CALM NEWS

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT April 1990

CALM Turns Five!

CALM recently celebrated its fifth birthday.

At the department's state headquarters at Crawley, a small function was held for the event and to welcome new Minister for the Environment, Bob Pearce, and thank former CALM minister Ian Taylor, pictured above with Executive Director Syd Shea.

Mr Taylor holds the colour photograph of Rowles Lagoon Nature Reserve (an area in his Kalgoorlie electorate) presented to him by Dr Shea on behalf of CALM.

Also present for the occasion was Dr Shea's daughter Sara, photographed as she was being held by Crawley officer Danny Flynn.

Photos by TANYIA MAXTED.

New minister seeks a balance

A coordinated response to WA's environmental issues is how Minister for the Environment Bob Pearce describes what his new portfolio will be able to offer.

With CALM, the Environmental Protection Authority and Waterways combined in the one ministry, Mr Pearce believes it will be easier to form a central environment policy for the State.

Approaching development in an environmentally sensible way is his aim. And that certainly doesn't mean simply saying no to development of any kind.

"We can't have that because that would lead to rapid degradation of the lifestyles of WA people and the wealth of our community," he said "and that would have bad environmental consequences.

Minister for the Environment Bob Pearce

"In the past we've had development without much appreciation of environmental consequences, and that's led to a lot of problems, so we have to have a different way of thinking.

"But I believe that, not just in the Government, but in the community, there is a change in thinking, and that's something I'll be able to build on."

Mr Pearce said that in the past there had not been enough consideration given to the environmental consequences of rapid, and in some ways, uncontrolled growth.

"We could in fact be producing a future for ourselves that we wouldn't want. It's not going to do us any good to be sitting around with thousands of dollars in the bank and beautiful homes if we can't see the sky, breathe the air, swim on the beaches or drink the water.

"If we're not careful, in 20 or 40 or 60 years' time, we could have those problems in Perth.

"Our job, and I suppose particularly now, my job, is to do that balancing, to make sure we can have development but we do it in an environmentally responsible way. So we can agree to jobs and to projects which bring jobs to WA and bring wealth to our community, but reject things which might be quick fix solutions to particular kinds of proposals that don't pay attention to the long term environmental consequences.

"Now it's not going to be an easy job and there will always be people from either side of the coin who'll say 'you're being too restrictive' or 'you're not being restrictive enough'.

"Our job will be to be as restrictive as we need to be to do the job that we have to do."

One of Mr Pearce's priorities is to preserve WA's waterways, which are being put under increasing pressure by urban development.

"There's nothing that cannot be salvaged from our waterways situation.

"All our main waterways are under pressure but we can save them if we act now."

As well as his ministerial duties, Mr Pearce is Leader of the House in the Legislative Assembly.

He was first elected to the Legislative Assembly as the member for Gosnells in 1977 and became the Minister for Education in 1983.

In 1984 he also became Minister for Planning. During the first Dowding Government, Mr Pearce relinquished the Education portfolio and added Transport and Parliamentary and Electoral Reform to his responsibilities.

In the second Dowding Government he exchanged Planning for Environment.

A keen debater, Mr Pearce has represented the State and Australia several times in competition.

VALWOOD voted no. 1

CALM's innovative Valwood process - which turns waste wood into quality timber products - has won a national award.

Phil Shedley, manager of CALM's Wood Utilisation Research Centre at Harvey, was recently presented with the inaugural Sigma Data Environmental Technology Award in Canberra.

The presentation was part of the annual Government Technology Productivity Awards, which recognise the achievements of government organisations at Commonwealth, State and Local levels in the use of technology.

In accepting the award on behalf of CALM, Mr Shedley said the VALWOOD process was the result of four years' research by 26 people to satisfy the demand for high quality furniture wood and to establish value-added markets for the small trees culled from overcrowded regrowth eucalypt forests.

He said the process was more efficient than conventional sawmilling, and trees used in the process made way for renewed growth in the forest.

WASTE INTO WOOD

The VALWOOD process uses small trees, recovers unusually large amounts of timber, and creates a value-added product which is easy to use and is highly profitable.

VALWOOD has the potential to revolutionise the forest products industry.

The trees used in the VALWOOD process are those thinned from a eucalypt regrowth forest so they don't stop the development of bigger trees.

Up until now they have been considered too small for economic use by sawmillers and furniture makers and have instead been used for firewood or charcoal, made into chips for paper pulp, or left in the forests to rot.

To overcome these problems, CALM undertook a research project in 1986 to establish techniques and develop equipment for commercially processing the small eucalypt regrowth trees.

A $4.6 million research project was jointly funded by the State and Commonwealth Governments and industry.

The work was undertaken by CALM's Wood Utilisation Research Centre (WURC) at Harvey.

VALWOOD PANELS

The VALWOOD process involves laminating 10mm thick boards edge to edge and face to face to make up pieces of any required size.

The wood has no splits and, because it is so thin, it is evenly and thoroughly dry so does not shrink in use.

WURC staff have also experimented with various ways of stockpiling and drying timber which can then be converted into laminated timber planks.

By reducing the normal two-year period required to prepare timber with the traditional "air dry" method, the VALWOOD process provides a much faster turnover in high value sales. This is a significant benefit for sawmills which had previously faced long periods without income as they waited for their product to dry ready for delivery - and even then, faced the possibility of uneven drying and wastage.

These problems have been overcome by CALM's drying system, which features a solar blanket dryer with a double shell of soft, inflatable plastic in which there are large fans, curtain filters and fogger water sprays.

The dwindling supplies of many timbers, combined with increased public resistance to buying wood from overseas rain forests, is expected to create a large market for the VALWOOD process, particularly as it is available in a broad spectrum of colours.

Following nationwide advertising, a commercial VALWOOD licence is being issued and a pilot plant will soon be in production.

CALM is promoting the process around Australia this year, beginning with the recent Technology Exchange at the department's Como headquarters.

WURC manager Phil Shedley photographed with the Sigma Data Environmental Technology Award, awarded to CALM in Canberra recently

From my desk . . .

I recently attended a meeting of representatives of the AWU staff that are employed by our Department. The purpose of this meeting was to discuss with the delegates and members of the Human Resources Branch and the Union, progress towards achieving the objectives of award restructuring.

For those of you who are not aware, restructuring is a process that is occurring throughout Australia that is part of the "accord" structure. Essentially, what it involves is devising a system whereby the organisational and cultural constraints on productivity can be overcome in return for wage increases. It is very important, not only for this department, but for Australia, that we become more productive, and obviously some of the things that we have inherited in terms of work practices are inhibiting this.

I was extremely impressed by the results that have been achieved so far with the Union and representatives of our AWU staff. There is a long way to go and I am sure we will have disagreements, but they are not impossible to overcome. Our ability to maintain and stabilise our financial situation in the Department depends on us achieving more efficiency and productivity.

But apart from the award restructuring issue, I was really impressed by the positive approach of our own AWU staff to the difficult issues facing this Department, I confess I felt guilty. I personally, and certainly the senior executive of this Department, have not paid attention to tapping the ideas and goodwill that exists within this section of our Department. I am very keen to maintain the mechanism of consultation that has been set up for resolving the award restructuring questions in the future.

SYD SHEA, Executive Director

Fern on Shore

The rare fern *Asplenium obtusatum* (shore spleenwort), previously only recorded from Chatham Island near Walpole and Breaksea Island near Albany, has been found in Torndirrup National Park.

It's no coincidence that South Coast Regional Manager John Watson was associated with both the Chatham Island and the Torndirrup discoveries.

In 1975, John, a keen rock climber, accompanied research scientist Ian Abbott on a two-week biological survey of Chatham Island.

As well as helping with bird trapping and vegetation surveys, Ian thought he would need some technical rock climbing assistance in safely landing and unloading his delicate research equipment on the island and in gaining access to some of the rocky areas.

During exploration of steep cliffs on the island, John spotted the unusual looking fern growing in a crack at the base of a granite rock face.

Last year John spent a few hours on Breaksea Island assisting wildlife officers and research scientists search for the elusive plant. None were found.

In February John was on a climbing meet with SCUM - South Coast Union of Mountaineers - on a rock face in Torndirrup National Park.

John recalls...

"We were on the last climb of the day - a real classic; highly exposed and quite a serious route. I had climbed the route several times before but not since the trip to Breaksea Island when I had taken a line drawing of the rare plant with me. Suddenly there it was, right in front of my eyes! At this point the climb followed a vertical crack and there were few hand and footholes. The exposure was tremendous - when you looked down between your legs all you could see was waves crashing up granite slabs over 100 m below. A few metres up I found a second plant. Above here the route became harder and I had to concentrate fully on the climbing. To my delight when I checked my sample against the office files next day the match was perfect...."

The special significance of this discovery is that this is the first record on the WA mainland. The find augers well for further discoveries as there are many similar cliffs along the Albany-Walpole coastline which John and his rock-climbing friends visit from time to time.

Flora book hits stands

by Andrew Brown

At last, the long-awaited book "Western Australia's Endangered Flora" is in the hands of the printer and will soon be released.

Written and compiled by Stephen Hopper, (principal author), Stephen van Leeuwen, Andrew Brown and Susan Patrick from CALM's Research Division, the book is illustrated in full colour with photographs supplied by many members of the department and compiles over a decade of research.

Work on the book first began in 1977 when little was known about endangered flora and its biology. It has taken until now to survey, study, photograph and monitor all the species treated within.

The book discusses the conservation of WA's endangered flora and reviews relevant legislation, policy, research and management activities of CALM.

It also provides an illustrated guide (with most in full colour) to the 238 plant taxa declared as endangered flora in 1989, lists other plants under consideration for declaration and illustrates a selection of presumed extinct and recently rediscovered plants.

Endangered plants warrant special conservation attention as their extinction is more likely than for other plants. We now know that WA has more endangered flora than any other state of Australia, or the vast majority of other countries in the world.

In most cases, these plants are naturally localized, recently-evolved and numerically rare.

Many replace each other over short distances across the landscape, so that similar districts have their own local endemic.

Most endangered flora are especially prone to extinction from bulldozing, disease infection, weed invasion, drought and other local disturbances.

Much remains to be done to ensure the conservation of WA's endangered flora and it's hoped this book will stimulate interest in these plants.

It should also assist land owners, botanists, CALM staff and interested members of the public in their identification.

A limited edition, "Western Australia's Endangered Flora" will be available from major bookstores or direct from CALM at a recommended retail price of $24.95.

Private thinnings

by PHIL DURELL

A valuable timber resource exists on private property.

CALM has recently taken advantage of this to fulfil obligations to contracts between the department and sawmillers.

Harvesting of the resource is also a financial advantage to the landowner.

The present operation takes the form of thinning karri regrowth on various private properties in the Southern Region. Operations have so far been undertaken in Pemberton and Manjimup, with operations soon to begin in Walpole.

A deed of grant between the landowner and CALM has to be drawn up before operations commence. This document allows CALM to take trees in return for a royalty payment to the landowner.

This document is also signed by the mortgagee.

While there are financial benefits to the landowner, the real value of this operation is the enhancement of the private property forests that occur in the region. Thinning allows rapid growth of the remaining trees within the stand to ensure a future resource and future income to the landowner.

Once a management plan has been agreed upon by CALM and the landowner, the department employs a logging contractor to carry out the task on their behalf.

So far this year in Walpole, three private properties totalling 40 ha have joined the thinning program.

The value per hectare to the farmer (net) is about $1400 or 90 percent of the gross value.

Products from these thinnings will be used to make SEC poles; small regrowth karri sawlogs will be sent to Monier at Busselton to be made into tile battens, while karri and marri regrowth will be sent to Pemberton.

Wood at work

Dwellingup District is undertaking a trial in the Del Park minesite to test the use of Red Mahogany (*Eucalyptus resinifera*) as firewood.

Red Mahogany, native to coastal areas in NSW and Queensland, is one of a number of eastern state eucalypts used in the rehabilitation of Alcoa bauxite pits.

In WA, however, it is largely untested. This, together with the small volumes involved, has made thinning of the stands for commercial use difficult to achieve.

Forester Graeme Gardener is hoping the Del Park trial will prove part of the answer.

Funded by Alcoa, the trial involves the thinning of rehabilitation planted in the early to mid 1970's, now about 10m in height and 250mm in diameter.

All potential firewood, down to 75mm in diameter, is then picked up and moved to roadside dumps in log lengths.

Due to the difficult terrain in rehabilitated pits and the small piece size, extracting them has been difficult.

However, experimentation has shown that the most effective method is to manually load small pieces onto the forks of a small frontend loader for removal.

Using this method, three employees produced about 80 tonnes of potential firewood in five days.

It now remains to be seen whether the wood produced is suitable for firewood and sufficiently popular with the public.

They will pay for a permit allowing them to cut a trailer load of firewood from the log lengths at roadside dumps.

If the trial is a commercial success the proceeds will pay for a similar operation next year.

An important side benefit of the trial is that, because all stem wood down to 75mm is removed, very little debris remains afterwards.

This is particularly advantageous as it increases the efficiency of present works aimed at establishing a scrub understorey in these pits.

Scrub establishment was not part of the process in early years of rehabilitation and has begun this year as a priority to improve the fertility of the sites and help ensure their long term viability.

This operation would be more expensive and less effective without the removal of the debris commercially.

It's extinct— no it isn't

Another of WA's presumed extinct species has been rediscovered.

Last collected from the "Swan River Colony" by James Drummond in 1849, *Ptilotus caespitulosus* was found on private land between Geraldton and Moora last year.

Alison Doley, a keen conservationist and member of the Coorow Wildflower Study Group, located the species on her property and arranged to forward a specimen to the Herbarium for identification.

Once its identity had been confirmed, Geraldton flora wildlife officer Phil Roberts carried out an inspection and located some 200 mature plants and many seedlings - all in a healthy condition.

The large number of seedlings may be the direct result of the Doley's action of excluding grazing stock from the area containing the rare plants.

The rediscovery of this extinct plant after 150 years is remarkable and may indicate that some of the State's other presumed extinct species are still out there somewhere just waiting to be found.

- Mike O'Donoghue, senior clerk flora

STAFF NEWS

Appointments

John Winton, Forester Grade 2, Esperance.

Promotions

Sylvia King, to Personnel Officer (L2), Como; Peter Haslewood, Administrative Assistant (L3), Woodvale Research.

Glyn Courtice and Carol Power gained promotions to Crown Law Department.

Transfers

Wally Edgecome, Senior Forester, to Silviculture, Como; Steve Raper, A.D.F.O. Wanneroo; Graham Ellis-Smith, Forester, Leederville; Tom Rouse, Forester, Walpole; Jenny Monk, Admin. Assistant, Manjimup; Luke Coney, Park Ranger, Yanchep.

Forest Rangers: Mark Dalton to Manjimup; Carl Beck, Nannup; Brian MacMahon, Pingelly; John Tillman, Manjimup; Paul Mammone, Pemberton; Matt Reynolds, Kelmscott; Simon Watkins, Manjimup; Jaron Creasey, Nannup; Jeff Boulton, Bunbury; Greg Freebury, Manjimup.

Trainee Park Rangers: Scott Godley, to Leeuwin-Naturaliste; Geoff Harnett, Yanchep; Murray Banks, Torndirrup; David Burton, Kalbarri; Mark Moore, Leeuwin-Naturaliste; Jason Puls, Yanchep; Ian Hughes, Yanchep.

Retirements

George Black, former Mill Records Examiner, retired after a lifetime in the forestry industry. He joined the Forests Department in 1961.

Letters . . .

EDITOR,

I spent the Australia Day long weekend as "your guest" in the State Forest at Dwellingup. Your staff are to be congratulated on their professionalism.

From my initial telephone enquiry, to receiving a map and information, to contact with CALM personnel, to enjoying the excellent facilities at Dwellingup. Everything was perfect.

In a era of lacklustre performance, it is heartening to find people who are proud of their work and not afraid to show it.

Once again, congratulations. Kind regards,

Steve Harris

EDITOR,

Recently we travelled through the South West and were most impressed with the care that is evident in camping spots managed by CALM, particularly Shannon Forest and Boyanup Karri area.

Please pass on our thanks to your officers.

I.J.Hunt

FREE VIDEOS
worth watching. Look for the story in the next issue of
CALM News

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PINES FIRE

by BRUCE HARVEY

Fire in early January destroyed 200ha of 16 year old *Pinus pinaster* forest at Wanneroo in just three hours.

Loss of future pine sawlog royalties to the State early next century due to the fire are estimated to be about $500,000.

Two fires were apparently deliberately lit at about 12.50pm on private property south of the Gnangara Plantation.

The fires were fanned by a gusting south-easterly and quickly swept into the pinaster pine crowns.

Forester Greg Napier was first on the scene and his report of 10ha burnt (and increasing rapidly), with the fire consuming the entire trees, set the scene for what was to be a dangerous and at times desperate few hours of fire fighting for Northern Forest Region crews.

Thirty forest workers with three gang trucks and six heavy duties and three forest officers quickly arrived at the fire. The Wanneroo office, manned by senior control and clerical staff, worked furiously to arrange back-up forces from within the region and other agencies to provide support.

A number of times the CALM Wanneroo fire crews almost had the fire controlled, only to fall back as gusting winds caused the fire to surge through the pinaster pine crowns again. Breaks and roads were leapt by the fire as it swept over 100ha and more than 1000m in the first hour.

More crews from Mundaring and Jarrahdale arrived, along with CAT 930 loaders, control vans and communication equipment.

The large fire organisation was upgraded to a multi-agency command (MAC) fire as fire fighting forces arrived from the Swan Shire and Wanneroo City and police blocked threatened roads.

Crews were forced several times to withdraw as the fire grew fiercer, driving the crews back onto burnt ground for safety.

After three hours, the eight CALM gang units following the tracks cut by the rubber tyred loaders, secured the eastern flank and pinched off the headfire. The fire had run 1800m since 1pm.

When the running fire was put out at 4pm; the huge fire fighting organisation breathed a sigh of relief.

The pause was only for seconds as the mopping up began to secure the perimeter of the 200ha fire.

With a forecast for strong, dry north-easterly winds overnight no risks could be taken and the crews worked long into the night to black out all edges.

No scrub was left on the forest floor. Only black ash on white sand.

The pines stood straight sticks with few branches and few green needles - almost complete destruction.

The Wanneroo CALM personnel worked feverishly to save the pines they had planted, pruned and protected. Their years of training and fire fighting experience came through in their brave and skilful attack on the worst pinaster pine fire in WA's history.

Now the long and arduous task of salvaging pine from the burnt remains begins and then the leftover debris will be heaped and burnt and the plantation re-established.

Photographed working in Fitzgerald River National Park were Phil Gray (CALM, Esperance), Anne and Peter Resch (Trigg), Diane Auckland (Roleystone), Helen Smalley (Subiaco), Ralph and Monica Cooper (Hopetoun), Alex Scorer (Fremantle)

Volunteers aid Fitzgerald

The volunteer program held in the Fitzgerald River National Park over the March long weekend was highly successful.

About 30 people from Perth, Hopetoun, Ongerup, Esperance and Albany carried out five projects in the park's eastern end.

These included reconstruction work at the fire damaged Mylies Beach recreation site, collection of old litter along major roads, cutting of brush for rehabilitation work on burnt sand dunes, reconstruction of the West Beach footpath and beach steps and collection of native seed for use in replanting bare soil areas.

CALM South Coast Regional Manager John Watson said the response had been magnificent and thanked all volunteers and staff for their efforts.

Despite the humid conditions, everyone worked enthusiastically and there was a great spirit of camaraderie.

Many people have already asked to assist again and CALM has scheduled busy bees on the first Sunday of the month as follows: Sunday, April 1 - West Mount Barren area near Bremer Bay, Sunday, May 6 - Mylies Beach area near Hopetoun (both using local volunteers only) and the long weekend, June 2/3 - Mylies Beach area near Hopetoun.

- Colin Ingram

Reconstruction, West Beach footpath were Graeme McCarthy (Cottesloe) wheelbarrow and Peter Miller (Hopetoun) on shovel

Harvey top gang

The first skills demonstration competition for fire gangs in the forest regions was held recently at Wellington Dam. The event, originally delayed due to the Fitzgerald River National Park fire, featured three competing gangs from Dwellingup, Harvey and Manjimup representing the northern, central and southern forest regions.

To qualify, each gang had to be the best gang in its district, then survive fierce competition from other district gangs in the regional competition.

The competition covered all aspects of a fire gang's work and equipment and included a full gang inspection to see if all the necessary safety equipment was in order and that members were properly attired.

Gangs then demonstrated their skills by raking fire lines, using heavy duty pumps, pack spray skills and correct and safe chainsaw techniques.

Ric Donovan and his Harvey crew were judged the Premier Fire Gang and received the Fire Branch Shield from Jim Edwards who was Acting General Manager at the time.

Each member of the winning gang - Peter Delaporte, Alan Brown, Terry Roberts and Barry Rowley and chief coach Craig Gardiner - received an engraved jarrah momento to recognise their skills from Fire Protection Manager John Smart.

At the end of the day a Tug of War competition was held for a suitable liquid prize put up by Jim Edwards, John Smart and Don Spriggins. The Manjimup heavy weights, led by Peter Rado, swamped the opposition and carried off the spoils.

The Fire Gang Competition will be held again in November when keen rivalry is again expected.

From fire to flower

Eight hectares of bushland in Canning Vale was burnt recently by Metro region to ensure the flowering this spring of Purdie's Donkey Orchid, *Diurus purdiei*.

The endangered orchid is the subject of a research program run by CALM and the Kings Park and Botanic Gardens.

Several of the plants have been successfully propagated by Kings Park botanist Kingsley Dixon.

Photographed at the end of the fire gang competition were champion overseer Ric Donovan (with shield) and crews and judges

Where are all the Warru?

by DAVID PEARSON

For the Aborigines of the rocky interior ranges of WA, the Warru or black-footed rock wallaby *(Petrogale lateralis)* is an important Dreamtime force and was once a prized food item.

The mammal was common in small granite rockpiles and "whalebacks", as well as in large quartzite, rhyolite and gabbro ranges throughout the area adjoining the Northern Territory and South Australian borders.

However, the Warru's numbers have crashed in the last 50 years, like many other "critical-weight range" mammals (35 g to 5.5 kg) (see Landscope 2(4)).

Interviews with local Ngaanyatjarra people suggested that rock wallabies survived in only a few pockets in remote ranges.

In an effort to learn more about its former distribution, sites where the mammal still survived and the sort of habitat it occupied, a survey in co-operation with the Ngaanyatjarra Council was conducted during 1988-99.

Aboriginal custodians were employed (using funds from the Australian National Parks and Wildlife Service) to guide researchers to sites where they believed rock-wallabies might still exist and where they were hunted in the past.

To tell whether rock-wallabies were present, areas were searched on foot for signs such as tracks, fresh droppings (scats) or perhaps just a glimpse of a rock wallaby.

Eleven remnant populations were located. They were persisting in rugged cliffs or rockpiles in major ranges, usually close to permanent waterholes, the environs of which provided green feed even during dry periods.

Factors which are thought to have caused population declines in other desert mammals, such as changes in fire regimes and exotic competitors (eg rabbits) and predators (eg foxes) probably affected rock wallaby populations in different ways depending on the habitat occupied. Remaining populations are inhabiting pockets of the best habitat.

Nonetheless, they are still vulnerable to the impact of drought or heavy fox predation in reducing breeding success and hence survival.

Local extinctions as recently as 1986 have been recorded. In the past, such disasters on a localized scale were overcome by recolonization by rock wallabies from nearby rocky areas, but as fragmentation and isolation of population continues, this becomes less and less likely.

The future for the Warru in the desert ranges looks grim. The remote nature of the areas they occupy makes research and any management an expensive and difficult operation. Aboriginal assistance in both these aspects will be vital.

In the future, a joint CALM - Ngaanyatjarra monitoring program is planned, as well as preliminary research into why rock-wallaby populations are continuing to decline.

With this combination of knowledge, expertise and personnel, we hope to arrest the pattern of local extinctions of the Warru.

Rock Wallaby

FOREST RESEARCH

Members of the entomology, rehabilitation, silviculture and wood utilisation research programs of CALM have contributed these articles to highlight present research into the production and protection of WA's south-west forests.

Marri seed collection

Richard Mazanec from CALM's Dwellingup Research Centre is planning to establish the first comprehensive seed collection of marri.

Marri is a major eucalypt species in south-west forests but has historically attracted little commercial interest.

Its excessive kino (gum) reduces the value of what is otherwise a sound timber.

Seed collection is the first step in Richard's work of improving the genetic potential of species used in rehabilitation of degraded lands in the south-west.

His work, supported by Alcoa, focusses on species used in the rehabilitation of bauxite pits.

Over the past few years there has been an increased interest in developing local species for rehabilitation.

Work on jarrah is already well-advanced and marri is next.

Richard is preparing specifications for the collection that will extend over the full geographic range of the species.

He aims to get a sampling of the full genetic diversity of marri. A particular effort will be made to include areas known to produce low kino logs.

The seed collected from each of about 300 parent trees of families will then be planted out in family trials to carefully measure all aspects of performance.

The results will show which area produces the best performing seed and which families or individuals are superior and worthy of inclusion in further breeding work or in seed orchards.

Richard's assistant Tim Birmingham has begun a reconnaissance of the present heavy flowering of marri to make an initial selection of sampling sites.

Seed collection will take place next summer when a heavy seed crop is expected.

- JOHN BARTLE

Pine drought

by JOHN MCGRATH

Since the early years of the Blackwood Valley pine plantations, dead tops and some tree deaths have occurred following dry winters.

As early as the summer of 1960-61 the poor survival of radiata pine planted in the previous winter was attributed to drought.

Extensive areas of dead tops and tree death occurred in the plantations around Nannup during the 1969-70 summer following the drought year of 1969.

After this drought the introduction of the "Silviculture 70" system of wide-spaced plantations was expected to overcome the problem.

Despite the increased thinning after this change, extensive dead tops and tree deaths occurred in the Blackwood Valley plantations in the 1986-87 and 1987-88 summers following the drought years of 1986-87.

SURVEY FINDS

Two surveys were carried out by forestry research staff from Busselton and Como to investigate factors that may have helped to cause these deaths.

A broadscale survey examined the influence of soil, plantation and environmental factors on the occurrence of symptoms.

An intensive study of tree health was carried out in Ellis plantation to determine if insects or diseases were involved.

Major site factors that influenced the pattern of symptom occurrence were soil depth, topographical position and aspect.

Shallow soils, upper slopes and north-east facing slopes all increased the proportion of trees showing symptoms. Increasing the density (basal area) of the plantations also led to an increase in symptoms.

Of the insects and pathogens found in the tree health survey, only the bluestain fungus *Sphaeropsis sapinea* and the bark beetle *Ips grandicollis* appeared to be involved.

However, it appeared they were contributing to the decline and death of trees that were severly drought-stressed, rather than being primary causes.

Tree height growth was related to the same environmental parameters related to the occurrence of drought symptoms.

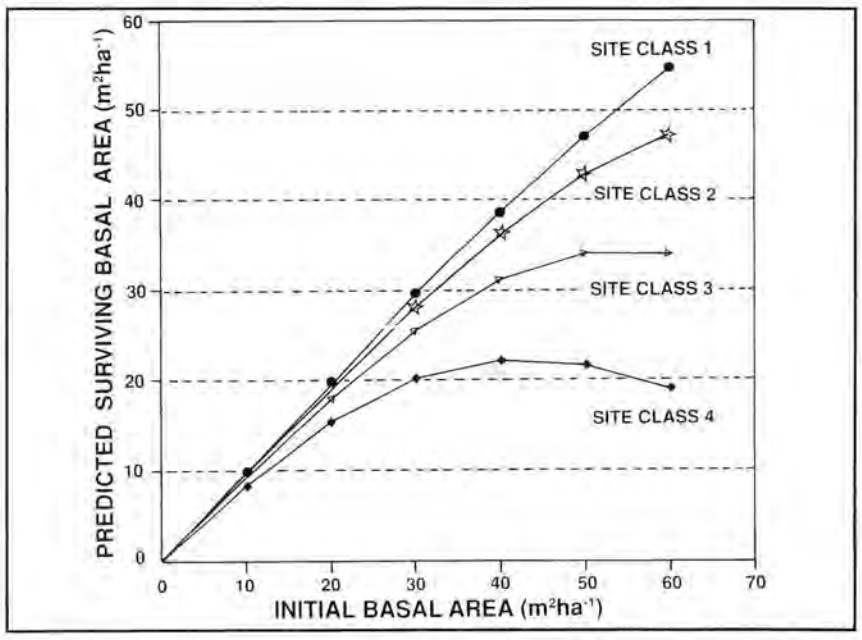
By dividing the assessment plots into four site classes on the basis of height growth, it was possible to predict the relationship between the basal area before the drought and the basal area remaining after (see below).

Plots classified as site class 1 showed little effect of the drought and increasing the initial basal area had no effect on the proportion of trees affected.

The occurrence of symptoms increased successively from site class 2 to site class 4 and increasing the initial basal area increased the proportion of trees affected.

Development of the system is continuing to determine if it is possible to predict the drought risk before planting and thus predict the stocking that can be carried.

It may also be possible to determine the carrying capacity of current plantations by measuring tree height and thus predict the current site class.



GLS decline in southern jarrah

by JANET FARR

The high population of the gumleaf skeletoniser moth (GLS) which causes crown scorching of jarrah in the south west has decreased over the last two years.

Janet Farr, Stephen Dick and Peter Skinner of the Manjimup entomology research team have just completed annual monitoring of the GLS population and the outbreak front.

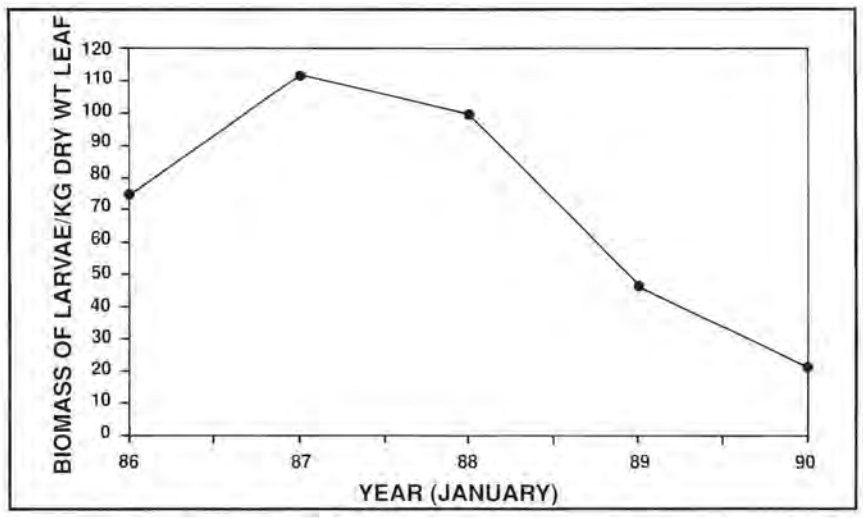
Population levels are recorded by sampling leaves from jarrah crowns using a cherry picker while the outbreak front is monitored by ground spot observational checks.

In the past, aerial flights over the jarrah forest have also been made to confirm areas severely affected.

However, for the 1989/90 GLS season the population was so low aerial observations were considered unnecessary.

The GLS population has fallen from a mean of 111.9 larvae/kg dry wt of leaves in January 1987 to 21.5 in January 1990 (see graph).

This drop can be attributed to a combination of factors, both environmental (eg weather) and pathological (eg parasites).



The GLS outbreak, which persisted from 1983 to January 1988, occurred during a time of unusually low rainfall in the south west.

Before 1988 no parasites of GLS in the jarrah forest had been collected. Since then three species of wasp have been found.

It's thought that during the outbreak, the population of GLS parasites was too low to be picked up in GLS samples.

However, since 1988, parasitism has been a major contributing factor toward the mortality of GLS.

Such observations are not suprising, as a lag time between the population of a host and its parasites is common in insect outbreaks.

Tracing the GLS outbreak front for 89/90 we found the population had withdrawn to discrete patches where caterpillars existed at a light level of infestation, but in nearby areas the population was so low that it was not visible from spot checks.

This contrasts with past years where the front extended on a northeast line from Donnybrook to Kenninup forest blocks.

According to "irruptive" insect outbreak theory the patches we have identified in the 89/90 front survey could act as sites from which a future outbreak could develop.

Therefore, despite the dramatic decrease in GLS, further outbreaks could occur given the right environmental conditions.

We plan to examine and monitor the sites of current light GLS infestation to test the irruptive outbreak hypothesis.

This will enable us to determine the factors involved in GLS outbreak dynamics and establish a means of forecasting the potential for future outbreaks.

Jarrah leafminer results

New research results on disfavouring jarrah leafminer (JLM) by burning jarrah forest under dry soil conditions have been analysed by Ian Abbott.

The hypothesis being tested is that JLM density should decrease after autumn fire, following the shortage of egg-laying sites (green leaves) for the moth.

Data collected so far has been consistent with this. An experiment in Collie in 1988 saw half of a 240 ha plot of jarrah forest burnt that spring under wet soil conditions and the rest burnt in autumn 1989 under dry soil conditions.

During spring 1989, a survey in Collie and Manjimup districts of adjacent stands differing in time since spring burning showed that spring burning does not favour JLM.

JLM density in the jarrah canopy was sampled in October 1988 and November 1989, as was the condition of the crowns of 180 sample jarrah trees.

The autumn fire reduced JLM density by 38 percent relative to October 1988, whereas after the spring fire JLM density increased by 24 per cent relative to October 1988.

The latter may have resulted in part from moths unable to find enough egg-laying sites in the autumn-burned forest invading the unaffected, green jarrah crowns in the spring-burned forest.

By November 1989, crown condition of autumn-burned jarrah had declined by eight percent, in contrast to a nine percent improvement in the crowns of spring-burned jarrah. Scorching of jarrah crowns during the autumn fire averaged 55 percent.

This research is supported by technical assistants Paul Van Heurck and Tom Burbidge and by operational staff in Collie district.

- IAN ABBOTT

Damage caused by insects skeletonizer

New drying system

A low cost/low energy timber drying system has been developed at the Wood Utilisation Research Centre at Harvey.

Research staff Brett Glossop and Wayne Hanks have carried out extensive testing of the system, designed by engineer Trevor McDonald.

Timber stacks are stored in the first kiln at low temperature and high humidity immediately after sawing. The kiln has a patented blanket to control air flow.

After a "curing" period, the stacks are transferred to another kiln where they are dried much faster at a higher temperature. Drying to final moisture content (about 10 percent) is done in a third kiln.

WURC manager Phil Shedley is discussing licensing with different firms and this drying system should soon be available commercially.

- Graeme Siemon

Workshop visit

Gary Brennan, a research scientist at the Wood Utilisation Research Centre at Harvey, recently attended a timber drying meeting and two workshops in Rotorua, New Zealand.

One meeting and both workshops were arranged by the Joint Timber Seasoning Committee, which has members in each Australian state and New Zealand.

Gary presented a summary of the drying research carried out at Harvey.

He also attended a Forest Industries conference, which discussed production forestry in NZ in the next decade.

This exchange of information has proven extremely useful in planning and carrying out drying research trials and duplication of programs is avoided.

- GRAEME SIEMON

New Technique aids management

by Gary Muir and Dave Goddard

A new technique for assessing the regeneration of harvested forests has been developed by CALM.

It has important implications for sustainable forest management in WA.

The success of sustainable forest management depends on ensuring the adequate regeneration of harvested forests.

Failures in the regeneration of cut-over forest reduce its ability to sustain the production of a wide range of values and products.

Assessment is required to establish if adequate regeneration exists to satisfy the various management objectives for the future forest and to identify and treat any failed areas.

The most commonly used technique for the assessment of regeneration is the "stocked quadrat" survey. The method was developed for the forests of Northern America by Lowdermilk in 1927. It is based on assessing quadrats of an area equivalent to that required by a single tree in a fully stocked stand. The proportion of quadrats containing at least one seedling is used as a measure of how well the stand is stocked.

The technique has been used for the assessment of karri regeneration for the past 20 years. During this time the management of regrowth forests has become increasingly more intensive and the stocked quadrat survey no longer provides the necessary detail required for forest managers. The method may indicate that a regeneration area has failed but it does not accurately predict the location and extent of restocking measures required to bring the area up to standard. It also doesn't provide information in the form of stem numbers which are required to predict future yields from the regrowth forests.

The assessment of karri regeneration centres on the estimation of point density at a series of sample points using triangular plots fitted to the regeneration rather than adopting an arbitary fixed plot size. The area of the most compact triangle at each sample point is converted to an estimate of density. This method of density estimation was developed by Dave Ward (Como Research) and has been adapted for assessing the adequacy of Karri regeneration by Dave Goddard (Silviculture Branch).

Each sample point is recorded as stocked or unstocked by comparing the point density value against that of a standard density. This standard is based on optimising timber yields from the future forest. The overall stocking of the area is given by the proportion of the total number of sample points stocked. A second standard specifies the stocking level below which additional regeneration is required. A map is produced showing the location of understocked areas and the number of plants required for infill planting can be calculated.

The information provided by this regeneration assessment can be used to predict future stand development and yields for regrowth forests. This is an integral part of forest planning and in particular the development and application of a sustained yield strategy.

Workshop participants involved in roadwork construction

Workshop on soil

For a select group of CALM staff, the introduction to the Decade of Soil Conservation meant attending a soil conservation workshop in the Blackwood Valley, near Balingup.

The course was jointly organised by staff from the Agriculture Department's Land Care Branch and CALM staff from Central Forest Region and Environmental Protection Branch.

Course coordinator John Skillen said the reason for the course was to bring staff who were involved in planning and establishing tree farms up to date with current techniques used in soil conservation.

The workshop's main focus was the explanation of soil conservation principles in tree farming and the application of these principles through field demonstration.

Workshop participants were shown how to build soil conservation structures into roadworks and the techniques of grade bank construction.

Participants were also exposed to an explanation of the procedures involved in sharefarming.

Local sharefarmer David Ayres, a member of the Bridgetown Land Care District Committee, gave a talk on sharefarming from the farmer's viewpoint, praising efforts made by CALM staff in the sharefarming scheme.

Thirty five staff from Collie, Kirup and Nannup districts attended the workshop.

In the next three months, similar courses will be held in Albany and Margaret River.

Responsible mining

Responsible mining is the subject of the newly released video A Stake In The Future.

The video is a cooperative effort by the Department of Mines, Chamber of Mines, Environmental Protection Authority, Australian Mining Industry Council and CALM (represented by Norm Caporn).

It looks at how some mining companies are dealing with environmental responsibilities and covers principles of planning and creating stable landforms and rehabilitation techniques for waste dumps from open cut mining operations.

The video, targeting both management and operators, has been distributed to regions and a copy is available from Environmental Protection Branch for departmental use.

Companies can buy copies from the Department of Mines or Chamber of Mines for $50.

A video on environmental management of exploration programs is planned next, followed by another on rehabilitation of mine tailings.

BOND TO MEET COSTS

When launching the video, Mines Minister Jeff Carr announced more stringent bond requirements for productive mines.

An "unconditional performance bond" (similar to a bank guarantee) equivalent to the rehabilitation cost of the area disturbed during the first 12 months will be applied to all new operations.

Existing operations will all have bonds set to reflect the area disturbed but depending on their level of rehabilitation performance.

CALM has insisted on this type of bond for several years for both exploration and mining in the Eastern Goldfields due to historical poor performance and control difficulties.

The unconditional performance bond has many similarities to bank guarantees used by CALM in the timber industry.

In the case of mining, the Minister for Mines may carry out necessary rehabilitation and call in the UPB to meet the costs.

Barge Salvage

Salvage work on a pipe-laying barge wrecked on Eaglehawke Island after cyclone Orson has been completed.

As total removal of the barge would have involved unacceptable environmental risks, it was only partially removed from the island, leaving it as a safe, inert wreck.

The island, an important "C" class nature reserve, is home to colonies of white-breasted sea-eagles, ospreys, and caspian and crested terns. Nesting turtles visit the beach.

Representatives from CALM, the EPA, and Marine and Harbours visited the stricken barge by helicopter to inspect the progress of the clean-up and ensure the environmental consequences of the grounding were minimised.

If rodents had been on board, they could have invaded the island and upset its delicate ecological balance. For this reason, flour traps were laid throughout the ship and checked daily, but showed no sign of their presence.

All debris that may have caused hazards to shipping, commercial fishing and boating was removed and free oils on tidal water in the aft end of the vessel were skimmed each day.

Trainee Ranger

Fabien Stevens, a representative of the Aboriginal community of Roebourne, has begun a two-year course as a trainee ranger at Millstream-Chichester National Park.

A six-week assessment period introduced Fabien and Dennis Long, another potential candidate, to the duties carried out by rangers at Millstream.

They spent their time collecting camp fees, liaising with visitors, maintaining facilities and machinery, clearing and maintaining walk trails and eradicating introduced weeds.

Fabien was selected when CALM staff met with Ngurin Resource Centre's Economic and Development Officer Gladys Walker and elders of the Injibandi language group at an informal gathering at Millstream.

Wildlife surprise in bungles

A CSIRO wildlife survey of the Purnululu (Bungle Bungle) National Park has turned up several new and rare species.

New species of turtle (*Celodina* sp.), gecko (*Gehydra* sp.) and two skinks (*Lerista* sp. and *Ctenotus* sp.) were recorded.

The CSIRO, assisted by Park Ranger and keen bird-spotter Bob Taylor, recorded at least 134 bird species in the area, including the rare and endangered Grey Falcon and the Red-capped Robin, a southern species that is rarely seen in the Kimberley.

The CSIRO recorded 30 species of mammals in the Park and found an abandoned burrow system, possibly that of bilbys, which were thought to be locally extinct.

Purnululu Community leader Raymond Wallaby also told the CSIRO that several other species were, and perhaps still are, present in the Park, including the quoll, bilby, spectacled hare-wallaby, golden bandicoot and possum.

Bob Taylor has also seen an unidentified mammal unlike any on the CSIRO list.

It would seem that the Park is a transition zone for fauna, as the species composition has elements of the wet/dry tropics and arid Australia.

About 500 plant specimens of about 250 species, ranging from rainforest to arid species, were also collected. They are still being identified at the NT Herbarium.

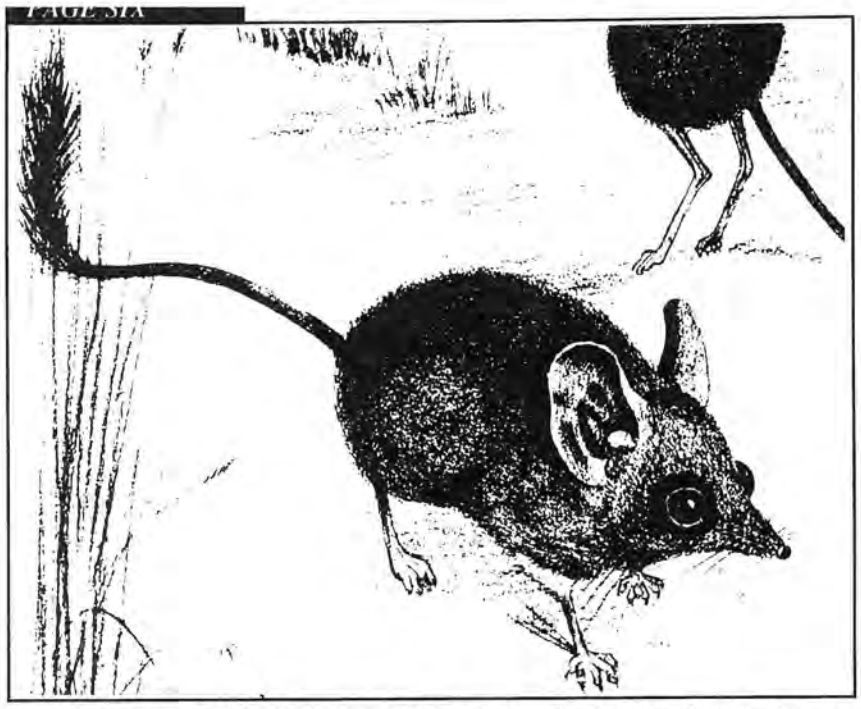
This was the first time a detailed fauna survey had ever been done in this area.

AWARD FOR PARK

Hamersley Range National Park and its staff have been awarded the monthly tourist newspaper Holiday Stop-Over's 1989 Tourism's Outstanding Performers Award.

The newspaper receives between 3000 and 5000 entries each year from readers with nominations for various hotels, attractions or restaurants they believe deserve a top performers award for tourism.

Each December, Holiday Stop-Over awards the top performer in each of the 10 categories with an engraved wall plaque and constant publicity through Holiday Stop-Over for their achievements.



A drawing of the rare marsupial the Kultarr by Perth artist Ella fry

Goldfields marsupials

Two interesting marsupials were recently brought into CALM's Kalgoorlie office.

A rat-sized carnivorous marsupial known as a kultarr was rescued from a cat at Lake Mason Station.

The kultarr is a comparatively rare marsupial restricted to the more arid parts of Australia.

Despite its enlarged hind feet, studies have shown that it is predominantly quadripedal (meaning that it uses both fore and hind legs).

Predation by introduced foxes and cats is probably the greatest threat to the survival of this creature, which is nocturnal and probably eats insects and spiders.

As well as Lake Mason, it also occurs at Wanjarri Nature Reserve near Wiluna and Jilbadgi Nature Reserve near Southern Cross.

The other marsupial, a pygmy possum, did not have such a lucky escape - it was killed by a cat near the new Hannans sub-division.

Although only the size of a large house mouse, these animals are true possums and are closely related to the feathertail gliders of the eastern states.

Pygmy possums are nocturnal, often sleeping in disused birds' nests during the day. They feed on nectar and pollen from flowering plants and supplement their diet with insects.

In the Goldfields, pygmy possums live mainly in woodlands, though they occur east of Kalgoorlie in spinifex and sand-dune country to the edge of the Great Victoria Desert.

In more temperate parts of the south-west they occur in heath and mallee.

- ANDY CHAPMAN

Predicting fire impact on small vertebrates

by GORDON FRIEND

The effects of fire on animal and plant life and the role of fire in the management of wildlife habitat on nature reserves are important issues in conservation and land management.

CALM is addressing these through a long-term program of research focussing on particular habitat types (especially in arid and semi-arid regions) based on an experiental approach.

To obtain experimental data on which to base management decisions does, however, require much time, money and personnel.

Guidelines are needed urgently, and there is a clear role for predictive modelling.

Such modelling systems are now quite well-developed and sophisticated with respect to fire behaviour and plant ecological effects (eg fire management systems PREPLAN, EXPERT SYSTEMS), but no attempt has yet been made to develop a model which enables quantitative prediction of the impact of various types of fire on fauna.

As part of the department's Fire Ecology Research Program investigating faunal responses to fire, such a model is being developed by Dr Gordon Friend, based on research at Tutanning Nature Reserve, to assist land managers and to aid the formulation of hypotheses regarding fire effects.

These predictions can be tested and further refined through the experimental approach adopted in the research.

The model is based on the concept of species "life form types", which are derived from an individual's shelter and food requirements - the two essential (resource) criteria for existence.

If these criteria are adequate, activity and breeding take place and these latter two (time-based) phenomena give rise to population and species persistence.

Species are thus able to be grouped on the basis of similar shelter and food requirements into a number of life form types (= guilds).

Based on the probable changes fire has on an animal's environment, shelter and food requirements are able to be listed in order of increasing impact/sensitively to fire.

Thus more "weight" is given to fire sensitive requirements, and this takes account of the fact that a species needing, for example, hollow trees for shelter and nectar for food, is likely to suffer a far greater impact than one that burrows and is omnivorous.

To be of general use, however, the model needs to consider fire regimes and incorporate factors that take account of intensity, season and frequency of burning.

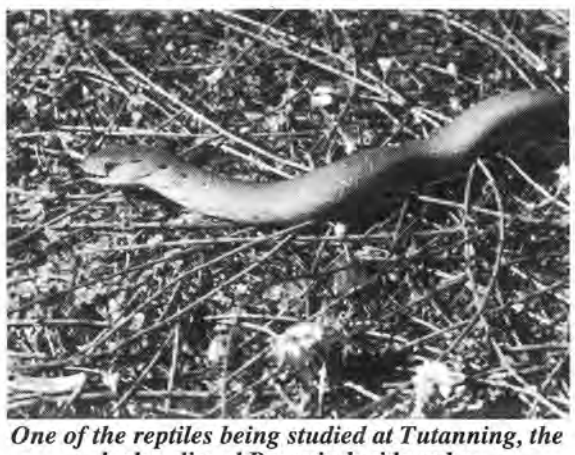
This can be done by further weighting of shelter and food scores depending on the intensity of a particular fire, and adding in seasonal activity/breeding factors depending on the season of burning.

Factors taking account of frequency are difficult to derive as little information exists on how different species respond to different fire frequencies.

The relationship between impact and fire interval is likely to be of an exponential nature, however, so the logarithm of fire interval, or its reciprocal, may be appropriate.

Clearly, much remains to be done to refine the model so that it can be used by land managers.

In particular, it needs input of data on the relationship between fire intensity and the environmental attributes defining various species' shelter and food requirements, and input from a professional modeller to refine the system mathematically.



One of the reptiles being studied at Tutanning, the legless lizard Pygopin lepidopodus

Experimental burning in a wheatbelt reserve

A research burn to determine how small mammals, reptiles, frogs, invertebrates and plants in wheatbelt reserves respond to fire was recently carried out in Tutanning Nature Reserve in the central wheatbelt.

The burn followed years of work by several Woodvale scientists and was part of Dr Gordon Friend's work on small vertebrates and invertebrates at Tutanning and his development of a quantitative model on how these are affected by fire.

Gordon, his technical officer David Mitchell, together with Angas Hopkins and Judith Harvey, have been studying this area on Tutanning since 1986 and have amassed probably one of the most extensive pre-fire data bases on small vertebrates, invertebrates and plants in such semi-arid habitats in Australia.

This work will continue for the next three to four years.

Sampling will then be gradually reduced to become a long-term monitoring procedure.

The Tutanning fire experiment involved a moderate intensity burn under late summer conditons to (partially) emulate nature. Most previous management burns on the reserve had been under mild spring conditions.

After a year's delay, and after a false start on March 17, the long-awaited burn took place on March 20.

Conditions were milder than prescribed, but the fire gathered momentum and burnt out most of the 100 ha block.

It was just the sort of fire needed for the ecological management of such wheatbelt reserves and a vast amount of much-needed information will be gained from it.

The fire was attended by eight CALM researchers and several volunteers, Narrogin district staff, fire crews from Narrogin, Katanning and Collie, and a small number of local farmers.

Fire behaviour measurements and valuable weather information were collected by Lachie McCaw, Bob Smith and Ted Griffin.

It's the first time such data has been collected in any prescribed burn in the wheatbelt, and will benefit both research and management staff.

The fire represented a "quantum leap" in knowledge of the effects and role of fire in wheatbelt nature reserves; its smooth execution is a credit to the district and regional staff involved.

Tony Friend uses a portable radio receiver and aerial to locate collard phascogales

Don Munro gets ready to free a tagged duck at a recent early morning session at Shenton Park Lake.

Scopewest tagging underway

Scopewest - the Swan Coastal Plain Waterbird Project - is now well underway.

CALM News ran a story on the survey project earlier this year, announcing extra funding from a Commonwealth grant of $106,000.

The article - and subsequent ones in the metropolitan and community newspapers - asked people to report the coloured tags to CALM's Wildlife Research Centre at Woodvale.

So far volunteers from the Royal Australasian Ornithologists Union have carried out two waterbird surveys in 258 wetlands on the Swan Coastal Plain and will do their third in April.

Meanwhile Grant Pearson, Don Munro and Stuart Halse, with help from other Woodvale staff, have colour-marked 400 egrets, spoonbills and ibis and about 200 ducks to provide some individually-identifiable birds.

It's hoped the RAOU observers (as well as CALM staff and the general public) will report sightings of these birds to give us some idea of the pattern of movement of waterbirds on the coastal plain.

Duck-marking is continuing and by the end of April about 1000 birds should have been marked.

Dr Andrew Storey has been recently appointed to CALM for two and a half years to work on the project.

He will be sampling the wetlands each time waterbirds are counted to provide information about water depth, water chemistry, productivity and vegetation in the wetlands.

He will be using this information to help explain why waterbirds occur where they do and, therefore, what habitat management they require.

Information from the project will also be used by other government agencies to help minimize the effect of future urban development on Perth's waterbird population.

Where there's smoke...

Recreation, Landscape and community education branch manager Wayne Schmidt (above) successfully demonstrates the art of fire without matches at a "Go Bush" field trip staged recently for the Corporate Executive and others in the Mundaring District. Those taking part in the field trip (left) received a thorough introduction to the possibility of establishing a range of educational and outdoor recreational activities and services in the state forest areas around Perth.

Vistat surveys visitor numbers

by Luisa de Braganca

A program to determine the number of visitors to national parks, forests and reserves is now in use throughout the State.

This information will be used for management and policy decisions and in the long term see the provision of better facilities for park users.

More than 80 traffic counters have been installed throughout WA to record vehicle numbers.

These figures are converted into total numbers of visitors by multiplying traffic counter figures by a factor representing the number of people per vehicle.

This factor varies in each area and depends on the time of year (holiday season or not), month, week and so on.

Counters are read as often as possible (at least on Monday mornings and Friday afternoons) so that averages for weekdays and weekends can be established.

Vistat data is processed in a personal computer using a Lotus 123 program developed by Seamus Mulholland.

Graphs and tables produced are returned to the respective districts/ regions via the region's Vistat coordinators.

The department's mainframe computer is presently unable to handle Vistat data, although this is a long term project.

Overall annual figures for parks, forest and reserves should be available once 12 months of data has been collected.

Another facet of Vistat is to provide advice to districts and regions on how to run visitor surveys.

A standard visitor survey form has been prepared that can be adapted for local requirements. The final copy can be produced by the Policy and Extension Branch. Observation sheets are being completed by most districts/ regions when officers are out in the field.

Observation counts are useful for local management and planning purposes, although not statistically valid.

It is possible to establish, for a given site, the number of people visiting at one time. It is also possible to determine the carrying capacity of a site, as well as peak periods and trends.

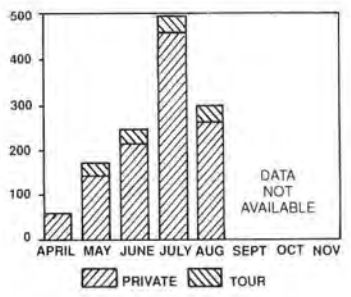
Districts and regions may continue to use the observation sheets for local use. Policy and Extension Branch will not process, analyse and report on these.

However, a new standard form is being developed to improve on the existing one.

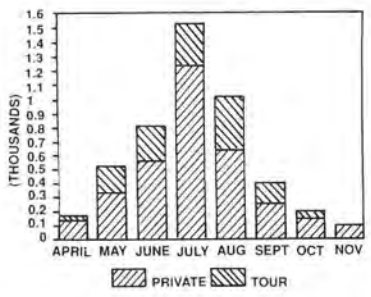
VISTAT:
BUNGLE - BUNGLE NATIONAL PARK
1989

	PRIVATE		TOUR OPERATORS		TOTAL	
	Vehicles	People	Vehicles	People	Vehicles	People
APRIL	59	150	1	22	60	172
MAY	145	337	29	186	174	523
JUNE	215	564	34	244	249	808
JULY	458	1229	41	306	499	1535
AUG	263	636	37	378	300	1014
SEPT		250		150		400
OCT		150		50		200
NOV		100				100
TOTAL					1282	4752

1989 VEHICLE NUMBERS



1989 VISITOR NUMBERS (000's)



A snake in the box?

by Leon Silvester

I recently took a call from the duty sergeant of Police: could I check out a snake in a garage downtown (Narrogin), as his two duty constables didn't feel qualified.

I arrived at the given address to find two gun-toting young policemen who ushered me around the back to the garage.

The snake was in a box, on top of an old cupboard.

A woman had earlier partly opened the box, whilst tidying up and saw the snake.

I carried the box out onto the lawn for more light, saying that it appeared empty.

I lifted the lid cautiously. "There it is!" someone shouted, and there it was, too. A woman's nylon stocking!

The lady ran inside, the two policemen left without thanking me and the 10-15 onlookers were left to the postmortem of the non-event.

Yanchep National Park farewells Old Scout Hall

You're invited - April 28, 7.30 p.m.
Live Entertainment - BYO Everything
RSVP Julie or Lee 14/4/90 - Phone 561 1004

Up and away: Wanneroo district recently removed an old tram from Yanchep National Park to its new home in Whiteman Park, where it's presently being restored.

CALM southern forest regional senior forester Ron Kitson with logs from the first commercial thinnings in young karri regrowth at Boorara block, Northcliffe

Karri thinning comes early

Forest management in WA has entered a new phase with karri regrowth forests being thinned as soon as they are ready, rather than later as in the past.

Reprinted courtesy of the Warren Blackwood Times.

Southern Forest regional forest resources leader Peter Stirling said the new thinning operation was based on 25 to 30 year old karri regrowth.

He said that within young karri regrowth forests, a desperate fight for survival occurs between neighbouring trees as they compete for the limited amounts of light, nutrients and water.

He said that after 100 years, of the 100,000 seeds that germinated in each hectare of forest, less than 0.1 survive as the stronger trees starve the weaker ones which eventually die and rot on the forest floor.

"By commencing thinning in the forest after about 25 years, this natural wastage is harvested before it occurs," Peter said "thus increasing the productivity of our new forests."

"The thinning produces some sawlogs, but mainly chipwood (90 percent) due to the small diameter of the trees removed.

"However, the early easing of competition enables the remaining stems to accelerate their development into sawlog sizes, and subsequent thinnings will provide a significant contribution to sawlog supplies."

Peter said that by 1995, nearly 30 percent of all karri sawlogs would be derived from thinning operations, rising to 80 percent by the year 2030.

Due to the presence of a dense, often impenetrable scrub layer, the thinning operation would be conducted over two phases.

He said a harvester machine reduced the number of trees to about 450 stems per hectare by harvesting the obvious unhealthy and suppressed trees.

"This operation significantly improves access and safety for CALM officers to select the best 300 trees per hectare for retention.

"The harvester then returns and removes the surplus stems for utilisation as either chipwood or sawlog, depending upon their size and quality.

"The age and intensity at which the operation occurs is strictly controlled by prescriptions developed by CALM's silvicultural branch."

Another benefit of the thinning operation is to assist with prescribed burning.

"Unthinned karri forests are difficult to protect because of the accumulation of litter and scrub.

"The thinning operation makes it much easier to implement prescribed burning, thus protecting the valuable regrowth forest from wild fire."

Tourism Award

CALM's South Coast Region has won the Heritage/Cultural Tourism section in the inaugural Rainbow Coast Tourism Awards.

The award recognised CALM's improvements for visitors to Torndirrup National Park, in particular the Stony Hill Heritage Trail, the Salmon Holes and Cable Beach wooden walkways and steps and the new lookout platforms at the Gap and Natural Bridge.

Regional manager John Watson said the award was particularly pleasing as it confirmed the significant contributions being made to tourism through improved facilities for visitors.

He thanked Landscape, Recreation and Community Education Branch for initial walkway design and Engineering Branch for viewing platform design.

The heritage trail was largely the work of former officer Libby Sandiford. However, all projects had been constructed and subsequently maintained by local staff from the Albany Regional Office and Torndirrup National Park.

The award was accepted on behalf of the region by regional recreation and design officer Terry Passmore in a ceremony at the Albany Town Hall.

Terry Passmore (L) and Martin Lloyd, Albany District Senior Ranger, with the Tourism Award

John Andrews photographed by John McKinnon

Pioneer ranger dies

After a long illness, retired ranger John "Jack" Andrews has died in Albany.

Jack was a campaigner from the early days. He was captured in Tobruk during the First World War in 1942, imprisoned in Italy, escaped twice, once living in the hills near Rome until recapture.

He was force marched from Poland to Hanover as the Russians advanced and until his release at Nuremburg in 1945 spent the rest of the war at Stalag VIII B.

In 1966 Jack was employed as a ranger in the John Forrest National Park by the National Parks Board.

After transfer to the Stirling Ranges, Jack established the park headquarters at Moingup Springs, cut many of the paths now so popular with walkers visiting mountain peaks and established the early fireline system.

In 1972 Jack transferred to Torndirrup National Park to become the park's first resident ranger.

He also maintained William Bay and Porongurup National Parks which were then unmanned. His projects include the Salmon Holes and Cable Beach steps and footpaths to the Gap/Bridge lookouts.

Jack always had time for teaching youngsters some of the joys of rangering.

He helped school students with work experience on many occasions and was a driving force behind the numerous volunteer busy bees carried out at Torndirrup during the 1980's.

It was due largely to Jack's hard work that people came to respect the improvements in facilities being made by the National Parks Authority and CALM.

His public relations was through action not words...

- Martin Lloyd/John Watson

Arise "Sir Joe"

Walpole storeman Joe Burton has been awarded the Medal of the Order in the General Division (OAM).

The award, announced in the Australia Day Honours List, recognises Joe's services to the community.

For 15 years Joe has been a volunteer driver for the St Johns Ambulance and has been awarded life membership of St Johns for his involvement.

He is one of the Walpole Country Club's founding members and is responsible for the establishment and development of the golf course.

Joe was president of the club for about eight years and has been granted life membership.

He is also a life member of the Walpole Tennis Club and has been involved in development of the tennis courts and facilities over 20 years of membership.

Joe has been active in the Walpole community in many other ways.

For example, he coordinated the transfer of the community hall from Shannon to Walpole.

As CALM's Walpole storeman, Joe ensures that all essential work tools and materials are available and accounted for.

The storeman's job has become increasingly complex and Joe's experience as well as his knowledge of the local and extended community is a great asset to CALM.

Your on the back of Calm News

We're looking for photographs of CALM people doing what they do best - whatever that may be. (At work and play). Black and white photos are preferred and, if necessary, we can provide you with film and arrange to have it processed.

So get snapping and send your works of art (as well as a suitable caption) to the Editor, CALM News, Cygnet Hall, cnr. Hackett Dr. and Stirling Hwy., Crawley 6009.