

# CALM NEWS



DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

COMO RESOURCE CENTRE  
DEPARTMENT OF CONSERVATION  
& LAND MANAGEMENT  
WESTERN AUSTRALIA

May/June 1990



This tiny survivor of a bird-smuggling operation is no bigger than a matchbox.

It is one of three fledgling cockatoos that were taken into protective care by CALM wildlife officers after being found in the coat pocket of a courier for an alleged bird-smuggling racket.

They are probably red-tailed black cockatoos, which are worth up to \$20,000 overseas.

Wildlife Officer Kingsley Miller was called to Perth airport to identify the birds after Customs officers

apprehended the suspect, a man claiming to be a professional gambler.

CALM will lay charges against the man under the Wildlife Conservation Act.

It is not known where the birds came from, but it is likely that they had been taken from the Eastern States.

Wildlife officers are now conducting extensive follow-up investigations.

— Photo courtesy of *The West Australian*

## First marine nature reserve gazetted

Three new marine parks and WA's first marine nature reserve have been gazetted.

Premier Carmen Lawrence announced these special protection measures for four of the State's most important marine areas on Sunday, May 20 on Penguin Island.

The Shoalwater Islands, Swan Estuary and Rowley Shoals areas have been gazetted as marine parks, while Hamelin Pool - world famous for its stromatolites - has been gazetted a marine nature reserve.

This brings the total number of marine parks in the State to five - the other two, Marmion Marine Park and Ningaloo Marine Park, were declared in 1987.

All will be managed by CALM, with fishing activities managed by the Department of Fisheries.



Premier Dr. Carmen Lawrence.

Dr Lawrence travelled in style to Penguin Island with CALM Executive Director Syd Shea aboard the department's marine vessel *BJ White*.

First on the agenda was a tour of Seal Island, where Dr Lawrence was shown the work carried out by CALM marine staff to keep over-enthusiastic visitors from disturbing vegetation and

wildlife - namely yawning sea lions.

Then it was on to Penguin Island, where Dr Lawrence spoke to a group of dignitaries, CALM staff and Penguin Island volunteers, about the gazetting of the four marine areas.

"Protecting the health and natural productivity of coastal ecosystems is vital to us," Dr Lawrence said. "They support valuable fishing and tourist industries and hold a special place in our natural heritage.

"We have a responsibility to pass our coastal environment on to future generations in good condition."

Dr Lawrence said that in the past five years CALM had made significant additions to the State's conservation estate.

Fourteen national parks and 39 nature reserves had been declared, she said, totalling an area of more than one million hectares.

The Shoalwater Islands Marine Park (6540 ha) has important breeding colonies of penguins and seabirds, including the crested tern, and is a resting place for the endangered Australian sea lion.

The Swan Estuary Marine Park (325 ha) encompasses mudflats and seagrass beds that are visited by up to 10,000 wading birds from the northern hemisphere each summer.

This park consists of three areas - Alfred Cove, Pelican Point and Milyu (South Perth).

The Rowley Shoals area (216 km) north of Broome contains some of the world's most pristine atolls and is rich in corals and fish.

Hamelin Pool (1270 km) has a high salinity level and supports unusual biological systems that are of intense scientific interest.

## Changes made to regulations

Improvements to State Government controls on the keeping of birds as a hobby and on wildflower picking have been announced.

Minister for the Environment Bob Pearce said changes to wildlife regulations concerning the keeping of birds would simplify licensing controls without compromising wildlife conservation.

"The number of native bird species that can be kept without a licence has been increased from three to 10, and no licence is required for a further 13 species if the number of birds being kept is small," Mr Pearce said.

Licences will still be needed for species which are rare, difficult to keep and breed, or subject to illegal trapping and trafficking.

The old licensing system has been replaced by a simpler system, with new fees of \$10 for an ordinary avicultural licence and \$20 for an advanced licence. More than 6000 people are presently licensed to keep birds in WA.

Mr Pearce also said that the Government would improve management of the multi-million dollar wildflower picking industry.

"The future of the industry depends on managing wildflowers on a sustainable basis.

"We need to ensure that species are not overexploited

and prevent dieback from threatening species important to the industry."

Licence fees for pickers operating on Crown land and for private landowners harvesting bush stands of wildflowers will be increased to \$100 and \$25 respectively.

Mr Pearce said the revenue from fees will benefit the industry by funding research into management of WA's unique flora.

An advisory committee on the wildflower industry will be established with representation from pickers.

### Protection for emus

New measures to protect emus were announced in April by Minister for the Environment Bob Pearce and Minister for Agriculture Ernie Bridge.

"The open season on emus in WA, which has been in place for many years, will be cancelled," Mr Pearce said.

"Landowners who need to control emus causing damage will now have to obtain a damage licence from CALM."

Emus are a visible and important part of WA's native fauna, but at times can damage crops, pasture and fences.

Mr Pearce assured farmers and pastoralists that

CALM would respond rapidly to requests for damage licences.

Mr Bridge said that a review by the Agriculture Protection Board concluded that damage caused by emus could be handled by issuing damage licences on a case-by-case basis.

"However, temporary open seasons may be declared in the future where emu populations and levels of damage are too great to be handled through the damage licence approach," he said.

Mr Bridge said the

### Feeding resolved

A newborn calf will be one of the beneficiaries of a new feeding regime for the dolphins at Monkey Mia.

Minister for the Environment Bob Pearce said that a meeting of the Monkey Mia Reserve Management Committee had resolved concerns about feeding the dolphins.

CALM and the Shire of Shark Bay had agreed that each dolphin should be fed one third of its total needs.

"The average amount of fish consumed by each dolphin will be no more than two kilograms per day," said Mr Pearce.

"However, the new strategy includes the idea of a welcome back meal, so that dolphins away from the beach for several days would be given an abundance of fish."

Mr Pearce said the Committee was guided by

Government would continue to encourage the development of the emu farming industry based on captive breeding rather than harvesting from wild populations.

There are now about 5000 captive emus on 19 farms in WA.

CALM has prepared a policy on the conservation and management of emus, addressing conservation needs, controlling damage to primary production and the development of the emu farm industry.

data prepared by marine mammal expert Dr Nick Gales and advice from two international scientists experienced in managing captive and wild dolphins.

Their advice supported the principle that a limit should be placed on the amount fed to the dolphins, to ensure they continued to forage for themselves in a natural way.

The resolution provides the flexibility needed by the rangers to respond to individual dolphins on a daily basis.

The policy has been put in place over the busy Easter period at Monkey Mia.

The new calf was born in April to Nicky, one of the dolphins that regularly visit the beach.

### Technology exchanged

CALM's achievements in timber research and development were the focus of a Technology Exchange held in Como on May 4.

Attended by 75 forest products industry members, the event was organised by the Wood Utilisation Research Centre to show industry the results of the four-year Small Eucalypt Processing Study.

Twelve of the study team presented brief technical papers and answered questions on subjects including VALWOOD marketing, quality control and grading, GUMTREE modelling, wood property defects and the solar-powered CALM Drying System.

Products and models related to CALM research and development were displayed.

The exchange also featured talks by two visiting Gottstein Fellowship winners, Dr Barbara Ozarska and Andrew Rozsa.

Dr Ozarska, the technical director of the Australian Furniture Research and Technology Institute in Launceston, made valuable comparisons of furniture manufacturing and the supply timber in Australia and Europe.

Mr Rozsa, a CSIRO research scientist based in Melbourne, reported the trends for value-adding to small hardwood logs on the US east coast.



Admiring CALM's Drying System model at the Technology Exchange were (from left) Doug Howick, from CSIRO Melbourne; Trevor McDonald, system designer and WURC engineer; Kevin White, WURC senior forester; and Des Donnelly, WURC chief utilisation officer.

## FROM MY DESK

As all staff will know, June was a month of great crisis and turmoil for all of us. A well-orchestrated attack on the department, its staff and our two controlling bodies by the Conservation Council of WA and an ABC television program resulted in a storm of controversy. We have had to fight hard to defend our record and our integrity. Though not of our making, the fight was a dirty one and will have left scars which may never heal. At the time of writing I feel that we are winning, but some time will need to elapse before the result can be coolly judged.

Nevertheless, as those of you in the field will know who have been involved in the bushfire fighting, cyclones or other crisis, tough times now and again are good for us. A severe crisis tests people and management systems. We learn something about ourselves, our colleagues and our structures.

In case of a crisis involving an external attack, we also learn very quickly who our friends are, and who are not. Our Minister's support was outstanding.

I have also been proud of the support which arose spontaneously within the department and I have been overwhelmed by the messages of support which have come in from the community after the Four Corners program. I was especially touched by the personal messages from staff from all over the department. Union groups came out strongly for us, as did all political parties, numerous shire councils, bushfire brigades and recreation groups in rural Western Australia, scientific and academic groups from the Eastern States. Apart from some (predictable) abusive phone calls and letters, nearly everyone has condemned the attack made upon us by the ABC and Conservation Council's proposals.

By now I hope that all of you will have had a chance to read our detailed responses to the ABC and the Conservation Council. I doubt whether the claims of either will go away. The nature of the ideological battles like this one is that they are usually protracted.

Nevertheless, we have real work to do out there in the parks, forests and nature reserves, and in our specialist roles in the branches. As far as you are all concerned, the fire is over... thank you everyone, and it is time to get back to conservation and land management.

A final word. My personal staff and my colleagues at Crawley performed heroically during the crisis. Putting up with me in normal times is difficult enough. I never forget my friends.

Syd Shea EXECUTIVE DIRECTOR

# South coast areas given protection

In May, Minister for the Environment Bob Pearce announced the gazettal of two new areas of national park in the Waychinicup area near Albany, to be managed by CALM's South Coast Region.

The new areas, together with existing nature reserves, complete the first stage of the Waychinicup National Park, and extend from Normans Beach across Mt Manypeaks and the

Waychinicup River mouth to Cheynes Beach.

Mr Pearce said that ultimately, it was anticipated that the new national park would extend from the coast across the main Waychinicup River valley to the Hassell Highway.

He thanked the Shire of Albany and officers from the WA Water Authority and CALM for their patience and goodwill while working towards the park's

establishment.

"It has been essential to negotiate boundaries carefully so as to include important nature conservation and scenic values, but exclude areas such as Cheynes Beach itself which are used for other community purposes," Mr Pearce said.

The newly gazetted areas contain several species of endangered flora and fauna, including the dibbler and noisy scrub-bird.

Mt Manypeaks and the Waychinicup River valley are considered to be the most important areas for the noisy scrub-bird outside Two Peoples Bay Nature Reserve.

Recent surveys there have shown that the bird population is expanding through breeding, as numbers now recorded are above the numbers released in the area in the mid-1980's.

The Waychinicup National Park area also has exceedingly diverse flora, with about 1000 species recorded to date, a figure similar to that of the entire Stirling Range National Park.

## On location

A one-hour wildlife documentary on the Kimberley is being produced by the ABC and National Geographic Society.

During June, a film crew from the ABC's Natural History Unit, headed by producer Jeremy Hogarth, will film in the Prince Frederick Harbour area of the Prince Regent River Nature Reserve.

The film crew will be based on a charter yacht and travel ashore each day.

Their work aims to show a coastline that has remained unchanged for the last 200 years.

CALM Director of Nature Conservation Barry Wilson said the area is probably the only place in Australia to have recorded no mammal extinctions since the arrival of Europeans.

A film crew from Television New Zealand also recently visited WA. The crew travelled to Nangeen Hill and Dryandra in the Wheatbelt to film CALM research scientists' work with endangered mammals.

They focussed on rock wallabies and numbats - the work of Jack Kinneer, Mike Onus, Tony Friend and Neil Thomas.

## Paper wins

A paper written by CALM employees Paul Biggs, Colin Pearce and Tim Westcott, *GPS Navigation for Large-Scale Photography*, has been awarded first prize in the American Society for Photogrammetry and Remote Sensing President's Award for Practical Papers.

The five-page paper was written last year describing a navigation system for large-scale 70mm aerial photography using a lap-top computer and a Global Positioning System (GPS).

The system is able to direct the pilot along flight lines, fire cameras on a fixed distance interval, and record the coordinates of every photograph.

The GPS has unlimited range and is relatively inexpensive to run, as there are no ground stations to maintain.

In the first year of operation, about 90 percent of the photo locations were found to be within 100m of the position mapped from the GPS data.

Discrepancies greater than this were usually associated with photography under sub-optimum satellite coverage.

The paper was part of Paul Biggs' Ph.D. research at the University of Melbourne.

## New book aids flora discovery

by SUE PATRICK  
CALM's recently published book *Western Australia's Endangered Flora* has helped make an exciting rediscovery.

Gwen Abbott, a member of the Eastern Hills branch of the Wildflower Society - who has an extensive knowledge of the flora of the Darling Range - telephoned me recently. She had noticed a drawing of *Grevillea flexuosa* in the selection of presumed extinct species of the book, and remembered that she had collected it five years previously.

At that time there was some confusion between this cream-flowered species and *Grevillea leptobotrya*, which, among other differences, has pink flowers.

Gwen's specimen was found and proved indeed to be *Grevillea flexuosa*, the first collection made since James Drummond's Type Collection about 150 years ago.

A spreading shrub up to two metres tall, it has spikes of cream flowers with a strong sweet scent and grows

on a high granite hill in the Darling Range east of Perth.

As Gwen knows the area well and has not seen it elsewhere, it is unlikely to be common.

That same week two other similar discoveries were made.

A specimen of *Verticordia*, sent by CALM ranger Alan Rose for identification as part of the Stirling Range National Park Field Herbarium, was found to be *Verticordia carinata*.

This also had not been previously collected since James Drummond made the Type Collection in the 1840's.

Yet another rediscovery came from Bill Archer, who runs a nursery at Esperance.

He'd asked us to confirm a specimen of *Comesperma lanceolatum*.

It corresponded well to the description, although no type specimen is yet available for comparison.

An earlier collection of the same species was found to have been made by Ken Newbey, but apart from this it appears it has not otherwise been collected since Robert Brown found it in 1803 near Esperance.



Pictured at the ceremony, from left, were: Davin Gibellini, Mark Roddy, Grant Pronk, Chaz Newman, Mitch Davies and Luke Coney.

## CALM Cadets graduate

CALM's Field Cadet Graduation Ceremony was recently held at the Lord Forrest Hotel in Bunbury.

Minister for the Environment Bob Pearce was special guest for the presentation.

Mr Pearce spoke highly of the cadet program and placed special emphasis on the course's balanced combination of both theoretical and practical aspects. He then presented certificates to all 10 graduates.

Luke Coney, now a ranger at Yanchep National Park, won the coveted Keynes Memorial Prize for outstanding performance in both theory and field work.

Executive Director Syd Shea welcomed the graduates into CALM and presented his special award to Grant Pronk for his achievements during the two-year course. Grant now works as a forest ranger in the Mundaring District.

Other graduating cadets were Peter Batt, David Algaba, Luke Bowman, Mitchell Davies, Wayne Fullerton, Davin Gibellini, Chaz Newman and Mark Roddy.

Davin Gibellini is the first graduating cadet totally sponsored for the course by Bunnings Tree Farms. He is now employed by this company in Manjimup.

All cadets had completed a two-year cadetship. In their

first year, cadets attend Bunbury's South West College, studying subjects such as botany, fauna characteristics and identification, ecology, mapping and horticultural soils.

Their second year is spent at CALM's Dwellingup Cadet Training Centre where cadets receive practical instruction in silviculture management, fire management, recreation, environmental protection and utilisation of forest products.

The course is designed to provide a steady flow of trained staff to meet CALM's needs and to provide competent junior supervisors and managers.

## Near Miss

The following is an open question to CALM employees involved with marking plot sites or driving pegs (even caravan annexe pegs) into the ground.

Do you have a complete set of plans that show all underground service supplies for your work sites?

Are the marker pegs spaced appropriately along the line and marked with correct colours and word keys?

A recent near-miss incident has highlighted the need for extreme caution in driving pegs into unknown areas.

A workman drove a

steel star picket into the ground using a 4kg hammer fitted with a long wooden handle.

In looking back this was a wise choice of work tool, for if it had been a metal slide hammer then a very serious incident could have occurred.

The star picket hit a power cable and became live. The cable was unmarked; none of the personnel on site were aware of its existence and pegs had been driven into the ground nearby on previous occasions.

Rule no.1 - obtain the correct information before you dig holes or drive pegs into the ground.

## STAFF NEWS

### Appointments confirmed

Christine Grob, officer, Kirup, joined CALM. Also Judith Pitcher, technical officer, Harvey, from WAWA.

### Promotions

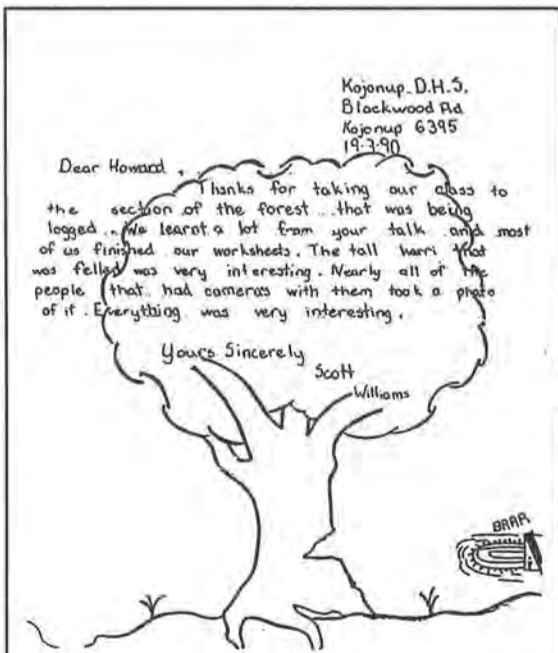
Matthew Warnock, to district wildlife officer, Moora and Mark Barley, to district wildlife officer, Merredin. Mobile ranger John Hanel to ranger-in-charge, Lane Poole Reserve.

Alan Lush to district manager, Manjimup; Bruce Harvey, regional operations officer, Kelmscott; Bob Chandler, regional planning officer, Bunbury; Glenda Pearson, information centre officer, Como; and Mike Choo, senior research scientist, Woodvale.

### Transfers

Andrew Horan, wildlife officer, to Geraldton; Sean Hazelden, wildlife officer, Bunbury; Rob Brazell,

nature reserves officer, Collie; Bill Evans, park ranger, Serpentine National Park; Christine Farrell, personal secretary, Woodvale; David Grosse, forest ranger, Kununurra; Paul Marsh, forester, Manjimup; Neil Worrell, forest ranger, Kirup; Charles Salamon, park ranger, Walpole-Nornalup; Terry Goodlich, park ranger, Metropolitan region; and Mike Newton, park ranger, Cape Range.



CALM's Pemberton District provides a service to the local Education Department where school groups spend up to half a day. About 30 tours are run from here each year.

A tour begins at the district office where CALM forest officers run a slide show covering CALM's land tenures, management objectives, and management opera-

tions including the protection of our environment.

Then all children and CALM officers board a bus, and take in a field visit of a logging operation.

Here the children get to look at the operation at close hand, the equipment used and the silvicultural treatments employed by CALM.

Pictured above is one of the letters received from students.

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# Easter Yanchep antics



Ranger-guided activities in Yanchep National Park over the April school holidays were again in high demand with nearly 400 participants.

Four activities were offered over four days. As a special tour Gloucester Lodge committee members conducted a historical stroll through the park on Anzac Day.

As in previous programs, the adventure caving activity proved to be the most popular.

All programs had a participatory role for visitors, particularly in the hidden animal venture conducted jointly by Hardy Derschow and Frank Ainsworth.

Participants in this activity gained an insight into the trapping methods used by the department along a fauna survey trail around the fringe of Lake Yanchep.

The wetland encounter activity mooted by new ranger Luke Coney certainly demanded attention as he manoeuvred a large inflatable craft, filled to capacity with visitors, around Lake Yanchep on a quest to discover the area's wildlife.

Luke's glass-bottomed bucket initiative gave visitors a tortoise-eye view of the aquatic community.

The recently-opened Yaberoo Budjara Heritage Trail was the scene for many introductions to the unique values of the park.

Visitors trekked along the ancient trail as ranger Jeff Kempton highlighted features of natural, aboriginal and historical significance.



**TOP LEFT:** Rats! Caught! But only long enough for a look, as part of the fauna survey program.

**LEFT:** Trainee ranger Geoff Harnett helps an adventurer out of an "undeveloped" cave.

**TOP RIGHT:** Ranger Luke Coney interpreting the ecology of Loch McNess to a "captive" audience.

**ABOVE RIGHT:** A budding caver who enjoyed the wild cave interpretation session led by trainee rangers Jason Puls and Ian Hughes.

## NEWS IN BRIEF

### End of fire season

Metropolitan Region fire fighters attended just nine fires this season - compared with 56 last year.

Metro protection officer Grahame Rowland said education campaigns run by both the Bush Fires Board and by CALM had been contributing factors.

The CALM program centred on the Kwinana and Rockingham areas where numerous arson fires have been reported over past years.

Schoolchildren were shown displays of live animals and a video of the Ash Wednesday fires in south-eastern Australia. They also discussed the effects of fire on wildlife.

Grahame said another reason for the drop in fires could be the awareness prompted by last year's Kings Park fire and by the upsurge of interest in the environment.

"It seems people are learning to take more care with fire and are also starting to jealously guard the small pieces of bush or parkland near their homes," he said.

### New friends for Forrestdale lake

Migratory waterbirds from as far away as Russia will benefit from the formation of a group to help care for their habitat at

Forrestdale Lake.

Forrestdale Lake Nature Reserve is an internationally important waterbird feeding and resting ground. Some of the birds that use the lake make journeys of up to 11,000 km from Arctic Russia, Northern China and Japan.

The Friends of Forrestdale will help CALM manage the reserve.

One of their first jobs will be to help remove introduced pampas grass, a plant that invades wetlands and displaces native vegetation.

### Free videos from Como

Free CALM videos are yours for the asking - just call Robyn Weir at Como.

Robyn manages

CALM's video library, which she keeps under lock and key in Como's library resource room.

She can provide you with videos on a wide range of subjects, including wildlife, the Greenhouse Effect, forestry, farming techniques, camping conduct ...the list is endless.

These can be used for staff training, or in the community for public relations purposes.

Videos in 16mm or half-inch format are available, and can be borrowed for up to two weeks. If you're in Perth, you're welcome to browse - just ask for Robyn at Como's front counter.

For enquiries, Robyn asks that you call after 2pm, when she's not so hectic with switchboard calls. She can be reached on (09) 367 0333.

## English in the workplace

by STEVE GRASSO

About six out of every 100 CALM employees who responded to the department's demographic profile survey, reported that they have difficulty reading, writing or understanding English.

This means that about 90 employees may have difficulty communicating with their work mates and supervisors, reading their pay slips or even understanding the evening news.

Even more importantly, they may have difficulty understanding safety directions or warnings at home and in the workplace, and in reporting hazardous situations at work.

Relying on mates all the

time to interpret things for you can be demeaning, and at crucial times even dangerous.

To help people wishing to increase their English skills, the Adult Migrant Education Service of TAFE has started an "English in the Workplace" program, which has both government and union support.

Under the terms of this support, employees from non-English speaking backgrounds may participate in this program during work time and on full pay.

CALM employees from non-English-speaking backgrounds, who would like to improve their English communication skills, may contact the EEO coordinator Steve Grasso at Como on (09) 367 0363.

ΕΛΛΗΝΙΚΑ (GREEK)

ΘΕΛΕΤΕ ΝΑ ΚΑΤΑΛΑΒΕΤΕ ΤΑ ΑΓΓΛΙΚΑ ΚΑΛΥΤΕΡΑ;

ΥΠΑΡΧΕΙ ΠΡΟΓΡΑΜΜΑ ΠΟΥ ΜΠΟΡΕΙ ΝΑ ΣΑΣ ΒΟΗΘΗΣΗ.

ΤΗΛ. STEVE GRASSO ΣΤΟΝ ΑΡΙΘ. 093670363 ΔΙΑ

ΠΕΡΙΣΣΟΤΕΡΕΣ ΠΛΗΡΟΦΟΡΙΕΣ

ΜΑΚΕΔΟΝΙΚΑ (MACEDONIAN)

Дали сакате да разберте Енглески подобро? Има програма што можни да ви помогни.

Да му рингате на Стив Грасо на телефон број (09) 367 0363 за појте информација.

Italiano (Italian)

Volete capire l'Inglese meglio? C'è un programma che vi può aiutare. Per migliore informazione telefonate a Steve Grasso a questo numero (09) 367 0363.

Español (Spanish)

Le gustaria comprender el inglés mejor? Hay un programa que puede ayudarle mucho. Llame por telefono a Steve Grasso, numero (09) 367 0363 para mas informacion.

### How to apply for that job

If you've ever wondered what other people put in their job applications, the following selection from those received for a recent position may enlighten you.

- \* (Written as part of a personal reference)... "seems to have been exposed to the right natural and environmental influences."
- \* Someone who could speak Chow-chou.
- \* Map reading skills demonstrated by success in delivering pizzas to the right address.
- \* A complete "Peanuts" comic strip included with a person's references.
- \* Working in a hotel (as a barmaid)...was instru-

mental in the development of an ability to communicate well and work under varying degrees of pressure.

- \* Five years on the 250 g, 750 g and 1 kg Weet-bix production line.
- \* Someone who fully endorses our Corporate Objectives.
- \* In discussing communications skills another applicant "gained oral experiences" in a previous job.
- Selection made by Rob Towers, Kelmscott Inventory Branch, who was chairman of the selection committee with 101 applicants for the one job.

# Gibson Desert dreaming. . .



A project to reintroduce endangered mammals to the Gibson Desert Nature Reserve is well under way, following a research trip in May.

The boodie, golden bandicoot, rufous hare-wallaby, the brush-tailed possum, and several other native mammals no longer exist in the reserve.

Their extinction is attributed to changed burning patterns after Aborigines left the land, and to predation by foxes.

However, with new burning patterns established by CALM and fox control

programs in the area, it is hoped that several pairs of golden bandicoots and boodies from Barrow Island can be released in the reserve in May next year.

To prepare the habitat for their reintroduction, CALM began a burning program in the Gibson Desert in September 1988, and researchers Neil Burrows and Alex Robinson have since been studying fire effects on desert vegetation.

During the May field trip, Per Christensen and Graeme Liddelow trapped mammals in the Young Range area, as part of their research to

determine the effect of fire on desert mammals.

As the area is in the midst of a drought, hopping mice were the main creatures they were able to trap.

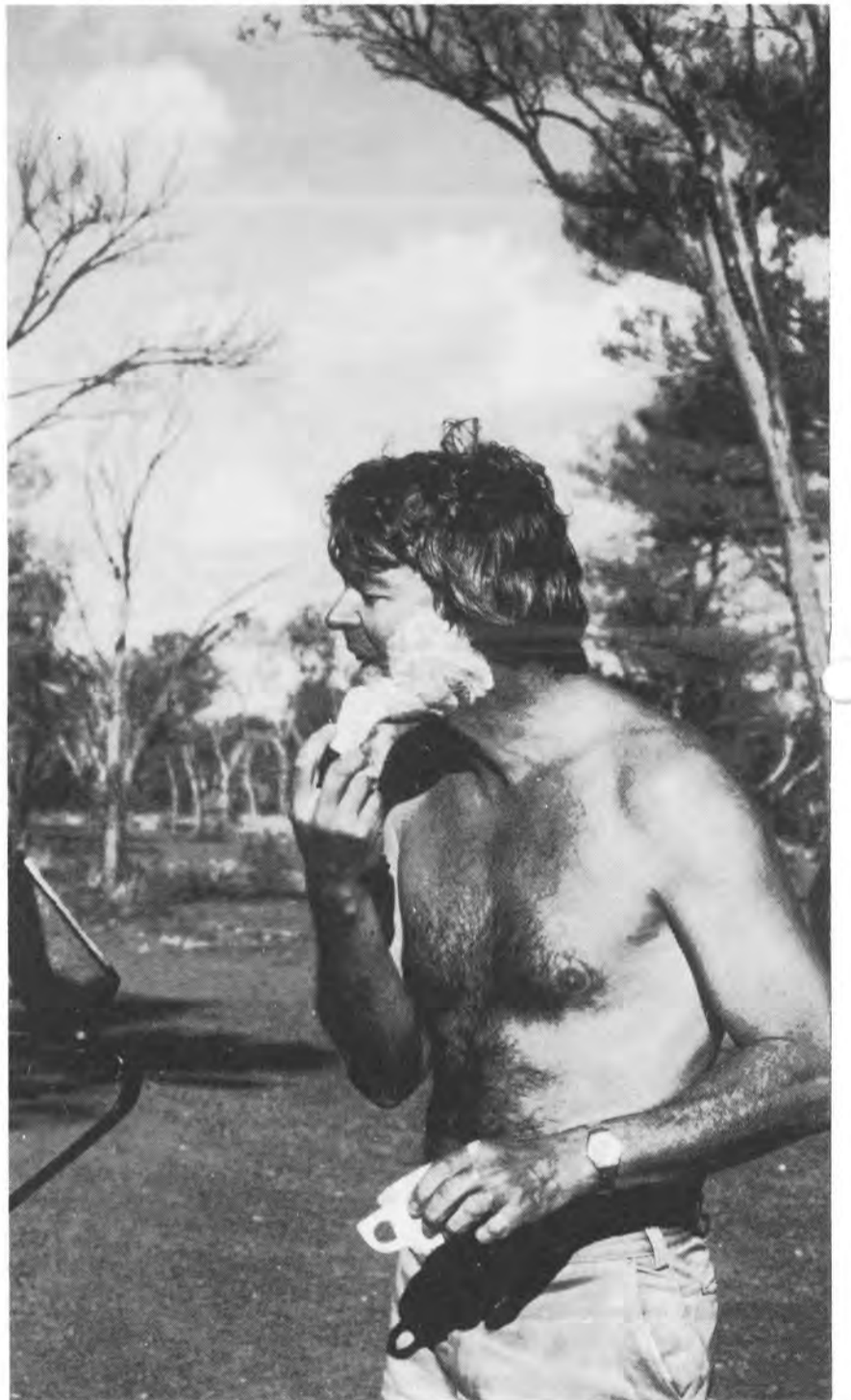
However, the researchers saw much evidence of recent activity by dalgytes, one of only three of the medium-sized mammal species still found in the reserve.

Lake Gruszka, where extensive boodie warrens can still be seen, was chosen as the site for the mammal release.

Researchers Dave Algar and Tom Leftwich surveyed

**LEFT: Dave Algar lays baits for unwary foxes in order to gather data for research.**

**BELOW: Despite the harsh conditions, Per Christensen used every available means to keep himself looking smooth.**



**ABOVE: Tom Leftwich and Dave Algar stop for a bite to eat.**

**LEFT: Per Christensen lays a trap in a fresh dalgyte burrow.**

# on a winter's day. . .

the densities of foxes, cats and dingoes around the proposed release area.

They found the highest concentration of foxes and cats around the lake in sandy spinifex areas, while dingoes were more common in the rockier mulga country further north.

They laid poisoned baits for foxes to collect data for research.

Few animals took the baits, confirming researchers' suspicions that feral animals currently occur in very low numbers in the reserve.

Dave and Tom will use samples taken from dead oxes to build up a picture of

age structure and population dynamics in the reserve. Analysis of stomach content and scats will reveal what they have been eating.

Technical Officers Alex Robinson and Graeme Liddelow upgraded a disused airstrip near Lake Gruska, originally built by an oil exploration company, to cut down the amount of travelling time during the next phase of the program.

In September, CALM officers from Kalgoorlie will undertake aerial patch-burning in a 40 kilometre radius around Lake Gruska.

There will also be intensive feral animal baiting in a 100 square kilometre area around the

proposed release site and a further 10 kilometre buffer zone, to prevent rapid recolonisation.

During the May study, researchers Andrew Burbidge and Phillip Fuller surveyed birds in eight quadrats in four different vegetation types (burnt and unburnt) as part of a long-term study on the effect of fire on birds.

Although bird numbers were generally low, Phil Fuller spotted a party of eight white-browed wood swallows - a species he hadn't seen for 25 years.

Ironically, heavy rain hampered the research work in the reserve, which is one of the driest areas in WA.



*Above: Neil Burrows conducts an experimental burn in the Gibson Desert Nature Reserve.*



**Story and photos by Carolyn Thomson.**

*Right: Graeme Liddelow examines a rockhole once used by Aborigines on Mount Beadell.*



*Right: "Dennis" the dingo was a regular visitor to the researchers' camp at Mount Beadell.*

*Below left: Alec Robinson surveys the freshly cleared airstrip.*



## Following in his father's footsteps

John McKenzie, an assistant to Bunbury's inventory technical staff, is the winner of this year's Executive Director's Scholarship.

The scholarship gives CALM wages staff the opportunity to go back to study without the financial burden that would otherwise create.

John, like his father, John McKenzie senior - the senior forester at Wanneroo - began his career in CALM as a

forest workman.

And, like John senior, he is now completing a cadetship with the department.

Pictured above congratulating John is Executive Director Syd Shea. They are watched by John's proud family: from left, John's wife Sharon, his father John McKenzie senior and mother Beth.



Goldfields regional manager Ian Kealley (centre, back) with Tjuntjuntjarra Community Ranger Richard Brookes (right) and Simon Hogan.

## Aboriginal advice sought

by PETER HUTCHISON

Aborigines from the Great Victoria Desert outstation of Tjuntjuntjarra recently joined CALM staff from Manjimup and Kalgoorlie in the first of a series of burns at Neale Junction Nature Reserve 700 km from Kalgoorlie.

Tjuntjuntjarra's community ranger Richard Brookes and three senior men from the outstation, were con-

tracted to assist with the burn and provide advice on the location of historical sites in the area so that operations could avoid them.

Aboriginal involvement was funded by the Australian National Parks and Wildlife Service under a scheme designed to involve Aborigines in nature conservation.

The objective was to prepare for an aerial burning program later this year and

reduce the impact of wildfires caused by summer lightning strikes in the 723,000 ha reserve.

Present for part of the operation were Aborigines from the South Australian community of Oak Valley.

They had accompanied officers from the South Australian National Parks and Wildlife Service to inspect a nature reserve adjacent to the WA/SA border.

Aboriginal people from the Great Victoria Desert region share close cultural and family links, so the meeting provided an opportunity to discuss issues of interest to Aborigines and conservation agencies on both sides of the border.

The burning program's second stage from Neale Junction is planned for September and CALM will again be working closely with local Aborigines.

## Survey sponsored

Last year, mining company Kalgoorlie Resource N.L. agreed to fund a biological study of Kangaroo Hills Timber Reserve, south of Coolgardie.

The survey, costing \$35,000, is a compensation arrangement with CALM for the loss of 90 ha of the reserve in a boundary move involving road realignment and excision of a degraded and mined portion of the reserve.

Kangaroo Hills Timber Reserve covers 6600 ha. As a series of greenstone hills it has attracted much attention from mining companies and prospectors for nearly 100 years.

As a timber reserve, Kangaroo Hills does not fall under Government policy procedures for mining on nature reserves and national parks. CALM's approach is to manage mining on the reserve in an environmentally sensitive manner.

At present, 95% of the reserve has various types of mining tenements. Management is further complicated by a grazing lease over some of the reserve.

Kangaroo Hills was gazetted as a timber reserve in 1975. With all this activity, there was a need for data on the reserve's vertebrate fauna and flora.

Greenstone as a landform is not well known from a biological point of view, and it is poorly represented in the existing reserve system.

Kalgoorlie Resources agreed that it was in everyone's interest to survey the biota of the

entire reserve instead of just the relatively small area they were interested in.

In November 1989, zoologist and private consultant Mike Bamford and plant ecologist Phil Ladd from Murdoch University were commissioned.

Survey methods were designed to correspond with those for the System 11 surveys of the Goldfields, so that data generated would be comparable.

Mike and Phil will spend three one-week trapping and data gathering sessions in the field this year, producing a final report and vegetation map by December.

The first week's recording began in April and, despite 25 mm of rain which caused logistic difficulties, there have been excellent results.

Four species of native mammal, including a breeding record of the pygmy possum and Mitchell's hopping mouse, 45 bird species and 10 reptile species, were recorded at the time of year when numbers are usually lowest.

This project is an excellent example of corporate sponsorship aiding CALM's objectives; CALM gets the data it needs for effective management which would otherwise be beyond our resources. At the same time Kalgoorlie Resources senior management have become more aware of the biological conservation and management and the implications for their industry.

## GPS in use in Goldfields

by ANDREW CHAPMAN

CALM's recently acquired Global Positioning Unit (GPS), purchased for use in forest mapping by helicopter, has found a more fundamental use in the Goldfields region.

The unit was used for navigating in the Great Victoria Desert Nature Reserve by Peter Hutchison and myself with Aboriginal people from Tjuntjuntjarra outstation.

This particular trip certainly combined ancient knowledge with modern technology!

In the Forrest Lakes area of the nature reserve it was necessary to have the GPS so that we knew whether we were still in WA or in South Australia.

Since that first desert trip, the GPS unit has been used to map the location of desert rock-holes shown to Peter by local Aborigines and to map plant collecting localities in the desert vastness.

Imagine the luxury of having a latitude and longitude at the press of a button to transcribe immediately onto a plant label!

The GPS unit has also been used for the more day-to-day aspects of reserve management in the Goldfields, including accurately locating the site of an illegal mining operation in the Gibson

Desert Nature Reserve, plotting fauna and flora biological survey sites on Kangaroo Hills Timber Reserve, establishing the boundary position of Goongarrie National Park and deciding whether a soak which a pastoralist wished to use for stock purposes was actually in his lease or within the national park.

(Unfortunately for the pastoralist the soak did turn out to be in Goongarrie by about 150 metres.)

With such a wide range of applications we sometimes wonder how we got by without the unit.

However, some users have learnt to their cost that there are limitations to the use of GPS technology; in particular a satellite "window" must be available and this is improving all the time with more and more satellites.

There are also limitations to position fixing accuracy with GPS which would-be users should be aware of.

The instrument only has a guaranteed accuracy of between five and 10 metres; while this is more than adequate to locate a position in the Great Victoria Desert, for example, it is considerably less than the accuracy required to survey a straight boundary. Satellites malfunctioning or re-arranging their orbits can also cause inaccuracies. However, the instrument does have the facility to indicate when this is the case.

# When drovers roved

by CLIFF WINFIELD. First published in the Warren-Blackwood Times.

Former south coast grazing leaseholders recently joined CALM officers for a unique tour of the D'Entrecasteaux National Park.

The parties met near Lake Jasper and during the two-day field workshop travelled through the old grazing leases, recalling and discussing the regularity and intensity of fires lit by cattlemen when they held leases over land now contained within the national park.

The workshop was organised by Southern Forest region fire officer John Evans to review fire management of the coastal woodlands and heath.

In recent years wildfires have swept through parts of the park, devastating many stands of old peppermint and yate trees.

At the end of the field trip, regional manager Alan Walker told the cattlemen he would try to establish a trail area within the national park.

"I propose we set aside an area from Gardner River, Chesapeake Road and across to Broke Inlet which could be managed with regular burning, patch burning and three to four year lighting," Mr Walker said.

"In this way we will develop a type of mosaic

burning likely to have been used by Aborigines, and certainly used by pastoralists over the past hundred years."

The meeting brought together a unique group of men.

They represented three generations of families who had driven cattle down onto the coast each year for a few months, to graze on native grasses and scrub.

This gave the pasture on their farms inland (from along the Blackwood, to Perup and Forest Hill near Mount Barker) a chance to "come away" without stock for the first few months of winter growth.

Among the graziers' group were members of some famous south coast families, including the Muirs, Brockmans, Ipsens, Mottrams, Dicksons and Scotts.

Frank Brockman remarked how the nature of the countryside had changed since the graziers had left, describing an image of grassy parkland beneath tall peppermints.

"As far back as white people can remember it's always been clean country," Mr Brockman said, referring to the now dense thickets of peppermint regrowth after a wildfire in 1988.

"We used to burn it as often as it would burn, and that way we never got any really hot fires."

The cattlemen said they had learnt their fire

management techniques from their forefathers, who in turn had learnt from the Aboriginal people who also came to the coast to hunt in the summer months, and later as stockmen with the cattlemen.

Jim Muir (69), whose father and grandfather had grazed cattle on the coast, claimed the meeting was the first time the government had listened to cattlemen about the way they maintained their leases in the state in which they found them.

"If this trip had been undertaken 50 or 60 years ago there might have been some sense in the current fire management plan," Mr Muir said, referring to the imposition of total fire bans in the bush from the 1930's until the royal commission following the Dwellingup fire of 1961, and the "no burn" policy that continued in many national park areas.

Many of the group camped for the night at Moore's hut, a relic of the days when the families stayed on the coast with their stock.

While some turned their hand to campfire cuisine, Andy Muir produced his grandfather's 1893 diary that not only provided evidence of fire management, but gave a unique insight into the lives of the pioneer farmers.

Around the campfire, tall tales and true were told of the days of droving down to the coast.



Representatives of the leaseholders, Bill Lewis, Arnold Lewis, Cliff Mottram, Terry Dickson, Bill Ipsen, CALM officer John Evans and David Mottram look over the coastal plains.

## Dryandra enlarged

Dryandra State Forest has been enlarged by 1327 ha, following a recent agreement between CALM and the WA Water Authority.

Reserve 16201, previously vested in the Minister for Water Resources, has been cancelled and the area included in State Forest No. 51.

This will ensure that the whole of the central block of Dryandra (about 8500 ha) will be managed primarily for the maintenance of its conservation values.

These are highly significant, given the extensive clearing within the Wheatbelt for agriculture.

The remaining vegetation, particularly the larger remnants, have assumed conservation significance.

The highest concentration of rare and threatened plants in Australia occurs in the Wheatbelt region.

Land added to Dryandra

contains representative areas of wandoo (*E. wandoo*) and jam (*Acacia acuminata*), which have otherwise been extensively cleared.

Of the 43 mammals once known from the Wheatbelt, 17 have disappeared and only 12 are considered to be moderately common to abundant.

Those remaining within the main block of Dryandra include the numbat, brush-tailed bettong and red-tailed phascogale, all of which are gazetted as rare and endangered.

The reserve was originally set aside in 1915 for railway water supply.

The railway line between Narrogin and Dwarda opened in 1926 and was mainly used for transporting sleepers from the Dwarda mill.

The reserve contained a dam at Congelin siding and incorporated the catchment to the north.

In 1929 the reserve was transferred to the Minister for Water Supply. The Dwarda railway line closed

in 1957.

The area encompassed by the reserve has remained largely undisturbed, although harvesting for sleepers and mallet bark (a source of tannin) was carried out in the vicinity of Congelin siding.

Small areas of mallet plantations were established in the 1930s when a market remained for vegetable tannins.

A section of the reserve has been maintained as a fuel datum area and has not been burnt for more than 40 years.

This area will provide an important data base for comparison with other areas where prescribed burns have been conducted for protection or research purposes. Research into numbats by Tony Friend has focused on the relationship between fire and the suitability of habitat for this endangered species. A management plan is presently being prepared for Dryandra State Forest.



## Shannon program success

**Top left: Ranger Nathan McQuoid enjoys a cuppa during a break.**

**Above right: Campground host Ian Ulyat.**

**Bottom right: Ranger Terry Goodlich demonstrates his fly fishing technique.**

**Bottom left: Retired forester Barney White was a volunteer interpreter at the Shannon program.**

Southern Forest region expanded its holiday program in national parks by running a series of activities in the Shannon National Park during Easter.

More than 200 people camped at the Shannon recreation area for the holiday break.

Interpretation officer Cliff Winfield estimates that most visitors attended at least one of the activities.

"We had more than 60 people at ranger Terry Goodlich's trout fishing and marring talk," he said,

"and 20 to 30 people joined the forest tour and plant walks.

"Then nearly everyone at the campsite came along for the bush dance."

A spotlighting expedition with rangers Nathan McQuoid and Rod Annear attracted another 60 people, he said. Retired forester Barney White, and local identities George Gardner and Ron Kitson, volunteered their time to tell yarns of days gone by in the Shannon.

They huddled around a campfire on a cold night with a warming beverage and

spoke to a few dozen keen listeners.

The campground host scheme also got under way in the Shannon over Easter.

Shannon's new campground host is a retired engineer from Como, Ian Ulyat, who visits the area regularly to camp in the bush.

Ian volunteered to become host because he loves meeting people. Now he gets plenty of practice as he guides visitors to the best locations around the park and hands out information about CALM.



## First marri piece groomed

Story and photograph courtesy of the Warren Blackwood Times.

**Manjimup fine wood craftsman Bob Groom has fashioned his first piece of furniture from marri VALWOOD.**

The finished product is a lectern that was recently presented to CALM Executive Director Syd Shea and Southern Forest region staff to commemorate the Department's fifth anniversary.

Timber for the lectern was small-diameter marri regrowth logs from Big Brook Forest, near Pemberton.

CALM has tested the VALWOOD process with logs from a large number of slender regrowth trees.

Jarrah, marri, karri and Tasmanian bluegum have all been used successfully in the process. A display of VALWOOD products are on show in the foyer of the Manjimup Timber Park.

Southern Forest regional manager Alan Walker said the VALWOOD process was exciting because it offered the opportunity to use thinnings from overcrowded forests for a high-value product.

"In the regrowth forests of the South-West, where

mature trees were harvested earlier this century, there is a surplus of trees which reduces the development of prime specimens," he said.

"The surplus trees can be thinned out, but until recently they have been too small for the sawmills.

"In the past small jarrah logs could be sold only for firewood, charcoal or fence posts, while small karri and marri logs are made into chips for paper pulp manufacture.

"Alternatively, culled timber can be left to rot in the forest.

"It was a cheeky idea to suggest to WA sawmillers

and furniture manufacturers that they should use little pieces of wood joined together to make big ones.

"Manufacturers shuddered at the idea of making, say, a dining room suite from what they must have thought was a kind of upmarket plywood.

"But the end results have erased everyone's doubts.

"Many furniture makers have now constructed items from VALWOOD and all have given it the thumbs up."

Mr Walker paid tribute to Mr Groom's skills as a furniture maker. His lectern will be used in the conference room at Como.

## LETTERS

The following is a letter received from Melbourne University senior lecturer Ray Spencer, who recently spent six months in WA involved with the department's jarrah inventory project.

**Dear Syd,**

Many thanks for supporting the arrangements for and during my recent visit to the department. I thoroughly enjoyed my stay from both professional and personal standpoints, and so did my family.

I was very impressed by the high standards of professionalism throughout the department, especially among the jarrah inventory team where I spent much of my time.

This project is without equal in Australia and ranks as one of the most innovative of its type in the world.

It could not have been achieved without the dedicated, skilful contributions by the various team members in their wideranging technical fields. The calibre of these people,

coupled with the supportive working environment that fosters interaction and innovation, provides a powerful basis for constructive change.

It has been a source of pride and satisfaction for me to have been involved with this project from its early stages.

During my visit I also valued the opportunities so readily given for me to interact with staff working in various other areas of mutual interest, including regional management, the eucalypt and pine plantation programs, the VALWOOD project, the dieback mapping program and fire management.

All of these contacts were characterised by enthusiastic, positive responses that helped to make my visit all the more rewarding and enjoyable.

I would be very grateful if you could convey my thanks to everyone who helped to make my visit such a rewarding and memorable experience.

**Ray Spencer**

# A sign of the times

VALWOOD is now being used to produce CALM's routed timber signs.

Since the introduction of the new sign manual, Recreation, Landscape and Community Education Branch have investigated ways to help regions and districts achieve sign standards while keeping costs as low as possible.

Timbers used by the department to produce routed signs in the past have had drawbacks.

Jarrah is the most commonly used species and combines strength and durability with resistance to insect and fungal attack.

However, it is becoming increasingly difficult to get

in the required sizes, and there's often considerable lead time needed to fill orders.

Conventional jarrah boards are also becoming too valuable and expensive merely to be hidden under paint.

In contrast, pine is the least expensive timber and is readily available, but its durability under prolonged heat in the north of the State is questionable.

Due to its susceptibility to insect and fungal attack, pine must be chemically treated, particularly if in contact with the ground.

This treatment is considered by some to present a health hazard due to the fine dust particles

created if the timber is sanded.

In recent years, tropical species such as Kapur have been used on a trial basis.

These timbers, priced between pine and jarrah, have proved reasonably durable and are easy to work.

While several species are readily available on the local market, their continued use is contributing to the exploitation and clearing of SE Asian rainforests.

The development of production of jarrah VALWOOD at CALM's Wood Utilization Research Centre at Harvey offers an ideal alternative for sign production to conventional solid timbers.

- WAYNE SCHMIDT



A bulldozer lays the groundwork for an interceptor bank.

## Pilbara trails put into practice

The many years of work on water harvesting techniques by Wally Edgcombe in the Pilbara have proved useful in upgrading Kalgoorlie Arboretum in the Goldfields.

Techniques Wally had used at Karratha included

Israeli-designed Limans - small ponding areas resembling farm dams.

This concept is now being used at Kalgoorlie to enhance the growth of River Gums (*Eucalyptus camaldulensis*) and kikuyu lawn areas in the arboretum's recreational

area. Here, run-off from the streets flows into the arboretum river gum plot, then into the dam. Water is ponded en-route to the dam by an interceptor bank. This ponding has resulted in the enlargement of the lawn area.

If rainfall is large enough,

water will fill the dam and subsequently overflow into a number of Limans. The result: more water available for the river gums and greater growth.

The project's success is measured with VISTAT figures collected over the last six months. Road counters show that an average of 550 vehicles pass through the entry every month. This is only a percentage of total visitation, as most people walk into the area because of its proximity to Kalgoorlie's urban area.

Activities such as picnics, walking dogs, viewing of flora and bird watching are now common in the arboretum, which serves as an ideal educational area and is an excellent advertisement for CALM.

The project could not have proceeded without corporate sponsorship given to CALM by Kalgoorlie Consolidated Gold Mines and Roche Brothers, which donated about 40 hours of machine time. Machinery used included a scraper, two graders and a D4 dozer. This type of work would have been completely out of reach of the Kalgoorlie region's budget.

The water harvesting concept is now being considered for a project to "green" the City of Kalgoorlie-Boulder. Water will be harvested from city streets into what is known as Gribble Creek, which runs the length of the city. Limans will be built along the creek, forming passive recreation sites.

the most popular paths is the route up Bluff Knoll.

This was established in 1984-85 under the wage/CEP program and, while generally following a good alignment, several sections are in urgent need of repair.

Work has begun on improving the path's worst

sections, including a short bridging ramp over an eroding gully near the summit plateau.

According to South Coast regional manager John Watson, footpath establishment and maintenance is one of the region's most challenging management issues.

## Region is on the right path

CALM's South Coast region faces an enormous program of upgrading and maintaining its extensive network of footpaths in national parks and nature reserves.

Last year a detailed inventory of each path was prepared, together with work prescriptions. One of



Peno Hau and Bob Edwards at work on the lower sections of Bluff Knoll footpath in the Stirling Range National Park. Photo: JOHN WATSON

### Chuditch find

The recent discovery of a young male chuditch, north west of the Avon Valley National Park, represents the most northern known habitat of the species in 20 years.

Although the adjacent property of Moondyne has reported sightings of the chuditch, none have been officially recorded.

Now CALM research officers will survey the park and Julimar, further north, to discover exactly where the chuditch, once common throughout Australia, still exists.

- The Echo, April 15, 1990



Solar-powered water pumps are being installed in the Cape Range National Park.

The pumps will provide water for park visitors, as well as for project work

within the park.

According to Exmouth district manager Doug Meyers, the new pumps are cheap and highly efficient.

"I also like the idea of CALM being conservation-

mindful about energy," he said. "We have plenty of free sunshine on Northwest Cape!" Three new solar pumps have been installed, all work carried out by CALM staff.

## Forest a bush catalogue

Say State Forest, and one imagines the lush jarrah forests or the tall trees of the southwest.

However, there's one that doesn't fit this image: Karamindie State Forest, 55 kilometres southwest of Kalgoorlie.

Named after nearby Karamindie soak, a granite rockhole, this State Forest outpost covers 781 hectares and has an interesting history.

It was gazetted State Forest No.8 in May 1925. The area is a flora and fauna landscape management priority area for long-term study and research into the growth of sandalwood.

Survey and mapping logbooks retained in the Kalgoorlie office show that from 1925 to 1930, extensive sandalwood research and sowing was carried out there by Goldfields foresters Harry and Jim Franks, using local planting crews.

Evidence of their activities still exists in some areas, where remaining beer bottles bear the date stamp 1928!

In 1974, Forests Department research scientists resurrected the records kept by Harry and Jim Franks, with the result that some of the early research planting plots have been relocated and tagged, providing accurate data on the growth of sandalwood.

Located within Woolibar pastoral lease, the area was originally fenced off to protect valuable sandalwood research sowings from stock.

removed when foresters decided, based on their research, that sandalwood was extremely slow-growing and that the viability of large-scale planting in the Goldfields was minimal.

Further scrutiny of these results in later years showed that these earlier findings were wrong. Some plantings in creek lines had matured and regeneration was occurring.

In 1978-79, with the help of the pastoralist on Woolibar station, the area was again fenced to exclude grazing.

This was due to rekindled interest in the sandalwood industry, and a recognition

of the need to manage areas under departmental control within the Goldfields region.

Karamindie was available once more for sandalwood research, and already contained valuable historical data.

(The area had been cut over for greeneucalypt wood which was used as boilerwood in the mines, hospitals and breweries of Kalgoorlie and Coolgardie in the period from 1900 to 1917. A diverse eucalypt forest regenerated, complemented by a wide range of shrubs.)

Today Karamindie is a valuable ecological resource and catalogue of the Goldfields environment.

## Drupella captives spawn

The coral-eating snail *Drupella* has spawned in captivity - giving scientists a valuable insight into the predator's life cycle.

This may help reveal the causes of *Drupella*'s outbreak on Ningaloo Reef, where numbers have increased dramatically from about 100-200 snails a kilometre 10 years ago to the present day 1-2 million a kilometre.

CALM, with funding from the Australian National Parks and Wildlife Service, is studying the reproductive biology and early life-history of *Drupella*.

It is thought that the snail's life cycle has played a major role in its increase and invasion of the reef.

Captive *Drupella* are being kept at the University of WA's marine laboratory, where they spawned in April. These eggs have since hatched, producing several thousand planktonic larvae.

Further spawn masses will be examined and measured, particularly any located on the reef.

### Ranger Roopaw apology

Sorry, folks! Ranger Roopaw has been on sick leave, and is unable to place his cheery face upon our back page this month. Look out for his return in the July edition.