the Executive Officer's salary, with the Department also meeting the cost of servicing the RCC.

During the past year the Roadside Conservation Committee continued to meet on a quarterly basis. Increasing public awareness of the value of roadsides has resulted in an increase in public complaints about roadside management issues.

Roadside Conservation Committee membership

- Department of Conservation and Land Management.
- Main Roads Western Australia.
- WestNet Rail.
- Western Australian Municipal Association.
- Western Australian Wildflower Society.
- Western Australia Department of Agriculture.
- Fire & Emergency Services Authority.
- Greening Australia Western Australia.
- Western Power.
- Water Corporation.
- AlintaGas.
- Telstra Corporation.

GIS Mapping and Roadside Surveys of Conservation Values

This project has been ongoing since 1987 and involves organising local community groups to survey the roadsides within their local area. Training and support is provided for the volunteer data collection. A feature of current roadside surveys has been the desire by local community groups to map the occurrence of environmental weeds on roadsides. This is now an integral part of all roadside surveys and provides a useful overview of the individual species present as well as an overview of the extent of weed infestation. Data from these is used to generate a series of maps that indicates roadside conservation value, remnant vegetation on adjoining landscape and weed infestations of roadsides. The Department's Geographic Information Section of the Information Management Branch now processes this data. During the year the roadsides of the City of Albany were mapped, including roadside infestations of eleven environmental weeds. The RCC also sponsored a Geography Honours student from Curtin University to prepare roadside management plans for roads of high

conservation value or strategic importance within the Shire of Chittering.

Liaison and Public Relations

The RCC has continued to liaise with State, local government and community groups on roadside conservation issues. The following mediums were used to disseminate information regarding roadside conservation:

- written material for print media, e.g. community newspapers, Western Wildlife;
- displays at country shows, e.g. Dowerin, Wagin;
- advice to external groups, e.g. Local Government Work Supervisors Association; and
- individual responses to public enquiries or complaints regarding roadside conservation matters.

In December 2000 the RCC released a new publication titled 'Guidelines for Managing Special Environmental Areas in Transport Corridors'. This book provides practical information regarding the legislation and management guidelines for such areas as rare flora, Aboriginal and European heritage sites and Flora Roads.

Performance Measures

Output 1

	2000-2001 Target	2000-2001 Actual	Explanation of significant variation
Quantity			
Nature Conservation area managed (hectares)	22.5 million	23.6 million	
Quality			
Threatened species	500	500	
Change in number of threatened species	+46	0	Uncontrollable external factors prevented gazettal of any changes to threatened species listings.
Timeliness			
Completion of management plans within specified timeframes	100%	100%	
Cost			
Cost per hectare managed	\$1.98	\$2.03	

OUTPUT 2: SUSTAINABLE FOREST MANAGEMENT

HIGHLIGHTS

- Separation of the forest harvesting and forest conservation roles of the Department.
- Review of sustained timber yield within the context of ecologically sustainable forest management.
- Implementation of the Government's 'Protecting our Old-Growth Forests' policy.
- Provision of forest management and integrated planning services.

OUTCOME

Long-term maintenance of the forest ecosystem.

OUTPUT DESCRIPTION

The sustainable management of State forests and timber reserves while maintaining or enhancing nature conservation, water, recreation, landscape and other values in the long-term, and encouraging public awareness, understanding and support for sustainable forest management, services and policies.

This Output was created in the 2000–2001 Budget Statements (May 2000) in anticipation of the legislated establishment on 1 July 2000, with their respective statutory functions, of the Conservation Commission of Western Australia and the Forest Products Commission (FPC).

Although it eventuated that the enabling legislation for these Commissions did not come into effect until 16 November 2000, consistent with the statutory purpose of State

forests and timber reserves as defined in the Act, this Output has provided for the management of the forests and timber reserves on an ecologically sustainable basis, including:

- ensuring that the values of multiple use forests and woodlands are maintained on an ecologically sustainable basis;
- providing for the harvesting, regeneration and growth of forest products from State forest and timber reserves in accordance with approved forest management plans and the principles of ecologically sustainable forest management; and
- implementing the Regional Forest Agreement (RFA) and Government policies.

The Sustainable Forest Management Output addresses five key areas of activity:

1. Implementation of approved forest management plans and Government policies and programs;
2. Inventory and assessment of forest resources;
3. Maintenance and enhancement of biodiversity and other values;
4. Provision for harvesting, regeneration and growth of forest products in accordance with approved management plans and the principles of ecologically sustainable forest management; and
5. Partnerships.

Working Arrangements

Work has progressed on defining the working arrangements that will apply between the Department and the FPC

following the separation of the commercial timber production functions of the Department from its conservation functions in November 2000. This includes the identification of key planning and information services that are provided by the Sustainable Forest Management (SFM) Division to a range of clients, including the FPC, other branches of the Department and external agencies.

IMPLEMENTATION OF APPROVED FOREST MANAGEMENT PLANS AND GOVERNMENT POLICIES AND PROGRAMS

'Protecting Our Old-Growth Forests' policy

Following the State election in February 2001 the incoming Government implemented its policy to:

- immediately end logging in nearly 99% of Western Australia's old-growth forests and proposing for reservation approximately 340,500 ha of the 346,000 ha of remaining old-growth forests; and
- place an immediate moratorium on harvesting in the remaining 1% of old-growth forests pending a review of the forward timber harvest plans and timber contracts to determine whether contracts could be honoured in line with the sustained yield set by the Regional Forest Agreement (RFA) without harvesting the remaining unreserved old-growth forest.

Immediately after the election action was taken to cease timber harvesting in old-growth forests and the FPC was directed to alternative areas. None of the 1% set aside in case it was needed

to honour contracts was accessed for timber harvesting.

The new Government also placed an immediate moratorium on timber harvesting to undertake an assessment of the scientific, economic and community values and the impact of logging on salinity in Palmer and Leach blocks near Collie, Helms block near Nannup and the proposed expansion of the Wellington National Park.

As part of its forest policy the Government has committed to create 30 new national parks, including the 12 new national parks proposed under the RFA, and two new conservation parks.

Forest Management Plan 1994–2003 Progress and Compliance Report

A report for 1999 was submitted in November 2000 to the Environmental Protection Authority in respect of Ministerial Conditions on the 1994–2003 Forest Management Plan.

Implementation of the Regional Forest Agreement

Following the signing of the RFA in May 1999, a number of developments occurred. In July 1999, the Western Australian Government announced a series of changes to the management of native forest in the south-west. In December 1999, further changes to the management of karri and tingle forest were announced. In February 2001, a new Government was elected with a platform that included significant changes in forest policy. These changes included a cessation of timber harvesting in old-growth forests and commitment to the creation of approximately 200,000 ha of new reserves in addition to the 150,000 ha protected under the RFA.

The RFA included a number of commitments by the State which are the responsibility of the Department. As a result of the series of policy changes outlined above, the intended timelines for implementation of RFA commitments have been altered.

Nevertheless, substantial progress in relation to these commitments has been made.

The following commitments have been completed:

- initiating State processes for reserve creation;
- introduction to Parliament of amendments to the *Conservation and Land Management Act* in relation to revocation of Forest Conservation Zones;
- development of a Memorandum of Understanding for a Forest Industry Structural Adjustment Program;
- archiving of data;
- introduction to Parliament of amendments to the *Conservation and Land Management Act* in relation to membership of the Department's controlling bodies;
- review of CALM_{fire} processes in relation to weightings for values;
- review of the timber harvesting documents with a view to improve understanding by field operators and field staff;
- development of protocols and linkage with Aboriginal Affairs Department information so as to enable protection of identified Aboriginal sites;
- five yearly review mechanisms;
- finalisation of reserve design at 1:25,000 scale;
- public examination of 'look ahead' operational plans; and
- consideration of publication of medium-term fire management plans.

Substantial progress has been made for the following commitments:

- development of an environmental management system conforming to international standards;
- legislative review and competitive neutrality review in relation to wood-based businesses;
- pre-logging fauna assessment;
- assessment, data-basing and integration of cultural heritage resources into forest planning; and

- addressing improvements related to the calculation of sustained timber yields.

INVENTORY AND ASSESSMENT OF FOREST RESOURCES

Throughout the year the Forest Management Branch of the SFM Division performed a diversity of tasks relating to the maintenance, analyses and provision of datasets for the south-west forests and softwood plantations under a service agreement with the FPC which included:

- the provision of data, analyses, interpretations, commentaries, technical and policy advice to various committees, review panels, independent consultants and Governments;
- the ongoing maintenance of inventory and growth datasets: monitoring of harvesting utilisation, update of bluegum growth data measurements on behalf of the FPC and industry, establishment of regrowth jarrah plots;
- the maintenance of spatial reference sets for condition and history of activities for south-west forests and assisting with mapping of forest density in inland areas for the Goldfields forest classification project (GOLDFOR project);
- surveying and demarcation of sensitive boundaries (eg. conservation reserves) adjacent to harvest areas on behalf of the FPC;
- the carrying out of inventories and resource mapping in FPC softwood plantations to assist with assessment of sustainability, audit requirements and on behalf of the FPC to aid in harvest planning and asset valuation;
- validation of FPC managed sharefarm contract areas and resource was completed for that agency as well as routine recoup services such as plantation survey for the 2000 planting season (P2000) and stratification of resource by productivity classes on some plantations; and

- resource inventory, photogrammetry, GPS survey and *Phytophthora cinnamomi* disease mapping services were also provided to other Government departments, private companies and individuals on a recoup basis.

MAINTENANCE AND ENHANCEMENT OF BIODIVERSITY AND OTHER VALUES OF FORESTS

Monitoring of Harvesting and Treatment Activities

The monitoring of harvesting and treatment activities carried out by the FPC was undertaken by Forest Management Branch during the year.

In 2000, 20,570 ha of jarrah forest were harvested with the following silvicultural objectives:

	Hectares
Thinning	2,030
Release of regeneration	3,530
Establishment of regeneration	8,090
Single tree selection	500
Selective	4,770
Other	1,650
Total	20,570

Regeneration of approximately 710 ha of the above area was achieved through commercial harvesting operations. Silvicultural objectives for a further 5,730 ha harvested in this or previous years were achieved by follow-up treatment.

In 2000, 1,310 ha of karri forest were clearfelled or cut to seed trees, and 70 ha were thinned. Regeneration was completed on 1,610 ha harvested in either this or previous years.

Disease in Native Forests

The mapping of the presence of dieback (*Phytophthora cinnamomi*) disease symptoms was carried out to determine protectable areas and specify hygiene requirements for activities likely to result in soil movement on lands managed by the Department.

On behalf of the FPC 56,670 ha were mapped (this includes 17,400 ha of previous mapping rechecked for further spread, and 1,183 ha of linear mapping for access requirements). A total of 10,213 ha of aerial photography was acquired in full cloud, shadowless conditions for future *Phytophthora cinnamomi* disease mapping requirements. This is less than the targeted area due to lack of suitable weather conditions and difficulties encountered with contractor services and contract conditions.

There was no reporting of soil disturbing activities requiring *Phytophthora cinnamomi* disease interpretation carried out by accredited Interpreters for the Parks and Visitor Services Output during the period. A small area was reported for the Nature Conservation Output and SFM Output, primarily for management of nature reserves in the Narrogin District.

Environmental Management System

Prior to the separation of the commercial harvesting operations from the Department, an Environmental Management System (EMS) for Native Forest Operations on South-West Forests was in an advanced stage of preparation and progressing towards accreditation with the international standard AS/NZS ISO 14001. This will meet the EMS requirement for the FPC. Preliminary work on an EMS for the Sustainable Forest Management Output of the Department commenced towards the end of the year.

Montreal Criteria and Indicators

The collection of data and collation of information on behalf of both the Department and the FPC for reporting to the National Forest Inventory, National Plantation Inventory, Montreal Criteria and other national and international reporting requirements was undertaken.

PROVISION FOR HARVESTING, REGENERATION AND GROWTH OF FOREST PRODUCTS IN ACCORDANCE WITH APPROVED MANAGEMENT PLANS AND THE PRINCIPLES OF ECOLOGICALLY SUSTAINABLE FOREST MANAGEMENT

New Forest Management Plan

The Forest Management Plan 1994–2003 will expire on 31 December 2003. As part of the Government's restructure of the timber industry an accelerated process of preparation of the next Forest Management Plan was commenced during the year.

The Department will prepare a proposed new Forest Management Plan for the Conservation Commission. The SFM Division has the lead role in preparation of the plan and in providing technical and planning support for it.

It is anticipated that the Conservation Commission will release the Draft Forest Management Plan for public comment later in 2001. The draft plan will include strategies for ecologically sustainable forest management and will include areas available for harvesting of forest products, details of the reserve system, forest structure objectives, silvicultural objectives and sustained yield levels.

As part of the process of development of the new Forest Management Plan and implementation of the old-growth forests policy, the following reviews and inquiries were commenced:

- review of stream buffers;
- assessment of the scientific, economic and community values and the impact of logging on salinity, of moratorium areas; and
- update of silvicultural guidelines.

Following decisions taken by the previous Government after the release of the Codd report in January 1999 and in response to the report of the Ministerial Advisory Group on Karri and Tingle Management (the Ferguson Report) released in December 1999, the Government, in July 2000, announced the Terms of Reference for an independent review of the sustained yield of the south-west native forests. The principal terms of reference of the independent expert group, chaired by Professor Ian Ferguson, were to examine:

- the management practices used to implement the principles of ecologically sustainable forest management and their integration with the process for establishing sustained yields;
- the methods and data used in calculating sustained yields;
- the timber resource estimates relative to the areas available for timber harvesting;
- the yield projection system taking into account varying growth rates in different parts of the forest; and
- the yield projection system in terms of consistency with the objectives in the forest management plan.

The Stage 1 report of the three-staged review was presented to the Conservation Commission in April 2001. This will provide input to the new Forest Management Plan.

Regional Indicative Harvesting Plans

In August 2000 regional indicative harvesting plans were released for public consultation. The report *CALM Indicative Logging Plans 2000–2001 – Consultation report prepared by Environmental Resources Management Australia for the Department of Conservation and Land Management* was released in December 2000.

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

In March 2001, on behalf of the FPC, the harvest plans for jarrah and karri were revised to ensure that timber supply commitments were met from areas other than old-growth forest. These variations were released jointly with the FPC.

Indicative Timber Yields

To assist the timber industry restructure as a result of the cessation of harvesting in old-growth forests (and without pre-empting the outcome of the new Forest Management Plan), advice on indicative timber yields for the post 2003 period was provided to the Government. The indicative yields announced by the Government on 1 June 2001 were 140,000 cubic metres of first and second grade jarrah sawlogs

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.

and 40,000 cubic metres of first and second grade karri sawlogs.

PARTNERSHIPS

Throughout the year effective communication and interaction continued with:

- the community and stakeholders;
- other State agencies and authorities; and
- Commonwealth agencies.

The SFM Division contributed to the work of the Ministerial Council of Forestry, Fisheries and Aquaculture, the Australian and New Zealand Environment and Conservation Council and to other national forums on ecologically sustainable forest management.

Performance Measures

Output 2

	2000-2001 Target	2000-2001 Actual	Explanation of significant variation
Quantity			
Forest area managed (hectares)	1,870,000	1,870,000	
Quality			
Compliance with management standards	100%	100%	
Timeliness			
Satisfaction of programmed management	100%	100%	
Cost			
Average cost per hectare managed	\$18.24	\$47.65	Increase mainly reflects inclusion of Forest Products Division expenditure of \$43.608 million which was incurred prior to the legislative creation of the Forest Products Commission on 16 November 2000. Net of this expenditure, the cost per hectare is \$24.33. The cost variations mainly reflect the difficulty of anticipating the factors that eventuated to affect this Output's first period of operation.

OUTPUT 3: PARKS AND VISITOR SERVICES

HIGHLIGHTS

- Twenty-nine lighthouses transferred to the Department by the Commonwealth Government.
- 4499 volunteers contributed 190,000 hours to help the Department care for the environment.
- Prisoner work camps help maintain national parks and the Bibbulmun track.
- New visitor centres opened at Karijini National Park and Monkey Mia.

OUTCOME

Community enjoyment of wildlife, lands and waters without compromising conservation and other management objectives

OUTPUT DESCRIPTION

Dealing with public involvement, visitation and appreciation of the natural environment on lands and waters managed by the Department, including preparing and implementing management and recreation site development plans; providing, managing and maintaining appropriate access, recreation opportunities and visitor facilities; protecting natural areas, visitors and facilities from wildfire; training Departmental staff and volunteers, working with local tourist bureaux and commercial tour operators; involving Aboriginal people in park management and the provision of visitor facilities and services; providing visitor information and designing and initiating educational and interpretive activity programs which enrich visitor experience and

help develop greater community awareness and support for parks, natural areas, nature-based tourism and recreation services and policies.

The output performance of the Department can be best reported in eight key areas:

- Planning for management;
- Acquisition and administration of protected areas;
- Park presentation and resource protection;
- Visitor communication and management;
- Community involvement;
- Liaising and working with indigenous people;
- Business management; and
- Legislation and policy for parks and visitor services.

There are several other significant projects such as the Bibbulmun track, regional parks and regional services that merit reporting separately.

Planning for Management

Section 33 of the *CALM Act* requires the Department to manage all land to which the Act applies according to a 'management plan'. A management plan contains a statement of the

policies or guidelines proposed to be followed, as well as a summary of the proposed operations. The *CALM Act* also specifies that the public is given an opportunity to contribute to the content of management plans. The Department achieves this through public workshops, advisory committees, newsletters and inviting comment on draft plans.

Priorities for plan preparation are guided by seven criteria, namely threats to the area, demand for visitor access and use, the presence of exceptional features or poorly conserved habitat, the need to develop different approaches to planning, existing commitments, funding opportunities and government directions. Management plans are prepared for a period of 10 years after which they may be replaced by a new management plan.

There were 44 final management plans approved by the Minister for Environment, with an additional 24 in preparation. The Conservation Commission of Western Australia and the Marine Parks and Reserves Authority assist in the determination of priorities for the preparation of management plans. They also revise the draft and final documents before submitting with recommendations for

Areas Covered by Management Plans

Tenure classification	Area covered by plan (ha)	Total tenure area (ha)	% covered
National Park	1,751,553	5,092,210	34.4
Nature Reserve	361,031	10,818,199	3.3
Marine Reserve	1,115,125	1,145,940	97.3
Other Recreation/ Conservation Reserves	93,710	849,963	11.2
Total CALM Conservation Estate	3,321,419	17,906,312	18.5

approval to the Minister for the Environment and Heritage. Both authorities are responsible for a five-year mid-term review of the management plan and an audit of the Department's performance in implementing the plans.

During 2000–2001, management plans for the following areas were completed:

Jurabi, Bundegi Coastal Parks and Muiron Islands; Serpentine National Park; Shark Bay Terrestrial Reserves; and Rowles Lagoon Conservation Park and Clear and Muddy Lakes Nature Reserve. Two draft management plans for Herdsman Regional Park and Turquoise Coast Islands Nature Reserves were released, as was an

indicative management plan for Jurien Marine Park.

The following table lists the area of each tenure category managed by the Department for which plans are completed and the status of plans in preparation or already approved as at 30 June 2001.

Management Plans as of 30 June 2001

Final Management Plans (completed and approved)	Region	Effective from
Mooradung Nature Reserve	Swan	21/2/86
Nature Reserves in the Shire of Wyalkatchem	Wheatbelt	21/2/86
Forrestdale Lake Nature Reserve (5 year term)	Swan	10/7/87
Nature Reserves in the Shire of York-Northam	Swan	10/7/87
Lane Poole Reserve	Swan, Central Forest	14/12/90
Shannon Park – D'Entrecasteaux National Park	Southern Forest	8/1/88
Benger Swamp Nature Reserve (5 year term)	Central Forest	12/2/88
Cape Range National Park	Pilbara	23/3/90
Northern Forest Region	Swan	12/2/88
Central Forest Region	Central Forest	12/2/88
Southern Forest Region	Southern Forest	12/2/88
Ningaloo Marine Park	Pilbara	24/11/89
Leeuwin-Naturaliste National Park	Central Forest	21/4/89
Yanchep National Park	Swan	29/9/89
Fitzgerald River National Park	South Coast	19/7/91
Dampier Archipelago Nature Reserves	Pilbara	31/8/90
Waroona Reservoir and Catchment Area	Central Forest	16/3/90
Logue Brook Reservoir and Catchment Area	Central Forest	16/3/90
Shoalwater Islands Nature Reserves	Swan	20/10/92
Walpole-Nornalup National Park	Southern Forest	3/7/92
Marmion Marine Park	Swan	15/5/92
South Coast Region	South Coast	13/3/92
Matilda Bay Reserve	Swan	21/5/93
John Forrest National Park	Swan	19/8/94
Goldfields Region	Goldfields	24/2/95
West Cape Howe National Park	South Coast	4/8/95
Yalgorup National Park	Swan	15/8/95
Dryandra Woodland	Wheatbelt	14/11/95
Lesueur National Park – Coomallo Nature Reserve	Midwest	13/10/95
Two Peoples Bay Nature Reserve	South Coast	7/6/96
Purnululu National Park and Conservation Reserve	Kimberley	5/3/96
Shark Bay Marine Reserves	Midwest	7/3/97
Wanjarri Nature Reserve	Goldfields	2/7/96
Canning River Regional Park	Swan	5/12/97
Nambung National Park, Wanagarren, Nilgen and Southern Beekeepers Nature Reserves.	Midwest	11/9/98
Leschenault Peninsula Conservation Park	Central Forest	8/1/99
Esperance Lakes Nature Reserves	South Coast	11/5/99
Karijini National Park	Pilbara	15/6/99
Swan Estuary Marine Park and Adjacent Nature Reserves	Swan	7/4/00
Stirling Range and Porongurup National Parks	South Coast	3/12/99
Jurabi, Bundegi Coastal Parks and Muiron Islands	Pilbara	25/08/00
Serpentine National Park	Swan	3/10/00
Shark Bay Terrestrial Reserves	Midwest	3/10/00
Rowles Lagoon Conservation Park and Clear and Muddy Lakes Nature Reserve	Goldfields	19/1/01
Final Management Plans (being prepared)		
Perup Forest and Lake Muir-Unicup Nature Reserves	Southern Forest	13/11/98-15/1/99
Shoalwater Islands Marine Park	Swan	27/10/95-29/12/95
Yellagonga Regional Park	Swan	17/4/00-31/7/00
Herdsman Regional Park	Swan	5/6/01-5/9/01
Jurien Marine Park (Indicative Management Plan)	Midwest	5/10/00-5/1/01
Turquoise Coast Islands Nature Reserves	Midwest	To be determined

Management Plans as of 30 June 2001 (continued)

Draft Management Plans (in preparation)	Region
Beeliar Regional Park	Swan
Darling Range Regional Park	Swan
Yanchep and Neerabup National Parks	Swan
Gnangara Park Concept Plan	Swan
Woodman Point Regional Park	Swan
Jandakot Regional Park	Swan
Rockingham Lakes Regional Park	Swan
Dampier Archipelago and Burrup Peninsular	Pilbara
Millstream-Chichester National Park - Mungaroo Range NR	Pilbara
Montebello/Barrow Islands Marine Conservation Reserve (Indicative Management Plan)	Pilbara
Cape Range National Park (Revision)	Pilbara
Ningaloo Marine Park (Revision)	Pilbara
Dampier Archipelago/Cape Preston Marine Conservation Reserve (Indicative Management Plan)	Pilbara
Wellington Forest National Park	Central Forest Region
Leeuwin Naturaliste Ridge and Scott National Park	Central Forest
Kimberley Region	Kimberley
Rowley Shoals Marine Park (Indicative Management Plan)	Kimberley
Shark Bay World Heritage Area Strategic Plan	Midwest
Kalbarri National Park	Midwest
Gibson Desert Nature Reserve	Goldfields
Esperance Coastal Parks and Reserves	South Coast
Shannon-D'Entrecasteaux National Park (Revision)	Southern Forest
Wheatbelt Region	Wheatbelt
Forest Management Plan	Southern Forest, Swan & Central Forest

Acquisition and Administration of Protected Areas

The Department aims to develop a comprehensive, adequate and representative reserve system in Western Australia. It also aims to ensure that concessions occurring on those lands and waters comprising our reserve system are managed sustainably.

More than \$8.7 million from a variety of funding sources was expended in the purchase of approximately 888,000 ha of land with high conservation values that will eventually be incorporated into Western Australia's protected area reserve system. The majority of the lands were purchased under the Gascoyne-Murchison Rangelands strategy, funded by the State Government with support from the Commonwealth Government's Natural Heritage Trust.

The conversion of State forest to conservation reserves requires State Parliament to pass the State Forest Revocation and Reserves Bill. The Department continues to progress the

creation of these additional conservation reserves arising from the Regional Forest Agreement and the Government's 'Protecting our old growth forest' policy. These actions are complex land administration matters that are undertaken with the assistance of the Department of Land Administration and being cognisant of the Conservation Commission's preparation of a revised forest management plan for State forest.

There are currently 190 leases issued for lands managed by the Department, including conservation reserves and State forest. The majority of leases are for the purposes of utilities, dams, gravel extraction, rubbish disposal, grazing or tourism, and recreation facilities. During the year 12 additional leases were granted, including one for a commercial radio broadcaster in Mandurah, and another for Western Australian Aboriginal Media Association 6AR radio station at Point Waylen in Alfred Cove. The Department also administered various lease assignments, amendments and sub-leases throughout the year.

Thirteen licences were issued during the year for the use of a number of the Department's communication or fire lookout towers. The majority of these licences were issued to the WA Police Service and Western Power as part of their radio communication networks.

In December 2000 the Commonwealth transferred 45 lighthouse properties and associated lands to the State. Twenty-nine of these were vested in the Conservation Commission and managed by the Department, which will lease back operational lightstations to the Australian Maritime Safety Authority. The Department continues to process the leases and arrange the land vesting orders through the Department of Land Administration.

A total of 363 commercial tourism licences were issued for the conservation estate, with a further 49 applications assessed. This represents a 12% growth in the number of tourism licences for the financial year. Fifty-six are restricted and 307 unrestricted, with 107 marine-based and 266 land-based.

A review of the licensing system was completed. This will lead to a change in the licensing system to enable longer-term unrestricted licences to be issued to accredited tourism operators. A two-year research program into the effects of commercial operations on wildlife at Yardie Creek in Cape Range National Park is currently being done.

Park Presentation and Resource Protection

The Department aims to achieve high-quality visitor services and facilities that are sustainably managed.

Recreation and Tourism Assessment Reports and Master Plans were produced for a number of projects including a recreation assessment for South Peron Peninsula in Shark Bay and a roading review for Dryandra Woodland in the Wheatbelt region.

Site development and/or concept plans were completed for many projects around the State. These plans are prepared to assist with funding applications and to enable capital works projects to be undertaken. Plans were prepared for new interpretation facilities at Pinnacles Desert in Nambung National Park.

Documentation was also prepared for park headquarters in Karijini and Stirling Range National Parks, and new visitor facilities in Lesuer National Park, Leeuwin Naturaliste National Park, Cape Le Grande National Park and Korrelocking Nature Reserve.

Design and/or construction documentation drawings were prepared for many projects around the State including the landscaping and parking details for the Karijini Visitor Centre and the new lookout and shelter at Turquoise Bay in Cape Range National Park.

Visual impact assessment, recommendations, guidelines and specialist advice was provided for numerous proposals during the year. Landscape management

recommendations and development guidelines were prepared for the Shark Bay World Heritage Area.

Native forest harvest and regeneration plans and impact assessments were prepared for 37 harvest coupes in the Southern Forest Region and six harvest coupes in the Central Forest and Swan Forest regions. Plantation harvest and establishment plans were prepared for the Ludlow Tuart Forest.

The visual landscape management system was updated and internal guidelines for native forest harvest and plantation management were revised and reprinted. The visual land management database for the Swan, Central and Southern Forest regions was reviewed and a process of upgrading commenced. New technologies are being applied to viewshed analysis and terrain modelling in a pilot study in the Wellington Forest.

Visitor Communication and Management

It is the aim of the Department to improve the quality of experience of visitors and their understanding and appreciation of wildlife conservation, parks, forests and reserves.

Visitor communication planning is integral to the Department's management planning process, visitor signage and information displays, interpretive activities and customer satisfaction surveys.

The Department's Sign Design Studio continued to meet regional needs for signs and displays for 110 projects including Port Kennedy Scientific Park interpretation signs, Yanchep National Park's sign system, *Western Shield* roadside signs for Moora District, interpretive signs for the Esperance District Ramsar wetlands and the Cape Le Grand National Park Office and Coastal Trail. Risk and Dieback signs continued to be in demand as part of the Department's risk management program.

Interpretive activity programs were conducted in key areas for concentrations of visitors towards enriching their experience while minimising visitor impacts and maximising understanding and support for sound management of our heritage. All regions and districts provide interpretive activities. Regular activity programs attract more than 300,000 participants. Major interpretive activity programs were conducted at Yanchep National Park, The Hills Forest Discovery Centre, Perth Observatory and Penguin Island in the metropolitan area. Others were conducted at Geikie Gorge, Mirima and Purnululu national parks in the Kimberley, Valley of the Giants Summer Activities Program in the south-west and Monkey Mia in the Midwest.

The Perth Outdoors Paper promoting guided activities, tours and attractions was produced and distributed to popular outlets around Perth to stimulate the market for guided activities within the metropolitan area.

The nationally accredited Designing Ecotour Interpretive Activities Workshop was conducted at Monkey Mia by and for staff from the Department, the Monkey Mia Resort and from commercial tour operators within the Shark Bay Marine Park.

Significant support was provided to the first National Interpretation Training Program 'Fire in the Belly' held in Fremantle. Field trips for project work were conducted in the Darling Range Regional Park at The Hills Forest Discovery Centre, Mundaring Weir and John Forrest National Park.

Community Involvement

The Department's Community Involvement Volunteer Program continued to grow highlighting the generosity and support of the Western Australian community. The volunteers involvement and interest in the environment saw a major increase in the contribution made to the

environment and the Department in the International Year of the Volunteer 2001.

There were 26 new projects created. These include track stabilisation, clean-up days and removing car bodies with 4WD clubs, seed collection in the Lake Bryde Recovery Catchment, a mountain bike study, Bushcare – regeneration, tree planting and seed collecting, and a dolphin rescue service in Rockingham. The number of projects registered since inception of the volunteer program totals 391.

Special emphasis has been placed on wildlife carers to record and document their previously under-reported contribution to caring for Western Australia's native wildlife.

The Department continued projects with 4WD clubs to enhance the landscape and make the environment cleaner and safer for current and future generations.

The Community Involvement Volunteer Program also continues to be a valuable source of opportunity for students to gain work experience. It provides a forum for teaching conservation ethics, and provides an avenue for the community to be involved with decision making in partnership with the Department.

Number of new volunteers for 2000-2001	1188
Total of volunteers in the database	4499
Number of new projects for 2000-2001	26
Hours contributed 2000-2001	190,000

For the first time we have also included the volunteer contribution made by the CALM Bush Ranger Cadets.

Number of CALM Bush Ranger cadets	800
Number of school units involved	21
Number of adult volunteers involved	80
Hours contributed	105,600

Liaising and working with indigenous people

The aim of the Department is to develop effective partnerships with

Aboriginal people in the management, protection and interpretation of protected areas.

The Indigenous Heritage Unit was established by the Department to focus on the increasingly important area of indigenous liaison and reconciliation. The unit provides people with the opportunity to experience Aboriginal heritage in the natural environment. It aims to provide training and educational services to encourage the development of cultural heritage and tourism projects. The unit also aims to develop programs that have the potential to provide employment opportunities for Aboriginal people.

The unit successfully transferred the operation of the Aboriginal cultural activities programs conducted at The Hills Forest Discovery Centre to a local Aboriginal family business. Other Aboriginal people are being trained to take over tourism partnerships originally established with Captain Cook Cruises and the Western Australian Maritime Museum.

An Aboriginal cultural heritage education program is in the early stages of development between Yanchep National Park and Curtin University.

Attachment 10 of the Regional Forest Agreement requires the Department to implement a number of initiatives aimed at improving its performance in relation to Aboriginal affairs.

Aboriginal cultural awareness training courses were conducted for staff of the Department and Forest Products Commission. Two-day workshops were held in Perth, Bunbury, Manjimup and Goongarrie Station for 98 participants.

Formal consultation was initiated with Native Title Working Groups in the south-west, the Aboriginal Affairs Department, the Noongar Land Council, the National Native Title Tribunal and other agencies. Memoranda of Understanding were developed with several registered

representative bodies including the Goldfields Land Council, Yamatji Land and Sea Council, Pilbara Native Title Services and Noongar Land Council. A liaison program about changes to State forest and the creation of new national parks arising from the RFA was undertaken. Early discussions on joint management of Yanchep National Park also commenced.

Aboriginal heritage surveys were carried out in Kalbarri and Leeuwin-Naturaliste national parks to avoid disturbance of registered sites by roading and other capital works.

Business Management

The Department aims to ensure activities are planned and implemented within a business management framework, and that all proposed projects with a commercial component have a business plan.

The business unit of the Park Policy & Tourism Branch co-ordinates these functions and the marketing of National Park Passes and liaison with the tourism industry. The unit developed a template for a business plan and aims to assist all sections with a commercial component to produce their own five-year business plans. This will assist focus priorities and ensure efficient allocation of capital funds to planned projects. Draft business plans were prepared for the Monkey Mia Visitors Centre and the Kimberley Natural Eco-Centre at Broome.

There are now 38 retail outlets selling park passes resulting in an 18% increase in sales of Annual Park Passes.

The Department was also an exhibitor at the Perth Caravan and Camping Show, and through the WA Tourism Commission and regional tourism associations participated at all interstate caravan shows.

The Department's major tourism industry function – the 3rd Annual Tourism Industry Exchange (CALMTIE) – saw more than 100

industry representatives participate in presentations from the Department and regional tourism representatives on 20 areas of lands and waters managed by the Department. The Exchange established itself as the principal forum in WA for nature-based tourism and was nominated as the main event for WA at next year's International Year of Ecotourism events calendar. The event promotes the responsible and sustainable use of conservation estate for tourism activities.

The Minister for the Environment and Heritage launched a web-based CD-Rom 'Be Touched by Nature' – a joint venture by the Department, WATC and WA's 10 Regional Tourism Associations. The CD is a free tool to assist the tourism and travel industry to source the most accurate and up-to-date information on nature-based tourism opportunities. It assists them in marketing the State. The CD, trialed at the recent Australian Tourism Exchange with an extremely positive response, is in great demand.

The nature-based recreation and tourism cooperative research program established by the Department in 1998 continues to expand. This is a partnership between Western Australia's universities and the Department to promote and apply the universities' expertise and knowledge in the social and environmental science areas on various field-based recreation and tourism projects. Students gain valuable field experience and the Department benefits from the results of these studies.

A Reference Group, which facilitates the coordination of students and projects, comprises academic staff from all the State universities as well as Department staff. The main functions of the Reference Group are:

- identifying potential research studies of relevance and importance to the planning, development, management, monitoring, marketing and financing of

sustainable recreation and tourism opportunities in natural areas;

- acting as 'research brokers' by finding and allocating these studies to tertiary students and/or faculty members who are interested in pursuing a particular topic or field of inquiry;
- assisting in the dissemination of results of these studies to the Department's regions, districts and specialist units and to other interested parties.

More than 70 projects have been identified and are listed on the Department's website *NatureBase*. A number of these projects are in progress or have been completed.

Legislation and Policy for Parks and Visitor Services

The Department aims to achieve an efficient and effective legislative and policy framework ensuring sustainable use of all protected areas.

Integrated regulations for visitor management on all land tenures were prepared. Amendments were proposed to the *CALM Act 1984* to provide a legislative basis for the management of regional parks and the joint management of lands with Aboriginal native titleholders.

There is a continual review and update of existing policies impacting parks and visitor services.

Bibbulmun Track Project

The Department continues to work closely with the community and other agencies, particularly the Ministry of Justice, in improving, maintaining and marketing the 963km Bibbulmun Track.

The number of walkers using the Bibbulmun Track continues to increase. The Department assisted the Friends of the Bibbulmun Track (FOBT) in a survey of members. It found that day walks were the most popular with respondents completing on average five per-year but multi-day

walks still account for 70% of total track usage. All surveys indicate that at least 40% of walkers use off-track accommodation during their walks and that this, along with spending on food, transport and other services were providing a real boost to regional economies. The survey also showed that walkers spent \$160 to \$250 per year in Western Australia on specialist hiking and camping gear. A Mundaring trail use survey conducted in 2000 showed that there was an 88% awareness of the Bibbulmun Track among all trail users.

The track also continues to receive very high usage from non-commercial groups such as recreation clubs, scouts, school and other education groups. It is proving to be a very valuable resource for the recreation and education sectors.

Albany District managed a major track realignment around the Western Power windfarm site at Sandpatch, near Albany, with labour provided by a prison crew from Pardelup Prison Farm and Albany Worklink employees. Eight hundred metres of boardwalk and several kilometres of gravel hardened trail have created a spectacular walk which should become a major attraction in the area.

Major improvements to the track and facilities in the past year include the addition of composting toilets in sensitive stream zones and drinking water catchments; a range of management and directional signs; preliminary works towards replacement of a damaged suspension bridge near Walpole; replacement of a damaged shelter at Lake Maringup; improvement to drainage and construction of duckboards in low-lying track sections; several small track realignments to improve visitor safety, environmental sustainability and walker experience. Trailhead shelters including informational and interpretive displays have been installed at all towns the track passes through.

Two projects aimed at enhancing commercial tourism opportunities were a Bibbulmun Track Revenue Generation Study and the development of a Bibbulmun Track Approval and Marketing Scheme by the Friends of the Bibbulmun Track. The aims of the scheme are to ensure that track visitors enjoy consistently high standards of experience, to minimise environmental impact on the track through education by service providers and to help service providers maximise tourism opportunities, raise product standards and benefits from free and cooperative marketing.

A work crew from Karnet Prison Farm completed important erosion control and repair work on sections of the Bibbulmun Track in the Mt Dale Conservation Park. FOBT now has more than 2,000 members and 500 registered volunteers. Apart from track maintenance, volunteers also engage in office and guiding activities.

The planning and development of a long-distance off-road bicycle trail is currently under way by the Department's Bibbulmun Track office. Starting in Mundaring the trail will eventually go as far as Albany, although the first stage of detailed planning ends at Collie. Using a combination of funds from a Lotteries Trailswest grant, Alcoa, local government and RFA, planning work has been completed to identify detailed alignments in the Mundaring to Collie section. Extensive consultations have been undertaken on a range of issues with stakeholders and agencies. Water quality and supply, forestry, mining, environmental protection, conservation, mountain biking, local government and general recreation interests were represented. The first section is due for completion in mid 2002.

Regional Parks

Perth's regional parks - Yellagonga, Herdsman Lake, Canning River, Woodman Point, Beeliar, Jandakot, Rockingham Lakes and Darling Range - comprise close to 50,000 ha of urban bush and parkland.

The Department's role in regional parks encompasses a number of facets including:

- the management of lands within regional parks owned by the Western Australian Planning Commission, which were formerly managed by the Ministry for Planning;
- the management of reserves vested in the Recreation Camps and Reserve Board formerly managed by Sport and Recreation Western Australia; and
- the responsibility for coordinating the management of regional parks. This involves the preparation of management plans for each of the parks and ensuring an integrated management approach to works within the parks.

Community advisory committees for each of the regional parks have been established. They comprise a range of people from local communities who are capable of advocating on behalf of the various stakeholders, including conservationists, scientists, friends groups, recreational users and other park visitors.

During the past 12 months, the Department consolidated the management of the eight regional parks, including the following actions:

- preparation of two draft management plans for Yellagonga Regional Park and Herdsman Lake Regional Park;
- the Jervoise Bay Conservation and Recreation Enhancement Plan was prepared which will guide works to enhance and upgrade the conservation value and access for the public to Woodman Point Regional Park and, Mt Brown and Brownman Swamps in Beeliar Regional Park;
- continued and significant capital improvements such as the construction of shared paths. Major weed control and rehabilitation plantings also occurred in accordance with Weed and Rehabilitation Plans; and

- a visitor survey of regional parks was undertaken estimating total visits to Department managed estate at 1.33 million visits. Other qualitative information on visitor preferences was also collected. The results of the study are summarised in the Visitor Information and Statistics Section.

Regional Services

The Department's nine regions have entered into Service Provider Agreements with the Director of Parks, Recreation Planning and Tourism to provide the full range of management, maintenance and development services required to effectively and efficiently implement actions under the Recreation and Visitor Services Output. Highlights from the regions include:

Kimberley: Campground hosts have been stationed at Purnululu National Park, Wolfe Creek Meteorite Crater Reserve and the King Edward River Campsite to provide advice to visitors and help with facility maintenance.

Following gazettal of the area as a national park, a ranger position was established to assist visitors, liaise with the traditional owners and provide management input in this remote area.

Many recreation facilities and roads were badly damaged and needed repair following heavy rain and flooding in the region.

Pilbara: The Karijini Visitor Centre opened in June and will provide a focal point for visitors to the park. It will aid the development of a wide range of cultural and nature-based tourism products and services by the traditional owners of Karijini.

The Ministry of Justice prisoner work camp at Millstream-Chichester National Park continued to provide a valuable park maintenance role, while the Australian Trust for Conservation Volunteers assisted with the development and maintenance of several other sites in the Pilbara.

Planning for improved mooring and boat launching facilities was completed and implementation has commenced at Coral Bay in the Nugala Marine Park.

Midwest: The Monkey Mia Visitor Centre opened and boardwalks and other minor capital works items were constructed in the Shark Bay World Heritage Area, Nambung National Park, Kalbarri National Park and Badgingarra National Park.

Traditional owners were consulted in relation to developments in Kalbarri and Nambung National Parks with the assistance of the Yamatji Land and Sea Council.

Planning and liaison continued with shack owners at Wedge and Grey, north of Perth, and a draft management plan for the Turquoise Coast Island Nature Reserves was prepared.

Goldfields: The region completed construction of public amenities and an interpretive shelter at the Kalgoorlie Arboretum. The interpretation shelter panels were completed using corporate sponsorship from Delta Gold and involved interpreting and explaining biogeographical regions of the Goldfields using original artwork. An additional 700m of dual use path was installed at the Arboretum in partnership with the City of Kalgoorlie-Boulder.

Existing recreation sites were maintained with upgrades at Cave Hill Nature Reserve (signs and access) and Goongarrie pastoral lease (signs and facilities).

Swan: Yanchep National Park continues to be redeveloped in conjunction with leaseholders. The park's Aboriginal cultural heritage program continued to evolve and the relationships with the traditional owners and other stakeholders strengthened.

The Serpentine National Park Management Plan was released and several improvements to facilities were

undertaken at John Forrest, Serpentine and Walyunga national parks.

The Hills Forest Activity Centre catered for 18,000 students and 10,000 participants in interpretation activities.

The Dryandra Woodland Ecology Course won the Award in the Education and Training Section of the Heartlands Tourism Association Awards.

Wheatbelt: Stage one of the construction of an animal viewing facility at Dryandra Woodland was completed, along with a road upgrade and the installation of walk signs in the woodland. Visitor facilities were also upgraded at Totadgin, Yorkrakine and Korrelocking Nature Reserves.

There was resolution of an outstanding commitment to transfer Mooranoppin Nature Reserve to local Aboriginal group in recognition of the important cultural heritage values of the area and the long-standing aspirations of Aboriginal people with connections to the land.

Assistance was provided to a local community group to develop a walk trail at Wongan Hills Nature Reserve.

Central Forest: Visitor risk management systems continue to be applied with particular reference being paid to cliffs, water bodies and visitor attractions.

The Cape to Cape walk track was opened in the Leeuwin-Naturaliste National Park. One hundred and fifty members of the Friends of the Cape to Cape maintain the track. Also the ownership of the Cape Leeuwin and Cape Naturaliste lighthouses transferred from the Commonwealth to the State Government for incorporation into the park.

A trainee ranger with Noongar heritage is now positioned at Ellensbrook – a historic site leased from the National Trust. Aboriginal cultural information and interpretive activities are also being developed.

Joint planning is underway for the Leschenault Peninsula Conservation Park with the South-West Development Commission. New facilities will be provided at the John Boyle O'Reilly Interpretation Centre.

Southern Forest: The Tree Top Walk continued to operate as a successful tourist attraction generating significant economic benefits to the local community by way of direct and indirect employment outcomes.

Improvements to visitor facilities were completed at Mt Chudalup, Point D'Entrecasteaux and Beedelup Falls. Upgrading work has commenced at Warren National Park.

Extensive consultation and planning was undertaken for the development of new parks and tourist facilities associated with the RFA and the implementation of the Government's 'Protecting Our Old Growth Forest' policy.

South Coast: New facilities were developed in Torndirrup, Fitzgerald, Cape Le Grand and Stokes national parks as well as Woody Island and Two Peoples Bay nature reserves.

Successful negotiations with Gnowangerup Aboriginal Corporation will result in cultural tours being offered in the Stirling Range National Park in spring 2001.

The Bibbulmun Track was re-aligned and upgraded to cater for the estimated 100,000 visitors to the Western Power windfarm who will walk along the upgraded section of the track.

The South Coast Eco-Adventure Voyage – a partnership between the Department and the Tall Ship STS Leeuwin gained international recognition by winning the British Airways Tourism for Tomorrow Awards for the South West Pacific Region. The award recognises organisations that have made positive contributions to the

natural, cultural environment through sensitive environment tourism.

Training

During the year, Departmental staff conducted two week long training courses on recreation planning and management in natural areas for recent field officer recruits and other CALM staff at the Ministry for Sport and Recreation's Point Walter Conference Centre. Staff also presented lectures on various aspects of recreation resource planning and management and landscape design to students at Curtin, Edith Cowan and Murdoch Universities.

Tread Lightly! Australia and Track Care WA

CALM organised and hosted a one-day workshop with representatives from the WA 4WD Association and member clubs at the Hills Forest Activity Centre in May. The main aim of the workshop was to acknowledge and discuss the Association's ongoing involvement in track restoration and other environmental rehabilitation projects and associated issues relating to the provision and management of four wheel driving opportunities. The Department also participated in the annual WA 4WD Show and staff in a number of centres continued to promote the tread lightly message and to actively work with the WA 4WD Association and Track Care WA on various track rehabilitation projects primarily in the south-west of the State.

Nature-Based Recreation and Tourism Research

The nature-based recreation and tourism cooperative research program established by the Department in 1998 continues to expand. This is a partnership between Western Australia's universities and CALM to promote and apply the universities' expertise and knowledge in the social and environmental sciences areas on various field-based recreation and

tourism projects. Students can gain valuable field experience and the Department can benefit from the results of these studies.

A Reference Group that facilitates the coordination of students and projects now comprises academic staff from the five West Australian Universities as well as CALM staff. Associate Professor Ross Dowling of Edith Cowan University is the chairperson of the Group. The main functions of the Reference Group are to:

- identify potential research studies of relevance and importance to the planning, development, management, monitoring, marketing and financing of sustainable recreation and tourism opportunities in natural areas;
- act as 'research brokers' by finding and allocating these studies to tertiary students and/or faculty members who are interested in pursuing a particular topic or field of inquiry; and
- assist in disseminating the results of these studies to CALM's regions, districts and specialist units and to other interested parties.

More than 70 projects have been identified and are listed on CALM's website NatureBase. A number of these projects are already in progress or completed.

Visitor Information and Statistics

The way in which visitor feedback and visitor use monitoring across CALM-managed lands and waters are recorded within the Department's Visitor Information and Statistics (VISTAT) Program was streamlined during the year. The aim of the VISTAT Program is to provide accurate information on visitor use, needs and expectations and on levels and patterns of use throughout CALM-managed lands and waters. VISTAT and Visitor Survey databases were developed within the

Recreation & Tourism Information System (RATIS), providing an effective and efficient means of collating and storing visitor use monitoring data and visitor feedback form results.

Visitor Use Monitoring

The visitor use monitoring program continued, with 226 sites monitored by traffic classifiers and counters, observation surveys and ticket sales in national parks, State forest areas and reserves throughout the State. Sixty-eight new sites were added to the number of data collection sites. However, many of these contributed only marginally to the overall total annual figures, as most of these new sites are part of numerous small reserves in remote areas with limited access and use.

The total visitation to CALM-managed lands and waters throughout the State during the year was 9.7 million visits. While this represents a significant increase as compared to the previous year's 8.9 million visits, this is due to the inclusion of visitation figures for Perth's eight regional parks. Elsewhere in the State, visitation to CALM-managed lands and waters declined by approximately half a million to 8.4 million visits. This decrease appears to be associated with various factors including increased fuel costs, introduction of the Goods and Services Tax, the Sydney Olympic Games and extreme weather patterns in several regions, which restrict visitor access to a number of parks and reserves.

Total visits to CALM-managed Lands and Waters (excluding regional parks)

Year	No. Data collection sites	Total No. visits (million)
1996-1997	137	6.4
1997-1998	144	8.1
1998-1999	149	8.7
1999-2000	158	8.9
2000-2001	226	8.4

As indicated, the VISTAT Program was extended this year to include the eight

regional parks managed by the Department. A number of observation and survey sessions were conducted across 17 key recreation sites within the eight regional parks, to give a total estimate of over 1.3 million visits to these parks during 2000-2001.

Regional Park	Total No. visits 2000-2001
Beeliar	72,193
Canning River	107,367
Darling Range	237,239
Herdsmen	153,525
Jandakot	4,434
Rockingham Lakes	67,874
Woodman Point	500,751
Yellagonga	192,686
Total	1,336,069

A total of 767 interviews were completed across the eight parks.

The main findings of the survey were as follows:

- The greatest response given for using the parks was for exercise and fitness (30%).

- The most regular activities undertaken in the parks are walking, walking the dog and jogging, followed by bike riding and fishing.
- 63% of users gave a rating of 6 or 7 on a rating scale from 1 (extremely displeased) to 7 (extremely pleased) when describing how pleased they were with their visit.
- 95% of users would recommend the parks to other people.
- 70% of visitors live within the immediate area of the parks, with another 26% being from the Perth metropolitan area (as opposed to a local user).
- 12% were first time visitors to the parks, with the remaining 88% being repeat visitors, of which 34% visited weekly.
- 60% of users were visiting the Parks with friends/family, and 38% were unaccompanied.
- The largest proportion of respondents were in the 40-59 year age bracket (41%) followed by the 25-39 year age group (33%).

Visitor Feedback Form

The revised customer satisfaction survey methodology developed in the previous year is now fully operational with the new questionnaire form in use throughout the Department. These surveys are crucial in assessing visitor needs and expectations as well as satisfaction with recreation and tourism facilities and services.

The visitor survey program was undertaken at 21 national parks and other recreation areas throughout the State during the year. The survey results were collated in individual reports specific for each recreation area where the survey was conducted. The survey provides feedback from visitors' regarding the management of these areas, their overall level of satisfaction during their visit, their main purpose of visit and the activities undertaken. This information aids in the planning and management of these recreation areas by providing vital information for site planning and design, visitor communications, business and marketing plans and performance evaluation.

Performance Measures

Output 3

	2000-2001 Target	2000-2001 Actual	Explanation of significant variation
Quantity			
Visits to sites managed	9,200,000	9,700,000	Net increase mainly reflects inclusion for the first time of visitors to the eight Perth regional parks, partly offset by a reduction in visitors to other parks due to uncontrollable external factors eg. fuel costs, flooding in some regions.
Quality			
Mean level of visitor satisfaction with their visit overall	85%	83%	
Timeliness			
Visitor services/activities delivered within advertised timeframes	100%	100%	
Cost			
Average cost per visit	\$3.66	\$3.99	

OUTPUT 4:

ASTRONOMICAL SERVICES

HIGHLIGHTS

- **Record attendance at Star Viewing Nights.**
- **Formal opening of the new 'Millennium Telescope Building'.**
- **Incorporation of Perth Observatory volunteer group.**
- **Significant scientific publication in the prestigious US journal *Science*.**
- **One new asteroid discovered.**

OUTCOME

Astronomical information and services for the benefit of the Community.

OUTPUT DESCRIPTION

Providing public information and awareness directly beneficial to the Western Australian community, and contributing to scientific research in astronomy by co-operating with national and international institutions in the acquisition, analysis, interpretation and dissemination of information.

Star Viewing nights continue to be the main focus of the education/public access programmes at Perth Observatory. These are very popular with the public and a new annual attendance record of 5,120 was achieved with a new record monthly attendance of 946 set in March 2001. These records were assisted by the use of a new building to house the 16-inch Meade telescope, the largest instrument used in the Star Viewing night programme. The new building was formally opened in August 2000 and named the 'Millennium Telescope Building'.

The yearly attendance for daytime guided tours and Sunday daytime guided tours totalled 2,522 and 782 respectively. Visitors' satisfaction remained high as in previous years with more than 98% both satisfied with their visit and with the educational quality of the services in which they participated.

Public awareness of the Observatory also remains high. In 2000–2001 the number of people who visited, phoned for information (14,510 calls), attended talks or attended an astronomy field night, increased to more than 31,144 (24,200 in 1999–2000). Our 2001 'Under the Stars' Summer Lecture by Professor Don Campbell on the latest developments in Solar System radar astronomy was attended by more than 220 people. Also, Observatory staff informed the public of astronomical events in 88 radio, nine television interviews and 74 newspaper articles.

Astronomy services were also delivered off the Observatory site to rural and metropolitan areas. Staff provided telescope viewing at many schools and actively participated in the Western Australian Astrofest. In total, more than 4,676 people viewed the stars with Observatory telescopes transported to their locality for one of 23 'astronomy field nights' conducted during the financial year.

The Perth Observatory volunteer group achieved a major milestone in February 2001 when it became an incorporated body. This should enable it to raise funds and contribute even more significantly in its partnership with the Observatory. Volunteer assistance contributed the equivalent of 1.2 full-time staff members in 2000–2001.

Formal education activities provided by the Observatory included the continuation of a second-year practical astronomy course at Curtin University. Three students were also supervised in their research projects including a Summer Studentship involved tracking asteroids and comets and a project to characterise the stability of the atmospheric conditions at Bickley.

Imaging the disintegration of Comet C/2001 S4 (LINEAR) in August 2000 was the scientific highlight of the year. This work augmented that by overseas collaborators and resulted in a significant scientific publication in the prestigious US journal *Science*. Brightness monitoring and imaging of other comets has also continued, and Observatory observations aided the identification of two new comets.

The gravitational lens monitoring with the PLANET collaboration with European, US, South African and Tasmanian astronomers has continued with the sensitive electronic camera donated by the University of Ohio USA last year. This collaboration published three papers of significant astrophysical importance in this period and has also extended to the study of the enigmatic cosmic explosions called gamma ray bursts.

Asteroid 2001 AH2 was discovered by the 10 inch Mike Candy Telescope (MCT). The MCT recommenced tracking asteroids and comets after relocation to the enclosure that formerly housed the UWA 16-inch telescope. This new housing permits greater access to the sky than was previously available to this telescope and 520 asteroid and comet positions have been forwarded to the

International Astronomical Union in the current financial year. This is a significant improvement in productivity over past years. The publication of 274 and 14 individual observations of asteroids and comets, respectively, highlighted the usefulness of the observations conducted.

The MCT has also observed young solar-type stars in support of the

Hubble Space Telescope observations undertaken by collaborators at University of Cincinnati, Department of Physics.

Brightness monitoring of stars has also been enhanced by the development and commissioning of a new pulse counting photometer system built and programmed by the Observatory's technical staff. Performance of the

Lowell Telescope tracking camera, completed last year, has been up to expectation and long exposures with the best locally attainable image quality are routinely acquired.

These achievements were possible as a result of the on-going hard work, creativity and dedication of the Observatory's full-time and volunteer staff.

Performance Measures

Output 4

	2000-2001 Target	2000-2001 Actual	Explanation of significant variation
Quantity			
Tour visitors.	9,100	8,424	
Enquiries.	18,000	22,720	Higher than expected level of public interest in astronomy.
Refereed scientific papers.	5	5	
Quality			
Positive responses to 'quality' measures in customer surveys.	99%	99%	
Submitted research papers published in international refereed journals.	100%	100%	
Timeliness			
Satisfaction of information requests as they occur.	95%	99%	
Timely publication of research papers in international refereed journals.	100%	100%	
Effective study of astronomical targets of opportunity as they occur.	50%	63%	Increased telescope capacity.
Cost			
Cost per tour visitor.	\$13.50	\$15.66	Fixed nature of many costs and uncontrollable factors (eg. inclement weather) reducing scheduled tour visitor numbers.
Cost per enquiry.	\$28.70	\$23.15	Fixed nature of many costs and increased number of enquiries.
Cost of research activities per refereed research paper.	\$70,110	\$70,416	
Cost of research activities per 1,000 head of WA population.	\$184	\$191	

GENERAL INFORMATION

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.

The Department is in the portfolio of the Minister for the Environment and Heritage and is headed by an Executive Director.

In keeping with the varied interests of CALM there is also a Corporate Executive, which consists of seven 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 page opposite the figure.

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 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 and a senior operations 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 regional managers and their staff are most important. Satisfactory experiences for the 9.7 million visits (2000–2001

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.

Regional managers have a significant 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

CALM's operations are directed by the Corporate Executive and supported by specialist and service staff. Their responsibilities are as follows:

CALMScience 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.

Perth Observatory is a group within CALMScience. It has three astronomy-based core functions: research, information services and educational services.

Strategic Development and Corporate Affairs Division is responsible for corporate planning and organisational development, and internal and external communications, marketing, advertising and community education. The Division initiates, develops and implements communication strategies to address major issues of conservation and land management, produces publications, displays and multimedia productions, designs and stages special events, coordinates CALM's media activities, provides the community with an information service, and coordinates internal communication and develops and implements school and experience-based education programs.

CALMfire sets fire management standards, coordinates the preparation and implementation of fire prevention and suppression plans, provides detection, communications, aircraft, fire trucks and equipment and other fire support services, and conducts training.

CUSTOMER FOCUS 2000–2001

Everyone knows when they've received good customer service: it leaves you feeling positive about the experience; it is often delivered by staff who are down to earth and helpful; it is polite, often casual, and always efficient.

Our Customer Service Charter is currently under review and will be updated and re-written in the coming year. During 2000 – 2001, CALM continued to take steps to improve its customer service, including:

- ✓ providing new training to increase staff skills in public participation and community relations, and continuing to provide training to increase staff skills in customer service, in understanding what customers want, and in using customer feedback to provide responsive services;
- ✓ creating more opportunities to work in partnership with the community and other agencies on a range of conservation and land management issues; and
- ✓ creating new, and upgrading existing parks and visitor facilities, and by constructing these facilities where possible to allow their use by people with disabilities.

CALMpeople Services Branch provides strategic planning, policy development and formulation, advice and coordination in the management of the Department's people. Services are provided by the Branch in the functional areas of personnel, payroll, labour relations, training and development, and risk management.

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 provides advice to operational managers on purchasing and fleet management, manages accounts receivable and accounts payable processes and asset records, coordinates remote area housing, consolidates Department budgets, maintains core financial software that is shared by all parts of the Department, and produces management, tax and statutory reports.

Forest Management Branch carries out resource inventories, disease mapping, and database maintenance for the Department's Sustainable Forest Management output and the Forest Products Commission. It maintains corporate resource information and GIS databases relating to forest areas in the south-west and prepares strategic resource plans.

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, and provides a land-related information service.

Management Audit Branch reports to the Executive Director, providing 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.

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

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.

CALM DISABILITY SERVICES

The Department's first Disability Service Plan covered the period 1996 to 2000. The focus of the first plan was to ensure, where possible, that the provision of universal access became standard practice when planning for new facilities, buildings and information. In August 2000, the Department's Corporate Executive endorsed preparation of a new Disability Service Plan for the period 2001-2006. Developed in consultation with people with disabilities, the plan was endorsed by Corporate Executive in March 2001. The outcomes of the new plan have been written to reflect a focus on improving access to existing buildings, facilities, information and public participation mechanisms. The plan has been published on NatureBase and can be accessed through the Register of Disability Discrimination Act Action Plans on the Human Rights and Equal Opportunity Commission website.

The Department has continued to improve visitor and recreation facilities, services, programs and information to make them as accessible as possible, so that people with disabilities and their families can use and enjoy the State's natural areas. Notable developments during the year

include the fully accessible new visitor centres at Monkey Mia in the Shark Bay World Heritage Area and at Karijini National Park. Work was also completed on the construction of a wheelchair accessible boardwalk and viewing platform at Turquoise Bay in Cape Range National Park. A new car park, picnic shelter and wheelchair accessible path and boardwalk providing views of Beedelup Falls were completed at Beedelup National Park near Pemberton. Further south in the D'Entrecasteaux National Park, the development of the Pt D'Entrecasteaux area was completed with the construction of parking areas, toilets, wheelchair accessible trails and viewing platforms, offering spectacular views of this section of the coastline. In the metropolitan area, redevelopment of the Lake McNess precinct of Yanchep National Park continues, with the recent opening of new tearooms that are fully accessible.

An access audit of the information on NatureBase is being planned, using software that will scan pages and identify sections that require remediation. An access consultant was also employed by the Department to conduct an independent access audit of visitor facilities at Matilda Bay Reserve, the Hills Forest Discovery Centre near Mundaring, Penguin Island and at Yanchep National Park. This audit program has revealed that most of the existing facilities at these four locations are universally accessible and comply with existing access standards, although some minor remediation work is required.

External Funding

This report focuses mainly on revenue to the Department from Commonwealth and State Government grant/funding programs, sponsorship and donations. Other operating revenue (including royalties and timber sales, national parks and recreation) are detailed elsewhere in the report.

Grant/funding programs provide a major source of financial support for the Department. The majority of Commonwealth funding is supplied through grant programs under the umbrella of the Natural Heritage Trust. The Trust provides grants for environmental, natural resources and sustainable agricultural programs. It is administered jointly by Environment Australia (EA) and Agriculture, Fisheries and Forestry Australia (AFFA). Programs fall under a 'one-stop-shop package' which includes most of the terrestrial programs (including Bushcare, National Reserve System, Wetlands, Farm Forestry) and the Coast and Clean Seas initiative (including Coastcare and Marine Species Protection). The Department is lead agency for several of these programs and for these has the responsibility of administering other State Government and community projects. The life of the Trust, which was to conclude in 2001-2002, has now been extended although how it will operate is yet to be determined. Important support is also received from other Commonwealth sources, which include Cooperative Research Centres, Rural Industries Research and Development Corporation (RIRDC) and the Department of Industry, Science & Resources (DISR).

In 2000-2001 Commonwealth funding totalled \$11.96 million.

Year	Amount (million \$)
1995-1996	4.80
1996-1997	5.14
1997-1998	8.67
1998-1999	9.71
1999-2000	7.55
2000-2001	11.96

Programs receiving funds from previous year include the National Reserve System, Bushcare and Endangered Species, and Department of Industry, Science and Resources (DISR) support for the Karijini Visitor Centre.

It should be noted that the above figure includes several programs and/or projects for which the Department is a joint proponent.

State Government support continued with recurrent funding being provided through the Salinity Action Plan (\$4.65 million). Main Roads Western Australia (\$2 million) and management of Perth's Regional Parks (\$2.35 million). CALM also received support through the Gascoyne/Murchison Strategy for targeted land acquisition (\$1.2 million). The Department of Commerce and Trade and the Pilbara Development Commission both provided funds for the newly opened Karijini Visitor Centre.

The Green Corps Grant Program administered by Conservation Volunteers Australia (CVA) continued to provide support for high priority conservation projects. Work was conducted in the Lake Warden catchment, Cape Le Grand National

Park and Walpole-Nornalup National Park. CVA crews also assisted the Department with rehabilitation works in the Esperance and Mornington districts.

The BankWest LANDSCOPE Visa card raised approximately \$14,000 for endangered species and ecological communities conservation. Projects funded during the year included the printing of 11 critically endangered plant posters and radio-tracking of dibblers in the Fitzgerald River National Park.

The Department continued to receive valued support through corporate sponsorship for conservation, education and infrastructure projects. Ongoing sponsors include BP (funding for the feasibility and management of tree plantations to create carbon sinks as an offset to the company's greenhouse gases), Kanowna Belle Gold Mines (funding Kalgoorlie Arboretum upgrade), Edison Mission Energy Company (funding Leda Nature Reserve conservation), SITA-BFI Waste

Systems (funding Kalgoorlie Arboretum rubbish disposal) and Apache Energy. The *Western Shield* campaign received major support from Cable Sands (WA) Pty Ltd, Iluka Resources, Westralian Sands Pty Ltd, Alcoa World Alumina Australia and Tiwest Joint Venture.

Another important contribution to the Department is through numerous small donations, either of cash or in-kind, from all sectors of the community. Examples include assistance with carting materials to offshore islands, the use of specialised tools, donation collection boxes, relocation of animals and assistance with biological surveys.

The Friends of the Bibbulmun Track continued to strongly support the Department in meeting its management obligations for the Bibbulmun Track. Their sponsors include AlphaWest 6, BP, Mountain Design and the Lotteries Commission.

PUBLIC SECTOR STANDARDS AND CODE OF CONDUCT COMPLIANCE STATEMENT

In the administration of the Department of Conservation and Land Management, I have complied with the Public Sector Standards in Human Resource Management, the Western Australian Public Sector Code of Ethics and the Code of Conduct.

The Department of Conservation and Land Management has adopted guidelines and processes supporting the public sector standards in human resource management. I am pleased to say that there were no applications lodged for review of process in respect of any of the Standards during 2000-2001.

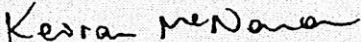
In 1999-2000 the Performance Management policy was reviewed and new policy and procedures put in place to ensure full compliance with the standard. A comprehensive new performance management system (IDAPES) has been implemented within the Department to ensure staff are able to maximise their potential and organisational objectives can be met.

Policies and supporting procedures are in the CALMpeople Manual, which, like the Code of Conduct is accessible to most staff on-line via the organisation's intranet. Hard copy or CD-ROM versions can be made available to those staff in remote areas that have difficulty accessing the intranet at present.

Individual managers are responsible for ensuring compliance with the Departmental policies and the Code of Conduct, with the Manager, CALMpeople Services Branch undertaking a monitoring and advisory role. In addition, staff in Workforce Services and Planning section monitor all transactions for recruitment, selection and appointment, secondment, transfer, temporary deployment, redeployment and performance management to ensure current Departmental policy is adhered to. Staff in the Employee Relations section are responsible for termination and disciplinary cases, and grievance resolution is monitored by the HR Policy and Diversity Consultant.

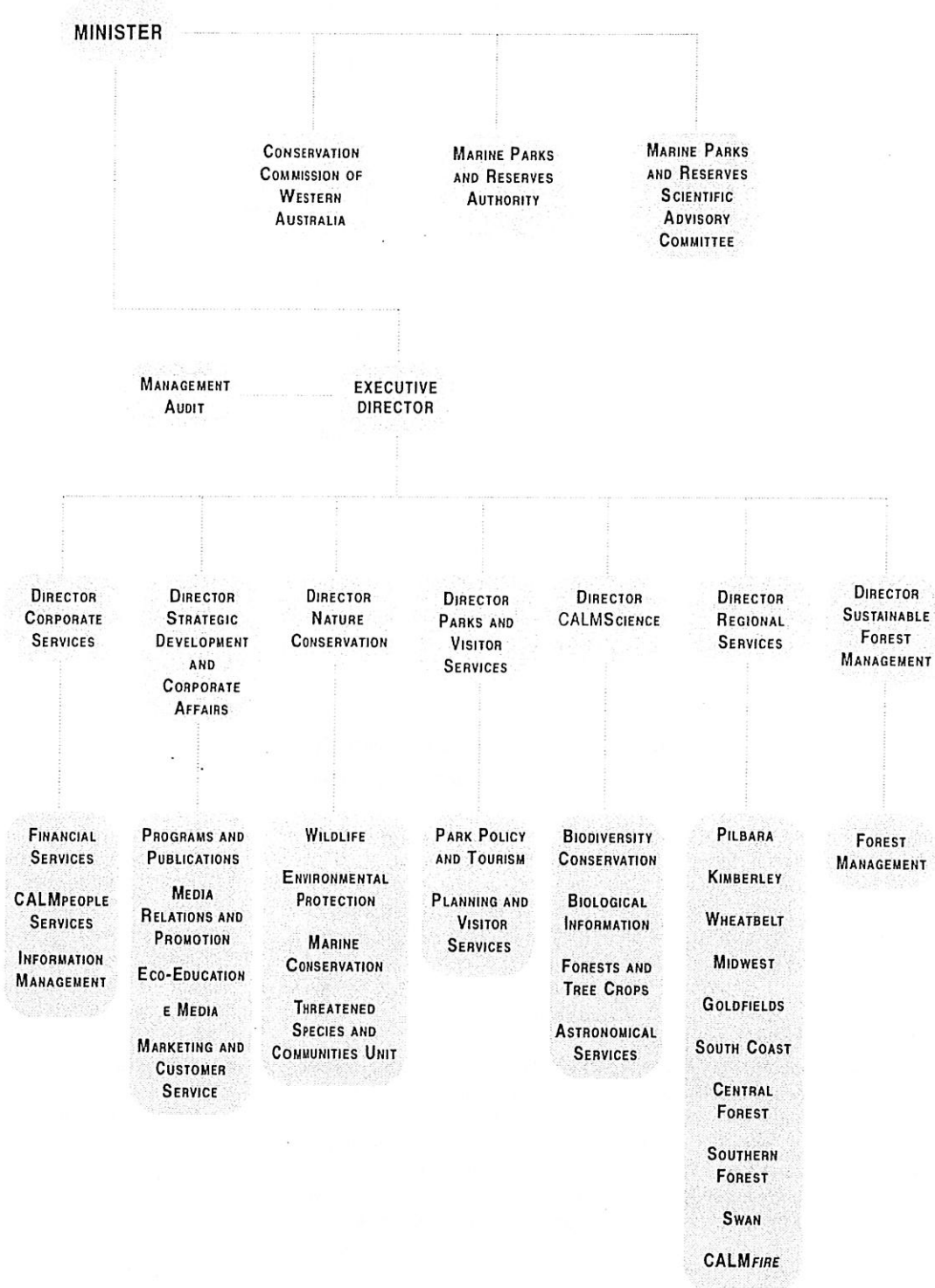
A monitoring review undertaken by the Public Sector Standards Commission in August/September 2000 found that the Department's performance in complying with the standards is satisfactory and no evidence of non-compliance was found in any of the standards. Some suggestions to enhance existing policies were made as a result of the review, and some minor amendments to Conservation and Land Management policies and procedures occurred as a consequence.

The CALM Code of Conduct is made available to all new staff through a comprehensive Induction package accessible on the intranet. The Code, formulated in 1997, has been reviewed and amended during 2000-2001.



Keiran McNamara
ACTING EXECUTIVE DIRECTOR
30 August 2001

FIGURE 1 ORGANISATIONAL STRUCTURE



CORPORATE EXECUTIVE *(as of 30 June 2001)*

EXECUTIVE DIRECTOR
W Cox BSc, PhD

DIRECTOR, REGIONAL SERVICES
A W Walker BSc For (Hons)

DIRECTOR, NATURE CONSERVATION
G J Wyre* B Nat Res (Hons)

DIRECTOR, PARKS AND VISITOR SERVICES
J R Sharp B Ed, Dip PE, M Ed

DIRECTOR, SUSTAINABLE FOREST MANAGEMENT
K J McNamara* B Nat Res (Hons)

DIRECTOR, CALM**Science**
N D Burrows BSc For, PhD

DIRECTOR, CORPORATE SERVICES
J C Byrne MBA, PhD, FCPA

DIRECTOR, STRATEGIC DEVELOPMENT
AND CORPORATE AFFAIRS
R A Kawallak BA, FPRIA

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
K Gillen BSc (Hons)

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, CALM**fire**
R Sneeuwjagt BSc, MSc

MANAGER, ENVIRONMENTAL PROTECTION BRANCH
Vacant

MANAGER, FINANCIAL SERVICES BRANCH
M J Neilson BA, MAcc, CPA

MANAGER, FORESTS AND TREE CROPS GROUP
J F McGrath BSc (Hons), PhD

MANAGER, FOREST MANAGEMENT BRANCH
M Rayner BSc For (Hons), PhD

MANAGER, CALM**people** SERVICES BRANCH
C W Gillam BA (Hons), MA, PG Dip Bus, AFAHRI

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
Vacant

MANAGER, PROGRAMS & PUBLICATIONS
C Bailey

MANAGER, WILDLIFE BRANCH
K Atkins* BSc (Hons), PhD

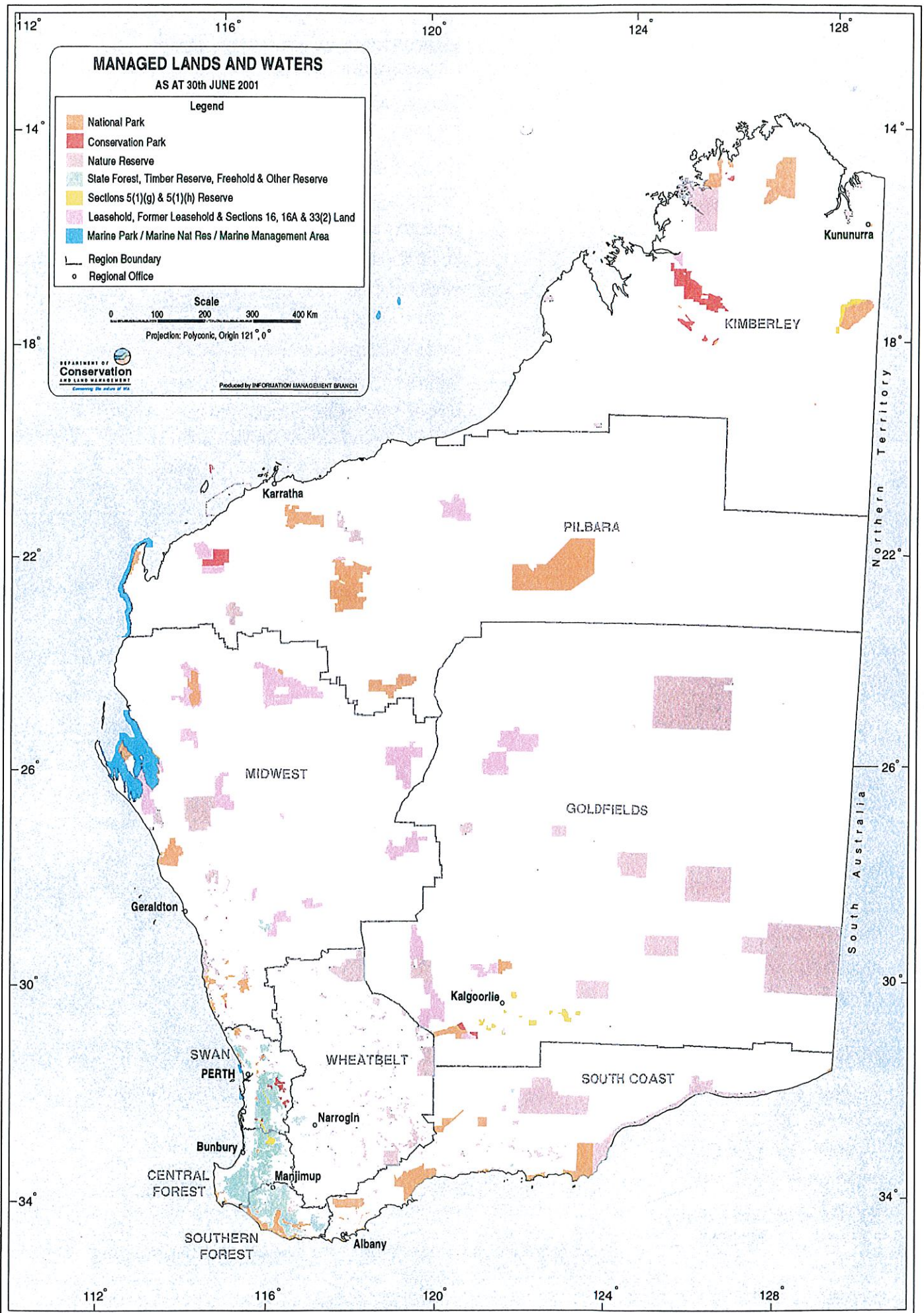
PRINCIPAL MEDIA RELATIONS OFFICER
N Higgs

SCIENCE ADVISER
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

Total Estate

As at 30 June 2001 the total area under the Department's care was 23,577,533 ha representing an increase of 1,080,507 ha during 2000–2001.

The terrestrial area (not including marine reserves) is approximately 8.87% 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 archeological, 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 69 national parks at 30 June 2001 was 5,092,210 ha, a net increase of 153,294 ha for the year.

The area of Leeuwin-Naturaliste National Park was reduced following recalculation and five new national parks were created during the year.

They are Wellington National Park (3,045 ha) near Collie, Lawley River (17,572 ha) and Mitchell River (115,325 ha) national parks in the Kimberley Region and two un-named national parks - one south-east of Margaret River (1,571 ha) and one north-east of Walpole (16,039 ha).

Conservation Parks

Conservation parks have the same purpose 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 2001 was 704,205 ha, representing an increase for the year of 405,819 ha. The increase was due to the creation of a new conservation park around Totadgin Rock in the Wheatbelt (257 ha) and three new conservation parks in the Kimberley Region - one in the King Leopold Ranges (392,104 ha) over the area of the former Mt Hart Pastoral Lease, and two east of the Mitchell River National Park (12,191 ha and 1,267 ha).

Nature Reserves

Nature reserves are for wildlife and landscape conservation, scientific

study, and preservation of features of archeological, historic or scientific interest. Recreation, which does not harm natural ecosystems, is allowed.

The area of nature reserves at 30 June 2001 was 10,818,199 ha, representing a net increase of 42,936 ha for the year. Notable additions to existing nature reserves included Mount Manning Range Nature Reserve (36,828 ha), North Karlgarin Nature Reserve (resulting from a purchase—635 ha), North Tarin Rock Nature Reserve (also resulting from a purchase—726 ha) and an un-named nature reserve east of Hyden (1,905 ha). New nature reserves created during the year included one at Goegrup Lake near Mandurah (319 ha), one east of Mukinbudin (1,785 ha) and Adele Island in the Kimberley Region (217 ha).

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.

CALM-Managed Lands and Waters (ha) by Region as at 30 June 2001

Tenure Classification	Central Forest	Goldfields	Kimberley	Midwest	Pilbara	South Coast	Southern Forest	Swan	Wheatbelt	Total
National Park	31,836	151,009	829,773	504,845	2,396,627	891,810	239,937	45,081	1,292	5,092,210
Conservation Park	581	33,517	460,232	3,750	149,309	-	-	56,559	257	704,205
Nature Reserve	9,783	6,304,437	809,773	732,298	250,595	1,585,444	32,849	50,588	1,042,432	10,818,199
Marine Park	-	-	23,250	748,735	225,564	-	-	16,391	-	1,013,940
Marine Nature Reserve	-	-	-	132,000	-	-	-	-	-	132,000
Marine Management Area	-	-	-	-	-	-	-	-	-	-
State Forest	656,404	781	-	-	-	4,055	547,187	490,793	28,066	1,727,286
Timber Reserve	33,765	28,576	-	263,38	-	5,231	19,023	28,501	-	141,434
Sections 5(1)(g) & 5(1)(h) Reserve	30,282	81,617	79,623	2,318	8,130	<1	634	27,358	443	230,405
Miscellaneous Reserve	358	<1	61	517	1,779	3,814	485	5,944	15	12,973
Freehold(Exec Dir)	21,479	<1	1	<1	<1	63	4,921	274	1	26,739
Leasehold (Exec Dir), Former Leasehold & Section 33(2) Managed Land	-	1,133,491	35,625	2,072,937	420,079	-	-	-	-	3,662,132
Sections 16 & 16A Managed Land	121	215	-	7,020	-	-	-	8,654	-	16,010
Totals	784,609	7,733,643	2,238,338	4,230,758	3,452,083	2,490,417	845,036	730,143	1,072,506	23,577,533

Source: Information Management Branch

The area of State forest at 30 June 2001 was 1,727,286 ha, a decrease for the year of 72 ha.

Timber Reserves

Timber reserves declared under the *Conservation and Land Management Act 1984* 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 eg. State forest or nature reserve.

The area of timber reserves at 30 June 2001 remained unchanged at 141,434 ha.

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 2001 was approximately 1,013,940 ha. The area of marine nature reserves at 30 June 2000 was approximately 132,000 ha. There were no changes during the year.

Marine Management Areas will provide a formal integrated management framework over areas that have high conservation value and intensive multiple use, selected primarily on the basis of their biological and recreational values and their existing or future commercial activities.

As yet no Marine Management Areas have been proclaimed.

Section 5(1)(g) and 5(1)(h) Reserves

Within the meaning of the *Conservation and Land Management Act 1984*, lands categorised as sections 5(1)(g) and 5(1)(h) reserve are lands reserved under the *Land Act 1933* and the *Land Administration Act 1997* respectively, for which care, control and management is issued to the Conservation Commission. Unlike

national parks, conservation parks and nature reserves, they are not automatically vested in the Conservation Commission. Immediately before the commencement of the *Conservation and Land Management Act 1984*, some were vested in, or were under the control of, the National Parks Authority but not as a national park, eg. Matilda Bay Reserve. Predominantly they have conservation/recreation purposes.

The area of sections 5(1)(g) and 5(1)(h) reserves at 30 June 2001 was 230,405 ha, an increase for the year of 114 ha.

Miscellaneous Reserves

There are some remaining reserves managed by the Department, 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 at 30 June 2001 was 12,973 ha, representing an increase of three ha for the year.

National Parks Vested in the Conservation Commission of Western Australia

NAME	AREA (ha)	NAME	AREA (ha)	NAME	AREA (ha)
Alexander Morrison	8,500	Hassell	1,265	Serpentine	4,360
Avon Valley	4,366	<i>Hidden Valley</i>	2,068	Shannon	52,598
Badgingarra	13,121	John Forrest	2,676	Sir James Mitchell	497
Beedelup	1,786	Kalamunda	375	Stirling Range	115,920
Boorabbin	26,000	Kalbarri	183,004	Stokes	9,726
Brockman	49	Karijini	627,442	Tathra	4,322
Cape Arid	279,382	Kennedy Range	141,660	Torndirrup	3,936
Cape Le Grand	31,801	<i>Lawley River</i>	17,572	Tuart Forest	2,049
Cape Range	50,581	Leeuwin-Naturaliste	18,779	<i>Tunnel Creek</i>	91
Collier Range	235,162	<i>Lesmurdie Falls</i>	56	<i>Un-named</i>	1,571
D'Entrecasteaux	116,686	Lesueur	26,966	<i>Un-named</i>	16,039
Drovers Cave	2,681	Millstream-Chichester	199,736	Walpole-Nornalup	15,861
Drysdale River	448,264	<i>Mitchell River</i>	115,325	<i>Walyunga</i>	1,812
<i>Eucla</i>	3,560	Moore River	17,540	Warren	2,982
Fitzgerald River	329,882	Mount Augustus	9,168	Watheroo	44,474
Francois Peron	52,587	Mount Frankland	30,830	<i>Waychinicup</i>	3,982
Frank Hann	67,550	Nambung	18,362	Wellington	3,045
Geikie Gorge	3,136	Neerabup	1,060	<i>West Cape Howe</i>	3,517
Gloucester	875	Peak Charles	39,959	William Bay	1,734
<i>Goldfields Woodlands</i>	64,612	Porongurup	2,621	Windjana Gorge	2,134
Goongarrie	60,397	Purnululu	239,723	Wolfe Creek Crater	1,460
Gooseberry Hill	33	Rudall River	1,283,706	Yalgorup	13,023
Greenmount	58	Scott	3,273	Yanchep	2,842
				TOTAL	5,092,210

* Names shown in italics are not yet gazetted

Other Land

The area of freehold land held by the Executive Director at 30 June 2001 was 26,739 ha, representing a net decrease for the year of 6,382 ha, due mainly to the revesting of lands held in two certificates of title - one now comprises the new Wellington National Park, and the other, south of Mt Dale, is pending reservation. The major portion of freehold land held by the Executive Director is committed to commercial softwood forestry.

The area of pastoral lease held by the Executive Director at 30 June 2001 was 225,705 ha. In addition, a further 3,318,774 ha of former pastoral lease land is being held under an interim management arrangement prior to formal reservation.

Crown land placed under the management of the Department under section 33(2) of the *Conservation and Land Management Act 1984* as at 30 June 2001 totalled 118,653 ha. Of this, 406 ha comprises unvested Crown reserve. The remainder is land proposed for addition to the conservation estate, which is managed accordingly under an interim arrangement.

Two areas, parts of Credo and Boolardy Pastoral Leases, totalling 7,235 ha are currently managed under section 16A of the *Conservation and Land Management Act 1984* by agreement between the lessees and the Department.

The area of freehold land managed by the Department under section 16 of the *Conservation and Land Management Act 1984* at 30 June 2001 was 8,775 ha. Most of this land falls within regional parks and is managed by agreement between the Western Australian Planning Commission and the Department.

Conservation Land Acquisitions

The Department acquired over 888,000 ha of land of high conservation value

during the year for future addition to the conservation estate. Priorities for purchase are for those areas containing ecosystems that are not adequately reserved in the existing conservation reserve network, and additions to existing reserves which would greatly improve their diversity or facilitate their management.

Funds for conservation land acquisitions were obtained from four sources: the Department's annual capital allocation, an allocation under the Gascoyne-Murchison Strategy, the National Reserve System Program of the Natural Heritage Trust, and some funding from the Crown reserves component of the State Salinity Strategy. Additionally, a capital appropriation of \$1.833 million was provided from State Treasury for the acquisition of over 1,570 ha for a new national park south-east of Margaret River. The total expenditure from all funding sources for the financial year was more than \$8.7 million.

With funds allocated under the Gascoyne-Murchison Strategy, the following pastoral leases were bought during the year: Nanga, Lake Mason, Black Range, Mooka, Cobra, Lorna Glen and part of Yaringa. The leases and part lease cover a combined total area of more than 884,300 hectares.

Acquisitions outside the Gascoyne-Murchison Strategy area included; 403 ha for addition to the Woody Lake Nature Reserve in the Shire of Esperance; an enclave of private property (2.2 ha) in the Bengier Swamp Nature Reserve for addition to that reserve; a 515-ha parcel of remnant vegetation in the Shire of Gingin; a 526 ha parcel of remnant vegetation in the Shire of Chapman Valley; two parcels of remnant vegetation in the Wheatbelt totalling 576 ha; 221 ha of remnant vegetation in the Shire of Gingin for inclusion into the Mogumber and Wannamal Lake Nature Reserves; and 34 ha to link the Tutanning Nature Reserve to the southern annex.

The Department gratefully acknowledges the significant contribution made by the Commonwealth Government through the National Reserve System Program of the Natural Heritage Trust, which supported many of the above purchases. The contribution of the National Reserve System Program this year has amounted to over \$5.09 million. This support will continue to help with making significant progress towards the establishment of a comprehensive, adequate and representative reserve system in Western Australia.

CORPORATE SERVICES

Financial Services Branch

Staff of the Department's Financial Services Branch manage the accounts payable and accounts receivable systems, maintain the asset register, produce management and financial reports, manage the vehicle fleet, dispose of surplus land and coordinate purchasing systems.

During 2000–2001 Branch staff undertook a number of special projects including implementation of monthly GST reporting to the Australian Taxation Office, establishment of a separate accounting system and provision of bureau services for the Forest Products Commission and allocation of assets and liabilities between the Department and the Commission.

CALMpeople Services Branch

WorkForce Services and Planning Section: Benchmarking data once again indicated that CALMpeople Services Branch is leading the sector in terms of Human Resource efficiency and cost effectiveness.

The split of the Department of Conservation and Land Management and the Forests Products Commission in 2000 impacted enormously on the Workforce Services and Planning

Section. Significant efforts by all staff in the section resulted in a successful implementation and set up of the two agencies by 5 December 2000. Two hundred and twenty six positions were successfully created and classified, which included the development of Job Description Forms for all positions. One hundred and ninety one employees were sent letters offering transfer to the Forest Products Commission, and 182 employees subsequently transferred. Enormous efforts by staff resulted in the successful set-up of employee occupancy details, positions and leave details in the Department's Human Resource Information System, CONCEPT. CALMpeople Services Branch now provides a bureau service to the Forest Products Commission for the full suite of people management services.

A number of key staff were trained in the data mining package KP Investigator, to improve the ability to interrogate the CONCEPT HR database. This will enhance the ability of CALMpeople Services Branch to provide senior management with regular detailed reports across a number of areas. After a successful trial with a pilot group in late 2000, it is anticipated that the Web Kiosk facility will be fully implemented and operational throughout the Department by August 2001. Web Kiosk is a facility that provides access to information within the Concept Human Resource Information Management System through the intra/internet, and will enable an employee to view and update his or her own personal details and will provide the ability to apply/approve leave online.

A monitoring review undertaken by the Public Sector Standards Commission in August/September 2000 found that the Department's performance in complying with the standards is satisfactory and no evidence of non-compliance was found in any of the standards. Some minor enhancements were made to some policies and procedures as a result.

In February 2001, consistent with devolution of redundancy case management to agencies across the sector, the Department of Conservation and Land Management assumed case management of surplus staff and prepared a written policy on the management of registered employees.

A comprehensive on-line training package in Good Working Relations was developed in conjunction with the Equal Opportunity Commission (EOC) and used in the training of 10 Grievance Contact Officers situated in offices throughout Western Australia. This package is the first of its kind in the public sector and has been acknowledged as best practice by the EOC. Managers and supervisors throughout the Department were required to complete an on-line self-paced interactive training course on Workplace Discrimination and Sexual Harassment – Legal Compliance by the end of June 2001. The course was designed to enable participants to develop an understanding of Equal Employment Opportunity (EEO) principles and generally raise awareness about managerial responsibilities in the area of EEO and diversity.

Fifteen salaried staff achieved career advancement through promotion via advertised vacancies. Thirteen salaried staff were reclassified into higher level positions, and nine achieved advancement through criteria progression.

As a consequence of budget constraints and the resulting change in the Department's outputs, a review of staffing arrangements was undertaken. A special funding allocation was made available by Treasury for a targeted voluntary severance scheme. Employees in areas impacted by the changes were invited to express an interest in severance.

Despite a very tight timeframe, staff in Workforce Services and Planning were able to ensure that the Department's target of 28 June 2001 was met, with 41 employees exiting on that date.

There were no applications made for breach of process review in relation to any Public Sector standard.

CALMpeople Reference Group: The CALMpeople Reference Group participated in a number of change initiatives involving middle management. These including an assessment of change management in the forest regions and conducting a strategic issues workshop in the Central Forest Region. The group also provided advice to the Corporate Executive of the Forest Products Commission on strategic human resource management.

The group continued to assess the performance of CALMpeople Services Branch through the Western Australian Consortium Benchmarking program and was instrumental in the appointment of a Policy and Diversity Officer. Corporate Executive approved a corporate apparel policy that was developed by the group.

Linkages were strengthened with the Executive Director, individual Directors and key groups such as the Peer Support Group and regional management teams.

Employee Relations: The Department has continued with workplace reform during the year.

New two year term agreements were approved and made available for Project Eden feral animal trappers (Part 2A Workplace Agreement from August 2000), National Park Rangers and Woodman Point Reserves Rangers (Workplace Agreements from December 2000), plus a new certified agreement for Pilots (February 2001).

Under the auspices of the Australian Industrial Relations Commission, negotiations continued to condense the federal Australian Workers' Union (Western Australian Public Sector) Award 1992 into the 20 allowable matters, but had not been concluded as at 30 June.

The Rangers (National Parks) Award 1987 was reviewed and consolidated by consent effective December 2000. In addition early in 2001 discussions commenced on a review of the ranger classification structure, but had not concluded by 30 June.

New mirror workplace and enterprise agreements to cover salaried officers were finalised and implemented for the new Conservation Commission and Forest Products Commission.

In June 2001 work commenced on a review of the AWU career structure elements of competence, which were initially introduced in the early 1990s.

The new WA Government has indicated an intention to remove the disparity in salaries and conditions across occupational groups within the public sector, with negotiations still proceeding as at 30 June.

Organisational Learning and

Development: Fourteen CALM and five FPC field officer recruits graduated in 2001 after completion of fourteen weeks of competency based training delivered over a two-year period. Training programmes included four wheel drive operator's, field engineering, recreation planning and design, chainsaw operator's course, disease management, fire management, forest silviculture, law enforcement, conversing with the community, supervisory skills and senior first aid. Each of the programs has national recognition from the Training Accreditation Council. All of the graduating officers have since achieved permanent appointments within CALM and FPC.

Twenty-four CALM people and one FPC person were successful for six internal scholarship programmes, which promote continuous learning in the following areas:

- **Executive Director's Scholarship**—made available to all wages employees to assist them financially in post secondary education studies, required for entry to field officer positions. The 2001 recipients were Gary Treeby from Albany and Ken Ninnette from Busselton;
- **Dr George Malajczuk Post Graduate Scholarship**—designed to provide continuous learning opportunities in science disciplines. The 2001 recipient is John Lloyd from Mundaring;
- **Seamus Mulholland Scholarship**—designed to provide continuous learning opportunities in a range of management and leadership disciplines. The 2001 recipient is Nigel Sercombe from Geraldton;
- **Executive Director's Undergraduate Scholarship**—made available to all permanent CALM people to assist them financially in relevant undergraduate study programs. There are fourteen recipients of this scholarship who are located throughout the state.
- **June Craig Scholarship for CALM Women**—designed to encourage, support and facilitate all women in CALM, to enhance and develop their careers and increase their contribution to CALM's mission. The 2001 recipients were Christina Gilbert, Dr Jay Gomboso, Jennie Cary, Anne Cochrane and Ann-Marie O'Callaghan.

Seventy-two CALM and six FPC people have successfully completed the Leadership and Organisational Development program over the past financial year. The programme has been designed to provide the learner with the necessary tools to address the areas of Leadership, Change Management and Project Management. The programme features a multi-faceted approach incorporating theory, experiential learning and above all collegial learning. Curtin and Murdoch Universities have each provided two programs.

Fifty CALM and seven FPC people have successfully completed the internationally recognised Certificate IV Effective Manager course. This course offers formal qualifications in management. Sixteen of these graduates have articulated their studies into the Diploma of Management course. A further eighteen CALM and two FPC people have enrolled in the Certificate IV Effective Manager course.

Currently there are thirty-two wages employees enrolled in the Certificate IV in Conservation and Land Management Course.

Risk Management: The Risk Management Section is responsible for developing and implementing risk management policies and procedures in regard to occupational safety and health; corporate health and fitness; workers' compensation; injury management; general liability and the corporate insurance portfolio.

In the area of occupational safety and health 122 work groups across the Department achieved their safety performance targets during the reporting period. These groups received awards marking their achievement under the Industrial Foundation for Accident Prevention/ GIO Insurance Safeway Award Scheme. For the seventh consecutive year the Department was the most successful participating organisation.

The benefit of a safe working environment is well recognised within the Department, as is the interface between safety, health and fitness in minimising injury to workers and reducing costs. The effectiveness of the safety and health and injury management programs is reflected in the continuing downward trend in Lost Time Injury frequency rate and total working days lost as a result of workplace injury (see indicators over).

Occupational Safety & Health Performance Indicators		
	2000-2001	1999-2000
Lost Time Injury Frequency Rate	8	9
All Injury Frequency Rate	46	48
Number of Lost Time Incidents	20	27
Average Days Lost per (LTI) Annual Workers'	13	12
Compensation Premium	\$648,259	\$624,938

Information Management Branch

Information Services Section upgraded the Department's communications network during 2000-2001, with the implementation of a 64 kbps frame relay connection to most remote offices under the State Telecommunications Enhancement Program, and the conversion to a new email and network operating system. New contracts were let for the outsourced management of the Department's data centre, communications networks, databases, and desktop and server environment. A project also commenced to develop a comprehensive Information Technology and Telecommunications Plan for the Department.

Corporate Information Section completed implementation of the Keyword Classification Thesaurus in all major offices of the Midwest Region - the first region to be completed. Two major upgrades of the corporate records management system were undertaken, providing greater functionality for meeting business needs and the new State Records Act.

Under the Corporate GIS Plan to deploy GIS in CALM regions and districts, the GIS Section distributed extended and updated spatial data to these offices, and conducted 11 training courses in GIS and two in GPS usage for regional and other staff.

Assistance was provided in refining new reserve boundaries in the south-west forest areas of the State. Mapping

support was provided during the year for seventeen management plans, and for fire protection and regional operations requirements. Two new Land Management Series maps were published and one was revised during the year, together with a variety of tourist maps, posters and display panels. A new regional atlas was also produced for departmental use. The section completed the first phase of a plantation data acquisition system and continued the integration and management of all plantation data. Application development was provided for a Threatened Ecological Communities system, and GIS analysis was carried out for several regional nature conservation initiatives. The section continued to coordinate and assist with the conversion of all the Department's geographic data to the new geographic datum, GDA94.

The Remote Sensing Applications Unit undertook a project to map forest cover in the Goldfields. It also provided image analysis for fire research and for marine reserve establishment and provided area analyses for mining compensation.

ELECTORAL ACT 1907

In accordance with the requirements of Section 175ZE of the *Western Australian Electoral Act 1907*, CALM incurred the following expenditures in the financial year ended 30 June 2001.

Advertising agencies: \$52, 538.55 (John Davis Advertising).

Media advertising organisations: CALM \$284,651.94 and Forest Products Division \$25,476.30 (Marketforce Productions) and \$225,119.76 (Media Decisions WA).

There was no expenditure in the market research, direct mail and polling areas by the Department.

Total expenditure was \$587,786.55.

CALMfire MANAGEMENT

Wildfires

The 2000-2001 fire season in the State's southern half was the driest on record. No significant rainfall occurred in the period from late September 2000 to May 2001. This was reflected in the Soil Dryness Index, which is an indicator of the seasonal dryness of soil and large branch ground debris. The Soil Dryness Index for most locations in the south-west reached its peak value of 2000 in April 2001 - the highest level recorded in the past 30 years.

The dryness of the ground litter and vegetation fuels meant that approximately 60% of the prescribed burning programs in the south-west that were planned for the late spring and autumn months had to be cancelled or postponed due to the risk of severe fire behaviour and possible burn escapes. As a result the prescribed burning program achieved within the south-west forest ecosystems was only 87,866 ha, the lowest in 40 years. The dry fuel conditions presented serious difficulties when dealing with the large number of wildfires that threatened CALM-managed lands. Fortunately there were relatively few days of hot and windy weather conditions. Consequently, fire danger levels rarely reached extreme levels. The worst fires occurred in those lands that were not burnt in the past 10 years or more. These include two wildfires in the Stirling Range National Park, Two Peoples Nature Reserve, Beekeepers Nature Reserve near Leeman, Cape Arid National Park and the Nuyts Wilderness in Walpole-Nornalup National Park. Several very large fires occurred on crown land in the Goldfields Region, including CALM-managed lands.

There was a high incidence of wildfires in the Perth District, particularly within or near the pine plantations in Wanneroo with 149 fires lit, of which 80% were arson.

Throughout the State, the Department attended 711 wildfires that affected CALM-managed lands. This is approximately 30% above the 10-year rolling average. The majority of these wildfires were deliberately lit (44%) or lightning strikes (12%). Escapes from private property burns represented 7%, while 1% of escapes were from CALM burns.

The long dry fire season and the record number of wildfires attended by the Department throughout the State resulted in large expenditures on fire suppression operations including wages, overtime, heavy machinery hire and aerial water bombers.

Aerial Water Bombing Operations

The joint CALM-FESA managed aerial suppression programs during the summer months of 2000–2001 fire season again provided an effective and rapid suppression capability for the Perth outer Metropolitan area and the south-west region stretching from Jurien Bay north of Perth to Albany. Five Dromader aircraft were contracted to provide an aerial rapid-attack capability to assist ground-based fire crews from CALM, FESA and bushfire brigades. It was estimated that the Perth-based aircraft and Bunbury-based aircraft were responsible for saving public and private assets, and natural values worth more than \$10.5 million and \$4.5 million respectively.

Planned Burns

Throughout the State the Department completed 91,515 ha of planned burning, of which 23,446 ha (26%) was prescribed to meet nature conservation objectives of the State's parks, forests and conservation reserves. A total of 68,069 ha (74%) of burning was completed to regenerate forests and protect fire sensitive regrowth after timber harvesting.

Overall, 87,866 ha of forests and associated vegetation types in the State's south-west were prescribed burnt for a variety of purposes. These included forest regeneration,

conservation and protection of biodiversity, community protection and protection of parks, nature reserves, native forests, plantations and timber resources. Approximately 65% of forest burns were completed in the September to December period and 35% in autumn.

A total of 7,656 ha of pine (*Pinus pinaster*) plantations near Wanneroo and Yanchep were prescribed burnt in winter or early spring. These fuel reduction burns provided essential protection to the plantations and surrounding farms and residential areas from damage caused by the deliberately lit wildfires.

Outside the forest regions a total of 50,489 ha of planned burning was undertaken in the Midwest, Goldfields, Pilbara, South Coast and Wheatbelt Regions primarily as open-edge and wind-driven buffers to provide strategic protection to conservation reserves and community assets. Approximately 1,288 km of aerial ignited and ground ignited open-edge burns were undertaken within the Kimberley Region.

The prescribed burning program was further constrained by the high incidence of unfavourable wind and atmospheric conditions conducive to smoke accumulation in Perth and other regional centres. These weather constraints resulted in CALM forest districts achieving about 40% of the planned annual burning program—the lowest since 1961. The backlog of uncompleted burns that has accumulated over the past six years has resulted in a large build-up of highly flammable fuels over large tracts of forested lands. In the event of severe summer conditions, these heavy fuel loads will result in severe large wildfires that could threaten lives and the loss of property and natural resources.

Smoke Management

The Department's fire managers rigorously applied smoke management

systems for all planned burns in the south-west forest regions. This required careful analysis of forecast weather and atmospheric conditions, fuel conditions, ignition patterns and timing, and size and locations of burns relative to population centres. Weather forecasters from the Bureau of Meteorology regularly provided the Department with detailed information on weather and atmospheric conditions. This close collaboration resulted in no instances during the year when the smoke from the Department's planned burns caused haze particulate levels to exceed the stringent air quality standards set by the State's Department of Environmental Protection and the National Environment Protection Council.

Fire Training

CALMfire Branch staff conducted 24 fire training courses covering topics including Incident Control System; Fire Management in CALM; Logistics Management; Incident Planning; Fire Operations Officer; Sector/Divisional Commander; Advance Fire Fighter and Basic Fire Fighter.

In the year 2000–2001 the following table shows the fire management and fire fighting courses that were conducted, including the number of people trained.

The 370 trainees were predominantly Department employees, but also included personnel from the Forests Products Commission, FESA (both employees and volunteers), interstate Government agencies, Local Government and private contractors. Another group trained was the CALM Bush Rangers.

Courses were also conducted at a number of locations around the State including Geraldton and Albany as well as a range of sites within the forest regions.

Liaison on training development at the State and national level has been maintained, and the Department has continued to provide high level input into the development of the Australian National Public Safety Competencies and Fire Curriculum. The development and promotion of common training systems and course materials was actively pursued between fire agencies within Western Australia.

Course Title	No. Courses	Total Trainees
Basic Fire Awareness	3	38
Basic Fire Fighter	5	59
Level 1 Fire Fighter	1	12
Fireline Construction With Machines	3	52
Fire Operations 1	3	38
Wildfire Origin & Cause Determination	1	9
Operational Management	1	15
Introduction to Incident Control System	2	27
Incident Planning	2	32
Fire Management within CALM	4	100
Totals	24	370

CALMfire PERFORMANCE INDICATORS FOREST REGIONS 2000-2001

Key Effectiveness Indicators

1. Prescribed Burning

Region	5-year rolling average (ha)	Actual 2000-2001 (ha)	Difference	
			(ha)	%
Swan	39,608	22,230	-17,378	-44
Central Forest	32,028	35,915	3,887	12
Southern Forest	64,582	29,721	-34,861	-54
Total	136,218	87,866	-48,352	-35

Note: Five-year rolling average does not reflect the scheduled prescribed burn area.

These statistics compare the 2000-2001 planned burning program with the five-year rolling average for conservation and protection burning. Burning achievements are dependent upon the availability of suitable weather conditions and resources, and the need to maintain burn security and air quality standards in high population centres

The Southern Forest and Swan Regions' burning achievements were below the five-year rolling average.

The lower total burn areas achieved in 2000-2001 were primarily due to the very dry weather and fuel conditions throughout the burning season. Other contributing factors to the lower areas include the continuing reductions in burn size; the increasing complexity of multiple ignition burns; the need to protect increasing areas of fire sensitive forest regeneration and the limited number of suitable burning days when the risk of smoke accumulation in Perth is acceptably low.

2. Fire Suppression

Region	Priority 1 & 2 (%) Standard 2000-2001	
	Priority 1	Priority 2
Swan	95	98
Central Forest	95	94
Southern Forest	95	99
CALM Average	95	97

The percentage of all forest wildfires that are attacked with effective suppression forces before these fires exceed five hectares in Priority 1 and Priority 2 areas under 95 percentile weather conditions. The percentage standard to be exceeded is 95% of all forest fires requiring suppression by direct attack.

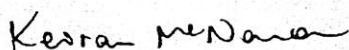
Definition:

The 95 percentile weather conditions are days when forest fire danger is below 'very high' and 'extreme' as calculated in CALM's Forest Fire Behaviour Tables (1998). Firefighters work safely and effectively under these conditions in standard forest fuels.

LEGISLATION AND COMPLIANCE

Statement of Compliance with written law 2000–2001

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 2000–2001. The relevant Acts and amendments to legislation are noted in this section of the annual report.



**Keiran McNamara
ACTING EXECUTIVE DIRECTOR
30 August 2001**

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, other reserves and lease areas and any associated fauna, flora and forest produce under the legislation that it administers. It is also responsible for conserving flora and fauna throughout the State.

The *Conservation and Land Management Act 1984* established the Department and until 16 November 2000 there were five controlling bodies under the Act: the Lands and Forest Commission, the National Parks and Nature Conservation Authority, the Marine Parks and Reserves Authority, the Marine Parks and Reserves Scientific Advisory Committee and the Forest Production Council. All were

responsible to the Minister for the Environment and Heritage. Their functions are described in separate annual reports.

Amendments made under the *Conservation and Land Management Amendment Act 2000* came into operation on 16 November 2000 and abolished the Lands and Forest Commission, the Forest Production Council and the National Parks and Nature Conservation Authority. These amendments established the Conservation Commission of Western Australia and reserves previously held by the Lands and Forest Commission and the National Parks and Nature Conservation Authority became vested in the Conservation Commission. The Conservation Commission will report its proceedings to the Minister in its own annual report.

MINING AND GOVERNMENT AGREEMENTS ACTS

The *CALM Act* does not generally protect land managed by the Department from mining or development projects. Section 4 of the *CALM Act* provides 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 (except in marine nature reserves and certain zones in marine parks which are protected from petroleum drilling and production). 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 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 the Department, 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*.

From 16 November 2000, when the *Conservation and Land Management Amendment Act 2000* and the *Forest Products Act 2000* commenced operation, contracting for the harvesting and sale of forest products ceased to be a function of the Department and these responsibilities were taken up by the Forest Products Commission. Where an Agreement Act involves contracting in relation to forest products this is now undertaken by the Forest Products Commission.

The *Mineral Sands (Eneabba) Agreement Act 1975* affects the Department's management of the land

involved in that project.

The establishment of commercial hardwood plantations by way of timber sharefarming agreements with the Department under section 34B of the *CALM Act* has 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*. The timber sharefarming agreements have been transferred to the Forest Products Commission, which is empowered to administer and enter into future timber sharefarming agreements in its own right (from 16 November 2000).

OTHER RELEVANT ACTS

The *Bush Fires Act 1954* has important requirements for the Department with respect to fires on land managed by the Department.

Other State Acts which have relevance to the Department'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 Operators (Powers) Act 1979; Electricity Corporation Act 1994; Environmental Protection Act 1986; Equal Opportunity Act 1984; Explosives and Dangerous Goods Act 1961; Financial Administration and Audit Act 1985; Fish Resources Management Act 1994; Forest Products Act 2000; Freedom of Information Act 1992; Government Employees Housing Authority Act 1964; Health Act 1911; Heritage of Western Australia Act 1990; Industrial Relations Act 1979; Public Works Act 1902; Land Administration Act 1997; Local Government Act 1995; Long Service Leave Act 1958; Metropolitan Water Supply, Sewerage and Drainage Act*

1909; Minimum Conditions of Employment Act 1993; Misuse of Drugs Act 1981; Occupational Safety and Health Act 1984; Occupiers Liability Act 1985; Public Sector Management Act 1994; Soil and Land Conservation Act 1945; State Superannuation Act 2000; State Supply Commission Act 1991; Swan River Trust Act 1988; Titles (Validation) and Native Title (Effect of Past Acts) Act 1995; Town Planning and Development Act 1928; Transfer of Land Act 1893; Water and Rivers Commission Act 1995; Water Corporation Act 1995; Water Services Coordination Act 1995; Waterways Conservation Act 1976; Workers' Compensation and Rehabilitation Act 1981; Workplace Agreements Act 1993.

Commonwealth Acts relevant to the Department's activities include: *Australian Heritage Commission Act 1975; Environment Protection and Biodiversity Conservation Act 1999; Native Title Act 1993; Trade Practices Act 1974; Wildlife Protection (Regulation of Exports and Imports) Act 1982; Workplace Relations Act 1996.*

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 Convention); 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.*

REGULATIONS ADMINISTERED

- Conservation and Land Management Regulations 1992.
- Forest Management Regulations 1993.
- National Parks Authority Regulations (1977).
- Sandalwood Regulations 1993.
- Wildlife Conservation Regulations 1970.

CHANGES IN LEGISLATION

Changes to Conservation and Land Management Act

The *Conservation and Land Management Amendment Act 2000* and the *Forest Products Act 2000* came into operation on 16 November 2000. These Acts provided significant changes in respect of forest management policy and related matters, such as the establishment of the Conservation Commission. The Amendment Act removed the Department's commercial functions with regard to the harvesting and sale of timber and other forest products, and commercial timber sharefarming agreements. These responsibilities were taken over by the Forest Products Commission, a Government trading enterprise established as a statutory authority under the *Forest Products Act*.

Miscellaneous reserves

Amendments made to the *Land Administration Act 1997* under the *Land Administration Amendment Act 2000* will enable miscellaneous reserves referred to in section 5(1)(h) of the CLMA to be placed by order with the Marine Parks and Reserves Authority.

Minor amendment to Sandalwood Act

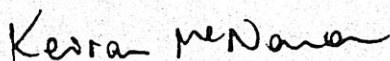
An outdated reference to the *Land Act 1898* in the *Sandalwood Act 1929* was corrected under the *Land Administration Amendment Act 2000*.

Proposed regulations – pet reptiles and amphibians

Public consultation drafts of proposed *Wildlife Conservation (Reptiles and Amphibians) Regulations 2000* and associated *Wildlife Conservation Amendment Regulations 2000*, were released. The proposed regulations address the keeping of and dealing in reptiles and amphibians as pets and related matters.

PERFORMANCE INDICATORS

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 2001.



Keiran McNamara
ACTING EXECUTIVE DIRECTOR
15 August 2001

OUTPUT 1 NATURE CONSERVATION

Outcome	Key Effectiveness Indicators	
<p>Conservation of indigenous plants, animals and ecological processes in natural habitats.</p> <p>Output Description:</p> <p>The development and implementation of programs for flora and fauna conservation, for threatened species and ecological communities and for commercially exploited species according to the principles of ecological sustainability; the acquisition, conservation and protection of representative ecosystems; and encouraging public awareness, understanding and support for nature conservation services and policies.</p> <p><i>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'.</i></p> <p>The Output performance can be best measured by effectiveness and efficiency indicators in three key areas:</p> <ol style="list-style-type: none">1. <i>Wildlife and habitat management.</i>2. <i>Wildlife utilisation.</i>3. <i>Threatened species management.</i>	<p>1. <i>Wildlife and habitat management</i></p> <p>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.</p> <p>Performance Indicator</p> <p>Example population estimates of native fauna following control of a threatening process.</p> <p>Notes</p> <p>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 selected areas of the 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 <i>Western Shield</i> with fox baiting now occurring over 3.5 million hectares of the State.</p>	<p>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 a bushland locality. To monitor the implementation of <i>Western Shield</i>, monitoring sites are being established across the range of the baiting program.</p> <p>Measure</p> <p>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 <i>Western Shield</i> is operating.</p> <p><i>Note: The full Western Shield program commenced in 1996, and hence only four years of monitoring data are available for CALM Regions where baiting was not previously undertaken. An example set of data from an area baited under Western Shield is presented over.</i></p> <p>The graph over shows the recovery following fox baiting, of medium-sized mammals that are prone to fox predation, from the 2,620 ha Porongurup National Park in CALM's Albany District. Prior to fox baiting, low levels of medium-sized mammals</p>

were known from the park. Following fox baiting the known diversity of medium-sized fauna in the area has increased, with populations of Quenda and Brush-tailed Possums increasing significantly. This response to fox baiting is typical of the response over the range of fox baiting activity. Further examples of monitoring from other regions have been presented in previous annual reports.

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

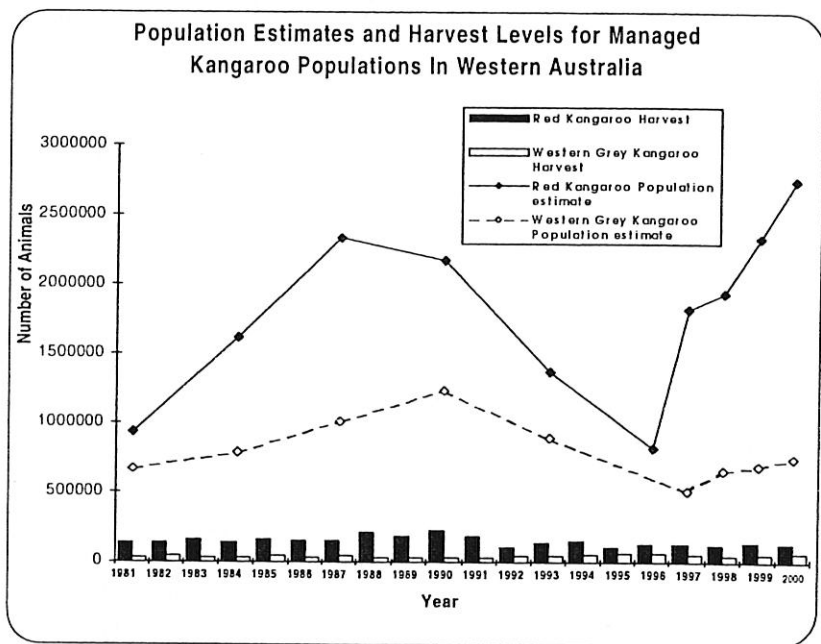
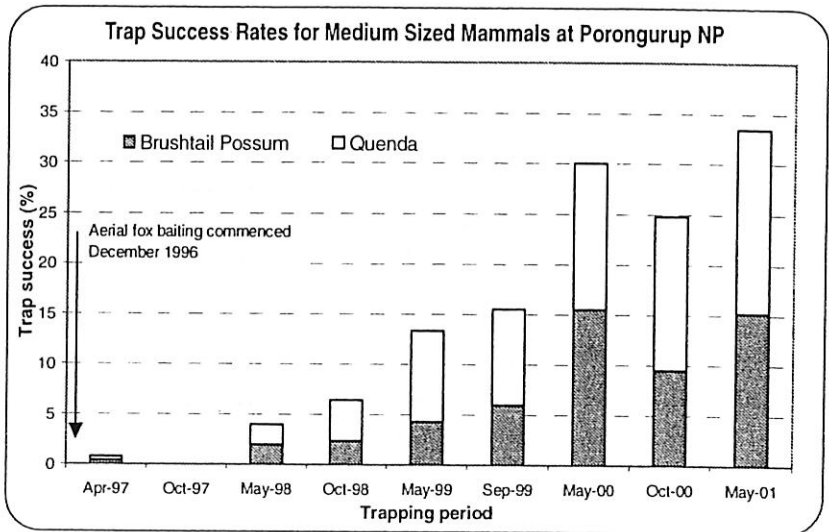
Example population levels of harvested wildlife.

Notes

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, each 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 of red kangaroos are calculated from the survey data, with the estimates for the between-survey areas being extrapolated using population trend information, while western grey kangaroo populations are only recalculated when the southern pastoral region, where this species mainly occurs, is surveyed. Sustainable harvest quotas have been determined from historical monitoring, and are set at a maximum of around 25% of the population estimate, 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 graph above illustrates the management of harvest levels that allow for the maintenance of kangaroo populations in areas where commercial harvesting occurs.

Notes: Harvest levels are recorded for the previous calendar year as delays occur in receiving harvest reports. Minor corrections may also occur to previous years' data as late harvest returns are incorporated. As from 1998, population estimates for kangaroos have been corrected for

temperature. This gives a more realistic estimate of kangaroo numbers. Previous years' population data has also been recalculated using the temperature correction.

The variations observable in the populations of the kangaroo species mainly reflect rangeland condition, primarily as determined by rainfall, rather than the level of harvest permitted. As a natural feature of kangaroo population data, these fluctuations are 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

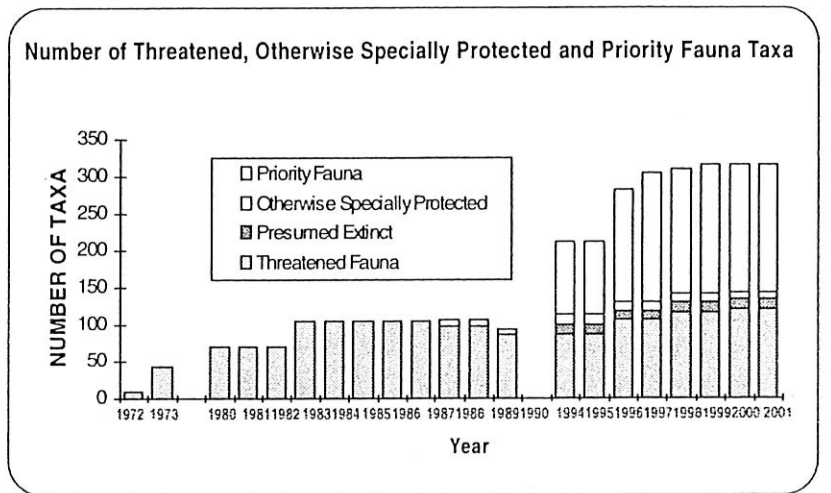
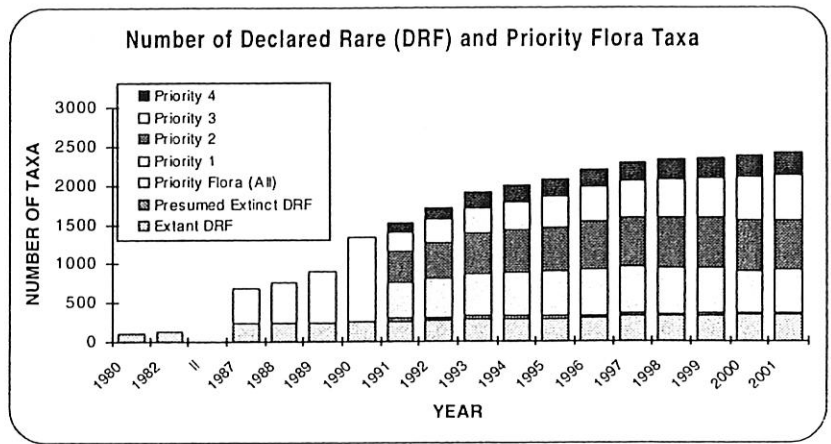
The identification and management of wildlife taxa that are threatened or requiring special conservation attention.

Note: Threatened taxa conservation in Western Australia involves two phases;

- (i) *the identification and listing of taxa in appropriate categories as determined by the level of threat and the level of available knowledge; and*
- (ii) *management 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.*

Indicators (a) and (b) below address these two phases.

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



Note

As from 1998/99 the measure relates to actual listing changes to the declared lists of specially protected fauna and flora made by the Minister for the Environment and the lists of priority fauna and flora prepared by CALM. Recommendations made by the Threatened Species Scientific Committee, but not yet declared by the Minister are not included.

Measure

As shown in the graph above, at 30 June 2001 a total of 2,729 taxa (2,413 flora and 316 fauna) were declared to be specially protected, or included on the Department's priority flora and fauna lists. This represents an increase of 1.5% in the number of taxa listed as requiring special conservation status compared to 1999–2000.

A total of 122 flora taxa were added, and 49 flora taxa were deleted from the lists during the year. Additions were due to further scientific study revealing additional taxa that appear to warrant special conservation attention, while deletions were due either to taxonomic studies revealing taxa that were inappropriately listed, or surveys revealing that taxa were more common than previously thought, and hence no longer warranting special conservation attention.

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 and Heritage 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. Full definitions were presented in the Department's 1997-98 Annual Report.

The increase in the number of taxa listed mainly reflects the Department's maintenance of an enhanced knowledge base of the State's wildlife through taxonomic revision, 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.

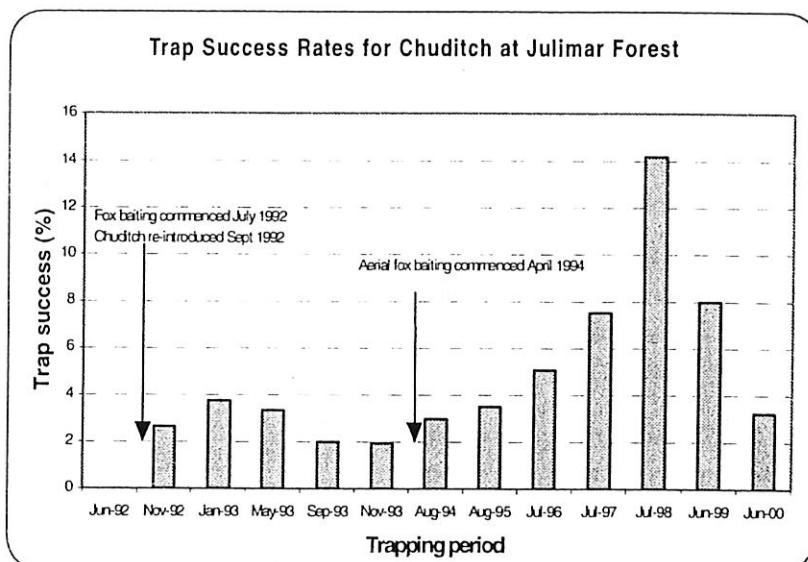
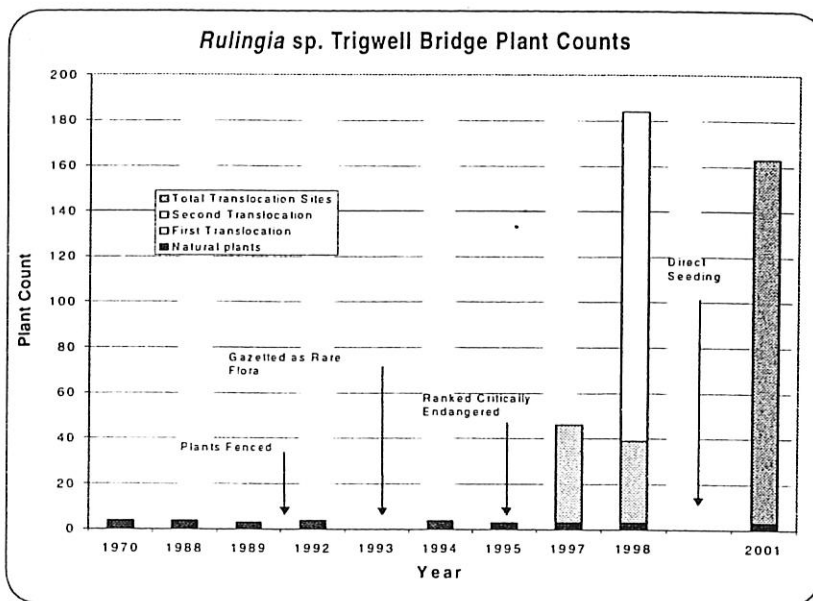
- b) *The recovery of threatened taxa as a consequence of specific management actions as demonstrated through case examples.*

Note

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.

Measure

- i) *Rulingia* sp. Trigwell Bridge was discovered in 1970 as a population of only four plants. However, it was not until 1988 that the species was confirmed as being a new and distinct species.



The species was first known from only a single wild population of plants confined to a private property in the West Arthur area, approximately 250km south east of Perth. The plants are located in cracks in a laterite ridge in a paddock that was used for grazing sheep until 1992. In November 1993 the species was declared as Rare Flora, and ranked as Critically Endangered in September 1995. The main cause of the threatened status of *Rulingia* sp. Trigwell Bridge is thought to be the loss of suitable habitat due to widespread clearing for agriculture. Current threats include grazing, firebreak maintenance, weeds and disease.

In September 1997 a Translocation Proposal was approved with an objective of establishing up to six self-sustaining populations. New populations have now been established on a CALM-managed Nature Reserve and Conservation Park, 3km to the north east and 20km to the west of the known population. The translocated plants are surviving well in these new sites and have flowered and produced large numbers of seeds.

Seeds from the original population and from the translocated populations, were collected and spread for in-situ regeneration trials during 1999 and 2000.

Management actions to conserve this species also include the erection of fences to prevent grazing of the sites, hand weed control, and seed research.

The graph opposite shows the recovery of this threatened species as a result of the specific management actions.

- ii) Medium-sized mammals in the south west of the State have generally declined in their population size and range due to loss of habitat and predation by foxes. While fox control under the Western Shield program has assisted the recovery of these species in many areas, in other areas some species have become locally extinct. In such situations, translocation programs, in conjunction with localised fox control, may be implemented to re-established the species in secure conservation reserves.

The Chuditch is a listed threatened species. Fox control, habitat management, captive breeding and the establishment of new populations in protected areas are strategies included in the managed Recovery Plan for this species.

The graph opposite shows the results of a translocation program, supported by fox control, of the Chuditch *Dasyurus geoffroii* into the 28,317 ha Julimar State Forest (proposed Conservation Park) north of Perth. The program has been successful in establishing a replicating, viable population of this species in the reserves from the original translocated stock.

While the population has decreased in recent years, it is still being

trapped above the criterion rate for successful establishment (1% trap success rate), as set out in the Recovery Plan. This reduction represents the normal decline expected when a population increases rapidly and beyond the carrying capacity of the available habitat, combined with the dispersal of the population over a greater area of the State forest. It would be expected that further fluctuation will occur as the population stabilises with habitat capacity, and seasonal variations.

This example from the Julimar Forest demonstrates the results achieved through properly planned habitat management and fauna translocations. Further examples have been presented in previous annual reports.

Key Efficiency Indicators

1. *Wildlife and habitat management*

The cost per hectare managed.

Note

This measure provides an indicative comparison of the accrual basis, average gross cost (excluding revenues) per hectare of managing nature conservation on CALM-managed lands and waters (23,600,000 ha in 2000–2001; 21,700,000 ha in 1999–2000).

Measure

1997–1998:	\$2.12 per hectare
1998–1999:	\$1.85 per hectare
1999–2000:	\$2.05 per hectare
2000–2001:	\$2.03 per hectare

The 2000–2001 cost represents an increase of \$0.05 on the 'Target' cost of \$1.98 in the 2000–2001 Budget Statements.

2. *Wildlife utilisation*

The accrual basis net cost after revenue of managing the harvesting and utilisation of wildlife per licence issued.

Note

This measure mainly comprises the direct and overhead costs associated with the conservation management of the kangaroo, emu, crocodile, aviculture, and flora industries, and marine fauna interactions; expressed as an average cost per licence issued (2,728 licences in 1997–98; 2,666 in 1998–99; 2,599 in 1999–2000; 2,274 in 2000–01).

Measure

1997–1998:	\$410 per licence
1998–1999:	\$425 per licence
1999–2000:	\$362 per licence
2000–2001:	\$512 per licence

The increase in 2000–2001 mainly reflects the nature of the costs and the fewer licences issued.

3. *Threatened species management*

The accrual basis net cost after revenue of management per taxon that is threatened or otherwise requires special conservation attention.

Note

This measure mainly comprises the direct and overhead costs associated with species conservation, science services, fox control and the management of threatened flora and fauna; expressed as an average cost per taxon (2,619 taxa at 30 June 1998; 2,657 at 30 June 1999; 2,687 at 30 June 2000; 2,729 at 30 June 2001).

Measure

1997–1998:	\$2,671 per taxon
1998–1999:	\$2,606 per taxon
1999–2000:	\$2,650 per taxon
2000–2001:	\$2,303 per taxon

OUTPUT 2 SUSTAINABLE FOREST MANAGEMENT

Outcome	Key Effectiveness Indicator	Note
<p>Long-term maintenance of the forest ecosystem.</p> <p><i>Note: To emphasise the conservation focus of the sustainable forest function, from 2001–2002 the Outcome for this Output will be 'Conservation of biodiversity'.</i></p>	<p>Satisfaction of the sustainable forest management standards of the Conservation Commission of Western Australia.</p>	<p>The accrual basis average gross cost per hectare of managing State forest and timber reserves in accordance with current forest management plans. The area managed totalled 1,870,000 hectares.</p>
<p>Output Description</p>	<p>Note</p> <p>This indicator is intended to measure the output's degree of satisfaction of the sustainable forest management standards determined by the Conservation Commission of Western Australia.</p>	<p>Measure</p> <p>The cost per hectare managed was \$47.65, an increase of \$29.41 on the 'Target' cost of \$18.24 in the 2000–2001 Budget Statements. This increase mainly reflects the unexpected inclusion of Forest Products Division expenditure of \$43.608 million from 1 July – 15 November 2000, which was incurred prior to the legislative creation of the Forest Products Commission from 16 November 2000. Net of this expenditure, the cost per hectare managed is \$24.33, an increase of \$6.09 on the 'Target'. The above cost variations mainly reflect the difficulty of accurately anticipating all of the factors that eventuated to affect this Output's first period of operation.</p>
<p>The sustainable management of State forest and timber reserves while maintaining or enhancing nature conservation, water, recreation, landscape and other values in the long term, and encouraging public awareness, understanding and support for sustainable forest management, services and policies.</p> <p><i>Note: This new output, created in the 2000–2001 Budget Statements (May 2000), anticipated establishment of the Conservation Commission of Western Australia and the Forest Products Commission on 1 July 2000. It eventuated that the actual enabling date of the legislation creating these Commissions was 16 November 2000.</i></p>	<p>Measure</p> <p>The delay in the establishment and operation of the Commission precludes the meaningful measurement and reporting of this indicator for the year ended 30 June 2001. <i>Note: Compliance with extant forest management standards is reported in this Output's Performance Measures table elsewhere in this Annual Report.</i></p> <p>Key Efficiency Indicator</p> <p>The average cost per hectare of managing State forest and timber reserves.</p>	

OUTPUT 3 PARKS AND VISITOR SERVICES

Outcome

Community enjoyment and appreciation of parks, wildlife and the natural environment without compromising conservation and management objectives.

Output Description

Dealing with public involvement, visitation and appreciation of the natural environment on lands and waters managed by the Department, including preparing and implementing management and recreation site development plans; providing, managing and maintaining appropriate access, recreation opportunities and visitor facilities; protecting natural areas, visitors and facilities from wildfire; training Departmental staff and volunteers, working with local tourist bureaux and commercial tour operators; involving Aboriginal people in park management and the provision of visitor facilities and services; providing visitor information and designing and initiating educational and interpretive activity programs which enrich visitor experience and help develop greater community awareness and support for parks, natural areas, nature-based tourism and recreation services and policies.

Key Effectiveness Indicators

1. *The extent to which visitors are satisfied with their visit overall to CALM managed recreation areas.*

Notes

The Department's revised survey program first conducted in January 2000, was undertaken for its first full year during 2000–2001. This new survey program enhances the rigour of measuring the overall level of visitor satisfaction to CALM-managed recreation areas as well as providing for the determination of an overall Visitor

Satisfaction Index (VSI) and the collection of other information useful for planning and management purposes. The survey is being conducted across a broad range of parks, reserves and forest areas at different times of the year to account for the geographic spread of these areas and associated seasonal variation in visitor patterns across the State. The program will enable a more accurate comparison to be made of the level of satisfaction derived by visitors to CALM-managed areas in the coming years.

Respondents to the 2000–2001 survey program show the following characteristics:

- 62% (59% in 1999–2000) of respondents were from Western Australia, 22% (19% 1999/2000) from interstate and the remaining 16% (22% 1999–2000) from overseas.
- the majority of respondents surveyed were visiting with friends and/or family as opposed to travelling on a tour, with an organised group or on their own.
- the largest proportion of respondents were in the 40–59 year age bracket, being 39% (31% 1999–2000) of visitors, followed closely by the 25–39 year age bracket, which comprised 37% (41% 1999–2000) of respondents.

- 60% of respondents overall were first time visitors to the recreation areas surveyed.

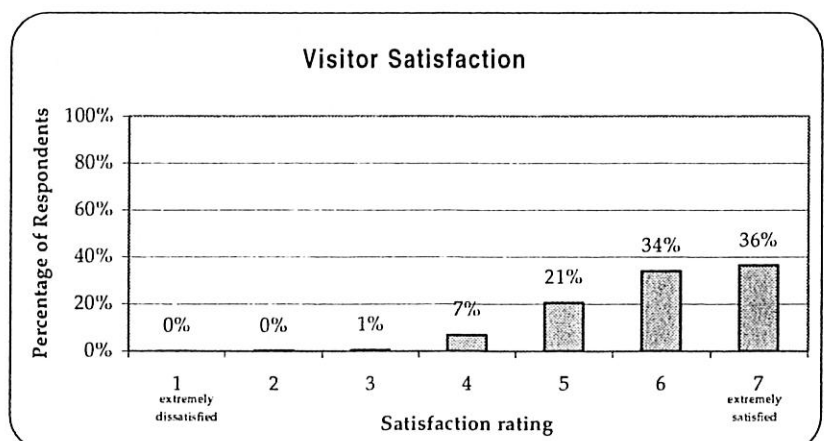
Note: A total of 2405 surveys were distributed during specific survey periods throughout the year to visitors to 17 parks/recreation sites across the State with 747 completed surveys returned. At a 95% confidence level, the survey responses reported below have a standard error within the range of ±0.03.

Measures

As part of the new survey program, a benchmark Visitor Satisfaction Index (VSI) from which to compare visitor satisfaction levels each year has been adopted. This benchmark has been set at 6.1 on a rating scale from 1 (extremely dissatisfied) to 7 (extremely satisfied). The 2000–2001 VSI averaged from visitor responses to the survey at the selected parks, reserves and forest areas around the State was 5.96, which is just slightly below the benchmark VSI of 6.1.

As shown in the **Visitor Satisfaction** graph below, 91% of respondents scored between 5–7 on the rating scale.

The survey also asked visitors to rate the condition and management of the site they visited, the activities in which they participated and their overall



experience at the site. All these factors contribute to the visitors' overall experience during their visit. The **Visitor Experience Ratings** graph indicates that the naturalness of the area, helpfulness of CALM staff and rangers, the management of facilities and enjoyment derived from leisure activities received the highest ratings from visitors' responses to this part of the survey. These were also the highest ratings given from responses to the surveys conducted last year.



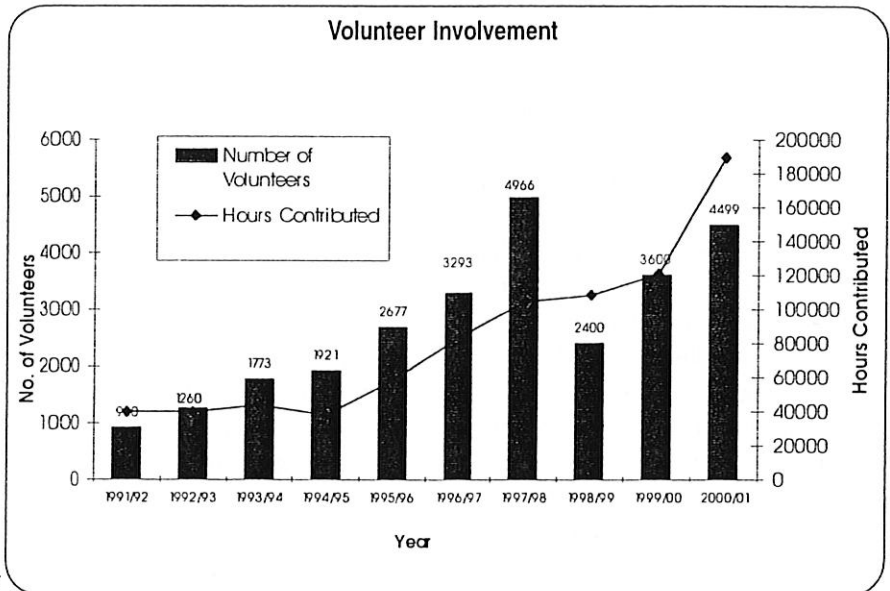
2. The extent to which the public has shown interest/support for CALM-managed recreation areas, facilities and services.

Note

The level of volunteer involvement indicates continued public support for CALM's management programs and the Department's ability to balance competing land uses to aid public enjoyment and protect conservation values.

Measures

As illustrated in the diagram **Volunteer Involvement**, the number of volunteer hours spent on parks and visitor services and nature conservation projects this year totalled 190,000, an increase of nearly 57% on last year's figure of 121,032 hours. The number of registered volunteers currently stands at 4,499, an increase of 25% on last year's figure of 3,600. This reflects the community's continued strong interest in supporting environmental projects.



3. The number of visits to CALM-managed areas.

Note

The number of visits to CALM-managed areas is based on data from

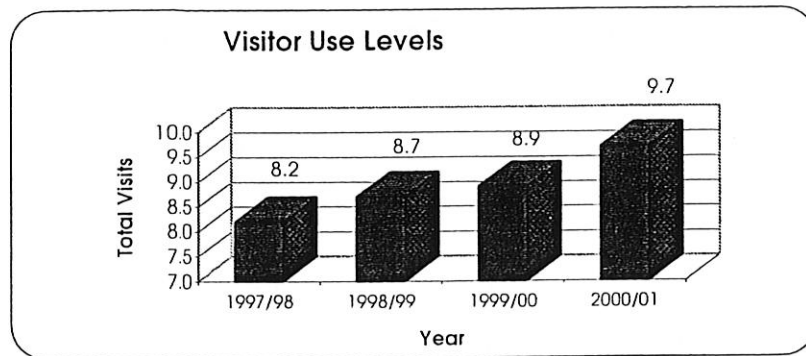
the Department's Visitor Information and Statistics (VISTAT) Program.

Measures

Data from VISTAT indicates that the number of visits to CALM managed lands and waters for 2000–2001 totalled 9,718,203. As illustrated in the diagram on **Visitor Use Levels**, this figure, which comprises both recorded numbers of visits from traffic counter devices, surveys and other data sources as well as estimated numbers of visits based on field observation, represents a net increase of just over 9% on the 8,895,347 visits in 1999–2000.

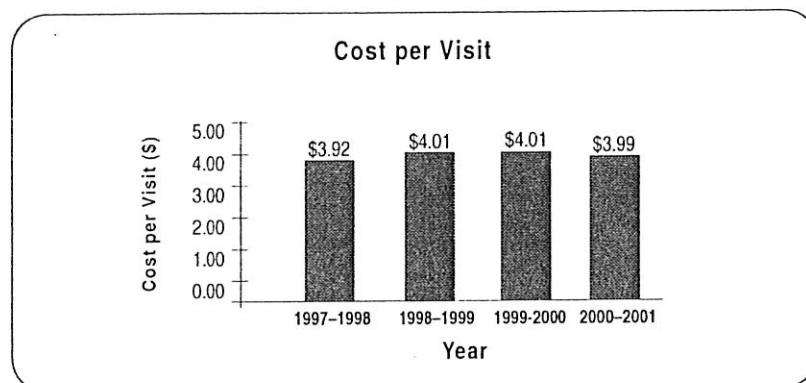
The net increase mainly reflects the impact of:

- (i) the capacity to include in VISTAT for the first time visits to the eight Perth regional parks (approximately 1.3 million visits in 2000–01). CALM has gradually moved to full operational management of these parks in the period since 1997–98; and,
- (ii) a decrease of around 500,000 visits to the other CALM-managed areas in the State, which appear to be related to various factors including increased fuel costs, the introduction of the Goods and Services Tax, the Sydney Olympic games and extreme weather patterns (flooding) in many remote areas.



Trends in Visitor Numbers to Three National Parks

National Parks	1997-1998	1998-1999	1999-2000	2000-2001
Cape Le Grand	65,000	72,000	74,000	65,000
Nambung	157,000	191,000	194,000	169,000
Purnululu	14,000	17,000	17,000	18,000



To compare long-term trends in visitor use levels and patterns, Cape Le Grand, Nambung and Purnululu parks represent low, medium and high levels of annual visitation.

Although the **Trends in Visitor Numbers to Three National Parks** Table shows that two of the three parks experienced a decrease in visitor numbers in 2000-2001, the four year visitor numbers reflect the generally positive trend of overall growth in visitation to Department managed parks, reserves and forest areas throughout the State.

Key Efficiency Indicators

1. Cost per visit.

Note

The accrual basis gross total cost (excluding revenues) of Parks and Visitor Services, expressed as a cost per recorded visit to CALM-managed lands and waters.

Measure

The 2000-2001 gross cost per visit was \$3.99. As shown in the **Cost per Visit** graph this represents an increase of \$0.33 on the 'Target' cost of \$3.66 in the 2000-2001 Budget Statements.

2. Ratio of total cost of services to operating revenues.

Note

The accrual basis total cost of providing Parks and Visitor Services expressed as a ratio of operating revenue from those services.

Measure

With total expenditure of \$38,745,000 and operating revenue of \$17,755,000, the 2000-2001 ratio was 2.18:1, a decrease of 0.68 on the ratio of 2.86:1 in 1999-2000.

OUTPUT 4 ASTRONOMICAL SERVICES

Outcome

Astronomical information and services for the benefit of the community.

Output Description

Providing public information and awareness directly beneficial to the Western Australian community, and contributing to scientific research in astronomy by co-operating with national and international institutions in the acquisition, analysis, interpretation and dissemination of information.

Key Effectiveness Indicators

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

Note

During 2000–2001, 8,424 people visited the Observatory, 2,036 people used the recorded information line, and 12,474 people telephoned seeking information.

A total of 534 customer survey questionnaires were distributed; 495 to Observatory star viewing night, day and Sunday visitors between October 2000 and May 2001, and 39 to customers of Observatory services such as lectures and natural lighting consultancies.

Note: At a 95% confidence level the survey responses reported below have a standard error within the range $\pm 3.2\%$.

Measure

The table **Overall Satisfaction with Perth Observatory** shows the combined analysis of 343 (64.2%) responses to the visitors' survey question 'How satisfied were you with the services provided by Perth Observatory?' and the 21 (53.8%) responses to the services customers' survey question 'Did the service provided by the Perth Observatory meet your needs?' The responses to both survey questions

Overall Satisfaction with Perth Observatory

Response	1996–97 %	1997–98 %	1998–99 %	1999–2000 %	2000–2001 %
Very satisfied	69.6	68.7	71.3	75.1	72.8
Satisfied	26.8	29.9	26.4	23.9	25.3
Neither satisfied or dissatisfied	3.0	1.2	2.3	0.8	1.9
Dissatisfied	0.4	0.2	0.0	0.0	0.0
Very dissatisfied	0.2	0.0	0.0	0.2	0.0

Note: Prior to 1999–2000 the table reports responses from surveys of star viewing night customers only.

Increased Knowledge and Awareness of Astronomy

Response	1996–97 %	1997–98 %	1998–99 %	1999–2000 %	2000–2001 %
Strongly agree	48.7	45.4	52.6	54.9	57.6
Agree	46.1	50.9	45.5	43.9	38.9
Neither agree or disagree	4.2	3.5	1.9	1.2	3.5
Disagree	1.0	0.2	0	0	0.0
Strongly disagree	0	0	0	0	0.0

indicate levels of satisfaction consistent across all types of visits and services.

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

Note

This 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.

Measure

The **Increased Knowledge and Awareness of Astronomy** table illustrates visitors' perception as measured by the visitors' survey described above. The analysis of the 342 (64.0%) responses to the question

'To what extent do you agree that the information presented on the tour increased your knowledge of and awareness of astronomy?' indicates levels of satisfaction consistent across all types of visits.

- Research findings published in internationally recognised journals.*

Note

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. Publication in these journals evidences that the Observatory is adding to scientific knowledge and therefore furthering scientific research.

Measure

During 2000–2001, the Observatory had 5 (5 in 1999–2000) articles published in internationally recognised journals. *Note: 22 (32 in 1999–2000) other scientific papers related to scientific data on astronomical objects were also published as articles in educational journals, popular magazines, newsletters or internal reports.*

Key Efficiency Indicators

1. Cost per tour visitor.

Note

The Perth Observatory conducts an on-site educational program through guided tours for school and community groups, tourists and the general public. This indicator shows the average accrual gross cost per tour visitor based on 2000–2001 tour participation totalling 8,424 (1999–2000 7,655), ie. night visitors – 5,120, day visitors – 2,522 and Sunday afternoon visitors – 782.

Measure

The cost per visitor in 2000–2001 was \$15.66 (1999–2000 \$16.33) an increase of \$2.16 on the 'Target' cost of \$13.50 in the 2000–2001 Budget Statements. Because of the nature of the costs involved, the increase reflects the actual number of tour visitors being 676 less than the 'Target' of 9,100, mainly due to the adverse impact of uncontrollable factors (eg. inclement weather) on scheduled tours.

2. Cost per enquiry.

Note

This indicator shows the average accrual gross cost relating to the Observatory receiving and responding to enquiries about astronomical information by way of the information line, telephone calls and attendance at astronomy talks and field nights.

Measure

Based on a total of 22,720 enquiries in 2000–2001, the cost per enquiry was \$23.15 (16,588 enquiries at \$35.23 in 1999–2000). This is a decrease of \$5.55 on the 'Target' cost of \$28.70 in the 2000–2001 Budget Statements. Because of the nature of the costs involved, the decrease mainly reflects the higher than expected level of public interest in astronomy, with 4,720 more enquiries being received than the 'Target' of 18,000.

3. Cost of research activities per refereed research paper.

Note

This indicator shows the average accrual gross cost of the Observatory's research activities expressed as an average per refereed scientific research

paper.

Measure

In 2000–2001 the average cost per paper of the research activities supporting the five refereed research papers was \$70,416 (five papers at \$69,103 in 1999–2000), an increase of \$306 on the 'Target' cost of \$70,110 in the 2000–2001 Budget Statements.

4. Cost of research activities per 1,000 head of WA population.

Note

This indicator shows the accrual gross cost of the Observatory's research activities expressed as an average cost per 1,000 head of WA population.

Measure

The cost of research activities per 1,000 head of WA population was \$191 in 2000–2001, (\$181 in 1999–2000) an increase of \$7 on the 'Target' cost of \$184 in the 2000–2001 Budget Statements.

OUTPUT 5 RESOURCE AND SERVICES

PROVIDED TO THE CONSERVATION COMMISSION OF WESTERN AUSTRALIA

Outcome

The provision of resources and services to the Conservation Commission of Western Australia

Note: To emphasise the conservation focus, from 2001–2002 the Outcome for this Output will be 'Conservation of biodiversity'.

Output Description

The provision of resources and services to the Conservation Commission of Western Australia for the satisfaction of its functions which include; having vested in it the State's national parks, conservation parks, nature reserves, State forest and timber reserves; policy development for the preservation and community enjoyment of the State's natural environment, and promoting the appreciation of flora, fauna and the natural environment; advice to the Minister for the Environment and Heritage on the development of policies for the conservation and management of biodiversity throughout the State and on the

ecologically sustainable management of State forest, timber reserves and forest produce; and audit of the Department of Conservation and Land Management's and the Forest Products Commission's performance against management plans.

Note: This new output, created in the 2000–2001 Budget Statements (May 2000), anticipated establishment of the Conservation Commission of Western Australia on 1 July 2000. It eventuated that the enabling date of the legislation creating the Commission was 16 November 2000.

Key Effectiveness Indicator

Level of Ministerial satisfaction with the provision of relevant resources and services to the Conservation Commission of Western Australia.

Note

This indicator is intended to convey a measure of the degree of the relevant Minister's satisfaction with the outputs resources and services provided to the Conservation Commission for the satisfaction of its statutory functions.

Measure

The delay in the establishment and operation of the Commission precludes the meaningful measurement and reporting of this indicator for the year ended 30 June 2001.

Key Efficiency Indicator

The average cost per management plan/significant policy developed.

Note

The accrual basis average cost of developing management plans and/or significant policies for the Conservation Commission's consideration.

Measure

The average cost per management plan/significant policy developed for the Commission's consideration was \$11,480. This represents a decrease of \$820 on the 'Target' cost of \$12,300 in the 2000–2001 Budget Statements.



Auditor General

To the Parliament of Western Australia

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT PERFORMANCE INDICATORS FOR THE YEAR ENDED JUNE 30, 2001

Scope

I have audited the key effectiveness and efficiency performance indicators of the Department of Conservation and Land Management for the year ended June 30, 2001 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 key performance indicators in order to express an opinion on them to the Parliament as required by the Act. No opinion is expressed on the output measures of quantity, quality, timeliness and cost.

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, evidence supporting the amounts and other disclosures in the performance indicators, and assessing the relevance and 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 key effectiveness and efficiency performance indicators of the Department of Conservation and Land Management are relevant and appropriate for assisting users to assess the Department's performance and fairly represent the indicated performance for the year ended June 30, 2001.

D D R PEARSON
AUDITOR GENERAL
September 26, 2001



Auditor General

To the Parliament of Western Australia

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT FINANCIAL STATEMENTS FOR THE YEAR ENDED JUNE 30, 2001

Scope

I have audited the accounts and financial statements of the Department of Conservation and Land Management for the year ended June 30, 2001 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 Accounting Standards, other mandatory professional reporting requirements and the Treasurer's Instructions so as to present a view which is consistent with my understanding of the Department's financial position, the results of its operations and its cash flows.

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

Audit Opinion

In my opinion,

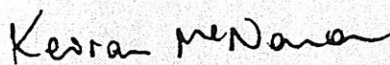
- (i) the controls exercised by the Department of Conservation and Land Management provide reasonable assurance that the receipt, expenditure and investment of moneys and the acquisition and disposal of property and the incurring of liabilities have been in accordance with legislative provisions; and
- (ii) the Statement of Financial Performance, Statement of Financial Position, Statement of Cash Flows, Output Schedule of Expenses and Revenues 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 financial position of the Department at June 30, 2001 and the results of its operations and its cash flows for the year then ended.

D D R PEARSON
AUDITOR GENERAL
September 26, 2001

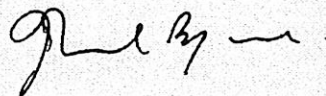
FINANCIAL STATEMENTS

The accompanying financial statements of the Department of Conservation and Land Management have been prepared in compliance with the provisions of the Financial Administration and Audit Act 1985 from proper accounts and records to present fairly the financial transactions for the period ending 30 June 2001 and the financial position as at 30 June 2001.

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.



Keiran McNamara
ACCOUNTABLE OFFICER
15 August 2001



John Byrne
PRINCIPAL ACCOUNTING OFFICER
15 August 2001

**DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
STATEMENT OF FINANCIAL PERFORMANCE
FOR THE YEAR ENDED 30 JUNE 2001**

	Note	2000-2001 (\$'000)	1999-2000 (\$'000)
COST OF SERVICES			
Operating expenses	4		
Employee costs	5	69,448	72,447
Supplies and services	6	53,479	60,574
Harvesting		25,401	56,291
Depreciation	7	10,658	10,278
Borrowing costs		6,855	8,228
Bad and doubtful debt expenses		373	549
Administration expenses	8	6,829	7,008
Accommodation expenses		3,402	2,776
Grants & subsidies	9	691	103
Total cost of services		<u>177,136</u>	<u>218,254</u>
Operating revenues			
User charges and fees	10	86,615	144,751
Commonwealth grants and contributions		13,172	9,012
Net profit on disposal of non-current assets	11	289	689
Other operating revenues	12	14,936	10,802
Total operating revenues		<u>115,012</u>	<u>165,254</u>
Net cost of services before change in Forest valuation		(62,124)	(53,000)
Change in Forest valuation	13	0	(126,422)
NET COST OF SERVICES		<u>(62,124)</u>	<u>(179,422)</u>
REVENUES FROM GOVERNMENT			
Appropriations	14	74,291	72,823
Liabilities assumed by the Treasurer		(2,556)	(21)
Resources received free-of-charge		555	677
Net Assets Assumed (Transferred)	15	(644)	(155)
Total revenues from Government		<u>71,646</u>	<u>73,324</u>
Change in net assets after restructuring		9,522	(106,098)
Net increase/(decrease) in asset revaluation reserve		8,727	(60,893)
Total changes in equity other than those resulting from transactions with owners as owners		<u>18,249</u>	<u>(166,991)</u>

The Statement of Financial Performance should be read in conjunction with the accompanying notes.

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
STATEMENT OF FINANCIAL POSITION
AS AT 30 JUNE 2001

	Note	2000-2001 (\$'000)	1999-2001 (\$'000)
CURRENT ASSETS			
Cash and amounts in suspense	16	24,165	19,527
Inventories	17	2,371	12,182
Receivables	18	9,250	22,269
Prepayments	19	557	1,010
Total Current Assets		<u>36,343</u>	<u>54,988</u>
NON-CURRENT ASSETS			
Property, plant, equipment and vehicles	20	1,939,537	1,939,498
Infrastructure		0	31,660
Timber		0	259,166
Other assets		48,011	50,566
Total Non-Current Assets		<u>1,987,548</u>	<u>2,280,890</u>
TOTAL ASSETS		<u>2,023,891</u>	<u>2,335,878</u>
CURRENT LIABILITIES			
Payables	21	6,271	8,262
Borrowings	22	123	4,200
Provisions	23	8,443	8,840
Other liabilities	24	3,283	11,210
Total Current Liabilities		<u>18,120</u>	<u>32,512</u>
NON-CURRENT LIABILITIES			
Borrowings	22	3,687	83,558
Provisions	23	4,846	5,821
Total Non-Current Liabilities		<u>8,533</u>	<u>89,379</u>
TOTAL LIABILITIES		<u>26,653</u>	<u>121,891</u>
EQUITY			
Equity Contribution to Government	25	(234,998)	0
Asset revaluation reserve		1,854,384	1,845,657
Accumulated surplus/(deficit)		377,852	368,330
Total Equity		<u>1,997,238</u>	<u>2,213,987</u>
TOTAL LIABILITIES AND EQUITY		<u>2,023,891</u>	<u>2,335,878</u>

The Statement of Financial Position should be read in conjunction with the accompanying notes.

**DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
STATEMENT OF CASH FLOWS
FOR THE YEAR ENDED 30 JUNE 2001**

	Note	2000-2001 (\$'000)	1999-2000 (\$'000)
CASH FLOWS FROM GOVERNMENT			
Recurrent appropriations		67,367	51,883
Capital appropriations		6,924	20,940
Net cash provided by Government		<u>74,291</u>	<u>72,823</u>
UTILISED AS FOLLOWS:			
CASH FLOWS FROM OPERATING ACTIVITIES			
Payments			
Employee costs		(73,064)	(69,534)
Supplies and services		(52,674)	(59,635)
Harvesting Costs		(25,003)	(55,954)
Interest paid		(8,503)	(8,284)
GST Payments on Purchases		(6,687)	0
GST Payments to Taxation Authority		(951)	0
Other payments		(9,676)	(8,697)
Receipts			
Sale of goods and services		91,757	137,649
User charges and fees		15,949	13,418
Interest received		841	694
GST Receipts on Sales		6,084	0
GST Receipts from Taxation Authority		1,103	0
Other receipts		16,568	12,459
Net cash provided by/(used in) operating activities	26	<u>(44,256)</u>	<u>(37,884)</u>
CASH FLOWS FROM INVESTING ACTIVITIES			
Proceeds from sale of non-current physical assets		2,045	2,307
Payments for non-current physical assets		(19,243)	(33,078)
Net cash provided by/(used in) investing activities		<u>(17,198)</u>	<u>(30,771)</u>
CASH FLOWS FROM FINANCING ACTIVITIES			
Proceeds from borrowings		0	4,400
Repayment of borrowings		(8,200)	(4,963)
Net cash provided by/(used in) financing activities		<u>(8,200)</u>	<u>(563)</u>
Net increase/(decrease) in cash held		4,638	3,605
Cash at the beginning of the financial year		19,527	15,922
CASH AT THE END OF THE FINANCIAL YEAR	16	<u>24,165</u>	<u>19,527</u>

The Statement of Cash Flows should be read in conjunction with the accompanying notes.

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
 OUTPUT SCHEDULE OF EXPENSES AND REVENUES
 FOR THE YEAR ENDED 30 JUNE 2001

Note	OUTPUT 1 NATURE CONSERVATION (\$'000)		OUTPUT 2 SUSTAINABLE FOREST MANAGEMENT (\$'000)		OUTPUT 3 PARKS AND VISITOR SERVICES (\$'000)		OUTPUT 4 ASTRONOMICAL SERVICES (\$'000)		OUTPUT 5 RESOURCES SUPPLIED TO THE CONSERVATION COMMISSION (\$'000)		TOTAL (\$'000)	
	2000-2001	1999-2000	2000-2001	1999-2000	2000-2001	1999-2000	2000-2001	1999-2000	2000-2001	1999-2000	2000-2001	1999-2000
COST OF SERVICES												
4	26,845	24,143	24,490	31,377	17,309	16,349	606	578	0	0	69,448	72,447
5	14,165	14,745	26,719	34,575	12,391	11,071	163	183	0	0	53,479	60,574
6	0	0	25,401	56,291	0	0	0	0	0	0	25,401	56,291
7	1,966	1,550	3,554	4,038	4,955	4,472	181	218	0	0	10,558	10,278
	329	331	5,613	6,984	913	913	0	0	0	0	6,855	8,228
	0	17	354	491	19	41	0	0	0	0	373	549
8	2,842	2,617	1,986	2,562	1,929	1,779	42	50	0	0	6,829	7,008
	1,153	899	986	848	1,229	1,003	18	26	0	0	3,402	2,776
9	691	103	0	0	0	0	0	0	0	0	691	103
	47,991	44,405	89,103	137,166	38,745	35,628	1,010	1,055	0	0	177,136	218,254
Operating revenues												
10	1,907	1,409	74,762	134,191	9,822	9,042	119	109	0	0	86,615	144,751
	8,600	7,906	528	850	4,044	256	0	0	0	0	13,172	9,012
11	53	39	155	531	81	122	0	(3)	0	0	289	689
12	1,924	1,503	9,205	6,267	3,807	3,032	0	0	0	0	14,936	10,802
	12,484	10,857	84,650	141,839	17,754	12,452	119	106	0	0	115,012	165,254
	(35,507)	(33,548)	(4,453)	4,673	(20,991)	(23,176)	(891)	(949)	0	0	(62,124)	(53,000)
13	0	0	0	(126,422)	0	0	0	0	0	0	0	(126,422)
	(35,507)	(33,548)	(4,453)	(121,749)	(20,991)	(23,176)	(891)	(949)	0	0	(62,124)	(179,422)
REVENUES FROM GOVERNMENT												
14	40,711	39,597	7,374	7,585	25,212	24,986	706	655	0	0	74,291	72,823
	(1,107)	(8)	(804)	(6)	(610)	(5)	(28)	0	0	0	(2,556)	(21)
	182	237	187	284	181	152	4	4	0	0	555	677
15	7	(77)	(4,700)	0	4,049	(78)	0	0	0	0	(644)	(155)
	39,793	39,749	2,057	7,861	28,832	25,055	682	659	0	0	71,646	73,324
	4,286	6,201	(2,396)	(113,888)	7,841	1,879	(209)	(290)	0	0	9,522	(106,098)

The Output Schedule of Expenses and Revenue should be read in conjunction with the accompanying notes.

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
SUMMARY OF CONSOLIDATED FUND APPROPRIATIONS AND REVENUE ESTIMATES (NOTE 34)
FOR THE YEAR ENDED 30 JUNE 2001

	2000-2001			1999-2000		
	Estimate \$'000	Actual \$'000	Variance \$'000	Estimate \$'000	Actual \$'000	Variance \$'000
RECURRENT						
Amount required to fund outputs for the year	68,650	124,588	55,938	158,300	156,096	-2,204
Less retained revenue - Section 23A of the Financial Administration and Audit Act	1,883	57,414	55,531	113,531	104,372	-9,159
Item 70 Amount provided to fund outputs for the year	66,767	67,174	407	44,769	51,724	6,955
Amount authorised by other Statutes - Salaries and Allowances Act 1975	139	193	54	159	159	0
Total Recurrent Services	66,906	67,367	461	44,928	51,883	6,955
CAPITAL						
Amount required for Capital Services for the year	5,091	7,369	2,278	16,460	32,961	16,501
Less Retained Revenue - Section 23A of the Financial Administration and Audit Act	300	445	145	5,020	12,021	7,001
Item 152 Amount provided for Capital Services for the year	4,791	6,924	2,133	11,440	20,940	9,500
Total Capital Services	4,791	6,924	2,133	11,440	20,940	9,500
GRAND TOTAL	71,697	74,291	2,594	56,368	72,823	16,455
DETAILS OF EXPENDITURE						
RECURRENT						
Outputs						
Output 1 : Nature Conservation	42,819	47,026	4,207	40,574	41,195	621
Output 2 : Sustainable Forest Management	29,942	86,884	56,942	125,522	129,758	4,236
Output 3 : Parks and Visitor Services	29,135	33,922	4,787	29,908	30,353	445
Output 4 : Astronomical Services	785	801	16	780	793	13
Output 5 : Services provided to the Conservation Commission	600	287	-313	0	0	0
Recurrent Expenditure	103,281	168,920	65,639	196,784	202,099	5,315
Less Retained Revenue:	42,079	125,200	83,121	158,009	164,311	6,302
Changes in Operating Account Balances	0	4,583	4,583	0	3,927	3,927
	61,202	48,303	-12,899	38,775	41,715	2,940
Other Funding Sources	5,000	10,779	5,779	4,062	5,114	1,052
Capital Repayments	633	8,200	7,567	2,000	4,963	2,963
Add: Cash Operating Revenue Taken to Consolidated Fund	71	85	14	91	91	0
Consolidated Fund Recurrent Appropriations	66,906	67,367	461	44,928	51,883	6,955
CAPITAL						
Capital Expenditure	12,191	19,242	7,051	22,027	44,570	22,543
Less Retained Revenue:	7,400	12,824	5,424	10,587	18,651	8,064
Borrowings	0	-506	-506	0	4,400	4,400
Changes in Operating Account Balances	0	0	0	0	579	579
Consolidated Fund Capital Appropriations	4,791	6,924	2,133	11,440	20,940	9,500
GRAND TOTAL OF APPROPRIATIONS	71,697	74,291	2,594	56,368	72,823	16,455
DETAILS OF REVENUE ESTIMATES						
Territorial	0	0	0	20	0	-20
Departmental	71	85	14	71	91	20
TOTAL REVENUE ESTIMATES	71	85	14	91	91	0

The Summary of Consolidated Fund Appropriations and Revenue Estimates should be read in conjunction with the accompanying notes. This Summary provides the basis for the Explanatory Statement information requirements of TI 945.

**DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT – NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 30 JUNE 2001**

1. DEPARTMENTAL MISSION AND FUNDING

The agency's mission is in partnership with the community, to conserve Western Australia's biodiversity, and manage the lands and waters entrusted to us, for the appreciation and benefit of present and future generations.

On 16 November 2000 the Forest Products Commission was established by promulgation of the Forest Products Act 2000. Commercial forestry functions were transferred to the Forest Products Commission from the Department of Conservation and Land Management from this date. The Department's financial statements include forestry revenues and expenses for the period to 15 November 2000. Forestry assets and liabilities were transferred to the Commission prior to 30 June 2001.

In 2000–2001 the Department was predominantly funded by Parliamentary appropriations. The Department provided the outputs as disclosed at Note 3. Government policy determines the fees charged. 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.

As part of the State Government's Machinery of Government framework announced on 21 June 2001, the Department will be renamed the Department of Conservation when legislation is amended. The framework also proposes that additional conservation functions will be transferred from other agencies.

2. SIGNIFICANT ACCOUNTING POLICIES

The following accounting policies have been adopted in the preparation of the financial statements. Unless otherwise stated these policies are consistent with those adopted in the previous year.

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 the 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 the preparation of financial statements and take precedence over Australian Accounting Standards and UIG Consensus Views. The modifications are intended to fulfil the requirements of general application to the public sector together with the need for greater disclosure and 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.

Basis of accounting

The financial statements have been prepared in accordance with Australia Accounting Standard AAS29.

The statements have been prepared on an accrual basis using historic cost accounting, with the exception of certain non-current assets which subsequent to initial recognition, have been measured on the fair value basis in accordance with the option under AAS 38(5.1).

Administered assets, liabilities, expenses and revenues are not integral to the Department in carrying out its functions and are disclosed in schedules to the financial statements, forming part of the general purpose financial report of the Department.

a) Appropriations

Appropriations in the nature of revenue, whether recurrent or capital, are recognized 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 deposited into the Department's bank account.

b) Net Appropriation Determination

Pursuant to section 23A of the Financial Administration and Audit Act, the net appropriation determination by the Treasurer provides for retention of the following moneys received by the Department:

- Proceeds from sale of real property and disposal of equipment and non-real property (Note 11).
- Prescribed fees and charges (Summary of Consolidated Fund Appropriations and Revenue Estimates).

The moneys received and retained were applied to the Department's Outputs as specified in the Budget Statements.

c) Grants and Other Contributions Revenue

Grants, donations, gifts and other non-reciprocal contributions are recognised as revenue when the Department obtains control over the assets comprising the contributions. Control is normally obtained upon their receipt. Contributions are recognised at their fair value. Contributions of services are only recognised when a fair value can be reliably determined and the services would be purchased if not donated.

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT – NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2001

d) Operating Accounts

Amounts appropriated are deposited into the Department's bank account and any revenues that are the subject of net appropriation determinations are deposited into the account. Revenues not subject to net appropriation determinations are credited to the Consolidated Fund. All payments of the Department are made from the operating account.

e) Depreciation of non-current assets

All non-current assets having a limited useful life are systematically depreciated over their useful lives in a manner which reflects the consumption of their future economic benefits.

Depreciation is provided for on a straight-line basis. Useful lives for each class of depreciable asset 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	4 – 10 years
Heavy Fleet Vehicles	5 years
Recreation / Tourism Assets	10 – 20 years

f) Valuation of Assets

Land

Freehold land held in the name of the Executive Director, Crown land in the conservation estate and vested State Forest are valued by the Valuer General on either a market value or current use basis. The Valuer General provided a revaluation for 2000–2001 which has been included in the Statement of Financial Position.

Crown land is reserved for or held by the Department for the conservation and land management purposes prescribed by the Conservation and Land Management Act 1984. Section 17(7) of the Act provides that should the land no longer be reserved or held for these purposes the land shall become Crown land within the meaning of the Land Administration Act 1997 and thus would no longer be vested in the Department. Therefore land of this nature cannot be disposed by the Department to meet liabilities or fund activities.

The value of tourism facilities and other improvements to the land is reported separately from the Valuer General's land valuation.

g) 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.

h) Employee entitlements

Annual leave

This entitlement is recognised at current remuneration rates and is measured at the amount unpaid at the reporting date in respect to employees' service up to that date.

Long service leave

A liability for long service leave is recognised, and is measured as the present value of the expected future payments to be made in respect of services provided by employees up to the reporting date. When assessing expected future payments consideration is given to expected future wage and salary levels including relevant on-costs, experience of employee departures and periods of service. Expected future payments are discounted using interest rates to obtain a net present value of future cash outflows. This method of measurement of the liability complies with the requirements of Australian Accounting Standard AAS30 Accounting for Employee Entitlements.

Superannuation

Staff may contribute to the Superannuation and Family Benefits Act Scheme, a defined benefits pension scheme now closed to new members, or to the Gold State Superannuation Scheme, a defined benefit lump sum scheme now also closed to new members. 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 to the Gold State and West State Superannuation Schemes. Employer contributions have been paid to the Gold State Superannuation Scheme since the inception of the Scheme in 1987.

The financial statements include the Department's contributions adjusted for the change in the unfunded liability assumed by the Treasurer for pre 1987 service for current employees in the Gold State Superannuation Scheme.

The total unfunded liability assumed by the Treasurer for current employees in the Gold State Superannuation Scheme for pre 1987 service is \$13.44M (1999–2000 \$16.00M).

The total unfunded liability assumed by the Treasurer in respect of Superannuation and Family Benefits Act pensions that will be payable to current employees when they retire is \$2.86M (1999–2000 \$2.29M).

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.

**DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT – NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 30 JUNE 2001**

i) Leases

The Department has entered into a number of operating lease arrangements for the rent of buildings, office equipment and motor vehicles where the lessor effectively retains 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 2000–2001.

j) Receivables

Receivables are recognised as the amounts receivable when they are due for settlement no more than 30 days from the date of recognition.

Collectability of receivables is reviewed on an ongoing basis. Debts that are known to be uncollectable are written off. A provision for doubtful debts is raised where reasonable doubts as to collection exist.

k) Accrued Salaries

The Treasury accrued salaries suspense account consists of amounts paid annually into a suspense account maintained at Treasury over a period of 10 financial years to meet the additional cash outflow in each eleventh year when 27 pay days occur in that year instead of the normal 26. No interest is received on this account.

The Treasury accrued salaries suspense account balance can be distinguished from the accrued salaries amount that represents the amount due to staff but unpaid at the end of the financial year, as the end of the last pay period for that financial year does not coincide with the end of the financial year. Accrued salaries are settled within a few days of the financial year end. The Department considers the carrying amount of accrued salaries to be equivalent to the net fair value.

l) Payables

Payables are settled on or within 30 days. Shorter terms may be applied where discounts are made available. Obligations to creditors, including accruals not yet billed, are recognised as amounts to be paid in future whether or not an invoice has been received before balance date.

m) Inventories

Inventories have been valued at the lower of cost and net realisable value, apart from publications that are valued at the wholesale price. Nursery stock at the Narrogin Nursery is valued at cost including overheads.

n) Accrued Superannuation

Accrued superannuation represents the Department's estimated liability at the end of year for employer superannuation contributions to the Government Employees Superannuation Board. The Department receives fortnightly invoices in arrears.

o) Borrowings

The Department has borrowed funds through the Western Australian Treasury Corporation. These borrowings are recorded at an amount equal to the net proceeds received. Interest expense is recognised on an accrual basis.

p) Resources Received Free-of-Charge or For Nominal Value

Resources received or provided free of charge or for nominal value that can be reliably measured are recognised as revenues or expenses.

3. OUTPUTS OF THE DEPARTMENT

The Government outcomes and Departmental outputs during the reporting period were:

Outcome: Conservation of indigenous plants, animals and ecological processes in natural habitats.

Output 1: Nature Conservation

Outcome: Long-term maintenance of the forest ecosystem.

Output 2: Sustainable Forest Management

Outcome: Community enjoyment and appreciation of parks, wildlife and the natural environment without compromising conservation and management objectives.

Output 3: Parks and Visitor Services

Outcome: Astronomical information and services for the benefit of the community.

Output 4: Astronomical Services

Outcome: The provision of resources and services to the Conservation Commission of Western Australia.

Output 5: Resources and services provided to the Conservation Commission of Western Australia

An Output Schedule of Expenses and Revenue is shown separately.

4. Operating expenses for 2000–2001 include expenditure of \$48.476 million incurred by the Forest Products Division in the period 1 July to 15 November 2000 prior to the establishment of the Forest Products Commission on 16 November 2000. This expenditure is included under the Sustainable Forest Management output in the Output Schedule of Expenses and Revenue.

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT – NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 30 JUNE 2001

	2000-2001	1999-2000		2000-2001	1999-2000
	(\$'000)	(\$'000)		(\$'000)	(\$'000)
5. EMPLOYEE COSTS			10. USER CHARGES AND FEES		
Wages and salaries	66,233	64,158	Royalties and Timber Sales		
Superannuation	3,773	5,205	- Hardwood Royalties	9,313	28,850
Annual Leave	1,079	450	- Softwood stumpages	5,482	14,151
Long Service	(1,637)	2,634	- Sandalwood sales	5,560	11,635
	<u>69,448</u>	<u>72,447</u>	- Recovery of Hardwood Harvesting Costs	12,856	41,544
6. SUPPLIES AND SERVICES			- Recovery of Softwood Harvesting Costs	9,786	17,610
Services & Contracts	17,446	28,757	Parks and Visitor Services income	6,779	6,236
Materials	24,236	17,836	Recoupable Works		
Operating Leases	10,308	12,549	- Agency Sharefarming Income	7,090	17,050
Repairs and maintenance	1,465	1,432	- Recoups and Private Grants	29,749	7,675
Other	24	0		<u>86,615</u>	<u>144,751</u>
	<u>53,479</u>	<u>60,574</u>			
7. DEPRECIATION			Royalties, Timber sales and Agency Sharefarming Income		
Buildings, Plant & Equipment	5,266	5,388	totalling \$54.217 million in 2000-2001 relate to the		
Vehicles	1,916	1,539	period 1 July to 15 November 2000 prior to the		
Parks and Visitor Facilities	3,476	3,351	establishment of the Forest Products Commission		
	<u>10,658</u>	<u>10,278</u>	on 16 November 2000.		
The 2000-2001 depreciation expense of \$10.658 million			11. NET PROFIT/(LOSSES) ON DISPOSAL		
includes depreciation of \$0.631 million for the period			OF NON-CURRENT ASSETS		
July to November 2000 for assets subsequently			Profit on Sale of Non-Current Assets	289	689
transferred to the Forests Products Commission.			Gross Proceeds on disposal of Assets	<u>888</u>	<u>2625</u>
8. ADMINISTRATION EXPENSES			12. OTHER OPERATING REVENUES		
Telephones, Postage, Communications	1,765	2,274	Interest received	841	697
Travel Expenses	2,159	2,389	State Grants	3,771	3,283
Resources Received Free of Charge	555	677	Other Revenue		
Workers Compensation Insurance	594	645	- Mining Compensation	3,520	3,116
Other Admin Expenses	1,756	1,023	- Sale of Publications	477	752
	<u>6,829</u>	<u>7,008</u>	- Nursery Sales	4,571	2,363
9. GRANTS & SUBSIDIES			- Royalties & Fees	0	87
Recurrent			- Other Revenues	1,757	504
Green Skills Inc	153	38		<u>14,937</u>	<u>10,802</u>
Shire of Ravensthorpe	60	0	13. CHANGE IN FOREST VALUATION		
World Wide Fund for Nature	50	12	Change	0	(126,422)
Oil Mallee Association of WA	50	0	AAS35 requires the Change in Forest Asset Values to be		
Trees Southwest	36	0	taken to the Operating Statement. As all forest assets		
Oil Mallee Company	35	0	were transferred to the Forest Products Commission on		
Conservation Council of W.A.	32	0	its establishment with effect 16 November 2000, there is		
Greening Western Australia	20	0	no amount shown for 30 June 2001.		
Urban Bushland Council	18	0	14. REVENUES (TO)/FROM GOVERNMENT		
Malleefowl Preservation Group	16	0	Appropriation revenue received during the year:		
Moore River Catchment Group Inc	15	0	- Recurrent	67,174	51,724
Birds Australia Group	12	0	- Capital Works	6,924	20,940
Yenyenning Lakes Management Group	11	0	- Salaries & Allowances Act 1975	193	159
National Trust of Australia	10	0		<u>74,291</u>	<u>72,823</u>
Cockburn Wetlands Education Centre	10	0	The following liabilities have been assumed		
Wildflower Society of WA	7	0	by the Treasurer during the financial year:		
WA National Parks & Reserves	6	0	- Superannuation	(2,556)	(21)
Beverley Natural History Society	5	0	Total liabilities assumed by the Treasurer	<u>(2,556)</u>	<u>(21)</u>
Vasse Wonnerup Land Conservation	5	0			
District Committee					
WA State Coastal Conference	5	0			
Kalgoorlie Boulder Urban Landcare Group	0	46			
Various Grants under \$5,000	135	7			
	<u>691</u>	<u>103</u>			

**DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT – NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 30 JUNE 2001**

	2000-2001	1999-2000		2000-2001	1999-2000
	(\$'000)	(\$'000)		(\$'000)	(\$'000)
Resources received free-of-charge			20. NON-CURRENT ASSETS		
Determined on the basis of the following estimates provided by agencies:			Land at valuation 01/07/00	1,879,546	0
DOLA	287	318	Land at valuation 01/07/99	0	1,866,181
Crown Solicitor's Office	178	218	Land at cost	8,875	11,696
Office of the Auditor General	90	140	Total Land	<u>1,888,421</u>	<u>1,877,877</u>
Department of Education	0	1	Nursery Infrastructure	0	9,731
	<u>555</u>	<u>677</u>	Accumulated depreciation	0	(41)
	<u>72,290</u>	<u>73,479</u>		<u>0</u>	<u>9,690</u>
15. NET ASSETS ASSUMED (TRANSFERRED)			Buildings at valuation 1996-97, 1997-98, 1998-99	33,094	35,468
During 2000-2001 Plantation B at	(644)	(155)	Accumulated Depreciation	(6,391)	(5,046)
Baldivis was sold and the asset transferred to DOLA at a value of \$M4.7. The Karijini National Park Visitor Centre was transferred to the Department at a value of \$M4.036 together with \$19,000 of other assets transferred.				<u>26,703</u>	<u>30,422</u>
	<u>(644)</u>	<u>155</u>	Buildings at cost	10,471	4,416
			Accumulated Depreciation	(948)	(576)
16. CASH AND AMOUNTS IN SUSPENSE				<u>9,523</u>	<u>3,840</u>
- Cash on Hand (CALM Fund)	22,405	18,158	Plant & Equipment at valuation, 1995-96	4,207	5,890
- Petty Cash	36	40	Accumulated Depreciation	(3,434)	(4,604)
- Lane Poole Memorial Trust	0	18		<u>773</u>	<u>1,286</u>
- Cash in Suspense	195	5	Plant and Equipment at cost	18,334	20,312
- Accrued Salaries Suspense Account	1,529	1,306	Accumulated Depreciation	(9,279)	(9,110)
	<u>24,165</u>	<u>19,527</u>		<u>9,055</u>	<u>11,202</u>
17. INVENTORIES			Vehicles at cost	13,907	12,970
Publications & Souvenirs	2,364	1,494	Accumulated Depreciation	(8,845)	(7,789)
Nursery Stock	7	5,996		<u>5,062</u>	<u>5,181</u>
Sandalwood	0	2,296	Total Property, Plant, Equipment and Vehicles	<u>1,939,537</u>	<u>1,939,498</u>
Timber on Forest Landings	0	2,145	Infrastructure at Valuation,		
Timber Technology Stocks	0	251	Native Forest Infrastructure	0	26,517
	<u>2,371</u>	<u>12,182</u>	Plantations Infrastructure	0	5,143
				<u>0</u>	<u>31,660</u>
18. RECEIVABLES			Infrastructure at Cost		
Receivables	9,717	22,826	Total Infrastructure		31,660
Provision for doubtful debts	(965)	(620)	Timber at Valuation, 30 June 2001		
GST Receivable from ATO	498	63	Native Forest Standing Timber	0	0
	<u>9,250</u>	<u>22,269</u>	Standing Sandalwood	0	67,296
			Plantations Standing Timber	0	178,861
19. PREPAYMENTS			Dryandra Mallet	0	91
Motor Vehicle License & Insurance	352	376		<u>0</u>	<u>246,248</u>
Accommodation	34	46	Timber at cost		
Administration	6	55	Maritime Pine	0	12,918
Materials	29	309	Total Timber	0	259,166
Operating Leases	9	145	Parks and Visitor Facilities	55,307	55,307
Asset Purchases	3	17	at valuation, 1997-98		
Services and Contracts	80	0	Accumulated Depreciation	(12,714)	(9,467)
Other	44	62		<u>42,593</u>	<u>45,840</u>
	<u>557</u>	<u>1,010</u>			

**DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT – NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 30 JUNE 2001**

	2000–2001	1999–2000		2000–2001	1999–2000
	(\$'000)	(\$'000)		(\$'000)	(\$'000)
20. NON-CURRENT ASSETS (CONTINUED)			23. PROVISIONS		
Parks and Visitor Facilities at cost	5,404	3,024	Employee Entitlements		
Accumulated Depreciation	(364)	(136)	The aggregate employee entitlement liability recognised and included in the financial statements is as follows:		
	<u>5,040</u>	<u>2,888</u>	Provision for employee entitlements:		
Total Parks and Visitor Facilities	47,633	48,728	Current		
Work In Progress	378	1,838	Current annual leave	4,300	4,462
Total Other Assets	<u>48,011</u>	<u>50,566</u>	Current long service leave	4,143	4,378
Grand Total of Non-Current Assets	<u>1,987,548</u>	<u>2,280,890</u>		<u>8,443</u>	<u>8,840</u>
Reconciliations			Non-current		
Reconciliations of the carrying amounts of asset categories at the beginning and end of the current and previous financial year are set out below:			Long service leave	4,846	5,821
				<u>4,846</u>	<u>5,821</u>
			Total Provisions	<u>13,289</u>	<u>14,661</u>

2000–2001

	Plant, Equipment & vehicles	Parks & Visitor Facilities	Land	Timber & infrastructure	Buildings	Buildings under construction	Total
Carrying amount at start of year	27,359	48,728	1,877,877	290,826	34,262	1,838	2,280,890
Additions	5,728	2,381	8,874	2,693	6,229	(1,460)	24,445
Disposals	1,443	0	5,066	0	1,429	0	7,938
Revaluation increments	0	0	7,445	0	1,282	0	8,727
Depreciation	4,517	3,476	0	0	2,034	0	10,027
Write-off of assets	0	0	0	0	0	0	0
Assets transferred to FPC	12,237	0	710	293,519	2,083	0	308,549
Carrying amount at end of year	14,890	47,633	1,888,420	0	36,227	378	1,987,548

1999–2000

	Plant, Equipment & vehicles	Parks & Visitor Facilities	Land	Timber & infrastructure	Buildings	Buildings under construction	Total
Carrying amount at start of year	17,790	50,057	1,929,920	412,165	31,949	6,009	2,447,890
Additions	14,971	2,066	12,931	5,083	10,804	(4,171)	41,684
Disposals	451	43	2,742	0	7,855	0	11,091
Revaluation increments/decrements	0	0	(62,232)	(126,422)	1,339	0	(187,315)
Depreciation	4,951	3,352	0	0	1,975	0	10,278
Write-off of assets	0	0	0	0	0	0	0
Carrying amount at end of year	27,359	48,728	1,877,877	290,826	34,262	1,838	2,280,890

21. PAYABLES

Trade payables	6,271	8,262
	<u>6,271</u>	<u>8,262</u>

22. BORROWINGS (FROM WESTERN AUSTRALIAN TREASURY CORPORATION)

Current borrowings	123	4,200
Non-current borrowings	3,687	83,558
Total Borrowings	<u>3,810</u>	<u>87,758</u>

24. OTHER LIABILITIES

Current		
Accrued expenditure	1,628	2,456
Accrued Wages & Salaries	1,503	1,374
Accrued Superannuation	63	842
Accrued Logging Costs	0	2,298
Accrued Loan Interest	89	1,736
Unearned Revenue	0	2,504
	<u>3,283</u>	<u>11,210</u>

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT – NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 30 JUNE 2001

	2000-2001	1999-2000
	(\$'000)	(\$'000)

25. 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.

Distribution to Government

The following forestry assets and liabilities were distributed to Government for transfer to the Forest Products Commission for the year ended 30 June 2001:

Forest Infrastructure	31,660	0
Standing Timber	261,859	0
Plant & Equipment	12,237	0
Buildings	2,083	0
Land	710	0
Inventories	3,006	0
Petty cash	4	0
Total assets	<u>311,559</u>	<u>0</u>
Non-current leave	813	0
WA Treasury Corporation Debt	75,748	0
Total liabilities	<u>76,561</u>	<u>0</u>
Net Distribution to Government	<u>234,998</u>	<u>0</u>
Asset Revaluation Reserve	1,845,657	1,906,550
Balance at beginning of year		
Revaluation during the year:		
- Land	7,445	(62,232)
- Buildings	1,282	1,339
Balance at end of year	<u>1,854,384</u>	<u>1,845,657</u>

The Asset Revaluation Reserve represents that portion of equity resulting from the revaluation of non-current assets. The balance at the end of the year of \$M1,854.3 is comprised of Land (\$M1,853.1) and Buildings (\$M1.2).

Accumulated Surplus / (Deficit)

Balance at the beginning of the year	368,330	474,428
Change in net assets resulting from operations and restructuring	9,522	(106,098)
Take-up of minor buildings		
Take-up of Parks and Visitor assets		
Balance at the end of the year	<u>377,852</u>	<u>368,330</u>

26. NOTES TO THE STATEMENT OF CASH FLOWS

(a) Reconciliation of cash

For the purpose of the Statement of Cash Flows, cash includes cash at bank and cash equivalent.

(b) Reconciliation of net cost of services to net cash flows provided by / (used in) operating activities

Net cost of services	(62,124)	(53,000)
Non-cash items:		
Depreciation expense	10,658	10,278
Superannuation liability assumed by the Treasurer	(2,556)	(21)
Resources received free of charge	555	677
(Profit) / loss on sale of assets	(289)	(689)
(Increase) / decrease in current assets:		
Accounts receivables	11,496	(3,004)
Inventories	9,811	868
Prepayments	452	(635)
Other Current Assets	53	(13)
Net GST Receipts (Payment)	(451)	0
Increase / (decrease) in employee provisions	(2,022)	3,084
Increase / (decrease) in other current liabilities	(2,475)	4,576
Transfer of Assets and Liabilities	(2,197)	0
Accounts Payable	(2,870)	0
Accrued Logging Costs	(2,298)	0
Net Cash Used in Operating Activities	<u>(44,256)</u>	<u>(37,884)</u>

27. RESOURCES PROVIDED FREE OF CHARGE

During the year the following resources were provided to other agencies free-of-charge:

DOLA, New roading data	0	7
Conservation Commission of Western Australia (expenses)	302	0
	<u>302</u>	<u>7</u>

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT – NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 30 JUNE 2001

	2000–2001	1999–2000		2000–2001	1999–2000
	(\$'000)	(\$'000)		(\$'000)	(\$'000)
28. COMMITMENTS FOR EXPENDITURE			32. SUPPLEMENTARY INFORMATION		
Non-cancellable operating lease commitments			Write-Offs		
Not later than 1 year	3,739	3,933	Losses of Public Money and Public or other Property		
Later than 1 year and not later than 5 years	14,112	15,238	Irrecoverable amounts	26	128
Later than 5 years	3,573	3,761	Other	25	14
	21,424	22,932	General (includes thefts reported to Police, lost property and stock taking deficiencies)	<u>1</u>	<u>1</u>
29. CONTINGENT LIABILITIES				<u>52</u>	<u>143</u>
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.			Public and other property, revenue and other debts due to the State written off in accordance with Section 45 of the Financial Administration Act 1985.		
30. FINANCIAL INSTRUMENTS (SEE OPPOSITE)			Approved by the Executive Director	52	31
			Approved by the Minister / Governor	<u>0</u>	<u>112</u>
				<u>52</u>	<u>143</u>
31. REMUNERATION AND RETIREMENT BENEFITS OF SENIOR OFFICERS			33. ADMINISTERED ASSETS AND LIABILITIES		
Remuneration			Non Retainable Revenue		
The number of senior officers, whose total of fees, salaries and other benefits received, or due and receivable, for the financial year, fall within the following bands are:			(Paid to Treasury)	85	91
\$	2000–2001	1999–2000	Cash deposits lodged with the Department by contractors pending satisfactory performance of the contract.	1,245	1,707
80,000–90,000	1	2		<u>1,330</u>	<u>1,798</u>
90,000–100,000	0	0	34. EXPLANATORY STATEMENT		
100,000–110,000	1	5	The Summary of Consolidated Fund Appropriations and Revenue Estimates discloses appropriations and other statutes expenditure estimates, the actual expenditures made and revenue estimates and payments into the Consolidated Fund, all on a cash basis.		
110,000–120,000	4	4	As mentioned in Note 2 (b), the Department operates under a Net Appropriation Determination whereby moneys received under the agreement are retained as a source of funds for its operations.		
120,000–130,000	1	0	Under the Net Appropriation Determination, CALM's expenditure outputs are reliant on revenue collected. Consequently any variation to revenue collected is reflected in the expenditure outputs of the Department.		
160,000–170,000	1	0	The following explanations are provided in accordance with Treasurer's Instruction 945.		
170,000–180,000	0	0			
200,000–210,000	1	0			
The total remuneration of senior officers is:	1,134	1,163			
Retirement Benefits					
In respect of Senior Officers the following amounts were paid for the financial year:					
Contributions to Gold State and West State Superannuation Schemes	74	102			
At 30 June 2001, one Senior Officer of the Department was a member of the Superannuation and Family Benefits Act Scheme.					

**DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT – NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 30 JUNE 2001**
30. FINANCIAL INSTRUMENTS
Interest Rate Risk Exposure

The Department's exposure to interest rate risk, repricing maturities and the effective interest rates on financial instruments as at 30 June 2001 was:

Assets	Weighted average effective interest rate %	Floating interest rate \$'000	Fixed interest rate maturities			Non interest bearing \$'000	Total 30-June-2001 \$'000
			1 year or less \$'000	1 to 5 years \$'000	Over 5 years \$'000		
Cash resources	5.66%	22,636					22,636
Accrued salaries in Suspense (Held by Treasury)						1,529	1,529
Accounts receivable						9,250	9,250
Total financial assets		22,636	-	-	-	10,779	33,415
Liabilities	Weighted average effective interest rate %	Floating interest rate \$'000	Fixed interest rate maturities			Non interest bearing \$'000	Total 30-June-2001 \$'000
			1 year or less \$'000	1 to 5 years \$'000	Over 5 years \$'000		
Accounts payable						6,271	6,271
Accrued expenditure						1,629	1,629
Accrued salaries & wages						1,503	1,503
Accrued superannuation						62	62
Loan liabilities	8.95%		1,515	1,441	854		3,810
Employee entitlements						13,289	13,289
Total financial liabilities			1,515	1,441	854	22,754	26,564
Net financial liabilities		22,636	(1,515)	(1,441)	(854)	(11,975)	6,851

Credit Risk Exposure

Accounts receivable consists of a range of customer groups; with the largest amounts being due from other government agencies for services performed.

Net Fair Value of Financial Instruments

The Department's borrowings of \$M3.810 have been assessed by the Treasury Corporation to have a net fair value of \$M4.147 as at 30 June 2001. The net fair value of a financial liability is the amount at which the liability could be settled in a current transaction after allowing for the premium required prior to the due date. A total of \$75.748 million of forestry-related debt was transferred to the Forests Products Commission associated with its establishment.

For comparative purposes, details of the Department's financial assets and liabilities as at 30 June 2000 were:

Assets	Weighted average effective interest rate %	Floating interest rate \$'000	Fixed interest rate maturities			Non interest bearing \$'000	Total 30-June-99 \$'000
			1 year or less \$'000	1 to 5 years \$'000	Over 5 years \$'000		
Cash resources	5.85%	18,221					18,221
Accrued salaries in Suspense (Held by Treasury)						1,306	1,306
Accounts receivable						22,269	22,269
Total financial assets		18,221	-	-	-	23,575	41,796
Liabilities	Weighted average effective interest rate %	Floating interest rate \$'000	Fixed interest rate maturities			Non interest bearing \$'000	Total 30-June-2000 \$'000
			1 year or less \$'000	1 to 5 years \$'000	Over 5 years \$'000		
Accounts payable						8,262	8,262
Accrued expenditure						2,456	2,456
Accrued salaries & wages						1,374	1,374
Accrued superannuation						842	842
Accrued logging costs						2,298	2,298
Loan liabilities	9.73%		4,200	16,800	66,758		87,758
Employee entitlements						14,661	14,661
Total financial liabilities			4,200	16,800	66,758	29,893	117,651
Net financial liabilities		18,221	(4,200)	(16,800)	(66,758)	(6,318)	(75,855)

	2000-2001 Estimate (\$'000)	2000-2001 Actual (\$'000)	Variance (\$'000)
--	-----------------------------------	---------------------------------	----------------------

SIGNIFICANT VARIATIONS TO ANNUAL ESTIMATES

Significant variations are considered to be those greater than 10% or above \$2.5M.

Details of Revenue**Recurrent Revenue**

Less retained revenue -

Section 23A Financial Administration and Audit Act	1,883	57,414	55,531
--	-------	--------	--------

Significant increased revenues and expenditures were experienced for 2000-01 due to the retention of the Forest Products Division (FPD) operations up to 16th November 2000 within the Department. From this date onwards the FPD became the Forest Products Commission (FPC) and operated as a separate entity. The original 2000-01 budget was published on the basis that the FPC would commence operations from 1st July 2000.

Amount authorised by other Statutes - Salaries and Allowances Act 1975	139	193	54
--	-----	-----	----

The variance in payments under the Salaries and Allowances Act relate principally to acceptance by the Executive Director of a non tenured position in exchange for compensatory allowance.

Less Retained Revenue	42,079	125,200	83,121
-----------------------	--------	---------	--------

Refer to comments above against 'Less retained revenue - Section 23A Financial Administration and Audit Act'

Other Funding Sources	5,000	10,779	5,779
-----------------------	-------	--------	-------

The variance is due to increased funds received from mining compensation, \$1.25 million, and Commonwealth grants for land purchase, \$3.16 million.

Capital Revenue

Item 160 Amount provided for Capital Services for the year	4,791	6,924	2,133
--	-------	-------	-------

The variance relates principally to increased funding provided for the purchase of conservation land for inclusion in the proposed Blackwood River National Park, \$1.833 million, and for pastoral lease acquisition on Dirk Hartog Island, \$0.3 million.

Less Retained Revenue	7,400	12,824	5,424
-----------------------	-------	--------	-------

The variance is due to increased funds received from mining compensation, \$1.25 million, Commonwealth grants for land purchase, \$3.3 million, and asset sales, \$1.6 million. Note: estimated receipts from the Main Roads WA grant were under by \$0.66 million.

	2000-2001 Estimate (\$'000)	2000-2001 Actual (\$'000)	Variance (\$'000)
--	-----------------------------------	---------------------------------	----------------------

Details of Expenditure**Recurrent**

Outputs

Output 1 : Nature Conservation	42,819	47,026	4,207
Output 2 : Sustainable Forest Management	29,942	86,884	56,942
Output 3 : Parks and Visitor Services	29,135	33,922	4,787
Output 5 : Services provided to the Conservation Commission	600	287	-313

Nature Conservation

The variance is principally due to unbudgeted expenditure on wildfire suppression, \$2.6 million, voluntary severance scheme, \$0.6 million, additional employer superannuation contributions, \$0.46 million and recoupable projects, \$0.27 million.

Sustainable Forest Management

Refer to comments above against 'Recurrent Revenue'.

Parks and Visitor Services

The variance is principally due to unbudgeted expenditure on wildfire suppression, \$0.6 million, voluntary severance scheme, \$0.43 million, expenditure on Trust Fund projects, \$1.1 million, additional employer superannuation contributions, \$0.36 million, recoupable projects, \$0.68 million, additional recreation activity operations in the Swan Region, \$0.84 million and South Coast Region, \$0.2 million.

Services provided to the Conservation Commission

The variance is due to the later than expected establishment and operation of the Conservation Commission.

Capital Repayments	633	8,200	7,567
--------------------	-----	-------	-------

The variance represents increased loan repayments from a number of factors including that the Department carried a much larger loan than anticipated for most of 2000-01, and application of receivables proceeds to debt retirement.

Capital

Capital Expenditure	12,191	19,242	7,051
---------------------	--------	--------	-------

The variance is due principally to unbudgeted expenditure on Maritime Pine plantings, \$2.75 million, and acquisition of land for the proposed Blackwood River National Park, \$5.5 million. Savings in the estimated Tourism Road Improvement Program of \$0.81 million were experienced.

	2000-2001		1999-2000	
	Actual	Actual	Variance	
	(\$'000)	(\$'000)	(\$'000)	

SIGNIFICANT VARIATIONS TO 1999-00 OUT-TURNS

Significant variations are considered to be those greater than 10% or above \$2.5M.

Details of Revenue**Recurrent Revenue**

Less retained revenue	57,414	104,372	-46,958
- Section 23A Financial Administration and Audit Act			

The significant reduction in Section 23A revenues is attributable to proceeds from timber revenues only being available up to 16th November 2000 following the restructure of the Department and the establishment of the Forest Products Commission.

Item 70 Amount provided to fund outputs for the year	67,174	51,724	15,450
--	--------	--------	--------

Increased funding in 2000-2001 relates principally to; compensation for revenue loss from restructure of Department, \$4.8 million, wildfire suppression, \$3.1 million, cost increases, \$2.1 million, Cabinet approved initiatives, \$1.0 million, restructuring arrangements relating to the management of forests, \$1.5 million, implementation of the Ferguson Committee Report, \$2.0 million, Dirk Hartog Island management, \$0.35 million, and support for the Sustainable Forest Management Output, \$0.48 million.

Capital Revenue

Less Retained Revenue	445	12,021	-11,576
- Section 23A of the Financial Administration and Audit Act			

The significant reduction in Section 23A retained revenues shown against capital services is principally due to the requirement in 1999-2000 to fund the maritime pine project by the transfer of Section 23A retained revenues from recurrent services to capital. Maritime pine project expenditure in 1999-2000 was \$12.7 million compared to \$2.7 million in 2000-2001.

Item 160 Amount provided for Capital Services for the year	6,924	20,940	-14,016
--	-------	--------	---------

The reduction in the capital appropriation reflects a one-off allocation of \$9.5 million in 1999-00 for the purchase of conservation land at Wellington Dam and the reduction of forestry activities resulting from the restructure of the Department and the establishment of the Forest Products Commission.

	2000-2001		1999-2000	
	Actual	Actual	Variance	
	(\$'000)	(\$'000)	(\$'000)	

Details of Expenditure**Recurrent****Outputs**

Output 1 : Nature Conservation	47,026	41,195	5,831
Output 2 : Sustainable Forest Management	86,884	129,758	-42,874
Output 3 : Parks and Visitor Services	33,922	30,353	3,569

Nature Conservation

Increased expenditure in this Output mainly relates to wildfire suppression, \$1.2 million, voluntary severance scheme, \$0.6 million, additional employer superannuation contributions, \$0.46 million, additional research undertaken by CALM Science, \$1.2 million, and additional staff leave payments of \$1.4 million.

Sustainable Forest Management

The significant reduction in the Sustainable Forest Management Output expenditure was due to the restructure of the Department and the establishment of the Forest Products Commission with effect from 16th November 2000.

Parks and Visitor Services

Increased expenditure in this Output mainly relates to wildfire suppression, \$0.25 million, voluntary severance scheme, \$0.43 million, specific purpose Trust Fund projects, \$0.36 million, additional staff leave payments, \$0.87 million, and additional employer superannuation contributions, \$0.36 million.

Capital Repayments	8,200	4,963	3,237
--------------------	-------	-------	-------

The variance represents increased loan repayments from the application of accounts receivable proceeds to debt retirement.

Capital

Capital Expenditure	19,242	44,570	-25,328
---------------------	--------	--------	---------

Reduced capital expenditure relates to several items including;

Maritime pine plantings, \$3.5 million, purchase of conservation land at the Wellington Dam, \$9.5 million, Manjimup nursery construction, \$6.5 million, and the balance representing a reduction in forestry activities following the restructure of the Department and establishment of the Forest Products Commission.

APPENDICES

1. Area of Prescribed Burns 1998–99 to 2000–2001	86
2. Number of Wildfires and Areas by Land Categories	87
3. Area and Number of Wildfires	87
4. Areas Prescribed Burnt within South-West Forest Regions	88
5. Number of Prescribed Burns Conducted within South-West Forest Regions ...	88
6. Trends in the Area of Native Forest Harvested	89
7. Wildlife Licences Issued in 2000–2001	89
8. Summary of Damage Licences Issued in 2000–2001	90
9. Offences Under the Wildlife Conservation Act and Regulations	90
10. Publications	91

APPENDIX 1 AREA OF PRESCRIBED BURNS FOR ALL CALM REGIONS 1998–99 TO 2000–2001

	1998–99	1999–2000	2000–2001
Indigenous Vegetation - Hand Burning (ha)			
State forest	10,883	8,722	4,266
National parks	3,530 ¹	8,039 ³	4,528 ³
Nature reserves	5,279 ¹	6,205 ³	2,178 ³
Other Crown land and private property	1,000	4,158 ³	676 ³
Total	20,692	27,124	11,648
Indigenous Vegetation - Aerial Burning (ha)			
State forest	51,893	73,889	34,769
National parks	1,776	22,712 ⁴	63,123 ⁴
Nature reserves	3,244	24,083 ⁴	3,220 ⁴
Other Crown land and private property	91,979 ²	970 ⁴	243 ⁴
Total	148,892	121,654	101,355
Indigenous Vegetation - Silviculture Burning (ha)			
• Jarrah	13,816	38,485	14,276
• Karri	2,135	1,662	3,345
• Wandoo	110	-	-
Total	16,061	40,147	17,621
Softwood Plantation - Burning (ha)			
State forest			
• fuel reduction	6,896	5,488	7,656
• second rotation clearing burns	370	556	75
Total	7,266	6,044	7,731
Grand Total	192,910	194,968	138,355

Prescribed burns completed post 23 June 2001 not included.

For data specific to South-West Forest regions see Appendices 4 and 5.

¹ Does not include buffer strips hand burnt within the Kimberley region.

² This consists of aerially ignited buffers and blocks burnt within the Kimberley (87,094 ha) and Swan (4,885 ha) regions.

³ Does not include buffer strips hand burnt in the Kimberley region.

⁴ Does not include aerially ignited buffers and blocks burnt in the Kimberley region.

APPENDIX 2
WILDFIRES IN ALL CALM REGIONS 1998-99 TO 2000-2001
NUMBER AND AREA BY LAND CATEGORY
NUMBER AND PER CENT BY CAUSE

All CALM Regions	Number			Area Burnt (ha)		
	1998-99	1999-2000	2000-2001	1998-99	1999-2000	2000-2001
State forest						
• native hardwood	93	141	160	2,446	6,770	3,073
• softwood plantation	108	129	153	32	68	187
National parks	31	70	71	251,821 ¹	112,131 ²	442,382 ³
Nature reserves	29	55	56	62,498	214,463 ²	295,201 ³
Other CALM reserves	12	29	51	916	339,856 ²	31,668
Other Crown lands	89	84	91	1,089,750 ¹	167,607 ²	1,053,545 ⁴
Private property	76	81	129	27,811	25,989	14,590
Total	438	589	711	1,435,274	866,885	1,840,647

	Number			Per cent		
	1998-99	1999-2000	2000-2001	1998-99	1999-2000	2000-2001
Deliberately/illegally lit	215	274	327	49	47	46
Escapes—CALM burns	3	11	5	1	2	1
Escapes—other burning	36	49	47	8	8	7
Accidental—timber industry	2	2	4	0	0	1
Accidental—other industries	17	28	29	4	5	4
Accidental—recreationists	20	14	35	5	2	5
Lightning	54	101	83	12	17	12
Unknown	75	88	151	17	15	21
Other causes	16	22	30	4	4	4
Total	438	589	711	100	100	100

¹ The majority of area burnt by wildfires during 1998-99 fire season occurred within the Kimberley and Pilbara regions.

² Kimberley Region data derived from DOLA fire scar mapping for the principal wildfire period July to October inclusive.

APPENDIX 3
AREA AND NUMBER OF WILDFIRES FOR ALL CALM REGIONS 2000-2001

Region		State forest native hardwood	State forest softwood plantation	National parks	Nature reserves	Crown lands and private property	Total
Swan	Area (ha)	1,157	111	1,178	575	6,985	10,005
	Number	72	146	25	23	143	409
Central Forest	Area (ha)	236	76	94	7	325	738
	Number	46	6	6	4	45	107
Southern Forest	Area (ha)	408	-	2,823	198	475	3,905
	Number	41	-	14	1	23	79
Sub Total	Area (ha)	1,800	187	4,094	780	7,785	14,647
	Number	159	152	45	28	211	595
Other Regions outside of South-West Forests							
Kimberley	Area (ha)	-	-	2,060	73,800	74,500 ¹	150,360
	Number	-	-	2	5	1 ¹	8
Pilbara	Area (ha)	-	-	236,201	44,000	329,200	609,401
	Number	-	-	5	1	1	7
Midwest	Area (ha)	-	-	648	4,465	30,065	35,178
	Number	-	-	4	2	11	17
Goldfields	Area (ha)	-	-	132,000	14,550	541,450	688,000
	Number	-	-	1	1	4	6
Wheatbelt	Area (ha)	-	-	-	83,036	56,858	139,894
	Number	-	-	-	9	9	18
South Coast	Area (ha)	1,273	-	67,379	74,570	59,945	203,167
	Number	2	-	14	10	34	60
Sub Total	Area (ha)	1,273	-	438,288	294,421	1,092,018	1,826,000
	Number	2	-	26	28	60	116
Grand Total	Area (ha)	3,073	187	442,382	295,201	1,099,803	1,840,647
	Number	161	152	71	56	271	711

¹ Kimberley Region data derived from DOLA fire scar mapping for the principal wildfire period July to October inclusive.

APPENDIX 4
AREAS PRESCRIBED BURNT WITHIN SOUTH-WEST FOREST REGIONS FOR 2000-2001

Dominant purpose	Forest Region	Area (hectares)				Years since last burnt*
		Winter	Spring	Summer	Autumn	
Strategic fire protection**	Swan	7,656	9,464	-	1,610	8 - 15
	Central Forest	243	18,308	-	3,623	8 - 16
	Southern Forest	2,200	5,114	2,192	-	8 - 30
		10,099	32,886	2,192	5,233	
Silviculture ***	Swan	-	-	-	150	13
	Central Forest	-	4,281	-	9,425	8 - 12
	Southern Forest	-	2,754	48	963	6 - 16
		-	7,035	48	10,538	
Nature **** Conservation	Swan	-	120	-	3,230	4 - 20
	Central Forest	-	-	-	-	
	Southern Forest	-	16,377	-	70	9 - 14
		-	16,497	-	3,300	
Tourism and Recreation	Swan	-	-	-	-	
	Central Forest	-	35	-	-	6 - 8
	Southern Forest	-	3	-	-	
		-	38	-	-	
Grand Total by season (ha)		10,099	56,456	2,240	19,071	
Grand Total (ha)				87,866		

- Notes * Does not include softwood plantation burns.
 ** Strategic fire protection burning also protects nature conservation values.
 *** Years since last burnt applies to jarrah silviculture only.
 **** Nature conservation burning also provides community protection benefits.

APPENDIX 5
NUMBER OF PRESCRIBED BURNS CONDUCTED WITHIN SOUTH-WEST FOREST REGIONS IN EACH SEASON FOR VARIOUS PURPOSES IN 2000-2001

Dominant purpose	Forest Region	Winter		Spring		Summer		Autumn		No. of escapes
		Aero	Hand	Aero	Hand	Aero	Hand	Aero	Hand	
Strategic fire protection **	Swan	6	40*	2	12	-	-	-	4	1
	Central Forest	1	-	9	4	-	-	1	2	2
	Southern Forest	-	1	2	9	2	3	-	-	1
Silviculture	Swan	-	-	-	-	-	-	1	-	-
	Central Forest	-	-	5	-	-	-	4	-	-
	Southern Forest	-	-	1	18	-	1	-	14	-
Nature Conservation	Swan	-	-	-	1	-	-	1	1	-
	Central Forest	-	-	-	-	-	-	-	-	-
	Southern Forest	-	-	3	1	-	-	1	1	1
Tourism and Recreation	Swan	-	-	-	-	-	-	-	-	-
	Central Forest	-	-	-	2	-	-	-	-	-
	Southern Forest	-	-	-	2	-	-	-	-	-
Total		7	41	22	49	2	4	8	22	5
Aero Burns (% by season)		18		56		5		21		
Hand Burns (% by season)			35		42		3		19	

- * Predominantly pine plantation burns during winter months.
 ** Strategic fire protection burning also protects nature conservation values.

**APPENDIX 6
TRENDS IN THE AREA OF NATIVE FOREST HARVESTED**

	Jarrah Forest	Jarrah/Wandoo Forest	Karri Forest	
	ha	ha	Clearfelled or cut to seed trees ha	Thinned 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
1997	18,240	60	1,870	60
1998	19,250	60	1,970	320
1999	14,200	50	1,890	360
2000	20,570	10	1,310	70

**APPENDIX 7
WILDLIFE LICENCES ISSUED IN 2000-2001**

Fauna Licences	Licences Issued	Fauna Licences (Cont.)	Licences Issued
SCIENTIFIC		KANGAROO	
Scientific Collection (Reg 17)	597	Take Kangaroos for sale (Reg 6)	236
Bird/Bat Banding (Reg 23)	130	Deal in carcasses (Reg 8)	25
EDUCATION & PUBLIC		Skin Dealing (Reg 10)	15
(to take) (Reg 15)		Processing (Reg 7)	22
Marine interaction	244		
Other	133	EXPORTS INTERSTATE	
EDUCATION & PUBLIC		Skins of fauna (or other dead fauna)	25
(to hold) (Reg 16)	111	Fauna (live)	235
AVIAN FAUNA			260
Keep & breed in captivity (Reg 12)	4,281	EXPORT OVERSEAS	
Deal (Reg 13)	56	Skins of fauna (or other dead fauna) from WA	65
Breed for Commercial Purposes (Reg 14)	1	Emu eggs or products (personal items) from WA	9
Trap (Reg 11)	4	Fauna (avian) from WA (live)	2
SPECIES TRAPPED COMMERCIALY	Number		76
Twenty-eight Parrot	460	IMPORTS INTERSTATE	
Red-capped Parrot	103	Skins of fauna (or other dead fauna) into WA	1
Western Rosella	291	Australian fauna (live)	229
Galah	22	Live exotic birds and other animals	123
FAUNA			353
Keep in Captivity (Reg 12A)	121	Total Fauna Licences	6,708
EMUS		Flora Licences	
Emu Farming (Reg 14)	26	Commercial Purposes	523
Dealing (Reg 8)	4	Commercial Producers	416
Dealing (Emu eggshells Reg 13)	8	Scientific/Prescribed Purposes	940
Processing (Reg 7)	1	Permits To Take Declared Rare Flora	324
CROCODILES			2,203
Crocodile Farming (Reg 14)	2		
Skin Dealing (Reg 10)	0		
Processing (Reg 7)	2		

APPENDIX 8
SUMMARY OF DAMAGE LICENCES AND DANGEROUS FAUNA LICENCES ISSUED IN 2000-2001

	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		
Eurasian Coot	1	Trap and relocate	Australian Bustard	1	2
Little Pied Cormorant	2	7	Australian Raven	33	301 + scare/trap and relocate
Maned Geese	14	137 + scare/trap and relocate	Black Kite	1	scare only
Mountain Duck	3	scare only	Brown Goshawk	4	trap and relocate
Pacific Black Duck	8	100	Crested Pigeon	1	7
Pelican	1	scare only	Corella LB	28	4605 + scare/trap and relocate
EMU	59	3805	Little Corella	14	2560 + scare only
			Galah	30	9350 + scare only
DANGEROUS FAUNA					
Emu	1	1	Kookaburra	1	1
Great White Shark	1	1	Magpie Lark	1	2
Magpie	104	119	Peregrine Falcon	1	scare only
Mudlark	1	1	Red-capped Parrot	3	90
Red Wattlebird	1	1	Sacred Ibis	1	scare only
S/W Crocodile	12	4 + trap and relocate	Silver Gull	6	1600 + scare only
Western Grey Kangaroo	5	29 + trap and relocate	28's	26	1045 + scare/trap and relocate
			Wedge Tailed Eagles	1	3
MAMMALS					
Australian Sealion	3	scare only	Welcome Swallow	1	20
New Zealand Fur Seal	4	scare only	White-tailed Black		
Euro	29	2900	Cockatoo (Long billed)	5	scare only
Grey Kangaroo	787	81119	White-tailed Black		
Red Kangaroo	25	7350	Cockatoo (Short billed)	2	scare only
Southern Brown Bandicoot	1	trap and relocate			

APPENDIX 9
OFFENCES UNDER THE WILDLIFE CONSERVATION ACT AND REGULATIONS
2000-2001

Charges	Recomm'd Charges	Convictions	Fines \$	Costs \$	Dismissed	Letter of Warning	No. Further Action	Pending
Use of illegal devices in taking fauna.	0	0	0	0	0	0	0	0
Illegal taking or possession of protected fauna.	45	0	0	0	0	22	15	8
Illegal importation, selling or taking for sale of fauna.	9	0	0	0	0	8	1	0
Offences relating to the taking or possession of rare or threatened fauna.	15	1	\$500.00	\$277.70	0	8	4	2
Illegal taking of protected flora.	66	7	\$2,950.00	\$259.65	0	26	6	27
Offences relating to the sale of protected flora.	17	3	\$1,900.00	\$86.55	0	9	4	1
Taking declared rare flora without the Minister's consent.	33	0	0	0	0	22	5	6
Offences against wildlife officers.	3	2	\$750.00	\$889.00	0	1	0	0
Failing to comply with licence conditions.	7	4	\$1,100.00	\$473.10	0	1	0	2
WILDLIFE CONSERVATION REGULATIONS								
Offences relating to the acquisition, possession, control and disposal of fauna.	76	2	\$100.00	\$775.40	0	7	9	58
Offences relating to activities on Nature Reserves.	34	4	\$1,100.00	\$173.10	0	16	7	7
Totals	305	23	\$8,400.00	\$2,934.50	0	120	51	111

**APPENDIX 10
PUBLICATIONS PRODUCED IN 2000–2001**

GENERAL

Annual Report of the Department of Conservation and Land Management 1999-2000
CALM Book News (leaflet, 5 issues)
 CALM Bush Rangers Annual Report 2000
CALM News (newspaper, 6 issues)
 2001 Organisational Learning and Development Manual
 CALMfire Safety Bulletin
 Carbon Rights in WA (leaflet)
 Corporate Plan 2000 – 2005
 Corporate Plan 2000 – 2005 (pocket size)
 Herdsman Lake Regional Park Draft Management Plan
 Jurien Bay Marine Park Indicative Management Plan
LANDSCOPE Calendar 2002
LANDSCOPE Expeditions Manual
LANDSCOPE Expeditions Program 2001 (catalogue)
LANDSCOPE Magazine (4 issues)
LANDSCOPE – We Miss You (leaflet)
 Managing Fire (leaflet)
 Marine Parks and Reserves Scientific Advisory Committee Annual Report 1999 – 2000
 National Parks and Nature Conservation Authority Annual Report 1999 – 2000
 Our Observatory (leaflet)
 Professional Development (flyer)
 Rowles Lagoon Nature Reserve Management Plan
 Safety in Bush Fire Control (booklet)
 Sensationally Summer Nights (leaflet)
 Stars and Telescopes (leaflet)
 Turquoise Coast Island Nature Reserves Draft Management Plan
 Wedge and Grey Master Plan
 We'd like you to be our next Partners (folder and Leaflet)

NATURE CONSERVATION

Bundera - Threatened Flora (poster)
 CALMScience Vol 3 No 3 (journal)
 CALMScience Vol 3 No 4 (journal)
 Catchment Carers Trail 2001 (leaflet)
 Celebrate World Environment Day (flyer)
 Common Birds of the Kimberley – Bush Book
 Discovering Leeuwin – Naturaliste National Park – Discovery Book
 Encouraging Quendas Wildlife Notes No 5 (leaflet)
 Fighting Fire with Fire - *LANDSCOPE* extract (leaflet)
 Geology and Land Forms of the Kimberley - Bush Book
 Hazardous Animals of North - West Australia – Bush Book
 How to Create a Local Herbarium (book)
 How to Manage your Granite Outcrops (booklet)
 Lake Joondalup Midge Strategy Problem (leaflet)
 Living with Quendas (leaflet)
 Managing a Fiery Change – *LANDSCOPE* extract (leaflet)
 Marine Community Monitoring Manual
 Marine Conservation Matters (newsletter, 2 issues)
 Marine Conservation Reserves in WA (leaflet)
 Marine Conservation Reserves Management Concepts in WA (flyer)
 Marine Mammal Interaction Logbook
 Marmion Marine Park (4 posters)
 Natural Resource Management WA – Salinity Report
 No Take Areas in Marine Management (leaflet)
 Nuytsia Vol 13 no 3 (journal)
 Oceans of Wealth - *LANDSCOPE* extract (leaflet)

Partnerships in Conservation (book)
 Partnerships in Nature Conservation (booklet)
 Phytophthora Cinnamomi Disease Vol 2
 Plants of the Bibbulmun Track (leaflet)
 Proposed Jurien Bay Marine Park – Have Your Say (leaflet)
 Proposed Marine Conservation Reserves in the South West Capes Region
 Regional Perspective : Dampier Archipelago/Cape Preston
 Regional Perspective : Montebello/Barrow Island
 Ramsar Wetlands (report)
 Safety in Bushfire Control (leaflet)
 State Salinity Review Report
 Threatened Flora Seed Centre (poster)
 Western Shield Action Pack (schools kit)
 Western Shield Newsletter April 2001
 Western Wildlife Newsletter (4 issues)
 Whale Watching (leaflet)
 Wheatbelt Wonders Under Threat - *LANDSCOPE* extract (leaflet)
 Wildflowers of the South - West – Bush Book
 Your Land Its Future (leaflet)

PARKS AND VISITOR SERVICES

A Guide to Lane Poole Reserve (magpaper)
 A Guide to Shark Bay World Heritage Property (magpaper)
 A Guide to the Coral Coast Parks (magpaper)
 Aboriginal Culture Excursions (leaflet)
 Albany to Denmark National Parks (leaflet)
 An Invitation to Join Us – New Opportunities in 2001 at the Hills Forest (flyer)
 Avon Descent : Public Information (flyer)
 Avon Valley National Park – Avon Descent (leaflet)
 Best Recipes for Interpreting our Heritage (manual)
 Cape to Cape Walk Track (leaflet)
 Caring for Gnangara Park (leaflet)
 Coastal Parks to Albany's East (leaflet)
 Dryandra Woodland Ecology Course (leaflet)
 Experiencing Whale Sharks in Ningaloo Marine Park (leaflet)
 Exploring the Hills Forest (leaflet)
 Exploring the Hills Forest Parents Booklet
 Fees and Charges – A Visitors Guide (leaflet)
 Forest Walk 2000 (leaflet)
 Francois Peron National Park (leaflet)
 Go Bush Autumn 2001 (leaflet)
 Go Bush Spring 2000 (leaflet)
 How to see the Avon Descent (flyer)
 John Forrest National Park (leaflet)
 Julimar Conservation Park (leaflet)
 Kalbarri National Park (leaflet)
 Karijini National Park Visitor Guide (leaflet)
 Karri Forest Explorer (poster)
 Leeuwin Caves Postcards
 Monkey Mia Magic (leaflet)
 Monkey Mia Newsletter (3 issues)
 Mt Augustus National Park (leaflet)
 Nambung National Park (leaflet)
 National Parks Alive! Perth Hills (folder)
 Need Information on National Park Passes (flyer)
 Ngauwudu – Mitchell Plateau (flyer)
 Parks for People – *LANDSCOPE* extract (leaflet)
 Parks of the Coral Coast (leaflet)
 Parks of the Plateau – *LANDSCOPE* extract (leaflet)

Penguin Island and Shoalwater Islands Marine Park (flyer)
 Perth Outdoors (magpaper)
 Purnululu National Park (leaflet)
 Stirling Range and Porongurup National Parks (leaflet)
 The Hills Forest, Nature's Base (leaflet)
 Tour Operator's Handbook (booklet)
 Touring WA Newsletter (2 issues)
 Tourism Manual
 Walk the Bibbulmun Track (poster)
 Walking Tour (leaflet)
 Welcome to Shoalwater Islands Marine Park and Penguin Island (leaflet)
 Yanchep National Park Visitor Guide (leaflet)
 Yanchep, Perth's Natural, Cultural meeting Place (leaflet)
 Your Guide to WA National Parks and Forests (leaflet)
 You're invited to the 2001 CALM Tourism Industry Exchange (flyer)

SUSTAINABLE FOREST MANAGEMENT

A New Forest Management Plan for the South West (leaflet)
 Adding Value to Forest Products (leaflet)
 Arbor Day Poster 2001
 Calculating Sustained Yield for the Forest Management Plan (2004 – 2013)
 Conserving forests, building communities : An Information Kit
 Firewood collecting in the Collie and Harvey area (leaflet)
 Growing WA Sandalwood from Seed
 Indicative Logging Plans 2000 – 2001 Consultation Report
 Investing in Maritime Pine (leaflet)
 Sandalwood – Fragrant Harvest – LANDSCOPE extract (leaflet)
 Sandalwood (leaflet)
 Sandalwood Information Sheets No. No2 and No3
 Saving the Giants – LANDSCOPE extract (leaflet)
 School of Wood Catalogue
 Seed Notes No1 - Information Newsletter
 Seed Notes No2 – Seed Collection Newsletter
 Seed Notes No3 – Eremophila Newsletter
 Seed Notes No4 – Adenanthos Newsletter
 Seed Price List (booklet)
 Timber Harvesting in Water Catchment (flyer)
 Timber Technology Newsletter August 2001
 WA Forest Products (magpaper)
 Wellington Discovery Forest – Educational Opportunities (leaflet)

SCIENTIFIC PUBLICATIONS AND REPORTS

Abbott, I. (2000). Impact of agricultural development and changed fire regimes on species composition of the avifauna in the Denmark region of south-west Western Australia, 1889-1999. *CALMScience* 3. pp. 279-308.
 Abbott, I. (2001). Aboriginal names of mammal species in south-west Western Australia. *CALMScience* 3. pp. 433-486.
 Abbott, I. (2001). Historic record of Australian pelican, *Pelecanus conspicillatus*, breeding in southwest Western Australia. *Western Australian Naturalist* 23. pp. 1-7.
 Abbott, I. (2001). Productivity of biologists in CALMScience Division: a preliminary benchmarking study. - Draft. Department of Conservation and Land Management, Western Australia, pp. 1-9.
 Abbott, I., Burbidge, T. and Wills, A. (2000). 1999 jarrah leafminer survey [MAP]. Department of Conservation and Land Management, Western Australia, pp. 1.
 Abbott, I., Burbidge, T. and Wills, A. (2000). Jarrah leafminer cutout boundaries, 1985-92, 1996 & 1999 [MAP]. Department of Conservation and Land Management, Western Australia, pp. 1.

Abbott, I., Marchant, N. and Cranfield, R. (2000). Long-term change in the floristic composition and vegetation structure of Carnac Island, Western Australia. *Journal of Biogeography* 27. pp. 333-346.
 Abbott, I., McGrath, J., Hearn, R., Liddelow, G. and Pearce, C. (2000). FORESTCHECK: an integrated system for monitoring the forests of south-west Western Australia: concept plan. Department of Conservation and Land Management, Western Australia, pp. 1-30.
 Abbott, I., Wills, A., Burbidge, T. and van Heurck, P. (2000). Arthropod faunas of crowns of jarrah (*Eucalyptus marginata*) and marri (*Corymbia calophylla*) in Mediterranean-climate forest: a preliminary regional-scale comparison. *Australian Forestry* 63. pp. 21-26.
 Afonso, C. Martin, R. and Williams, A. [94 authors] (2000). Combined analysis of the binary lens caustic-crossing event MACHO 98-SMC-1. *Astrophysical Journal* 532. pp. 340-352.
 Albrow, M.D., Beaulieu, J.-P., Caldwell, J.A.R., Depoy, D.L., Dominik, M., Gaudi, B.S., Gould, A., Greenhill, J., Hill, K., Kane, S., Martin, R., Menzies, J., Naber, R.M., Pogge, R.W., Pollard, K.R., Sackett, P.D., Sahu, K.C., Vermaak, P., Watson, R. and Williams, A. (2000). Limits on stellar and planetary companions in microlensing event OGLE-1998-BUL-14. *Astrophysical Journal* 535. pp. 176-189.
 Albrow, M.D., Beaulieu, J.-P., Caldwell, J.A.R., Dominik, M., Gaudi, B.S., Gould, A., Greenhill, J., Hill, K., Kane, S., Martin, R., Menzies, J., Naber, R.M., Pollard, K., Sackett, P.D., Sahu, K.C., Vermaak, P., Watson, R. and Williams, A. (2000). Detection of rotation in a binary microlens : planet photometry of MACHO 97-BLG-41. *Astrophysical Journal* 534. pp. 894-906.
 Algar, D. (2000). Introduced predators in the arid zone: the W.A. experience: considering the impact on reintroductions and the need for control. In: *Biodiversity and the Re-Introduction of Native Fauna at Uluru-Kata Tjuta National Park: Proceedings of the Uluru-Kata Tjuta National Park Cross-Cultural Workshop on Fauna Re-Introduction, September 1999*. Bureau of Rural Sciences, Canberra. pp. 50-52.
 Algar, D. and Angus, G.J. (2000). Recommendations on a control strategy for feral cats at Peron Peninsula, Western Australia: a report to the Project Eden Management Committee. Department of Conservation and Land Management, Western Australia, pp. 1-60.
 Algar, D., Burbidge, A.A. and Angus, G.J. (2001). Cat eradication on the Montebello Islands (ABSTRACT). In: *Eradication of Island Invasives: Practical Actions and Results Achieved at the University of Auckland, 19-23 February 2001*. IUCN Species Survival Commission, Invasive Species Specialist Group, Auckland. pp. 11.
 Angus, G.J. and Thomas, N.D. (2000). An assessment of feral cat (*Felis catus*) abundance at Dragon Rocks Nature Reserve and some implications for fauna conservation. Department of Conservation and Land Management, Western Australia, pp. 1-11.
 Bartle, J., Olsen, G., Carslake, J. and Cooper, D. (2001). *Acacia* species as large scale crop plants in the Australian wheatbelt (ABSTRACT). In: *Acacia Symposium: the Conservation and Utilisation Potential of Australian Dryland Acacias: 13-14th July, 2001, Dalwallinu, Western Australia*. Shire of Dalwallinu, Dalwallinu. pp. 1.
 Behn, G., McKinnell, F.H., Caccetta, P. and Vernes, T. (2001). Mapping forest cover, Kimberley region of Western Australia. *Australian Forestry* 64. pp. 80-87.
 Biggs, J. (2000). Notes from the institutions: Perth Observatory report. *Newsletter (Astronomical Society of Australia)* 24. pp. 9-10.
 Biggs, J. (2000). Star viewing night manual. - Version 4.0. Perth Observatory, pp. 1-9.
 Birch, P. (2000). Analysis of visitor survey forms used for Perth Observatory night tours, October 1999-May 2000. Perth Observatory, pp. 1-10.
 Bradshaw, S.D., Morris, K.D. and Bradshaw, F.J. (2001). Water and electrolyte homeostasis and kidney function of desert-dwelling marsupial wallabies in Western Australia. *Journal of Comparative Physiology. B* 171. pp. 23-32.

- Brand, J.E. (2000). The effects of management regime and host species on sandalwood (*Santalum spicatum*) recruitment near Paynes Find, Western Australia. *Rangeland Journal* **22**, pp. 243-255.
- Brand, J.E. (2001). Review of the influence of Acacia species on sandalwood (*Santalum spicatum*) establishment in Western Australia (ABSTRACT). In: *Acacia Symposium: the Conservation and Utilisation Potential of Australian Dryland Acacias: 13-14th July, 2001, Dalwallinu, Western Australia*. Shire of Dalwallinu, Dalwallinu. pp. 1.
- Brand, J.E., Crombie, D.S. and Mitchell, M.D. (2000). Establishment and growth of sandalwood (*Santalum spicatum*) in south-western Australia: the influence of host species. *Australian Forestry* **63**, pp. 60-65.
- Brand, J.E., Fox, J.E.D. and Moretta, P. (2001). Review of research into sandalwood (*Santalum spicatum*) tree farm systems in south-western Australia. In: *Conference Proceedings: Forests in a Changing Landscape: 16th Commonwealth Forestry Conference jointly with the 19th Biennial Conference of the Institute of Foresters of Australia, Fremantle, Western Australia, 18-25 April, 2001*. Promaco Conventions, Perth. pp. 527-535.
- Broadhurst, L. (2000). Morphometric analysis of variation in *Geleznoswia verrucosa* Turcz. (Rutaceae). *Australian Systematic Botany* **13**, pp. 479-490.
- Buist, M., Byrne, M. and Yates, C. (2000). Understanding rarity in a unique wattle (*Acacia lobulata*) in south-western Australia. *Danthonia* **9**(2), pp. 8-9.
- Buist, M., Coates, D. and Yates, C. (2001). Rarity and threat in relation to the conservation of *Acacia* in Western Australia (ABSTRACT). In: *Acacia Symposium: the Conservation and Utilisation Potential of Australian Dryland Acacias: 13-14th July, 2001, Dalwallinu, Western Australia*. Shire of Dalwallinu, Dalwallinu. pp. 1.
- Buist, M., Yates, C.J. and Ladd, P.G. (2000). Ecological characteristics of *Brachychiton populneus* (Sterculiaceae) (kurrajong) in relation to the invasion of urban bushland in south-western Australia. *Austral Ecology* **25**, pp. 487-496.
- Burbidge, A. (2000). Brimming with birds: Cape Arid National Park. *Landscape* **16**(2), pp. 10-15.
- Burbidge, A. (2000). Bristlebirds: they're back!. *Watsnu: the Newsletter of the Western Australian Threatened Species and Communities Unit* **7**(2), pp. 1-2.
- Burbidge, A.A. (2000). Conservation of the biota of the megadiverse South-West Botanical Province, Australia. *Australian Systematic Botany Society Newsletter* **102**, pp. 25-33.
- Burbidge, A.A. (2000). Mammal translocations to Uluru-Kata Tjuta National Park: some introductory comments. In: *Biodiversity and the Re-Introduction of Native Fauna at Uluru-Kata Tjuta National Park: Proceedings of the Uluru-Kata Tjuta National Park Cross-Cultural Workshop on Fauna Re-Introduction, September 1999*. Bureau of Rural Sciences, Canberra. pp. 57-63.
- Burbidge, A. (2000). Montebello renewal update. *Watsnu: the Newsletter of the Western Australian Threatened Species and Communities Unit* **7**(2), pp. 5.
- Burbidge, A.H. (2000). Western bristlebird annual report, 1999. Department of Conservation and Land Management, Western Australia, pp. 1-4.
- Burbidge, A.H. (2000). Western whipbird research plan: annual report 1999. Department of Conservation and Land Management, Western Australia, pp. 1-15.
- Burbidge, A. (2001). Bristlebird translocation update. *South Coast Threatened Birds Newsletter* **5**, pp. 1-2.
- Burbidge, A.A., Blyth, J.D., Fuller, P.J., Kendrick, P.G., Stanley, F.J. and Smith, L.A. (2000). The terrestrial vertebrate fauna of the Montebello Islands, Western Australia. *CALMScience* **3**, pp. 95-107.
- Burbidge, A.A. and Fuller, P.J. (2000). The breeding seabirds of Shark Bay, Western Australia. *CALMScience* **3**, pp. 190-124.
- Burbidge, A.H., Harvey, M.S. and McKenzie, N.L. (2000). Biodiversity of the southern Carnarvon Basin. *Records of the Western Australian Museum Supplement* **61**, pp. 1-595.
- Burbidge, A.H., Johnstone, J.E., Fuller, P.J. and Stone, P. (2000). Terrestrial birds of the southern Carnarvon Basin, Western Australia: contemporary patterns of occurrence. *Records of the Western Australian Museum Supplement* **61**, pp. 449-464.
- Burbidge, A.H., McKenzie, N.L. and Harvey, M.S. (2000). A biogeographic survey of the southern Carnarvon Basin, Western Australia: background and methods. *Records of the Western Australian Museum Supplement* **61**, pp. 1-11.
- Burbidge, A.A. and Morris, K.D. (2001). Introduced animal eradications for nature conservation on W.A. islands: a review (POSTER ABSTRACT). In: *Eradication of Island Invasives: Practical Actions and Results Achieved at the University of Auckland, 19-23 February 2001*. IUCN Species Survival Commission, Invasive Species Specialist Group, Auckland. pp. 10.
- Burbidge, A.A., Morris, K. and Drew, M. (2000). Mammal monitoring, Barrow Island Nature Reserve, October 2000. Department of Conservation and Land Management, Western Australia, pp. 1-27.
- Burrows, N.D., Burbidge, A.A. and Fuller, P.J. (2000). Nyaruninpa: Pintupi burning in the Australian Western Desert. Department of Conservation and Land Management, Western Australia, pp. 1-20.
- Burrows, N., Ward, B. and Robinson, A. (2000). Behaviour and some impacts of a large wildfire in the Gnangara maritime pine (*Pinus pinaster*) plantation, Western Australia. *CALMScience* **3**, pp. 251-260.
- Burrows, N.D., Ward, B.G. and Robinson, A.D. (2001). Bark as fuel in a moderate intensity jarrah forest fire. *CALMScience* **3**, pp. 405-409.
- Byrne, M. (2000). Disease threats and the conservation genetics of forest trees. In: *Forest Conservation Genetics: Principles and Practice*. CSIRO, Melbourne. pp. 159-166.
- Byrne, M. (2001). The role of genetics in the conservation and utilization of *Acacia*. In: *Abstracts: Society for Conservation Biology: Macquarie University, Sydney, July 13-16, 1998*. Shire of Dalwallinu, Dalwallinu. pp. 1.
- Byrne, M. and Macdonald B. (2000). Phylogeography and conservation of three oil mallee taxa, *Eucalyptus kochii* ssp. *kochii*, ssp. *plenissima* and *E. horistes*. *Australian Journal of Botany* **48**, pp. 305-312.
- Byrne, M., MacDonald, B. and Francki, M. (2001). Incorporation of sodium sulfite into extraction protocol minimizes degradation of *Acacia* DNA. *BioTechniques* **30**, pp. 742-743.
- CALMScience Division, Department of Conservation and Land Management, Western Australia (2000). CALMScience communications. - January-October 2000. Department of Conservation and Land Management, Western Australia, pp. 1-15.
- CALMScience Division, Department of Conservation and Land Management, Western Australia (2000). CALMScience: Western Australian journal of conservation and land management. - Vol. 3, no. 2. Department of Conservation and Land Management, Western Australia, pp. 87-277.
- CALMScience Division, Department of Conservation and Land Management, Western Australia (2000). Nuysia. - Vol. 13, no. 2. Department of Conservation and Land Management, Western Australia, pp. 265-409.
- CALMScience Division, Department of Conservation and Land Management, Western Australia (2000). Synopsis of achievements of anticipated outputs and outcomes: strategic plan, 1995-1999. Department of Conservation and Land Management, Western Australia, pp. 1-43.
- CALMScience Division, Department of Conservation and Land Management, Western Australia (2001). Business plan, January 2001-June 2002. Department of Conservation and Land Management, Western Australia, pp. 1-23.
- CALMScience Division, Department of Conservation and Land Management, Western Australia (2001). CALMScience communications. - February 2001-April 2001. Department of Conservation and Land Management, Western Australia, pp. 1-10.

- CALMScience Division, Department of Conservation and Land Management, Western Australia (2001). CALMScience communications. - November 2000-January 2001. Department of Conservation and Land Management, Western Australia, pp. 1-8.
- CALMScience Division, Department of Conservation and Land Management, Western Australia (2001). CALMScience Division business plan: January 2001-June 2002. Department of Conservation and Land Management, Western Australia, pp. 1-23.
- CALMScience Division, Department of Conservation and Land Management, Western Australia (2001). CALMScience: Western Australian journal of conservation and land management. - Vol. 3, no. 4. Department of Conservation and Land Management, Western Australia, pp. 405-626.
- CALMScience Division, Department of Conservation and Land Management, Western Australia (2001). Nuytsia. - Vol. 13, no. 3. Department of Conservation and Land Management, Western Australia, pp. 410-616.
- Clarke, K. and Langley, M. (2000). The vegetation and flora of the Acourt Road bushland, north Banjup, City of Canning, Jandakot Regional Botanic Park: for the Bannister Creek Catchment Group (Inc.). Wildflower Society of Western Australia, Nedlands. pp. 1-53.
- Coates, D.J. (2000). Defining conservation units in a rich and fragmented flora: implications for the management of genetic resources and evolutionary processes in south-west Australian plants. *Australian Journal of Botany* 48. pp. 329-339.
- Coates, D.J. and Atkins, K.A. (2001). Priority setting and the conservation of Western Australia's diverse and highly endemic flora. *Biological Conservation* 97. pp. 251-263.
- Coates, D.J., Hopper, S.D. and Farrer, S.L. (2000). Genetics and conservation of Australian flora. *Australian Journal of Botany* 48. pp. 287-416.
- Cochrane, A. (2001). Our frozen future. *Landscape* 16(4). pp. 23-27.
- Cochrane, A. (2001). Seed collection and long-term storage of some critically endangered and endangered taxa from the southwest of Western Australia: final report to BankWest Landscape Visa Conservation Card Trust. Department of Conservation and Land Management, Western Australia, pp. 1-5.
- Cochrane, A. and Barrett, S. (2000). Drummond's grass: from presumed extinct to perched on mountain summits. *Landscape* 16(2). pp. 43-47.
- Cochrane, A. and Monks, L. (2001). Partnerships in conservation: a collaborative approach to recovery of Western Australia's threatened flora. In: *Gardens 2001 Congress*. pp. 1-2.
- Cochrane, A., Monks, L. and Juszkiewicz, S. (2000). Translocations trials for four threatened Western Australian plant taxa. *Danthonia* 9(3). pp. 7-9.
- Cooper, D. (2000). What are the optimal within row spacings and number of rows for mallee belt plantings?. *Dinkum Oil: Oil Mallee Association of W.A. Newsletter* 18. pp. 10.
- Craig, G.F. and Coates, D.J. (2001). Declared rare and poorly known flora in the Esperance District. *Department of Conservation and Land Management, Western Australia, Wildlife Management Program* 21. pp. 1-474.
- Crane, C. and Shearer, B. (2001). Impact of *Omphalotus nidiformis* in a climax *Banksia speciosa* community (POSTER ABSTRACT). In: *Fungimap National Conference 22-26 Jun 2001, Denmark, W.A.*
- Crombie, S. (2001). How much water do trees use?. *Western Wildlife: Newsletter of the Land for Wildlife Scheme* 5(1). pp. 11-12.
- Crombie, S., Harper, R., Smeltem, K., Williamson, D. and Farrington, P. (2000). Reconciling productivity and drought risk in *Eucalyptus globulus*: a regional perspective (ABSTRACT). In: *Proceedings of Conference Soils 2000: Making our Science more Useable, Muresk Institute of Agriculture, Northam, Western Australia, 11-13 July, 2000*. Australian Society of Soil Science (W.A. Branch), Perth. pp. 199.
- Davis, J.A., Halse, S.A. and Friend, R.H. (2001). Factors influencing biodiversity in coastal plain wetlands of southwestern Australia. In: *Biodiversity in Wetlands: Assessment, Function and Conservation. Volume 2*. Elsevier, Amsterdam.
- Dawes, G., Wallace, K. and Northfield, P. (2000). *Astronomy 2001: a practical guide to the night sky*. - Western Australian edn.. Quasar, Strathfield. pp. 1-112.
- De Tores, P. and Rosier, S. (2001). Operation Foxglove reaps rewards. *Western Shield Apr*. pp. 2.
- Dixon, K., Barrett, R. and Hollick, P. (2000). Orchid species interim recovery plans ESU 00006460: final report submitted to the Commonwealth Threatened Species and Communities Section, Biodiversity Group, Environment Australia. Department of Conservation and Land Management, Western Australia, pp. 1-52.
- Dumbrell, I.C. and McGrath, J.F. (2000). Effect of fertiliser and growth rate on angle of spiral grain in young *Pinus radiata* in Western Australia. *Australian Forestry* 63. pp. 142-146.
- Dumbrell, I.C. and McGrath, J.F. (2000). Soil water depletion by *Pinus pinaster* plantations in the 400 mm to 600 mm rainfall zone of Western Australia. In: *Soil 2000: new horizons for a new century: Australian and New Zealand second joint soils conference. Volume 3, poster papers*. New Zealand Society of Soil Science, Canterbury. pp. 59-60.
- Farr, J. (2000). *Essigella californica* (Monterey pine aphid): a new pest of pines in Western Australia. Department of Conservation and Land Management, Western Australia, pp. 1-7.
- Farr, J.D., Dick, S.G., Williams, M.R. and Wheeler, I.B. (2000). Incidence of bullseye borer (*Phoracantha acanthocera*, (Macleay) Cerambycidae) in 20-35 year old regrowth karri in the south west of Western Australia. *Australian Forestry* 63. pp. 107-123.
- FitzSimmons, N.N., Limpus C.J., Miller, J.D., Prince, R.I.T. and Moritz, C. (2000). Male marine turtles: questions beyond gene flow. In: *Proceedings of the Nineteenth Annual Symposium on Sea Turtle Biology and Conservation, 2-6 March, 1999, South Padre Island, Texas, U.S.A.* pp. 11-13.
- Franke, B., Gurner, R. and Friend, R. (2001). Wetland vegetation monitoring, 2000/2001 (Salinity Action Plan). Edith Cowan University, Centre for Ecosystem Management, Joondalup. pp. 1-260.
- Friend, T. (2000). Numbat Recovery Team: annual report, 1999. Department of Conservation and Land Management, Western Australia, pp. 1-20.
- Friend, J.A. (2000). Recovery of the numbat: a long road (POSTER ABSTRACT). In: *Australian Mammal Society 2000 Conference: Program and Abstracts: Alice Springs, 12-14 April 2000*. pp. 74.
- Friend, J.A. (2001). Medium-term radio-tracking of dibblers, Fitzgerald River NP: final report to BankWest Landscape Conservation VisaCard. Department of Conservation and Land Management, Western Australia, pp. 1-7.
- Friend, T. (2001). Tools of the trade. *Landscape* 16(3). pp. 41-47.
- Friend, T., Anthony, C. and Thomas, N. (2001). Return to Dryandra: marsupials hop away from extinction. *Landscape* 16(4). pp. 10-16.
- Froend, R.H. and Loomes, R. (2001). Relationships between water level, salinity and the emergent and fringing vegetation of Byenup-Muir wetlands: report to the Dept. of Conservation and Land Management. Edith Cowan University, Centre for Ecosystem Management, pp. 1-26.
- Gathe, J. (2000). 10,000 vouchers. *The Plant Press: Western Australian Regional Herbaria Newsletter* 82. pp. 3.
- Gathe, J. (2000). Flora information systems and regional herbaria. *The Plant Press: Western Australian Regional Herbaria Newsletter* 8. pp. 6.
- Gathe, J. (2000). Herbarium celebrates a milestone. *CALM News May/ Jun*. pp. 4.
- Gathe, J. (2001). Coastcare grant. *The Plant Press: Western Australian Regional Herbaria Newsletter* 9. pp. 1.
- Gathe, J. (2001). Regional Herbari workshops 2000. *The Plant Press: Western Australian Regional Herbaria Newsletter* 9. pp. 2.

- Gathe, J. (2001). Rottnest acquires herbarium. *CALM News May/Jun.* pp. 7.
- Gathe, J. (2001). Tidy Towns talk. *The Plant Press: Western Australian Regional Herbaria Newsletter* 9. pp. 3, 5-6.
- Gaynor, A. (2000). Report on the history of the arrival of the feral cat population in Western Australia. *CALMScience* 3. pp. 149-179.
- Gibson, N., Burbidge, A.H., Keighery, G.J. and Lyons, M.N. (2000). The temperate to arid transition of the Irwin-Carnarvon phytogeographic boundary, Western Australia. *Records of the Western Australian Museum Supplement* 61. pp. 155-173.
- Gibson, N. and Keighery, G.J. (2000). Flora and vegetation of the Byenup-Muir reserve system, south-west Western Australia. *CALMScience* 3. pp. 323-402.
- Gibson, N., Keighery, G. and Keighery, B. (2000). Threatened plant communities of Western Australia. 1, the ironstone communities of the Swan and Scott coastal plains. *Journal of the Royal Society of Western Australia* 83. pp. 1-11.
- Gibson, N., Keighery, G.J. and Lyons, M.N. (2000). The flora and vegetation of seasonal and perennial wetlands of the southern Carnarvon Basin, Western Australia. *Records of the Western Australian Museum Supplement* 61. pp. 175-199.
- Gibson, N., Keighery, G.J. and Lyons, M.N. (2001). Vascular flora of Scott National Park, Camping Reserve 12951 and Gingilup Swamps Nature Reserve, Western Australia. *CALMScience* 3. pp. 411-432.
- Gioia, P. and Pigott, J.P. (2000). Biodiversity assessment: a case study in predicting richness from the potential distributions of plant species in the forests of south-western Australia. *Journal of Biogeography* 27. pp. 1065-1078.
- Graham, G., Start, T. and Kendrick, P. (2000). Methods. In: *A Land Management Assessment of Mandora Marsh and its Immediate Surrounds, October 1999*. Department of Conservation and Land Management, Western Australia, pp. 4-7.
- Groves, R.H., Hosking, J.R., Balianoff, G.N., Cooke, D.A., Cowie, I.D., Keighery, G.J., Lepschi, B.J., Rozefelds, A.C. and Walsh, N.G. (2000). The naturalised non-native flora of Australia: its categorisation and threat to native plant biodiversity. CRC for Weed Management Systems, Adelaide. pp. 1-167.
- Halse, S.A., Pearson, G.B., McRae, J.M. and Shiel, R.J. (2000). Monitoring aquatic invertebrates and waterbirds at Toolibin and Walbyring lakes in the Western Australian wheatbelt. *Journal of the Royal Society of Western Australia* 83. pp. 17-28.
- Halse, S., Shiel, R.J., Froend, R.H. and Cale, D.J. (2001). Biodiversity is multifaceted: cross-taxon congruence in species richness patterns in wetlands (ABSTRACT). In: *Final Program & Abstracts: Fenner Conference on the Environment 2001: Biodiversity Conservation in Freshwaters, 5-8 July 2001, Canberra*. Australian Academy of Science, Canberra. pp. 35.
- Halse, S.A., Shiel, R.J., Storey, A.W., Edward, D.H.D., Lansbury, I., Cale, D.J. and Harvey, M.S. (2000). Aquatic invertebrates and waterbirds of wetlands and rivers of the southern Carnarvon Basin, Western Australia. *Records of the Western Australian Museum Supplement* 61. pp. 217-267.
- Harper, R.J. (2000). Site evaluation for farmland revegetation: paper presented to Restoration with Native Species Workshop, Kings Park Botanical Gardens, Western Australia, 14 February 2000. Department of Conservation and Land Management, Western Australia, pp. 1-5.
- Harper, R.J. and Gilkes, R.J. (2001). Some factors affecting the distribution of carbon in soils of a dryland agricultural system in southwestern Australia. In: *Assessment Methods for Soil Carbon*. Lewis Publishers, Boca Raton. pp. 577-591.
- Harper, R.J., Hatton, T.J., Crombie, D.S. and Dawes, W. (2000). Phase farming with trees: a new weapon in the fight against dryland salinity?. In: *Proceedings of Conference Soils 2000: Making our Science more Useable*, Muresk Institute of Agriculture, Northam, Western Australia, 11-13 July, 2000. Australian Society of Soil Science (W.A. Branch), Perth. pp. 74-79.
- Harper, R.J., Hatton, T.J., Crombie, D.S. and Dawes, W. (2000). Phase farming with trees: the acceleration of farm-forestry to combat dryland salinity. In: *Soil 2000: new horizons for a new century: Australian and New Zealand second joint soils conference. Volume 3, poster papers*. New Zealand Society of Soil Science, Canterbury. pp. 85-86.
- Harper, R.J., Hatton, T.J., Crombie, D.S., Dawes, W.R., Abbott, L.K., Challen, R.P. and House, C. (2000). Phase farming with trees: a report for the RIRDC/LWRRDC/FWPRD Joint Venture Agroforestry Program. RIRDC publication 00/48. pp. 1-53.
- Harper, R.J., Mauger, G., Robinson, N., McGrath, J.F., Smettem, K.R.J., Bartle, J.R. and George, R.J. (2001). Manipulating catchment water balance using plantation and farm forestry: case studies from south-western Australia. In: *Plantations, Farm Forestry and Water: Proceedings of a National Workshop, 20-21 July, 2000, Melbourne*. Rural Industries Research and Development Corporation, Canberra. RIRDC Publication 01/20. pp. 44-50.
- Harper, R. and McGrath, J. (2000). Using soil survey for farm forestry and greenhouse sink site selection and management. *ACLEP Newsletter* 9(1). pp. 8-13.
- Harper, R.J., McKissock, I., Gilkes, R.J., Carter, D.J. and Blackwell, P.S. (2000). A multivariate framework for interpreting the effects of soil properties, soil management and landuse on water repellency. *Journal of Hydrology* 231/232. pp. 371-383.
- Harper, R.J., Ryan, P.J., Booth, T.H., McKenzie, N.J. and Gilkes, R.J. (2000). Overview of The Australian farm forestry site selection manual. In: *Proceedings Australian Forest Growers Biennial Conference: Opportunities for the new Millennium, Cairns Convention Centre, Queensland, Australia, September 4-6, 2000*. pp. 8-9.
- Harper, R.J., Smettem, K.R.J. and Gilkes, R.J. (2000). Land assessment to integrate trees with agriculture for carbon sequestration, salinity control and profit. In: *Soil 2000: new horizons for a new century: Australian and New Zealand second joint soils conference. Volume 2, oral papers*. New Zealand Society of Soil Science, Canterbury. pp. 129-130.
- Harris, B. (2000). Perth Observatory vollie news. - April/May 2000. Department of Conservation and Land Management, Western Australia, pp. 1-10.
- Harris, B. (2000). Perth Observatory vollie news. - January/February 2000. Department of Conservation and Land Management, Western Australia, pp. 1-6.
- Harris, B. (2000). Perth Observatory vollie news. - June 2000. Department of Conservation and Land Management, Western Australia, pp. 1-3.
- Harris, B. (2000). Perth Observatory vollie news. - March 2000. Department of Conservation and Land Management, Western Australia, pp. 1-4.
- Harvey, J.M., Allford, J.J., Longman, V.M. and Keighery, G.J. (2001). A flora and vegetation survey of the islands of the Houtman Abrolhos, Western Australia. *CALMScience* 3. pp. 521-623.
- Hingston, B. (2001). Growth plots established in Western Australia. *Agroforestry News* 10(1). pp. 17.
- Hislop, M. (2001). Collecting restiads. *The Plant Press: Western Australian Regional Herbaria Newsletter* 9. pp. 8.
- Hobbs, R.J. and Yates, C.J. (2000). Priorities for action and management guidelines. In: *Temperate Eucalypt Woodlands in Australia: Biology, Conservation, Management and Restoration*. Surrey Beatty, Sydney. pp. 400-414.
- Hobbs, R.J. and Yates, C.J. (2000). Temperate eucalypt woodlands in Australia: an overview. In: *Temperate Eucalypt Woodlands in Australia: Biology, Conservation, Management and Restoration*. Surrey Beatty, Sydney. pp. 1-5.

- Hobbs, R.J. and Yates, C.J. (2000). Temperate eucalypt woodlands in Australia: biology, conservation, management and restoration. Surrey Beatty, Sydney. pp. 1-430.
- Hoey, B., Patrick, S. and Cochrane, A. (2000). Awash in colour: painting a path through the Murchison 2000. *Department of Conservation and Land Management, Western Australia, Landscape Expeditions* 37. pp. 1-16.
- Hoey, B., Patrick, S. and Cochrane, A. (2000). Awash in colour: painting a path through the Murchison, August 4-13, 2000: expedition briefing. Department of Conservation and Land Management, Western Australia, pp. 1-25.
- Hollebon, B. (2000). Make your own telescope mirror. Perth Observatory, pp. 1-14.
- Hollister, C., Coad, B., Campbell, R., Hislop, M. and Mahon, B.S. (2000). WA index of taxonomic literature (current as at 10 August 2000). Department of Conservation and Land Management, Western Australia, pp. 1-295.
- Hopkins, A.J.M. (2000). Poorly conserved and potentially threatened vegetation types in the Western Australian wheatbelt. I, associations: Project no. N722, National Reserves System Cooperative Program, Environment Australia: first report. Department of Conservation and Land Management, Western Australia, pp. 1-42.
- Hopkins, A.J.M. and Horwitz, P. (2000). Community and landscape decline in the moornongal-boodjar (ABSTRACT). In: *Book of Abstracts: International Symposium on Ecosystem Health, Carlton Crest, Brisbane, 12th-14th July, 2000*. International Society for Ecosystem Health, Brisbane. pp. 1.
- Hopkins, A.J.M. and Langley, M.A. (2000). West Midlands study: project status report. Department of Conservation and Land Management, Western Australia, pp. 1-12.
- Johnstone, R.E., Burbidge, A.H. and Stone, P. (2000). Birds of the southern Carnarvon Basin, Western Australia: distribution, status and historical changes. *Records of the Western Australian Museum Supplement* 61. pp. 371-448.
- Kay, W.R., Halse, S.A., Scanlon, M.D. and Smith, M.J. (2001). Distribution and environmental tolerances of aquatic macroinvertebrate families in the agricultural zone of southwestern Australia. *Journal of the North American Benthological Society* 20. pp. 182-199.
- Kay, W., Scanlon, M. and Halse, S. (2000). AusRivAS in Western Australia. *Rivers for the Future* 11. pp. 32-36.
- Keighery, B. and Keighery, G. (2001). Biology and weed risk of *Euphorbia terracina* in Western Australia. In: *Euphorbia terracina (Geraldton Carnation Weed or Spurge): a Guide to its Biology and Control and Associated Safety Issues: Proceedings of a Workshop Conducted by Environmental Weeds Action Network, 7 October 2000*. Environmental Weeds Action Network, Perth. pp. 4-7.
- Keighery, G.J. (2000). *Grevillea manglesioides* subsp. *ferricola* Keighery, subsp. nov.. In: *Flora of Australia. Volume 17A, Proteaceae 2, Grevillea*. ABRS/CSIRO, Melbourne. pp. 497.
- Keighery, G. (2000). Salinity: 5th horseman of the Apocalypse. *Wildflower Society of Western Australia Newsletter* 38(4). pp. 6-12.
- Keighery, G. (2000). Salinity: 5th horseman of the Apocalypse. Department of Conservation and Land Management, Western Australia, pp. 1-10.
- Keighery, G.J. (2000). Significant weed flora of the Greater Brixton Street Wetlands. In: *The Greater Brixton Street Wetlands Management Guidelines, Natural History and Research*. Friends of the Brixton Street Wetlands, Perth. pp. 33-34.
- Keighery, G. (2000). Wheatbelt wonders under threat. *Landscape* 16(2). pp. 37-42.
- Keighery, G.J. (2001). *Calectasia browneana* Keighery, K.W. Dixon & R.L. Barrett. *Nuytsia* 13. pp. 419-424.
- Keighery, G.J. (2001). *Calectasia gracilis* Keighery. *Nuytsia* 13. pp. 424-426.
- Keighery, G.J. (2001). Cyperaceae of Western Australia. In: *Knowing the Sedges of Perth: Background Papers for the Workshop held at Murdoch TAFE, April 28, 2001*. South Metropolitan College of TAFE, Murdoch. pp. 1-28.
- Keighery, G. (2001). Knowing the sedges of Perth: background and generic conspectus. In: *Knowing the Sedges of Perth: Background Papers for the Workshop held at Murdoch TAFE, April 28, 2001*. South Metropolitan College of TAFE, Murdoch. pp. 1-8.
- Keighery, G.J. (2001). A new species of *Chamaescilla* (Anthericaceae) from Western Australia. *Nuytsia* 13. pp. 475-478.
- Keighery, G.J. (2001). A new subspecies of *Isotropis cuneifolia* (Fabaceae). *Nuytsia* 13. pp. 471-474.
- Keighery, G. (2001). Taxonomic notes on the genus *Johnsonia* (Anthericaceae). *Nuytsia* 13. pp. 479-481.
- Keighery, G.J., Keighery, B.J., Gibson, N. and Gunness, A.G. (2001). The vegetation and flora of the Quairading Nature Reserve, Shire of Quairading. Wildflower Society of Western Australia, Nedlands. pp. 1-60.
- Keighery, G.J., Gibson, N., Lyons, M.N. and Burbidge, A.H. (2000). Flora and vegetation of the southern Carnarvon Basin, Western Australia. *Records of the Western Australian Museum Supplement* 61. pp. 77-154.
- Keighery, G., Halse, S. and McKenzie, N. (2001). Why wheatbelt valleys are valuable and vulnerable: the ecology of wheatbelt valleys and threats to their survival. In: *Conference Papers: Dealing With Salinity in Wheatbelt Valleys: Processes, Prospects and Practical Options, Merredin, 30 July-1 August 2001*. State Salinity Council, Perth. pp. 55-65.
- Keighery, G.J., Halse, S., McKenzie, N., Gibson, N., Burbidge, A.H. and Gomboso, J. (2000). Salinity: driving the catastrophic collapse of our ecosystem. *Life Lines* 6(3). pp. 29-30.
- Keighery, G.J. and Keighery, B.J. (2000). Flora of the Greater Brixton Street Wetlands. In: *The Greater Brixton Street Wetlands Management Guidelines, Natural History and Research*. Friends of the Brixton Street Wetlands, Perth. pp. 15-33.
- Keighery, G.J. and Keighery, B.J. (2001). Cyperaceae of the southern Swan Coastal Plain. In: *Knowing the Sedges of Perth: Background Papers for the Workshop held at Murdoch TAFE, April 28, 2001*. South Metropolitan College of TAFE, Murdoch. pp. 1-7.
- Keighery, G. and Keighery, B. (2001). Perth's bushland plant biodiversity. In: *Skills for Nature Conservation: Seminar Series Program, 2001: Exploring Perth's Unique Natural Environment, 9 June 2001*. pp. 1-2.
- Kendrick, P., van Leeuwen, S., Bromilow, B. and Hughes, M. (2000). Rock pools and rugged ranges: wildlife of the Nullagine River, 2000. *Department of Conservation and Land Management, Western Australia, Landscape Expeditions* 36. pp. 1-20.
- Kendrick, P., van Leeuwen, S., Hughes, M. and Bromilow, B. (2000). Rock pools and rugged ranges: wildlife of the Nullagine River, May 22-31, 2000: expedition briefing. Department of Conservation and Land Management, Western Australia, pp. 1-18.
- Kenneally, K., Coate, K., Edinger, D. and Morris, K. (2000). Montebellos magic: sailing the Pilbara coast, 2000. *Department of Conservation and Land Management, Western Australia, Landscape Expeditions* 40. pp. 1-24.
- Kenneally, K., Edinger, D., Coate, K. and Morris, K. (2000). Montebellos magic: sailing the Pilbara coast, October 21-29, 2000: expedition briefing. Department of Conservation and Land Management, Western Australia, pp. 1-23.
- Kinal, J. (2001). Using ground-based electromagnetic induction to estimate soil salt storage in south west forests: final report on SPP 1999/09. pp. 1-33.
- Lamont, B.B., Swanborough, P.W. and Ward, D. (2000). Plant size and season of burn affect flowering and fruiting of the grasstree *Xanthorrhoea preissii*. *Austral Ecology* 25. pp. 268-272.
- Lander, N. (2000). Everlastings. *Western Wildlife: Newsletter of the Land for Wildlife Scheme* 4(4). pp. 6-7.

- Lane, J., Jaensch, R., Lynch, R. and Elscot, S. (2001). Western Australia. In: *A Directory of Important Wetlands in Australia, 3rd edn.* Environment Australia, Canberra. <http://www.environment.gov.au/wetlands/wet2.html> pp. 103-115.
- Lepschi, B.J. (2000). A review of the genus *Lythrum* (Lythraceae) in Western Australia, including typification of *L. paradoxum*. *Nuytsia* 13. pp. 273-282.
- Lepschi, B.J. and Manning, J.C. (2000). A taxonomic review of the naturalized species of *Babiana* (Iridaceae) occurring in Western Australia. *Nuytsia* 13. pp. 283-292.
- Lewington, M. (2000). The plant press : Western Australian Regional Herbaria newsletter. - Volume 8. Department of Conservation and Land Management, Western Australia, pp. 1-8.
- Lewington, M. (2001). The plant press : Western Australian Regional Herbaria newsletter. - Volume 9. Department of Conservation and Land Management, Western Australia, pp. 1-8.
- Lewington, M. (2001). Treasures of the Turquoise Coast: Jurien community conference. *The Plant Press: Western Australian Regional Herbaria Newsletter* 9. pp. 7.
- Liddelow, G. and Ward, B. (2000). Buckshot and breakaways: plants and animals of the Gibson Desert, 2000. *Department of Conservation and Land Management, Western Australia, Landscape Expeditions* 38. pp. 1-12.
- Liddelow, G., Ward, B., Adams, P. and Charand, O. (2000). Buckshots and breakaways: plants and animals of the Gibson Desert, September 4-15, 2000: expedition briefing. Department of Conservation and Land Management, Western Australia, pp. 1-20.
- Longman, V.M., Harvey, J.M. and Keighery, G.J. (2000). *Bryophyllum delagoense* (Crassulaceae): a new weed for Western Australia and a potentially serious problem for the Abrolhos Island. *Nuytsia* 13. pp. 399-401.
- Lyons, M.N., Keighery, G.J., Gibson, N. and Wardell-Johnson, G. (2000). The vascular flora of the Warren bioregion, south-west Western Australia: composition, reservation status and endemism. *CALMScience* 3. pp. 181-250.
- Macfarlane, T. (2000). Useful native grasses in south west Western Australia. In: *Native Grasses: Revegetation on Farms Information Kit*. Agriculture Western Australia, pp. 1-5.
- Marchant, N. (2000). Karri forest in microcosm: William Bay National Park. *Landscape* 16(1). pp. 42-47.
- Marchant, N. (2000). We need operating funds. *The Plant Press: Western Australian Regional Herbaria Newsletter* 8. pp. 1, 4.
- Marchant, N. (2001). The CALM Herbarium's Weed Information Network (WIN). *Western Wildlife: Newsletter of the Land for Wildlife Scheme* 5(2). pp. 12.
- Marchant, N. (2001). Funding issues. *The Plant Press: Western Australian Regional Herbaria Newsletter* 9. pp. 1.
- Marlow, N.J., Thomson, P.C., Algar, D., Rose, K., Kok, N.E. and Sinagra, J.A. (2000). Demographic characteristics and social organisation of a population of red foxes in a rangeland area in Western Australia. *Wildlife Research* 27. pp. 457-464.
- Martin, R. (2000). The detection of synthetic supernovae in galaxy images. Perth Observatory, pp. 1-9.
- Maslin, B. (2000). *Acacia* seed for human consumption in the wheatbelt region of south-west Western Australia. In: *Proceedings of Native Foods Symposium, Muresk, 18 April 2000*.
- Maslin, B.R. (2001). Australian dryland acacias with edible seeds (ABSTRACT). In: *Acacia Symposium: the Conservation and Utilisation Potential of Australian Dryland Acacias: 13-14th July, 2001, Dalwallinu, Western Australia*. Shire of Dalwallinu, Dalwallinu. pp. 1.
- Maslin, B.R. (2001). Is systematics critical for effective utilisation and conservation of *Acacia*? (ABSTRACT). In: *Acacia Symposium: the Conservation and Utilisation Potential of Australian Dryland Acacias: 13-14th July, 2001, Dalwallinu, Western Australia*. Shire of Dalwallinu, Dalwallinu. pp. 1-2.
- McCarthy, A. (2001). Oil mallee establishment and carbon credits. *Dinkum Oil: Oil Mallee Association of W.A. Newsletter* 19. pp. 11.
- McCauley, R.D., Fewtrell, J., Duncan, A.J., Jenner, C., Jenner, M.-N., Penrose, J.D., Prince, R.I.T., Adhitya, A., Murdoch, J. and McCabe, K. (2000). Marine seismic surveys: a study of environmental implications. *APPEA Journal* 40. pp. 692-708.
- McCauley, R.D., Fewtrell, J., Duncan, A.J., Jenner, C., Jenner, M.-N., Penrose, J.D., Prince, R.I.T., Adhitya, A., Murdoch, J. and McCabe, K. (2000). Marine seismic surveys: analysis and propagation of air-gun signals and effects of air-gun exposure on humpback whales, sea turtles, fishes and squid: prepared for Australian Petroleum Production Exploration Association. Curtin University of Technology, Centre for Marine Science and Technology, Perth. pp. 1-198.
- McCaw, L. (2000). Synopsis of the knowledge used in prescribed burning in Victoria, Kevin G. Tolhurst and N.P. Cheney (BOOK REVIEW). *Australian Forestry* 63. pp. 235.
- McCaw, L., Gould, J.S. and Cheney, N.P. (2001). Prediction of high-intensity forest fires in eucalypt forests (ABSTRACT). In: *Conference proceedings: Forests in a Changing Landscape: 16th Commonwealth Forestry Conference jointly with the 19th Biennial Conference of the Institute of Foresters of Australia, Fremantle, Western Australia, 18-25 April 2001*. pp. 1.
- McCaw, L., Hagan, R. and Gould, J. (2001). Managing fire in regrowth eucalypt forests. In: *Intensive Management of Regrowth Forests for Wood Production in Australia: a Review of Current Practice and Future Potential*. CSIRO Forestry and Forest Products, Canberra. pp. 39-43.
- McCaw, W.L., Smith, R.H. and Neal, J.E. (2000). Post fire recruitment of red tingle (*Eucalyptus jacksonii*) and karri (*Eucalyptus diversicolor*) following low-moderate intensity prescribed fires near Walpole, south-west Western Australia. *CALMScience* 3. pp. 87-94.
- McDonald, M.W. and Maslin, B.R. (2000). A taxonomic revision of salwoods: *Acacia aulacocarpa* Cunn. ex Benth. and its allies (Leguminosae: Mimosoideae: section Juliflorae). *Australian Systematic Botany* 13. pp. 21-78.
- McEvoy P. and Pinder, A.M. (2000). Aquatic oligochaetes of South Australia (POSTER ABSTRACT). In: *Book of Abstracts: VIII International Symposium on Aquatic Oligochaeta: Bilbao, 18-22 July 2000*. University of the Basque Country, Bilbao, Spain. pp. 64.
- McKenna, S. and Burrows, N. (2001). Colin a finalist in top science awards. *CALM News May/June*. pp. 5.
- McKenzie, N.L., Hall, N. and Muir, W.P. (2000). Non-volant mammals of the southern Carnarvon basin, Western Australia. *Records of the Western Australian Museum Supplement* 61. pp. 479-510.
- McKenzie, N.L., Halse, S.A. and Gibson, N. (2000). Some gaps in the reserve system of the southern Carnarvon Basin, Western Australia. *Records of the Western Australian Museum Supplement* 61. pp. 547-567.
- McKenzie, N.L., Keighery, G.J., Gibson, N. and Rolfe, J.K. (2000). Patterns in the biodiversity of terrestrial environments in the southern Carnarvon Basin, Western Australia. *Records of the Western Australian Museum Supplement* 61. pp. 511-546.
- McKenzie, N.L. and Muir, W.P. (2000). Bats of the southern Carnarvon Basin, Western Australia. *Records of the Western Australian Museum Supplement* 61. pp. 465-477.
- McKenzie, N.L., Rolfe, J.K., Aplin, K., Cowan, M. and Smith, L.A. (2000). Herpetofauna of the southern Carnarvon basin, Western Australia. *Records of the Western Australian Museum Supplement* 61. pp. 335-360.
- McNamara, K., Brandis, T. and Hopkins, A. (2000). Filling the gaps: building a reserve system in the Gascoyne-Murchison region. *Landscape* 15(4). pp. 43-48.
- Millar, M.A., Byrne, M., Coates, D.J., Stukely, M.J.C. and McComb, J.A. (2000). Mating system studies in jarrah, *Eucalyptus marginata* (Myrtaceae). *Australian Journal of Botany* 48. pp. 475-479.

- Miller, J., Maslin, B.R., Andrew, R. and Bayer, R. (2001). Towards an understanding of variation within the mulga complex (*Acacia anura* and relatives) using nuclear DNA techniques (ABSTRACT). In: *Acacia Symposium: the Conservation and Utilisation Potential of Australian Dryland Acacias: 13-14th July, 2001, Dalwallinu, Western Australia*. Shire of Dalwallinu, Dalwallinu. pp. 1.
- Monks, L. and Coates, D. (2001). The translocation of two critically endangered *Acacia* species (POSTER ABSTRACT). In: *Acacia Symposium: the Conservation and Utilisation Potential of Australian Dryland Acacias: 13-14th July, 2001, Dalwallinu, Western Australia*. Shire of Dalwallinu, Dalwallinu. pp. 1.
- Monks, L. and Gibson, N. (2000). Changes in peripheral vegetation of the Peel-Harvey Estuary 1994-1998. Department of Conservation and Land Management, Western Australia, pp. 1-98.
- Moore, R. (2001). Eucalypts for sawlogs: a pilot project in Western Australia. *Agroforestry News* 10(1). pp. 16.
- Moro, D. (2001). Evaluation and cost benefits of controlling house mice *Mus domesticus* on islands: an example from Thevenard Island, Western Australia (ABSTRACT). In: *Eradication of Island Invasives: Practical Actions and Results Achieved at the University of Auckland, 19-23 February 2001*. IUCN Species Survival Commission, Invasive Species Specialist Group, Auckland. pp. 26.
- Moro, D. and Morris, K. (2000). Population structure and dynamics of sympatric house mice, *Mus domesticus*, and Lakeland Downs short-tailed mice, *Leggadina lakedownensis*, on Thevenard Island, Western Australia. *Wildlife Research* 27. pp. 257-268.
- Morris, K. (2000). Dasyurid recovery in Western Australia: the role of captive breeding and translocation (ABSTRACT). In: *Marsupial CRC Science Meeting, Akaroa, NZ 17-20 February 2000*.
- Morris, K. (2000). Fauna translocations in Western Australia, 1971-1999: an overview. In: *Biodiversity and the Re-Introduction of Native Fauna at Uluru-Kata Tjuta National Park: Proceedings of the Uluru-Kata Tjuta National Park Cross-Cultural Workshop on Fauna Re-Introduction, September 1999*. Bureau of Rural Sciences, Canberra. pp. 64-74.
- Morris, K.D. (2000). The status and conservation of native rodents in Western Australia. *Wildlife Research* 27. pp. 405-419.
- Morris, K. (2000). Western Shield: the recovery of W.A.'s vertebrate fauna (ABSTRACT). In: *Australian Association of Veterinary Conservation Biologists Annual Conference 26 June, 2000*.
- Morris, K.D. (2001). The control of the introduced black rat on Barrow and adjacent islands off the north west coast of Western Australia (ABSTRACT). In: *Eradication of Island Invasives: Practical Actions and Results Achieved at the University of Auckland, 19-23 February 2001*. IUCN Species Survival Commission, Invasive Species Specialist Group, Auckland. pp. 26.
- Morris, K.D. and Burbidge, A.A. (2001). Translocations of threatened vertebrates to islands and peninsulas in Western Australia (ABSTRACT). In: *The Ecology of Insular Biotas, Victoria University of Wellington, 11-17 February 2001*. Victoria University of Wellington, Wellington. pp. 32.
- Morris, K., Liddelow, G. and Johnson, B. (2000). Beyond the dreaming: Project Eden, September 22-29, 2000: expedition briefing. Department of Conservation and Land Management, Western Australia, pp. 1-17.
- Morris, K., Speldewinde P. and Orell, P. (2000). Djongari (Shark Bay mouse) recovery plan, 1992-2001. - 3rd edn.. Department of Conservation and Land Management, Western Australia, *Wildlife Management Program* 17. pp. 1-16.
- Morris, K., Varley, J., Liddelow, G. and Ward, B. (2000). Beyond the dreaming: Project Eden, 2000. Department of Conservation and Land Management, Western Australia, *Landscape Expeditions* 39. pp. 1-12.
- Nguyen, V. (2000). A diet study of Australia's most critically endangered mammal, Gilbert's potoroo, *Potorous gilbertii* (Marsupialia: Potoroidae). Thesis (B.Sc.(Hons.)) — Edith Cowan University. pp. 1-104.
- Obbens, F. (2000). Critically endangered W.A. flora: monitoring and weed control research (1998 to 2000): ESP project number 564: final report submitted to the Commonwealth Threatened Species and Communities Section, Biodiversity Group, Environment Australia. Department of Conservation and Land Management, Western Australia, pp. 1-52.
- Paczkowska, G. and Chapman, A.R. (2000). The Western Australian flora: a descriptive catalogue. Wildflower Society of Western Australia, Nedlands. pp. 1-652.
- Patrick, S.J. (2000). Threatened flora management plan for CALM's Geraldton District: project no. 446: annual report, January 2000. Department of Conservation and Land Management, Western Australia, pp. 1-4.
- Patrick, S. (2001). Awash with colour : a Landscape Expedition with a difference. *Landscape* 16(3). pp. 28-35.
- Patrick, S. (2001). Botanical survey with the aid of volunteers: a study of the vegetation on a Murchison station (POSTER ABSTRACT). In: *Acacia Symposium: the Conservation and Utilisation Potential of Australian Dryland Acacias: 13-14th July, 2001, Dalwallinu, Western Australia*. Shire of Dalwallinu, Dalwallinu. pp. 1.
- Patrick, S. (2001). Declared rare and poorly known flora in the Geraldton District. Department of Conservation and Land Management, Western Australia, *Wildlife Management Program* 26. pp. 1-664.
- Patrick, S.J. and Brown, A.P. (2001). Declared rare and poorly known flora in the Moora district. Department of Conservation and Land Management, Western Australia, *Wildlife Management Program* 28. pp. 1-639.
- Pearson, D. (2000). Great desert skink. *Landscape* 16(2). pp. 36.
- Pearson, D. (2000). Research project: mulgaras and associated rare dasyurids of the north-eastern goldfields: annual report 2000 for Western Mining Corporation, Mt Keith Operations. Department of Conservation and Land Management, Western Australia, pp. 1-10.
- Pearson, D. and Jones, B. (2000). Lancelin Island Skink recovery plan. Department of Conservation and Land Management, Western Australia, *Wildlife Management Program* 22. pp. 1-14.
- Pearson, D. and Turner, J. (2000). Marsupial moles pop up in the Great Victoria and Gibson deserts. *Australian Mammology* 22. pp. 115-119.
- Pearson, G., Goeij, P. de, Honkoop, P., Lavaleye, M., Piersma, T. and Rogers, D. (2000). Flying for a feast: shorebird heaven on the Eighty Mile Beach, October 8-14, 2000: expedition briefing. Department of Conservation and Land Management, Western Australia, pp. 1-20.
- Perth Observatory (2000). Stars and telescopes: Perth Observatory tours, September 2000 to August 2001 (PAMPHLET). Department of Conservation and Land Management, Western Australia, pp. 1-6.
- Pilbeam, R.A., Colquhoun, I.J., Shearer, B. and Hardy, G.E. St. J. (2000). Phosphite concentration: its effect on phytotoxicity symptoms and colonisation by *Phytophthora cinnamomi* in three understorey species of *Eucalyptus marginata* forest. *Australasian Plant Pathology* 29. pp. 86-95.
- Pinder, A.M. (2000). Diversity and zoogeography of freshwater oligochaetes from Australia (ABSTRACT). In: *Book of Abstracts: VIII International Symposium on Aquatic Oligochaeta: Bilbao, 18-22 July 2000*. University of the Basque Country, Bilbao, Spain. pp. 75.
- Pinder, A.M. and Brinkhurst, R.O. (2000). A review of the Tubificidae (Annelida: Oligochaeta) from Australian inland waters. *Memoirs of Museum Victoria* 58. pp. 39-75.
- Pinder, A.M. and Erséus, C. (2000). New Phreodrilidae (Annelida: Clitellata) from Tasmanian estuaries. *Papers and Proceedings of the Royal Society of Tasmania* 134. pp. 29-33.
- Pinder, A.M., Halse, S.A., Shiel, R.J. and McRae, J.M. (2000). Granite outcrop pools in south-western Australia: foci of diversification and refugia for aquatic invertebrates. *Journal of the Royal Society of Western Australia* 83. pp. 149-161.
- Pinder, A.M., Halse, S.A., Shiel, R.J., McRae, J.M., Cale, D.J. and Penniford, M.G. (2001). Diversity, endemism and conservation of the invertebrate fauna of saline wetlands in south-western Australia.

- In: *Book of Abstracts: Societas Internationalis Limnologiae 2001, XXVIII Congress, Monash University, Melbourne, Australia*. Monash University, Melbourne. pp. 167.
- Porter, W.M., Bartle, J. and Cooper, D. (2001). Fitting perennials into an annual world. In: *Conference Papers: Dealing With Salinity in Wheatbelt Valleys: Processes, Prospects and Practical Options, Merredin, 30 July-1 August 2001*. State Salinity Council, Perth. pp. 127-148.
- Prince, R.I.T. (2000). The Western Australian Marine Turtle Project. In: *Sea Turtles of the Indo-Pacific: Research, Management & Conservation*. ASEAN Academic Press, London. pp. 94-99.
- Prince, R.I.T. (2001). Aerial survey of the distribution and abundance of dugongs and associated macrovertebrate fauna: Pilbara coastal and offshore region, WA: completion report. Department of Conservation and Land Management, Western Australia, pp. 1-39.
- Robinson, R.M. (2000). The effect of wildfire on the fruiting of macrofungi in regrowth karri forests. II, results from the second year of monitoring: SPP 98/0015 progress report. Department of Conservation and Land Management, Western Australia, pp. 1-26.
- Robinson, R.M. (2001). The effect of wildfire on the fruiting of macrofungi. III, results from the third year of monitoring: SPP 98/0015 progress report. Department of Conservation and Land Management, Western Australia, pp. 1-30.
- Robinson, R. (2001). Fruits of fire. *Landscape* 16(4). pp. 48-53.
- Robinson, R.M., Sturrock, R.N., Davidson, J.J., Ekramoddoullah, A.K.M. and Morrison, D.J. (2000). Detection of a chitinase-like protein in the roots of Douglas-fir trees infected with *Armillaria ostoyae* and *Phellinus weirii*. *Tree Physiology* 20. pp. 493-502.
- Rolle, J.K. and McKenzie N.L. (2000). Comparison of methods used to capture herpetofauna: an example from the Carnarvon Basin. *Records of the Western Australian Museum Supplement* 61. pp. 360-370.
- Ryan, P. and Brand, J. (2001). Sandalwood: a lucrative solution to salinity problem. *CALM News Jan/Feb*. pp. 6.
- Rye, B.L. (2000). (1472) Proposal to conserve the name *Dicrasyllis* against *Lachnocephalus* and *Mallophora* (Prostantheroideae: Lamiaceae). *Taxon* 49. pp. 815-816.
- Rye, B.L. (2000). *Brachysola* (Lamiaceae: Prostantheroideae), a new Western Australian genus. *Nuytsia* 13. pp. 331-338.
- Rye, B.L. (2000). *Trymalium monospermum* (Rhamnaceae), a new species from south-western Australia. *Nuytsia* 13. pp. 339-343.
- Rye, B.L. (2001). A taxonomic update of *Stenanthemum* (Rhamnaceae: Pomaderreae) in Western Australia. *Nuytsia* 13. pp. 495-507.
- Rye, B.L. and Trudgen, M.E. (2000). *Aluta*, a new Australian genus of Myrtaceae. *Nuytsia* 13. pp. 345-366.
- Rye, B.L. and Trudgen, M.E. (2001). A taxonomic revision of *Thryptomene* section *Thryptomene* (Myrtaceae). *Nuytsia* 13. pp. 509-528.
- Sage, L.W. (2000). New taxa in *Goodenia* (Goodeniaceae) from the south-west of Western Australia, with an update to the *Goodenia* key in the Flora of Australia. *Nuytsia* 13. pp. 367-377.
- Sage, L.W. (2001). New taxa in *Goodenia* (Goodeniaceae) from the Kimberley region of Western Australia. *Nuytsia* 13. pp. 529-536.
- Sage, L.W., Lloyd, S.G. and Pigott, J.P. (2000). *Sagittaria platyphylla* (Alismataceae), a new aquatic weed threat in Western Australia. *Nuytsia* 13. pp. 403-405.
- Shearer, B.L. and Smith, I.W. (2000). Diseases of eucalypts caused by soilborne species of *Phytophthora* and *Pythium*. In: *Diseases and Pathogens of Eucalypts*. CSIRO, Collingwood. pp. 259-291.
- Shiel, R.J., Green, J.D. and Halse, S.A. (2001). Copepods of ephemeral waters in arid and temperate Australia. In: *Program & Abstracts: Fifth International Crustacean Congress and Summer 2001 Meeting of The Crustacean Society, 9-13 July 2001, the University of Melbourne, Melbourne, Victoria, Australia*. University of Melbourne, Melbourne. pp. 132.
- Simmons, L.W., Beesley, L., Lindhjem, P., Newbound, D., Norris, J. and Wayne, A. (2000). Nuptial feeding by male bushcrickets: an indicator of male quality?. *Behavioral Ecology* 10. pp. 263-269.
- Smith, G.T. and McKenzie, N.L. (2000). Biogeography of scorpion communities in the southern Carnarvon Basin, Western Australia. *Records of the Western Australian Museum Supplement* 61. pp. 269-279.
- Speldewinde, P. and Morris, K. (2000). The re-introduction of the woylie, *Bettongia penicillata*, to Peron Peninsula, Shark Bay (ABSTRACT). In: *Australian Mammal Society 2000 Conference: Program and Abstracts: Alice Springs, 12-14 April 2000*. pp. 22.
- Spoooner, A. and Gioia, P. (2001). Gaps in our knowledge of the distribution of our flora. *The Plant Press: Western Australian Regional Herbaria Newsletter* 9. pp. 4.
- Start, A.N., Anstee, S.D. and Endersby, M. (2000). A review of the biology and conservation status of the ngadjji *Pseudomys chapmani* Kitchener, 1980 (Rodentia: Muridae). *CALM Science* 3. pp. 125-147.
- Start, T. and Graham, G. (2000). Quadrat analysis. In: *A Land Management Assessment of Mandora Marsh and its Immediate Surrounds, October 1999*. Department of Conservation and Land Management, Western Australia, pp. 59-65.
- Start, A.N., Handasyde, T. and Barrett, R.L. (2001). Environmental management issues on the Yampi Sound Defence Training Area (YSTA), Derby, Western Australia: recommendations for the Australian Heritage Commission. Department of Conservation and Land Management, Western Australia, pp. 1-9.
- Start, T. and Kendrick, P. (2000). Fauna. In: *A Land Management Assessment of Mandora Marsh and its Immediate Surrounds, October 1999*. Department of Conservation and Land Management, Western Australia, pp. 33-45.
- Storey, A.W., Halse, S.A. and Shiel, R. (2000). Aquatic fauna and water chemistry. In: *A Land Management Assessment of Mandora Marsh and its Immediate Surrounds, October 1999*. Department of Conservation and Land Management, Western Australia, pp. 66-77.
- Thomas, N.D. and Whisson, L. (2001). Farewell felines of Faure: follow-up survey of feral cats on Faure Island. Department of Conservation and Land Management, Western Australia, pp. 1-5.
- Thomson, P.C. and Algar, D. (2000). The uptake of dried meat baits by foxes and investigations of baiting rates in Western Australia. *Wildlife Research* 27. pp. 451-456.
- Thomson, P.C., Marlow, N.J., Rose, K. and Kok, N.E. (2000). The effectiveness of a large-scale baiting campaign and an evaluation of a buffer zone strategy for fox control. *Wildlife Research* 27. pp. 465-472.
- Tommerup, I.C., Dobrowolski, M.P., Hüberli, D., O'Brien, P.A., Hardy, G.E. St. J. and Shearer, B.L. (2000). Risks and threats due to genetic variation in *Phytophthora cinnamomi* for disease management in natural vegetation ecosystems. In: *Phytophthora Diseases of Forest Trees: IUFRO Working Party 70.02.09 First International Meeting on Phytophthoras in Forest and Wildland Ecosystems, Grants Pass, Oregon, USA, August 30-September 3 1999*. pp. 55-63.
- Utting, M. (2000). Astronomy in Western Australia. Volume III, 1940-1962. Perth Observatory, pp. 1-131.
- Van Heurck, P.F., Burbidge, T. and Wheeler, I. (2000). Invertebrate biodiversity in the lingle and other forests of the Walpole-Nornalup National Park in south western Australia. Department of Conservation and Land Management, Western Australia, pp. 1-80.
- Vernes, T. (2000). Sandalwood research newsletter. - Issue 9. Department of Conservation and Land Management, Western Australia, pp. 1-5.
- Vernes, T. (2000). Sandalwood research newsletter. - Issue 10. Department of Conservation and Land Management, Western Australia, pp. 1-8.
- Vernes, T. (2000). Sandalwood research newsletter. - Issue 11. Department of Conservation and Land Management, Western Australia, pp. 1-8.

- Vernes, T. (2000). *Santalum album* in the Top End, Northern Territory, Australia. *Sandalwood Research Newsletter* 9, pp. 2-3.
- Vernes, T. (2001). Preliminary results from *Santalum macgregorii* *ex situ* conservation planting. *Sandalwood Research Newsletter* 13, pp. 6-7.
- Vernes, T. (2001). Sandalwood research newsletter. - Issue 12. Department of Conservation and Land Management, Western Australia, pp. 1-8.
- Vernes, T. (2001). Sandalwood research newsletter. - Issue 13. Department of Conservation and Land Management, Western Australia, pp. 1-8.
- Ward, D. (2000). Trouble in the tuart: a brief fire history. Department of Conservation and Land Management, Western Australia, pp. 1-25.
- Ward, D.J. and Lamont, B.B. (2000). Probability of grasstrees (*Xanthorrhoea preissii*) flowering after fire. *Journal of the Royal Society of Western Australia* 83, pp. 13-16.
- Wardell-Johnson, G.W. (2000). Responses of forest eucalypts to moderate and high intensity fire in the tingle mosaic, south-western Australia: comparisons between locally endemic and regionally distributed species. *Austral Ecology* 25, pp. 409-421.
- Wardell-Johnson, G. and Williams, M. (2000). Edges and gaps in mature karri forest, south-western Australia: logging effects on bird species abundance and diversity. *Forest Ecology and Management* 131, pp. 1-21.
- Watts, C.H.S. and Pinder, A. (2000). Two new species of *Antiporus* Sharp from Western Australia (Coleoptera: Dytiscidae). *Records of the South Australian Museum* 33, pp. 17-19.
- Wayne, A., Rooney, J., Ward, C., Wheeler, I. and Mellican, A. (2001). Spotlight surveys to investigate the impacts of timber harvesting and associated activities within the jarrah forest of Kingston State Forest, with particular reference to the koomal (*Trichosurus vulpecula*) and ngwayir (*Pseudocheirus occidentalis*): Kingston Project progress report. Department of Conservation and Land Management, Western Australia, pp. 1-30.
- Wayne, A., Ward, C., Rooney, J. and Wheeler, I. (2000). The immediate impacts of timber harvesting and associated activities on the ngwayir (*Pseudocheirus occidentalis*) in the jarrah forest of Kingston State Forest Block: progress report, December 2000. Department of Conservation and Land Management, Western Australia, pp. 1-46.
- Wayne, A., Wheeler, I., Ward, C., Rooney, J. and Mellican, A. (2001). The impacts of timber harvesting and associated activities on the small terrestrial vertebrates of the jarrah forest: Kingston Project progress report. Department of Conservation and Land Management, Western Australia, pp. 1-37.
- Webb, B., Murphy, D., Harper, R., Warren, J. and Jasper, D. (2000). Tree-crops can increase the labile soil organic matter content in sandy soils of Western Australia (ABSTRACT). In: *Remade Lands: International Conference on the Remediation and Management of Degraded Lands: Book of Abstracts, Fremantle, Western Australia, 30 November-2 December 2000*. Murdoch University, Institute for Environmental Science, Murdoch, pp. 156-157.
- Wheeler, I. (2001). Owls in the south west of Western Australia. *Western Wildlife: Newsletter of the Land for Wildlife Scheme* 5(1), pp. 5-6.
- Wheeler, J.R. (2000). *Hibbertia porongurupensis*, a new name for a species of Dilleniaceae endemic to the Porongurup Range. *Nuytsia* 13, pp. 395-398.
- Wheeler, J.R. (2000). Review of *Hibbertia mucronata* and its allies (Dilleniaceae). *Nuytsia* 13, pp. 379-394.
- Wheeler, J.R., Marchant, N.G. and Robinson, C.J. (2001). *Agonis fragrans* (Myrtaceae), a new species from Western Australia. *Nuytsia* 13, pp. 567-570.
- Whitford, K.R. (2001). Dimensions of tree hollows used by birds and mammals in the jarrah forest: improving the dimensional description of potentially usable hollows. *CALMScience* 3, pp. 499-511.
- Whitford, K.R. and Williams, M.R. (2001). Survival of jarrah (*Eucalyptus marginata* Sm.) and marni (*Corymbia calophylla* Lindl.) habitat trees retained after logging. *Forest Ecology and Management* 146, pp. 181-197.
- Wilkinson, C.J., Shearer, B.L., Jackson, T.J. and Hardy, G.E. St. J. (2001). Variation in sensitivity of Western Australian isolates of *Phytophthora cinnamomi* to phosphite in vitro. *Plant Pathology* 50, pp. 83-89.
- Williams, A. (2000). Perth Observatory DNS and WWW proxy services. Perth Observatory, pp. 1-5.
- Williams, A. (2000). An unusually late marbled *Xenica* observation. *Newsletter of the Western Australian Insect Study Society* Apr. pp. 4.
- Williams, A.R. (2001). An illustrated key to the perennial grasses of the Avon wheatbelt of Western Australia. Western Australian Herbarium, Perth, pp. 1-43.
- Williams, A. (2001). Long-tailed pea-blue (*Lampides boeticus*). *Newsletter of the Western Australian Insect Study Society* Feb. pp. 2-3.
- Williams, A.A.E. and Powell, R.J. (2000). Butterflies on Rottnest Island. *Landscape* 15(4), pp. 23-27.
- Williams, M. (2000). Northern butterflies visiting Perth. *Newsletter of the Western Australian Insect Study Society* Feb. pp. 4-5.
- Williams, M.R. (2001). Grass-trees and woody plants as bio-indicators of past growing conditions and the patchiness of past fires: final report to the Department of Conservation and Land Management. Curtin University of Technology, Perth, pp. 1-15.
- Williams, M. (2001). More on wedge skippers. *Newsletter of the Western Australian Insect Study Society* Jun. pp. 8.
- Willing, T. and Handasyde, T. (2000). Vegetation & flora. In: *A Land Management Assessment of Mandora Marsh and its Immediate Surrounds, October 1999*. Department of Conservation and Land Management, Western Australia, pp. 19-32.
- Wills, A., Tay, F., Stukely, M. and Burbidge, T. (2000). Crown decline in wandoo, 1999-2000. Department of Conservation and Land Management, Western Australia, pp. 1-17.
- Wilson, P.G. (2001). *Leiocarpa*, a new Australian genus of the Asteraceae tribe Gnaphalieae. *Nuytsia* 13, pp. 595-605.
- Wilson, P.G. (2001). *Leptorhynchos* (Asteraceae: Gnaphalieae), notes, new taxa and a lectotypification. *Nuytsia* 13, pp. 607-611.
- Wilson, P. (2001). Salacious samphires. *Western Wildlife: Newsletter of the Land for Wildlife Scheme* 5(2), pp. 6-8.
- Yates, C., Coates, D. and Cochrane, A. (2000). *Verticordia* (6) interim recovery plans (implementation): ESU 00006465: final report submitted to the Commonwealth Threatened Species and Communities Section, Biodiversity Group, Environment Australia. Department of Conservation and Land Management, Western Australia, pp. 1-41.
- Yates, C., Cochrane, A., Buist, M. and Coates, D. (2000). *Acacia* (6) interim recovery plans (implementation): ESU 00006465: final report submitted to the Commonwealth Threatened Species and Communities Section, Biodiversity Group, Environment Australia. Department of Conservation and Land Management, Western Australia, pp. 1-64.
- Yates, C.J., Hobbs, R.J. and Atkins, L. (2000). Establishment of perennial shrub and tree species in degraded *Eucalyptus salmonophloia* (salmon gum) remnant woodlands: effects of restoration treatments. *Restoration Ecology* 8, pp. 135-143.
- Yates, C.J., Hobbs, R.J. and True, D.T. (2000). The distribution and status of eucalypt woodlands in Western Australia. In: *Temperate Eucalypt Woodlands in Australia: Biology, Conservation, Management and Restoration*. Surrey Beatty, Sydney, pp. 86-106.
- Yates, C.J., Norton, D.A. and Hobbs, R.J. (2000). Grazing effects on plant cover, soil and microclimate in fragmented woodlands in south-western Australia: implications for restoration. *Austral Ecology* 25, pp. 36-47.
- Young, A.M., Bougher, N.L. and Robinson, R.M. (2000). Hygrophoraceae of Western Australia. II, further taxa. *Australasian Mycologist* pp. 41-48.
- Yung, F.H. (2001). Literature review in sustainability, stochastic methods & PVA and nonlinear dynamics (chaos) for ecological modelling. Department of Conservation and Land Management, Western Australia, pp. 1-56.