

RESEARCH INFORMATION NEWS

Department of Conservation and Land Management

Editor: Jeanette Gilmour
telephone: 405 5105
Wildlife Research Centre
PO Box 51
WANNEROO 6061.

THE LIBRARY
DEPT. OF CONSERVATION
& LAND MGMT

9 AUG 1988

WESTERN AUSTRALIA

CALM LIBRARY ARCHIVE
NOT FOR LOAN

No. 7/88

July 1988



EDITORIAL

It is pleasing to see such a wide variety of articles in this edition. Information on three coming seminars, a run down on the Kimberley Rainforest Survey and another episode in our "Who's who" series are only some of the articles contained inside.

Contributions do not only have to be in the form of written submissions - I would love to receive any cartoons, illustrations etc that staff would like to forward.

Hope you enjoy this issue - which would seem to be our biggest yet. Thanks to all contributors.

Ed.

	ISSUE	DEADLINE	DISTRIBUTION
DEADLINE FOR NEXT ISSUE	AUGUST '88	26 AUGUST	EARLY SEPTEMBER

INFORMATION FROM THE RESEARCH DIVISION POLICY GROUP MEETING

The meeting was held on 28 July 1988 at the Wildlife Research Centre, Woodvale and was followed by a general staff meeting for all staff in the Centre.

Information from the Meeting

Country Research Centres - the meeting addressed the idea of locating a future Research Centre in the more tropical part of the state ie either Karratha or Kununurra. A discussion paper on the pros and cons of these centres will be prepared for debate by RDPG members.

Country Meetings - it was agreed that at all country meetings of the RDPG a meeting should also be held with the Regional/District CALM managers.

Publishing Plan - A publishing plan had been prepared by Marianne Lewis indicating the length of time for scientific articles to be published. This is presented in this Newsletter.

A corporate Data Base Steering Committee has recently been set up under Frank McKinnell. The committee aims to provide officers with the avenues for accessing data efficiently across the Department.



NEW APPOINTMENTS

Research Division welcomes Mrs Beng Siew Mahon to the position of Librarian at the Herbarium. Mrs Mahon has a B.Sc. (Hons) from the University of Singapore with a double major in botany and zoology and honours in zoology. She also holds a Dip. Ed. from the Institute of Education in Singapore and a Graduate Diploma in Library Studies from Curtin University. Mrs Mahon's previous library experience includes three years with the Library Services Branch of the Education Department and 10 months as Documents Officer (Indexing) in the Information Management Branch of the Health Department where she has worked to implement library software for records control.

KEN NEWBEY

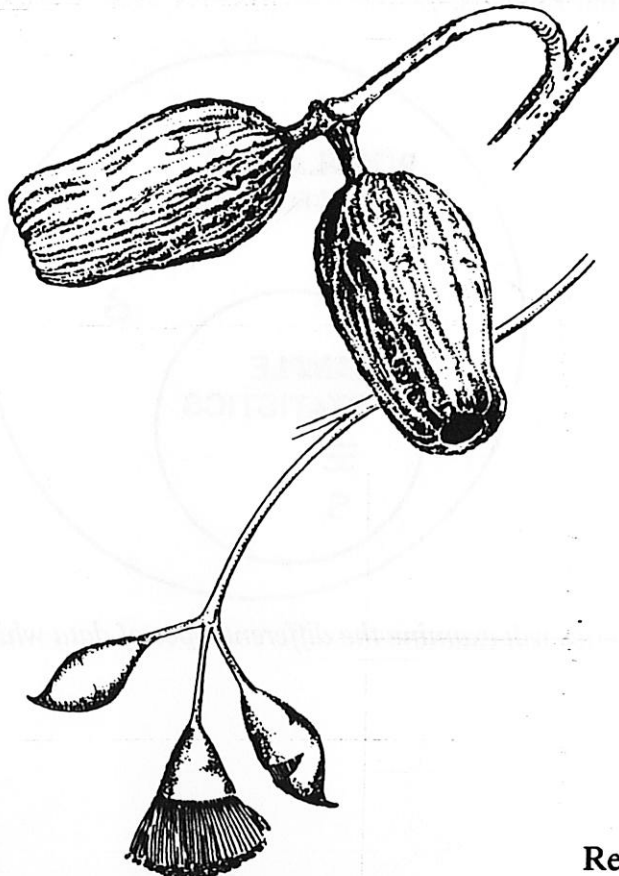
Ken Newbey, notable West Australian botanist, recently passed away.

The passing of Ken Newbey is a great loss to his friends, colleagues and the science of botany to which he had dedicated much of his life. Ken's association with the WA Herbarium spanned three decades and it was during this time that his colleagues came to appreciate and benefit from his vast knowledge of the south western flora.

Ken first came to prominence as a meticulous field collector. His observations on the flora and his willingness to cooperate with colleagues resulted in many new discoveries. Not content with this, Ken undertook to become a professional botanist, and in 1979 was awarded the degree of Master of Philosophy in science from Murdoch University. From this point Ken vigorously developed a number of research projects principally in the field of vegetation studies. Notable was his contributions to the biological survey of the Goldfields and the vegetation of the Fitzgerald River National Park. In recognition of his botanical endeavours and his ability to communicate scientific information to community groups, Ken was awarded a Churchill Fellowship in 1987.

Although Ken is sadly no longer with us, he will be immortalized through his writings, his specimens and through his commemoration in plant names such as *Acacia newbeyi*, *Grevillea newbeyi*, *Eucalyptus newbeyi* and *Thysanotus newbeyi*

As an acknowledgement to Ken's contribution to science, the next issue of the Western Australian Herbarium journal, "Kingia", will be dedicated to him.



RESEARCH METHODS NOTE NO. 1

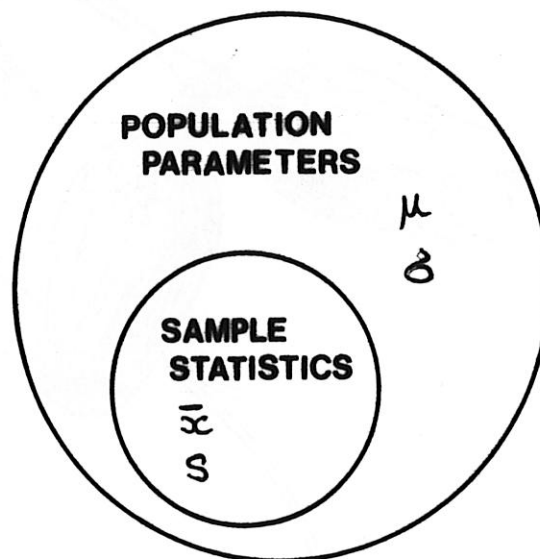
INDUCTION, STATISTICS AND PARAMETERS by David Ward

I hope I am not insulting anybody's intelligence, but it often becomes apparent to me that it is possible to complete a tertiary level statistics unit without grasping some of the fundamentals of the subject. Therefore I am starting this series of articles at a fundamental level. Fear not, ye statistical ones, your time will come.....

The road of logic can be travelled in either direction. Sherlock Holmes used DEDUCTIVE reasoning, that is moving from the general to the specific. In science we are usually forced to travel in the more risky INDUCTIVE direction, that is from the specific to the general.

Whilst zoologists use the word "population" in their own idiosyncratic manner, to a statistician a population is any set of objectives, whether it be a handful of sand, or all the sand on Cottesloe beach, or all the sand in the world. At the outset of any study, however, the population must be defined.

Populations can be large or small, finite or infinite, countable or uncountable. When they are large or uncountable or infinite then we can only examine subsets called samples. These samples can be used for two main purposes. One purpose is to test some HYPOTHESIS about the population. The other purpose is to ESTIMATE, from sample statistics, some parameters of the population. It is customary to use lower case Greek letters for POPULATION PARAMETERS such as the mean μ (mu) and the standard deviation σ (sigma). SAMPLE STATISTICS are represented by lower case Latin letters such as \bar{x} (bar x) and s.



The next article in this series will examine the different types of data which may confront a biologist.

WANDOO REGENERATION RESEARCH BURN

The beautiful wandoo woodlands on the northern and eastern margins of the main jarrah forest belt have been logged for sleepers and other sawn products for many years. The woodlands have mainly regenerated from coppice or the occasional seedling. In the past, there have been both operational and research trials to regenerate wandoo by various methods including seed tree retention followed by burning and planting out of seedling stock. However, the results of such trials have met with mixed success. The most desirable techniques for regenerating wandoo is by using prescribed fire to create ashbed and to stimulate a maximum, synchronized seed release from capsules in the canopies. However, there are many factors determining the success of this operation in terms of producing adequate regeneration. These include the quantity of viable seed in the canopy, the extent of ashbed created, which in term is a function of fuel and weather factors and the fate of both seed and seedlings following the burn.

A joint research project with Jarrahdale district and fire research staff to examine these factors is underway at Wearne Block, east of Jarrahdale. The 300 ha study site was burnt under warm, dry conditions last autumn. Fire intensities ranged from 150 kw/m to 3000kw/m. The dry fuel conditions ensured good fuel removal and a considerable area of ashbed. Tree canopies were searched, capsules dried and the desired synchronized seed release was achieved. It is too soon to evaluate the success of wandoo regeneration but the ideal burn followed by good opening rains are encouraging signs.

A recent field inspection revealed numerous "Y" shaped cotyledenous seedlings of wandoo, which is also encouraging. Sample plots are currently being fenced to minimize the expected impact of grazing by kangaroos. Intense grazing pressure following relatively small burns in eastern forests and woodlands has been a serious problem in the past. The tiny seedlings have many hurdles to overcome before reaching sapling stage including graziers, insects, drought, competition and even fire.

Post burn seedling counts are due in October 1988 and will then be done annually in an attempt to monitor mortality. If this regeneration technique can be successfully repeated, then the backlog of areas requiring regenerating will be treated. Following regeneration, the new woodlands will be "locked away" from deliberate disturbance for 25 years to allow seedlings to develop to maturity.

.....Neil Burrows

Who's Who in Research Division

Dr Tony Start (Anthony Noel) B.Sc. Ph.D. Principal Research Scientist (Management)

Tony was born on 3rd December 1946 in Nakuru, Kenya, just a few kilometres from the Lake Nakuru National Park, famous for its millions (sometimes literally) of Flamingos and other waterbirds. He completed his schooling to School Certificate level in Kenya but went to Northern Ireland to do his Higher School Certificate. This move was primarily due to the fact that the only school that taught Biology to matriculation level in Kenya at that time was a girls boarding school and they wouldn't enrol him!

Between 1967 and 1971 he completed an honours degree in Zoology at the University of Aberdeen, Scotland. He was awarded a Ph.D. by the same University for a thesis on various aspects of the biology of nectar-feeding bats in Malaysia for which he undertook two years field work in Malaysia, based at the University of Malaysia.

Tony arrived in Western Australia on the last day of December 1974 (and the old immigration regulations governing immigration by British Citizens) and three months later commenced work as a temporary Research Scientist at Woodvale where he worked on a project funded for 18 months by the Commonwealth Government to search for extant populations of Potoroos in this State.

In 1976 he transferred to a permanent position as the first professional Biologist with the National Parks Board as it then was. In that position he dealt with issues ranging from mineral claims to fire protection but still managed a few field trips with colleagues from Woodvale and the Museum, eg to the Great Sandy Desert, Mitchell Plateau and Recherche Archipelago.

In 1979, Tony accepted the position of Regional Superintendent, North Region for National Parks. He moved to Karratha from where he was responsible for National Parks issues from Shark Bay to Kununurra.

With the advent of CALM he became Manager, Pilbara Region where he remained until his recent transfer to the Research Division.

In many ways his move to Woodvale brings him full circle, but during his absence he has gained a great deal of experience as a manager and an understanding of Regional Managers' problems which should be of benefit to his new position as Principal Research Scientist, Management.

Away from the office Tony enjoys family life, and various hobbies ranging from stamp collecting to faceting gemstones.



NEWS FROM THE HERBARIUM

- Suzanne Curry, Neville Marchant and Bruce Maslin attended the Botanical History Symposium earlier this year. The symposium discussed botanical exploration in Australia. Papers were presented on the botanist Alan Cunningham who explored Australia in the 1820s, and the Russian botanist Turczaninow, who described many Australian plants.
- Terry McFarlane has taken on a position on the editorial board of the CSIRO newsletter - *Journal of Australian Systematic Botany*. This journal replaces *Brunonia* and will be published quarterly.
- Paul Wilson, Dinkie Gobble-Garrett and Ray Cranford have recently participated in the Kimberley Research 1988 Project - a joint scientific Kimberley expedition involving the Royal Geographical and Linnean Societies.
- The Herbarium has recently acquired the general plant collections and fungal collections from the University of WA. A representative set has been returned to the UWA for student use.
- Neville Marchant spent most of June undertaking a study tour of Herbaria in South East Asia at the request of Professor J Cannon, Chairman of the Network for the Chemistry of Biologically Important Natural Products in South East Asia (NCBNP). The aim of the visit was to establish contact with taxonomic botanists in the SE Asia region. Curation standards, research projects and research constraints of the herbaria were also studied.

NATIONAL FLORAL EMBLEM

Acacia pycnantha

On the 31 August it is intended that *Acacia pycnantha* will be officially proclaimed as the Australian National Floral Emblem. Although the Minister for Home Affairs has approved the proclamation this decision has yet to be ratified by Cabinet.

Until now *Acacia pycnantha* was the generally accepted, but unofficial, floral emblem and is the one from which our national colours, green and gold have been derived. The proclamation will be accompanied by a press and TV release. An information brochure on the species will be produced by the Department of Administrative Services (Canberra).

For any further information please contact Bruce Maslin at the WA Herbarium.

SEMINAR
Thursday 18 August 1988

THE ECOCUBE AND QUESTION MAP
Presented by David Ward

Medieval philosophers in Europe clung to Aristotle's notion of the Great Chain of Being. This was a chain hanging from heaven to earth, the top link being God and the bottom one clay. It was assumed that all life lay in fixed linear sequence between the two, and great academic reputations gained and lost by learned dissertations upon the relative positions of organisms such as giraffes and cows. Carl Linnaeus gave us a taxonomy of a more sophisticated nature. Whilst very useful in some ways, his taxonomy can be a mental straightjacket in the study of those multi-variate interactions which determine the spatial and temporal distribution and abundance of organisms. The ecocube is a four-dimensional taxonomy of interactions, and the question map a taxonomy of ecological enquiry. Together they may help in the classification of ecological information, and in the control, review and planning of ecological research from the individual project to the whole program.

Venue: Training Centre
CALM SOHQ
50 Hayman Road
Como

Time: 3.00pm



WORKSHOP ON INSECT-RELATED EUCALYPT DECLINE
Monday August 22, 1988 CALM SOHQ
50 Hayman Road, Como

Venue: Training Centre **Time: 2.00-4.45pm**



PROGRAM

2.00-2.45	Jill Landsberg Rural dieback: what goes on between the trees, birds and insects?	(CSIRO, Canberra)
2.45-3.00	John Casotti Interaction between nitrogen levels and herbivory rates on eucalypts	(Murdoch Uni.)
3.00-3.15	Paul Brown Wandoo decline in the Upper Great Southern	(CALM, Narrogin)
3.15-3.30	Richard Hobbs Degradation and rehabilitation of wheat-belt woodlands	(CSIRO, Helena Valley)
3.30-4.00	Afternoon Tea	
4.00-4.15	Ian Abbott Forest entomological research in WA: strategy and tactics	(CALM, Como)
4.15-4.30	Jon Majer Sampling methods for canopy invertebrates	(Curtin University)
4.30-4.45	General discussion	

Drinks and nibbles will be available in the Research Centre, Como at 5pm, and an informal dinner at the Mexican Cantina (26b Chapman Road, Bentley) at 6.30
RSVP Elaine Davison, 376 0476

SEMINAR

2 September 1988

Fire Behaviour Modelling in Hummock Grasslands Presented by Neil Burrows

Planning is underway to conduct operational aero burning trials within the Gibson Desert Nature Reserve (GDNR) some 500 km NE of Wiluna. Background to this operation has been presented by Burbidge (1985), Burbidge *et al.* (in press) and by internal reports (Pearson, Burrows, Burbidge *et al.*) so will not be discussed in detail here. In summary, there is a recognised need to reintroduce a fire regime similar to that practised by aborigines in the past. Many thousands of years of aboriginal occupation and use of fire on desert lands has seen the co-habitation of man and the desert biota. However, a dramatic and rapidly changed fire regime since aborigines left these lands in the last five or so decades has contributed to loss of vegetation, floristic, structural and successional diversity. Today, the desert landscape is typified by vast tracts of homogenous, degenerate spinifex plains and vast tracts of herb fields as a result of large, intense and infrequent wildfires. There no longer exists the small grained mosaic of various successional (post fires) stages that is likely to have existed many years ago. The new fire regime is an important factor contributing to the diminishing desert fauna (Burbidge 1985, Burbidge *et al.* in press). Deliberate fire management using modern technology is aimed at re-introducing historic fire regimes. However, to achieve this, we need a firm understanding of fire behaviour and fire effects. Here, we report on our findings from a recent field trip to GDNR which aimed to:

- i) locate, demarcate and describe suitable sites for conducting aero burns during May 1987.
- ii) measure and map fuels/vegetation within these sites.
- iii) monitor fuel moisture and weather conditions during the study period.
- iv) study the behaviour and fire spread thresholds in each of the fuel/vegetation types for the weather conditions during this study.
- v) conduct a fire history survey of the burn sites.
- vi) evaluate our ability to provide weather forecasts for the area.

Venue: Wildlife Research Centre
Ocean Reef Road
Woodvale

Time: 3.00pm

Research Division Seminar Series - alteration

The seminar scheduled for 2 December 1988 by Keith Morris will now be titled - "The Conservation of Forrests Mouse *Leggadina forresti* on Thevenard Island". Would all staff please note this alteration on their programs.

The 1988 Field Survey of Kimberley Rainforests

Staff from the Research Division have recently been involved in a 3 week field survey of the Kimberley Rainforest. For those of us not lucky enough to be part of this team, the following is an insight into the trip.

SCREE SLOPES IN THE SHADE -

By breakfast time the sunlight had begun to brush the rainforest's shadowed canopy into a textured mosaic of vivid greens. The seven members of "Team Alpha", at their stone table in the shadow of the sheer sandstone cliffs of Mount Trafalgar, were enjoying a panorama across lightly wooded volcanic slopes to the mangrove swamps, mud-bars and tidal waters of the Saint George Basin, and the ochre grandeur of the dissected plateaux and gorges at the mouth of the Prince Regent River.

It was Wednesday 15 June. The heat of the forthcoming day was already perceptible in the clearing next to the radio at 0700 hours. This was time for the daily sked with Garry Connell at base camp, and our opportunity to compare ideas and experiences with the other three teams - interesting beasts encountered, yet another solution to an ant sampling problem, and how to preserve spider-burrows now that the Plaster-of-Paris had run out.

"Good morning Garry, this is team Alpha. Here is our list of needs for tomorrow's re-supply. We have finished all the coffee and jam; please also send out two extra jerries of water, another plant press for Kevin, and some glue because John's boots are coming apart. Barbara and I would like our bags of clean clothes to be sent out, and will be sending some laundry back. We are also sending a live bandicoot back to you; it will be under the rear seat of the helicopter."

By 0730 hrs the radio sked was finished and it was time to again climb the slope between the great, sun-drenched boulders into the dusky galleries and shadowed corridors under the vine-festooned trees.

The base camp, 150 km to the north-east, was sited on the bank of the King Edward River. The other teams were scattered from Cape Bougainville, 190 km to the north, to Augustus Island, 70 km south-west of our patch. Every 2-3 days the helicopter from base camp dropped in supplies of food and gear; every 5 days each team was shifted to a new rainforest patch.

In late May, a 5 ton truck (borrowed from CALM Mundaring), a Nissan and a Toyota, had set off from the Woodvale Research Centre carrying the thousands of items needed during an expedition. These ranged from preservative, generators and portable radios to spotlights, plant presses and food - enough food to sustain the seven base camp crew and 21 biologists in the bush for 3 weeks. During the previous months, Garry Connell and Tony Lynam had arranged the fuel dumps and the helicopter and fixed wing charters that were needed to transport the various specialist biologists from Perth, Darwin, Canberra and Atherton, to their rainforest sites in some of the most remote and inhospitable country in WA. A minimum of 85 hours of helicopter charter, at approximately \$800/hour plus fuel and logistical support, was required to shift and support the field teams.

The second year of the National Rainforest Program (Western Australia) culminated in a 3 week field survey in the North-west Kimberley. The expedition re-visited 16 of the 83 rainforest patches sampled in 1987. By analysing the plant, bird and land snail data collected last year, we chose the 16 patches that best represented the diversity of Kimberley rainforests.

The main aims of the June 1988 field work were to:

1. Sample mammals and reptiles from as many patches as possible.
2. Collect plants more exhaustively and more quantitatively than last year and collect voucher material to sort out a variety of taxonomic problems.
3. Record more detailed descriptions of soils and topography (including their variability within patches).
4. Make the first ever inventory of our rainforest ant, beetle, and spider communities.

In effect, the extra sampling aimed to provide a broader basis for understanding the biogeographic significance of Western Australia's rainforests, their conservation status and problems, and for monitoring future changes (for management planning).

The Expedition involved the following people:

- Logistical support from base camp: Garry Connell (Exec.), Tony Lynam, Richard Johnston, Daphne Edinger and Luke Leung.
- Helicopter crew: Larry Tessmann (Pilot) and Tony Taylor (Engineer) of Rotor Services.
- Insects, particularly Coleoptera: Ian Naumann and Tom Weir of the National Insect Collection, CSIRO Canberra
- Ants : Jon Majer of Murdoch University and Alan Anderson of CSIRO Darwin
- Chelicerates, particularly spiders : Barbara and Bert Main of University of Western Australia
- Botany : Jeni Alford and Greg Keighery of CALM Research Division, Kevin Kenneally of the WA Herbarium and Bernie Hyland of CSIRO Atherton
- Aboriginal Culture : Jefferey Munglemurra of the Kalumburu Community
- Vertebrate Zoologists : Grant Wardell-Johnson, Keith Morris, Gordon Friend, Phil Fuller, Jim Rolfe, Alan Burbidge, Andrew Burbidge and Norm McKenzie of CALM Research Division
- Soils and Geomorphology : Bill MacArthur (ex-CSIRO) and Trevor Stoneman (ex-Agriculture Dept)

Bert Main, Bill MacArthur and Trevor Stoneman are all scientists who have retired from their jobs but not their professions; they offered their services voluntarily to help fill considerable gaps in the staffing needed to achieve the sampling objectives.

There will be a workshop on the format of rainforest survey report and progress with data compilation at 0915 hrs on 5 October at Woodvale. This is for survey participants only.

.....Norm McKenzie

After much persuasion your editor managed to extract some information on some of the more lighthearted incidents from a member of the crew. Here's a few snippets of information - please note no correspondence will be entered into.

- A member of one team being a coffee junkie with a heavy habit went on strike for two days until a 500g tin of coffee was sent out to break his enforced "cold turkey".
- Other teams were very vocal about the lack of alcoholic provisions, however as their site was on an Aboriginal reserve which is "dry" their thirst remained unquenched.
- There existed a friendly rivalry between the teams in terms of specimens caught and hardships endured, but one team during a shift flight decided a more material demonstration of their superiority would give them the upper hand. Unfortunately the flour bomb dropped on the rival team's camp was off target and fell ineffectively into the sea.
- Still ever in the remote wilderness of the Kimberley, cupid can strike. But the curse of all single girls holds true ever in the rainforest, it seems the world if full of married men.

The Editor would like to thank the General Manager for kindly sending her a photograph of "two senior research staff hard at work in the Kimberley" The photo has been prominently placed on the Woodvale noticeboard.

RESEARCH DIVISION FINANCES 1987/88

FINAL FIGURES

Below is a summary of expenditure for our various cost centres at the close of the 1987/88 financial year. It should be noted that the year was extended by one extra pay period above our initial CRF Budget (ie an extra 3.85%)

	BUDGET	EXPENDITURE	%
COMO	215394	224049	104
BUSSELTON	104190	115272	110
DWELLINGUP	269759	281692	104
MANJIMUP	226135	226469	100
NARROGIN	20435	22612	110
WANNEROO	75540	78376	104
WOODVALE	702162	731002	104
	1613615	1679472	
PAY 27 ALLOWANCE	62100		
DIVISIONAL ALLOWANCE	1675715		

This Division's total spending above our allowance was under \$4 000, showing a balanced budget for the year.

A summary of expenditure for each of our Research Programs is listed below.

PROGRAM	BUDGET	EXPENDITURE	%
JARRAH	8900	108374	122
KARRI	40400	36900	91
PINE	173960	175830	101
DISEASES PESTS--	136131	153088	112
REHABILITATION	60125	4 2075	70
BIOGEOGRAPHY	105045	100590	96
FAUNA	140650	152880	109
FIRE	128315	122860	96
WETLANDS	56810	62500	110
COMPUTING	165060	167750	101
LIBRARY	38000	39800	105
ADMIN & SERVICES	287190	297490	104

(Please note travel is not part of Program budgets listed.)

I hope the information supplied will give everyone an idea of how well the Division performed, and look forward to another challenge with the coming year's budget -

"Happy spending".
.....Clete Mathews

RESEARCH PROJECT PLANS

The following Research Project Plans have been approved this month:

No: 18/88
Title of Investigation: *Initial weed control and fertilization of P. radiata on the south coast*
Officer in Charge: J. McGrath

No: 19/88
Title of Investigation: *Regrowth Karri Stockpiling Trial*
Officer in Charge: L Mathews

SCIENTIFIC AND TECHNICAL PUBLICATIONS

The following have been approved for submission for publication this month:

Author(s): R A Hingston
Title: *Chemical Control of Epicormic Shoots on Four Year Old Pinus Radiata D. Don*
For Submission to: *Australian Forestry*

Author(s): L McCaw, R Smith, J Neal
Title: *Intense fire behaviour in a 16 year old stand of karri and Eucalyptus muellerana*
For Submission to: *Landnote*

Author(s): D S Crombie & J T Tippett
Title: *Water relations and symptom expression in Eucalyptus marginata infected by Pytophthora cinnamomi*
for Submission to: *Canadian Journal of Forest Research*

Author(s): P Christensen & I Abbott
Title: *A critical review of the effects of fire in the Jarrah and Karri forest of Western Australia*
For Submission to: *Australian Journal of Ecology*

The following have been published

Author(s): B B Lamont and S J Van Leeuwen
Title: *Seed Production and Mortality in a Rare Banksia Species.*
Published in: *Journal of Applied Ecology, Vol 25, July 1988.*

PUBLISHING PLAN

for Research Bulletins, Technical Reports and Occasional Papers

CALM Publications office will undertake to publish scientific and technical manuscripts within the time frame outlined below. The success of this plan requires your cooperation as authors and referees. Work will be published in chronological order of acceptance except where instructed otherwise by the Executive Director.

1.	Publications office receives manuscript - editorial register and check	1 week
2.	Referees (telephone first) if not returned in 1 month editor will follow up:subsequently referred to SPRS/PRS for fortnightly follow-ups until returned	1 month
3.	Author deals with referees' comments. If the author does not return the revised manuscript within 1 month the matter will be referred to SPEC for fortnightly reminders to the author.	1 month
4.	Text editing - brief manuscripts - lengthy manuscripts	1 month 3 months
Final illustrations to begin at this stage		
5.	Author checks edited draft	2 weeks
6.	Graphics prepare figures and page proofs	1 month
7.	Author proofreads	1 week
8.	Corrections graphics	2 months
9.	Print	
10.	Distribution	
TOTAL		7-9 months

NOTE the time periods listed above are inclusive of postage time, eg 1 week is cited for the author's proofread, however the author is expected to proofread the manuscript within 48 hours of receipt and return it promptly to the editor. The additional time allows for postage time to and from Publications office.

The research publications progress team meets monthly to discuss the progress of current manuscripts.



NEWSFLASH

Is your letter correctly addressed?

To ensure that all internal mail reaches its correct destination, would all staff please adhere to the following system when addressing correspondence.

If you require your communication to be read by the holder of a certain position, then address it to the POSITION.

eg

Principal Research Scientist (Science) (Ian Abbott)
Como Research Centre

Program Leader, Fire (Neil Burrows)
Woodvale Research Centre

Manager
Dwellingup Research Centre

If the substantive occupant of the position is absent on leave, addressing correspondence in this manner will ensure that it is delivered to whoever is acting in the position.

If the letter is intended for a person - not a position then it should be addressed to the individual.

Adherence to this procedure will ensure that documents such as Research Project Plans and manuscripts are processed with the minimum of delay.

FACTS PLUS COLOUR = IMPACT

You may have seen the article on W.A. Rainforests in the colour "Weekend" section of "The West Australian" recently.

The "West" is seeking similar articles to publish in future. They should be educational and non-political and be suitable for both a fairly detailed article and for colour photographs.

Here is an opportunity to get some of your research before a huge public audience. If you have an idea please write a brief outline and send it to Andrew Burbidge.

Have you Heard.....

Graeme Siemon is spending four weeks in China as a timber utilization consultant. Graeme left for China on 20 July. He is one of a team of five engaged by the Australian International Department Assistance Bureau to carry out a feasibility study for setting up a Eucalypt Technical Research Centre in Zhanjiang City in Guangdong Province. The other specialists are a tree-breeder, silviculturist, forest economist and pulp and paper expert, all from the eastern states.

The Importance of sub-goals

'On my run across Australia I learned about the significance of sub-goals. After struggling to complete 1 500 miles I realized that I still had 2 000 miles ahead of me. At this stage I was tired, sore, dejected and feeling sorry for myself. The task looked impossible. During this phase of depression I changed my thinking. I decided to run about sixty to eighty miles every day and try to repeat it as often as possible to see how far I could go. As soon as I made this decision my attitude changed and I started to feel confident and enthusiastic. I was confident that I would cover this distance each day. My mind was directed away from the huge distances ahead of me and it was focused on my daily assignments. Because of this I was able to complete the run. Had I not done so, I don't think I would have achieved my goal.'

Tony Rafferty,
Australian ultra-marathon runner.



"Advice for Good Writing"

Pascal wrote "I have made this letter longer than usual, because I lack the time to make it short."

Thomas Jefferson observed "The most valuable of all talents is never using two words when one will do."



How entomologists pass away

POSITIONS VACANT

Applications are invited for the vacancies listed hereunder, under the provisions of Administrative Instruction 301.

Applications are to be made on the Application for Vacancy Form (PS 15) for persons employed under the Public Service Act, and Application for Advertised Vacancy Form (PS 114) for Other Public Sector applicants. Applications must be lodged with the contact officer at the respective department, **NO LATER THAN 5.00 pm August 11, 1988**, unless otherwise stipulated in the position details of the advertised vacancy.

DEPARTMENT OF CONSERVATION AND LAND
MANAGEMENT
CURATOR, WA HERBARIUM

Position No. 0001740, Level 8.3

The Western Australian Herbarium was transferred from the Department of Agriculture to the Department of Conservation and Land Management (CALM) on July 1, 1988. The Herbarium employs 11 professional and 10 other staff. It is the State's chief collection of native and naturalised plants with about 350 000 collections. The State has an extremely diverse flora with about 10 000 species, of which 2 000 are estimated to be undescribed. The Curator is a member of CALM's Research Division Policy Group. Appointment will initially be for a period of five years.

Salary: \$57 571 per annum.

QUALIFICATIONS

Bachelor of Science degree in Botany (with Honours) essential. Comprehensive experience across an extensive range of botanical and managerial positions.

DUTIES

Direct and administer the Western Australian Herbarium. Assist in the direction of all research in the Department.

LOCATION

Western Australian Herbarium, South Perth.

GENERAL

Position data forms and selection criteria are available by telephoning (09) 367 0218. For additional information contact Dr Andrew Burbidge, Divisional Manager, Research (09) 405 5128. Current driving licence essential.

APPLICATIONS

Envelopes must be marked "Confidential—Vacancy Application". Applications quoting position number should be submitted to:

Personnel Officer,
Department of Conservation and Land Management,
50 Hayman Road,
Como WA 6152.





ECOLOGICAL SOCIETY OF AUSTRALIA

BIENNIAL SYMPOSIUM

AUSTRALIAN ECOSYSTEMS:

200 Years of Utilisation, Degradation
and Reconstruction

Geraldton, Western Australia
August 28 - September 2, 1988

TENTATIVE PROGRAM

Sunday 28 August

8.30 am Pre-conference tour
departs
5.00-7.00 pm Registration at venue
7.00 pm Informal gathering

Monday 29 August

8.00-9.00 am Late Registration
9.00-9.40 am Welcome and official
opening
9.40 am First paper
8.00 pm Official Reception

Tuesday 30 August

9.00 am Scientific Sessions begin
7.30 pm Conference Dinner

Wednesday 31 August

9.00 am Scientific Sessions begin
8.00 pm E.S.A. Annual General
Meeting

Thursday 1 September

9.00 am Scientific Sessions begin
9.00 pm Public Forum

Friday 2 September

9.00 am Plenary Session
11.10 am Ecological Society Open
Forum
8.00 pm Public Forum in Perth

Saturday 3 September

8.00 am Post-conference tour
departs

Tuesday 6 September

5.30 pm Post-conference tour
returns to Perth

MAJOR THEMES

1. Evolutionary and landuse history of Australian ecosystems.
2. Soils: their planned use.
3. Uses of and impacts on aquatic systems.
4. Management of Australian vegetation.
5. Case study: Management of the arid zone.
6. Interaction between grazing and natural ecosystems.
7. The unique Australian fauna - its past and its future.
8. Planning, landuse and management at a regional and local scale.
9. Reconstruction of extensively modified ecosystems.
10. The genetic resource base for the future.
11. Ecopolitics.
12. Beyond 2000: Ecological priorities.



For further information
contact:

Dr R A How
WA Museum
Francis Street
Perth 6000, WA
Phone 09 428 4411

The Symposium program is full and all contributions will be published in the Proceedings of the Ecological Society. Posters and contributions to the Open Forum on Friday are still most welcome. Deadline for Abstracts in the Open Forum is July 15.