

RESEARCH NEWS

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

Acting Editor:

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SEMINAR TIMETABLE 1992

Presentations are expected to last for approximately 45 minutes followed by a question and discussion time. Commencement time will be 3.00pm on the nominated day.

	Date	Venue	Topic
Mike Stukely	13 February	Como	Dieback-resistant Jarrah
Andrew Burbidge	21 February	Woodvale	Recovery Plans and Recovery Teams - Western Swamp Tortoise and other endangered species
Jack Bradshaw	12 March	Como	Even-aged or uneven-aged forest management - what's the difference?
Stephanie Turner	27 March	Woodvale	Early life history of <i>Drupella cornus</i>
Graeme Siemon	9 April	Como	Valwood(R) - research and development
Alex Chapman	24 April	Woodvale	WACENSUS and Herbarium information systems
David Bicknell	7 May	Como	Outcome of the trees on south coast farms project
Paul Gioia	15 May	Woodvale	Managing species data - a method of standardizing on names and codes
Barbara Rye	21 May	Como	Rare or misidentified? - Taxonomic problems of plants on the priority conservation list in the families Cyperaceae, Rhamnaceae and Tileaceae
Ian Abbott	4 June	Como	Ecology of Jarrah Leafminer in relation to timber harvesting and fire
Stuart Crombie	19 June	Woodvale	Water relations, leaf area and jarrah growth
Geoff Stoneman	2 July	Como	Factors affecting the establishment and early growth of Jarrah seedlings
Steve van Leeuwen	17 July	Woodvale	Fire and mulga in the Karijini National Park
Richard Moore	30 July	Como	Pine timber belts - integrating softwoods with farming
Nicholas Lander	7 August	Como	The pastness of the present and presence of the past: a riposte to the notion that cladistics is able to provide an evolutionary basis for conservation strategies
Gordon Friend	14 August	Woodvale	Vertebrate life history parameters and fire - a conceptual framework for a predictive model
Neville Marchant	27 August	Como	Generic dilemmas in <i>Myrtaceae</i>
G Wardell-Johnson	11 September	Woodvale	The ecology and biogeography of four locally endemic forest eucalypt or "all about the tingles"
John McGrath	24 September	Como	Impact of site factors on productivity and drought susceptibility of <i>Pinus radiata</i> in the Blackwood Valley region
G Friend/T Friend	9 October	Woodvale	Conservation of the Red-tailed Phascogale
Nicky Marlow	16 October	Woodvale	Ecology of foxes in relation to biological control
Stuart Halse	22 October	Como	Summary of research at Lake Gregory
Keith Morris	6 November	Woodvale	The eradication of the Black Rat from Barrow and Middle Islands
Richard Harper	19 November	Como	Land evaluation for CALM's new plantation
Greg Keighery	4 December	Woodvale	Tuart Forest: floristics, weeds and the future

RDPG MINUTES

Extracts from RDPG Minutes of meeting held on 19 December 1991

Budget

46% through the year and every program is a reasonable state.

Dieback Detection Service

The Detection Service transfer to Como will take effect by the end of February

Research Seminars in Regions

Ian Abbott is to send another memo out to the regions to gauge their reaction in them hosting a Research Division Seminar.

Research work carried out in areas of CALM other than Research Division

A memo is to be sent out to all Directors, Branch Managers, Regional Managers and District Managers to ascertain if there is any research being carried out in other areas of CALM.

Bushland Weeds - future CALM action

Corporate Executive has approved the endorsement of a formation of a Task Force to draft a Policy Statement and Admin Instruction on the *Management of bushland weeds*.

Referring RPPs to relevant scientists or related Program Leaders - a new line needed for external vetting where appropriate.

Does this have relevance to other programs to be included onto the RPP form

Declining Library Book Acquisitions and Research Division

Due to extreme concern expressed by many Research Division staff regarding the Library's declining book acquisitions, the Division is willing to donate \$3,000 to the Library to purchase books of general and relevant interest to Research Division.

Another concern raised was the fact that officers were failing to deposit 3 copies of reports and/or publications with the Library. Please note also that when purchasing items (books, videos, kits etc, these should also be registered with the Library.

New Policy Statement

No 35 -

Aboriginal Employment and Training

In 1989 this policy was produced and approved during the preparation of the Aboriginal Employment and Training Plan. It is re-published in this form as one of CALM's series of Policy Statements.

It is available at this office if you wish for a copy or further information, ring Jill or Christine, Woodvale)

Report of Interstate Conference on "Conservation Biology in Australia and Oceania"

University of Queensland, Sept 30 - Oct 4 1991.

Grant Wardell-Johnson 06/11/91

My aim in attending the first conference on Conservation Biology in Australia and Oceania was to examine current ideas in Biogeography, and Disturbance Ecology and their relevance in Conservation Biology and Management of south-western forests; and to present a paper entitled "An evolving plant-species monitoring system for Walpole-Nornalup National Park, Western Australia". I was also able to discuss issues concerned with forestry and wildlife management with representatives from each of the Australian state conservation/forest services (exceptions SA, NT). I also discussed models of tree species distributions and edge effects with several interstate researchers (Nick Nicholls, Neil Mitchel, Suzanne Probar, Tom Sisk).

I attended 45 of the 135 papers presented and 3 of 8 workshops. Up to 3 sessions were held concurrently leading to a need to make choices among many fine presentations.

Important themes to emerge from the conference included

1. the very severe problems of introduced species, fragmentation, land degradation and climate change, facing Australia and its wildlife;

2. the need for Conservation Biologists to be more active in the promotion of their findings;
3. the need for an increasing emphasis on invertebrates in biogeographical survey and in disturbance ecology, to determine fine scale pattern and process. This is particularly relevant in the muted landscape of south-western Australia;
4. the increasing acceptance of the need for thorough and well designed biogeographic survey to enable an explicit understanding of the overall pattern of the biota;
5. the increasing integration of genetics into ecological studies;
6. the importance of access to GIS technology for research on spatial and temporal patterns in species and communities and for managers involved in complex land use decisions;

Ecological research of relevance to conservation biology in forest areas in Australia, appears to have been generally divided among three areas - biogeography (e.g. CALMs Biogeography Research Program), single species studies (e.g. CALMs Flora Conservation and Fauna Conservation Research Programs), and disturbance ecology (e.g. CALMs Native Forest Silviculture and Fire Research Programs). Overall, CALM appears to have the best developed research program structure, support system and research focus of any of the state departments. Nevertheless there are some lessons to be learnt from other state organisations. For example, research on the impact of logging (e.g. effects of gap size, fragmentation, edge effects, different silviculture practices on community structure) in other states has generally been in native forest silviculture research programs, where it has been conducted concurrently with other silvicultural research (e.g. timber or water yields under various silvicultural options).

Based on the experience of other states, it is likely that a integrated approach to silvicultural research which includes wildlife issues will be profitable within the Native Forest Silviculture Research Program. This has been recognised by the Native Forest Silviculture Research Program. Although neither the Victorian nor the Tasmanian Commissions Research Programs match that of CALMs, particularly in the fields of biogeography and flora and fauna conservation, both these organisations include social scientists, botanists, zoologists, soil

scientists and silviculturalists to provide detailed understanding of the benefits and constraints of various silvicultural options in their major forest types. This approach also has merit in the jarrah and karri forest. Thus a co-ordinated program of research using 2 or 3 large well replicated experiments would follow a similar pattern to the Biogeography Research Program in major biogeographic regions (districts). The occurrence of each of these skills in the Native Forest Silviculture Program is likely to be achieved by pursuing external funding opportunities, a closer involvement of industry, districts and branches in silvicultural research and the implimentation of a task force approach to major research problems. The involvement of existing staff with the necessary expertise across several research programs will also be necessary, although the 99 per cent of the State that is not forest should not be forsaken.

It is likely that several issues not currently being addressed will soon be considered worthy of investigation by the relevant research programs in the jarrah and karri forests (e.g. the growth and development of the architecture of key tree species; the ecology of species perceived to be most vulnerable to changes in the structure of their habitat e.g. Baudins Cockatoo, owls, bats; and the impact of disturbance on key species and communities of invertebrates). A round table discussion led by Rod Kavanagh on the conservation of large forest owls has relevance to likely future research on this subject in forests in south-western Australia. Based on the eastern states experience, it is also considered likely that pressure will continue to mount for a thorough biogeographical survey of the south-western forests.

The aim of the mid week field excursion to the Conandale Ranges was to examine forest management in wet sclerophyll and rainforest in Queensland. The area includes State Forest and National Park and habitat for the presumed extinct frog species *Reobatrachis silis* and *Taudactylis diurnis*, Marbled Frogmouth and several rare freshwater crayfish.

A land use case study using GIS was presented and several sites in areas that had been logged and regenerated were visited. The practice of enrichment planting of local species, not present in the coupe prior to logging has been discontinued recently but the practice of poisoning non-utilizable overwood continues. Coupe sizes vary from 5-20 ha and rainforest (as defined by the Forests Commission) is not logged. The level to which research data had apparently been used to derive prescriptions in forest management disap-

pointed delegates. For instance no research had been done on the suppression effect of retained overstorey trees on regrowth, despite the clear time lag before overstorey structure returns in a forest coupe and hence attendant influence on wildlife.

Several surveys have been undertaken although biogeographic patterns were clearly not well understood due to the low level of commitment to ecological research by the Forest Service. There was much criticism of study designs (lack of replication, incomplete species counts, poor quadrat design, limited multi-disciplinary work) which were not helped by their further compromising following the imposition of a gold mine in the areas of study. The dedication and field skills of the Naturalists involved were however in evidence during the tour.

This conference clearly showed the value of attendance of both scientists and managers at relevant major conferences on land management issues. Senior managers from the Regions would benefit from future conferences of this type. In view of rapid developments in Australian forest wildlife management, it would be prudent to hold formal Forest Research Working Group meetings on a more regular basis. To this end a joint meeting of the Silviculture, Fire and Fauna Research Working Groups to examine the Victorian Silvicultural Systems Project is planned for the second half of 1992. This is a sound venue to focus these disciplines in an integrated approach to silvicultural research.

LIBRARY NEWS

Forestry books and journals at Como

It is with much pleasure that the CALM Library staff announce the reunion of the CALM forestry library collection with the SOHQ at Como, effective from December 1991.

This glad event has been made possible by the extension of the Como Library into the Research Branch Auditorium, which, of course, has ceased to be an auditorium. It says a great deal for the value placed on the forestry collection by the Research staff at Como that they were prepared to relinquish the facilities of the Auditorium in order to acquire the collection and I would like to thank John Dorlandt and Matt Williams, in particular, for their cooperation and all the Como Research Centre for their support.

The Como Library can now offer all CALM staff most of the facilities one would expect at the head office of a major Government Department.

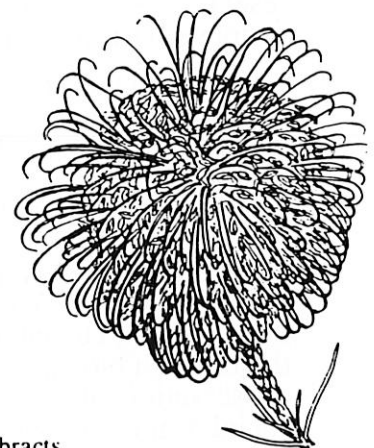
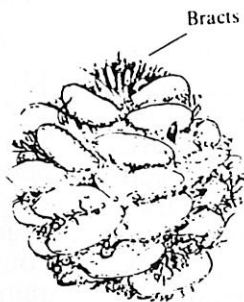
Hugh Clift
Librarian

Ecological Society of Australia (ESA)

The Ecological Society of Australia is a professional organization established to promote ecological research and communication in Australia.

The Ecological Society publishes the *Australian Journal of Ecology*, the *Bulletin of the Ecological Society of Australia* (the Society's quarterly "newsletter" of around 60 pp of ecological news and events from around Australia), and occasional conference proceedings. The ESA regularly holds symposia, workshops and meetings. Full membership in 1992 costs \$60.00. If you would like to join or would simply like to know more about the ESA, please contact me at the Dwellingup Research Centre.

Ray Wills (WA Regional Councillor, ESA)



BANKSIA LANATA A.S. George

From the Latin, *lanatus*, woolly, in reference to the woolly floral bracts.

RESEARCH PROJECT PLANS

- | | | | |
|-------------|---|------------------------|----------------------------------|
| No: | 156/91 | | |
| Title: | Ripping and mounding techniques for establishing <i>P. taeda</i> and <i>P. radiata</i> in the Donnybrook Sunklands of Western Australia | Supervising Scientist: | on small vertebrates
G Friend |
| Supervisor: | Ray Fremlin | No: | 1/92 |
| No: | 157/91 | Title: | The waterbird database system |
| Title: | Predictive model of the impact of fire | Supervising Scientist: | F H Yung |

SCIENTIFIC PUBLICATIONS

- | | |
|---|---|
| <p>Author: G R Siemon
Title: Strength properties of regrowth jarrah, karri and marri
For publication in: WURC Technical Report No 34</p> <p>Author: Stephanie J Turner
Title: Summary of the workshop discussion
For publication in: Proceedings of the <i>Drupella</i> Workshop</p> <p>Authors: N D Burrows, B Ward and A D Robinson
Title: Natural periodicity of fire in jarrah forests of Western Australia
For publication in: Internation Journal of Wildland Fire</p> <p>Author: Sue Osborne
Title: Preliminary summary of <i>Drupella cornus</i> distribution and abundance patterns following a survey of Ningaloo Reef in Spring 1991
For publication in: most appropriate journal</p> <p>Author: Sue Osborne & Matthew Williams
Title: A preliminary summary of the effects of hand removal of <i>Drupella cornus</i> on Ningaloo Reef
For publication in: most appropriate journal</p> <p>Author: S J Patrick
Title: <i>Thomasia glabripetala</i> (Sterculiaceae) a new species from south-west Western Australia
For publication in: Nuytsia</p> <p>Author: M.D.B. Elridge, J.N. Bell, D.J. Pearson & R.L. Close
Title: Identification of rock wallabies in the Warburton region of Western Australia, as <i>Petrogale lateralis</i> MacDonnell Ranges race
For publication in: Australian Mammalogy</p> | <p>Author: P.G. Wilson
Title: The classification of some Australian species currently included in <i>Helipterum</i> and <i>Helichrysum</i> (Asteraceae: Gnaphalieae) Part 3: <i>Anemocarpa</i> and <i>Argentipallium</i>, two new genera from Australia
For publication in: Nuytsia</p> <p>Author: G.J. Keighery, K.R. Kewbey, J.K. Rolfe
Title: The biological survey of the Eastern Goldfields of Western Australia
Edited by N.J. Hall and N.L. McKenzie
For publication in: WA Museum Records Supplement</p> <p>Author: G.K. Brennan and P. Newby
Title: Utilisation of Eastern Goldfields timbers
For publication in: Australian Forestry</p> <p>Author: M.R. Williams
Title: Controls on the collecting of terrestrial invertebrates in WA
For publication in: Victorian Entomologist</p> <p>Author: Andrew A.E. Williams
Title: A new larval foodplant for <i>Hesperilla donnysa albina</i> Waterhouse (Lepidoptera : Hesperiiidae) in Western Australia
For publication in: Australian Entomological Magazine</p> <p>Author: Ian Abbott
Title: Ecology and control of the introduced bark beetle <i>Ips grandicollis</i> Eichhoff (Coleoptera : Scolytidae) in Western Australia, 1952-1990
For publication in: CALM Technical Report</p> <p>Author: N.L. McKenzie & P.S. Sattler
Title: Biological surveys and reserve design
For publication in: Proceedings of Symposium on Conservation Biology held at University of Queensland Oct 1991</p> |
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STAFF NEWS

Congratulations go to David Pearson who recently marriage Donna Clinch on 11th January. Best wish to you both from all of us.

Beth Reid is expecting her first child and in going on maternity leave from mid March. We wish you well Beth

...and that leaves Busselton Research a little light on - just Rover and his keeper



Busselton Research Team, 1993

NEW PRODUCT FLASH

(article from CALM PC Users' Magazine, Edition 5 Nov 1991)

Last year I evaluated a new printer the Canon Bubblejet BJ10e (Little Squirt). This is a very small printer, the size of a notebook laptop. It is very light and suitable for use in conjunction with a laptop. The print quality was excellent and its operation was very quiet. Its main drawback was its inability to print italic characters - an essential requirement for CALM

officers. This drawback did not matter if the user was running Windows applications, because windows addresses the printer graphically so italics are no problem. The main problem here is that relatively few people are using Windows applications.

For those people who are not using Windows, there is a new model of this printer, the Canon BJ10ex. This model is capable of emulating the Epson LQ 550/1050 series of printers, which means you can print italic characters in text mode such as when using MS WORD 5.

I can wholeheartedly recommend this printer for people who want both portability and quality print.

Item	PE40 contract price
Printer	\$519
Sheet feeder	\$60
Rechargeable battery	\$60
Ink Cartridge	\$31.20

LANDSCOPE EXPEDITIONS

As we all know, research funds are shrinking. We also know that, with a rapidly increasing public interest in the natural environment, eco-tourism is a growth area.

CALM has decided to try to develop greater understanding of its research by involving more people and at the same time raise some badly needed funds.

Landscape Expeditions will soon start on an experimental basis. It will operate through advertisements in Landscape with the actual expeditions being organised through the University of WA's Extension Program. Per Christensen has already developed a proposal for a Landscape Expedition to the Gibson Desert.

If you have any suitable project that would benefit from some free labour and/or financial input please prepare a proposal and forward it to Andrew Burbidge and Ron Kawalilak.

Andrew Burbidge

DELTA Workshop

17th - 20th February 1992

The DELTA (DEscription Language for TAXonomy) system is the internationally recognised standard for coding and manipulating taxonomic descriptions.

The system is versatile and designed to minimize coding errors. Coded descriptions can be converted into (typeset) natural language descriptions, or formatted for input into key generation (KEY), interactive identification (INTKEY) or phylogenetic inference software such as Hennig86 or PAUP.

Mike Dallwitz (CSIRO Division of Entomology, Canberra) is the major author of the software and has been working on the system since the mid-seventies. He will be in Perth to give a 4 day hands-on introduction to DELTA in February 1992.

	Day 1	Day 2	Day 3	Day 4
Morning (9.30-12)	Introduction; coding characters & items; checks; natural language descriptions.	Key generation - tabular and polychotomous keys; weighting.	Intkey - interactive identification; images.	Integration - typesetting, Hennig86, PAUP, Intkey masks etc
Afternoon (1.30-4.30)	Development of personal DELTA data sets			

Further details will be forwarded to registered participants. NB. It is expected that participants will provide their own computer for use during the workshop.

Venue: Training Centre, CALM Headquarters, Hayman Rd. Como

Registration: Receptionist, W.A. Herbarium - (09) 367 0500

Information: Alex Chapman, W.A. Herbarium - (09) 367 0513

Sponsors: the INFORM project group, Western Australian Herbarium, CALM and the Australian Biological Resources Study.

VALEDICTION

JEANNETTE ALISON O'NEILL

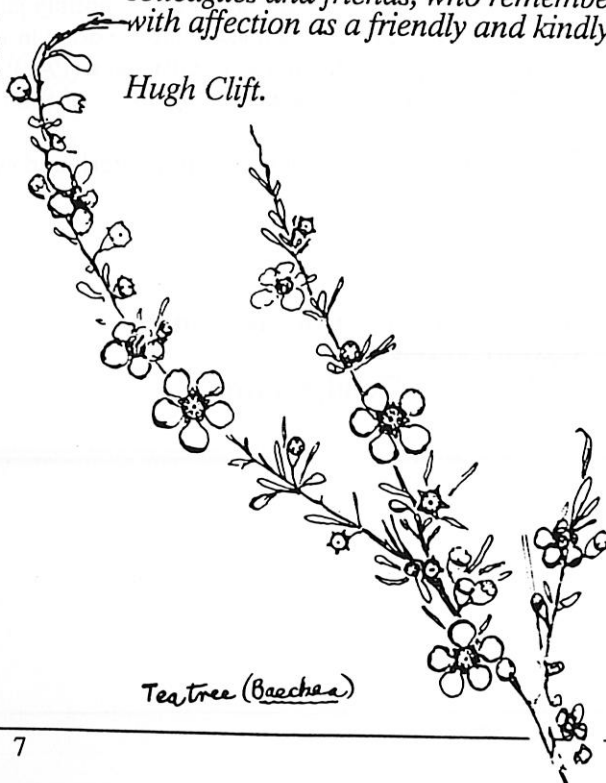
Jenny O'Neill, the former Librarian of the W.A. Forests Department and the Deputy Librarian at CALM until her retirement in 1990 died on 8th January 1992.

Jenny's natural ability may be gauged by her qualifications. She had a BSc in Agriculture and Post Graduate Diplomas in Dietetics and Education as well as being a qualified Librarian (ALAA). She was appointed as Librarian of the Forests Department in 1973 and since the formation of CALM in 1985 until November 1989 she worked in the CALM Library at Woodvale, her detailed knowledge of the forestry collection being of great value to her colleagues and to the CALM staff, particularly the staff in Research Division.

Throughout the greater part of 1987 Jenny was the Acting Librarian at Woodvale and although she was troubled by ill health in the latter years of her life, I always found her a very pleasant and courteous person to deal with and one who could always be relied on to do her best to help the staff and users of the Library.

In 1990 the state of her health forced her to retire, though she was very keen to continue working, but her health was such that she was unable to accept my offers to return to Woodvale to work as a volunteer. Her death was a sad loss to her many colleagues and friends, who remember her with affection as a friendly and kindly lady.

Hugh Clift.



Tea tree (*Baechea*)

SEMINAR

Thursday 13 February 1992

Dieback-resistant Jarrah

presented by Mike Stukely

This seminar will report the progress we have made in investigating the resistance of Jarrah (*Eucalyptus marginata*) to the dieback fungus, *Phytophthora cinnamomi* (Pc).

In the initial phase of the project, we set out to determine whether jarrah possesses genetically-based resistance to Pc. From 1985 seedlings were grown and subjected to parallel glasshouse and field inoculation trials. Seedling lines (families) derived from individual parent trees exhibited a wide range of levels of resistance/susceptibility to Pc. The families behaved consistently between trials which involved different methods of inoculation and the heritability of the Pc-resistance character was surprisingly high. From these results we concluded that jarrah does indeed have Pc-resistance which is under strong genetic control.

In the second phase of the project we expanded the scope of the earlier trials to begin screening for Pc-resistance in CALM's main collection of jarrah provenances (which have also been established in field trials on several sites to gain comparative information on their growth and form).

In a collaborative study with Murdoch University, outstanding individuals selected from our Provenance screening trials have been cloned by tissue culture for further study. Clonal lines of both Pc-resistant and Pc-susceptible jarrah have been established in field inoculation trials. The first of these trials is now in its fourth year and the performance of the Pc-resistant lines has been most encouraging in terms of both survival and growth.

At Murdoch University, Cahill, Bennett & McComb have carried out further laboratory tests on clones derived from our selected seedlings to investigate mechanisms of the Pc-resistance character. They have used both Pc-resistant and Pc-susceptible jarrah clones, as well as marri (*E. calophylla*), to examine differences in Pc lesion development in roots; in the activity of the key enzyme of phenylpropanoid biosynthesis, phenylalanine ammonia lyase (PAL); and in the associated changes in both lignin and phenolic synthesis. Some of the highlights of the results of these trials will be reviewed.

Possible future areas of experimental work and options for implementing the results of this project will be discussed.

**Venue: Como Training Centre
CALM SOHQ
50 Hayman Road, Como**

Time: 3.00pm

SEMINAR

Friday 21 February 1992

Recovery Plans and Recovery Teams - Western Swamp Tortoise and other endangered species

presented by Andrew Burbidge

Work to prevent the extinction of threatened species is not new and documents outlining the process to be followed have been produced in the past. However, there is now a rapid increase in threatened species conservation, partly because of growth in the importance of such work within conservation agencies and partly because of recent rapid increases in available funds from the Commonwealth's Endangered Species Program.

The world is facing an extinction crisis and it is clear that many taxa and ecological communities will require intensive management if extinction is to be prevented. The Recovery Process consists of several steps: review the conservation status of taxa, prepare priority lists of threatened taxa, conduct the necessary research, produce costed Recovery Plans, obtain funding, implement the Plan, and monitor and review. Recovery Plans must contain a clear objective, measurable criteria to achieve success and the actions needed to satisfy the criteria. The duration and cost of each action must be described and responsibility for each task allocated.

Recovery Teams are a means of coordinating the preparation and/or implementation of a Recovery Plan and should include representatives of all involved agencies (funding, research and management) as well as key individuals and affected parties.

The process will be illustrated by discussion of the operation and work of the Western Swamp Tortoise Recovery Team and discussion of recently written Recovery Plans for a variety of threatened species. The application of the process to threatened ecological communities will also be addressed.

*Venue: CALM Wildlife Research Centre
Ocean Reef Road (near Joondalup Drive)
Woodvale*

Time: 3.00pm

**DISTRIBUTION OF
NEXT NEWSLETTER**

MID MARCH 1992

**DEADLINE FOR
ARTICLES**

EARLY MARCH

