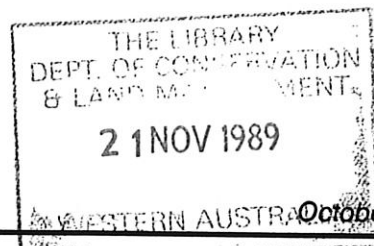


RESEARCH NEWS

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

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No 9/89

October 1989

BIOLOGICAL SURVEY OF CAPE ARID

The field phase of the survey of Cape Arid National Park has just concluded. This park, the best known of all the major south coast parks was studied for snails (P Kendrick), ants (A Anderson - CSIRO Darwin), reptiles and frogs (J Rolfe) birds (AH Burbidge), mammals (J Rolfe, AH Burbidge, N McKenzie) and plants (G Keighery and J Alford).

Initial results reveal a rich assemblage of all biota surveyed. Several endemic species of *Bothriembryon* (snails) are known from the area. Jim Rolfe discovered a new species of Blind Snake (*Rhamphotyphlops* sp). Two extinct taxa of plants (*Gratiola* off. *pedunculata* and *Hydatella australis*) re-appeared, numerous range extensions were discovered, the most notable being an *Acacia* previously confined to the Albany district and a native mint (*Mentha saturaeoides*) previously only known from the Pemberton area. The known flora list is approaching the 1 000 species mark. Numerous birds were recorded, including populations of the rare Western Ground Parrot.

During the latest trip large areas of heath and *Banksia speciosa* shrubland were dying from waterlogging caused by the very heavy winter rains. These deaths mimic dieback, and will be studied and reported on in greater detail.

Information gained will be used in the management plan, and provides baseline data for monitoring purposes.

Now the easy part, the write up! Allan Burbidge says it will be ready by Christmas.

Greg Keighery
Biogeography Program Leader

	ISSUE	DEADLINE	DISTRIBUTION
DEADLINE FOR NEXT ISSUE	NOVEMBER '89	30 NOVEMBER	MID DECEMBER

INFORMATION FROM THE RESEARCH DIVISION POLICY GROUP MEETING

The last meeting of the RDPG was held on 25 October 1989 at the Herbarium. The following is a summary of discussions from the meeting.

*Chief's award for the pursuit of excellence.

As reported last month the RDPG is investigating the idea of an annual award for excellence in research and support. Andrew Burbidge presented a draft proposal to the meeting. The proposal as presented was directed more towards an individual award as opposed to an award for a project team. In the light of discussions it was agreed the proposal be amended to cater for both individuals and a project team.

*Vacancy - Technical Officer WURC.

The previous RDPG meeting had agreed the above item should be advertised as a temporary position only. Correspondence from Phil Shedley (Forest Resources Division) expressed concern over this decision and requested the position be advertised as permanent in order to attract a suitably qualified person. The matter will be referred to the Department's Vacancy Committee as Research Division needs assurance that an FTE would be available if WURC funding ceased (in order to employ a suitable officer for another area of research).

*Application for funding - Pilbara fire studies.

An application had been received from John Fox (Curtin University) requesting support from CALM (\$4 000) for a third year of the Pilbara Fire Study project. Per Christensen explained that the initial proposal to fund the postgraduate work was for two years. This was a request for a third year. It was agreed that with our own budgetary constraints there were no funds to support this.

*Meeting Dates 1990

A timetable of meeting dates for 1990 had been prepared. The need to visit smaller country stations such as Busselton, Narrogin, Albany would be addressed independently as the need arose. Effort would be made to keep country trips for the remainder of the financial year to a minimum in order to cut costs.

Local Volunteer Co-ordinators.

A circular had been received from Col Ingram on the appointment of Volunteer Co-ordinators in our Research Centres. It was decided that country based Research Centres could utilize the Region/District co-ordinator. Nominations will be called for co-ordinators in each of the Perth based Research Centres (Woodvale, Como, Herbarium). Information on this scheme is contained further on in this newsletter.

The next meeting of the RDPG will be held on Thursday 30 November 1989 at the Wildlife Research Centre, Woodvale.

IPS AND SIREX - VISIT BY EXPERT

Dr Dennis Haugen, Post-doctoral Fellow at the Department of Entomology, Waite Institute of the University of Adelaide, visited CALM in October.



Insect predators and parasitoids of the introduced American Bark Beetle *Ips grandicollis* were first released in selected WA plantations in 1988. Dr Haugen visited several release sites established last year in Radiata Pine plantations between Kirup and Nannup. Issues discussed with CALM staff were: distinguishing the three species of introduced Bark Beetles established in WA; the standard of plot preparation; follow-up procedures; and evaluation of the success of release. This year's releases have just begun. The program of releases is due to finish next May.

Dr Haugen attended a workshop on Sirex Woodwasp at the Como Research Centre. His presentation dealt with the life cycle, available control methods, history of outbreaks in South Australia, outbreak control in South Australia and evaluation of the success of this program. The good news is that introduced parasitoids and predators are reducing Sirex populations in South Australia.

Sirex is not (yet) established in WA. When it does establish, CALM will be able to use the methods perfected in South Australia and prevent outbreaks from developing. Several improvements to CALM's Sirex Plan (1988) were also suggested by Dr Haugen.

Ian Abbott
Principal Research Scientist

LIBRARY SERIALS

The CALM library at Woodvale takes about 407 serials per annum. Some publications are produced weekly, others every two weeks, monthly, quarterly or annually. In all, about 2 200 items are added to the collection each year. After they have been received and the contents pages photocopied for CALM Alert current periodicals are displayed for one week each at Como, Crawley and Woodvale. Soon after the journals are back at Woodvale the first requests for articles generated by Calm Alert start to be received. The journals are held at Woodvale until their requests have been satisfied, then individual issues are available for loan. The library has a strict policy that there are no loans of bound journals, so after binding only photocopies are available.

This system works well for staff at Como, Crawley and Woodvale, where we can see the original articles and have CALM Alert to fall back on. Researchers in the other Research Centres, however, are not as well served. Although they receive CALM Alert they do not have ready access to the journal issues, including the abstracting journals. I don't know what I would do without my weekly look at Current Contents. Hugh Clift and the library staff try to provide the best service they can with the available resources, but Hugh readily admits that re-

searchers who are not in the metro area receive a pretty pathetic service and are disadvantaged in their general reading.

Elaine Davison
Senior Research Scientist

APPOINTMENT OF LOCAL VOLUNTEER CO-ORDINATORS

Below is an extract taken from a memo recently received from Col Ingram, CALM's Community Involvement Co-ordinator. The memo is self explanatory. The RDPG recently addressed the subject of appointing Volunteer Co-ordinators in our Research Centres and resolved that Volunteer Co-ordinators should be appointed in the three metropolitan Research Centres (Como, Herbarium and Woodvale). Country Research Centres would be able to use the District/Regional Co-ordinator.



Nominations are being called for anyone interested in taking on this role in Woodvale, Como and the Herbarium. If you wish to nominate please inform your Centre Manager by 30 November 1989. Further information is available from Research Centre Managers.

From Col Ingram's memo

"As you may be aware CALM have recently embarked on a new and exciting initiative. The initiative is the establishment of a State-wide volunteer program. The program has the full support of the Policy Directorate and in particular the Executive Director and General Manager.

Volunteers will play a major role in assisting field staff complete tasks that could not have otherwise been achieved, at the same time increasing community awareness and support for CALM's role.

All Regions, Districts and Branches should have recently received copies of the Policy on Volunteers and the accompanying Administrative Instructions.

Section 4.5 of the Policy provides for the appointment of a Volunteer Co-ordinator in each Region or Branch, charged with the responsibility of initiating and co-ordinating District based Volunteer programmes. In some Regions this responsibility may be shared between officers, depending on the nature of the activity, and the size of the Region.

The long term success of the CALM Volunteer program will depend largely on the initiative and energy provided by the field based co-ordinator.

I would ask therefore, that in selecting the co-ordinator/s, consideration be given to people with the following attributes.

**experience and/or an interest in working with volunteers.*

**a proven ability to communicate with and work effectively with the community.*

**experience in recreation and park management. (As the majority of projects will be recreation and/or National Park based.) Where the project is research or forestry based, the co-ordinator will be required to provide assistance and advice to the project supervisor.*

**the availability to work on weekends."*

SEMINAR

Friday 1 December 1989

The Barrow Island Green Turtle Rookery

presented by Keith Morris

Most Green Turtle (*Chelonia mydas*) populations in the world are now regarded as depleted or endangered. Until recently little was known of marine turtle populations off the north-west coast of WA. The Green Turtle rookery on Barrow Island was investigated as part of an ongoing study into the distribution and reproductive biology of marine turtles in WA.

Barrow Island probably supports one of the largest rookeries in the world, and annual breeding population numbers do not appear to fluctuate as they do elsewhere. Commercial exploitation of turtles 20 to 40 years ago has not affected present breeding populations. Barrow Island Green Turtles are smaller and lay fewer eggs per clutch than eastern Australian populations. Over 1500 turtles have been tagged, however only one has been recaptured, and none have yet been found to return to the island. The ongoing tagging program will clarify movement patterns of Barrow Island turtles and the importance of this rookery for the conservation of this species. Information gained from this study has also been useful in the setting of guidelines for the environmental management of commercial developments on north-west islands.

This seminar will be followed by a 20 minute WAPET produced video on Barrow Island.

Venue:

**Wildlife Research Centre
Ocean Reef Road
Woodvale**

Time:

3.00pm

COMPUTING NEWS

MATRIX GENERATION AND PRINT UTILITY SYSTEM

A new release of the matrix generation system is now available. The main purpose of this system is to provide researchers with the ability to view and process sequential data in a tabular (matrix) form.

The system will operate on any DBASE file, and the output will depend on the option chosen (DBASE file, ASCII file or printer output).

MATRIX GENERATION

This feature enables a linear file to be transposed into a matrix file using user nominated rows and columns. Row and column totals will automatically be generated.

There are three options

1. Presence/absence matrix

Refer fig 2.

2. Count matrix

Each output matrix cell contains a count of

DATE	TRACK	SPECIES	NUMBER
10/16/84	granite	grey	5
10/16/84	granite	rabbit	1
10/16/84	granite	fox	1
10/16/84	rosella	possum	1
10/17/84	eagle	tammar	1
10/17/84	gnow	grey	3
10/17/84	gnow	fox	3
10/17/84	gnow	rabbit	1
10/17/84	nuytsia	grey	1
10/18/84	bee eater	grey	6
10/18/84	honey eater	grey	4
10/18/84	wambenger	possum	4
10/18/84	wambenger	grey	1
11/13/84	bandicoot	grey	2
11/13/84	bee eater	grey	8
11/13/84	gnow	grey	6
11/14/84	gnow	grey	14
11/14/84	goanna	grey	1
11/14/84	nuytsia	grey	4
11/15/84	bee eater	grey	4
11/15/84	honey eater	tammar	1
11/15/84	tammar	tammar	1
11/15/84	wambenger	grey	5
11/29/84	bee eater	grey	4
11/29/84	granite	grey	8
11/29/84	jam	tammar	2
11/29/84	tammar	grey	1

fig.1. Observation Data

the number of occurrences (records) in the source file. Refer to fig. 3.

3. Total matrix

Each output matrix cell contains the sum of a value field in the source file (eg number observed). Refer to fig. 4.

PRINTING OF FILES

This feature enables a user to print any nominated DBASE file. The output media will depend on the option chosen (ASCII file or printer output). ASCII file outputs could be used as direct input into other softwares for further processing.

1. Standard output

This will produce a simple list using user defined fields. Refer to fig. 1.

2. Ruled output

This option allows the user to produce a tabular output with lines separating each matrix cell. Refer to fig. 2 - fig. 4.

TRACK	GREY	RABBIT	FOX	POSSUM	TAMMAR	TOTAL
bandicoot	1	0	0	0	0	1
bee eater	1	0	0	0	0	1
eagle	0	0	0	0	1	1
gnow	1	1	1	0	0	3
goanna	1	0	0	0	0	1
granite	1	1	1	0	0	3
honey eater	1	0	0	0	1	2
jam	0	0	0	0	1	1
nuytsia	1	0	0	0	0	1
rosella	0	0	0	1	0	1
tammar	1	0	0	0	1	2
wambenger	1	0	0	1	0	2
{TOTAL}	9	2	2	2	4	19

fig.2. Presence/absence matrix

TRACK	GREY	RABBIT	FOX	POSSUM	TAMMAR	TOTAL
bandicoot	1					1
bee eater	4					4
eagle					1	1
gnow	3	1	1			5
goanna	1					1
granite	2	1	1			4
honey eater	1				1	2
jam					1	1
nuytsia	2					2
rosella				1		1
tammar	1				1	2
wambenger	2			1		3
{TOTAL}	17	2	2	2	4	27

fig.3. - Count matrix

TRACK	GREY	RABBIT	FOX	POSSUM	TAMMAR	TOTAL
bandicoot	2					2
bee eater	22					22
eagle					1	1
gnow	23	1	3			27
goanna	1					1
granite	13	1	1			15
honey eater	4				1	5
jam					2	2
nuytsia	5					5
rosella				1		1
tammar	1				1	2
wambenger	6			4		10
{TOTAL}	77	2	4	5	5	93

fig.4. - total matrix (based on value field)

Research Project Plans

The following Research Project Plans have recently been approved.

- No. 26/89
 Title: The efficacy of Phosphorous acid in protecting *Banksia brownii*, *B. baxteri* and *B. coccinea* from infection by *Phytophthora cinnamomi*
 Officer-in-Charge Bryan Shearer
- No: 28/89
 Title: Factors affecting the germination, establishment, survival, growth and form of *Eucalyptus marginata* seedlings
 Officer-in-Charge Geoff Stoneman
- No: 29/89
 Title: Infection of *Pinus radiata* clones by *Phytophthora* spp.
 Officer-in-Charge Mike Stukely/Elaine Davison

Scientific and Technical Publications

The following have recently been approved for submission for publication.

- Author(s): P Newby and G R Siemon
 Title: Adhesives for Manufacture of Furniture Blanks
 For Submission to: WURC Technical Report
- Author(s): A A Burbidge
 Title: Conservation of threatened species of mammals in Australia
 For submission to: ACIUCN Threatened Species Conference
- Author(s): D Ward and R Underwood
 Title: Question Mapping
 For Submission to: Search
- Author(s): D.J. Donnelly and G.R. Siemon
 Title: Effect of sapstaining and C.C.A. treatment on strength properties of radiata pine poles

- For Submission to: WURC Technical Report
 Author(s): I. Abbott
 Title: Annual cycle of reproductive activity of a population of *Catasarcus asphaltinus* Thompson (Coleoptera : Curculionidae) in suburban Perth, Western Australia
- For submission to: J. Aust. Entomological Society
 Author(s): D.J. Pearson and A.C. Robinson
 Title: New records of the sandhill Dunnart, *Sminthopsis psammophila* (Marsupialia : Dasyuridae) in south Western Australia
- For submission to: Australian Mammalogy

The following have recently been published.

- D.J. Coates and R.E. Sokolowski, Geographic Patterns of Genetic Diversity in Karri (*Eucalyptus diversicolor* F. Muell.). Australian Journal Botany, 1989, 37, 145-56.
- G.B. Inions, M.T. Tanton and S.M. Davey. Effect of fire on the availability of hollows in trees used by the common Brushtail possum, *Trichosurus vulpeculata* Kerr 1792, and the Ringtail Possum, *Pseudocheirus peregrinus* Boddaerts, 17895. Australian Wildlife Research, 1989, 16, 449-58.
- G. Wardell-Johnson, G. Inions and A. Annels. A floristic classification of the Walpole-Nornalup National Park, Western Australia. Forest Ecology and Management, 28 (1989) 259-279.
- A.J.M. Hopkins and E.A. Griffin. Fire in the Banksia woodlands of the Swan Coastal Plain. Journal of Royal Society of Western Australia, 71 (4), 1989, 93-94.
- G.J. Keighery. *Banksia* woodland weeds. Journal of Royal Society of Western Australia 71 (4) 1989, 111-112.
- B.L. Shearer and T.C. Hill. Diseases of Banksia woodlands on the Bassendean and Spearwood Dune Systems. Journal of Royal Society of Western Australia 71 (4), 1989, 113-114.
- S.D. Hopper and A.H. Burbidge. Conservation status of Banksia woodlands on the Swan Coastal Plain. Journal of the Royal Society of Western Australia, 71 (4), 1989, 115-116.
- A.A. Burbidge. Banksia woodlands : Summary and conclusions. Banksia woodland symposium. Journal of Royal Society of Western Australia, 71 (4), 1989, 117-118.

Note: All Research Division authors are reminded that they must either advise Jeanette of any published articles or supply her with a copy of the article.

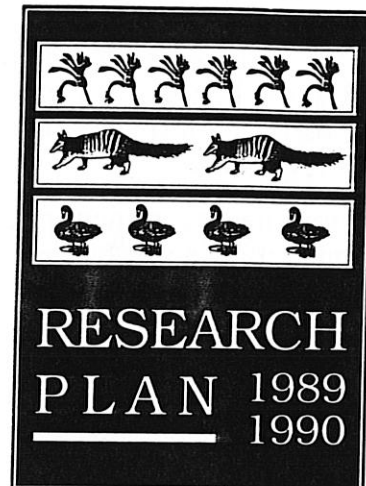
CHILD CARE IN THE PUBLIC SECTOR

(Extract from a recent media statement released by the Hon Premier)

The State Government is to move to establish child care support for public sector employees in the interest of equal opportunity and increased public sector productivity. Child care options for public sector employees will be examined within existing zero growth budgetary constraints and on a cost recovery basis.

A tripartite working party of representatives of public sector managers, public sector unions and Office of the Family has been established by the Premier, Mr Dowding, to evaluate the opportunities for prompt action on parenting responsibility, including child care in the public sector.

RESEARCH PLAN 1989-1990



The 1989-1990 Research Plan has recently been distributed throughout the Department and to kindred organizations. Any comments on the Plan - mistakes, errors, omissions and suggestions etc should be sent to Jeanette Gilmour at Woodvale.

RESEARCH DIVISION SEMINAR SERIES 1990

A request for seminar speakers for the 1990 series has recently been distributed to all professional staff. It is hoped that we will once again be able to formulate an interesting series. The Director of Research wishes to remind all Research Scientists that they are required to

present a seminar in this series at least once every two years.

HAVE YOU HEARD?

Research Centre Manager - Dwellingup Research

From 1 November 1989 Dr Stuart Crombie has taken over the role of Centre Manager at Dwellingup Research. Stuart takes over from Dr Bryan Shearer, Bryan will continue as Program Leader of the Plant Disease Program working from Dwellingup. RDPG wishes to thank Bryan for his enthusiasm and contributions to the running of the Dwellingup Research Centre over the last few years. All Centre correspondence and enquiries should now be directed to Stuart.

New Faces

Research Scientist Richard Harper has recently taken up office at CALM's Albany office. Richard is working under the helm of John McGrath in the Silviculture Program. Richard's major area of research will be to study the relationships between soil and environmental factors on the performance of tree growth in the Albany region.

Another new permanent appointment to the Division, but not a new face is that of Ray Wills. Ray has recently been appointed to the vacancy created by Joanna Tippet's resignation. Ray will be based at the Manjimup Research Centre. Ray's research will concentrate on looking at the disease problems in native forest woodlands, in the south coast conservation areas and the southern forests.

Images of Scientists!

The following is taken from "Investigating - Australian Primary Science Journal" and may bring a smile to a few readers' faces!

Children often have a very stereotyped image of scientists ie male, with a beard, with glasses in a white coat. A recent survey in Perth schools confirmed this image. Children were asked to describe "how to make a scientist". Here's what one 8 year old girl wrote.

"First you put in ten million brains so that he can make good inventions.

Then you add glasses so that he can see what he is doing.

Next put in black trousers to cover his legs.

A long white coat to protect his clothes.

Healthy blood to make him work faster.

Put in fast working hands to do lots of experiments.

Two X-ray vision eyes so that if he loses something he can find it quickly and get back on his work.

A lot of clean hair, because if it was dirty and got into an invention it would spoil it.

A good smelling nose so that if an experiment is about to explode, he will know.

A mouth to taste experiments. He needs strong feet so that he can stand at the table for a long time.

If you want to make a scientist, you would have to be very clever"

Do you fit this image?



A scientist is a very important person. To be a scientist you have to be smart. Some scientists are men but yet they solve mysteries of our own planet.