RESEARCH NEWS

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

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EDITORIAL

February has been a busy month for many in Research Division. During the month we have had two major meetings, a Workshop involving all the nature conservation research programs, and a review of the Herbarium. Both entailed considerable time and planning for senior staff and feedback on both has been encouraging. It is also important to note that occasions such as these bring many members of the Division and Department together and help facilitate the exchange of ideas.

JEANETTE.

	ISSUE	DEADLINE	DISTRIBUTION
DEADLINE FOR NEXT ISSUE	MARCH '90	22 MARCH	EARLY APRIL

Information from the Research Division Policy Group Meeting

The last meeting of the RDPG was held on 1 March 1990 at the Wildlife Research Centre, Woodvale. The following is a summary of discussions from this meeting.

Publicity Brochure for Research Division

A first draft has been prepared.

Procedures for Technical Officers' performance appraisals

As a general rule Technical Officer performance appraisals are carried out by the Research Scientist for whom they work. In situations where a Technical Officer's supervisor is based in another centre the TO may be supervised on a day to day basis by the Research Centre Manager or another scientist, resulting in a dual reporting role. Provision has been made to cater for this by enabling both supervising parties to be present if required. Technical Officers will shortly be advised in writing of amended procedures.

Vacancy - ex J Monck, Herbarium

Expressions of interest will be called throughout the Department for a suitable officer to act in this vacancy until it is advertised.

RDPG Minutes

The meeting agreed that RDPG minutes are circulated for the information of RCMs and PLs. They are not for noticeboards or tearoom tables. Items of general interest are always provided in Research News. A memo about circulation of minutes will be sent to Pls and RCMs.

Approval procedures for scientific and technical publications

The pro-forma used for approving scientific manuscripts has been modified. The revised version will shortly be sent to all Research Centres.

Cover Design - Research Plan 1990-91

A geometric design has been selected for the 1990-91 Plan.

Budget

With 65% of the financial year gone the Division is 62% spent. Some savings are expected in the overtime budget.

External Grants - admin costs

Tony Start is currently investigating the possibility of setting up a central account to cater for the admin costs (typing, vehicles, telephones etc) associated with external grants. When applying for external grants it is imperative that overheads are taken into account.

Research Computing Program Review

Tony Start and Mike Choo are looking towards a May/June date for a review of this program. The review will look at what new directions need to be taken in the research computing area.

Acting Arrangements

Tony Start will act for Steve Hopper during Steve's forthcoming absence on long service leave (commencing 19 March). Acting arrangements for Tony Start's PRS position have yet to be decided.

Next Meeting

The next meeting of the RDPG will be held on 22 March 1990 at the Manjimup Research Centre

Research Methods Note:

I have recently noticed a couple of CALM research publications which give the "SAS Institute" as a statistical reference. For example;

"The relationship between the vegetation and the environment was tested using regression analysis (SAS REG Procedure, SAS Institute Inc. 1987)..."

Without embarrassing the authors concerned by naming them, it must be said that such a reference to a commercial product shows scientific naivety, reflects badly upon the professional standards of Research Division, and is an adverse comment upon the standard of refereeing in the journals concerned. The SAS Institute is not the originator of regression analysis, nor is it a statistical authority. To quote it as a scientific reference is similar to quoting IBM because the program was run on a computer of that make, or quoting the SECWA because they supplied the electricity.

If you are in doubt Matthew and I will be glad to review papers for such gaucheries.

David Ward
Research Methods Program

Research Project Plans

The following Research Project Plans have been approved this month.

No:	3/90
Title:	Fungi associated with branch cankers and death of *Banksia coccinea* at Channel Point, Cheyne Beach.
Officer-in-Charge:	Bryan Shearer

SENATOR BUTTON VISITS W.U.R.C.

Senator John Button and his wife inspected VALWOOD products and the research facilities on a visit to the Wood Utilisation Research Centre on 19 January.

The Senator is the Minister for Industry, Technology and Commerce and responsible for the Department which oversees W.U.R.C.'s Public Interest Project funding.

The Executive Director, Acting Director of Forests Don Keene and Dr Per Christensen joined W.U.R.C. staff for the visit.

The Minister commented that he was impressed by the VALWOOD products and the potential for increased value-adding from low quality logs thinned from forests.

Graeme Siemon

ENVIRONMENTAL AWARD TO VALWOOD

The VALWOOD process developed at the Wood Utilization Research Centre at Harvey received a major award at the annual Government Technology Productivity Awards in Canberra on 26 February. The awards recognize achievements of Commonwealth, State and Local governments in using technology.

Phil Shedley, the W.U.R.C. Manager, received the inaugural Sigma Data Environment Technology Award on behalf of the Derpartment of CALM.

Graeme Siemon

Scientific and Technical Publications

The following have recently been approved for submission for publication.

Author(s):	M R Williams
Title:	New *Gahnia* host plant records for three Western Australian skippers (Lepidoptera : Hesperiidae)
For submission to:	Australian Entomological Magazine
Author(s):	D J Donnelly
Title:	Evaluation of milling equipment suitable for production of Valwood feedstock
For submission to:	WURC Technical Report
Author(s):	A Andersen and A H Burbidge
Title:	The ants of a vine thicket near Broome : a comparison with the northwest Kimberley
For submission to:	J. Roy. Soc. of W.A.
Author(s):	N S Lander
Title:	New taxa and new combinations in *Olearia* (Asteraceae : Astereae) from New South Wales
For submission to:	Telopea
Author(s):	D Ward
Title:	The use of triangles to estimate the number of trees in a forest
For submission to:	Forest ecology and management
Author(s):	A B Thomson and W R Hanks
Title:	Sawmilling study of Tasmanian Blue Gum grown in Western Australia
For submission:	WURC technical report
Author(s):	L R Mathews
Title:	Valwood processing - a preliminary investigation
For submission to:	WURC technical report
Author(s):	K J White
Title:	Debarking small diameter logs
for submission to:	WURC technical report
Author(s):	K J White
Title:	Comparison of low and high pressure watering systems for stockpiling regrowth jarrah logs
For submission to:	WURC technical report
Author(s):	W R Hanks
Title:	Drying and grading marri boards
For submission to:	WURC technical report
Author(s):	S A Halse
Title:	Review of bird pests research in Western Australia
For submission to:	Proceedings of the National Bird Pests Workshop
Author(s):	G J Keighery
Title:	A new species of *Arthropodium* R. Br. (Antheriaceae) from Central Australia
For submission to:	Journal of Adelaide Botanic Gardens
Author(s):	S A Halse
Title:	The natural features of Lake Gregory
For submission to:	CALM Occasional Paper
Author(s):	I Abbott
Title:	Insect outbreaks in forestry of W.A.
For submission to:	Proceedings of the population dynamics of forest insects conference, held in Scotland, September 1989.

The following have recently been published

Pearson D.J. The Diet of the Rufous Hare-wallaby (Marsupialia : Macropidae) in the Tanami Desert. Aust. Wildl. Res., 1989, 16, 527-35.

Serena M. and Soderquist T.R. Spatial organization of a riparian population of the carnivorous marsupial *Dasyurus geoffroii*. J. Zool. Lond. (1989) 219, 373-383.

Burbidge, A.A., Pearson, D.J. A search for the Rufous Hare-wallaby in the Great Sandy and Little Sandy Deserts, Western Australia, with notes on other mammals. CALM Technical Report No. 23, 1989.

Burbidge, A.A., Dixon, K.W. and Fuller, P.J. The Flora and Fauna of vacant Crown land at White Well, Shire of Dalwallinu, Western Australia. CALM Technical Report No. 24, 1989.

Burbidge, A.A. (Ed), Australian and New Zealand Islands: Nature Conservation Values and Management. Proceedings of a Technical Workshop, CALM Occasional Paper 2/89.

Burbidge, A.A. The value of Western Australian islands as biological reservoirs and the development of management priorities. *In* Burbidge, A.A. Australian and New Zealand Islands: Nature Conservation Values and Management. Proceedings of a Technical Workshop, CALM Occasional Paper 2/89.

Hopkins, A.J.M. and Harvey J.M. Fire on offshore islands - problems and management solutions. *In* Burbidge, A.A. (Ed). Australian and New Zealand islands: Nature Conservation Values and Management. Proceedings of a Technical Workshop, CALM Occasional paper 2/89.

Morris, K.D. Feral animal control on Western Australian islands. *In* Burbidge, A.A. (Ed). Australian and New Zealand islands: Nature Conservation Values and Management. Proceedings of a Technical Workshop, CALM Occasional paper 2/89.

Morris, K.D. The Dampier Archipelago - managing people in a nature reserve. *In* Burbidge, A.A. (Ed) Australian and New Zealand islands: Nature Conservation Values and Management. Proceedings of a Technical Workshop, CALM Occasional paper 2/89.

Morris K.D. Feral animals on islands - effect and control. *In* Burbidge, A.A. (Ed). Australian and New Zealand islands: Nature Conservation Values and Management. Proceedings of a Technical Workshop, CALM Occasional paper 2/89.

Sampson, J.F., Hopper, S.D. and Coates, D.J.. *Eucalyptus Rhodantha*. CALM Wildlife Management Program No. 4.

A PHILOSOPHICAL BLACK HOLE IN THE CALM GALAXY

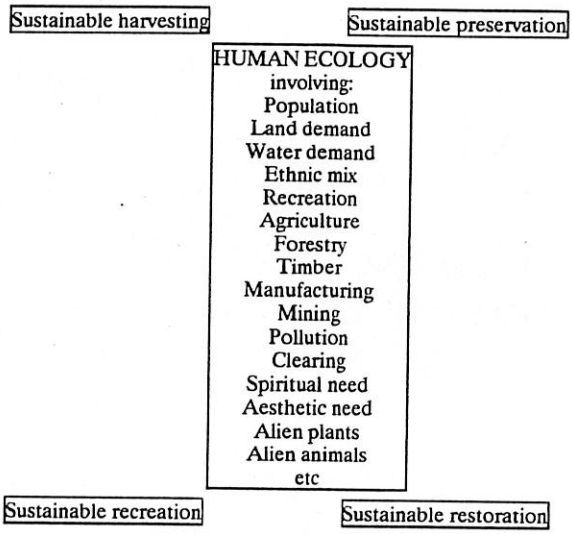
A belated comment on the Research Plan 1989/90

by Dave Ward

As I am sure most researchers can recall, when CALM was formed there was some difficulty in merging the research elements of the former Forests Department and Wildlife Research, which seemed to have different philosphies. The problem has submerged, but not disappeared, and in my view the overall research program is still fragmented, with what one might call a philosphical "black hole" lying between the different aspects of conservation such as restoration, preservation and sustainable harvesting.

Despite more lofty claims, we all know deep down that the real and fundamental reason we bother to conserve and manage is for our own survival and quality of life. Call my viewpoint "anthropocentric" if you wish (I'd rather not!), but I believe it is the stark truth. If we fail to survive, then all other problems are irrelevant, at least for us. Viewed in that way, the relationships between preservation, restoration, harvesting and recreation become clearer. Frugality and compassion for other species have spiritual values, and also make good practical sense. We all need clean water to drink and clean air to breath. We all like to travel in cars and aircraft made of metal and live in houses built with timber. Some of us like to fish or bushwalk, and spiritual and aesthetic experiences are needed for a worthwhile human life. Our central problem is how to manage Western Australia's land, waters and wildlife in such a way as to obtain these commodities and enjoy these experiences in a frugal, compassionate, and sustainable manner, so enhancing human survival and quality of life.

We can learn a lot by studying older, denser human communities which have survived. A forest ecologist who recently visited China said "a conservation program that does not take into consideration human needs is bound to fail eventually..." (Young and Wang 1988). Do we know enough about human needs and desires and interactions with the environment in Western Australia? If not, then a Human Ecology program is needed to fill the black hole. Human demography would be a good starting point from which to describe and predict changing population growth and ethnic mix, which may lead to changing residential, farming and recreation patterns, and changing demands for water, crops and timber. These changes may create new sources of pollution and disturbance, and offer new threats to wild plants and animals. On the other hand, there may be benefits from new skills and cutural viewpoints. Joe Havel (1975) was looking at these matters fifteen years ago, but they have been neglected lately. I believe that a holistic CALM research program should look something like this:



References:

Young S.D. and Wang Z. (1989). Comparison of Secondary and Primary Forests in the Ailao Shan Region of Yunnan, China. Forest Ecology and Management, 28, 281-300.

Havel. J.J. (19750). The effects of Water Supply for the City of Perth, Western Australia, on other forms of land use. Landscape Planning, 2,2 75-132.

Going on a summer expedition?

DEBBIE MACKLIN HAS SOME ADVICE FOR WOULD-BE LIVINGSTONES.

(Acknowledgement - The following has been extracted from "New Scientist" 6 January 1990).

The rainforest expert on the panel of advisers stood up to answer a question from a young student who was planning an expedition to Greenland to count musk ox. "You won't find many oxen in the areas you are thinking of visiting; most of the herds have moved south now. When you arrive at Mesters Vig turn left and ....."

Slightly bewildered, but grateful for the tip, which could have saved him weeks of frustration, the student scribbled down the directions. He was one of 200 hopeful young explorers to spend a weekend last November at the Royal Geographical Society's annual seminar on "Planning a Small Expedition". The fact that the rainforest expert knew all about Greenland was nothing unusual at this event: the 50 advisers present -expedition vetrans, scientists and young explorers, recently returned from adventures last summer - were not there simply to score points on their specialist subjects; their aim was to give would-be explorers useful advice.

This year the RGS will monitor the progress of at least 500 overseas expeditions currently being planned. Most of them will be student groups of four or five, leaving British shores for the three-month summer vacation. An increasing number are going in search of "green goals" and want to play their part in environmental research. Others simply want to justify the trip of a lifetime. Whatever their motive, together they add up to a sizeable force of research potential - well over 200 000 field days this year. Apart from the benefit of character building, is this potential fulfilled?

"Not yet" says Nigel Winser, the RGS's Expedition Officer. "We haven't begun to harness this global task force." Students, you see, sometimes believe they can change the world - and all in the space of three months. Student expeditions run the risk of being unrealistic, underfunded or ill-prepared. Helping them to get it right is one of the main tasks of the RGS and its Expedition Advisory Centre.

It pays to listen to the advice and learn what pleases the Society's tough expedition screening panel, whose official approval can loosen the purse strings of sponsors, but whose "tut-tuts" can close the doors on over-ambitious or mad-cap schemes.

There was no shortage of advice on offer at the seminar, plus a few warnings. Gone are the days of pith helmets and colonial attitudes. To avoid the label of "trespassing tourists", diplomacy, language skills and cooperation are vital ingredients for a successful expedition. An increasing number of countries, quite rightly, want to be involved in any research taking place on their soils, sand or ice. Some are demanding that local scientists or students are taken on board at the expedition's expense.

Diplomatic liaison takes time and patience. Not every country has a high density of fax machines, and if you want to study lemurs in Madagascar, you will need to seek permission by completing a pile of paperwork in French. Typically, planning should begin at least one year in advance, and the first question to be answered is: "What is the aim of this expedition?"

Setting realistic and relevant objectives is a priority. Malcolm Coe, of the University of Oxford, shattered many an illusion that it was good idea to pluck an endangered species out of the International Union for the Conservation of Nature's *Red Data Book*, and go in search of it to build up a better picture of its behaviour.

"What students forget is that the very fact that these creatures are rare makes them jolly hard to find. In two or three months, an expedition might be lucky to get one sighting", he said. At the very least, Coe added, make sure that the search for rare species is not the main aim of the expedition." If the red-footed goose happens not to be in Spitsbergen when you are, you must have a good co-project."

Coe was not short of examples to illustrate the follies of blinding ambition. The plight of the African elephant attracts a great deal of attention at the moment, and in their haste to help, student groups have put themselves forward as survey teams. What they don't realise, Coe says, is that there is very little they can do in a few weeks, particularly without radio tracking equipment, experienced vets on hand and an aeroplane. Instead, he suggests, students might follow elephants with a bucket and spade and study

the dung beetles that live on their droppings. "that would be more practical and probably reveal quite a lot about elephant behaviour too."

Students were urged to focus on habitats and species interactions, rather than on single rare species. They had most to offer, pleaded the advisers, if research was set in the context of what was already known, and added just a little bit of extra information.

Liaising with established research and conservation organisations is advisable if you are to establish worthwhile objectives. They have clear priorities for research and may welcome student help. The IUCN, for example, is focusing on islands in the Indian Ocean, and next summer, two university expeditions will help the organisation with surveys on Silhouette Island in the Seychelles.

The role that student expeditions can play in extending the list of species known to science seems rather uncertain. Don't bring back hundreds of specimens, the advisers warned, if you haven't got a tame taxonomist on hand when you get home. Museum cupboards are overflowing with bags and jars awaiting analysis. Jeremy Holloway, an entomologist, claimed that for every two weeks collecting in the field, one year was needed in the laboratory for a detailed identification.

The advice was not limited to getting the science right. Once in the field, practical pitfalls abound, but those who have already slipped into them are more than willing to share the benefit of hindsight. For example, expeditions heading into the rainforests should know that the combination of sweat and humidity rots old clothes far more quickly than new ones, so it's worth splashing out on a few new t-shirts before you go. And if you happen to arrive in the Gambian capital of Banjul in the wet season and the streets are submerged under flood water, remember that the open sewers are on the left hand side of the road. Last summer, a team studying dwarf crocodiles in West Africa discovered this the hard way, and would not like anyone else to relive the experience.

Generations of explorers have wiped the words Terra Incognita off the face of the globe but the Age of Discovery, it seems, is far from over.

Nature Conservation Research Program Workshop

A most successful workshop running over a day and a half was recently convened by Senior Principal Research Scientist Steve Hopper and Principal Research Scientist Tony Start. The workshop involved a series of short talks by research scientists in the Biogeography, Flora Conservation, Fire, Wetlands and Waterbirds, Marine Research and Fauna Conservation Programs. The emphasis of the workshop was placed on management implementations of research and the transfer to operations of prescriptions.

Attendance varied over the two days with nearly one hundred people attending the opening sessions. Ideas generated from discussions will be used in the next update of the Research Plan.

Appointment as Secretary of South East Asian Botanical Program

Dr Neville Marchant, Senior Botanist at the West Australian Herbarium, has recently been elected to the position of Secretary of the South East Asian Botanical Program (SEABOP) and adviser to UNESCO. The aim of SEABOP is to address the decline in plant taxonomy. This will initially concentrate on South East Asia but will directly and indirectly involve Australian taxonomic research. The appointment of Neville to the position of Secretary has been endorsed by both the Executive Director and the Minister.

SEMINAR

Thursday 15 March 1990

WESTERN WEEDS

Presented by Greg Keighery

Western Australia has a vascular plant flora of *c* 8,300 species, of these, approximately 850 are naturalized aliens (10%). This is still low in comparison to New Zealand (*c* 50%) or even the long settled and disturbed Perth Region (27% of flora).

Of these species 447 have been recorded as occurring in bushland areas, or on the CALM estate. This number can be expected to rise, as further surveys are undertaken (ie : 126 species were recorded from *Banksia* woodlands on the Swan Coastal Plain).

Current weed surveys are being concentrated on vegetation communities in bushland remnants of the Swan Coastal Plain (viz: Tuart woodland with Patrick Piggott; John Forrest National Park and Bold Park).

Provision of advice (to APB and Operations), co-operative ventures (eg : slide catalogue, weed records : Herbarium), handling of biological control responses (with John Blyth) for ANPWS and correspondence with the CONCOM weeds working group are current major activities.

Aspects of these activities will be considered during the seminar.

Venue:

Training Centre
CALM SOHQ
50 Hayman Road
Como

Time 3.00pm

SEMINAR

Friday 6 April 1990

FACT VERSUS FANTASY IN CONSERVATION GENETICS; A FISHY EXAMPLE

Presented by Dr Jim Stoddart

Population genetic theory is well developed with respect to estimating such things as population size, population subdivision and the rate of migration; although the mathematics of this depend on a number of assumptions which bear varying degrees of similarity to the real world. Unfortunately, the recent extension of this work past its numerical implications for population dynamics and into the murkier waters of conservation genetics is often fraught with subjective judgements based on jargon which has no theoretical basis. Current needs for conservation often obscure our understanding of evolutinary processes and produce unreal notions of the degree of stasis within gene pools.

A current move in many Australian States to extend the results of electrophoretic studies of barramundi, showing a well developed stock structure between river systems, into regulations which prohibit the movement of fish between rivers in an example of the above phenomenon. Within barramundi, genetic differences between stocks have been demonstrated only for populations, not for individual fish; it is the proportion of various genes present that differs bettween rivers, not the actual genes. Experimental studies of other fish species suggest that the few life history differences reported between barramundi stocks are unlikely to have a genetic basis. I conclude that there is no direct evidence to suggest that mixing gene pools per se will have deleterious effect.

Restocking programs based on current methods of hatchery-produced fry, which do not employ genetically-based breeding programs, should be discarded. Current hatchery techniques use such an inappropriately low number of broodstock that fingerlings are likely to bear little relationship to any wild gene pool. Further, under pressure from fishing and environmental modification, it is unlikely that barramundi gene pools have been, or will remain, static entities. Agents of change such as these are likely to be the beam in ou eye while we chase the mote of mixing stocks.

Venue:

Wildlife Research Centre
Ocean Reef Road
Woodvale

Time 3.00pm

Granite Outcrop Flora Studies

Dr Stephen Hopper, Senior Principal Research Scientist at the Wildlife Research Centre will shortly be travelling to the USA on long service leave. Steve has obtained a Fulbright Senior Scholar Award to pursue studies of granite outcrop flora at the University of Athens, Georgia (6 weeks), to conduct botanical research under a Miller Visiting Research Professorship at the University of California at Berkeley (6 weeks) and to inspect a range of national parks and research institutions in the western USA (4 weeks).

The Fulbright Award covers a return airfare and some accommodation costs for the last four weeks of the trip. The Miller Professorship will provide accommodation and research costs for the six weeks at Berkeley.

The objective of Steve's study of USA granite outcrops are:

i) to develop an understanding of approaches taken in the United States to the study of granite outcrop plants, their biogeography, ecology, reproduction, evolution and conservation.

ii) to conduct field and literature research on granite outcrops in the south-eastern United States so that useful comparisons may be made with patterns and processes documented on Western Australian granite outcrops.

iii) to improve approaches taken to the study and management for conservation of W.A. granite outcrop plants as a result of intercontinental comparative research.

Despite this study program Steve also plans to put on the tourist hat and take in the sights. Steve leaves on 17 March for what should be a rewarding trip. He returns to work in mid July.

Have you Heard?

- Adam Wincza has recently joined the team at Dwellingup Research - Adam has been appointed to the position of User Support Officer. Prior to joining CALM he worked with Graga Software Solutions as a User Support/Programmer. He holds a Certificate in Computer Programming and is currently studying towards an Associate Diploma of Applied Science (Computing).

- Jenny Monck has recently transferred from the Herbarium to Manjimup Research Centre. Jenny and Michelle Pree (Manjimup Research) will be job sharing. Reports to date indicate that both are enjoying their extra days of leisure.

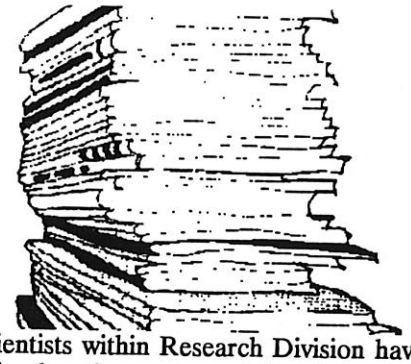
- Woodvale welcomes back Anne Taylor who is working with Margaret Langley (part-time until May) on the Metropolitan Regional Management Plan for endangered flora under the supervision of Dave Coates.

- Farewell and best wishes are extended to Tom Hill. Tom has recently resigned from his position of Technical Officer within the Plant Disease Program to pursue a career in environmental issues in the United Kingdom.

- The newsletter is about to have a new Editor. Christine Farrell will be taking over the role of Administrative Assistant to the Director of Research and the Research Division Policy Group and Editor of Research News. Any matters previously referred to Jeanette should now be sent to Christine at Woodvale (4055105).

- WOODVALE VOLUNTEER CO-ORDINATOR
  David Mitchell has volunteered to take on this role for the Woodvale Centre.

OVERDUE LIBRARY BOOKS



Some scientists within Research Division have ignored overdue book notices or treated the whole thing as of little consequence. This attitude isn't good enough and I have recommended to the Librarian-in-Charge that fines be imposed for overdue books. I am also prepared to support the "blacklisting" of people who refuse to cooperate with requests to return books and journals.

People who do not return overdue books are depriving others of the full use of Library resources.

Andrew A Burbidge

Vale CALM ALERT

February's CALM ALERT will be the last. Unfortunately the Library will not be able to continue to provide this service because it is too expensive.

When CALM ALERT was started, Publications Branch covered the production costs. Since February 1989 the costs have been split between the Library and Public Affairs, but the loss of 2% of the Library budget this financial year has proved to be the "last straw" for CALM ALERT which has cost over $500 per month for 55 copies. A request for a special CALM ALERT budget of $6000 for 1990/91 have been approved by the Department, but isn't likely to receive Treasury approval.

Unfortunately Research Division will be the main losers. CALM ALERT generates about 90% of the 1600 photocopy requests and 720 journal issue requests which the Library services each year; well over three quarters of these requests are from people in Research Division.

Fortunately the "Caretaker System" which the Library is instituting will provide an alternative. However, it will not provide the wide coverage of the departmental acquisitions which has been CALM ALERT's strength.

Elaine Davison

Thank-you

As you will have read in the "Have you Heard" column Christine Farrell will be taking over my role. I will be working at Crawley on a permanent basis. As this is my last newsletter as editor I would like to thank all the contributors who have made it all worthwhile over the past two years. I would also like to thank Jill Pryde for her help and patience in the setting out and layout of the newsletter. I wish Christine well in her new role and have assured her of the continued support of the Division.

Jeanette