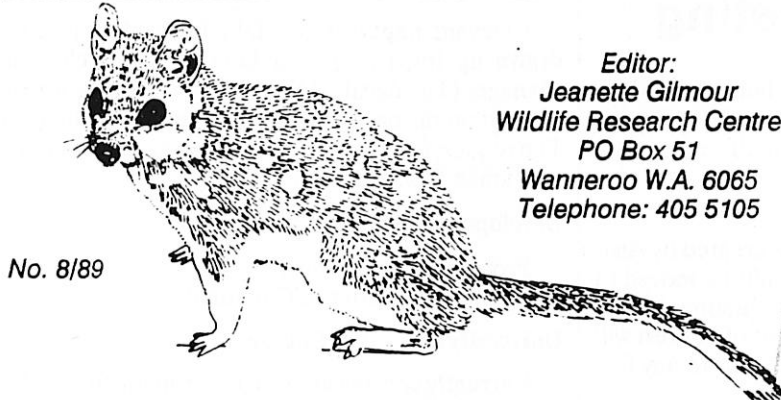


# RESEARCH NEWS

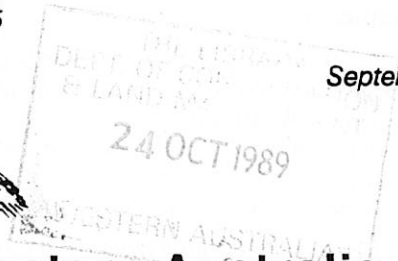
The newsletter of the Research Division of the Department of Conservation and Land Management



No. 8/89

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September 1989



## Fire Scientists to Visit Western Australia

*During the next few months CALM will be host to visiting scientists engaged in bushfire research at both the national and international level.*

*A team from the CSIRO Division of Plant Industry comprising Dr Malcolm Gill, Mr Ed Pook and Mr Peter Moore will visit W.A. during the second half of October to participate in the fire research program underway in the Stirling Range National Park (see CALM News May 1989). Malcolm and his team will join forces with CALM staff from Manjimup Research Centre and Albany District to conduct a series of experimental burns with the aim of understanding how shrubland fires behave under different fuel and weather conditions. Detailed measurements of fire shape and spread rate, flame characteristics and intensity made during each burn will provide the basis for a fire behaviour guide applicable to mallee-heath fuel types.*

*While in the south-west the CSIRO researchers will also spend time with other Manjimup Research staff reviewing the results of the recently completed biological survey of the Walpole-Nornalup National Park.*

*Bushfire research will take on an international perspective later this year with a visit by Mr Marty Alexander from the Canadian Forest Service. Marty has over 15 years experience researching the behaviour of fires in conifer forests in Canada and the United States. He is in Australia for 2 years to undertake a PhD study of fire behaviour in exotic pine plantations, and will be based at the A.N.U. in Canberra. During his time in W.A. Marty will inspect plantation fire management operations, review existing experimental data and meet with staff engaged in fire protection.*

*Further information about the visits by either Malcolm Gill or Marty Alexander is available from Lachie McCaw at the Manjimup Research Centre (ph. 097 711988).*

## Information from the Research Division Policy Group Meeting

The last meeting of the RDPG was held at the Manjimup Research Centre on 28 September 1989. The following is a summary of discussion from this meeting.

### Vacancies

The RDPG agreed that the vacancy created by Ashleigh Kennett-Smith's resignation should be moved to Manjimup to support the recently recommended dieback Research Scientist. Expressions of interest will be called from the Research Division prior to any formal advertising of the vacancy.

The vacancy resulting from Brett Glossop's promotion to Research Scientist with WURC will be advertised as a contract position for three years. The position will remain with WURC.

### Timetable for future Program reviews

The regularity and format of Program reviews was discussed and ideas formulated. Program Leaders views will be canvassed prior to any decisions being made.

### Roll-over of Program Leaders

It was agreed that Program Leaders will be appointed by RDPG. Terms of office will be three year renewable terms (or changed at the discretion of RDPG). Recently formulated criteria for progression to Level 7 stated one of the requirements for progression was to "co-ordinate and lead professional and

support staff as a major project leader". This criterion may encourage officers to take on the Program Leader role.

### Proposed Level 5 Research Centre Manager

Relevant paperwork (PDF, PEQ etc.) had been drawn up for a proposed Level 5 Research Centre Manager (Technical) at Woodvale. The position will be created on the basis that another position is abolished. The request to advertise will be finalized and forwarded to Human Resources Branch.

### Development of Budget 1990/91

Program Leaders will be requested to prepare their 1990/91 budgets prior to Christmas.

### University Extension Course

Currently courses are run at Perup for the public to educate them on the flora and fauna of the area. Staff from Manjimup Research are involved in conducting this course. Following a suggestion from the General Manager it was agreed that work would commence next year on formulating a similar course to be run at Dryandra. This would involve Research staff from Perth and Dwellingup.

### Chief's Award for the Pursuit of Excellence

Following on from an idea used at CSIRO, the RDPG will investigate the idea of an annual award for excellence in research. Criteria for assessing etc. will be debated at future meetings. The award would be funded from the contingency fund.

*Next meeting - The next meeting of the RDPG will be held at Como Research Centre on 25 October 1989. This will be followed by a meeting with the Program Leaders at the Herbarium.*

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## Trymalium albicans (Rhamnaceae) : not yet extinct

*Trymalium albicans* is considered by most authorities as extinct (cf. Leigh, Boden and Biggs - Extinct and Endangered Plants of Australia). This poorly known species is known only from the type collection collected on Mount Eliza in 1839 by Johann Preiss. While listed in the Census of Western Australian Plants, doubts have been raised about its distinctiveness and it has been rarely mentioned in current field guides and floras.

During the survey of Bold Park I became aware that the limestone populations of the widespread species *Trymalium ledifolium* were morphologically distinct. Since then, with assistance of several undergraduates on work experience we have been sorting Rhamnaceae collections into single taxonomic units (i.e. distinct

morphological groups) to assess their conservation status.

It turns out that the limestone populations of *T. ledifolium* are the long lost *T. albicans*, which is not extinct but alive and confined to the Swan Coastal Plain. Populations occur in Yanchep, Kings Park, Bold Park and Yalgorup, so the species is also relatively well conserved.

As Jim Armstrong would agree, a proper taxonomic base, backed by good herbarium material, can save many extinct species.

Greg Keighery



## POPULATION DYNAMICS OF FOREST INSECTS

An international conference on Population Dynamics of Forest Insects was recently convened at the Heriot-Watt University, Edinburgh, Scotland. CALM's representative at this international conference was Dr Ian Abbott from Como Research.

The purpose of the conference was to help direct future research on foliage feeding insect pests with particular emphasis being placed on current developments in experimental and analytical approaches to the study of insect-plant and insect-natural enemy interactors. Ian presented a paper - 'Insect outbreaks in forests of Western Australia' whilst at the conference. An abstract from the paper is printed below.

Following the conference a post conference tour was held. The tour took in forest sites that had experienced pine beauty moth and pine sawfly attack in the far north of Scotland.

### Abstract

The native hardwood forest estate of South-western Australia covers 1.65 M ha and is dominated by Jarrah *Eucalyptus marginata* (85%) and Karri *E. diversicolor* (10%). Over much of their range both species occur mixed with Marri *E. calophylla*. These stands have been commercially exploited for 80-100 years and have been managed under an Act of Parliament since 1918. Plantations of two introduced species of pine (*Pinus radiata*, *P. pinaster*) account for a further 62 000 ha of commercial forest.

No economic problems with insects in Jarrah forest were reported until the early 1960s, when populations of a native leafminer *Perthida glyphopha* Common (Lepidoptera: Incurvariidae) erupted. By 1987 some 750 000 ha of forest were infested. Although years with wet winters are followed by increased damage to foliage, this factor appears insufficient to explain the initiation and continuation of the outbreak. Logging and prescribed fire have been implicated, though not proven. A second

native insect species, Gumleaf Skeletonizer *Uraba lugens* Walker (Lep., Nolidae) erupted in 1982 and by 1985 infested about 300 000 ha of forest. Biomass of caterpillars increased in years with dry winters, though this factor appears insufficient to explain the initiation of the outbreak.

One fifth of the Karri forest has been clearfelled, resulting in extension even-aged regrowth. Significant damage in these stands by Bullseye Borer *Tryphocaria acanthocera* (Macleay) (Coleoptera, Cerambycidae) was first reported in 1980 when thinning of regrowth stands began. Damage was associated with proximity of old growth or non-clearfelled stands, marginal Karri sites (sites where Karri was a minor component before felling), small coupe size and site dryness.

Departmental records indicate that the American bark beetle *Ips grandicollis* (Eichhoff) (Col., Scolytidae) had been present in plantations of introduced pine for 20-30 years before first erupting in 1970, and again in 1973, 1980 and since 1986. These outbreaks reflect severe winter droughts and are being contained by improving silviculture and by importing insect predators and parasitoids from North America.

The common factor linking these four outbreaks is rainfall, most of which falls during winter in the Mediterranean climate of SW Australia. Average annual rainfall for the past 30 years is about 10% less than in the preceding 30 year period. The Greenhouse Effect in the next 50 years in this region is predicted to result in warmer and drier winters, conditions highly favourable to the continuation and expansion of insect outbreaks.

## The Herbarium Library

CALM Alert is the way many researchers keep up-to-date with current journal articles and library acquisitions. Although the Herbarium is now part of CALM, additions to the Herbarium Library have not been included in CALM Alert in the past. However, future editions of CALM Alert will contain details of the Herbarium acquisitions, something which should help the department's botanists.

The Herbarium Library holds about 6,800 volumes; this comprises about 3,000 monographs, 400 microfiche, with the balance being journals. Of the current periodicals about two thirds are by exchange using Nuytsia and Kingia. The library holdings are in a card catalogue, indexed by author and by title and subject, using UDC and Library of Congress subject headings. Apart from current periodicals, items in the library can be borrowed by CALM staff. Beng Siew Mahon, who has been the librarian since August 1988, will be happy to help you.

Elaine Davison, Senior Research Scientist



# Timber and the Greenhouse Effect

**Acknowledgement** - This article is taken from Prologue Notes - 26, published by the Forest Products Assoc. N.S.W.

The "Greenhouse Effect" is a phenomenon in which the earth's atmosphere is gradually warming up because of the addition of carbon dioxide and other gases from the burning of fossil fuels and various industrial processes.

Some people have been claiming recently that the forest industries are adding to the Greenhouse Effect through harvesting of trees for timber. They argue that since trees contain large amount of carbon, cutting down trees leads to carbon being added to the atmosphere.

The steel companies have even attempted to gain a marketing edge over timber by exploiting some common misconceptions about the Greenhouse Effect.

But what are the facts about timber and carbon?

## Trees "lock-up" carbon

It has been widely acknowledged that one of the few viable options in reducing the Greenhouse Effect is the growing of trees which lock up carbon by absorbing carbon dioxide. The timber industry utilises mature trees, converting them into building products and storing the carbon in the timber frame. The harvested tree is replaced with younger, more fast growing trees through regeneration, thus ensuring maximum absorption of carbon dioxide from the atmosphere. This contributes greatly to the **reduction** of the Greenhouse Effect.

People building houses ought to urgently consider the dictum: "think globally and act locally" especially in terms of energy conservation. It is important to realise in developing our local energy conservation strategy to build conservatively and use materials which reduce the Greenhouse Effect. Highly processed materials such as steel add very significantly to the Greenhouse Effect through the burning of fossil fuels in their manufacturing processes.

## Timber versus steel

In a research paper entitled "Forestry, the Timber Industry and the Greenhouse Effect", Dr John

Turner\* points out that an average timber house stores about 7.5 tonnes of carbon; carbon which would otherwise be added to the atmosphere to increase the Greenhouse Effect. But the same house made from a steel frame actually **adds** about 2.9 tonnes of carbon to the atmosphere due to the huge amounts of fossil fuel used to produce the steel.

## Using timber reduces the Greenhouse Effect

The best option to reduce the Greenhouse Effect is to use timber grown from carefully tended forests based on sustained yield management such as from the State Forests of New South Wales.

In fact, as Dr Turner's paper shows, timber usage in house construction in New South Wales alone leads to a positive storage of carbon of about 230,000 tonnes each year - carbon which would otherwise be released to the atmosphere.

In addition, the annual growth of our State's exotic pine plantations stores enough carbon (in wood fibres and foliage) to account for about a third of that released to the atmosphere by the State's steel-making industry.

## Australian forestry leads the way

There is no doubting that the global loss of tropical forests - through clearing and burning for agriculture and settlement - is having a real impact on our atmosphere. In fact recent estimates put the global carbon release from this source at about 1.66 million tonnes per annum.

However to lay the blame for such environmental effects at the feet of Australian forestry is misinformed and short-sighted. Australian forestry is soundly committed to a policy of sustained yield of forest products, using stringent environmental controls.

Rather than lobbying for a restriction on forestry in Australia, concerned environmentalists should be encouraging an increase in responsible harvesting of native and plantation forests here. Because if we can increase production to a point where Australia becomes a net exporter of forest products, rather than a net importer, we can take considerable pressure off less developed countries' forests. And that will make a positive contribution to limiting the Greenhouse Effect.

\*Dr John Turner is Chief, Wood Technology and Forest Research Division, Forestry Commission of N.S.W.



## SEMINAR

Thursday 19 October 1989

### Impact of Plantation Expansion onto Farmland in Victoria.

Presented by Ray Spencer

*Ray Spencer is a visiting Senior Lecturer in Forestry from Melbourne University who has a background in forestry and land-use planning and is currently working as a guest of CALM. Recently, as Leader of a consultant team within the University's Centre for Farm Planning and Land Management, he was involved in the preparation of a report commissioned for the Victorian Government aimed at providing a comprehensive analysis of the social, economic and environmental impacts of the Government's policy of expanding pine plantations onto farmlands. His presentation will outline the conflicts that gave rise to the study and discuss its major findings and implications, many of which are of direct relevance to Western Australia.*

Venue: Training Centre  
CALM  
SOHQ  
50 Hayman Rd  
COMO

Time: 3.00 pm

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## MYRMECOPHAGES, HOLIDAYS AND INTERNATIONAL CONFERENCES

While on annual leave in August, Dr Tony Friend (Woodvale) attended the Fifth International Theriological Conference in Rome (theriology = mammalogy). This conference is held every four years in a different location - 1985 in Edmonton, Canada, 1993 in Brisbane, Australia.

The Rome conference was attended by over 1000 mammalogists from all parts of the globe, including about 20 Australians (mostly self-funded except some working for CSIRO and universities!).

Tony presented an invited poster paper entitled "Feeding Strategies of the Numbat *Myrmecobius fasciatus* the only marsupial myrmecophage", in a symposium on "Strategies of Insectivory in Mammals". He was very pleased with the interest in his poster paper and will now correspond with several workers on myrmecophage (ant- and termite-eater) diets in the wild and in captivity. Tony's poster may be viewed in the CALM library at Woodvale.

The conference was divided into 33 symposia and 15 workshops, each running for one day, so there was usually a choice of about 8 sessions to attend. Perhaps the most relevant to Tony's current work on the numbat was the symposium on Mammal Reintroduction. After attending this session and speaking with scientists involved in other reintroduction projects his conclusion was that the numbat reintroduction project had been an outstanding success by world standards!

Further details on the mammalogist's gastronomic tour of Europe may be gained through personal inquiry!



## Scientific and Technical Publications

The following scientific and technical publications have been approved for submission for publication this month.

- Author(s): S.D. Hopper  
 Title: Conservation status of mallee eucalypts in southern Western Australia  
 For submission to: Proceedings CONCOM National Mallee Workshop
- Author(s): R.S. Cowan & B.R. Maslin  
 Title: Acacia Miscellany-1. Some digoneurous species of Acacia (Section Plurinerves: Leguminosae : Mimosoideae) from Western Australia  
 For submission to: Nuytsia
- Author(s): D.J. Coates & R.J. Hnatiuk  
 Title: Systematic and Evolutionary Inferences from Isozyme studies in the genus *Eremaea* (Myrtaceae)  
 For submission to: Australian Systematic Botany - special issue ASBS symposium
- Author(s): B.R. Maslin  
 Title: Acacia miscellany 5 - Three new Western Australian species with affinities to *A. wilhelmiana*  
 For submission to: Nuytsia
- Author(s): R.S. Cowan & B.R. Maslin  
 Title: Acacia miscellany 3. Some new microneurous taxa of Western Australia related to *A. multilineata* (section Plurinerves: Leguminosae : Mimosoideae).  
 For submission to: Nuytsia
- Author(s): R.S. Cowan & B.R. Maslin  
 Title: Acacia miscellany 2. Species related to *A. deltoidea* (Leguminosae: Mimosoideae : section Plurinerves)  
 For Submission to: Nuytsia

The following have recently been published:

Pearson, D. Breeding of the Banded Stilt in the Western Australian Goldfields during 1986. W.A.

Naturalist, Vol 18, No. 2. June 1989, pp 34-36.

Start, A.N. & Morris, K.D., White-breasted form of the Wedge-tailed Shearwater, *Puffinus pacificus*, off the Pilbara coast. W.A. Naturalist, Vol 18, No. 2. June 1989, pp 62-63.

## Staff Vacancies and Selection Reports

In future all selection reports for Research Division appointments must be forwarded through the Director of Research for his endorsement prior to being sent to the Human Resources Branch.

## Forthcoming Seminar

Professor Otto Kandler from the Botanical Institute of the University of Munich (West Germany) will be visiting Perth in November. Professor Kandler will be giving a seminar at the Training Centre at SOHQ on Monday 13th November at 9.00 am. The topic of the seminar will be 'Forest Dieback in Germany'. All interested staff are invited to attend.

## Correspondence Recently Received

Stella King (Crawley Office) whilst holidaying in Kenya recently wrote to Jim Lane and the Woodvale staff. The correspondence relayed a few comments worth passing on:

"Whilst at Ocean Sports last week someone came in with a catch of 4 sailfish. As they were being dragged up the beach I commented to someone that in Australia people are encouraged to tag the fish and let them go. To which the reply was 'Well you probably have so many over there, you can afford to let them go!'"

## Staff changes

- Research Division says goodbye to Ashleigh Kennett-Smith, Technical Officer from Dwellingup Research. Ashleigh leaves to take up a position with CSIRO Division of Groundwater Resources, Adelaide. We wish him well in his new position.
- Steve Dick has recently joined the team at Manjimup Research as a Technical Officer. Steve replaces Bill Frost and is working with Janet Farr in the Entomology Program.
- Como Research have recently had some changes in their admin. staff. Glenda Godfrey (based at Como) is now working full-time for the Wood Utilization group. Natalie Allday replaces Glenda in the front office at Como Research.
- Felicity Bunny has recently been promoted to the position of Research Scientist. Felicity takes Stuart Crombie's old position at Como Research. The position is a contract position funded by ALCOA to conduct research into prescriptions for the protec-

tion and rehabilitation of native forest subject to *Phytophthora* related dieback.

- Brett Glossop has been promoted to the position of Research Scientist. Brett replaces Alan Thomson at the Wood Utilization Research Centre at Harvey.
- Tony Friend has been appointed as Program Leader, Fauna Conservation. Liaison with respect to Program Leader matters should be with Tony from now on. RDPG wish to express their thanks to the previous PL, Bob Prince, for his hard work and positive contributions to fauna conservation over the past 3 years.

## Philosophy Corner

*Crafty men condemn studies; simple men admire them; and wise men use them - Francis Bacon*

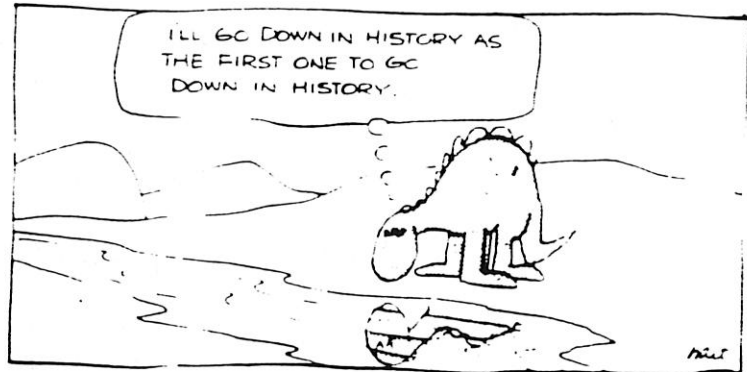
*Those who seldom make mistakes seldom make discoveries - Samuel Smiles*

*Knowledge humbleth the great man, astonisheth the common man, and puffeth up the little man - Proverb*

*"...although the proposition in question may well serve as a basis on which to construct a logically impeccable system of thought, this may bear little relation to reality". H. Himsforth (1986) in "Scientific Knowledge and Philosophic Thought" (The Johns Hopkins University Press Baltimore).*



THERES ONE CONSOLATION TO BECOMING EXTINCT.



	ISSUE	DEADLINE	DISTRIBUTION
DEADLINE FOR NEXT ISSUE	OCTOBER '89	OCTOBER 25	EARLY NOVEMBER