



ANNUAL REPORT



JULY 1992 TO JUNE 1993

DUPLICATE



DEPARTMENT OF
CONSERVATION AND LAND MANAGEMENT

WHAT WE DO

CALM's mission:

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

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

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

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

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

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

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

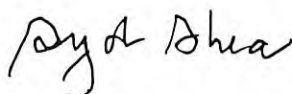
Community Support: To promote community awareness and appreciation of the values of the wildlife, lands, waters and resources entrusted to the Department, and to develop community understanding and support for the Department's conservation and land management activities.

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

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

HON MINISTER FOR THE ENVIRONMENT

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



Syd Shea
EXECUTIVE DIRECTOR
14 August 1993

EXECUTIVE DIRECTOR'S MESSAGE

In Western Australia we live in one of the oldest places on earth. Our State encompasses a vast diversity of ancient landscapes, and hosts a megadiversity of flora and fauna. Within this rich natural environment our community must live and work, knowing that the land around us must be conserved, but also that we need to use it to help us live.

What does this mean for the Department of Conservation and Land Management?

Like the 20 million hectares we manage for the community, CALM is highly diverse. Its functions and its challenges are many and varied. Because of this variety, the answers that a resourceful staff create to answer these challenges are closely interlinked. For example, learning more about the life systems of a forest tells us not only about wildlife habitat, but how much wood we can take from it; and prescribed burning reduces the hazard wildfire poses not only to forests and wildlife, but also to people and property.




No matter which example one chooses, there is a single powerful word which sums them all up. That word is integration. It is through belonging to an integrated agency that CALM staff can apply skills and imaginations to an array of challenges.

Several achievements in the past year epitomise this integration. We now have the chemical phosphonate, configured to combat dieback; we have the new Western Australian Threatened Species and Communities Unit, created to coordinate research to conserve threatened flora and fauna; we have involved Aboriginal communities in managing visitor activities in national parks such as Geikie Gorge; and we have launched the Perth Outdoors program to tell people about the diverse "playground" that surrounds the Perth metropolitan area.

This integrated approach extends to tree crops. Farmers are turning to mallees to produce eucalyptus oil, or to Tasmanian bluegums to provide shelter, produce crops and help reverse the salinity of the land. Both schemes are great examples of ecologically sustainable development by integrating economic and environmental goals - and both demonstrate the integration of talents the Department can boast of in its people.

Thanks to this dedicated staff, CALM will pass on our natural treasures, such as our landscapes, wildlife and forests, for the enjoyment of future generations.

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THAT WAS THE YEAR

CALM is an agency with several integrated responsibilities. We manage lands and waters for their renewable resources, for the recreation and tourism they can support, and for conservation of the native wildlife, both plant and animal, which they sustain.

In all these areas there were many advances in 1992-93, including some major new projects. These advances, many of which integrate environmental, social and economic development, will bring significant benefits to the State. The three main program reports which follow this section carry details of these activities, but the next few pages offer a summary of some of the highlights.

Plantations: Planting for the Future

Two big overseas companies entered partnerships this year with CALM and private land owners. As a result, Western Australia is heading in a major new direction as a supplier of wood fibre.

The first partnership was with the Japanese consortium, Oji-Itochu, to establish 20 000 hectares of Tasmanian bluegums (*Eucalyptus globulus*). These plantings, involving 25 million seedlings, will be centred mainly on private land on the south coast around Albany. The second partnership was with Hansol Forest Products of Korea, which began planting the first of 10 000 hectares of bluegums in the Wellington catchment near Collie. This is the first plantation by a Korean company outside Korea.

Together, these two projects represent an investment of \$90 million over the next 10 years. They should generate around \$75 million a year in export income when the plantations enter the harvesting phase in the second decade.

The 1992 winter also saw a further 4565 hectares of cleared agricultural land and land managed by CALM planted with bluegums. This represents four million seedlings planted in sharefarming and private plantation schemes.

Forests: Sustaining the Yield

Management of the native forests of the south-west is one of CALM's prime responsibilities. These forests are dynamic ecosystems which, despite natural and often catastrophic disturbances, can readily perpetuate themselves. Maintaining the processes that drive forest ecology is essential to forest management and use; only then can the quantity of timber taken from the forest be controlled according to the principles of sustainable yield.

Much discussion has taken place this year on the proper level of harvesting. Following the release of a review

(Management Strategies for the South West Forests of Western Australia) in early 1992, CALM co-operated with assessments by the Environmental Protection Authority and the Appeals Committee set up by the then Minister for the Environment in November 1992. In March 1993, the Hon. Kevin Minson, Minister for the Environment, set up a Scientific and Administrative Committee to inquire into the resulting ministerial conditions.

The Scientific and Administrative Committee recommended that the annual jarrah first and second grade sawlog harvest should be set at 490 000 cubic metres for the next 10 years.

Dieback Disease: Science Strikes Back

Two major advances were made this year in stemming the spread of the fungus that causes dieback disease: the completion of trials of phosphonate, a neutralised derivative of phosphoric acid; and the discovery of why some jarrah trees are unusually resistant to *Phytophthora cinnamomi*. This is the fungus that has caused more than a quarter of the 8 000 known species of plants in the south-west, including five per cent of the jarrah forests, to 'die back'.

After 10 years of research by CALM scientists, the chemical compound phosphonate has been identified as a safe and effective method of controlling the disease in areas of high value. Earlier compounds investigated to control the fungus were either too expensive to use in bushland or were toxic to our phosphorus-sensitive native plants. But phosphonate does not have these problems. It stimulates natural, but dormant, biochemical mechanisms that enable the plant to resist invasion by the fungus. The chemical can be applied either by direct injection into plant stems or sprayed from the ground or the air.

CALM has already treated a number of areas with special values. These include populations of rare and threatened plants, beauty spots of high public use, and areas used for teaching the importance of environmental principles and processes. Trials so far indicate that the chemical can give protection against the fungus for up to five years.

The second big step in the dieback fight stems from the discovery that some jarrah trees in natural populations are highly resistant to *Phytophthora cinnamomi*. CALM has selected seed from a number of these trees and proved that the resistance is inherited and stable. Research at Murdoch and Edith Cowan universities, funded by Alcoa of Australia, has enabled CALM's resistant trees to be cloned. Alcoa also has established facilities for mass reproduction of clones. Small colonies of resistant jarrah can now be established between Mundaring and Albany. From these small footholds, future generations will see jarrah flourishing again as the dominant tree species on former 'graveyard' sites.

WATSCU: Hope for Endangered Wildlife

A new CALM group was born in 1992. The Western Australian Threatened Species and Communities Unit (WATSCU) enables CALM staff to focus their efforts on those plants and animals that are most of danger of extinction. This unit, the first to be set up by a State government, will coordinate government conservation efforts and will work closely with other organisations and individuals to conserve threatened species and plant communities.

One threatened species is the chuditch, originally found in every mainland State but now restricted to the south-west of Western Australia, and only in small numbers. CALM officers released 26 of these animals into State forest near Perth, marking a new and hopeful phase for their long-term survival. The chuditch were bred in captivity at the Perth Zoo as part of a recovery plan now coordinated by WATSCU. To increase their chances of survival, the area was first swept almost clear of their great enemy - the fox. Of the chuditch released, only one found it difficult to adjust to life in the wild and has been returned to captivity.

Another CALM recovery plan went into action in the forests near Collie with the release of 15 numbats. The released animals came from a thriving population at Dryandra Forest in the Wheatbelt, where numbers have increased twenty-fold since 1979. The group hopes that the reintroduction is as successful as that at Boyagin Nature Reserve near Brookton; there, the animal had been extinct since the late 1970s, but after fox control the introduced population increased from 35 to more than 80.

While much effort has gone into saving individual species of threatened animals and plants, the ecosystem as a whole is also important. Lake Toolibin, east of Narrogin, is the last remaining freshwater lake with living casuarina woodlands in the area; this year it became the subject of the first recovery plan produced for a threatened ecological community. Money for these recovery plans can come from several sources. Plans for some of our threatened species have been funded by the Australian Nature Conservation Agency (ANCA), and still others will be supported by an innovative partnership between CALM and the R&I Bank. The bank has introduced a new credit card, the R&I *LANDSCOPE* Conservation Visa Card, and will donate a percentage of every transaction fee to CALM's Endangered Species Trust Fund, which will be used to protect the State's fauna. Although credit cards are already offered to common interest groups such as sporting associations and universities, this is the first time in Australia that a credit card has been designed specifically to support conservation projects.

Wildlife: Strength in Numbers

Crocodiles in an area of the Kimberley came under scrutiny when a survey into their numbers took place over 1 400 square kilometres. Despite heavy hunting in the past, crocodile numbers have increased slightly since the last large-scale survey six years ago. This study looked at not only the numbers of the saltwater and freshwater crocodiles but also their location and size. The figures were then used in formulating a management program to ensure the animals' survival and the future of crocodile farming in the State.

Elsewhere, another species under the watchful eye of researchers was the Recherche Cape Barren goose. The goose is a subspecies of the more common Cape Barren goose, which occurs on the islands off South Australia and in Bass Strait. Public assistance was sought to help complete the first census of this threatened subspecies. The Recherche Archipelago during the breeding season gave the best opportunity to determine their numbers, as the birds only breed on these islands. It was feared that the population may have declined to critically low levels, placing the subspecies in danger of extinction. However, the results showed that while the numbers were not as low as feared, the subspecies was probably naturally rare and that its numbers should be monitored.

Around Perth, birds of a different feather were under the spotlight. A new seagull management plan will deal with the problems of big numbers of aggressive seagulls in and around the metropolitan area. Their ability to scavenge waste food has been the main reason for their numbers rising dramatically, with one study indicating that as little as five per cent of their diet comes from natural food sources. The plan is a result of consultation with a wide range of bodies and is based on coordinated action involving metropolitan councils, the community, and CALM. It recommends a range of measures, including a public education campaign to alert the public to the risks to health and the effects on other bird species, and cutting off artificial food sources by improving waste management techniques.

Another animal upsetting the ecological balance is the introduced fox. Operation Foxglove, started last year, was extended into The Hills Forest, an area of 80 000 hectares of forest and parks in the Darling Scarp near Mundaring. The aim of Foxglove is to make 20 per cent of the forest fox-free by the year 2000. The fox has been the main reason for the disappearance of many small and medium-sized mammals. The Mundaring project involves a two-year biological survey and fox control program to help native species such as the chuditch, mardo, brush-tailed phascogales, carpet pythons and southern brown bandicoots to survive.

Wildflowers: A Community Voice

Wildflowers in Western Australia are a multi-million-dollar industry. The business takes advantage of some 1 500 native species and is responsible for more than half of the nation's floral export earnings, with major markets in Holland, Germany, the United States and Japan. Formed partly to encourage community and industry input, the new Western Australian Flora Industry Advisory Committee brings together a wide range of interests and expertise to ensure the industry's long-term viability.

The level of sustainable picking is just one issue the Committee has addressed. The overseas success of scented or brown boronia, for example, is threatening its existence. This makes guidelines necessary for its picking in the moist lowlands in the south of the State. A management plan was drawn up by the Department in conjunction with the Western Australian Flora Industry Advisory Committee. It has recommended that quotas be imposed on blossoms and flower sprays but not on material collected for propagation; this measure is devised as an incentive to develop private plantations to help conserve the species in the wild.

The need to protect native flora was further recognised with the publication of wildlife management programs for Declared Rare Flora and other plants in need of special protection in the Perth metropolitan area and Merredin district.

LANDSCOPE Expeditions: Taking People to Nature

One of CALM's objectives is to keep the community informed about conservation and land management, and where possible to involve people in the Department's work. One of the ways in which this might happen, by taking people along on scientific expeditions, became possible this year with the birth of *LANDSCOPE* Expeditions.

LANDSCOPE, the Department's award-winning conservation quarterly magazine, has combined with UWA Extension (from The University of Western Australia) to provide enthusiastic volunteers with the chance to accompany CALM scientists on research trips. Two projects have already been completed: a journey to the Gibson Desert, and an expedition to study the rainforests and bats of the Mitchell Plateau. Both events were highly successful; the scientists and the volunteers were equally pleased with the expeditions and with the results. The volunteers' payment of fees also made the expeditions possible in the first place.

For CALM, community involvement is as desirable as it is varied. In 1992-3, some of the more prominent events included CALM's turtle-tagging program, in its fifth year of volunteer involvement; clean-ups at a number of locations,

including Shoalwater Islands Marine Park; the first year of CALM's sponsorship program, in which eight sponsors contributed cash and other resources to a range of programs; four new advisory committees for Nambung-Lesueur, Yalgorup, Shark Bay, and Ningaloo (Cape Range), bringing the total number of advisory committees to 17; workshops, seminars, newsletters and user surveys as part of the preparation for management plans; ten management contracts to Aboriginal community groups, promoting Aboriginal involvement in natural and cultural resource management; a further seventeen Aboriginal contracts as part of an on-going joint program between the Commonwealth and CALM.

Recreation: Exploring Nature and Culture

Western Australia has a tremendous diversity of plants, animals and landforms. Of the 25 000 species of flowering plants in Australia, 12 000 are found in WA. In comparison, 1 400 species occur in the United Kingdom - about the same number as occur in one of the State's national parks alone.

This megadiversity and the stunning environments from the south coast to the Kimberley give Western Australia a natural advantage in the rapidly growing nature-based tourism market.

As well as the physical environment, nature-based tourism encompasses cultural and heritage values, especially Aboriginal culture. As a major provider of tourism destinations in Western Australia, CALM has initiated several programs for tourists to gain a greater appreciation of the relationship of the land to Aboriginal people. These include training courses in tourism for Aborigines at Cape Leveque north of Broome and at Dwellingup in the south-west.

Prominent Kimberley Aboriginal identity Sam Lovell has been engaged as a consultant to assist in preparing nature-based tourism management plans. One of the first ventures was a partnership with the DarIngunaya Aboriginal Corporation of Fitzroy Crossing to operate a tour boat in Geikie Gorge. Initially this is being funded by CALM and the Australian Nature Conservation Agency, but eventually will be managed by DarIngunaya under a tourism concession from CALM. The boat tour is led by Aboriginal people, who can tell visitors of the Dreamtime in the gorge and its significance to Aborigines.

Whale sharks proved popular, not only as a spectator activity but as an opportunity for tourist interaction. Around 600 people dived with the whale sharks at Ningaloo Marine Park.

Perth Outdoors: Spreading the Word

Western Australians who live in the Perth metropolitan area have a marvellous playground right on their doorstep. Beaches, walk trails, rivers, wetlands, forests, parks and an array of wildlife are all readily accessible. Creating a greater awareness of this environment, and of the work of the Department in maintaining it on lands managed by CALM, is central to a new program launched this year.

The \$1 million project is called Perth Outdoors. A start has been made on creating a swimming beach, restoring jetties, and providing new toilets, picnic facilities, signs and information, all at the Matilda Bay Reserve on the rim of

Crawley Bay. Boardwalks were installed at Penguin Island as a first step in enabling visitors to watch the fascinating birds without disturbing nesting sites. An activity centre and camping site, along with 1.5km of walk trails, were added to the Hills Forest at Mundaring Weir, and a visitor centre with interpretive displays has been added to Yanchep National Park. The range of outdoor activities include the Go Bush program, which offers a wide variety of outings conducted by CALM rangers and other people well versed in the natural environment.

Complementing the project is a book, *Perth Outdoors: A Guide to Natural Recreation Areas in and around Perth*, listing almost 300 recreation sites.

NATURE CONSERVATION & WILDLIFE

CONSERVATION OF WILDLIFE

Threatened and Rare Wildlife

A Threatened Species and Communities Unit was established to coordinate, promote and assist with the conservation of threatened species and ecological communities Statewide.

A total of over \$450 000 was received from external sources for the preparation and continuing implementation of recovery plans for threatened plants and animals. Captive breeding projects, in conjunction with Perth Zoo, continued for the western swamp tortoise, chuditch and numbat. Recovery plans have been completed and implementation begun for the following threatened species: chuditch, woylie, Shark Bay mouse, noisy scrubbird, western swamp tortoise, whitebellied frog, orangebellied frog, rose mallee, Wongan triggerplant and matchstick banksia. A recovery plan is in preparation for the numbat. Interim wildlife management guidelines are operating for the Wyalcatchem foxglove and Corrigin grevillea and are being prepared for the Lancelin Island skink and Thevenard Island mouse.

The first recovery plan for a threatened ecological community has been prepared. This is for Lake Toolibin, east of Narrogin, which is the last remaining freshwater lake with living casuarina woodlands in the area.

During the year, three species of Declared Rare Flora previously thought to be extinct were rediscovered. *Stylidium merrallii* was rediscovered in the northern wheatbelt, while *Schoenus natans* and *Tetraria australiensis* were the only species of flora presumed extinct in the Perth metropolitan area. The Perth flora is thus now fully represented in known populations.

Two wildlife management programs were published: Declared Rare Flora and Other Plants in Need of Special Protection in the Metropolitan Area (no. 10), and Declared Rare Flora and Other Plants in Need of Special Protection in the Merredin District (no. 9). These programs document the conservation status of 54 species of declared rare flora, and 145 species of priority flora.

One meeting of the Endangered Flora Consultative Committee was held during the year, and its recommendations for listings of declared rare flora were forwarded to the Minister for the Environment, along with those for threatened and specially

Nature Conservation and Wildlife Management Program 1

Program Objective

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

Program Description

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

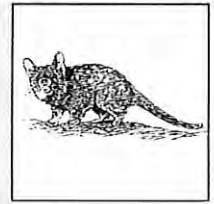
Wildlife management programs are developed for species and communities which are threatened, are commercially exploited, or have a high public profile or public interaction interest, according to the principles of ecological conservation and sustainability.

Reservation and management of lands and waters is undertaken to conserve viable representative samples of the State's natural ecosystems and their inherent natural processes, as well as for the protection of their flora and fauna.

The program focuses on three areas:

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

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



protected fauna from the Threatened Fauna Scientific Advisory Committee. CALM adopted a reserve fauna species list covering 99 taxa, including 10 mammals, 35 birds, 34 reptiles, five frogs, 11 fish and four invertebrates. The reserve list covers taxa which do not meet the criteria for listing as threatened or specially protected fauna, but which may do so in the near future.

Experimental burning trials for populations of *Anthocercis gracilis*, *Verreauxia verreauxii* and *Grevillea cirsifolia* were successfully completed in accordance with Wildlife Management Program No 5. This work is essential to ascertain fire responses of gazetted rare flora populations occurring in areas where prescribed burning is planned.

Translocations conducted during the year included chuditch from Perth Zoo to Julimar Conservation Park, numbat from Dryandra Forest to Batalling Forest, Shark Bay mouse from Bernier Island, Shark Bay, to Doole Island, Exmouth Gulf,

and noisy scrub-bird from Two Peoples Bay Nature Reserve to Bald Island and two mainland areas near Albany; while rose mallee seedlings grown in a nursery were planted out in bushland.

An agreement between CALM and the R&I Bank resulted in the release of the R&I Landscape Conservation Visa Card. The R&I will donate a percentage of turnover from these credit cards to an Endangered Species Trust Fund. This is the first time such a card has been used for conservation purposes in Australia.

Wildlife for Commercial Use

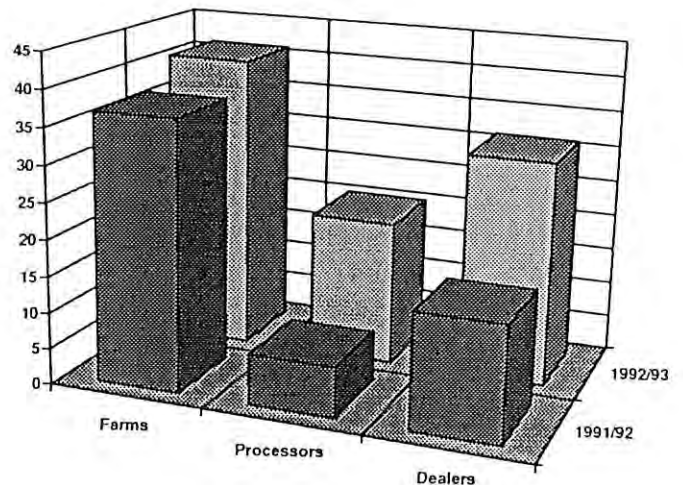
Surveys were undertaken of crocodile populations in Lakes Argyle and Kununurra and the Cambridge Gulf rivers in order to monitor crocodile populations subject to harvesting. Approximately 400 kilometres of foreshore were surveyed by boat and helicopter in the Cambridge Gulf, with 'helicopter-only' surveys undertaken in Lakes Argyle and Kununurra. The surveys showed that the Cambridge Gulf saltwater crocodile population had remained at around 580 non-hatchlings, about the same as the 1986 figure, despite the removal of more than 120 crocodiles for farming or as problem crocodiles. Strategic fencing has been installed to keep cattle out of the saltwater crocodile nesting sites in the King River area. Progress has also been made to reserve the area to allow CALM to manage it for crocodile egg harvesting and crocodile protection.

The 1992-94 management programs for red kangaroos, euros and western grey kangaroos, approved by the Commonwealth Minister for the Environment in 1992, continued to operate. The 1992 calendar year kangaroo harvests and quotas were:

Species	Quota	Harvest
Red Kangaroo	350 000	107 605
Western Grey Kangaroo	65 000	46 694
Euro	10 000	4 434

The red kangaroo harvest was lower than in the previous year because of wet conditions in pastoral areas for part of 1992. An aerial population survey of red kangaroos and western grey kangaroos was begun during the year, thus maintaining the triennial pattern of aerial surveys begun in 1981. Approximately 20% of the State was surveyed, representing half the total area to be surveyed in 1993.

The emu industry continued to expand, with 41 licensed farms in operation at the end of the year, an increase of four over 1991-92. Significantly, the number of licensed processors increased from seven to 20 and dealers from 16 to 31 over the same period, demonstrating that the industry is now ready to expand into widespread commercialisation of processed emu products.



Emu industry licences 1992-93 compared with 1991-92

The WA Flora Industry Advisory Committee was formed during the year and met on two occasions to discuss and consider various issues associated with the flora industry. Represented on the committee with CALM are flora exporters, flora pickers, seed industry, wildflower growers, Department of Agriculture, Kings Park and Botanic Garden, WA Wildflower Society, tertiary institutions and the National Parks and Nature Conservation Authority.

The Department implemented a draft management program for the commercial harvesting of brown (scented) boronia, and introduced quotas and royalties for the species. These measures are the first to be taken for a specific species utilised by the flora industry, and represent positive steps in ensuring that the species is harvested in a sustainable manner, with some return to the State for the cost of management.

Concerns about the threat of disease and its impact on wild populations of the commercially exploited wildflower species *Banksia baxteri* resulted in CALM commissioning a report to examine the status of the species in the wild. The study showed that *B. baxteri* was under severe threat from *Phytophthora* and aerial canker infection. Commercial exploitation of the species from Crown land was banned to reduce the chances of disease spreading further.

Dieback, Mining and Weeds

The Department's plant disease hygiene manual has been revised and re-published to give CALM and public users a better understanding of hygiene practice. The Northern Sandplains Dieback Working Party located a total of 98 infections of *Phytophthora* species in the sandplains north of Perth. The working party hosted a seminar on *Phytophthora* and its management and is preparing a video on disease hygiene practices as a tool to educate the public and industry. More than 200 people from Government departments, industry

and the public have received training in dieback disease management. A Dieback Disease Coordinator was appointed to ensure the integration of all disease management programs across the Department. Dieback Disease Coordinating Committees have been established in all CALM forest regions, the Midwest region and the South Coast region.

Phosphonate is being applied to control dieback disease in Waychinicup, South Sister, Two Peoples Bay and the Poison Hill area of the Walpole-Nornalup National Park. Reports have been completed following an investigation into the application of airborne and satellite remote sensing for monitoring and mapping vegetation condition, with reference to coastal heathlands. Specific areas analysed are Cape Le Grand and Stirling Range National Parks and Two Peoples Bay Nature Reserve.

The Department liaised with individual mining companies, the Department of Minerals and Energy and the Environmental Protection Authority over mining activities that impact, or may impact, on the nature conservation values of CALM-managed lands. The Department has also been involved in a number of committees coordinating mining and land use issues. These include the Soil and Land Conservation Council, the Mining and Environment Liaison Committee, the Petroleum and Environment Liaison Committee and the Mining and Management Planning Liaison Group. The Department negotiated conditions to protect nature conservation values on 210 tenements. Conditions were also negotiated for nine significant ground-disturbing exploration proposals, five Notices of Intent for productive mining, and nine petroleum exploration proposals. A total of \$3.035 million was received in mining compensation payments.

A Departmental Policy on weed management was prepared which incorporated the control both of environmental weeds and those declared under the Agricultural and Related Resources Protection Act 1976. The Department is involved in Zone Control Authorities and Regional Advisory Committees set up by the Agriculture Protection Board under the ARRP Act, and was involved in a range of ongoing weed control programs including introduced date and cotton palms at Millstream.

Foxes and Other Feral Animals

Fox baiting programs have continued in several fauna priority areas: Dryandra, Boyagin, Tutanning (and 10 other nature reserves in the wheatbelt), Dolphin and Montebello Islands and the Burrup Peninsula in the Pilbara, Heirisson Prong in the Midwest, Gibson Desert and Calvert Range in the Goldfields, the Hills forest and six other reserves in the Swan Region, Batalling Forest area and Leschenault Peninsula in the Central Forest Region, Perup and Lake Muir in the Southern Forest Region, Fitzgerald River, Stirling Range and Torndirrup

National Parks, Two Peoples Bay, Overshot Hill, South Stirlings Nature Reserve (and other nature reserves), and significant fauna habitat areas in the South Coast region. Monitoring in these areas has shown an increase in rare fauna populations that has been attributed to the fox control program. Proposals to extend baiting to large areas of State forest where fauna surveys have shown potential for fauna protection are now in preparation. Vermin-proof fence construction has continued in important nature reserves in the metropolitan area. The fence around Thomsons Lake Nature Reserve (9.3 km) was completed, and work began on a fence around Twin Swamps Nature Reserve.

A cooperative State-wide goat eradication campaign was run, in conjunction with the Agriculture Protection Board and Land Conservation District Committees. Control programs included the Francois Peron National Park, Peron Peninsula, Wanjarri and Toolonga Nature Reserves and the Kennedy Range and Kalbarri National Parks. Fencing has been established on Peron to eliminate re-infestation. Over 17 000 feral goats were removed from these reserves and adjoining areas.

CALM is cooperating with the Department of Agriculture in an Australia-wide program to remove feral cattle from conservation lands. A cattle and donkey control program in Purnululu National Park successfully maintains numbers at a manageable level. A similar program continues at Millstream, Karijini and Mt Hart Station. Feral pig control was also implemented, using volunteers and CALM staff.

The Barrow Island and Middle Island rat eradication program was completed with assistance from volunteers and WAPET.

General Wildlife Management

Departmental officers attended 40 reported whale and dolphin strandings throughout the year, involving both live and dead animals. These strandings involved 40 individual animals, representing four species of dolphin and nine species of whale. In three instances, the stranded animals were successfully returned to the sea, requiring only minimal treatment before their release. Officers also attended 36 pinniped strandings throughout the year, including 16 sub-Antarctic fur seals, 11 Australian sea lions, five leopard seals, two New Zealand fur seals and two crabeater seals. In most cases, these animals were ill, injured, or suffering from entanglement in discarded fishing gear or other debris. Eight of these animals were successfully rehabilitated.

Digitisation and attribution of Beard's 1:250 000 Vegetation Survey of WA has been undertaken in partnership with the WA Department of Agriculture (WADA). Completion is anticipated in the fourth quarter of 1993 and will be provided to the WA Land Information System (WALIS) community as a component of CALM's and WADA's role in plant conservation.

Wildlife Interactions and Licences

The Department continued to manage industries based on interaction with wildlife. For whale watching, for example, there were some 29 licensed operators and more than 10 000 passengers around the State. The whale sharks of Ningaloo Marine Park were also a focus of interaction activities.

Management guidelines and licensing provisions for commercial operators were put in place for the whale sharks, and were overseen from the Department's new patrol vessel, *Pseudorca II*. Sixteen licensed operators were involved, and some 600 tourists spent over 1 000 dive-days with the whale sharks. Low-intensity interactions with dolphins continued at Monkey Mia, Cockburn Sound and Bunbury.

The Department ensures that appropriate activities with wildlife are licensed, as required under the Wildlife Conservation Act 1950, and monitors and investigates activities with wildlife to ensure compliance with the legislation and the licences issued.

A total of 6 439 fauna licences were issued pursuant to the Wildlife Conservation Regulations, an increase of 1.8% over licences issued in 1991-92. Avicultural licences comprised 61% of the licence total, the same as for 1991-92. The number of fauna industry licences increased to 350 (up from 318) owing to a significant expansion in the emu farming industry, associated with four new farms and the production and sale of products under 13 new processing and 15 new dealing licences.

Flora licences increased over the previous year (up by 12.3% to 2 099), the major increases being for commercial producers' licences (up by 27.4% to 330), and permits to take declared rare flora (up by 48% to 67). See Appendix 14 for details of other flora licences.

Throughout the year Departmental officers contacted some 2 000 people about offence-related matters. The majority of these contacts resulted in advice and guidance. Where appropriate, verbal warnings were issued, whilst 135 offences were the subject of written reports, summarised below. The number of offences in 1991-92 (see table) is greater than in 1992-93; this is because of the unusually high number of multiple offences in a few cases during that year.

<i>1991-92 Reported Offences</i>		<i>1992-93 Reported Offences</i>	
<i>Total Offences Reported</i>	<i>317</i>	<i>Total Offences Reported</i>	<i>135</i>
<i>Convictions</i>	<i>97</i>	<i>Convictions</i>	<i>9</i>
<i>Dismissals</i>	<i>0</i>	<i>Dismissals</i>	<i>1</i>
<i>Letters of Warning</i>	<i>129</i>	<i>Letters of Warning</i>	<i>45</i>
<i>No further Action</i>	<i>9</i>	<i>No further Action</i>	<i>5</i>
<i>Action Pending</i>	<i>82</i>	<i>Action Pending</i>	<i>75</i>
<i>Total Fines</i>	<i>\$27 050</i>	<i>Total Fines</i>	<i>\$5 100</i>
<i>Total Costs</i>	<i>\$4,089</i>	<i>Total Costs</i>	<i>\$802</i>

Note 1: Figures for 1991-92 Reported Offences are updated. Since 30 June 1992, 73 of 155 cases then pending have been finalised.

Note 2: See Appendix 16 for details of 1992-93 offences.

The availability of DNA technology to verify breeding claims for highly sought-after birds, such as white-tailed black cockatoos, has all but eliminated false breeding claims. These were previously quite common and often resulted in birds being illegally taken from the wild for the avicultural trade.

Smuggling of protected fauna interstate and overseas is of continued concern. So is illegal import of exotic species into the country, and this State in particular. While the number of such offences detected is not high, apprehension of offenders is difficult. Based on reliable intelligence, the number of apprehensions made is believed to be a very small percentage of the total amount of wildlife smuggling.

Fifty problem crocodile reports were received by CALM officers in the Kimberley, resulting in the capture and relocation of five saltwater and three freshwater crocodiles. These animals were removed because of the threat they had posed to public safety.

Offences by licensed wildflower pickers continue to be a problem. A growing number of wildflower picking offences is by repeat offenders; during the past year a further five pickers had their licences cancelled indefinitely for serious and repeated offences.

Area Management

The Montebello Islands were transferred from Commonwealth to State control and reserved as a Conservation Park. Preliminary studies for cat and rat distributions on the islands were undertaken with the support of Hadson Energy.

Draft management plans for West Cape Howe National Park and Two Peoples Bay Nature Reserve have been released. Interim management guidelines for Waychinicup National Park have been approved. Interim management guidelines for Cape Arid and Cape Le Grand National Parks have been reviewed and approved.

SCIENCE PROGRAMS

Wildlife Conservation

Population surveys were undertaken on the threatened Recherche Cape Barren Geese, aquatic invertebrates and waterbirds of the Arafura Sea mudflats, flora of Scott Plains, flora and fauna of the permanent wetlands of the south coast, and the black-footed rock-wallaby in the Warburton region.

Numbats were reintroduced to a forest area near Darkan and the chuditch to Julimar Conservation Park. Studies demonstrated that fox baiting operations do not harm

chuditch populations, thus clearing the way for ongoing fox control in areas designated for the recovery of chuditch populations.

A major study was concluded on the threatened red-tailed phascogale, covering home range sizes, habitat use and the effects of fire on populations. During this study, 17 previously unknown populations of phascogale were discovered. Further research has begun on the impacts of fox control on the phascogale.

A major review of small vertebrates and their responses to fire in mallee/heath habitats was published, as well as a major book, the Flora of the Kimberley Region, with keys, illustrations and descriptions of 2 085 higher plant species

Funding was received from the Australian Nature Conservation Agency (ANCA) for research into the ecology and biology of several groups of rare flora: *Daviesia* species, *Eremophila* species and *Lambertia* species. This research will provide information on the biology of different types of rare plants that respond to disturbance, and will enable the preparation of recovery plans for these species.

A three-year study of larval development of *Drupella*, the snail attacking the Ningaloo coral reef, was concluded. Preliminary surveys were undertaken to document the spatial and temporal variability in *Drupella* recruitment on the reef.

Staff in the South Coast region have begun a major ANCA-funded survey of the biological and social components of the Fitzgerald Biosphere Reserve 'zone of cooperation' around Fitzgerald River National Park. The study area contains buffer zones, bushland river corridors, and many existing and proposed nature reserves. The survey involves close liaison with landholders and Land Conservation Districts.

A Rare and Threatened Plant Seed Storage Centre for plant taxa susceptible to *Phytophthora* and canker disease has been established. Aerial spraying trials using phosphonate spray to combat *Phytophthora* in vulnerable plant communities were begun at selected sites near Albany. Canker fungi were isolated and identified from 198 plant taxa.

Other research highlights included:

- formation of a Forest Ecology Research Unit to address disturbance ecology research in native forests;
- development of a prototype computer-based interactive plant identification tool;
- rediscovery of three species of plants previously believed to be extinct - *Styloidium merrallii*, *Schoenus natans* and *Tetraria australiensis*; and
- completion of wet-season monitoring of east Kimberley rainforests.

The Herbarium

A total of 9 661 new specimens have been mounted and incorporated into the collection, including approximately 500 new fungal specimens from the Two Peoples Bay area. The lichen collection has been repackaged into a uniform system of packets and labels; approximately 50% has been databased.

A total of 5 660 plant specimens were identified for researchers, 4 768 herbarium specimens were loaned to other institutions, 3 465 herbarium specimens were received on loan from other herbaria, 2 396 herbarium specimens were distributed on exchange to other institutions, and 4 622 herbarium specimens of WA flora were received from other institutions to add to the collection.

A total of 1 038 specimens have been added to the Reference Herbarium collection, bringing the total held to 8 070. A further 75 576 specimen records were added to the WAHERB database. The total number of databased specimens is 262 500, estimated to represent 85% of the State collection. This total includes 107 700 specimens of species listed as susceptible or vulnerable to *Phytophthora* infection.

PUBLIC AWARENESS AND LIAISON

With 1993 being the Year of Indigenous People, Departmental officers were heavily involved in public displays, school talks and educational programs to promote the close relationship that exists between conservation, wildlife and Aboriginal culture. Bush tucker talks were particularly popular, and CALM's involvement in the second Kyana Aboriginal Festival was again very successful and well received. Aborigines were employed to carry out recreation maintenance works, prescribed burning and other activities in various national parks and reserves, including Lesueur National Park and Karamarra Nature Reserve, under CEPANCRM funding.

A community education course focusing on special values of Fitzgerald River National Park was run in liaison with the Fitzgerald River National Park Association at the Twertup Field Study Centre. A total of 700 upper primary school children and 28 teachers took part in the Earth Caretakers environmental education program.

Four issues of *LANDSCOPE*, WA's conservation, forests and wildlife magazine, were prepared for sale by subscription and through newsagencies to households, schools and businesses throughout Western Australia. During the year, three articles published in *LANDSCOPE* won commendations in the competition for the Alex Harris Medal; this competition is set up to give awards for excellence in science and environmental writing. In the same year, paid subscriptions to *LANDSCOPE* increased by 11 per cent.

Three books were published. *Perth Outdoors* is a guide to the natural environment and recreation areas in and around Perth, and includes scenic drives, heritage trails, a plant calendar and species list. *Mountains of Mystery* is a detailed natural history of the Stirling Range. *Managing Your Bushland* boosts the volume of information on conservation management readily available to landholders. The book was produced by CALM with the assistance of the Commonwealth Save the Bush program; it is one reason why there has been a significant increase in liaison with Land Conservation District Committees.

'LANDSCOPE Expeditions' were launched. The expeditions are trips organised by CALM and WA Extension (of The University of Western Australia) for paying volunteers to accompany research scientists into the field. So far two expeditions have run: one to monitor endangered mammals in the Gibson Desert, and one to study rainforests and bats on the Mitchell Plateau. Both went well; the first was fully booked and the second was oversubscribed, allowing the expedition to take an extra vehicle and six more people.

The LANDSCOPE Conservation Card, the first card in Australia designed specifically to support conservation projects, was launched by the R&I Bank of Western Australia, in conjunction with CALM. Every time a card is used the Bank makes a donation to a trust fund which will be used to protect the State's endangered species. The card program is also a community education program as it allows Western Australians to participate directly in protecting the diversity of plants and animals in the State.

Applications to the Remnant Vegetation Protection Scheme were again assessed by the Department. A total of 94 applications were funded, resulting in 4 396 ha of remnant bushland being fenced off at a cost of \$256 449. The Department also coordinated the State assessments of the Commonwealth-funded Save the Bush component of the National Landcare Program. Of the 74 applications received, 32 were recommended for funding at a cost of \$210 443. Both funding schemes assist community liaison for remnant vegetation conservation and other nature conservation issues. This work has been further facilitated by the appointment of a rural nature conservation officer, funded by the Save the Bush Program.

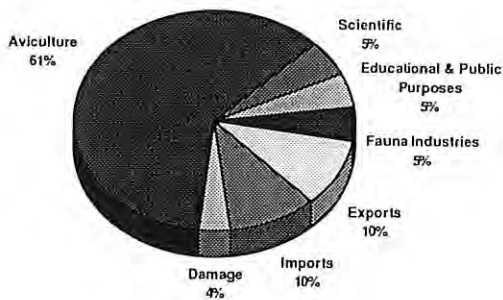
Departmental officers continued to respond to ever-increasing demands from the general public, schools and other organisations for talks and displays on wildlife and conservation issues. As an example, advice and information was provided in response to more than 8 500 public telephone enquiries concerning wildlife matters from the State Operations headquarters alone.

ROADSIDE CONSERVATION COMMITTEE

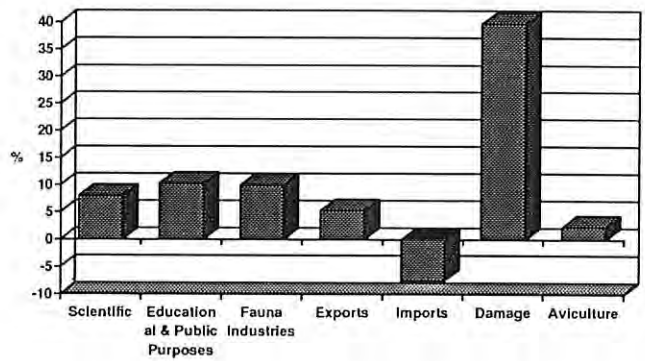
The RCC annually awards the Roadside Certificate of Merit. This year the award was won by a roadside revegetation project undertaken by The Men Of the Trees and the Armadale Branch of the WA Wildflower Society. Mr Mike Norman and Mr Kim Sarti were the persons responsible for the planning and implementation of the winning entry.

Surveys of the conservation value of roadsides have continued, the data being processed using a Geographical Information System (GIS). The maps produced will help local authorities to manage and plan for roadside vegetation more effectively. Workshops and information sessions on roadside conservation and management techniques have been conducted at the request of local shires and community groups in many localities (e.g. Corrigin, Plantagenet, Serpentine, Jarrahdale and Wickelup). In June a national conference on roadside conservation, funded by the Australian Nature Conservation Agency, was held in Melbourne. This was attended by delegates from the RCC, who played a significant role in bringing the conference about as well as in the workshop discussions. The penultimate chapter of the Roadside Manual, dealing with the rehabilitation of borrow pits on roadsides, has been completed; the manual should be available for distribution to local government during late 1993.

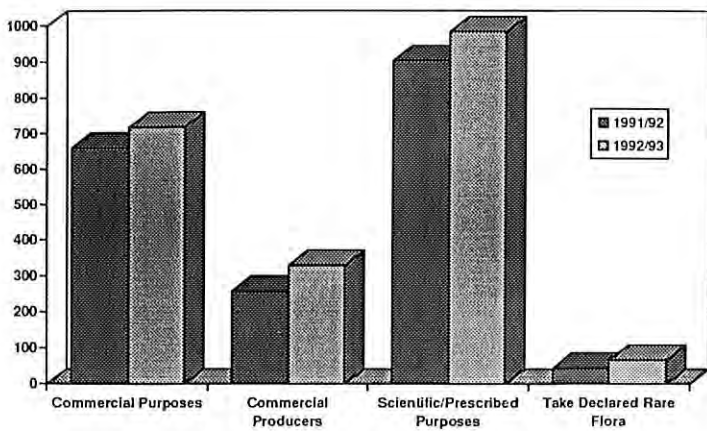
The RCC has funded an ongoing herbicide trial to control lovegrass in native vegetation. This trial is expected to be completed in 1994, with the results to be made available to local government. A study of bridal creeper has also been funded by the RCC.



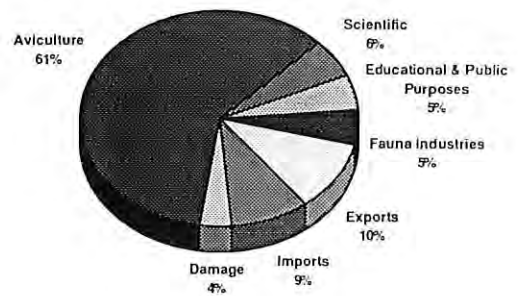
Proportional representation of the 6 439 fauna licences issued during 1992-93 pursuant to the Wildlife Conservation Regulations



Percentage change to the number of fauna licences issued by licence category, 1991-92 to 1992-93



Flora licences issued 1992-93 in comparison with 1991-92



Proportional representation of the 6 328 fauna licences issued during 1991-92 pursuant to the Wildlife Conservation Regulations

FOREST RESOURCES

FOREST MANAGEMENT

The Department manages forest in which timber production is a designated use for the long-term maintenance of each ecosystem. This is done to improve forest productivity and to develop and manage alternative timber resources.

The Environmental Protection Authority reported and recommended on CALM's *Proposals to amend the 1987 Forest Management Plans and Timber Strategy and Proposals to meet Environmental Conditions on the Regional Plans and the WACAP ERMP*. Following a number of appeals, the Minister for the Environment appointed an Appeals Committee. Under the Environmental Protection Act the Minister approved that the proposal could be implemented subject to a number of conditions, including a requirement to establish an expert scientific and administrative committee which was required to report on the proposal's implementation by 30 June 1993. At the time of the annual report, the Minister had not considered the report of the committee to enable him to determine the long-term annual sustainable timber resource available for allocation.

During 1992 a great deal of effort was put into the development, with other State and Commonwealth agencies, of the National Forest Policy. Western Australia was a signatory to the final policy in December 1992. The policy commits the State to a number of actions to improve forest management. While publicly owned forests already largely comply with the provisions of the policy, the main impact in Western Australia will be in respect of private native forests and plantations. A number of initiatives are being developed to give effect to the policy in this State.

The Department continued to cooperate with the National Forest Inventory, a joint project of the Commonwealth and State Governments. Funding from the Commonwealth was gained during the year to begin an inventory of private pine plantations in Western Australia. Partly as a result of this project, cooperation between the private and public sector, in respect of pine forest management, has markedly improved. In particular, the private pine inventory is expected to lead to greatly improved planning for timber harvesting.

Forest Resources Management

Program 2

Objective

To provide, regulate and sustain the supply of forest resources for the satisfaction of long-term social and economic needs in a manner that integrates the use of all resources, maximises their return to the State and minimises the impact on all forest values.

Program Description

The program includes, where it is a designated land use, producing and implementing timber production prescriptions for hardwood State forests, including regeneration and silvicultural treatment, establishing and growing softwood plantations, developing and managing hardwood and softwood sharefarming schemes, controlling the sandalwood industry on Crown land, protecting forest resources from adverse effects of fire and disease, supplying log products from CALM managed lands to the timber industry and integrating the supply of logs from sharefarmed land, providing the community with seeds, seedlings, firewood and other minor forest produce, and providing public advice on tree planting for timber production on a commercial basis; and developing public awareness, understanding and support for the forest resources management program, services and policies.



The Jarrah Forest

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

In many areas the desirable silvicultural objective is achieved completely or nearly completely by the harvesting operation itself. A proportion of the remainder is completed by silvicultural tending operations one or two years after harvesting. In more marginal forest types harvesting is done by selective cutting. In some areas harvesting precedes clearing for mining or the construction of public utilities such as reservoirs or power lines. Cleared areas are not regenerated immediately but where possible are rehabilitated later.

In 1992, 14 020 ha of jarrah forest were harvested for the following reasons:

	<i>Hectares</i>
<i>Thinning</i>	4 750
<i>Release of regeneration</i>	5 290
<i>Establishment of regeneration</i>	1 100
<i>Single tree selection</i>	120
<i>Selective</i>	2 590
<i>Mining</i>	40
<i>Other (includes damsite)</i>	130
TOTAL	14 020

Tending operations were carried out on 2 490 ha of jarrah forest harvested in either this or previous years.

The Forest Improvement and Rehabilitation Scheme (FIRS), which is funded by Alcoa, aims to rehabilitate areas of jarrah forest adjacent to bauxite mining areas. This will increase the capacity of the land to support long-term land uses and minimise the effects of dieback disease. In 1992, 190 ha of jarrah forest were treated under this scheme.

During the year a major study (Factors Affecting the Establishment of Jarrah (*Eucalyptus marginata*) from Seed in the Northern Jarrah Forest of Western Australia) was completed by G Stoneman as a PhD thesis at Murdoch University.

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.

In 1992, 1 850 ha of karri forest were harvested as follows:

	<i>Hectares</i>
<i>Regrowth forests</i>	
- <i>thinned</i>	310
- <i>clearfelled</i>	40
<i>Mature forests</i>	
- <i>clearfelled</i>	590
- <i>cut to seed trees</i>	910
TOTAL	1 850

Regeneration was completed on 1 560 ha harvested in either this or previous years by the methods shown below:

	<i>Hectares</i>
<i>Hand planted</i>	1 280
<i>Natural seed fall</i>	280
TOTAL	1 560

Note: Inadequate seed supply led to the major portion of the area being hand-planted.

Landscape Management

Landscape management plans and specifications were prepared for 6 900 ha of native forest, and design guidelines prepared for 33 km of forest roads. Landscape management was built into prescribed burning plans. Contributions were also made to Western Australia's first State of the Environment Report. One hundred and twenty CALM and industry forest managers were trained to implement guidelines and specifications prepared for strategic harvest planning, landing rehabilitation, road and drainage construction and maintenance.

Field staff have been trained to integrate landscape management principles with the application of jarrah silviculture prescriptions. Research continued on the social perception of silvicultural trial studies in the Manjimup area.

Wood Utilisation

Several Eastern States tree species were screened for the VALWOOD® process, in which high-value panels are manufactured by edge- and face-gluing thin boards. A comparison of cross-lamination versus parallel lamination was carried out, using steamed and unsteamed jarrah and *E. globulus*, to improve manufacturing techniques.

The Department resumed manufacture of VALWOOD® after Karrivale Pty Ltd relinquished the lease of the pilot plant at Harvey. Negotiations are continuing with other commercial interests to take up licences to manufacture and market VALWOOD®.

The design of CALM dryers, which use solar energy to dry appearance grade timber, is now being used by several Western Australian sawmillers who are value-adding their products. A study of equilibrium moisture content in major commercial species was completed during the year and can be used by timber suppliers to improve wood quality to buyers. Drying schedules have been developed for karri and marri.

Sandalwood Management

A full-time research officer has been posted to the Kimberley to carry out an externally funded research program with trials of Indian sandalwood (*Santalum album*).

Research plots have been maintained and monitored at Northampton, Mullewa, Morowa and Shark Bay and hosts have been established for a research and demonstration plot in the wheatbelt.

Sandalwood production for 1992-93 is shown below compared with that for 1991-92.

	1991-92 tonnes	1992-93 tonnes
<i>From Crown Land</i>		
green sandalwood	902	1 017
dead sandalwood	891	806
<i>From Private Property</i>	182	217
TOTAL	1 975	2 040

Exports for 1992-93 totalled 1 899 tonnes compared with 1 912 tonnes for the previous year.

Disease and Pest Management in Native Forests

The presence of dieback disease (*Phytophthora cinnamomi*) and of its predicted impact is mapped before logging and mining operations in the jarrah forest. This is done either from interpretation of large-scale colour photographs or intensive ground stripping. The photographs need to be taken under full cloud cover so that indicator species in the understorey are not in shadow.

In 1992-93 only 33% (28 500 ha) of the shadowless photography program was achieved, because of the absence of suitable cloud conditions. This follows a similarly low achievement in the previous year, resulting in the need for some interpretation by intensive ground stripping. Interpreters mapped the occurrence and predicted impact of dieback on 42 800 ha of forest and rechecked 13 400 ha mapped previously. A broadscale survey of the occurrence of borers in karri was completed. Tryphocaria beetles and Cossid moths were captured, using light traps on selected sites.

Fire Management in Native Forests

Of the 409 wildfires attended by CALM forces, 132 occurred on State native hardwood forests, burning 6 110 hectares. Appendix 10 shows the number, area and causes of wildfires within CALM-managed lands categories over the past three years. The total number of wildfires attended was slightly above the eight-year average. The disturbing trend of high levels of deliberately lit fires continued in 1992-93 and accounted for 52% of all causes. At the same time the percentage of fires resulting from escapes from CALM burns was reduced to an all-time low of only three percent.

Fire in the form of prescribed burning was used as a management tool over 142 780 ha of State forest. This is done to reduce fuels for protection of CALM-managed lands and community assets, to regenerate cut-over areas, to provide wildlife habitat, and to enhance nature conservation values. Trends in the area of prescribed burning conducted on CALM-managed lands over the past three years are shown in Appendix 9. The total area burnt in the forest regions during 1992-93 was the smallest in more than 30 years.

The prescribed burning program undertaken by CALM has contributed significantly to highly effective fire suppression of wildfires, as indicated by the small average area to which wildfires are confined (Appendix 13). Numerous fires posed very serious threats to residents and other community values, but were controlled because of fuel-reduced buffer zones.

Fire emergency response plans were reviewed and implemented in all district and regional management areas. Fire training was provided for selected firefighters and fireline supervisors. This training was extended to CALM's logging contractors, as well as other industry employees and some bushfire brigade members. Additionally, 220 CALM officers were trained in the application of the Australian Inter-Service Incident Management System (AIIMS) in the multi-agency response to wildfire incidences and other emergencies.

As required in the Minister's conditions for implementing amendments to the 1987 Forest Region Management Plans and Timber Strategy, the information on the prescribed burning programs has been expanded to include the dominant purpose for burns undertaken, the season of burn, the period since the last burn, and incidence of escapes from burns. The data has been organised within the three forest regions in Appendices 11 and 12. The data on wildfires within forest regions have also been expanded to comply with the Minister's conditions. Appendix 13 shows the number and area of wildfires attended by CALM forces in each of the three forest regions.

Public Awareness

The Department's public relations and communications activities are designed to strengthen links between the Department and the public through community education, public input, community-based initiatives and the distribution of information. The broad goal, in the Forest Resources Management Program, is improved public awareness, understanding and support for CALM's forest resources management programs, services and policies, combined with wider public cooperation in the prevention and solution of forest resources management problems.

Many public affairs and community activities cross program boundaries - between the Nature Conservation and Wildlife Management Program, the Forest Resources Management Program, and the Management for Tourism and Recreation Program - in the true spirit of the integrated management philosophy that underpins the operation of CALM. For a brief summary of these, see **Public Affairs and Community Education** in the Nature Conservation and Wildlife Management portion of this report.

The Department is supporting the establishment of the Forest Heritage Centre (Inc) to operate a school of Wood and Forest Interpretation from the decommissioned Forest Cadet School and proposed new facilities at Dwellingup. Much of the planning has been completed and financial support for the million-dollar project has been forthcoming from Federal, State and Local Government, private sector and community groups. The Forest Heritage Centre's buildings are scheduled for construction in 1993 and should be operational in Autumn 1994. Up to 80 000 tourists are expected to pass through the centre each year.

An environmental education program on the jarrah forest for Year 6 and 7 students was developed and launched. Entitled Discovering the Hills Forest, the program includes teacher inservice training, a one day forest visit and a teacher resource package.

A number of special events and displays were mounted to focus media and public attention on forest management and developments in agroforestry.

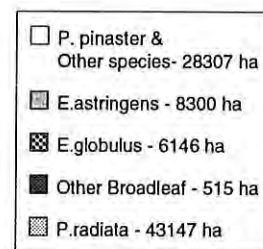
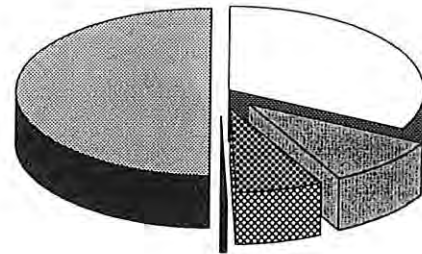
A series of Go Bush activities were conducted in the northern jarrah forest during the school holidays to introduce people of all ages to recreation and learning experiences in the forest.

An interpretive display on Goldfields sandalwood was designed and prepared for the Kalgoorlie museum.



AFFORESTATION

During 1992 a total of 1 842 ha of State-owned coniferous plantation forest was established on private property under sharefarm agreements, and 871 ha was replanted following harvesting in existing plantations on public land. The total area of State-owned plantation at 31 December 1992 was 71 454 ha of coniferous and 14 961 ha of broadleaved species. The species distribution is represented in the diagram:



Area of State-Owned Plantation as at 31-12-92

A physical resources survey unit has been set up in Busselton to provide soil and site information and interpretation for the CALM afforestation program. This enables management decisions to be made on a scientific basis.

The volume of timber products obtained from the first thinning of nine-year-old pine agroforestry trials in Vasse plantation was measured. This information is needed for the preparation of firm proposals for broadscale sharefarm plantations to include belts of pine.

A major fertiliser trial was established in *E. globulus* plantations on infertile soils on the coastal plains at Harvey and Scott River.

Acacias are being trialed for inclusion with *E. globulus* in pulpwood plantations.

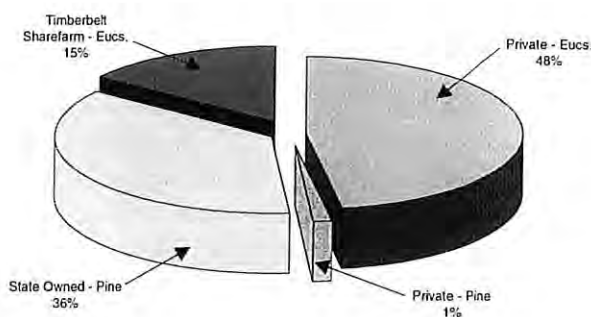
An increasing level of interest has been shown in the establishment of plantations under CALM's timberbelt sharefarming scheme. The scheme was designed to bring investors into partnership with farmers to grow commercial trees in patterns which are complementary to agriculture, and also deliver environmental benefits. Under the scheme the Department maintains an interest in the trees through a legal agreement. In addition to a continuing strong interest from farmers, Asian paper manufacturers are now showing interest in investing in this type of planting.

During the winter of 1992, 1 065 ha of *E. globulus* were planted on sites from Collie to Albany under the timberbelt sharefarming scheme. The technique has also been applied to preliminary demonstration plantings of *E. globulus* on the Esperance sandplain and of mallee eucalypts for the production of eucalyptus oil in the wheatbelt. CALM, Murdoch University, Department of Agriculture and farmer groups are collaborating in a research and development project to develop oil eucalypts as a commercial tree crop.

In the third category of plantation, private afforestation companies have reported on the establishment of 3 500 ha of eucalypt and 100 ha of pine plantation on private land during 1992. This brings the total area of private plantations reported to the Department to 12 390 of eucalypts (mainly *E. globulus*) and 15 720 ha of pine (mainly *radiata*).

(NB: The total pine area has decreased from the area reported the previous year as a result of an improved database: see NFI project below.)

The diagram below shows plantation establishment for 1992 and illustrates a trend towards State-owned pine plantations and private investment in the faster growing eucalypt plantations.



Plantations Established in 1992

Areas of State-owned coniferous plantations and State-controlled broadleaved plantations are shown in Appendices 3 and 4.

The species, age, stocking and site quality of all privately owned pine plantations have been determined from interpretation of aerial photographs. The project was commissioned and funds provided by the National Forest Inventory (NFI) Program. A further grant has been obtained to inventory private hardwood plantations.

A Pine Inventory Product Determination (PIPD) System has been developed and is being used for resource planning.

Landscape Management

Landscape management plans and specifications were prepared for 400 ha of plantation forests. Integrated farm forestry projects have begun following the preparation of design guidelines and the training of South Coast Sharefarm managers. South Coast Sharefarms is the business unit set up by CALM to encourage the integration of bluegums into farms in the south-west.

Fire Management in Plantation Forests

Perth District successfully prescribe-burnt 5 490 ha of *P. pinaster* plantation during the winter months of 1992. This program was achieved by a combination of ground ignition crews and aerial ignition by helicopter.

The fuel-reduction program enabled suppression crews to rapidly control the 74 wildfires which occurred in *P. pinaster* plantations during 1992-93. The average fire was contained to less than 0.5 ha. Very many (77%) of these fires were deliberately lit.

Overall, 88 wildfires were controlled within Department pine plantations in 1992-93.

Tree Breeding

A 17 ha backward-selection open-pollinated seedling seed orchard (OPSSO) has been established. It is calculated that *E. globulus* plantations established using seed from this orchard will produce 14% more volume. The first assessment breeding population trials of the CSIRO family collection has been completed. Best selections have been cloned for clone banks and clonal seed orchards. Family information has been

used for culling of existing OPSSO and establishment of new OPSSO. Twenty-six hectares of gene conservation stands of the King Island population of *E. globulus* have been planted on four sites.

The Tree Breeding Information Management System (TBIMS) has been developed to coordinate trials and data for the tree breeding improvement program. It has been widely accepted as the best available and is being sold throughout Australia.

Much improved grafting of *E. globulus* was achieved during the year. A major breakthrough was the initiation of flowering in two-year-old *E. globulus*, both seedling and grafted stock, and the optimisation of the method and timing of the treatment.

Plant Propagation

Seventeen million seedlings were despatched by CALM Nurseries during the 1992-93 season. This includes over 16 million from the Plant Propagation Centre at Manjimup, 610 000 from Narrogin Plant Nursery and 20 000 from Broome.

The Narrogin and Broome nurseries are primarily commercial nurseries which have continued to grow plants suitable for rural revegetation, roadside and minesite rehabilitation, community projects and amenity purposes.

Seed Handling

Seeds of the principal species needed for Departmental forest plantings, rehabilitation and conservation projects, as well as for public sales, were acquired, processed and stored at the Manjimup Plant Propagation Seed Centre.

Other than seed orders within Australia, seed was exported to China, Fiji, Ireland, New Zealand, Philippines, United States of America, United Kingdom and Vietnam.

A total of 1 044 kg was acquired.

<i>Euc. diversicolor:</i>	104 kg
<i>Euc. marginata:</i>	45 kg
<i>Euc. calophylla:</i>	124 kg
<i>Pinus</i> species:	565 kg
Other species:	206 kg

Seed disbursement (mostly to commercial nurseries) totalled 963 kg. Receipts from public sales totalled \$58 915.

TIMBER SUPPLY

CALM ensures a negotiated and even flow of forest products to the timber industry. It recovers costs for the service supplied, maximises returns to the State, and minimises the impact of timber supply on other forest values.

Native Forests

Native forests have been harvested in accordance with approved silvicultural prescriptions. This has provided a resource, as identified in the Timber Strategy, for timber companies under contractual agreements. The harvesting operations were integrated and planned according to the principles of management for the long-term maintenance of each ecosystem. A long-term sale agreement for pine sawlogs was concluded to supply WA's first large-scale pine sawmill. CALM harvesting contractors continued to assume greater responsibility for regeneration and tending in accordance with integrated logging plans.

The volume of hardwood timber harvested and supplied to the timber industry continued at a lower level than production targets identified in the 1987 Timber Strategy. This was because of the downturn in the Australian economy. The actual amount of timber harvested from Crown land was 1 381 500 m³ compared with the 1992-93 estimate of 1 314 000 m³. This includes sawlogs, chiplogs, particleboard logs and firewood as shown in the following tables, plus an additional 12 500 m³ of minor forest products such as fencing material and bridge timbers. Also shown diagrammatically is the trend in hardwood sawlog production from Crown land compared with the projected cut.

Plantation Forests

Thinning of plantations is essential for both the optimum development of the final crop and the supply of products as identified in the 1987 Timber Strategy. This is in contrast to native forests, where stand improvement is the primary reason for thinning the forest. The harvesting of logs from privately owned plantations is integrated in detailed logging plans. The area of State-owned plantations logged in 1992-93 was as follows:

Operation	Thinning and Clearfelling Operations	
	1991-92 ha	1992-93 ha
<i>Coniferous</i>		
Thinned	4 810	2 190
Clearfelled	510	1 500*
<i>Broadleaved (E. astringens)</i>		
Thinned	290	270

* Includes 30 ha clearfelled for Christmas trees.

The actual amount of timber harvested from coniferous plantations was 443 100 m³ compared with the 1992-93 estimate of 451 400 m³.

Hardwood Sawlog & Veneer Log Production from Crown Land 1992-93 (Cubic Metres)

Species	Premium Actual	MATURE FOREST				Regrowth Forest				TOTAL Actual	TOTAL Projected
		1st GRADE		2nd & 3rd Grade & Marri Sawlogs		Veneer Logs	Short Logs	Actual	Projected		
		Actual	Projected	Actual	Projected						
Jarrah	1 484	279 043	429 500	99 023	61 000	-	26 000	-	36 000	379 550	552 500
Karri	52	109 602	153 000	58 024	18 000	913	-	21 005	50 000	189 596	221 000
Marri	-	-	-	41 051	30 000	-	-	239	-	41 290	30 000
Other Species	9	3 227	-	295	-	-	-	695 *	-	4 226	-
	1 545	391 872	582 500	198 393	109 000	913	26 000	21 939	86 000	614 662	803 500

* Small globulus sawlogs

Note: Projected intakes are the average for 1992 and 1993 as set out in the Timber Strategy, Tables 14, 15, & 17.
No separate projected figure for minor species.

Hardwood Chipwood Production from Crown Land & Private Property 1992-93 (Cubic Metres)

CROWN LAND

Marri logs from:

- regrowth forests	35 084
- mature forests	420 548

Karri logs from:

- regrowth forests	72 676
- mature forests	111 015

Other logs from:

- regrowth forests (Globulus)	42
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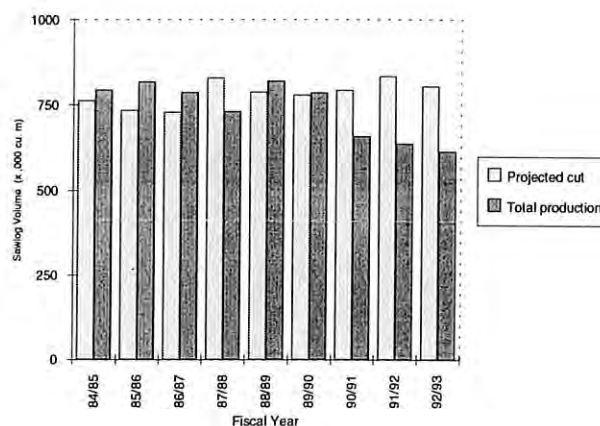
Total from Crown land 639 365

PRIVATE PROPERTY

Marri & Karri logs 98 777

Total Crown land & Private property 738 142

Hardwood Sawlogs Produced From Crown Land



Note:

- The projected cut for years 84-85 - 86-87 is for general purpose sawlogs only.
- Production in 88-89 included 40 000 cu. m carryover from the previous year.

Firewood Production 1992-93 (tonnes)

LOG SOURCE	1989-90	1990-91	1991-92	1992-93
FOREST RESIDUE				
From Crown land				
- domestic firewood	31 237	33 751	30 123	42 141
- industrial firewood	33 834	61 989	62 118	68 505
From Private property				4 199
- industrial firewood				
Total	65 071	95 740	92 241	114 845
SAWMILL RESIDUE				
From Crown land	89 132	97 258	80 651	57 637 *
From Private property	1 011	1 053	96	472
Total	90 143	98 311	80 747	58 109

* July-Dec 1992 figures only, Jan-June data not yet available.

Sawmill figures for 6 months July-December 1991 published in the 1991-92 Annual Report have been updated to include January to June 1992 amounts. Above data includes Solid Wood, Sawdust Shavings, Chips & Edgings sold as fuel & for own use.

Softwood Sawlog & Veneer Log Production From Crown Land 1992-93 (cubic metres)

<i>Speices</i>	<i>Actual</i>		<i>Sawlog</i>	<i>Production</i>		<i>Veneer</i>	<i>TOTAL</i>
	<i>1st Grade</i>	<i>2nd Grade</i>		<i>Other Sawlogs</i>	<i>Small Sawlogs</i>		
<i>Radiata</i>	33 452	30 668	476	15 490	22 053	3 080	105 219
<i>Pinaster</i>		9 277	699		18 137	14	28 127
	33 452	39 945	1 175	15 490	40 190	3 094	133 346

Log Production From Crown Land & Private Property 1992-93 (Cubic Metres)

<i>Type</i>	<i>Crown Land</i>	<i>Private Property</i>	<i>Total</i>
SAWLOG TIMBER *			
<i>Jarrah</i>	379 550	6 269	385 819
<i>Karri</i>	189 596	6 017	195 613
<i>Marri</i>	41 290	4 297	45 587
<i>Blackbutt</i>	1 303	188	1 491
<i>Wandoo</i>	331	338	669
<i>Sheoak</i>	1 494	19	1 513
<i>Other</i>	1 098	163	1 261
Total Hardwood	614 662	17 291	631 953
<i>Pine</i>	133 346	16 141	149 487
TOTAL SAWLOGS	748 008	33 432	781 440

OTHER LOG MATERIAL **

<i>Hardwood ***</i>	643 583	98 778	742 361
<i>Softwood</i>	279 195	78 521	357 716
TOTAL LOG TIMBER	1 670 786	210 731	1 881 517

* *Sawlog timber from all sources, including veneer, but not including chiplogs, firewood, piles and minor forest products.*

** *Includes chiplogs, pine particleboard material, pine rounds and pine industrial (MDF) material.*

*** *Hardwood residue includes 4 196 m³ of marri particleboard/ industrial wood and 22 m³ of jarrah industrial wood.*

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

Sawn Production From Crown Land & Private Property 1991-92 (Cubic Metres)

	<i>Hardwood</i>	<i>Softwood</i>	<i>Total</i>
Sawn Timber Production			
- Crown land	187 472	39 084	226 556
- Private property	7 047	3 619	10 666
Sawn Sleeper Production			
- Crown land	21 351		21 351
- Private property	803		803
Total	216 673	42 703	259 376

Final figures for 1992-93 not yet available. These will be published in the next annual report.

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

TOURISM & RECREATION

RECREATION PLANNING AND DESIGN

Area and Regional Plans

Two final management plans were approved by the Minister for the Environment in 1992-93 for two small but significant reserves, Matilda Bay Reserve and the Shoalwater Islands; and four draft management plans were released for public comment in accordance with CALM Act requirements. Work continued on the preparation of a further 15 plans. All of these plans provide recreation strategies and recommendations. CALM staff from the Midwest region have also had a major involvement in the Department of Planning and Urban Development's Central Coast Planning Study.

The following table lists the total area (and percentage) of each tenure category managed by CALM for which management plans are now completed. It also shows the status of plans which are in preparation or already approved as at 30 June 1993.

CALM MANAGEMENT PLANS

Area Management Plans

Tenure	Area covered by Plans (ha)	% of Total Tenure Category
National Parks	528 676	10.4%
Nature Reserves	14 222	0.1%
Marine Reserves *	440 000	38.4%
Other Recreation/ Conservation Reserves **	51 633	17.0%
Totals	1 034 551	5.1%

Regional Management Plans

CALM Region	Area covered by Plans (millions of ha)	% of Total Area of WA
Northern Forest ***	1.97	0.8%
Central Forest	1.80	0.6%
Southern Forest	1.44	0.7%
South Coast	16.30	6.4%
Totals	21.51	8.5%

* Includes marine parks and marine nature reserves

** Includes 5g reserves, conservation parks and miscellaneous reserves.

*** Now incorporated within Swan Region

Note: Management plans concentrate on areas where recreation and environmental management issues are most pressing. The proportion of the CALM-managed estate covered by plans significantly underplays the degree to which the most important management issues have been addressed. For example, management plans have not been completed for Rudall River (1 569 459 ha) or Karijini (606 597 ha) National

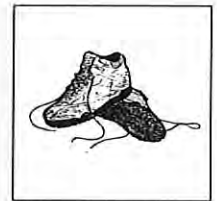
Management for Tourism and Recreation Program 3

Objective

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

Program Description

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



CALM MANAGEMENT PLANS: STATUS 30-06-93

<i>Approved Management Plans</i>	<i>Date of Gazettal</i>	<i>Final Plans in Preparation</i>	<i>Draft Plans in Preparation</i>
<i>NATIONAL PARKS</i>			
<i>Cape Range National Park</i>	<i>23/03/90</i>	<i>John Forrest National Park*</i>	<i>Francois Peron National Park</i>
<i>Fitzgerald River National Park</i>	<i>19/06/91</i>	<i>Purnululu National Park</i>	<i>Karijini National Park</i>
<i>Leeuwin Naturaliste National Park</i>	<i>21/04/89</i>	<i>West Cape Howe National Park*</i>	<i>Lesueur National Park</i>
<i>Shannon & D'Entrecasteaux National Park</i>	<i>08/01/88</i>		<i>Nambung National Park</i>
<i>Walpole-Nornalup National Park</i>	<i>03/07/92</i>		<i>Serpentine National Park</i>
<i>Yanchep National Park</i>	<i>29/09/89</i>		<i>Stirling Range and Porongurup National Parks</i>
			<i>Yalgorup National Park</i>
<i>NATURE RESERVES</i>			
<i>Benger Swamp Nature Reserve</i>	<i>12/02/89</i>	<i>Two Peoples Bay Nature Reserve*</i>	<i>Coomallo Nature Reserve</i>
<i>Dampier Archipelago Nature Reserve</i>	<i>31/08/90</i>		
<i>Forrestdale Lake Nature Reserve</i>	<i>10/07/87</i>		
<i>Mooradung Nature Reserve</i>	<i>21/02/86</i>		
<i>Nature Reserves of the Shire of Wyalkatchem</i>	<i>21/02/86</i>		
<i>Nature Reserves of Shires of York/Northam</i>	<i>10/07/87</i>		
<i>MARINE PARKS AND MARINE RESERVES</i>			
<i>Ningaloo Marine Park</i>	<i>24/11/89</i>		<i>Shark Bay Marine Park</i>
<i>Marmion Marine Park</i>	<i>15/05/92</i>		<i>(including Hamelin Pool Marine Nature Reserve)</i>
<i>OTHER RESERVES</i>			
<i>Lane Poole Reserve</i>	<i>14/12/90</i>		<i>Canning River Regional Park</i>
<i>Matilda Bay Reserve +</i>	<i>21/05/93</i>		<i>Leschenault Peninsula</i>
<i>Shoalwater Islands +</i>	<i>20/10/92</i>		<i>Monkey Mia</i>
			<i>Shark Bay World Heritage Area</i>
<i>STATE FOREST</i>			
<i>Logue Brook Reservoir and Catchment Area</i>	<i>16/03/90</i>		<i>Dryandra State Forest</i>
<i>Waroona Reservoir and Catchment Area</i>	<i>16/03/90</i>		
<i>REGION PLANS</i>			
<i>Central Forest Region</i>	<i>12/02/88</i>	<i>Goldfields Region*</i>	<i>Pilbara Region</i>
<i>Northern Forest Region**</i>	<i>12/02/88</i>		
<i>South Coast Region</i>	<i>13/03/92</i>		
<i>Southern Forest Region</i>	<i>12/02/88</i>		

- + *Approved in 1992-93*
- * *Released as draft plans in 1992-93*
- ** *Now included within Swan region*

Landscape Management Plans

Landscape management studies, containing tourism and recreation assessment and design plans, were prepared for the Nuyts Wilderness in Walpole National Park, Two Peoples Bay Nature Reserve, Lesueur National Park, Coomallo Nature Reserve, Monkey Mia Reserve, Yalgorup National Park and Milyering visitor centre at Cape Range National Park. Landscape design plans were also prepared for a total of 22 kilometres of roads and five kilometres of walk trails, providing improved access within national parks. Landscape strategies are an integral part of all area management plans. Further landscape studies were commenced for Shark Bay World Heritage Area, Stirling Range, Porongurup, Serpentine and Yalgorup National Parks.

Recreation Site and Facility Plans

A recreation master plan and site development plans were prepared this year for Canning River Regional Park, in consultation with the Department of Planning and Urban Development and the City of Canning. A recreation framework plan was completed for the Southern Forest Region.

Specifications and designs were developed for numerous recreation areas throughout the State, including Quoin Head at Fitzgerald River National Park; Waychinicup National Park; McNess recreation areas, entry station and car parks at Yanchep National Park; Hills Forest Activity Centre at Mundaring; and Gloucester Tree toilet facilities at Pemberton. A sign plan was prepared for the islands of the Dampier Archipelago, and planning is well advanced for visitor access and camping at Silent Grove on Mt Hart Station, a proposed new Kimberley park.

Formal training was provided in recreation planning and management for CALM staff. CALM also helped conduct two training courses for local government officers.

Fire Management

Recreation areas were protected through strategic prescribed burning in accordance with management plans or interim guidelines. Recreation facilities at Fanny Cove in Stokes National Park and Millstream-Chichester National Park are being reconstructed following extensive damage caused by a wildfire.

Land Information Services

Land information of various types has been produced to support area management planning and the provision of public information about CALM-managed lands.

A joint project with the Department of Land Administration has produced a further three integrated tourist maps, providing another medium for CALM to raise the awareness of visitors to conservation areas. These maps cover the Pilbara, Southern Forest and the Gascoyne Coast. The Pilbara map was awarded a Cartographic Excellence prize at a national conference.

TOURISM AND RECREATION OPPORTUNITIES

There were many tourism and recreation developments undertaken by CALM during the year to provide opportunities and services for visitors. Major projects included:

South Coast: In Fitzgerald River National Park a whale-watching platform was established at Point Ann, a new toilet facility at Quoin Head, and walking paths completed and opened at East Mt Barren. Tracks were stabilised in West Cape Howe National Park, and campsite facilities restored at Fanny Cove and Stokes Inlet.

Southern Forest: CALM regional staff are liaising with local people about the implementation of improved access routes into Black Point, Malimup, and Mandalay Beach.

Central Forest: Day-visitor facilities have been developed at Belvedere on Leschenault Peninsula, and picnic and camping facilities have been significantly improved at Wrights Bridge on the Blackwood River near Nannup and in the lower Collie Valley at Wellington Dam. At Leeuwin-Naturaliste National Park, walk trails, vehicle access and parking were improved at Cape Naturaliste, as was road access to Conto's Field campsite. Restoration of Golden Valley Homestead at Balingup has begun.

Swan: Particular effort was devoted to developing new facilities as part of the 'Perth Outdoors' strategy: development and reticulation of the Lakeview picnic area, detailed renovation of McNess House, installation of water supply, and construction of a carpark at Yanchep National Park; the Weir walk trail, rare flora garden, resource centre, administration building and fencing at Hills Forest Activity Centre; new picnic area and boardwalks on Penguin Island; and new toilet blocks at Matilda Bay Reserve. Extensive walk trails and boardwalks have been constructed at the Spectacles in conjunction with Alcoa.

Goldfields: Day-use facilities have been improved in the area south of Coolgardie with the newly developed Comet Hill picnic site at Kangaroo Hills Timber Reserve, and the realigned access road to Burra Rock picnic site on Burra Rock Nature Reserve. Materials have been purchased to replace flood-damaged facilities at Rowles Lagoon; work will proceed next year.

Midwest: Public access routes have been upgraded by resheeting 33 km of the Loop/Z-Bend Road at Kalbarri National Park and sealing 3.8 km of Grey Road into the Pinnacles at Nambung National Park. Radio communications have been installed at Lesueur National Park in Moora District and on the Moresby Ranges near Geraldton; they will ensure much better communications between CALM staff and emergency services in protecting areas and servicing visitors and facilities.

Pilbara: At Karijini National Park a new self-registration system for collection of camp fees was introduced, the new Fortescue campground at Dales recreation area was opened, and Knox Gorge carpark was completed. Repairs were carried out at the flood-damaged Crossing Pool campsite in Millstream National Park; at Cape Range walk trails were upgraded, an information shelter was erected at Yardie Creek, and additional parking and rehabilitation work was done at Turquoise Bay. Improvements have been made to the camping area at Mesa Camp with assistance from the Australian Army, and an ablution facility was established on the Coral Bay foreshore by CALM, with funding contributions from the Carnarvon Shire and the Department of State Development.

Kimberley: Major flooding of the Fitzroy River caused damage to vegetation and recreation areas at Geikie Gorge and delayed the opening of the Geikie Gorge National Park for several days this year. However, facilities were quickly restored to provide for public enjoyment. A new information and interpretive facility was installed at Purnululu National Park this year, including a self-registration and fee-paying system, thereby freeing rangers for other public duties. Improvements have also been made to all park camping areas. At Windjana Gorge the day-use facilities and walk trails have been upgraded, and work has begun on an airstrip which will form part of the Ibis Aerial Highway. Visitors using the Ibis Aerial Highway will also be able to stay at the Mt Hart Homestead, which has been opened for limited accommodation.

Commercial Tourism and Legislation

CALM cooperates wherever possible with the private sector in the delivery of services and opportunities for visitors. The CALM Act Amendment Regulations 1993 were gazetted this year, providing for the licensing of commercial operations, including commercial tourism activities. A total of six major commercial leases for visitor services and facilities are currently being renegotiated. Special recreation fishing regulations were introduced for Ningaloo Marine Park. Joint patrols were carried out with the Fisheries Department to promote these.

CALM has also developed a tour operator permit system, which requires commercial operators to register their

proposed activities with the Department. Conditions may be necessary for the protection of natural and cultural resources or the quality of the visitor experience. CALM provides operators with training and information to pass on to their clients. As at the end of this financial year, 82 commercial tour operators were registered with CALM.

The Department has continued to develop nature-based tourism opportunities with tour operators. Three Aboriginal ecotourism ventures are now in operation in north-west national parks, and a new venture, *LANDSCOPE* Expeditions, was launched this year. These are trips organised jointly by CALM and The University of Western Australia (UWA Extension) for paying volunteers to accompany research scientists into the field and participate in research programs. The two expeditions this year were a great success; one took subscribers into the Gibson Desert to monitor endangered mammals, and the other studied rainforests and bats on the Mitchell Plateau.

Estimated Revenue and Expenditure for Tourism and Recreation

Other than grants, sponsorship and donations, revenue is obtained mainly through the collection of fees in national parks and other high-visit areas. Revenue thus collected is channelled back into improved management and services. Revenue is only collected where the funds raised are significantly greater than the cost of collection.

Revenue from national park entrance fees and other recreation activities rose from \$1 460 000 in 1991-92 to \$1 529 000 in 1992-93. In the same period, expenditure from Consolidated Revenue Fund was reduced from \$18 407 000 to \$18 051 000 and capital expenditure rose from \$709 000 to \$1 605 000.

As described below under **Visitor Research**, CALM records the number of visits to a selected range of sites within reserves managed by the Department. This figure is not the total number of visits to all CALM-managed lands, but does provide a useful measure which can be compared annually for variations and trends, and from which estimates of total visitor numbers can be derived. The number of recorded visits fell marginally in 1992-93 to 4 304 000 from 4 440 000 the previous financial year. Despite this, CALM achieved an increase in recreation revenue of \$69 000.

INTERPRETATION AND VISITOR SERVICES

CALM aims to enrich visitor experiences and develop public awareness, understanding and support for sensitive conservation management and compatible tourism and recreation services and policies. To this end, outdoor education activity programs were conducted at Yanchep,

Serpentine, Leeuwin-Naturaliste and Purnululu National Parks and an expanded and exciting program of Go Bush activities was offered through spring and autumn, coordinated by CALM's Hills Forest Activity Centre in Mundaring.

Pre-visit information materials were prepared for a number of recreation and conservation areas. These include the second and third in a series of national park information sheets detailing CALM's role in providing recreation and tourism opportunities; these new broadsheets are for the Pilbara and Leeuwin-Naturaliste areas. The initial print runs of 30 000 each were quickly absorbed by the tourism and recreation industry.

Other New Information Services

South Coast: Interpretive panels have been prepared for Fitzgerald River National Park and for the existing information shelters at the Bluff Knoll turn-off in Stirling Range National Park. A very successful community education course focusing on the special values of Fitzgerald National Park was run in liaison with the Fitzgerald River National Park Association at Twertup Field Study Centre.

Swan: An innovative interpretive display is being constructed at Mersey Point to complement improvements on Penguin Island.

Wheatbelt: An ecology course was begun this year at Dryandra State Forest and a local commercial bus tour undertaken as an experiment to assess public interest.

Goldfields: An interpretive program was begun for schools at Wanjarri field study centre and Jaurdi Station.

Midwest: Brochures have been prepared for Kennedy Range and Francois Peron National Parks, and ten World Heritage Area Notes sheets published. An information shelter and plinth were constructed at the stromatolites in the Hamelin Pool Marine Nature Reserve.

Pilbara: Additional information was provided for the public at Karijini National Park information shelters, Milyering and Millstream visitor centres, regional displays, liaison, and for stories in local media.

Visitor Research

The Visitor Information Statistics (VISTAT) program to monitor public use of CALM-managed lands continued.

By means of traffic counter surveys, staff observation counts, and various informal surveys, 26 parks (including one marine park), 18 reserves and nine State forest areas were monitored

throughout the State in 1992-93, with 116 sites used to provide basic data. These data do not represent the total number of visits to all CALM-managed lands, but provide indications which can be compared year to year and examined for variations and trends.

Visitor surveys and observation studies are also carried out as part of the VISTAT program. Visitor surveys conducted as part of the management planning process included:

- Shark Bay World Heritage area
- Lesueur National Park and Coomaloo Nature Reserve
- Nambung National Park, Wanagarran Nature Reserve, Nilgen and the proposed Southern Beekeepers Nature Reserves.

In all cases data were centrally processed and summarised. A visitor survey was also undertaken at the Kalgoorlie Arboretum which revealed an increase in visitor numbers of 19%.

There were 4.3 million recorded visits for the 53 parks reserves and forest areas monitored during this year. This is about the same as last year's recorded visits. As visitor data is only collected at certain times and at selected sites, however, it is necessary to extrapolate these data to estimate the total number of visits to CALM-managed areas. The accuracy of this estimate has probably improved with the addition of 31 collection points since 1989. The estimated total for 1992-93 is 4.6 million, which is slightly less than last year. The decrease may be attributed partly to the current economic climate, and perhaps partly to more accurate recording procedures.

The small change in total recorded visitor numbers reflects a continuous interest by the public in visiting lands managed by CALM. VISTAT information has been of great assistance in focusing the management and planning of visitor services and in determining priorities for collection of revenue.

VISITS TO CALM-MANAGED LANDS AND WATERS

YEAR	No. of Data Collection Sites	Recorded Visits	Estimated No. of Visits To CALM Estate ¹
1989-90	85	3.6 million	4.5 million
1990-91	107	4.5 million	4.8 million
1991-92	115	4.4 million ²	4.7 million ²
1992-93	116	4.3 million ³	4.6 million ³

¹ As visitor data are collected only at certain times and at selected sites, it is necessary to extrapolate to estimate the total number of visits to CALM-managed areas. The accuracy of the estimate has improved with the addition of 31 collection points since 1989 and better recording procedures.

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

³ *Provisional estimate, based on limited data and subject to future amendment. The small decrease shown in the latest estimate compared to previous years is possibly due to the current economic climate. Part of the reduction in the number of visits may also be caused by more accurate recording of staff trips in some parks. Overall, the visitor survey figures reflect a continuing interest by the public in visiting natural areas.*

COMMUNITY INVOLVEMENT

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

Aboriginal Programs

CALM continues to work closely with Aboriginal people to accommodate their involvement in the management of lands and wildlife. Significant achievements this year included:

- 'Working Together', an Aboriginal cultural awareness training program for CALM staff, was conducted at Albany. Staff were taught about matters such as the history of contact, the importance of significant places, communication skills, conflict resolution, and Aboriginal perspectives on tourism, recreation and conservation issues.
- A new Aboriginal Employment and Training Coordinator was appointed. The coordinator will develop a variety of programs involving Aboriginal people, including existing CALM staff, in tourism and recreation initiatives. This appointment was made in line with CALM's Aboriginal Employment and Training Plan, and was made possible by funding assistance from the Australian Nature Conservation Agency (formerly Australian National Parks and Wildlife Service).
- A total of 13 new contracts for service in recreation were provided to Aboriginal contractors around the State. Seven of these contracts were jointly funded by the Commonwealth and State Governments, and the other six were funded by a Western Australian Government grant. (See table page 28.)
- Two training courses in ecotourism/cultural interpretation skills were provided for 16 Aboriginal participants intending to get into the tourism industry. The courses were held at Dwellingup in the south-west and Cape Leveque, north of Broome, making attendance feasible for people from all over the State.
- Three Aboriginal ecotourism ventures are now operating in the north-west: at Purnululu, Geikie Gorge and Karijini National Parks. Negotiations are proceeding in other locations. Well-known Aboriginal tour operator Sam Lovell

has been employed by CALM to assist in Aboriginal tourism development on CALM lands; he is trainer, adviser and role-model for trainees at Geikie Gorge National Park.

- A major survey of Aboriginal artwork in Drysdale River National Park has confirmed the exceptional cultural and tourism values of this area. It has also suggested management strategies necessary to protect this park from the effects of projected increased visitor numbers.
- Aboriginal liaison in the south-west has continued as communication improves with local communities. Many cultural heritage issues are being discussed and local management issues being tackled with greater success and cooperation.
- A Departmental Aboriginal site description form has been drafted to assist field staff in the recognition, recording and protection of sites which they encounter in the course of their work.
- CALM provided supplementary funding for materials and equipment for Aboriginal LEAP projects through a special State Government grant (see below for details).

Delays with management plans at both Purnululu and Karijini National Parks this year have slowed down negotiations to establish formal cooperative arrangements with these communities. Discussions are still continuing, however, involving all groups with interests in these parks.

Advisory Committees

Community involvement in CALM's tourism and recreation programs is essential if the Department wishes to improve understanding and support for its responsibilities and functions. Some members of the community are very interested to participate in formal bodies such as advisory committees. These meet regularly to discuss community concerns and issues of interest to CALM, to assist in the exchange of information about areas being managed by CALM, and to give advice to the Department about its management proposals.

Four new advisory committees were established this year for the following areas:

- Yalgorup National Park
- Lesueur/Coomallo, Nambung/Wanagarran and Nilgen/Southern Beekeepers Reserves
- Shark Bay Marine Reserves
- Parks of the Coral Coast (including Cape Range National Park and Ningaloo Marine Park)

This brings the total number of CALM advisory committees to 17.

Volunteers

The Department's community involvement program has consolidated over the last 12 months.

The training of staff in volunteer management continued, expanding the network throughout the State. Fifty-four staff are now trained and liaising and working with volunteers, either on the ground or as Regional, District or Branch volunteer coordinators. During the period, 35 new projects were initiated. This is below normal growth but does not include paying volunteers, such as those on Landscape Expeditions, which were highly successful this year. Established projects were renewed as required and more than 600 volunteers contributed a total of 40 000 hours to the Department. The number of volunteers registered has increased to 1 260. (There is a time lag between registration as a volunteer and when actual project work takes place and is recorded, hence the difference between contributing number and registered number of volunteers.) Volunteer activities included construction of visitor facilities, provision of visitor information and interpretation, marine, forest and wildlife research, translocation of the noisy scrub-bird, care and rehabilitation of sick and injured wildlife, campground hosting, turtle tagging, park rehabilitation and surveying large fungi.

An Honorary CALM Officer program has been developed which will allow community members to assist CALM in positions of responsibility. They will manage reserves in remote locations, help in emergencies, establish new volunteer projects, and provide an Aboriginal perspective in managing CALM lands. Nominations have been called and the curricula for training of various categories of Honorary CALM Officer have been set.

CALM VOLUNTEERS

<i>Year</i>	<i>Number Registered</i>	<i>Hours Contributed</i>
<i>1990-91</i>	<i>980</i>	<i>31 000</i>
<i>1991-92</i>	<i>900</i>	<i>40 000</i>
<i>1992-93</i>	<i>1260</i>	<i>40 000</i>

Landcare and Environmental Action Program (LEAP)

LEAP in effect replaced the State-initiated Youth Conservation Corps (YCC), established earlier in 1992 and administered by the Department of Employment, Vocation, Education and Training (DEVET).

Funding of LEAP is primarily from the Commonwealth to community groups, organisations and local government authorities. Participants are young people between the ages of

15-20 years, who receive a training allowance and are given training and practical skills in sustainable land use projects. Typical projects involve land and river frontage regeneration and revegetation, fire protection, cultivation of indigenous plants, reforestation, heritage building restoration, and other cultural preservation projects.

Projects that were funded on CALM-managed lands include visitor facilities at Point Ann in Fitzgerald River National Park, construction of post and rail fences at Hills Forest, renovation of an historic homestead at Golden Valley Tree Park, visitor facilities at Yellagonga Regional Park, and a nature trail at Forrestdale Lake.

In addition, CALM provided supplementary funding for materials and equipment for three Aboriginal LEAP projects:

- the construction of a water storage tank at Mogumber Mission for the establishment of a seed nursery;
- the development of an Aboriginal bush medicine garden at Armadale Reserve;
- the protection and management of Binjareb Park near Pinjarra.

External Funding

Following completion of a study into external funding opportunities, CALM has appointed an officer to coordinate external funding initiatives, secured several important sponsorships, and developed a major long-term fundraiser.

Regulations have now been drafted for the establishment of the Nature Conservation Trust of Western Australia. The trust is likely to begin operation in 1993-94 and will raise funds to acquire land suitable for conservation and management of flora and fauna, especially endangered species.

In 1992-93, financial or in-kind support for CALM tourism and recreation projects was provided by Alcoa Australia, Ansett Australia, Ansett Air Freight, Landcorp, ICI Australia, Paddy Pallin (WA), Dulux ICI, Midland Brick, and BHP Engineering. A total of 10 sponsored projects were undertaken in the tourism and recreation program in 1992-93.

CALM also received funding from several Commonwealth agencies for a range of programs. The following table outlines the total grant funds received from the Commonwealth since 1989-90, including such programs as Save The Bush, Endangered Species Program, and the National Estates Grants Program.

COMMONWEALTH GRANTS RECEIVED BY CALM

Year	Amount \$
1989-90	2.70m
1990-91	1.70m
1991-92	2.25m
1992-93	3.06m

Three projects valued at \$0.525 million were funded in the Management for Tourism and Recreation Program in 1992-93, while the other \$2.535 million grant money funded nature conservation and wildlife projects.

ABORIGINAL EMPLOYMENT CONTRACTS 5 YEAR TOTAL 1988-89 TO 1992-93

Financial Year	Number of Contracts	Number of Employees	CALM Input \$	ANPWS \$ Input	Total Input
<i>Aboriginal Employment Contracts: Tourism & Recreation Program Component</i>					
1988-89	1	3	30 000	16 00	46 000
1989-90	1	3	10 500	4 500	15 000
1990-91	3	15	147 066	87 263	234 329
1991-92	1	3	11 129	23 917	35 046
1992-93 *	13	40.5	244 795	221 420	466 215
Sub Totals	19	64.5	443 490	353 100	796 590
% of Totals	30	27.3	51.5	42.2	46.9
<i>Aboriginal Employment Contracts: Nature Conservation Program Component</i>					
1988-89	4	14	111 700	112 500	224 200
1989-90	7	26	108 785	129 320	238 105
1990-91	7	44	101 926	46 988	148 914
1991-92	12	40	50 778	86 915	137 693
1992-93 *	14	47.5	44 113	107 350	151 463
Sub Totals	44	171.5	417 302	483 073	900 375
% of Totals	70	72.7	48.5	57.8	53.1
<i>Combined Aboriginal Employment Contracts: Tourism & Recreation and Nature Conservation Programs</i>					
1988-89	5	17	141 700	128 500	270 200
1989-90	8	29	119 285	133 820	253 105
1990-91	10	59	248 992	134 251	383 243
1991-92	13	43	61 907	110 832	172 739
1992-93 *	27	88	288 908	328 770	617 678
Totals	63	236	860 792	836 173	1 696 965

1992-93 * = Includes a specific allocation by the State Government in addition to CALM budget allocations as shown in previous years
 CALM = The Western Australian Department of Conservation and Land Management
 ANPWS = The Australian National Parks and Wildlife Service (now Australian Nature Conservation Agency)

FACTS & FIGURES

This section contains general information about CALM. For details of program and other achievements, see the program sections and the appendices.

The Department is headed by an Executive Director, who is also a member of the Lands and Forest Commission, a member of the National Parks and Nature Conservation Authority, and Chairman of the Forest Production Council.

The management philosophy adopted by the Department is one of devolution of authority and recognition, development and utilisation of the skills of staff. Given suitable ability, there is no impediment to the progress of an individual in the organisation.

The Department operates a Corporate Executive. The diverse nature of CALM functions makes this approach essential. It comprises the Executive Director, General Manager and seven Directors. Regional, branch and other specialist officers are involved according to the relevance of matters discussed.

The detailed structure of divisions, regions and branches is shown in Figure 1. The names and qualifications of the officers occupying senior managerial positions are shown in the adjacent table.

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. Figure 2 shows CALM regional boundaries and the location of regional and district offices.

Management structures are in place at nine regional, 22 district, one sub-district office and two district out-stations. Within the regions there are national park rangers at 32 other locations, and a district wildlife officer at one other.

Because of community concern for protection of the natural environment and an increasing desire to experience its values, the roles of regional managers and their staff are most important. Satisfactory experiences for the 4.6 million visitors (1991-92 figures) to CALM-managed lands and waters, drawn from interstate and overseas as well as from all over Western Australia, are largely in their hands. Regional staff are also responsible for the conservation of native flora and fauna within regional boundaries. The three forest regions in the south-west of the State have a large commitment to manage wood resources and to regenerate and protect the forests for a wide range of other values. The Goldfields region has a similar commitment to sandalwood resources, as has the South Coast region to developing economic tree crops that can be integrated into farming practice.

Regional managers have a degree of autonomy. Each is responsible for developing the region's annual works program under general direction as to priorities and for managing the budget allocation. Liaison with local groups, especially Aboriginal communities, other Government agencies and the community in general, is extensive. There are often advisory committees established with a focus on parts of CALM-managed lands and waters. The committees make input into the preparation of management plans and, after their approval, advise on management. It is mostly the regional managers and their staff who are responsible for this important interface with the local community.

SPECIALIST AND SERVICE ACTIVITIES

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

Science and Information Division provides up-to-date, scientifically sound information to uphold effective conservation and land management in Western Australia. Four 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 land and biological resources are used sustainably.

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

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

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

Wildlife Branch provides policy development, 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.

Environmental Protection Branch prepares guidelines and procedures for protection from dieback, weeds and feral animals, evaluates mining proposals, and advises on implementation and rehabilitation of CALM-managed land.

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

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

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

Recreation and Landscape Branch provides recreation and landscape management training, planning and design assistance, and plans and coordinates interpretation and visitor services.

Policy and Extension Branch develops policies and strategies for recreation, tourism and visitor services, including business development, external funding and community involvement. It coordinates policies and programs concerning Aboriginal and other special interests and visitor research and surveys.

Land Administration Branch provides administrative support in relation to all land tenure matters, including conservation reserve acquisitions and other variations to CALM-managed lands and waters. It administers the granting and renewal of various leases, licences and permits within those lands and waters.

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

Forest Management Branch develops silvicultural guidelines and practices for native forests and advises on their implementation. It services management operations of the Department with resource information and plans for forest production and disease protection, and develops associated computer systems.

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

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

Land Information Branch plans, coordinates and implements the development of CALM's integrated Geographic Information System (GIS), and provides a land-related information service, digital and analogue, within the Department and externally as required.

Information Systems Branch facilitates, coordinates and advises on information technology resources for the Department and the management of corporate information in support of the CALM management programs.

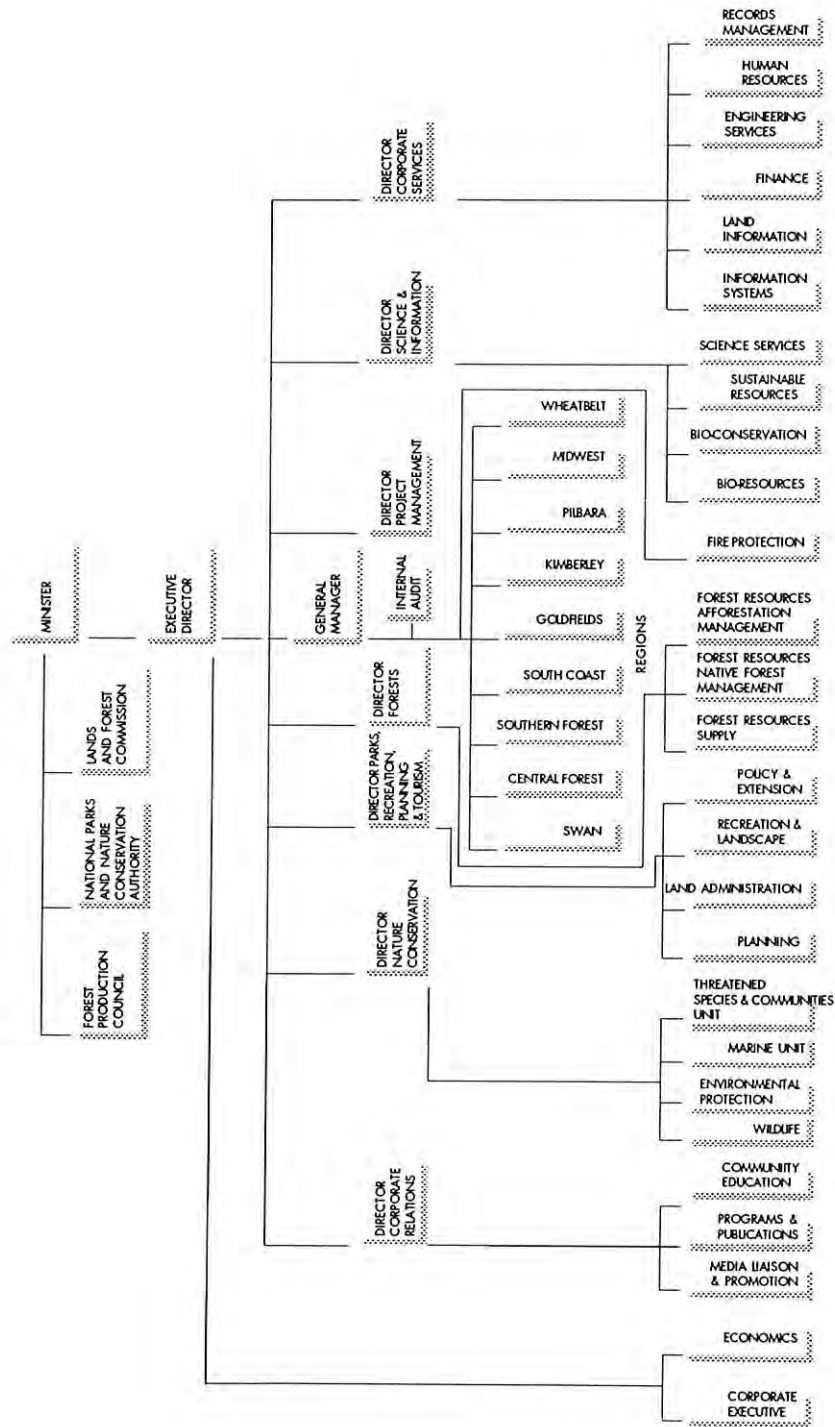
Records Management Branch controls the Department's records, associated hard copy file information, research reference and Parliamentary Question databases, and ensures the flow of information.

Human Resources Branch provides policies, advice and coordination in the areas of personnel management, labour relations, training and health, safety, and welfare.

Finance Branch maintains, operates and develops financial systems and procedures and provides users with financial training, expertise, reports and budgeting information.

Engineering Services Branch manages the Department's vehicle fleet, houses, buildings and stores, and provides professional engineering advice to support the Department's functions.

**FIGURE 1
ORGANISATIONAL STRUCTURE**



SENIOR DEPARTMENTAL OFFICERS

EXECUTIVE DIRECTOR

S R Shea PhD, MSc, BSc

GENERAL MANAGER

R J Underwood M For, BSc, Dip For

DIRECTOR, NATURE CONSERVATION

K J McNamara B Nat Res (Hons)

DIRECTOR, PARKS, RECREATION, PLANNING & TOURISM

C D Haynes BSc

DIRECTOR, FORESTS

D J Keene BSc, Dip For

DIRECTOR, SCIENCE & INFORMATION

J A Armstrong PhD, BSc Agr

DIRECTOR, PROJECT MANAGEMENT

F H McKinnell PhD, BSc, Dip For

DIRECTOR, CORPORATE SERVICES

J C Byrne PhD, MBA, FCPA

DIRECTOR, CORPORATE RELATIONS

R A Kawalilak BA

DIRECTOR, ECONOMICS

G Malajczuk PhD, MSc, MPhil, M For, BSc

REGIONAL MANAGER, SWAN

A W Walker BSc For

REGIONAL MANAGER, CENTRAL FOREST

D Spriggins BSc

REGIONAL MANAGER, SOUTHERN FOREST

K R Vear BSc For

REGIONAL MANAGER, SOUTH COAST

J R Watson PhD, BSc, ARIC

REGIONAL MANAGER, GOLDFIELDS

I G Kealley BSc

REGIONAL MANAGER, KIMBERLEY

C C Done BSc

REGIONAL MANAGER, PILBARA

C Muller BSc For, Dip For

REGIONAL MANAGER, MIDWEST

E G Leaman B App Sc

REGIONAL MANAGER, WHEATBELT

K J Wallace BSc (Hons), Dip Ed

MANAGER, WILDLIFE

Vacant

MANAGER, ENVIRONMENTAL PROTECTION

F E Batini MSc, BSc, Dip For

MANAGER, PLANNING

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

MANAGER, RECREATION AND LANDSCAPE

W G Schmidt M For, BSc

MANAGER, POLICY AND EXTENSION

J R Sharp M Ed, Dip Phys Ed

MANAGER, AFFORESTATION MANAGEMENT

S L Penfold BSc For, Dip For

MANAGER, TIMBER SUPPLY

J H Murch BSc (Hons)

MANAGER, NATIVE FOREST MANAGEMENT

F J Bradshaw BSc, Dip For

MANAGER, FIRE PROTECTION

R Sneeuwjagt MSc, BSc

PRINCIPAL OPERATIONS OFFICER

P C Kimber BSc For (Hons)

DIRECTOR, WA HERBARIUM

N G Marchant* PhD, BSc (Hons)

SENIOR PRINCIPAL RESEARCH SCIENTIST

P E Christensen PhD, BSc (Hons)

SENIOR PRINCIPAL RESEARCH SCIENTIST

A N Start* PhD, BSc

SCIENCE ADVISER

I J Abbott* DSc, PhD, BSc (Hons)

MANAGER, LAND INFORMATION

P J Bowen Grad Dip S&M, Dip Cart, MAIC

MANAGER, INFORMATION SYSTEMS

B J Kerr B Bus (Admin), Dip Comp Prog, MACS, AFAIM

MANAGER, HUMAN RESOURCES

R G Cooper BA

MANAGER, ENGINEERING SERVICES

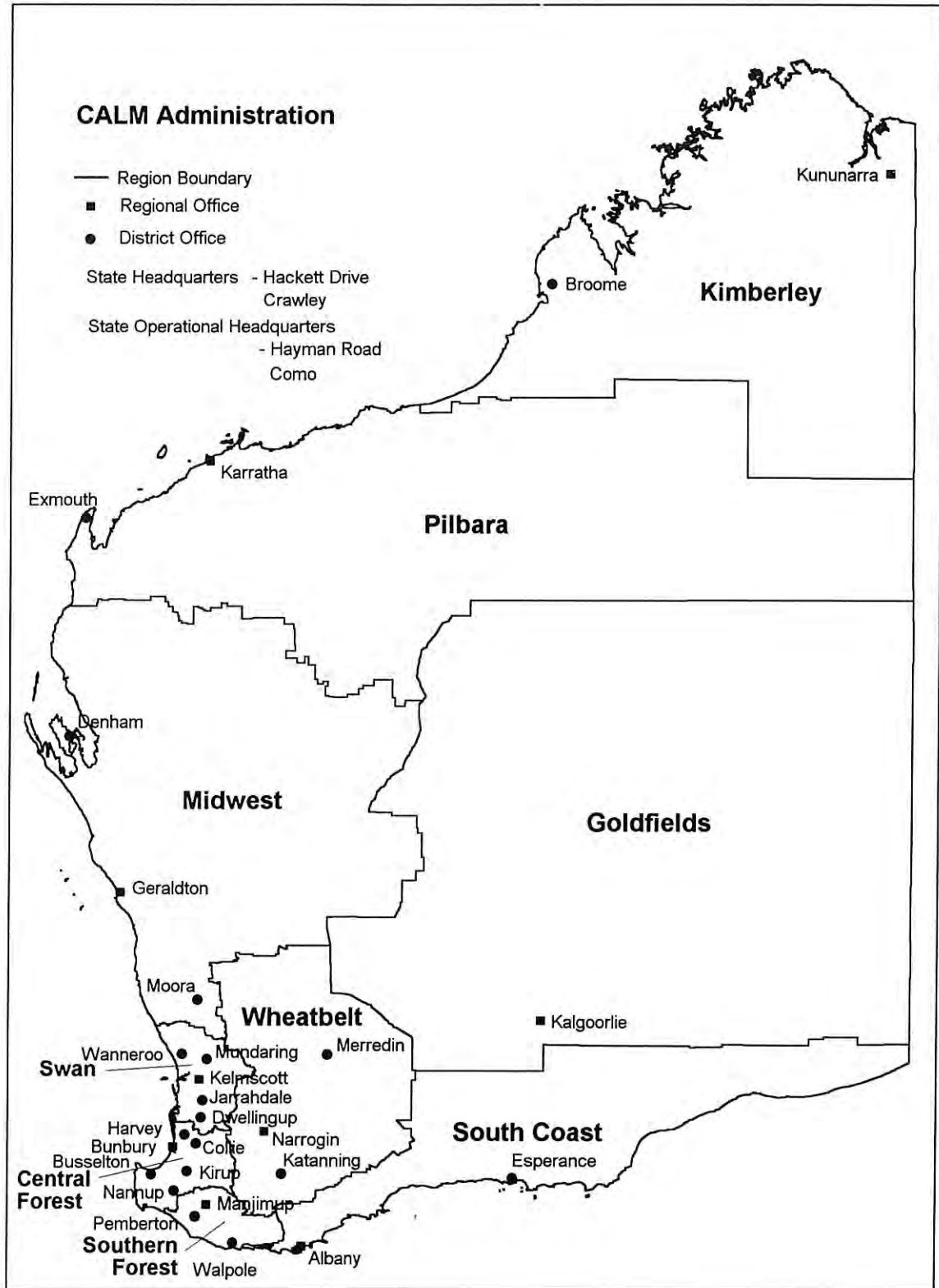
I R Darragh AIT Mech Eng MIE Aust CP Eng

MANAGER, FINANCE

I Frame* Dip Acctng

* *Acting*

**FIGURE 2
MAP OF CALM REGIONS**



LANDS AND WATERS MANAGED BY CALM

The area figures reflected in the following statements represent the gazetted or legal areas. A number of amendments have been made to previously published areas as a result of a rigorous tenure validation undertaken jointly with the Department of Land Administration. A further rationalisation of these figures will occur when correlated with tenure-calculated areas from CALM's Geographic Information System (GIS).

National Parks

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

The area of the 63 national parks as at 30 June 1993 was 5 100 883 hectares, an increase of 209 435 hectares during the year.

Regional Allocation of existing CALM Managed Lands and Waters Area Statement (in hectares) as at 30 June 1993

	Central Forest	Goldfields	Kimberley	Midwest	Pilbara	South Coast	Swan	Wheatbelt	Southern Forest	Totals
Tenure Classification										
National Park	36 952	86 397	665 876	507 811	2 661 542	825 650	35 192	12	281 452	5 100 883
Conservation Park	643			2 888	17 823		26 264			47 618
Nature Reserve	9 133	6294 546	794 292	731 460	250 586	1 572 472	50 520	1 027 144	26 840	10 756 993
Marine Park			23 250	748 735	225 584		16 391			1 013 940
Marine Nature Reserve					132 000					132 000
State Forest	656 148	781					509 505	28 066	553 826	1 748 325
Timber Reserve	42 156	28 575		26 338		4 029	20 454		20 343	141 896
5g Reserve	30 216	69 907	110 622	932	3 276	2	27 292	340	189	242 775
Miscellaneous Reserve	346	3	62	496	1 741	3 797	5 950	1	465	12 859
Freehold (Exec Dir)	24 643	<1	1	<1	1	64	3 624	<1	5 232	33 565
Leasehold (Exec Dir)		475 302	404 418							879 720
Totals	800 238	6 955 511	1 998 520	2 149 659	3 160 533	2 406 013	695 192	1 055 562	888 346	20 110 574

Note: Tenure changes proposed in CALM management plans not reflected
Source: Land Information Branch (TENIS)

Total Estate

As at 30 June 1993 the total area under CALM's care was 20 110 574 hectares. This was an increase of 218 534 hectares during 1992-93.

The terrestrial area (i.e. not including marine reserves) is 7.5 per cent of the land area of Western Australia.

The table above provides a regionalised area summation of all tenure classifications.

Three new parks were added to the national park estate during 1992-93: Gloucester National Park (875 hectares), Francois Peron National Park (52 529 hectares) and Kennedy Range National Park (141 660 hectares). Major increases to D'Entrecasteaux National Park (55 778 hectares) and a 43% increase to John Forrest National Park (1 169 hectares) were completed during the year. Other additions totalling 142 hectares were made to Beedelup, Goongarie and Leeuwin-Naturaliste National Parks. Excisions totalling 39 hectares were made from Cape Arid, Moore River and William Bay National Parks. The area of Collier Range National Park was recalculated based on improved survey information, resulting in a reduction of 42 679 hectares.

NATIONAL PARKS VESTED IN THE NATIONAL PARKS AND NATURE CONSERVATION AUTHORITY

<i>National Parks</i>	<i>Area (ha)</i>	<i>National Parks</i>	<i>Area (ha)</i>
Alexander Morrison	8 501	Millstream-Chichester	199 736
Avon Valley	4 367	Moore River	17 540
Badgingarra	13 121	<i>Mount Augustus</i>	9 169
Beedelup	1 786	<i>Mount Frankland</i>	30 830
Boorabbin	26 000	<i>Nambung</i>	18 319
Brockman	49	Neerabup	1 069
<i>Cape Arid</i>	279 382	Peak Charles	39 959
Cape Le Grand	31 578	Porongurup	2 511
Cape Range	50 581	Purnululu	208 723
Collier Range	235 162	Rudall River	1 569 459
D'Entrecasteaux	114 567	Scott	3 273
Drovers Cave	2 681	<i>Serpentine</i>	4 363
Drysdale River	448 264	<i>Shammon</i>	52 598
<i>Eucla</i>	3 342	Sir James Mitchell	497
Fitzgerald River	329 039	Stirling Range	115 661
Francois Peron	52 529	<i>Stokes</i>	9 743
Frank Hann	61 420	Tathra	4 322
Geikie Gorge	3 136	<i>Tomdirrup</i>	3 936
<i>Gloucester</i>	875	Tuart Forrest	1 785
Goongarrie	60 397	<i>Tunnel Creek</i>	91
Gooseberry Hill	33	<i>Walpole-Nornalup</i>	15 861
Greenmount	58	<i>Walyunga</i>	1 812
Hassell	1 265	Warren	2 982
<i>Hidden Valley</i>	2 068	Watheroo	44 474
John Forrest	2 677	<i>Waychinicup</i>	3 983
Kalamunda	375	<i>West Cape Howe</i>	3 517
Kalbarri	186 050	William Bay	1 735
Karijini	606 597	Windjana Gorge	2 134
Kennedy Range	141 660	Wolf Creek Crater	1 460
<i>Leeuwin-Naturaliste</i>	19 007	<i>Yalgorup</i>	12 889
<i>Lesmurdie Falls</i>	56	Yanchep	2 842
<i>Lesueur</i>	26 987		
Unofficial reserve names shown in italics		Total	5 100 883

Conservation Parks

Conservation parks have the same purposes as national parks, but they do not have the same national or international significance. They have significant local or regional value for conservation and recreation. The first conservation parks were gazetted in June 1992.

The area of conservation parks as at 30 June 1993 was 47 618 hectares representing an increase of 21 933 hectares in 1992-93.

Notable additions were the Montebello Islands, Leschenault Peninsula, Shell Beach, areas of Lane Poole Reserve, Dale, Boyagarring, and Badgingarra.

Nature Reserves

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

The area of nature reserves as at 30 June 1993 was 10 756 993 hectares. There was an increase of 108 088 hectares during the year. As mentioned earlier, amendments to areas resulting from the validation process have provided a new baseline for future calculations. Significant area anomalies have been rectified in this land category.

The three sizable additions to nature reserves were Parry's Lagoon Nature Reserve, Wyndham (36 111 hectares), Yeal Nature Reserve, Gingin (10 357 hectares), and Baladjie Lake Nature Reserve (8 916 hectares) near Bullfinch. An additional 55 897 hectares was incorporated into False Mouths of the Ord Nature Reserve, Wyndham during the year.

State Forest

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

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

The area of State forest as at 30 June 1993 was 1 748 325 hectares, a increase of 767 hectares during the year. The major addition was 1 536 hectares to State Forest No 41 in the Walpole area, while the major decrease was an 875 hectare excision from State Forest No 39 near Pemberton for the creation of Dave Evans National Park.

Timber Reserves

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

The area of timber reserves as at 30 June 1993 was 141 896 hectares, a decrease of 37 hectares during the year. The decrease was mainly due to the cancellation of a timber reserve near Manjimup, which resulted from a land exchange.

Marine Reserves

Marine parks are managed for marine 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 as at 30 June 1993 was approximately 1 013 940 hectares. The inclusion of Fraser Island (three hectares) within Ningaloo Marine Park represented the only change during the year.

The area of marine nature reserves as at 30 June 1993 was about 132 000 hectares. There was no change during the year.

Miscellaneous Reserves

The CALM Act provides for a miscellaneous category of land which covers areas that do not readily fall within any of the above categories. The purposes of reserves within this category are varied, but normally involve recreation and/or conservation.

The area of miscellaneous reserves as at 30 June 1993 was 12 859 hectares. Inclusions to this category during the year were 38 hectares adjacent to Watheroo National Park and 16 hectares near Highbury.

Other Land

The area of freehold land held by the Executive Director as at 30 June 1993 was 33 565 hectares, an increase of 1 034 hectares during the year. The major portion of this land is committed to commercial softwood forestry operations.

The area of pastoral leases held by the Executive Director as at 30 June 1993 was 879 720 hectares. There was no change during the year.

Marine Reserves Established Under the CALM Act and Managed by CALM as at 30 June 1993

<i>Marine Park</i>	<i>Reserve Number</i>	<i>Area (ha)</i>	<i>Gazetted Date</i>	<i>Management Plan Approved</i>
<i>Marmion</i>	<i>1</i>	<i>9 500</i>	<i>01-05-1987</i>	<i>30-01-1991</i>
<i>Ningaloo</i>	<i>2</i>	<i>225 564</i>	<i>03-04-1987</i>	<i>12-10-1989</i>
<i>Rowley Shoals</i>	<i>3</i>	<i>23 250</i>	<i>25-05-1990</i>	
<i>Swan Estuary</i>	<i>4</i>	<i>346</i>	<i>25-05-1990</i>	
<i>Shoalware Islands</i>	<i>5</i>	<i>6 545</i>	<i>25-05-1990</i>	
<i>Shark Bay</i>	<i>7</i>	<i>748 735</i>	<i>30-11-1990</i>	
<i>Total Area of Marine Park</i>		<i>1 013 940</i>		
<i>Marine Nature Reserve</i>				
<i>Hamelin Pool</i>	<i>6</i>	<i>132 000</i>	<i>25-05-1990</i>	
<i>Total Area of Marine Reserves</i>		<i>1 145 940</i>		

Conservation Land Acquisitions

The Department's major land acquisition for the year, in terms of land value and strategic importance, was a 230 hectare freehold property south of Cape Naturaliste. This prime uncleared area will be included in the adjacent Leeuwin-Naturaliste National Park.

Other acquisitions were as follows:

112 hectares of freehold land for addition to the proposed Coalseam Conservation Park north-east of Mingenew.

722 hectares of freehold land east of Yuna, donated to CALM to be set aside as a nature reserve.

1 186 hectares of pastoral lease (Banksia Flats Station) west of Walpole, acquired by way of land exchange for incorporation in the surrounding D'Entrecasteaux National Park.

EMERGENCY ASSISTANCE

CALM provides assistance to the community in fighting wildfires adjacent to CALM-managed lands, and helps out during emergencies (e.g. oil spills, accidents, lost people, sea and land searches, floods and cyclones) wherever the use of CALM resources and expertise are appropriate.

Sixty-six fires emanating from private property were attended by CALM suppression forces during 1992-93. There were no incidents of major oil spills or mass wildlife strandings during the year. (Single-species strandings are reported under the Nature Conservation and Wildlife program.)

CORPORATE SERVICES

CALM supports the main programs by providing corporate services; for example, the management of human resources, financial management and management of corporate information.

Human Resources

The average staffing level for the Department fell from 1385.83 in 1991-92 to 1334.47 in 1992-93.

Budgetary constraints during the year resulted in continuing rationalisation of staff deployment. Despite this, downsizing has been managed successfully and staffing structures have been modified as opportunities have arisen. Work on restructuring continues.

Preliminary planning is well advanced to select a computerised personnel information system to replace the current system that is now inadequate to meet information needs.

Career advancement within CALM has been achieved for 45 salaried staff during the year by way of promotion to advertised vacancies and reclassifications. Three appointments to Departmental positions within the Senior Executive Service were finalised.

The Department has successfully obtained funding for salaries and on-costs from a range of external (non-Consolidated Revenue Fund) sources. As at 30 June 1993, 24 persons funded in this manner were employed in different capacities for fixed periods undertaking specific projects.

The introduction of an in-house counselling service has been established with a professionally qualified departmental officer available to provide confidential advice. Referrals to outside specialists are suggested where appropriate.

Industrial Relations

Management, workplace representatives and the unions covering CALM employees formed a negotiating committee for enterprise bargaining. CALM is seeking an agreement which will provide more flexible working arrangements, a continuous improvement program and the elimination of demarcation which continues to be inefficient and a source of disputes. Considerable resources have been used to inform personnel about enterprise bargaining and to introduce consultative mechanisms.

The Australian Industrial Relations Commission approved a new classification system for employees covered by the Australian Workers Union Construction Maintenance and Services (WA Government) Award 1987 on 24 September 1992. This occurred as part of the Award restructuring process and AWU employees in CALM were classified according to their competence in May 1993. A new Fire Duty Allowance and Conditions Agreement for officers covered by the Civil Service Association was ratified by the Western Australian Industrial Relations Commission on 1 June 1993.

A new Public Service Award ratified by the Western Australian Industrial Relations Commission with effect from 2 December 1992. The Award, known as the Public Services Award 1992, supersedes and replaces the Public Service Salaries Agreement 1985 and the Public Service General Conditions of Service and Allowances Award. A number of conditions which were previously included in the Administrative Instructions now form part of the Award.

CALM has appeared in the Federal and State Industrial Relations Commissions on three occasions for hearings and on one occasion for a conference.

Training and Development

Throughout the year training staff have developed courses aimed at satisfying the need for new knowledge and skills brought about by change. These trainers have been trained in the principles and procedures of training and are developing and conducting programs to suit the Department's needs. All in-service training programs are developed according to established procedures which lead to their accreditation.

The participation from line managers and supervisors in ensuring the provision of timely and comprehensive training courses has resulted in a high level of interaction with training staff. Training needs are thus clarified prior to the development of suitable courses which have been provided at a range of locations throughout the State.

Occupational Health, Safety and Welfare

For the third successive year there has been a decrease in the number of accidents. The number of lost time accidents fell from 40 to 34, the number of medical treatment accidents fell from 117 to 111 giving a combined reduction of 8% on all claims.

The all-injury frequency rate has decreased from 67 to 65. There has, however, been an increase in the number of days lost which was 1395 (including 515 from 4 accidents in the previous year) and up from 1017 in the previous year.

Seventy-nine successful groups completed their safety targets in the IFAP/Safeway awards for 1993 thus giving the Departments overall second place against competing companies throughout.

Workers' Compensation and Rehabilitation

The annual workers' compensation premium rose from \$545 910 in 1991-92 to \$784 488 for 1992-93. New claims for the same periods totalled 216 and 191 respectively.

A positive commitment to rehabilitation of injured employees has resulted in a rehabilitation success rate of 85% for the 1992-93 year.

Land Information

Land-related information underpins CALM's land management process. Throughout 1992-93, the Land Information Branch provided a range of information services for strategic and operational purposes:

- Final validation of the CALM-managed tenure component of the Spatial Cadastral Data Base, managed by the Department of Land Administration (DOLA). The area statements for CALM tenure elsewhere in the annual report have been extracted from this database. A computerised spatial enquiry system to access this tenure data has been developed and provided to the Wheatbelt region for quality assurance.
- Publication of the first new format 1:50 000 computer-generated Land Management Series map, in partnership with DOLA.
- Extensive analysis of corporate land-related data, using Geographic Information Systems (GIS) technology. This helped to formulate CALM's Forest Strategy. Provision of this data to other agencies helped their submissions on the Strategy by allowing ready integration with their data.
- Assemblage in a GIS format of all WA areas listed on the Australian Heritage Commission Register of National Estate (Natural Areas). This was undertaken as a prerequisite to the extension of the CALM/AHC agreement and for operational planning. The information is available for whole-of-government use.
- Completion of maps depicting the purposes of each State Forest. This was a requirement of CALM Act amendments.
- Completion of investigation into airborne and satellite remote sensing for monitoring and mapping vegetation on the coastal heathlands. Findings have been reported to CALM's Dieback Disease Coordinator.
- Assemblage of a database encompassing the total coastline of WA. This information was provided to the Marine Parks and Reserves Selection Working Group.
- Review and documentation of land-related information requirements and procedures. This was needed for CALM's sharefarming operations, and serviced contractual agreements for mapping sustainable growth of sharefarm properties.
- Provision of area statements and maps for *The State of the Environment* and Red Book Status Reports.
- Initiation of integrated whole-of-government projects with the Department of Minerals and Energy (DOME) and DOLA. These will improve the consistency and reliability of land-related information provided to private and public sector clients.
- Active participation in the transfer of data and information to other member agencies of the WA Land Information System (WALIS) community.

LEGISLATION & COMPLIANCE

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 of Conservation and Land Management (CALM) directly manages national parks, conservation parks and marine parks, State forests and timber reserves, nature reserves and marine nature reserves, and any associated fauna, flora and forest produce. It is also responsible for conserving flora and fauna throughout the State.

The Department and three statutory controlling bodies were established under the *Conservation and Land Management Act 1984*. The controlling bodies are the Lands and Forest Commission, the National Parks and Nature Conservation Authority, and the Forest Production Council. All are responsible to the Minister for the Environment. The functions of these three bodies are described in separate annual reports.

MINING AND GOVERNMENT AGREEMENTS ACTS

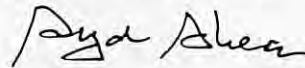
People often ask why the Conservation and Land Management Act 1984 does not protect land managed by the Department from mining or development projects. The reason is the way the State's legislation is structured. Section 4 of the CALM Act states that nothing in the Act shall take away from the operation of any Act relating to minerals or petroleum or any Agreement Act for a development project. The Agreements Acts (e.g. the Alumina Refinery Agreement Act 1961) are administered by the Minister for Resources Development. The CALM Act cannot impose restrictions on mining or on development projects subject to an Agreement Act. The requirements for mining and development projects with respect to land managed by the Department are stated in the Mining Act 1978 and the individual Agreements Acts. The Environment Protection Act 1986 also needs to be satisfied with such projects on land managed by the Department.

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

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

Statement of Compliance with Written Law

We have complied with the requirements of relevant written law, as originally enacted and as variously amended. The relevant Acts and amendments are noted in this section of the annual report. At the date of signing we are not aware of any errors or omissions.



Syd Shea
Executive Director
13 August, 1993

- The Agreements Acts with specific Departmental responsibilities include: *Alumina Refinery Agreement Act 1961*; *Alumina Refinery (Pinjarra) Agreement Act 1969*; *Alumina Refinery (Wagerup) Agreement and Acts Amendment Act 1978*; *Alumina Refinery (Worsley) Agreement Act 1973*; *Collie Coal (Griffin) Agreement Act 1979*; *Collie Coal (Western Collieries) Agreement Act 1979*; *Dardanup Pine Log Sawmill Agreement Act 1992*; *Silicon (Picton) Agreement Act 1987*; *Wesply (Dardanup) Agreement Authorisation Act 1975*; *Wood Chipping Industry Agreement Act 1969*. The *Mineral Sands (Western Titanium) Agreement Act 1975* affects the Department's management of the land involved in the project.

OTHER RELEVANT ACTS

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

- Other State Acts which have a significant impact on CALM: *Aboriginal Heritage Act 1972*; *Acts Amendment and Repeal Act (Industrial Relations) Act (No. 2) 1984*; *Aerial Spraying Control Act 1966*; *Agriculture and Related Resources Protection Act 1976*; *Agriculture Protection Board Act 1950*; *Constitution Act 1893*; *Country Areas Water Supply Act 1947*; *Dividing Fences Act 1961*; *East Perth Cemeteries Act 1932*; *Environmental Protection Act 1986*; *Equal Opportunity Act 1984*; *Explosive and Dangerous Goods Act 1961*; *Financial Administration and Audit Act 1985*; *Fisheries Act 1905*; *Government Employees Housing Authority Act 1964*; *Health Act 1911-79*; *Heritage of Western Australia Act 1990*; *Industrial Relations Act 1979*; *Land Act 1933*; *Metropolitan Water Supply, Sewerage, and Drainage Act 1909*; *Occupational Health, Safety and Welfare Act 1984*;

Occupiers' Liability Act 1985; Rights in Water and Irrigation Act 1914; Public Service Act 1978; Soil and Land Conservation Act 1945; State Employment and Skills Development Authority Act 1990; State Energy Commission Act 1979; Swan River Trust Act 1988; Timber Industry Regulations Act 1926-69; Town Planning and Development Act 1928; Workers' Compensation and Rehabilitation Act 1981.

- Commonwealth Acts relevant to the Department's activities: *Arts, Territories and Environment Legislation Amendment Act 1982; Australian Heritage Commission Act 1975; Conservation Legislation Amendment Act 1988; Endangered Species Protection Act 1992; National Parks and Wildlife Conservation Act 1975; Training Guarantee Administration Act 1990; Whale Protection Act 1980; Wildlife Protection (Regulation of Exports and Imports) Act 1982; World Heritage Properties Conservation Act 1983.*
- International agreements relevant to the Department's activities: *Agreement between the Government of the People's Republic of China and the Government of Australia for the Protection of Migratory Birds and their Environment; Agreement between the Government of Japan and the Government of Australia for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment; Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Agreement); Convention on International Trade in Endangered Species of Wild Fauna and Flora; Convention for the Protection of the World Cultural and Natural Heritage; Convention on the Conservation of Migrating Species of Wild Animals; Convention on Biological Diversity.*

CHANGES IN LEGISLATION

Regulations on Game Birds and Game Reserves Removed
As a consequence of enactment of the *Acts Amendments (Game Birds Protection) Act 1992*, regulations affecting game species and game reserves were repealed or amended. The *Wildlife Conservation Amendment Regulations 1992* were gazetted on 9 October 1992.

New Wildlife Conservation Legislation Drafted

A draft bill intended to replace the *Wildlife Conservation Act 1950* was released for public comment on 23 November 1992. When an analysis of public submissions has been completed, the Department will provide a report on the draft bill to the Hon Minister for the Environment.

Contracts for Timber Harvesting

The *Conservation and Land Management Amendment Act 1992* came into operation on 11 December 1992. Timber harvesting under contract with the Executive Director is now expressly provided for and existing contracts validated.

Licensing of Commercial Operations

Regulations were gazetted on 9 February 1993 which require commercial operators who sell any goods or services on parks and reserves to be licensed.

Management of Timber Harvesting and Protection of Forests

Comprehensive regulations for the management of timber harvesting, forest produce and control of forest disease replaced the *Forest Regulations 1957* and the *Forest Diseases Regulations 1975* when the *Forest Management Regulations 1993* were gazetted on 9 February 1993.

Sandalwood

Updated sandalwood regulations, replacing those which were formerly included in the *Forest Regulations 1957*, were gazetted on 9 February 1993.

PERFORMANCE INDICATORS

NATURE CONSERVATION AND WILDLIFE MANAGEMENT PROGRAM 1

The Department has developed new indicators this year. It will eventually be possible to comment on long-term trends.

Objective

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

Key Effectiveness Indicator

The recorded status of the State's indigenous wildlife taxa compared to previous years.

Measure

- A total of 1 804 taxa (1 602 flora and 202 fauna) were declared to be specially protected, or included on the Department's priority flora/reserve fauna lists at the end of 1992-93. This represents an increase of 6.3% in the number of taxa registered as requiring special conservation status compared to 1991-92.

Notes

A *taxon* (plural *taxa*) is a term for any classificatory group of organisms, including species, subspecies and variety. The indicator refers to the proportion of the State's wildlife taxa declared to be specially protected (rare, likely to become extinct, or otherwise in need of special protection) under the Wildlife Conservation Act 1950, or included in the Department's rare flora or reserve fauna lists, in comparison with previous years.

The Minister for the Environment can list, by Gazette Notice, those taxa of native fauna and flora which warrant special protection. Taxa may be listed as rare, likely to become extinct, or otherwise in need of special protection. CALM also prepares lists of those taxa that require special monitoring or management, through the priority flora and reserve fauna lists. In 1992-93, assessments were made of the status of the State's taxa, with the help of expert committees (Threatened Fauna Scientific Advisory Committee; Endangered Flora Consultative Committee). The gazetted list of rare flora was amended in July 1992. The priority flora and reserve fauna lists were also amended.

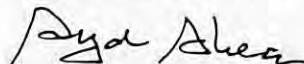
Key Efficiency Indicator

The change in recorded status of the State's flora and fauna relative to the resources used.

Measure

- Recurrent expenditure in the program totalled \$22.986 million, an increase of 11.4% over 1991-92. This increase was accompanied by an overall increase of 6.3% in the taxa requiring special conservation attention.

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 1993.



Syd Shea
Executive Director
13 August 1993

FOREST RESOURCES MANAGEMENT PROGRAM 2

Objective

To provide, regulate and sustain the supply of forest resources for the satisfaction of long-term social and economic needs in a manner that integrates the use of all resources, maximises their return to the State and minimises the impact on all forest values.

Key Effectiveness Indicator #1

All karri forest areas harvested will be regenerated.

Measure:

- 1 590 ha of karri forest was prepared for regeneration in 1992; 89% was regenerated to a satisfactory standard in that year.
- 150 ha of previously understocked areas were also successfully regenerated.

Note

Mature karri forest is harvested under a clearfelling system. Regeneration within a year or two after harvesting is achieved by means of temporarily retained seed trees, by planting with nursery raised seedlings, or by broadcast seeding. The target is to achieve a satisfactory stocking of regeneration on 95% of the area programmed for regeneration in that year.

Key Efficiency Indicator #1

The cost of managing native forests.

Measure

- Operational expenditure on native forest management was \$20.5 million, or \$12.70 per hectare, for the proposed forest estate.

Note

Expenditure for sandalwood management is not included in this program.

Key Effectiveness Indicator #2

The area of afforestation stands successfully established.

Measures

Coniferous:

A total of 1 840 hectares was established on private land under lease agreements, and 870 hectares were planted following initial harvest of existing plantations on public land. The total of 2 710 hectares exceeded the target 2 000 hectares stated in the Timber Strategy.

Broadleaved:

A total of 1 065 hectares was established under CALM's Timberbelt Sharefarm Scheme compared with a planned achievement of 1 000 hectares.

Note

The Timber Strategy is the key CALM policy document for objectively stating the areas to be established in the Afforestation part of this program. The Timberbelt Sharefarming Scheme is designed to bring investors into partnership with farmers to grow commercial trees in patterns which are complementary to agriculture, and which also deliver environmental benefits.

Key Efficiency Indicator #2

The cost of managing and establishing plantation forests.

Measures

- Operational expenditure on plantation forest management was \$17.5 million, an average of \$196 per hectare over the entire plantation estate. This expenditure includes development works on new plantation estate, designed to increase the plantation woodflow.

Key Effectiveness Indicator #3

The quantity of log timber harvested.

Measure

- The total quantity of log timber harvested was 1 381 500 m³ from native broadleaved forests and 443 100 m³ from coniferous plantation forests. This compares with the projected quantities of 1 314 000 m³ and 451 400 m³ respectively.

Note

The quantity of log timber projected to be sold during 1992-93 was based on contractual commitments, adjusted by market conditions, as defined in the Timber Strategy. The Timber Strategy and Proposals to meet Environmental Conditions on the Regional Plans and the WACAP ERMP have been under review and are subject to a report on their implementation by an appointed expert scientific and administrative committee. When this is tabled, and

the long-term annual sustainable timber resource available for allocation is determined, performance will be measured by comparing the gross bole volume harvested with the sustainable growth of the forest.

Key Efficiency Indicator #3

The cost of supplying log timber will be contained within the harvesting component of the revenue received from the sale of logs.

Measure

- The cost of supplying log timber was \$48.4 million compared with the revenue received from the harvesting operation of \$50.4 million.
- Total revenue from the sale of logs includes a harvesting component as shown above, together with royalties and stumpages which are compared with the cost of managing forests.

MANAGEMENT FOR TOURISM AND RECREATION PROGRAM 3

Objective

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

Key Effectiveness Indicator #1

The provision of appropriate recreation opportunities and services for the enjoyment of the public.

Measures

- Public access and/or facilities at 34 established recreation areas throughout the State were significantly improved during the year to provide opportunities for public enjoyment, while construction began on the development of eight new areas. (The total of available areas will be recalculated with the establishment of RECDATA - see Note.) Despite the tight economic constraints, this total of 42 new or improved recreation areas is an increase over the previous year's total of 36.
- The number of commercial tour operators registered with CALM this year was 82, a 17% increase over last year's total of 70. These operators provide approved tours and activities for visitors in conservation areas according to the terms and conditions of their licences.
- The total number of visitor activity programs provided by CALM across the State in 1992-93 was 17. Five of them

were new programs. These activity programs are provided as a service to the public to enhance the enjoyment of their visit and increase appreciation for natural and cultural values.

Notes

A **recreation area** is a place, usually with improved access and facilities, in which the public participate in leisure-time activities or experiences, e.g. camping and picnic areas. A **recreation facility** is a physical means or equipment associated with a recreational area or experience, e.g. roads, tables, bird hides, toilets.

CALM intends to establish a State-wide recreation facility database (RECDATA) in 1993-94. This system will enable accurate assessment of new and existing recreation facilities and services.

Visitor activity programs are provided where appropriate as a service to visitors to enhance their enjoyment and appreciation of natural and cultural values. They include interpretive events, outdoor education activities, cultural tourism activities, outback safety and bushcraft courses, ecology courses, LANDSCOPE Expeditions, guided walks, lectures and slide shows.

Key Effectiveness Indicator #2

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

Measures

- The total number of new community volunteer projects initiated in 1992-93 was 35. The number of volunteer hours spent on tourism and recreation programs this year was 40 000. This is the same number of hours contributed by volunteers last financial year.
- The number of participants in CALM visitor activity programs was 36 000. This includes 30 000 people who took the Geikie Gorge boat tour, led by a national park ranger. No formal record was kept of participant numbers in visitor activity programs last financial year, but recreation managers feel that there has been an overall increase in participation this year. Records will be kept in future years to enable comparative assessment of participant numbers.

Note

It is intended to introduce visitor comment cards in 1993-94 in a range of much-visited areas to allow direct evaluation of public opinion of the tourism and recreation program.

Key Effectiveness Indicator #3

The number of visits to CALM-managed areas.

Measure

- Visitor statistics indicate that the number of recorded visits to CALM lands and waters for 1992-93 was 4 304 000. This shows a small decrease of 3% from last financial year's recorded visits of 4 440 000.

Note

Data are collected only at certain times and selected sites, so the number of recorded visits does not represent the complete number of visits to all CALM-managed lands, but this total can be calculated by extrapolation from recorded figures. The total estimated number of visits in 1992-93 is 4.6 million, as compared to an estimated total of 4.7 million in 1991-92. (See the full program report earlier in this document for additional data.)

Key Efficiency Indicator #1

Cost per visit.

Measure

- It is possible to calculate an index of efficiency based on the total expenditure for the tourism and recreation program in relation to the total number of recorded visits to CALM-managed lands. The cost of providing CALM's tourism and recreation services in 1992-93 was \$4.57 per recorded visit.

Note

This figure is calculated from provisional estimates which may be amended as further data becomes available.

EMERGENCY ASSISTANCE

These performance indicators refer to fire management in CALM's three major programs (Nature Conservation and Wildlife Management, Forest Resources Management, and Management for Tourism and Recreation). They are new indicators, and the system required to quantify them will be put in place during 1993-94. The indicators are offered now in model form for information only. From next year, they will be used as indicators in the three major programs.

Key Effectiveness Indicator #1

The extent to which fuels are reduced in Priority 1 areas to a satisfactory condition in 90% of designated areas.

Measure	(% of Indicator Achieved)
1989-90	***
1990-91	***
1991-92	***
1992-93	***

The extent to which fuels are reduced in Priority 2 areas to a satisfactory condition in 75% of designated areas.

Measure	(% of Indicator Achieved)
1989-90	***
1990-91	***
1991-92	***
1992-93	***

Notes

Priority 1 areas are 'essential burn' areas. These are identified by the need to protect human life, high property values, fire-vulnerable or threatened wildlife species, or major softwood plantations. **Priority 2 areas** are 'important burn' areas, where the need for protection is somewhat less than in Priority 1 areas.

Satisfactory condition means that forest fuels available for burning will not exceed 7.6-8.5 tonnes per hectare in jarrah and 15-19 tonnes per hectare in karri. Under these forest fuel regimes, attack against the hottest part of the fire (the headfire) is possible on days when fire danger is rated as neither 'very high' nor 'extreme'. (This is the '95 percentile weather condition'. It provides a long-term basis for comparison between fire seasons. It excludes from the performance measure the 5% of days when fire weather conditions are more severe.)

The 90% and 75% fuel reduction limits provide optimum protection to the values (described above) in Priority areas.

Designated area means forest areas where prescribed burning is an allowed land use.

Key Effectiveness Indicator #2

The extent to which an effective suppression force commences fire attack, within the 95 percentile weather condition, before fires exceed one hectare in Priority 1 areas and two hectares in Priority 2 areas.

Measure	(% of Indicator Achieved)
1989-90	95
1990-91	97
1991-92	96
1992-93	98

Notes

Suppression force is defined by CALM's Redbook Despatch Tables for forest crews and equipment by Wildfire Threat Analysis suppression classes. These range from rapid (0.6-2 hrs) to poor (> 6 hrs).

The 95 percentile weather condition refers to days when fire danger is rated as neither 'very high' nor 'extreme'. It provides a long-term basis for comparison between fire

seasons. It excludes from the performance measure the 5% of days when fire weather conditions are more severe.

Performance Measures apply to Priority 1 areas only and were sourced from CALM's DBXL FIREBASE program. The program does not record initial fire size at the time of suppression. It was estimated by assuming the standard elliptical fire shape, detection and travel time to fires and relationship between Fire Danger Index and rate of spread of the headfire (the hottest part of the fire).

Key Efficiency Indicator #1

The 10-year averaged rolling cost of achieving all the burning to meet Key Effectiveness Indicator #1 will not exceed \$6.00 per hectare.

Measure	10-Year Rolling Averaged Cost (\$/hectare)
1989-90	***
1990-91	***
1991-92	***
1992-93	***

Notes

Ten-year averaged rolling costs allow comparison between fire seasons by smoothing out environmental and operational variations, such as the number of days suitable for burning and the size of the prescribed-burning program in any given year.

The total burning program must be compared because of large variations in individual burn cost. The total program comprises manual and aerial burning and special programs to meet specific nature conservation objectives.

Key Efficiency Indicator #2

The cost of meeting Key Effectiveness Indicator #2 shall not exceed the 10-year averaged rolling cost for fire detection, standby and suppression resources.

Measure	10-Year Rolling Averaged Cost (\$/hectare)
1989-90	***
1990-91	***
1991-92	***
1992-93	***



Opinion of the Auditor General

To the Parliament of Western Australia

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT PERFORMANCE INDICATORS FOR THE YEAR ENDED JUNE 30, 1993

Scope

The Financial Administration and Audit Act 1985 requires the accountable officer to prepare and submit performance indicators. Treasurer's Instruction 904 requires that key indicators of effectiveness and efficiency be reported for each program. I am required to audit these indicators and state whether in my opinion, they are relevant and appropriate having regard to their purpose and fairly represent the indicated performance.

As stated in my First General Report for 1993, when certain conditions are met, I will issue an opinion on performance indicators as required by the Act. I have reviewed the performance indicators reported by the Department of Conservation and Land Management for the year ended June 30, 1993 in accordance with the approach outlined in my First General Report for 1993.

During my review, I have assessed the relevance of the reported indicators to the objectives submitted by the Department based on my knowledge of the Department and have assessed the appropriateness of the indicators for the purpose of assisting users external to the Department to assess performance. I have also assessed whether the Department is reporting on all key objectives required by the program statements. Where I have formed the view that the indicators are relevant and appropriate, I have also examined, on a test basis, the relevant information systems to determine whether the information reported in the indicators is verifiable and free from significant bias.

Audit Assessment

It is my view that the indicators for the Tourism and Recreation Program are relevant to the stated objectives of the Department of Conservation and Land Management. The indicators are appropriate for assisting users external to the Department to assess its performance and fairly represent the indicated performance.

The indicators reported for the Nature Conservation and Wildlife Program and the Emergency Assistance Program are relevant to the stated Objectives of the Department. They are appropriate for assisting users external to the Department to assess its performance, however, as the information systems upon which the indicators have been based are still under development, I am unable to assess performance.

**Department of Conservation and Land Management
Performance Indicators for the Year Ended June 30, 1993**

Although the indicators for the Forest Resources Program are relevant to the stated objectives, they would benefit from further development before they will be appropriate for assisting external users to assess performance.

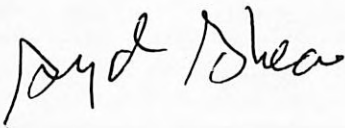
A handwritten signature in black ink, appearing to read "D D R Pearson". The signature is fluid and cursive, with the first name "D D R" being more prominent and stylized.

D D R PEARSON
AUDITOR GENERAL
September 14, 1993

FINANCIAL STATEMENTS


The accompanying financial statements of the Department of Conservation and Land Management have been prepared in compliance with the provisions of the Financial Administration and Audit Act 1985 from proper accounts and records to present fairly the financial transactions for the financial year ending 30 June 1993 and the state of affairs as at 30 June 1993.

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



ACCOUNTABLE OFFICER

13 August 1993



PRINCIPAL ACCOUNTING OFFICER

**CONSERVATION AND LAND MANAGEMENT FUND
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		ACCOUNT	1992-93	
\$	\$		\$	\$
<u>2 602 969</u>		Balance at 1 July		<u>4 484 376</u>
		This is represented by:		
	28 662	Operating Funds Account	54 248	
	28 167	Tree Planting Trust Fund Account	217 997	
	2 052 433	Capital Works Account	2 161 973	
	200 930	Nature Conservation & National Parks Trust Account	162 829	
	192 921	Specific Purpose Grants Trust Account	1 811 986	
	8 757	World Wildlife Grants Trust Account	47 087	
	50 170	Wood Utilisation Research Account	403	
	<u>40 929</u>	Goldfields Dust Abatement Account	<u>27 853</u>	
		Receipts		
	127 301 897	Operating Funds Account	130 708 947	
	1 412 490	Tree Planting Trust Fund Account	1 374 662	
	12 972 919	Capital Works Account	13 156 924	
	99 343	Nature Conservation & National Parks Trust Account	118 904	
	1 939 659	Specific Purpose Grants Trust Account	4 161 635	
	81 968	World Wildlife Grants Trust Account	63 435	
	120 233	Wood Utilisation Research Account	363 690	
	<u>93 133</u>	Goldfields Dust Abatement Account	<u>96 414</u>	
<u>144 021 642</u>				<u>150 044 611</u>
146 624 611				154 528 987
		Payments		
	127 276 311	Operating Funds Account	130 762 343	
	1 222 660	Tree Planting Trust Fund Account	931 311	
	12 863 379	Capital Works Account	14 731 432	
	137 444	Nature Conservataion & National Parks Trust Account	127 066	
	320 594	Specific Purpose Grants Trust Account	2 905 873	
	43 638	World Wildlife Grants Trust Account	68 300	
	170 000	Wood Utilisation Research Account	208 137	
	<u>106 209</u>	Goldfields Dust Abatement Account	<u>109 000</u>	
<u>142 140 235</u>				<u>149 843 462</u>
<u>4 484 376</u>		Balance at 30 June		<u>4 685 525</u>
		This is represented by:		
	54 248	Operating Funds Account	852	
	217 997	Tree Planting Trust Fund Account	661 348	
	2 161 973	Capital Works Account	587 465	
	162 829	Nature Conservation & National Parks Trust Account	154 667	
	1 811 986	Specific Purpose Grants Trust Account	3 067 748	
	47 087	World Wildlife Grants Trust Account	42 222	
	403	Wood Utilisation Research Account	155 956	
	<u>27 853</u>	Goldfields Dust Abatement Account	<u>15 267</u>	

The purpose of the Conservation and Land Management Fund is to hold moneys derived under Sections 64, 68 and 69 of the Conservation and Land Management Act 1984.

The balance of the Conservation and Land Management Fund is held at and invested by Treasury with the interest being credited to the fund.

Details of the various accounts are contained in the statements which follow.

Some variation between this and supporting statements may occur due to rounding.

**OPERATING FUNDS ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		1992-93		
Actual		Estimate	Actual	Variation
\$		\$	\$	\$
28 662	Balance at 1 July	54 000	54 248	248
RECEIPTS (2)				
118 022 910	Consolidated Revenue Fund	118 026 000	119 377 000	1 351 000
6 880 540	Contributions from Industry & Other Sources	6 144 000	7 818 999	1 674 999
532 512	Commonwealth Recoups	1 000 000	1 983 770	983 770
<u>1 459 845</u>	Income from National Parks	<u>1 500 000</u>	<u>1 529 178</u>	<u>29 178</u>
126 924 469		126 724 000	130 763 195	4 039 195
PAYMENTS (3)				
1 040 000	Corporate Services (incl. Env Appeals Committee)	1 776 000	1 445 806	(330 194)
20 623 000	Nature Conservation & Wildlife Management	21 110 000	22 430 733	1 320 733
86 530 221	Forest Resources Management	85 838 000	88 724 700	2 886 700
18 407 000	Management for Tourism & Recreation	17 800 000	18 051 626	251 626
<u>270 000</u>	Emergency Assistance	<u>200 000</u>	<u>109 478</u>	<u>(90 522)</u>
126 870 221		126 724 000	130 762 343	4 038 343
54 248	Balance at 30 June	-	852	852

**TREE PLANTING TRUST FUND ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		1992-93		
Actual		Estimate	Actual	Variation
\$		\$	\$	\$
28 167	Balance at 1 July	218 000	217 997	(3)
RECEIPTS (2)				
1 215 000	Consolidated Revenue Fund	1 239 000	1 239 000	-
<u>197 490</u>	Other Income	-	<u>135 662</u>	<u>135 662</u>
1 440 657		1 457 000	1 592 659	135 659
PAYMENTS (3)				
<u>1 222 660</u>	Forest Resources Management	<u>1 457 000</u>	<u>931 311</u>	<u>(525 689)</u>
217 997	Balance at 30 June	-	661 348	661 348

**CAPITAL WORKS ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92 Actual \$		Estimate \$	1992-93 Actual \$	Variation
2 052 433	Balance at 1 July	2 162 000	2 161 973	(27)
RECEIPTS				
12 000 000	Borrowings (4.1)	10 500 000	10 500 000	-
62 900	Contribution Main Roads Dept	-	-	-
<u>910 019</u>	Internal Funds (4.2)	<u>2 518 000</u>	<u>2 656 924</u>	<u>138 924</u>
15 025 352		15 180 000	15 318 897	138 897
PAYMENTS (4.3)				
Forest Resources Management Program-				
Hardwood Forests-				
613 878	Access Roads	760 000	318 122	(441 878)
2 331 405	Regeneration	2 000 000	2 605 021	605 021
1 628 163	Sharefarming Scheme	1 400 000	1 620 693	220 693
Softwood Forests-				
71 000	Access Roads	40 000	14 402	(25 598)
3 809 417	Establishment & Tending	5 000 000	4 664 907	(335 093)
121 044	Land Acquisition	-	-	-
2 706 983	Sharefarming Scheme	2 800 000	2 280 578	(519 422)
Management for Tourism & Recreation Program-				
-	Improvement to Tourism Facilities	1 700 000	1 605 672	(94 328)
709 403	National Parks Development & Improvements	-	-	-
Nature Conservation & Wildlife Management Program-				
577 236	Conservation Land Acquisition	840 000	729 374	(110 626)
<u>294 850</u>	Plant & Equipment	<u>640 000</u>	<u>892 663</u>	<u>252 663</u>
12 863 379		15 180 000	14 731 432	(448 568)
2 161 973	Balance at 30 June	-	587 465	587 465

NATURE CONSERVATION AND NATIONAL PARKS TRUST ACCOUNT
 STATEMENT OF RECEIPTS AND PAYMENTS
 FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993

1991-92		1992-93
\$		\$
200 930	Balance at 1 July	162 829
RECEIPTS		
76 780	Flora Licenses	86 759
433	Gifts, Devises, Bequests and Donations	25 556
<u>22 130</u>	Interest	<u>6 589</u>
300 273		281 733
PAYMENTS		
1 750	Cape Barren Goose Survey	-
28 481	Flora Industry	-
5 516	Sea-lions and Fur-seals	1 382
22 500	Swan Coastal Plain Wetlands Study	-
21 982	Duck Counting	-
8 750	Flora Study - Banksia hookeriana	-
24 479	Rare Flora Database	28 640
593	Western Mouse Phase 2	6 706
12 250	South Coast Banksia Study	-
9 143	Ground Parrots	-
2 000	Herbicide Research	-
-	Flora Study - Verticordia Brownii	1 850
-	Dieback - Wildflower Industry Study	35 399
-	Moora Flora Survey and Management Plan	8 527
-	Develop Vertebrate Life History	1 200
-	Sandhill Dunhart	3 850
-	Eastern Goldfields Biological Survey	4 000
-	Fox Impact Program	1 649
-	Threatened and Priority Flora Management Program	5 998
-	Waterbirds South Coast Wetlands	4 211
-	Frogs in South Coast Wetlands	3 000
-	Herbarium Database	6 840
-	Noisy Scrub Bird	4 714
-	Three Banksia Species	2 500
-	Ord River Crocodile Nesting Survey	600
-	Crocodile Survey - Consultant	<u>6 000</u>
<u>137 444</u>		127 066
162 829	Balance at 30 June	154 667

Section 68(1) of the Conservation and Land Management Act 1984 established the Nature Conservation and National Parks Trust Account within the Conservation and Land Management Fund.

The account is credited with moneys derived under the Wildlife Conservation Act 1950, gifts, devises, bequests and donations, and income from investments. The moneys may be applied for the purpose of scientific research relating to flora and fauna.

**SPECIFIC PURPOSE GRANTS TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

PROJECT	OPENING BALANCE	RECEIPTS	PAYMENTS	CLOSING BALANCE
	\$	\$	\$	\$
Commonwealth Projects - ANPWS	859 842	2 326 579	2 062 829	1 123 592
Management Plans	29 084	36 128	28 242	36 970
Donations	21 753	18 874	5 440	35 187
Flora and Fauna Conservation	559 340	650 887	376 053	834 174
Other	341 967	1 129 167	433 309	1 037 825
GRAND TOTAL	1 811 986	4 161 635	2 905 873	3 067 748

The purpose of this account is to hold funds given to CALM for specific purposes.

Moneys for Management plans include contributions from companies in the area affected by the Management Plan.

Donation boxes have been placed in some National Parks and recreation areas. Moneys received are spent in the National Park or recreation area in which the donation box is located.

The Australian National Parks and Wildlife Service (ANPWS) provide funds for research into endangered flora and fauna. This research is aimed at preventing the extinction of the species and its eventual recovery to sustainable numbers.

The Flora and Fauna Conservation item accounts for funds received for projects similar to those assisted by the Australian National Parks and Wildlife Service.

Other funds are provided from various sources to recoup CALM for work done on behalf of these interests. The organisation provides funds in advance which are invested until used.

All funds in this account are invested by Treasury with the proceeds from the investments credited to the various projects as the investments mature.

The opening balances of Flora and Fauna Conservation and Other differ from the closing balance figures published in the 1991-1992 Annual Report due to incorrect allocations during 1991-92 which were corrected subsequently to the Annual Report's publication.

**WORLD WILDLIFE GRANTS TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

PROJECT	OPENING BALANCE	RECEIPTS	PAYMENTS	CLOSING BALANCE
	\$	\$	\$	\$
Chuditch	26 274	41 086	29 186	38 174
Fox Control	76	9	-	85
Fire and Invertebrates	15 252	769	12 273	3 748
Western Mouse	272	21 314	21 314	272
Nullarbor Quail Thrush	5 106	257	5 527	(164)
Other	<u>107</u>	<u>-</u>	<u>-</u>	<u>107</u>
GRAND TOTAL	47 087	63 435	68 300	42 222

The purpose of this account is to hold funds granted to CALM for the wildlife research purposes by the World Wide Fund for Nature.

The balance of this account is invested by Treasury with the interest being credited to the trust account.

**WOOD UTILISATION RESEARCH CENTRE TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

<u>1991-92</u>		<u>1992-93</u>	
\$		\$	
50 170	Balance at 1 July	403	
RECEIPTS			
39 094	Insurance Recoup	-	
-	Innovative Marketing Board	10 738	
72 340	Proceeds from Sales	345 959	
<u>8 799</u>	Interest	<u>6 993</u>	
170 403		364 093	
PAYMENTS			
<u>170 000</u>	Research to improve the efficiency of timber utilization in Western Australia	<u>208 137</u>	
170 000		208 137	
403	Balance at 30 June	155 956	

The purpose of this account is to hold funds for the Wood Utilisation Research Centre. The centre at Harvey researches the commercial utilisation of forest regrowth which would otherwise be unusable.

The balance of this account is invested by Treasury with the interest being credited to the trust account.

**GOLDFIELDS DUST ABATEMENT
COMMITTEE TRUST ACCOUNT
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		1992-93
\$		\$
40 929	Balance at 1 July	27 853
RECEIPTS		
20 000	City of Kalgoorlie-Boulder Grant	22 575
21 500	Chamber of Mines Grant	23 000
46 000	CALM Grant	46 000
5 633	Interest	4 148
<u>-</u>	Other	<u>691</u>
134 062		124 267
PAYMENTS		
32 889	Salaries	32 073
30 783	Wages and Plant	24 747
4 000	Administration	30 175
7 790	Vehicle Running	4 993
6 353	Consumables	-
6 414	Regeneration Zones	1 289
9 105	Tree Planting and Rehabilitation	5 571
270	Public Education	7 242
-	Mileage Allowance	2 090
<u>8 605</u>	Fencing	<u>820</u>
106 209		109 000
27 853	Balance at 30 June	15 267

The Goldfields Dust Abatement Committee is a community based committee established in Kalgoorlie-Boulder for the purpose of minimising dust nuisance prevalent in the Goldfields.

The balance of the account is invested by Treasury with the interest being credited to the trust account.

**CONSOLIDATED REVENUE FUND
REVENUE COLLECTIONS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		Estimate	1992-93	Variation
Actual		\$	Actual	\$
\$			\$	
TERRITORIAL (5)				
14 565 293	Log Royalties	18 000 000	16 176 345	(1 823 655)
8 067 753	Chip Log Royalties	8 140 000	8 789 974	649 974
5 394 683	Sandalwood	5 000 000	6 235 743	1 235 743
<u>848 548</u>	Other	<u>600 000</u>	<u>749 404</u>	<u>149 404</u>
28 876 277		31 740 000	31 951 466	211 466
DEPARTMENTAL (5)				
15 216 731	Pine Conversion Sales	16 407 000	18 221 476	1 814 476
39 802 525	Hardwood Conversion Sales	44 919 000	43 095 873	(1 823 127)
<u>706 332</u>	Other	<u>600 000</u>	<u>742 948</u>	<u>142 948</u>
55 725 588		61 926 000	62 060 297	134 297
<u>84 601 865</u>	GRAND TOTAL	<u>93 666 000</u>	<u>94 011 763</u>	<u>345 763</u>

**PRIVATE TRUST FUND ACCOUNT
KEYNES FORESTRY PRIZE
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		1992-93
\$		\$
498	Balance at 1 July	540
RECEIPTS		
<u>42</u>	Interest	<u>31</u>
540		
PAYMENTS		
-		-
<u>540</u>	Balance at 30 June	<u>571</u>

The purpose of this trust fund is to provide an award for the most outstanding achievement by a student at the Department's Cadet School. Since the Cadet School closed, no decision has

been made yet on how the money is to be spent. The balance of this trust fund is held at and invested by Treasury with the interest being credited to the trust fund.

**PRIVATE TRUST FUND ACCOUNT
C.E. LANE POOLE MEMORIAL TRUST
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		1992-93
\$		\$
8 903	Balance at 1 July	10 620
RECEIPTS		
1 198	Donations	4 350
<u>680</u>	Interest	<u>511</u>
10 781		15 481
PAYMENTS		
161	Printing and Associated Costs	-
<u>-</u>	Travel Costs Associated with Award	<u>8 134</u>
161		8 134
10 620	Balance at 30 June	7 347

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

The balance of this trust fund is held at and invested by Treasury with the interest being credited to the trust fund.

**PRIVATE TRUST FUND ACCOUNT
RESEARCH CO-ORDINATING COMMITTEE
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		1992-93
\$		\$
14 033	Balance at 1 July	15 401
	RECEIPTS	
<u>1 368</u>	Interest	<u>905</u>
15 401		16 306
	PAYMENTS	
<u>-</u>		<u>-</u>
15 401	Balance at 30 June	16 306

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

The balance of this trust fund is held at and invested by Treasury with the interest being credited to the trust fund.

**PRIVATE TRUST FUND ACCOUNT
DIEBACK RESEARCH TRUST FUND
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		1992-93
\$		\$
19 898	Balance at 1 July	21 838
	RECEIPTS	
<u>1 940</u>	Interest	<u>1 283</u>
21 838		23 121
	PAYMENTS	
<u>-</u>		<u>-</u>
21 838	Balance at 30 June	23 121

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

The balance of this trust fund is held at and invested by Treasury with the interest being credited to the trust fund.

**PRIVATE TRUST FUND ACCOUNT
CONTRACTORS' DEPOSITS
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		1992-93
\$		\$
528 405	Balance at 1 July	660 596
RECEIPTS		
274 682	Deposits Lodged During Year	498 093
<u>53 207</u>	Interest	<u>48 038</u>
856 294		1 206 727
PAYMENTS		
<u>195 698</u>	Deposits Refunded During Year	<u>137 206</u>
660 596	Balance at 30 June	1 069 521

The purpose of this trust fund is to hold deposits lodged as security by contractors for the due and proper performance and completion of contractual obligations.

The balance of this trust fund is held at and invested by Treasury with the interest being credited to the trust fund.

**PRIVATE TRUST FUND ACCOUNT
CALM - PAYROLL DEDUCTIONS
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		1992-93
\$		\$
201 213	Balance at 1 July	31 292
RECEIPTS		
<u>12 764 915</u>	Payroll deductions	<u>12 563 660</u>
12 966 128		12 594 952
PAYMENTS		
<u>12 934 836</u>	Payments to relevant organisations	<u>12 366 257</u>
31 292	Balance at 30 June	228 695

The purpose of this trust fund is to hold all income tax deductions and other payroll deductions from salaries and wages until the end of the month in which the deductions were made. The deductions are paid to the Australian Taxation Office and insurance companies, medical benefit

funds and other relevant organisations at the beginning of the following month.

The balance of this trust fund is held at and invested by Treasury with the interest being credited to the Government of Western Australia.

**PRIVATE TRUST FUND ACCOUNT
WITHHOLDING TAX - CONTRACTORS'
PRESCRIBED PAYMENTS
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		1992-93
\$		\$
11 982	Balance at 1 July	1 022
RECEIPTS		
<u>12 685</u>	Withholding tax	<u>2 908</u>
24 667		3 930
PAYMENTS		
<u>23 645</u>	Payments to Australian Taxation Office	<u>3 153</u>
1 022	Balance at 30 June	777

The purpose of this trust fund is to hold moneys deducted from contractors prescribed payments in accordance with the Income Tax Assessment Act 1936.

The deductions are paid to the Australian Taxation Office at

the beginning of the month following the month in which deductions were made.

The balance of this trust fund is held at and invested by Treasury with the interest being credited to the Government of Western Australia.

**COMMONWEALTH GRANTS AND ADVANCES
WILDLIFE RESEARCH AND DEVELOPMENT
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE FINANCIAL YEAR ENDED 30 JUNE 1993**

1991-92		1992-93
\$		\$
-	Balance at 1 July	-
RECEIPTS		
983 265	Grants received from Australian National Parks and Wildlife Service	1 622 078
PAYMENTS		
983 265	Transferred to Specific Purpose Grants Trust Account	1 622 078
-	Balance at 30 June	-

The purpose of this account is to hold funds received from the Commonwealth pending transfer to CALM.

NOTES TO THE FINANCIAL STATEMENTS

1 ACCOUNTING POLICIES

The financial statements have been prepared on a cash basis. Only collections received and payments made are included. Payments include a net payment of \$188 000 to the Treasury Departmental Receipts in Suspense Account for accrued salaries and wages.

The statutory requirements of the Financial Administration and Audit Act 1985 underlie the presentation of these Financial Statements.

Receipts are credited to the Consolidated Revenue Fund in respect of Territorial Revenue obtained from royalties and Departmental Revenue received as a result of the department's commercial activities.

Payments are charged against Consolidated Revenue Fund Division 45 items 127 and 128.

2 RECEIPTS

The Consolidated Revenue Fund Appropriation for 1992-93 was overdrawn by \$1 351 000 due primarily to increased expenditure on Commercial Timber Logging (\$950 000) and unbudgeted wildfire suppression (\$850 000). Savings in other areas of departmental operations partly offset the excesses.

All expenditure in Timber Logging generates revenue which exceeds expenditure.

Wildfire suppression activity is not predictable and depends on fire conditions in the fire season. The appropriation does not include full provision for wildfire suppression, which has been funded by an excess each year.

The Contributions from Industry and Other Sources in 1992-93 comprise:

	\$
Recoupable Work	4 389 234
MRD Road Grants	1 093 416
Contract Salaries	533 702
Saleable Publications	488 614
Nursery Sales	1 140 048
Interest	<u>173 985</u>
	7 818 999

With the exception of saleable publications and interest, these moneys are for works of a recoupable nature. Requests are not always known at the time the budget is framed and as a consequence variation can occur between the estimate and the actual amount received.

Commonwealth Recoups are grants provided by the Commonwealth Government for wildlife and other research projects. Grants are for specific purposes and do not bear any comparison in dollar terms to grants in the previous year. As the grants are received on a recoup basis they do not affect the draw of moneys from the Consolidated Revenue Fund.

3 PAYMENTS

3.1 Payments Charged to Programs, Sub-Programs and Standard Groups

The content and some titles of programs were reviewed and altered with effect from 1 July 1992. Payments for 1991-92 (rounded) are for the revised program content and vary from payments reported in the 1991-92 financial statements.

The Forest Resources Management Program is accounted for in both the Operating Funds Account and Tree Planting Trust Fund Account. The following tables combine the relevant parts of the two accounts.

The Nature Conservation and Wildlife Management Program and Forest Resources Management Program each have sub-programs. Estimates and payments charged to sub-programs in 1992-93 were:

	Estimate		Actual	
	\$	\$	\$	\$
Nature Conservation and Wildlife Management		21 110 000		22 430 733
Flora and Fauna	10 110 000		13 409 423	
Ecosystem Management	11 000 000		9 021 310	
Forest Resources Management		87 295 000		89 656 011
Forest Management	38 000 000		41 194 785	
Timber Supply	49 295 000		48 461 226	

3.2 Payments

CALM receives a single line CRF appropriation. The estimates against the programs are indicators only as to how the appropriation is expected to be expended, bearing in mind that the estimates were prepared based on indications some 15-18 months prior to 30 June 1993. The single line appropriation enables the Department to rearrange expenditure priorities to meet changes in priorities during the year.

As mentioned in Note (2) the CRF Appropriation was overdrawn due to increased activity in Commercial Timber Logging and unbudgeted expenditure on Wildfire Suppression.

The saving of \$330 194 in the Corporate Services Program is due primarily to the Environmental Appeals Committee not being established in the time frame expected.

During December, CALM was directed by the then Minister for the Environment to transfer the following amounts:

- \$147 000 to the Swan River Trust
- \$141 820 to the Waterways Commission.

Significant variations between actual expenditure in 1992-93 over 1991-92:

a) Corporate Services

The previous government's Social Advantage Package (\$300 000) and Environmental Appeals Committee (\$99 000) expenditure accounted for the major part of this increase.

b) Nature Conservation and Wildlife Management

As mentioned in Note (2) above CALM received grants from the Commonwealth Government and other sources for wildlife and other research projects. The increase in expenditure over 1991-92 was a direct result of the Department obtaining more funds for their projects. The increase in funds received is also reflected in the Contributions from Industry and Other Sources line under Receipts.

4. CAPITAL WORKS

4.1 Loan Liability

Loan liability at 30 June 1993 was \$121 690 737. The composition is as shown in the table below:

	PRINCIPAL 30 JUNE 1992	NEW BORROWINGS	PRINCIPAL REPAID 1992-93	PRINCIPAL 30 JUNE 1993
	\$	\$	\$	\$
WA Treasury Corporation loans	106 199 019	10 500 000	3 138 565	113 560 454
Loans taken over by WATC	572 450	-	119 113	453 337
Other borrowings guaranteed by Treasurer	63 727	-	33 265	30 462
Softwood Forestry Agreements 1966-1983	<u>7 889 031</u>	<u>—</u>	<u>242 547</u>	<u>7 646 484</u>
	114 724 227	10 500 000	3 533 490	121 690 737

Interest payments of \$14 026 188 and the principal repayments shown have been included in the Operating Funds Account statement.

The level of loan liability is of concern. The Department is unable, under existing legislation, to use proceeds from the sale of timber to extinguish loans incurred to establish and tend the forest resource.

4.2 Internal Funds

Internal funds in 1992-93 comprise:

Mining Compensation	3 034 624
Cash Order Movement and Other	(409 622)
Interest	<u>31 922</u>
	2 656 924

4.3 Capital Works Program

The 1992-93 Capital Works Program was prepared according to the Program Management format for the first time.

As a result of the lack of historical information the estimates were framed on the best information available at the time. Indications are that the majority of the variation from the estimates can be attributed to this lack of historical information. Overall variations are not material.

Expenditure for 1992-93 was \$1 868 053 greater than 1991-92 due mainly to increased expenditure on tourist facilities as a result of increasing numbers of people recreating in the natural environment and the high level of public concern and desire to become better informed on environmental issues. The significant increase in expenditure on Softwood Establishment and Tending was a result of CALM's increased activity on the second rotation of softwood plantations.

The increase was from approximately 300 hectares in 1991-92 to approximately 1 000 hectares in 1992-93.

5. CRF REVENUE

In December 1990 the government granted timber companies extra time to pay their accounts. The companies returned to 30 day trading from 1 January 1993.

This return to 30 day trading was responsible for most of the \$9.4 million increase in revenue over 1991-92.

The balance was due to increased activity in the timber industry.

Significant variations between actual revenues and budget estimates for 1992-93:

a) Log Royalties

At the time the budget was framed it was anticipated that demand from the building industry would increase earlier than it did. The delay in the increase in demand resulted in the out-turn being lower than expected.

b) Sandalwood

The market for Western Australian sandalwood improved considerably during the year due to restrictions imposed by the Indian Government on the export of Indian sandalwood.

c) Pine Conversion Sales

An increased demand for pine products particularly in particle board and industrial wood contributed to this excess.

6. SUPPLEMENTARY FINANCIAL INFORMATION

- Losses of public moneys and public or other property:

	1991-1992		1992-1993	
	\$	\$	\$	\$
Irrecoverable amounts	1 163		25 957	
Other	<u>482</u>	1 645	<u>5 186</u>	31 143
General (includes thefts reported to Police, lost property and stock-taking deficiencies)		<u>4 818</u>		<u>19 637</u>
		6 463		50 780

- Public and other property, revenue and other debts due to the State written off in accordance with Section 45 of the Financial Administration and Audit Act 1985.

	1991-92	1992-93
	\$	\$
Approved by the Executive Director	52 201	59 780
Approved by the Hon. Minister	-	-

- Revenue due but not collected at 30 June 1993 was \$7 619 655. There is a reasonable prospect of full recovery.
- CRF expenditure claims on hand but unpaid at 30 June 1993 amounted to \$630 260.
- CRF expenditure commitments for which invoices had not been received by 30 June 1993 were approximately \$56 000.
- Capital expenditure claims on hand but unpaid at 30 June 1993 were \$70 324.
- Capital expenditure commitments for which invoices had not been received by 30 June 1993 were approximately \$103 000.
- A Receipts in Suspense Account is kept to hold moneys received pending identification of the purposes for which those moneys were received or identification of where the moneys are to be credited or paid pursuant to Section 9(2)(c)(iv) of the Financial Administration and Audit Act 1985. The balance of the Receipts in Suspense Account at the end of the financial year was \$460 913.

The balance of the Receipts in Suspense Account is held at and invested by Treasury with the interest being credited to the Government of Western Australia.

- Under the Financial Administration and Audit Act the Department is required to report on all trust accounts under its control.

The following trust accounts had a NIL balance at 30 June 1993 and had no activity during the financial year:

Montebello Islands Conservation Park Program.
Shark Bay World Heritage Assistance Program.

These trust accounts were created in 1991-92 and the trust statements amended during 1992-93. No further activity is expected and the accounts will be closed during 1993-94.

7. EXPENDITURE BY STANDARD GROUPS

STANDARD GROUP	Estimate \$'000	Actual \$'000
Salaries, Wages and Allowances	43 000	42 241
Other Staffing Costs	4 480	4 808
Communications	1 580	1 402
Services and Contracts	53 319	54 447
Consumable Supplies	6 700	7 752
Maintenance of Assets	1 000	1 840
Purchase of Assets	700	1 185
Grants, Subsidies and Transfer Payments	17 402	18 019
TOTAL GROSS EXPENDITURE	128 181	131 694

8. REMUNERATION OF SENIOR OFFICERS

The total of fees, salaries and other benefits received or due and receivable for the financial year by Senior Offices of CALM:

	1991-92	1992-93
	856 152	806 200

The number of Senior Officers whose total of fees, salaries and other benefits received or due and receivable for the financial year, falls within the following bands.

60 000 - 70 000	4	4
70 000 - 80 000	5	4
80 000 - 90 000	1	1
90 000 - 100 000	NIL	NIL
100 000 - 110 000	NIL	NIL
110 000 - 120 000	1	1

9. RETIREMENT BENEFITS

1991-92

1992-93

In respect of Senior Officers the following amounts were paid for the financial year.

Contributions to Government Employees Superannuation Act Scheme

83 640

83 346

At present CALM is not liable for past service liability.

Redundancy Payments

80 734

NIL

At 30 June 1993 12 employees of the Department were members of the Superannuation and Family Benefits Act Scheme.

No Senior Officers were members of the Superannuation and Family Benefits Act Scheme.

10. REMUNERATION OF AUDITOR

No fees were payable to the Office of the Auditor General for the financial year.

**CONSERVATION AND LAND MANAGEMENT
TRUST STATEMENT NO. 3**

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

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

RECEIPTS Such moneys as are received by the Department of Conservation and Land Management being those moneys prescribed by section 64, 68 and 69 of the Act shall be paid into and placed to the credit of the Account.

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

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

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

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

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

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

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

Approved


EXECUTIVE DIRECTOR


ASSISTANT UNDER TREASURER
(ACCOUNTING)

DATE: 2 / 4 / 93

DATE: 21 / 4 / 93

**CONSERVATION AND LAND MANAGEMENT
TRUST STATEMENT NO. 14**

NAME An account called the Wildlife Research and Development Program shall be maintained as a Commonwealth Grants and Advances Account at the Treasury.

PURPOSE To hold funds received from the Commonwealth for the Wildlife Research and Development Program pending transfer to the Department of Conservation and Land Management.

RECEIPTS Such moneys as are received by Treasury, on behalf of the State, for the purpose of the Account, shall be paid into and placed to the credit of the Account.

PAYMENTS The funds in the Account, as received, shall be transferred to the operating Trust Fund account of Conservation and Land Management established under the Conservation and Land Management Act.

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

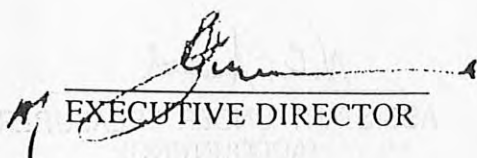
ACCOUNTING RECORDS There shall be maintained by the Executive Director a detailed record of transactions processed through the Account, together with such other accounting records and procedures as prescribed in the accounting manual.

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

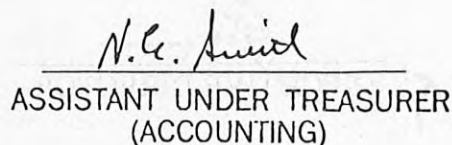
INVESTMENT OF FUNDS Moneys standing to the credit of the Account may be invested in accordance with Section 38 of the Financial Administration and Audit Act.

DISPOSAL OF FUNDS ON CESSATION Any balance standing to the credit of the Account upon cessation of operations shall be dealt with in such a manner as prescribed by the Commonwealth.

I have examined and approve of the provisions of this Trust Statement.


EXECUTIVE DIRECTOR

DATE: 10/12/92


ASSISTANT UNDER TREASURER
(ACCOUNTING)

DATE: 27/1/93

**CONSERVATION AND LAND MANAGEMENT
TRUST STATEMENT NO. 15**

NAME An account called the Montebello Islands Conservation Park Program shall be maintained as a Commonwealth Grants and Advances Account at the Treasury.

PURPOSE To hold funds received from the Commonwealth for the Montebello Islands Conservation Park Program pending transfer to the Department of Conservation and Land Management.

RECEIPTS Such moneys as are received by Treasury, on behalf of the State, for the purpose of the Account, shall be paid into and placed to the credit of the Account.

PAYMENTS The funds in the Account, as received, shall be transferred to the operating Trust Fund account of Conservation and Land Management established under the Conservation and Land Management Act.

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

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

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

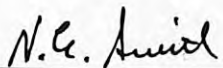
INVESTMENT OF FUNDS Moneys standing to the credit of the Account may be invested in accordance with Section 38 of the Financial Administration and Audit

DISPOSAL OF FUNDS ON CESSATION Any balance standing to the credit of the Account upon cessation of operations shall be dealt with in such a manner as prescribed by the Commonwealth.

I have examined and approve of the provisions of this Trust Statement.


EXECUTIVE DIRECTOR

DATE: 20/1/92


ASSISTANT UNDER TREASURER
(ACCOUNTING)

DATE: 27/1/93

**CONSERVATION AND LAND MANAGEMENT
TRUST STATEMENT NO. 16**

NAME An account called the Shark Bay World Heritage Assistance Program shall be maintained as a Commonwealth Grants and Advances Account at the Treasury.

PURPOSE To hold funds received from the Commonwealth for the Shark Bay World Heritage Assistance Program pending transfer to the Department of Conservation and Land Management.

RECEIPTS Such moneys as are received by Treasury, on behalf of the State, for the purpose of the Account, shall be paid into and placed to the credit of the Account.

PAYMENTS The funds in the Account, as received, shall be transferred to the operating Trust Fund account of Conservation and Land Management established under the Conservation and Land Management Act.

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

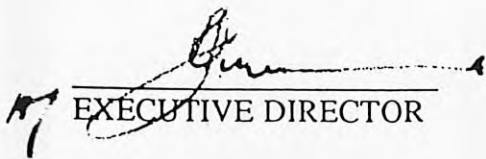
ACCOUNTING RECORDS There shall be maintained by the Executive Director a detailed record of transactions processed through the Account, together with such other accounting records and procedures as prescribed in the accounting manual.

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

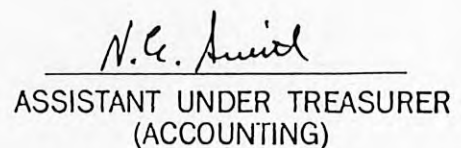
INVESTMENT OF FUNDS Moneys standing to the credit of the Account may be invested in accordance with Section 38 of the Financial Administration and Audit Act.

DISPOSAL OF FUNDS ON CESSATION Any balance standing to the credit of the Account upon cessation of operations shall be dealt with in such a manner as prescribed by the Commonwealth.

I have examined and approve of the provisions of this Trust Statement.


EXECUTIVE DIRECTOR

DATE: 20/12/92


ASSISTANT UNDER TREASURER
(ACCOUNTING)

DATE: 27/1/93



Opinion of the Auditor General

To the Parliament of Western Australia

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT FINANCIAL STATEMENTS FOR THE YEAR ENDED JUNE 30, 1993

Scope

I have audited the accounts and financial statements of the Department of Conservation and Land Management for the year ended June 30, 1993 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, evidence to provide reasonable assurance that the amounts and other disclosures in the financial statements are free of material misstatement and that the controls exercised are in accordance with legislative provisions. Significant accounting estimates were evaluated and the accounting policies and principles used were assessed to determine that they are consistent with the Treasurer's Instructions and applicable accounting concepts and standards.

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 and 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 Statements of Receipts and Payments and the notes thereto are based on proper accounts and present fairly the transactions for the year ended June 30, 1993.

D D R PEARSON
AUDITOR GENERAL
September 14, 1993

APPENDIX 1 TREND IN THE AREA OF NATIVE FOREST HARVESTED

	<i>Jarrah Forest</i>	<i>Jarrah/Wandoo Forest</i>	<i>Clearfelled or cut to seed trees</i>	<i>Karri Forest Thinned</i>
	<i>ha</i>	<i>ha</i>	<i>ha</i>	<i>ha</i>
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

Note: Figures for jarrah and jarrahwandoo forest harvested in 1984/85 were incorrectly reported in previous years.

APPENDIX 2
AREAS OF EVEN-AGED KARRI REGENERATION

<i>Year of Regeneration</i>	<i>Multiple Use Forest</i>		<i>Conservation Forest</i>		<i>TOTAL</i>	
	<i>Area (ha)</i>	<i>Cumulative Total (ha)</i>	<i>Area (ha)</i>	<i>Cumulative Total (ha)</i>	<i>Area (ha)</i>	<i>Cumulative Total (ha)</i>
<i>Before 1900</i>	60	60			60	60
<i>1900-09</i>		60				60
<i>1910-19</i>	130	190	30	30	160	220
<i>1920-29</i>	160	350	60	90	220	440
<i>1930-39</i>	5 650	6 000	520	610	6 170	6 610
<i>1940-49</i>	720	6 720	520	1 130	1 240	7 850
<i>1950-59</i>	510	7 230	180	1 310	690	8 540
<i>1960-65</i>	220	7 450		1 310	220	8 760
<i>1966</i>	160	7 610		1 310	160	8 920
<i>1967</i>	220	7 830	80	1 390	300	9 220
<i>1968</i>	690	8 520	140	1 530	830	10 050
<i>1969</i>	1 300	9 820	300	1 830	1 600	11 650
<i>1970</i>	80	9 900		1 830	80	11 730
<i>1971</i>	80	9 980	10	1 840	90	11 820
<i>1972</i>	1 110	11 090	710	2 550	1 820	13 640
<i>1973</i>	190	11 280		2 550	190	13 830
<i>1974</i>	140	11 420	30	2 580	170	14 000
<i>1975</i>	630	12 050	430	3 010	1 060	15 060
<i>1976</i>	1 760	13 810	60	3 070	1 820	16 880
<i>1977</i>	1 630	15 440	250	3 320	1 880	18 760
<i>1978</i>	1 630	17 070	310	3 630	1 940	20 700
<i>1979</i>	1 930	19 000	300	3 930	2 230	22 930
<i>1980</i>	2 090	21 090	130	4 060	2 220	25 150
<i>1981</i>	2 980	24 070	310	4 370	3 290	28 440
<i>1982</i>	2 260	26 330	150	4 520	2 410	30 850
<i>1983</i>	1 930	28 260	370	4 890	2 300	33 150
<i>1984</i>	1 750	30 010	480	5 370	2 230	35 380
<i>1985</i>	2 330	32 340		5 370	2 330	37 710
<i>1986</i>	1 950	34 290		5 370	1 950	39 660
<i>1987</i>	1 180	35 470		5 370	1 180	40 840
<i>1988</i>	1 440	36 910		5 370	1 440	42 280
<i>1989</i>	1 230	38 140		5 370	1 230	43 510
<i>1990</i>	1 430	39 570		5 370	1 430	44 940
<i>1991</i>	1 390	40 960		5 370	1 390	46 330
<i>1992</i>	1 560	42 520		5 370	1 560	47 890

APPENDIX 3
AREA OF STATE-OWNED CONIFEROUS PLANTATIONS AS AT 31-12-92

Planting Year	Pinus Radiata			Pinaster & Other Species			All Species	
	First Rotation (ha)	Replanted Areas (ha)	Cumulative Total (ha)	First Rotation (ha)	Replanted Areas (ha)	Cumulative Total (ha)	Year Total (ha)	Cumulative Total (ha)
<1959	855	0	855	4 072	43	4 115	4 969	4 969
1959	277	0	1 132	359	0	4 474	636	5 605
1960	543	0	1 674	300	0	4 774	843	6 448
1961	384	0	2 058	515	0	5 289	899	7 347
1962	385	0	2 443	321	0	5 609	706	8 052
1963	586	0	3 028	298	0	5 908	884	8 936
1964	552	0	3 580	591	9	6 508	1 152	10 089
1965	505	0	4 085	562	0	7 071	1 067	11 156
1966	649	0	4 734	876	0	7 947	1 525	12 681
1967	760	0	5 494	1 187	0	9 134	1 947	14 628
1968	764	0	6 258	1 304	0	10 438	2 069	16 696
1969	977	0	7 236	1 698	2	12 138	2 677	19 373
1970	999	0	8 234	1 342	0	13 480	2 340	21 714
1971	1 095	0	9 329	1 280	0	14 759	2 374	24 088
1972	1 117	0	10 446	1 095	0	15 854	2 212	26 300
1973	1 274	32	11 752	953	0	16 806	2 259	28 559
1974	1 375	0	13 128	484	0	17 290	1 859	30 418
1975	1 241	0	14 369	1 259	0	18 549	2 500	32 918
1976	1 530	0	15 898	1 101	0	19 650	2 631	35 548
1977	1 391	0	17 290	865	0	20 515	2 256	37 805
1978	2 017	13	19 320	559	0	21 074	2 589	40 394
1979	1 399	432	21 151	562	0	21 637	2 394	42 787
1980	1 592	12	22 755	1 041	0	22 678	2 645	45 432
1981	1 477	121	24 352	1 001	6	23 685	2 605	48 037
1982	1 618	87	26 058	711	6	24 402	2 422	50 460
1983	1 338	43	27 438	815	0	25 217	2 196	52 656
1984	1 984	0	29 422	514	8	25 739	2 506	55 161
1985	1 790	160	31 371	519	2	26 260	2 471	57 632
1986	1 155	0	32 526	612	0	26 872	1 767	59 398
1987	1 556 (734)	160	34 242 (734)	785	75	27 732	2 576 (734)	61 974 (734)
1988	1 883 (1 378)	150	36 275 (2 111)	174	0	27 906	2 207 (1 378)	64 181 (2 111)
1989	1 108 (469)	449	37 832 (2 580)	0	28	27 934	1 585 (469)	65 766 (2 580)
1990	849 (689)	365	39 046 (3 269)	0	6	27 940	1 220 (689)	66 986 (3 269)
1991	1 203 (1 127)	529	40 778 (4 396)	6	18	27 963	1 755 (1 127)	68 741 (4 396)
1992	1 842 (1 842)	528	43 147 (6 237)	0	344	28 307	2 713 (1 842)	71 454 (6 237)
TOTAL	40 068 (6 237)	3 080 (0)	43 147 (6 237)	27 762 (0)	545 (0)	28 307 (0)	71 454 (6 237)	71 454 (6 237)

Areas shown in brackets have been established under sharefarm agreements. They are included in the totals.

APPENDIX 4
AREA OF STATE-CONTROLLED BROADLEAVED PLANTATIONS AS AT 31-12-92

Planting Year	PUBLIC LAND		PRIVATE LAND		Total
	<i>E.globulus</i>	Other species*	Broadscale Sharefarm <i>E.globulus</i>	Timberbelt Sharefarm <i>E.globulus</i>	
<1987	59	8 612			8 671
1987		71			71
1988	3	15	1 943		1 961
1989	17	4	3 730	395	4 147
1990	57	24	324	820	1 225
1991	4	88		718	811
1992	9	1		1 065	1 075
Total	149	8 815	5 997	2 998	17 959

* Includes 8 300 ha of Mallet (*E.astringens*) planted at Dryandra from 1930 to 1960.

APPENDIX 5
TRENDS IN LOG PRODUCTION

Year Ended 30 June	HARDWOOD			SOFTWOOD			TOTAL		
	Crown Land (m ³)	Private Property (m ³)	Total (m ³)	Crown Land (m ³)	Private Property (m ³)	Total (m ³)	Crown Land (m ³)	Private Property (m ³)	Total (m ³)
1829-1916*									18 783 700
1917-1969							46 841 700	15 844 500	62 686 200
1970	1 040 100	174 170	1 214 270	81 280	1 500	82 780	1 121 380	175 670	1 297 050
1971	1 058 910	160 400	1 219 310	86 250	1 590	87 840	1 145 160	161 990	1 307 150
1972	1 005 480	105 680	1 111 160	90 760	1 310	92 070	1 096 240	106 990	1 203 230
1973	959 940	101 980	1 061 920	100 420	1 010	101 430	1 060 360	102 990	1 163 350
1974	961 070	90 710	1 051 780	123 390	1 170	124 560	1 084 460	91 880	1 176 340
1975	967 270	87 890	1 055 160	129 090	60	129 150	1 096 360	87 950	1 184 310
1976	1 089 100	111 760	1 200 860	105 570		105 570	1 194 670	111 760	1 306 430
1977	1 308 630	106 520	1 415 150	120 860	330	121 190	1 429 490	106 850	1 536 340
1978	1 319 910	118 030	1 437 940	125 550	1 680	127 230	1 445 460	119 710	1 565 170
1979	1 312 570	123 540	1 436 110	176 940	6 130	183 070	1 489 510	129 670	1 619 180
1980	1 390 660	160 240	1 550 900	191 360	4 830	196 190	1 582 020	165 070	1 747 090
1981	1 391 960	158 980	1 550 940	201 550	2 990	204 540	1 593 510	161 970	1 755 480
1982	1 218 750	112 990	1 331 740	173 480	14 830	188 310	1 392 230	127 820	1 520 050
1983	1 049 180	97 290	1 146 470	176 620	5 650	182 270	1 225 800	102 940	1 328 740
1984	1 134 760	131 360	1 266 120	198 280	3 560	201 840	1 333 040	134 920	1 467 960
1985	1 290 010	169 930	1 459 940	225 950	18 040	243 990	1 515 960	187 970	1 703 930
1986	1 331 830	127 010	1 458 840	247 640	29 120	276 760	1 579 470	156 130	1 735 600
1987	1 338 700	158 860	1 497 560	266 770	24 830	291 600	1 605 470	183 690	1 789 160
1988	1 427 620	174 520	1 602 140	302 450	31 160	333 610	1 730 070	205 680	1 935 750
1989	1 432 530	135 380	1 567 910	318 530	56 750	375 280	1 751 060	192 130	1 943 190
1990	1 319 250	80 560	1 399 810	312 520	105 860	418 380	1 631 770	186 420	1 818 190
1991	1 170 230	116 580	1 286 810	301 250	85 640	386 890	1 471 480	202 220	1 673 700
1992	1 247 730	120 560	1 368 290	363 420	85 410	448 830	1 611 150	205 970	1 817 120
1993	1 258 250	116 070	1 374 320	412 540	94 660	507 200	1 670 790	210 730	1 881 520

* Estimated.

APPENDIX 6
TREND IN CHIPLOG PRODUCTION

Year Ended 30 June	- CROWN LAND -				- CROWN LAND -						Total Logs From Crown Land (m ³)	Logs From Private Property (m ³)	Total Logs From Crown Land & Private Property (m ³)	Percentage Private Property To Total (%)		
	Residue		Logs from Thinning Regrowth Forest		Logs from Mature Jarrah & Karri Forests			Subtotal (m ³)	Subtotal (m ³)							
	Sawmill (t)	Forest (t)	Marri (m ³)	Karri (m ³)	Other (m ³)	Subtotal (m ³)	Marri (m ³)			Karri (m ³)					Other (m ³)	
1976													98 370		98 370	
1977	32 007			32 007									377 021		377 021	
1978	89 390			89 390									434 377		434 377	
1979	114 766			114 766									454 096	18 865	472 961	4.0
1980	137 503			137 503	292	3 882		4 174					562 291	53 197	615 488	8.6
1981	187 501			187 501	1 794	17 565		19 359					515 075	58 983	574 058	10.3
1982	74 561			74 561	1 728	21 676		23 404					369 207	16 116	385 323	4.2
1983	77 486			77 486	3 137	23 702		26 839					412 117	21 835	433 952	5.0
1984	87 833			87 833	2 961	24 293		27 254					445 014	57 598	502 612	11.5
1985	88 297			88 297	2 263	22 176		24 439					496 880	91 702	588 582	15.6
1986	110 494			110 494	555	30 918		31 473					514 435	64 914	579 349	11.2
1987	88 111			88 111	500	55 753		56 253					552 693	99 923	652 616	15.3
1988	104 750	2 200		106 950	764	72 040		72 804					696 967	112 884	809 851	13.9
1989	102 321	5 270		107 591	4 214	77 911		82 125					613 297	91 865	705 162	13.0
1990	78 150	3 324		81 474	5 161	69 442	181	74 784					534 454	51 021	585 475	8.7
1991	178 659	18 382		197 041	25 379	59 869		85 248					512 533	85 789	598 322	14.3
1992	84 851	24 383		109 234	20 586	71 128		91 714					608 515	96 635	705 150	13.7
1993	74 535	14 719		89 254	35 084	72 676	42	107 802					639 365	98 777	738 142	13.4
Cum.Total	1 711 215	68 278	1 779 493	104 418	623 031	223	727 672	6 562 860	1 541 248	4 927	8 109 035	8 836 707	1 020 104	9 856 811	10.3	

Note: Logs from mature forest include forest residue.

**APPENDIX 7
TRENDS IN THE PRODUCTION AND USE OF SAWN TIMBER**

Year Ended 30 June	SAWN PRODUCTION			Overseas Timber Exports (m ³)	Apparent Local Use (m ³)
	Hardwood (m ³)	Softwood (m ³)	Total (m ³)		
1970	425 295	16 893	442 188	96 275	345 914
1971	420 777	21 595	442 372	79 437	362 935
1972	379 006	21 733	400 739	101 191	299 548
1973	375 135	23 283	398 418	111 547	286 871
1974	374 899	26 534	410 433	98 200	303 233
1975	368 844	27 086	395 930	100 127	295 803
1976	383 010	16 258	399 268	94 136	305 132
1977	369 151	16 685	385 836	77 352	308 484
1978	347 111	18 669	365 780	58 833	306 947
1979	331 135	18 145	349 280	66 420	282 860
1980	331 411	21 400	352 811	71 955	280 856
1981	330 863	22 954	353 817	65 109	288 708
1982	320 915	22 190	343 105	48 448	294 657
1983	252 124	13 216	265 340	41 789	223 551
1984	258 861	14 723	273 584	N/A	N/A
1985	291 683	21 632	313 315	22 112	291 203
1986	295 160	33 816	328 976	21 497	307 479
1987	280 146	36 512	316 658	9 547	307 111
1988	270 723	47 929	318 652	9 356	309 296
1989	289 665	53 240	342 905	12 965	329 940
1990	265 587	56 962	322 549	20 035	302 514
1991	222 125	41 264	263 389	13 220	250 169
1992	216 673	42 703	259 376	19 936	239 440

Source of export statistics : Australian Bureau of Statistics

**APPENDIX 8
TRENDS FOR W.A. OVERSEAS IMPORTS AND EXPORTS OF FOREST PRODUCE**

YEAR ENDED 30 JUNE	TIMBER AND WOOD MANUFACTURE		ESSENTIAL OILS AND TANNIN	
	IMPORTS (\$)	EXPORTS (\$)	IMPORTS (\$)	EXPORTS (\$)
1970	10 968 170	9 568 246	447 015	317 553
1971	6 761 806	6 914 644	279 188	343 512
1972	5 578 819	8 809 273	371 749	348 762
1973	8 326 939	9 640 753	592 249	337 736
1974	11 738 861	11 136 170	691 723	433 627
1975	14 053 751	9 212 370	1 107 743	479 019
1976	19 960 421	10 816 236	504 846	214 918
1977	24 857 792	10 355 198	642 962	45 767
1978	24 039 952	13 434 413	913 289	41 422
1979	18 200 508	18 682 636	614 676	61 525
1980	26 801 716	12 857 407	643 045	255
1981	28 691 997	13 746 212	512 254	2 361
1982	26 068 548	11 270 550	572 629	NIL
1983	23 738 070	9 930 788	342 276	300
1984	N/A	N/A	N/A	N/A
1985	37 871 360	7 524 771	460 064	2 099
1986	37 858 904	7 875 694	403 522	318
1987	47 950 173	5 164 413	559 085	N/A
1988	52 762 401	6 386 708	N/A	N/A
1989	38 419 979	7 335 552	630 776	N/A
1990	41 600 052	9 674 191	476 152	N/A
1991	25 301 336	8 915 635	379 765	N/A
1992	29 877 000	15 417 000	681 000	N/A

Source : Australian Bureau of Statistics

**APPENDIX 9
AREA OF PRESCRIBED BURNS 1990-91 TO 1992-93**

<i>INDIGENOUS VEGETATION - HANDBURNING (ha)</i>	<i>1990-91</i>	<i>1991-92</i>	<i>1992-93</i>
<i>State Forest</i>			
<i>Handburns</i>	18 596	16 220	11 960
<i>Slash and regeneration</i>	6 653	9 060	13 110
<i>Indigenous areas within pine plantation zones</i>			
<i>Clearing burns for pine establishment</i>	1 095	1 310	1 160
<i>National Parks</i>	3 755	5 400	22 980
<i>Nature Reserves</i>	1 500	8 950	2 280
<i>Other Crown Land and Private Property</i>	4 893	750	1 100
Total	36 492	41 690	52 590
 <i>INDIGENOUS VEGETATION - AERIAL BURNING (ha)</i>			
<i>State forest hardwood</i>	170 561	148 750	117 720
<i>National Parks</i>	73 964	44 200	80 440
<i>Nature Reserves</i>	74 730	19 750	
<i>Other Crown Lands and Private Property</i>	6 445	51 620	14 440
Total	325 700	264 320	212 600
 <i>STATE FOREST SOFTWOODS (ha)</i>			
<i>Winter burning under pines</i>	2 972	3 340	5 492
Total	2 972	3 340	5 492

**APPENDIX 10
NUMBER OF WILDFIRES AND AREAS BY LAND CATEGORIES FOR 1992-93**

	<i>NUMBER</i>			<i>AREA BURNT (ha)</i>		
	<i>1990-91</i>	<i>1991-92</i>	<i>1992-93</i>	<i>1990-91</i>	<i>1991-92</i>	<i>1992-93</i>
<i>State Forest Hardwood</i>	133	171	132	13 640	3 320	6 110
<i>State Forest Softwood</i>	58	56	88	812	250	40
<i>National Parks</i>	40	43	32	486 003	47 240	27 060
<i>Nature Reserves</i>	30	34	25	396 859	113 590	53 340
<i>Other Crown Lands</i>	83	61	66	306 038	107 310	49 350
<i>Private Property</i>	121	81	66	17 750	7 610	8 300
Total	465	446	409	1 221 102	279 320	144 200

CAUSES

	<i>NUMBER</i>			<i>PERCENT</i>		
	<i>1990-91</i>	<i>1991-92</i>	<i>1992-93</i>	<i>1990-91</i>	<i>1991-92</i>	<i>1992-93</i>
<i>Deliberately and illegally lit</i>	230	181	213	49	41	52
<i>Escaped from Departmental prescribed burns</i>	27	22	13	6	5	3
<i>Escaped from other burning off</i>	57	36	34	12	8	8
<i>Accidental by timber industry</i>	9	4	2	2	1	1
<i>Accidental by other industry</i>	22	14	27	5	3	7
<i>Accidental by recreational visitors</i>	27	23	30	6	5	7
<i>Lightning</i>	50	114	42	11	26	10
<i>Unknown</i>	39	37	37	8	8	9
<i>Other causes</i>	4	15	11	1	3	3
Total	465	446	409	100	100	100

APPENDIX 11
PURPOSES FOR PRESCRIBED BURNING BY FOREST REGION FOR 1992-93

<i>Dominant Purpose</i>	<i>Region</i>	<i>Autumn</i>	<i>Winter</i>	<i>Spring</i>	<i>Summer</i>	<i>Year Since Last Burnt Years</i>
<i>Fuel *</i> <i>Reduction</i>	<i>Swan</i>	143	***5 492	29 331	-	5-20
	<i>Central Forest</i>	11 723	-	37 149	-	5-14
	<i>Southern Forest</i>	2 420	-	2 665	2 050	7-20
		14 286	5 492	69 145	2 050	
<i>Silviculture</i>	<i>Swan</i>	6 163	417	703	-	N/A
	<i>Central Forest</i>	4 650	744	12 273	-	N/A
	<i>Southern Forest</i>	1 505	-	6 035	517	N/A
		12 318	1 161	19 011	517	
<i>Nature**</i> <i>Conservation</i>	<i>Swan</i>	1 668	-	6 466	-	5-11
	<i>Central Forest</i>	750	-	13 092	-	5-20
	<i>Southern Forest</i>	810	-	5 360	5 700	7-13
		3 228	-	24 981	5 700	
<i>Recreation & Tourism</i>	<i>Swan</i>	110	-	410	-	6-10
	<i>Central Forest</i>	130	-	1 240	-	7-20
	<i>Southern Forest</i>	-	-	33	-	NIK
		240	-	1 683	-	
Total (hectares)		30 072	6 653	114 757	8 267	
Total (percent)		19	4	72	5	

Notes:

* Fuel reduction burning protects nature conservation values

** Nature conservation burning provides community protection benefits

*** Pine burning

N/A Not Applicable

NIK Not Known

Data supplied pursuant to the Minister's Statement (24.12.92) under the Environmental Protection Act (1986) that the proposed amendments to the 1987 Forest Regional Management Plan and Timber Strategy may proceed.

APPENDIX 12
NUMBER OF PRESCRIBED BURNS CONDUCTED IN NATIVE FORESTS WITHIN FOREST REGIONS IN
EACH SEASON FOR VARIOUS PURPOSES - 1992-93

Dominant Purpose	Region	No of BURNS						Number of Escapes
		Spring		Summer		Autumn		
		Aero	Hand	Aero	Hand	Aero	Hand	
Fuel Reduction	Swan	8	19			2	10	2
	Central Forest	14	15		1	4	2	4
	Southern Forest	3	5	2	2	1	5	5
		25	39	2	3	7	17	11
Silviculture	Swan		2			1	7	
	Central Forest	3	8		1	4	2	1
	Southern Forest	3	18		12		24	
		6	28		13	5	33	1
Nature Conservation	Swan		1				3	
	Central Forest					1	1	
	Southern Forest		1			1	4	
Tourism & Recreation	Swan		2				1	1
	Central Forest				1		4	
	Southern Forest		1					
			3		1		5	1
Overall Total		31	71	2	17	13	59	13
Aerial Burns (%)		68		4		28		13
Hand Burns (%)			48		12		40	(6.7%)

Data supplied pursuant to the Minister's Statement (24.12.92) under the Environmental Protection Act (1986) that the proposed amendments to the 1987 Forest Regional Management Plan and Timber Strategy may proceed.

APPENDIX 13
AREA AND NUMBER OF WILDFIRES WITHIN THE THREE FOREST REGIONS - 1992-93

Region		State Forest Native	State Forest Softwood	National Parks	Nature Reserve	Other Crown Land and Private Property	Total
Sawn Region	Area (ha)	516	35	84	1 111	3 840	5 586
	Number	86	83	8	11	60	248
Central Forest	Area (ha)	3 348	3	39	1	352	3 843
	Number	31	5	5	2	25	68
Southern Forest	Area (ha)	2 243	0	511	259	284	3 297
	Number	15	0	6	2	10	33
Totals	Area (ha)	6 107	38	634	1 371	4 576	12 726
	Number	132	88	19	15	95	349

**APPENDIX 14
LICENCES ISSUED IN 1992-93**

<i>Fauna Licences</i>	<i>Licences Issues</i>	<i>Fauna Licences</i>	<i>Licences Issues</i>
SCIENTIFIC		CROCODILES	
<i>Scientific Collection (Reg 17)</i>	264	<i>Crocodile Farming (Reg 14)</i>	3
<i>Bird/Bat Banding (Reg 23)</i>	112	<i>Processing (Reg 7)</i>	1
EDUCATION & PUBLIC		KANGAROO	
<i>(to take) (Reg 15)</i>	136	<i>Take Kangaroos for sale (Reg 6)</i>	168
EDUCATION & PUBLIC		<i>Deal in carcasses (Reg 8)</i>	36
<i>(to hold) (Reg 16)</i>	85	<i>Skin Dealing (Reg 10)</i>	21
AVIAN FAUNA		<i>Processing (Reg 7)</i>	29
<i>Keep & breed in captivity (Reg 12)</i>	3 805	EXPORTS INTERSTATE	
<i>Deal (Reg 13)</i>	57	<i>Skins of fauna (or other dead fauna)</i>	218
<i>Breed for Commercial Purposes (Reg 14)</i>	3	<i>Fauna (live)</i>	130
<i>Trap (Reg 11)</i>	4		348
Species Trapped		EXPORT OVERSEAS	
<i>Number</i>		<i>Skins of fauna (or other dead fauna) from WA</i>	167
<i>Twenty-eight Parrot</i>	1 495	<i>Emu eggs or products (personal items) from WA</i>	141
<i>Western King Parrot</i>	430	<i>Kangaroo skins (personal items) from WA</i>	1
<i>Western Rosella</i>	641	<i>Fauna (avian) from WA (live)</i>	16
<i>Galah</i>	3		325
<i>Red-browed Finch</i>	55	IMPORTS INTERSTATE	
FAUNA		<i>Skins of fauna (or other dead fauna) into WA</i>	25
<i>Keep in Captivity (Reg 12A)</i>	121	<i>Australian fauna (live)</i>	403
EMUS		<i>Live exotic birds and other animals</i>	159
<i>Emu Farming (Reg 14)</i>	41		587
<i>Dealing (Reg 8)</i>	1	FLORA LICENCES	
<i>Dealing (Emu eggshells Reg 13)</i>	27	COMMERCIAL PURPOSES	718
<i>Skin Dealing (Reg 10)</i>	3	COMMERCIAL PRODUCERS	330
<i>Processing (Reg 7)</i>	20	SCIENTIFIC / PRESCRIBED PURPOSES	984
		PERMITS TO TAKE DECL. RARE FLORA	67

**APPENDIX 15
SUMMARY OF DAMAGE LICENCES ISSUED FOR 1992-93**

	<i>No. of Licences Issued</i>	<i>Total No. of Each Species Authorised to be Taken</i>		<i>No. of Licences Issued</i>	<i>Total No. of Each Species Authorised to be Taken</i>
WATERFOWL					
<i>Wood Duck</i>	41	880	<i>Silver Gull</i>	1	100
<i>Mountain Duck</i>	8	161	<i>Silvereyes</i>	1	100
<i>Black Duck</i>	6	90	<i>Sulphur-crested Cockatoo</i>	1	50
<i>Little Black Cormorant</i>	1	100	<i>Wattlebird</i>	1	10
<i>Pied Cormorant</i>	1	10	<i>Welcome Swallow</i>	2	Scare Only
<i>White Ibis</i>	1	100	<i>Western Rosella</i>	6	170
<i>Nankeen Night Heron</i>	1	100	<i>White-tailed Black Cockatoo</i>	3	28
AVIAN FAUNA OTHER THAN WATERFOWL & EMUS			EMUS	19	819
<i>Australian Raven</i>	25	326	SEALS		
<i>Brolga</i>	1	Scare Only	<i>Australian Sealion</i>	5	Scare Only
<i>Brown Goshawk</i>	1	1	MAMMALS		
<i>Galah</i>	8	446	<i>(OTHER THAN SEALS AND KANGAROOS)</i>		
<i>Little Corella</i>	22	760	<i>Agile Wallaby</i>	2	30
<i>Plover</i>	1	30	<i>Tammar</i>		Scare Only
<i>Port Lincoln Parrot</i>	69	9001			
<i>Red-capped Parrot</i>	12	390			
<i>Red-collared Lorikeets</i>	1	Scare Only			
<i>Red-winged Parrots</i>	1	Scare Only			

APPENDIX 16
OFFENCES UNDER THE WILDLIFE CONSERVATION ACT AND REGULATIONS

<i>Charges</i>	<i>Recomm'd Charges</i>	<i>Convictions</i>	<i>Fine \$</i>	<i>Cost \$</i>	<i>Dismissed</i>	<i>Letter of Warning</i>	<i>No Further Action</i>	<i>Pending</i>
<i>WILDLIFE CONSERVATION ACT</i>								
<i>Illegal taking or possession of protected fauna</i>	33	5	1 850 00	451 70		13	1	14
<i>Illegal importation, selling or taking for sale of fauna</i>	8					5	1	2
<i>Offences relating to the taking or possession or rare or threatened</i>	7	1	200 00	43 00		1		5
<i>Illegal taking of protected flora</i>	38	2	1 050 00	215 00		10		26
<i>Offences relating to the sale of protected flora</i>	5							5
<i>Taking declared rare flora without the Minister's consent</i>	8					3		5
<i>Offences against wildlife officers</i>								
<i>Failing to comply with licence conditions</i>	15	1	2 000 00	93 00		6		8
<i>WILDLIFE CONSERVATION REGULATIONS</i>								
<i>Offences relating to the possession, control and disposal of avian fauna</i>	4					1		3
<i>Offences relating to activities on Nature Reserve</i>	17				1	6	3	7
TOTALS	135	9	5 100 00	802 70	1	45	5	75

APPENDIX 17 PUBLICATIONS PRODUCED IN 1992-1993

GENERAL

Aboriginal Activities and Nature Conservation in the South-west of Western Australia (booklet)
Annual Report of Department of Conservation and Land Management 1991-1992
Annual Report of National Parks and Nature Conservation Authority 1991-1992
Appreciation Certificate
Arbor Day poster
Austis 92 Conference - Establishing Security Through Inter Agency Agreements (booklet)
Avon Descent Public Information (leaflet)
C. E. Lane Poole Memorial Trust - applications 1992-93 award (leaflet)
CALM Book News (leaflet, 4 editions)
CALM Briefing Paper 1193 - Access to Basic Raw Materials, Local Government Authorities
CALM News (newspaper, 9 editions)
CALM Volunteers (leaflet)
Earth Secrets - A Guide to the Concept Path (booklet)
Emerging Tourism Opportunities (leaflet)
Enterprise Bargaining bulletin no 1 1992
Enterprise Bargaining bulletin no 2 February 1993
Enterprise Bargaining bulletin no 3 March 1993
Environmental Literacy and Nature Conservation: Enacting the Future (leaflet)
Flora of the Kimberly order form
Help Grow an Earth Caretaker (leaflet)
John Forrest National Park draft management plan 1992
Karijini National Park draft management plan
Land Managed by CALM (leaflet)
LANDSCOPE advertising insert
LANDSCOPE binder
LANDSCOPE calendar and envelopes
LANDSCOPE 's Urban Wildlife Antics order form
LANDSCOPE (magazine, 4 editions)
LANDSCOPE gift subscription card
Management Plan No 21 - Shoalwater Islands - Analysis of public submissions
Management Plan No 21 - Shoalwater Islands 1992-2002
Management Plan No 25 - Matilda Bay Reserve Analysis of Public Submissions
Managing Your Bushland (book)
Managing Your Bushland order form
Monkey Mia Reserve draft management plan 1993
Mountains of Mystery - A Natural History of the Stirling Range (book)
Perth Outdoors: A Guide to Natural Recreation Areas in and around Perth (book)
Perth Outdoors folder
Perth Outdoors order form
Perth Outdoors thank you card
Pledge - Landcare (card)
Quality Improvement newsletter
Resources Directory - Aboriginal heritage and CALM (leaflet)
Seaweek poster
Seaweek program
State of the Environment Report 1992
To a Friend of the Trees (certificate)
Training and Development Manual 1993
Two Peoples Bay Nature Reserve draft management plan 1993
Volunteer Management introductory training course (booklet)
West Cape Howe draft management plan 1992

WILDLIFE MANAGEMENT

Dieback Disease Hygiene manual
Discovering the Hills Forest - Teacher Resource Package
Dryandra Woodland Ecology Course (leaflet)
Forestdale Lake Nature Reserve - A Guide for Visitors (leaflet)
Information Sheet No 1191 Aviary Birds
Landscape Fires 1993 (leaflet)
Managing the Midge (leaflet)
Managing Your Bushland (book)
Nuytsia volume 8 contents list
Nuytsia volume 8 no 3
Nuytsia volume 9 no 1
Protecting Wildlife in Western Australia (leaflet)
Research Bulletin No 6 - Purnululu, A Survey of the Wildlife and Vegetation of the (Bungle Bungle) National Park and Adjacent Area.
Resource Notes No 21 2nd edition - Eucalypts of Perth: Field Keys Sealions (leaflet)
Silver Gull Action Plan for the Perth Metropolitan Area
Technical Report No 29 - Annual Waterfowl Counts in South-West Western Australia 1989-90
Welland Conservation Policy for Western Australia Draft (booklet)
Wildlife Management Program No 10: Declared Rare Flora and Other Plants in Need of Special Protection in the Metropolitan Area
Wildlife Management Program No 9: Declared Rare Flora and Other Plants in Need of Special Protection in the Merredin District

RECREATION MANAGEMENT

A Vision For Perth Outdoors (broadsheet)
Avon Valley National Park (leaflet)
Boating in Shark Bay (leaflet)
Bushwalks Near Manjimup (leaflet)
Discovering Cape Range National Park/Ningaloo Marine Park (cards)
Discovering The Hills Forest (leaflet)
Dryandra Woodland (leaflet)
Fitzgerald River National Park (leaflet)
Francois Peron National Park (leaflet)
Geology of the Gorges (leaflet)
Go Bush In the Hills Forest (leaflet)
Going to the Coast? (leaflet)
Jarrahdale Parks and Forests (leaflet)
Kalbarri National Park (leaflet)
Leeuwin-Naturaliste National Park (broadsheet)
Leeuwin-Naturaliste National Park cave permit system (booklet)
Leeuwin-Naturaliste National Park Caver (card)
Little Island Underwater Nature Trail (leaflet)
More Koalas for Yanchep National Park (leaflet)
Nambung National Park (leaflet)
Nambung National Park (leaflet)
Nambung National Park folder
Ningaloo Marine Park (leaflet)
Ningaloo Marine Park - A Guide to Symbol Signs (leaflet)
Pilbara National Parks (broadsheet)
Stirling Range and Porongurup National Parks (leaflet)
Western Australia's Natural Advantage - Capitalising on the Nature Based Tourism Potential of the North (booklet)
Yanchep National Park - Summer Activities Guide (leaflet)
Yanchep National Park guide and map
Yanchep National Park: Autumn Activities Guide

FORESTS RESOURCES MANAGEMENT

CALM Briefing Paper 2/91 - Domestic Firewood, Craftwood and other Minor Forest Products in the South West
 CALM Occasional Paper No 2/92 - Research on the Impact of Forest Management in south-west Western Australia
 Commercial Treegrowers Kit (Folder)
 Gngalara Forest (leaflet)
 Growing Western Australian Sandalwood from Seed (booklet)
 Have You Seen This Insect? (leaflet)
 Historical Review of Sandalwood (*Santalum spicatum*) Research in Western Australia (booklet)
 Improve Your Bank Balance and your Farm with South Coast Sharefarms (leaflet)
 Report No 21 1993 - Preservation of Round Timber Products
 Seed Price List 1992-93
 Sharefarms (leaflet)
 South Coast Sharefarms - Secure Long-term Market for Pulpwood (leaflet)
 Summer Firewood (leaflet)
 Timber Harvesting in Western Australia (booklet)
 Tree Crops For Farms (leaflet)
 Tree Nursery - price list 1993
 Trees for Rural Areas - The South West (leaflet)
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