



# MYRMECIA



News Bulletin of the Australian Entomological Society Inc.  
**Volume 25, Part 1, February 1989**  
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(Office Bearers continued on  
rear cover)

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## Deadline for Next Issue

Material for publication in the May issue of "Myrmecia" should be in the hands of the Editor, Geoff Monteith, at his address on the inside of the front cover by Friday, April 22. Fax transmission may be used to (07) 846 1918.

## Editorial

This issue marks the change of the title of this publication from "News Bulletin of the Australian Entomological Society" to "Myrmecia". This was foreshadowed by a decision at the Annual General Meeting in Perth in September 1987.

As most readers will know, Myrmecia is the name of a genus of familiar Australian ants commonly known as bulldog ants or jumpers. They form a group virtually restricted to Australia (there's one species in New Caledonia) and they are of international interest because of the primitive nature of their social organization and morphology.

The bulldog ant has long been regarded as the insect symbol of our society, a distinction earned not only because of its uniquely Australian scientific interest, but also, as our founding President, Ian Mackerras, once pointed out "because the bulldog ant is symbolic of the tenacity of the entomologists who worked for the foundation of the Australian Entomological Society in 1965".

The content and coverage of "Myrmecia" will remain essentially the same as the previous News Bulletin. To reassure those who suspect that a periodical called "Myrmecia" might be mostly about ants the cover design will prominently feature a non-ant insect, changing each year. This year we feature another well known Australian group of insects, the giant thrips of the genus *Idolothrips*, based on an illustration by Geoff Thompson of the Queensland Museum. Other aspects of the layout may evolve a little over the next few issues as we experiment with software and printers.

GEOFF MONTEITH  
Myrmecia Editor

## Myrmecia Advertising Rates

	Single Issue	Four Issues(One Year)
Full Page	\$60	\$180
Half Page	\$35	\$105
Quarter Page	\$24	\$72

These rates apply for camera-ready copy supplied by the advertiser. Where this is not supplied a small extra charge may be made for preparation of the layout.

In addition loose inserts supplied by the Advertiser will be included for \$50 per enclosure. These should be of a size which will not project beyond the pages of "Myrmecia".

# Executive Quarterly Report

## MEETINGS

The Executive met on November 21, and December 15, 1988 and January 17, 1989.

## FROM THE MINUTES

The Executive recorded with regret the passing of Mr T.G. Campbell and Dr J.J.H. Szent-Ivany.

## DISCOUNTED SUBSCRIPTIONS FOR NEW MEMBERS

New members will now be able to take advantage of the discounted subscription rates regardless of the date they join the Society. This applies only to their first subscription. For all other members, full subscription rates still apply after March 1.

## 19TH AGM AND CONFERENCE

The Organising Committee of the very successful AGM and Conference held in Brisbane has finalised the accounts and sent a report to the Executive. The meeting realised a profit of over \$4000. Members of the Committee have also provided a very useful list of do's and dont's based on their experience. These hints will be passed on to the committees organising the 20th and 21st AGMs.

## MEMBERSHIP

The Executive accepted 8 nominations for membership and elected 7 new members. The distribution of members is as follows:

QLD	165	WA	40
NSW	150	TAS	25
ACT	120	NT	15
VIC	96	O/S	60
SA	70	Address Unknown	9

## Membership by categories is:

Full	569	Honorary	6
Student	91	Joint	22
Retired	62	TOTAL	750

## The Executive accepted resignations from:

Mr F.R. Allison	Mrs J.A. Gardner
Ms S. Leighton	Mr B.J. Lepschi

## Terminations

The following members will now be struck off in accordance with Clause 21(c) of the Constitution.

M. Arura	F O/S	G.L. Kelly	S NSW
A. Barannikow	F NSW	B.C. Kohlmann	S ACT
P.M. Barrer	F ACT	R.F. McCairns	F NSW
J.H. Barrett	F QLD	D.J. Merritt	S O/S
G.P. Browning	S SA	M.R. Newton	F ?
P. Christy	F SA	A.F.L. O'Farrell	R NSW
D.D.S. Esmail	S O/S	R.G. Pearson	F QLD
A.-A. Dale	S O/S	B. Povey	S QLD
A. Fernandes	S SA	N. Richardson	F SA
L.R. Greenup	F NSW	E. Shipp	F NSW
R.J. Hart	F NSW	A.A. Stasiliunas	S VIC
S. Hewa-Kapuge	S VIC	D.E. Swincer	F SA
R. Hill	S SA	A. Traisiri	S O/S
B.E. Hitchcock	F QLD	B.K. Vogelzang	F SA
J.F. Hutchinson	F VIC		

## WHERE ARE THEY?

The Secretary has lost track of the following members. Does anyone know their new addresses?

Mr C.W. Cornwell (SA)	Mr A. Fernandes (SA)
Mr M.R. Newton (SA)	Mrs L.J. Whitfort (QLD)

## New Members

### WE WELCOME THE FOLLOWING NEW MEMBERS:

#### Elected November 21, 1988

Mr D.F. Cook B.Sc. (Agric) Hons., Dept. of Agriculture, Baron Hay Court, South Perth, WA 6151. David has recently submitted his Ph.D. thesis at the University of Western Australia. His interest is in the evolutionary significance of structural and behavioural variants in insect mating systems. He is currently employed by the WA Department of Agriculture.

Dr I.M. and Mrs P.S. Coupar, 143 Brackenbury Street, Warrandyte, VIC 3113. Mike and Pat are joint members who work with the Lepidoptera. Pat studies rearing techniques and Mike is a pharmacologist with an interest in photography.

Mr R. Drueke, 86 Tanboura Avenue, Baulkham Hills, NSW 2153. Rolf is a flavourist with a special interest in the Noctuidae and Geometridae.

Miss G.M. Napier B.Sc. Hons., Centre for Environment Toxicology, University of Technology, Sydney, Gore Hill, NSW 2065. Gillian is a Ph.D. student studying the aquatic toxicology of Australian streams and rivers.

#### Elected December 15, 1988

Mr A.K. Martin, BSc, PO Box 409, Bentleigh, VIC 3204. Andrew is a technical sales manager with W.A. Flick & Co. Pty. Ltd. He has written a number of articles on the methods of evaluation of termite-proofing in building material.

Miss H. Wallace, BSc (Hons.), c/- Entomology Department, University of Queensland, St Lucia, QLD 4067. Helen is a post-graduate student interested in pollination biology, particularly the insect pollinators of Macadamia.

#### Elected January 17, 1989

Mr G.P. Closs, BSc (Hons.), 21 Lee-anne Crescent, Bundoora, VIC 3083. Gerard is a PhD student with an interest in aquatic invertebrates.

## Address changes

### CHANGES OF NAME, ADDRESS OR TITLE

- Miss D. Adidharma, Department of Plant Protection, Brawijaya University, Malang, Indonesia (SA)
- Mr G.W. Anderson, Arno Bay, SA 5603(SA)
- Mr J.H. Ardley, L'hirondelle, 6/50 Aubin Street, Neutral Bay, NSW 2089 (NSW)
- Dr L.B. Barton-Browne, 73 Wallawa Road, Nelson Bay, NSW 2315 (ACT)
- Mr R.M. Bull, Rhone Poulenc Rural, PO Box 335, Hamilton, QLD 4007 (correction)
- Dr J.H. Calaby, 77 Schlich Street, Yarralumla, ACT 2600 (ACT)
- Ms G.F. Carruthers, 212 Old Hume Highway, Camden, NSW 2570 (NSW)
- Mr A.C. Champion, c/- J. & P. Ward, 236 Old Northern Road, Castle Hill, NSW 2154 (QLD)
- Miss L.J. Charlton, c/- Department of Zoology, James Cook University, Townsville, QLD 4811 (WA)
- Mr S.G. Collins, Entomology Section, Berrimah Research Farm, Berrimah, NT 0828 (Correction)
- Dr I.M. Cook, Biometry Section, Department of Primary Industries and Fisheries, PO Box 4160, Darwin, NT 0801 (NT)
- Mr N.W.J. Crosland, School of Biological Science, University of NSW, PO Box 1, Kensington, NSW 2033 (NSW)
- A/Prof. R.H. Crozier (formerly Dr), School of Biological Sciences, University of NSW, PO Box 1, Kensington, NSW 2033 (NSW)
- Mr G.J. Daghli, Entomology Branch, DPI, Meiers Road, Indooroopilly, QLD 4068 (QLD)
- Ms D.A. Davis, 5 Arding Street, Lane Cove, NSW 2066 (NSW)
- Dr J.A. Davis, School of Biological and Environmental Science, Murdoch University, Murdoch, WA 6150 (WA)
- Mr K.D. Fairey, PO Box 42, Ravesby, NSW 2212 (NSW)
- Dr G. Farrell (formerly Mr), Department of Zoology, La Trobe University, Bundoora, VIC 3083 (VIC)
- Mr T.L. Fenner, change postcode from 5794 to 0801
- Mr G.O. Furness, 62 East Terrace, Loxton, SA 5333 (SA)
- Mr M. Grimm, Department of Agriculture, Albany, WA 6330 (WA)

- Mrs J. Grigg, 639 Gold Creek Road, Brookfield, QLD 4069 (NSW)
- Mr B.S. Hacobian, 26A Emu Road, Glenbrook, NSW 2773 (NSW)
- Mr R.J. Hardy, "Thornlea", RMB 2461, Pawleena Road, Sorell, TAS 7172 (TAS)
- Dr D.G. Holdom, Bureau of Sugar Experiment Stations, PO Box 86, Indooroopilly, QLD 4068 (USA)
- Dr P.A. Holdsworth, c/- DPI Standards Branch, Meiers Road, Indooroopilly, QLD 4068 (QLD)
- Mr M.M. Hunting, 49 Menzies Drive, Sunbury, VIC 3429 (VIC)
- Dr J. Landsberg (formerly Ms), Ecosystems Group, Research School of Biological Sciences, PO Box 475, Canberra, ACT 2601 (ACT)
- Dr R.N. McCulloch, 36 Victoria Street, Forestville, SA 5035 (SA)
- Mr J.F. Madsen, 6 Brisbane Street, Lorn, NSW 2320 (NSW)
- Dr M.B. Malipatil, change postcode from 5794 to 0801
- Dr E.J. Reye, RV "Cooloola", c/- Entomology Department, University of QLD, St Lucia, Qld 4067 (QLD)
- Dr P.M. Ridland (formerly Mr)
- Dr G.H.L. Rothschild, Director, Bureau of Rural Resources, DPIE, Barton, ACT 2600 (ACT)
- Mr D.J. Scambler, 1 Bernard Street, Ballina, NSW 2478 (NSW)
- Mr G.B. Smith, 9 Cumbee Lane, Caringbah, NSW 2229 (NSW)
- Mr R.J. Stegeman (formerly Mr R.J. Brieze-Stegeman), 57 Thomas Street, Toowong, QLD 4066 (QLD)
- Mr P.M. Tap, 64 Bridge Avenue, Oak Flats, NSW 2529 (NSW)
- Mr J.A. Vranjic, Dept. Botany, Australian National University, GPO Box 4, Canberra, ACT 2601 (ACT)
- Mr A.P. Walford-Huggins, 9 Caroline Street, Yeppoon, QLD 4703 (QLD)
- Dr D.K. Yeates (formerly Mr)
- Mr A. York, c/- 1 Kilpa Place, St Ives, NSW 2075 (NSW)

## A NOTE FROM YOUR TREASURER

Many thanks to all the superbly organized people who have paid their subscriptions early (230 or 31% of the membership at 15 January). For those of you who haven't done so yet, please remember that the last date for the discounted membership subscription price is 1 March. After that date subscriptions revert to the full price of \$30 for full members, \$15 for students or retired members and \$35 for joint membership. Please pay the correct amount. It's inconvenient for both of us if I have to send a bill for \$5 or \$2.50, but it's unfair to other members if I don't.

CSIRO journals are again available at concessionary prices for Society members. The 1989 price list is included in this News Bulletin. Members wishing to begin or renew subscriptions are requested to send the relevant details and a cheque for the full amount (payable to the Australian Entomological Society) to me c/- Entomology Branch, Dept Agriculture, Baron-Hay Ct, South Perth, WA 6151 before 15 March. I cannot guarantee to get concessionary prices after this date.

ANNE R. HILL  
(Treasurer)

## AUSTRALIAN ENTOMOLOGICAL SOCIETY RESEARCH GRANTS

The Executive is examining the possibility of establishing a research/travel grant scheme to further encourage entomological research, and to put some of the Society's funds to more productive use. The grants would be derived from interest accrued in a special account set up for the purpose.

Details of the proposal are still under discussion but broadly the scheme might take the following form. A sum of around \$2000 would be made available annually. Grants would be allocated by a selection committee chaired by the President. The number, scale and quality of applications would largely determine the number of projects supported.

The Treasurer is preparing a detailed proposal for distribution to Regional Councillors prior to the 37th Council Meeting. The proposal may then be put to the AGM in Sydney.

Ideas, comments and suggestions would be most welcome. Additional copies of the proposal will be available from the Secretary.

# Regional News

## AUSTRALIAN CAPITAL TERRITORY

### CSIRO Division of Entomology

In the face of severe budget cutbacks within agricultural research in CSIRO, morale in the Division has been maintained, largely because of the public profile of Max Whitten who has defended the need for science funding over the last six months. Many members of this Division joined other scientists in Canberra at a rally outside the National Science and Technology Centre late in November. The rally was to bring attention to the poor funding to science under the current government. Attendance was good despite the wet weather and the rally received good press locally and nationally.

It is a bit hard to locate some Division members these days. Rod Mahon and Keith Wardhaugh have been spending quite a bit of time on Flinders Island, Bass Strait, as part of the sheep blowfly program. However, Rod is currently in South Africa/Zimbabwe with the screw-worm program.

Roger Farrow has been overseas again. He visited Kenya to review research proposals on the desert locust by the International Centre of Insect Physiology and Ecology, Kenya. In Egypt he attended a meeting held by UN Development Program which was interested in initiating large research programs on the desert locust. The meeting recommended a network system be set up to determine which groups could undertake what research.

Jonathan Banks has visited both the USA and Philippines to discuss various aspects of controlled atmospheres in stored grains. The Philippines trip was to investigate a possible ACIAR project on whole storage sealing as a means of insect control.

The *Echium* program is progressing quickly since the injunction was removed from the Division late last year. Mass rearing of the leafminer *Dialectica* has commenced now that it is out of quarantine. Field releases are expected to occur in February at five sites including Braidwood, Jugiong and Deniliquin. Adults of the weevil *Ceutorhynchus larvatus* have now emerged from eggs laid in Canberra. Grubs of this beast eat the roots while the adults attack the foliage. Releases hopefully will commence sometime in

autumn. The Division will host a meeting (1-3 February) which aims to coordinate national *Echium* research. It will be attended by entomologists from ACT, Queensland, New South Wales, Victoria, South Australia and Western Australia.

Work is also progressing on the biological control of thistles. Jim Cullen has been making releases of the seed head weevil, *Rhinocollus cornicus* which feeds on *Carduus* thistles (both nodding and slender thistles).

Wendy Milne and Paul Wellings organised an aphid workshop held in the Division in late August. It followed on from two previously held at the former CSIRO Research Station at Warrawee, Sydney, in 1982 and 1985. The workshops bring together researchers from all over Australia and New Zealand in both government and universities who work on aphid biology and ecology.

The Russian Wheat Aphid, *Diuraphis noxia*, has caused major crop losses in the USA in the past two years and continues to expand its geographical range. Given the level of concern about this pest the Division hosted a one day workshop on 23 November. Thirty-nine representatives from Commonwealth organisations, State Departments of Agriculture and the industries concerned, wheat and barley, met to discuss the threat posed by this serious pest. Discussions centred on the development of a coordinated national management plan.

The molecular biology group is currently undergoing a large change in personnel. Drs Rob Saint, Rick Tearle and Abigail Elizur are moving to University of Adelaide. Dr Alagone Srisanthra has joined Dr Peter Christian to undertake the genetic engineering of nuclear polyhedral virus of *Heliothis spp.* Sri has worked for a number of years with Biotechnology Australia on the immunisation of cattle against the cattle tick *Boophilus microplus* using recombinant technology. A number of other scientific appointments in the molecular group will be announced over the next few weeks. Two PhD students have also joined the Division: Anthony Parker (formerly University of Melbourne), who will undertake a molecular analysis of organophosphate resistance in the sheep blowfly *Lucilia cuprina* with Robin Russell, and Peter Campbell (from ANU) who will study juvenile hormone esterase with Marion Healy.

Dr Joan Lai-Fook (University of Toronto) is visiting Peter Smith for twelve months. They are trying to isolate the factors(s) which reduces receptivity in female *Lucilia* after

they have mated. Dave Holdom (BSES Brisbane) is spending three weeks with Richard Milner to study the control of soldier fly using *Metarhizium*.

Anne Frodsham (formerly of this Division) visited Canberra with her husband, Dr Rich Roush, who is with the Department of Entomology, Cornell University. Although the trip was largely a private one, Rick presented a seminar on 'The management of resistance to insecticides and to genetically engineered plants'.

In November the Division was host to 25 international agricultural science journalists who were given a guided tour of our good works.

### Australian National Insect Collection

Within ANIC, activity resembling that of an ants' nest has been observed, particularly around Bob Taylor's room. Dr Pierre Jasson (Paris) is half way through a five month visit and has the benches covered with *Myrmecia* nests, for behavioural studies. Pierre has also worked in central America and showed us a film of some neotropical ants. Other visiting myremecophiles include Roy Snelling (Los Angeles County Museum) in the course of a circum-perambulation of the continent, John Sudd (Hull University, UK) and Bede Lowery (Parramatta). Dr Phil Ward and Steven Shattuck (University of California at Davis) are collecting *Leptomymex* and Dolichoderinae respectively, in eastern Australia and Papua New Guinea until March. The annual Japanese winter avoidance saw Drs K. Ogata (Kyushu University) and K. Masuko (Mishima) studying Australian ants in ANIC. A compatriot, Dr Nori Ueshima (Matsusaka) worked with the orthopterists, and orthopterist and behaviourist Dr Roger Bland (Michigan) will be with us for some months.

Ian Naumann wasn't bereft of visitors either, with Roy Snelling discussing wasps, Dr Vergilio Caleca (Palermo) studying Scelionidae and Phil Weinstein (Waite Institute) looking at our collections of trigonalid wasps. Bert Orr (Griffith University) dropped in to reminisce about Sulawesi with Marianne Horak. Wayne Houston (Northern Territory Museum) tried to find names for his cashew pests. Larry Orsak (California and Wau) took a break on his way to his Earthwatch project and battled with the PNG immigration department in Canberra, leaving a little time to photograph more Papuan moth types. A more recent arrival is palaeo-entomologist Dr Kukalova-Peck (Ottawa), pleased to leave

behind Canadian temperatures of -30°C. Jarmila will be working on beetle wing venation with John Lawrence.

When visitors allow, everyone has been attempting to identify the material Ian Naumann and Tom Weir assiduously collected on the CALM project in the Kimberleys. Walter Dressler and Jo Cardale have been putting in long hours sorting this material - the question is, will it be complete before Jo, John Lawrence and John Balderson visit Christmas Island in April. Dave Rentz has been in the field twice recently, to the super hot Tanami Desert with Steve Morton (Wildlife, Alice Springs) and Nori Ueshima, then shortly afterwards to Lord Howe Island. Dave was pleased with the collecting in both sites - although he didn't find the "extinct" Lord Howe stick insect, he unexpectedly found another spectacular, possibly undescribed, phasmatid not 100 metres from his residence. John Lawrence, Tom Weir and Michael Hanson (who has returned to Copenhagen) were successful in collecting live "paussid" beetles (*Arthropterus*) from the Mallee of western Victoria. These laid eggs and produced the first paussid larvae known from Australia. Fellow Coleopterists Ross and Joyce Bell (Vermont) continued their search for the elusive Rhysodidae - so far their five months in Australia has produced 5 adults. They are now in Tasmania with George Ball (Edmonton), who we will be pleased to see at ANIC in late February.

Ebbe Nielsen has been travelling, first to Queensland where he, Marianne Horak and Ian Common collected in the Lamington rainforest, then twice to Tasmania to survey in the World Heritage Areas with Peter McQuillan. Both were wet (Tasmania being also cold) which restricted helicopter-based access to Tasmania's high ground. John Balderson combined mountain trekking with collecting Orthoptera in the Himalayas and brought back some spectacular photographs. Pete Cranston visited Japan to lecture on allergy to chironomid midges (not to be sneezed at in Japan - it may be the major Japanese environmental allergen), then saw snow on the Japanese Alps when visiting the Government built personal research lab of a taxonomic colleague.

Mary Carver's room is filled with *Sphagnum* which is taxing her abilities to retrieve peloridiids from therein. Next door, Gerry Cassis' room is filled with boxes, preparatory to his departure on a half year scholarship to work on Hemiptera in Sydney at the Australian Museum. He will return to ANIC in winter to work on Dermaptera with ABRS funding. For news of Penny Greenslade's activities in



Tasmania we will have to read Lionel Hill's report - her Christmas return to Canberra was brief but she gave a glowing account of the fauna.

Bruce Halliday was very pleased to receive some voluminous Soviet Acarological tomes from Academician Krivolutsky, who visited him during the IUCN Canberra meetings. Bruce will be a participant in the workshops on Aquatic Acari (and Ephemeroptera) to be held at the Murray-Darling Freshwater Research Centre, Albury-Wodonga.

"Coopers and Cladists" have continued to savage all papers discussed, so the authors shouldn't be divulged. For imminent visitors to Canberra with a systematic bias (pro or contra) put in your diary that meetings are held every second Wednesday (starting from 4th January) - Canberra's newest tourist attraction.

### ANU Zoology Department

Across the road at ANU the students are mostly on vacation allowing Penny Gullan time to make microscope slides and write paper(s). Chris Reid's progress in PhD writing is analogous in pace to "Insects of Australia", but he has restricted his field work somewhat. Se Kim has completed his massive tome on lauxaniid systematics, soon to be examined.

JOANNE DALY AND  
PETE CRANSTON  
Regional Councillors

## WESTERN AUSTRALIA

### Agriculture Protection Board

The long running Argentine ant campaign, which commenced in 1954, was terminated in November 1988. This was as a result of an Environmental Protection Authority (EPA) recommendation that the use of heptachlor for Argentine ant control be withdrawn. Without heptachlor the APB could not achieve eradication of individual infestations of Argentine ants and hence could not contain them. The EPA recommended IPM techniques be developed to manage Argentine ants. As much research has been done on this particular aspect in the USA; Peter Davis will be travelling to the southern states of USA during April and May to assess the potential of various techniques.

### Department of Agriculture

Mike Grimm shifted from Esperance to Albany in December. Mike is easing out of cereal aphid research and in future will be concentrating on pasture entomology, particularly interactions between pasture management, grazing and insects. In November Mike attended the Russian Wheat Aphid workshop in Canberra which was supported by the Wheat Industry Research Council.

David Yeates visited Darwin in late November and met with counterparts to discuss state approaches to the Northern Australian Quarantine Strategy (NAQS). He stopped off at Kununurra to begin a 2 week review of the fruit fly trapping programme in northern WA with Peter McFadden, the local Department of Agriculture entomologist.

It was literally a 'flying' tour and trapping sites visited included Halls Creek, Kalumburu Mission, Kuri Bay, Derby, Broome, Koolan Island and Port Hedland. David and Peter were also keeping their eyes and ears open for some specific insect problems in the north, notably *Mastotermes*, Jarvis's fruit fly and Medfly. They reported no sign of Palm leaf beetle, Mango seed weevil or the economically important strain of *Dacus aquilonis* in WA. A highlight of the tour was a coastwatch flight at 500 ft over the islands at the north of King Sound, near Derby. David flew back to Brisbane shortly after returning to Perth to receive his PhD from the University of Queensland entitled 'The systematics and behaviour of Australian bee flies of the sub-family Lomatiinae (Diptera: Bombyliidae)'. He also visited QDPI and the Queensland Museum while in Brisbane.

Peter McFadden has received a welcome addition to his staff with the transfer of Belinda Wykstra from Perth to Kununurra. From all accounts Belinda is settling in well. In Kununurra Mirex has recently received limited registration for use against *Mastotermes* by specially trained operators.

Bill Woods attended a conference on 'Two-Spotted Mite Control in Horticulture' at Shepparton in January. Bill also called in on Del Fosse and discussed bio-control of Paterson's Curse.

Releases of the moth *Dialectica scariella* were made in the Swan Valley just east of Perth in October. Limited results appear promising with apparent establishment and recoveries up to 100 m from the released site.

Keith Wardhaugh (CSIRO) visited in January for discussions with Nic Monzu on possibilities for collaborative work on sheep blowflies. Discussions also included intro-

duction of dung beetles for bush fly control, a prospective project which the Department of Agriculture may take on.

#### Department of Conservation and Land Management

Ian Abbott reports a significant decline in the populations of Jarrah leaf miner and gum leaf skeletonizer. This is the first major decline observed since 1983 and probably reflects the cool wet winter just passed.

#### Curtin University

Smoke has been seen emerging from windows of the School of Biology on account of the frenzy of writing currently going on. John Van Schagen and Tony Postle are in the throes of completing their Masters and PhD theses respectively. In addition Jon Majer is writing up current research before proceeding on study leave to Brazil in June.

Harry Recher from the University of New England is currently visiting to continue work with Jon Majer on their joint investigation into the abundance of insects in eucalypt canopies and use of such canopies by birds.

#### Health Department

In November Tony Wright initiated a study of human infection with Australian encephalitis at Billiluna (south of Halls Creek).

Mosquitoes were uppermost in Tony's mind in January with much media attention being focussed on a significant rise in the number of reported cases of Ross River virus from the south of the state especially Mandurah, Bunbury and Perth. A successful approach to Government was made to fund a centrally organized mosquito control campaign in susceptible areas.

#### Western Australian Museum

Roy Snelling from Los Angeles County Museum of Natural History paid a visit while on a private tour.

The appointment of a curator of Arachnology has been made. Mark Harvey, currently with the Museum of Victoria, is expected to take up the position in March.

In August, Peter McMillan and Terry Houston spent a week in pastoral country 250 km N/E of Geraldton. While Peter collected insects in general, Terry collected fossil brood cells "presumed to be of bee origin". Terry also studied the nesting behaviour of *Amegilla dawsoni*, Dawson's bee.

During August and September, Bill Humphreys coordinated a party of arachnologists and spelaeologists who explored caves in the Cape Range, N/W Cape and sampled invertebrate cave fauna. This was Bill's second visit to the caves in order to study the biology of resident schizomids (Arachnida). Included in the party were Mike Gray from the Australian Museum and Stefan Eberhard, University of Tasmania. Some interesting troglobitic insects were obtained during this last visit.

Graeme Smith of Bayer Australia visited the Museum in October to examine and sort the *Thysanura* collection.

#### Murdoch University

A Wetland Classification Project has been initiated and will involve Jenny Davis and Stuart Bradley (of Murdoch Uni) and Ron Rosich (Water Authority of WA). The project will investigate invertebrate community structure and water quality in 40 urban wetland areas around Perth. Funding is being provided by the Australian Water Research Advisory Council (Commonwealth) and EPA (WA) and the Water Authority of WA.

#### Visitors

Henry and Anne Howden from Carleton University of Ottawa visited the WA Museum to inspect the weevil and geotrupid beetle collections. They also had discussions with staff at CSIRO and the Department of Agriculture.

#### University of Western Australia

Leigh Simmons (Department of Zoology, University of Liverpool, UK) visited The University of Western Australia for 10 weeks under a Royal Society grant to work on the mating system of an undescribed zaprochiline tettigoniid. Darryl Gwynne returned from Canada (Erindale Campus, University of Toronto) with Sarah and the children to complete some field work on two local tettigoniid species. Heiner Romer (Ruhr University, Bochum) and Jurgen Rheinlaender (University of Frankfurt) visited the University of Western Australia in February to set up a research programme for 1989/1990 looking at the acoustic receptor systems of bushcrickets.

Ian Dadour eventually left The University of Western Australia after a fellowship in Germany. He has taken up a fellowship with the biological control group at the Waite Institute.

The department gains two new postgraduate students from Thailand, Superoek Watanasit (PhD) from the Prince of Songkla University to study the mating behaviour of dragonflies and Saruta Sudhi-Aromna (MSc) who will be looking at the mating patterns of aphiline parasitoids.

PETER DAVIS  
Regional Councillor

## VICTORIA

### Plant Research Institute, Burnley

Amanda Kobell completed her Honours thesis in 1988 entitled, "Estimation of preliminary economic thresholds for *Heliothis punctigera* Lepidoptera: Noctuidae) in field peas, using development and consumption rates", jointly supervised by Mark Smith of PRI and Dr Seamus Ward of La Trobe University. She will begin a PhD thesis later this year on *Heliothis* population dynamics in field peas. Another Honours student, Roger Lowe, will work on aspects of pea weevil (*Bruchus pisorum*) reproduction in 1989, again jointly supervised by Mark Smith and Seamus Ward.

The Victorian Government's recently released Economic Strategy for Agriculture has resulted in several new positions for PRI. These consist of four Science-1 positions, two Technical Officers and two Technical Assistants. One of the Science-1 positions is for an entomologist to work on pasture pests, especially redlegged earth mite and endophyte effects on pasture insects.

Garry McDonald had visits from several Canberrites in late January to discuss their collaborative work on armyworm migration. These included Roger Farrow and Alistair Drake (CSIRO Entomology) and Kim Bryceson (Australian Plague Locust Commission).

Greg Baker (SA Dept. of Ag.) visited in November to discuss pea weevil (*Bruchus pisorum*) with Mark Smith.

Peter Bailey (SA Dept. of Ag.) visited in January to discuss pea weevil with Janet Comery and Mark Smith and garden weevil (*Phlyctinus callosus*) with Paul Horne. He then travelled to Shepparton with David Williams to attend the National Mite Control Workshop sponsored by the Horticultural Research and Development Corporation. The main aim of the workshop was to determine priorities for

research. Bill Woods (WA Dept. of Ag.) and Frank Page (QLD DPI) also visited entomologists at PRI and attended the mite control workshop. Other workshop participants were Vic Edge (BCRI, Rydalmere), Col Bower (Agric. Res. and Vet. Centre, Orange), Margaret Williams (TAS Dept. of Ag.) and Les Readshaw (CSIRO, Canberra).

Prof. Danthararayana (Univ. of New England) visited Peter Stahle in January to discuss various entomological topics.

Michael Braby has left PRI, where he was involved with stored product entomology, for James Cook University. There he will be undertaking a PhD looking at tropical butterflies. Due to this move he has had to relinquish the position of Victorian Regional Councillor for the AES, which has been taken over by Janet Comery, also of PRI.

### Museum of Victoria

Ken Walker and Tim New, recently conducted a six week field trip to Cape York Peninsula and north Queensland. The trip was jointly funded through La Trobe University and a research grant from Bayer Australia Ltd.. The collecting trip began with work around the Cairns and surrounding districts then travelled north to collect around such areas as Laura, Coen, McIlwriath Range, Silver Plains, Iron Range and Bamaga. Collecting results were sporadic and in some cases surprising. Large collections of native Australian bees were made (approx. 8,000 specimens), but light trapping throughout the entire trip produced very poor results, including localities such as Iron Range. Apart from the bees, approximately 1,000 moths and several hundred Neuroptera, Trichoptera and Coleoptera were collected.

Arturs Neboiss recently celebrated (25 January) his 35th year of service in the Entomology department. During this time he has seen many changes, but the one change he has not experienced is a new Museum. The current Government aspirations to move us to a new site appears to be the most hopeful and workable plan proposed in the last 40 years.

There will be a water mite and mayfly workshop in Albury from 13-15 February. This is being organised by Rhonda Butcher of the Peter Till Laboratories in Albury.

Alan Yen is about to start a survey of relict patches of native grassland in the western regions around Melbourne to assess ground dwelling invertebrates.

## Universities

Entomological life has been very quiet in the Victorian Universities the past few months. The erratically cool and wet summer (even for southern Victoria) has hampered field work. Our President, Tim New for example, fresh from a successful collecting trip to Cape York has of late been microscope-bound rather than his usual summer agenda of collecting Lepidoptera throughout the high country. David Britton however, has accelerated his survey work of Lepidoptera in pine plantations. Evan Schmidt is temporarily north leading an insect study group on the ANZSES expedition and attempting to convert Geoff Monteith to the Psocoptera. Whereas Geoff has been reported to describe Evan as being a "bit psococentric". Another possible psocentric from La Trobe Zoology is Nancy Endersby, the daughter of long-term AES member Ian Endersby. Nancy has just received first class honours with her thesis "The Psocoptera of the Grampians and Mount Arapiles with an overview of the Victorian Psocoptera". Not content with this success, Nancy has landed herself a plum job at the Department of Agriculture and Rural Affairs (DARA!) Vegetable Research Station in Frankston, working with their minimum chemical use project.

## CSIRO Division of Forestry and Forest Products

Members in southern Queensland and New South Wales are warned to be on the lookout for John French who will shortly be travelling to Townsville on a termite collecting trip. John is after the Giant Northern Termite, *Mastotermes darwiniensis* but not just for a few taxonomic specimens; John intends to bring back a whole truckload. The trick is to get the termite colonies (each in a 44 gallon drum) safely back to CT rooms in Victoria before they suffer too much from the cold. So don't expect any lengthy visits from John on the way ...

DON EWART AND  
JANET COMERY  
Regional Councillors

## NEW SOUTH WALES SYDNEY METROPOLITAN AREA

### Forestry Commission of NSW

Bob Eldridge is investigating the application of nematode parasites for biological control of the termite *Glyptotermes* spp. in transmission poles. Bob Eldridge, Debbie Kent, and Jack Simpson are studying the biology and ecology of the ambrosia beetles *Austroplatypus incomcurtus* and *Notoplatypus elongatus*. The programme of biological control for *Sirex* is continuing.

### Australian Museum, Sydney

Gerry Cassis has been awarded a Museum Visiting Fellowship and will be arriving in mid-January from the ANIC to undertake a study of Australian Tingidae.

David McAlpine and Barry Day visited South Australia and Victoria in search of Coelopidae and other acalyptrates. David spent a few days studying the collections at the South Australian Museum.

Intensive collecting activity on the NSW North Coast is continuing. A malaise trap and yellow pans have been accumulating large samples over 8 weeks from a site in *Nothofagus* forest on the Gloucester Tops. Geoff Williams and Dan Bickel attended a NPWS conference on rainforest remnants held outside Lismore in November and collected in the Nightcap Range, Illuka littoral rainforest and the Big Scrub rainforest remnants. Geoff Williams has been busy operating out of his stamping ground on the mid-North Coast. A malaise trap he tends in littoral rainforest near Harrington has yielded a rich bounty this spring. Shelley Barker (University of Adelaide) visited eastern NSW and teamed up with Geoff Williams and Stan Watkins of Caparra for a collecting trip to the New England Tableland in mid-December, but this buprestidological trip was hampered by rain and cold weather.

Collecting activity will focus further south in late January-early February. Dan Bickel has received money from the Tasmanian NPWS to collect insects in the western World Heritage areas. In addition to mass sampling with malaise traps and yellow pans, soil and litter samples will be shipped to Mike Gray at the Museum to be berlesed for invertebrates.

Visitors included: Penny Greenslade (ANIC) on Collembola, Chris Thompson (US Nat. Mus.) on Syrphidae,

Martin Meinander (Helsinki) on Neuroptera, Ev Britton (ANIC) on Scarabaeoidea, George Collaros (Johannesburg, RSA) on Lepidoptera and Coleoptera, Andrew Atkins (Newcastle, NSW) on Hesperidae, and Surakrai Permkan (U of QLD) for two weeks on Tephritidae.

### Army Malaria Unit, Ingleburn

Bob Cooper visited Jabiru, NT in preparation for a large scale survey of *Anopheles farauti* to be undertaken in May. Steve Doggett visited Mildura, Vic and Innisfail, Qld to collect mosquitoes infected with microsporidian parasites.

Visitors included Dr Sylvia Meek, WHO Solomon Islands, and Darren Waterson, a recent Sydney University graduate, studying the organization of the Unit.

### Macleay Museum, University of Sydney

The Macleay Museum has received large donations of Coleoptera from G. Morages (Marseilles, France), and from Allan Sundholm and Joe Bugeja. About 100 papers on Lucanidae were added to the Museum's reprint collection.

Moriyuki Toyama, President of the Bamyu Pharmaceutical Company, Japan, came to inspect the Museum's butterfly collection. Mr Toyama has a large worldwide collection of butterflies.

### Biological and Chemical Research Institute, Rydalmere

Chaos reigns while the BCRI Entomology Section is being refurbished. During the renovations, some people have had to move out of Rydalmere to other locales. The Collection is totally closed from February-May 1989, and only limited access is possible for the remainder of the year. The following people will be temporarily transferred, and can be contacted on the following numbers: Alan Clift, Andrew Beattie, and Howard Greening will be at Parramatta [689-5021]. Graham Baker will be at Seven Hills [622-6322]. Royce Holtkamp will be at Gosford [043-280-353]. All others will be on site but may be difficult to contact. The main switch [689-9777] should be able to put you through.

Murray Fletcher attended a workshop on quarantine regulations in November at the CSIRO, Canberra.

Visitors included Prof. Lee Hong Chang, Academia Sinica, Beijing, to study infestations of wingless grasshoppers. He presented a seminar entitled, "The ecology of grasshoppers from Inner Mongolia".

### University of New South Wales, Biological Science

Aola Richards has been made Australian representative for the Orthopterists' Society.

Michael Crosland has been awarded a fellowship from the Rothmans Education Foundation to study the spread and control of the European wasp, *Vespula germanica*, in Australia.

Ross Crozier attended the recent meetings of the Entomological Society of America in Louisville, Kentucky as an invited speaker at a sex-ratio symposium and also took the opportunity to present his work so far on honeybee mitochondrial DNA. He reports that the meeting was a very lively one, especially for students of social insects, reflecting an increasing interest in general insect biology in recent years. Ross has unexpectedly been made head of school, and takes comfort in the fact that it is only a two-year appointment.

Pekka Pamilo from Helsinki will return to Australia for three months from February, to complete a book he is writing with Ross Crozier on social insect sex ratios, and to work on social insect mitochondrial DNA.

Cathy Cohen plans to do honours work this year with Ross Crozier, studying fig wasp sex ratios, and Con Goletsos will be an honours student with Aola Richards.

### University of New South Wales, CERIT

News from CERIT is limited as many staff members have been taking holidays - even the insect cultures were quietened down. During the break, Huie Nguyen was married and has since returned to work. Heloisa Mariath spent much of the holiday period in hospital. She is now fully recovered and planning the CERIT 1989 seminar series.

Richard Walker, ABC Television Production Manager visited CERIT seeking information on Diptera for a documentary to be produced in early 1989.

Lynette McLeod (nee Hutchinson), married Steve McLeod in early January. Steve is doing a PhD on sheep and kangaroo interactions at Fowlers Gap Arid Zone Research Station. Lynette, who is AWC Technical Officer on the arid zone sheep blowfly project, had a special wedding present, she heard that she was awarded the much sought after Australian Wool Corporation Post-graduate Student Scholarship, to continue studies on the movements and survival patterns of *Lucilia cuprina* in the arid zone. Congratulations Lynette.

### Macquarie University, Biological Sciences

Dick Frankham and Mark Graham visited John Oakeshott and Marion Healy at CSIRO Entomology in November, to learn the microinjection method of P-element transformation of *Drosophila*, and inserted an anti-sense for the white gene, with the object of making variegated eyes. The transformation was successful, but no variegated eyes have yet been obtained. The relevance of this work is to the production of variegated ornamental plants.

Dinah Hales was also briefly at CSIRO Entomology in November, for the Russian Wheat Aphid Workshop. Aphids morning, noon and late at night - what more could anyone want! Eren Turak successfully completed his MSc (Qual.) program and is now set to sort out the environmental tolerances of *Sitobion nr. fragariae* and the 2n=18 and 2n=17 forms of *Sitobion miscanthi*. Rose Cowen has left us, awaiting the arrival of her baby, and we will soon be looking to appoint someone to take over the work on the cereal aphid project. Di Hales had a brief period as Acting Head of School over Christmas. ("Don't worry", said the boss before leaving for his holidays, "I've spent all the 1988 money, and there isn't any for 1989").

1988 Honours students with interests in insects or onychophorans were all highly successful, and all got first class honours. They were: Sandra Berry (mid-year completion, now working at ANU), Susannah Eliot, Ian Oliver and Linda Tuffs.

Andy Beattie's lab is a hive of activity, even more than before, because PhD student Myriana Lefebre has decided to investigate bee olfactory senses for her thesis topic. One of Myriana's charges was unwise enough to sting Professor Beattie, but the project is continuing. We welcome to Macquarie Dr Stephen Handel, from Rutgers University, New Jersey, as a Visiting Research Fellow. He will be studying pollination and seed dispersal by insects. A Macquarie University Postdoctoral Fellowship has also been gained by Andy's group and someone will soon be appointed to this position, to study demography of ant colonies. Andy himself will be leaving in April for 4 months OSP in the UK and USA, studying pollination by ants. He will be delivering the keynote address at the Oxford Symposium on Ant-Plant Interactions in July.

Mark Westoby and his wife Barbara Rice (Honorary Associate of the School) will be mainly in the USA during Mark's OSP. Mark will be at the University of Georgia,

thinking about plants and social insects, and Barbara will take the opportunity of visiting her brother, an entomologist at Kearney Field Station in California. They, and PhD student Lesley Hughes, will also be at the Ant-Plant Interactions symposium in July.

Mark has a question for anyone going to South China - what eats the privet there?

Louise Rodgerson, a graduate in Zoology from Monash, has just joined Mark's lab to do her PhD. She will be working on seed dispersal by ants, with particular emphasis on the question "Why is ant dispersal more common on infertile than on fertile soils?" (If there are more seed predators among the ants on fertile soils, why would this be so?).

### Medical Entomology Unit Sydney University/Westmead Hospital

Richard Russell has returned from his Churchill Fellowship suffering a little from travel trauma but otherwise much enriched by the 5 months overseas. He visited Japan, Canada, USA and UK, and while in Canada he also attended the International Congress in Vancouver. The study tour was quite comprehensive with regard to the 3 important aspects of public health concern for mosquito-borne disease: surveillance, control and research. Overall, he visited 6 universities or institutes in Japan with research interests in mosquito-borne disease, discussed surveillance, and saw field situations and municipal control operations against pest and vector mosquitoes. In North America, he visited 19 university departments or governmental institutes concerned with research and surveillance of mosquito-borne disease, and 17 mosquito control agencies in 10 states - virtually the entire range of situations where mosquitoes are pests or transmit disease and are subject to control efforts in the USA and Canada. In Britain, he visited 9 groups throughout the country and although there are few concerns with mosquitoes and disease locally, and there are no mosquito control agencies such as in North America, there are a number of research groups in universities and institutes dealing with mosquito-borne disease in other parts of the world, including Africa, Asia and South America, and much of this is of relevance to the Australian scene.

The Unit has now embarked on its annual mosquito/arborivus monitoring programme funded by/for the NSW Department of Health; this year the programme will cover almost all areas of the State - coastal and inland. Danielle

Heilpern once more will be fully occupied with sorting the collections, and Peter Wells will be busy processing samples through cell culture for virus isolation with ELISA diagnostic assistance from the arborivology laboratories at UNSW and Prince Henry Hospital.

Merilyn Geary has been undertaking surveillance for the introduced Asian pest and vector mosquito species *Aedes albopictus*. Following the discovery of a larva in a load of tyres received at Brisbane port from Japan in October, shipments to Sydney have been examined and Merilyn has also been 'prowling' through agent's tyre yards in Sydney. To date there have been no recoveries in Sydney but this species has spread widely in the USA since its introduction in tyres from Japan and it is of considerable public health concern.

Margaret Debenham and Megan Hicks continue with the preparation and publication of the 'Monster Mossie Monograph', a.k.a. "The Culicidae of the Australasian Region", confident of finishing before funds disappear in early 1989. Volumes 5, 6, 9 and 10 were published in 1988 and will be available from Joan Bryan at the University of Queensland.

DAN BICKEL AND  
DINAH HALES  
Regional Councillors

## NSW COUNTRY NEWS

### NSW Agriculture and Fisheries Yanco Agricultural Institute

The MIA has succumbed once again to Queensland fruit fly with an outbreak being declared 3 days before Christmas. High humidity and rainfall have made living in the MIA in recent weeks similar to living in coastal Queensland. Little wonder then that *Dacus tryoni* appears to be outbreaking all over the place. Appearances were even put in by that other pestiferous Queensland tephritid, *Dacus neohumeralis*, at Griffith and Hillston. Previously it was unheard of further south than Coffs Harbour.

David James attended a citrus packers meeting in Griffith in early December to present an update on the situation regarding Fullers rose weevil and citrus exports to Japan. Greg Buchanan of the Sunraysia Horticultural

Centre at Irymple in Victoria also visited the institute at Yanco to discuss citrus projects with David. Work is continuing on the biology of spined citrus bug with an extension of employment for Renay Rogers who is up to her ears in lemons, bugs and parasitoids.

Entomology section at Yanco is eagerly awaiting the return of Richard Faulder who has spent some weeks in St. Vincents Hospital, Sydney. It's amazing how many spiders have been sent in for identification since Richard (a recognised arachnophile) became hospitalised! Good job he left his spider books.

### Orange, Agricultural Research and Veterinary Centre

Entomological visitors to Orange in spring included Bill Woods from the WA Department of Agriculture. Bill discussed pome fruit pest problems in both states with Col Bower and Graham Thwaite.

Col and Graham staged a highly successful demonstration of their "mite counting service" at the Australian National Field Days held at Orange in November. The service is now being extensively used by New South Wales pome fruit growers practising integrated mite control.

Graham is investigating resistance to mite ovicides in European red mite with the help of a grant from two agricultural chemical companies. Samples of mites for testing have been sent to Orange from Tasmania and Queensland and others are welcome.

### Tamworth, Agriculture and Fisheries

Robyn Gunning and Marjorie Balfe visited Harley Rose at the University of Sydney in December for discussions on the biochemical toxicology of pyrethroids in *Heliothis*. A joint project on this subject is planned which should improve understanding of insecticide resistance in this species.

By the way, congratulations to Robyn Gunning who has been awarded a Churchill Fellowship to study at the Rothamstead Station, UK, from April to July this year. She will undertake research on the biochemistry of insecticide resistance.

It has been a quiet early season for *Heliothis* and only an expensive fight to save the life of the laboratory cat after being bitten by a snake, disrupted the peace.

Gary Levot from BCRI Rydalmere visited Tamworth early January to inspect poultry farms where mites on chickens have been causing concern.

### Wollongbar, Agricultural Research Station

Two scientists from the Tongan/German plant protection group visited in November to discuss pest control in bananas with Neil Treverrow. Neil attended the 2nd Australian workshop on Neem at the University of Queensland in late January.

DAVID JAMES  
Regional Councillor

## QUEENSLAND SOUTH EAST QUEENSLAND

### Lands Department, Alan Fletcher Research Station

The Department's project in Madagascar, to find biological control agents for rubber vine, has now finished. Jenny Marohasy (nee Turnour) is now working back at Sherwood awaiting the go-ahead for her next assignment - she will be going to Kenya for a three-year period to look for insects to control prickly Acacia as soon as a visa is granted.

### University of Queensland

Tim Heard has left the Department to join the DPI staff where he is working with Neil Heather for 2 1/2 years to study high temperature treatment of mangoes for disinfestation of fruit fly before export. Tim plans to continue his PhD studies on the role of *Trigona* bees in macadamia and cashew pollination part time.

Hugh Paterson was invited to spend a month of research at the South African Institute of Medical Research during January-February. He planned to complete some of his *Musca* spp. (Diptera) studies started sometime ago as well as collect some insects for his medical and veterinary entomology class at UQ and do some lecturing at the University of Pretoria, Rhodes University and the Institute.

David Yeates from WA Dept. of Agriculture visited in December, primarily to attend his PhD graduation ceremony (congratulations Dave!) but he also found time to speak about his quarantine work in WA at the Ent. Soc. Qld Notes and Exhibits meeting.

Chris Burwell, who completed his Honours year in 1988, will commence his PhD work on insect systematics in February. This is despite Robert Raven's attempts, over the

last two months, to lure Chris into spider systematics.

During the first three weeks of February, Gimme Walter visited Rey Velasco of the University of the Philippines at Los Banos to consult with Rey in the writeup of his PhD thesis on Green Vegetable Bug ecology.

Myron Zalucki travelled to Narrabri in early February to continue his inland *Heliothis* studies and to meet with Peter Gregg, Gary Fitt and Peter Twine. Following this trip, Myron will be going to Canberra to participate in a review of the research work of the Australian Plague Locust Commission

Dave Hancock leaves in February for 12 months in Paramaribo, Surinam (South America) on an FAO consultancy to investigate an outbreak of *Dacus dorsalis*-group fruitflies. The project will involve identification, survey and detection, and control, as well as training of local staff.

### Forestry Department

Michael Hockey has left the Department and moved to Darwin where, although he will not be working in a biological science field, it is hoped that he will be able to find some time to pursue his interests in insects associated with timber and to send some specimens to his friends in Brisbane.

### Queensland Institute of Medical Research

The QIMR-UQ Tropical Health Program is flourishing in Brisbane and the second batch of postgraduate students are heavily involved in field projects in Thailand, Malaysia and the Solomon Islands. The third course commencing on June 5 is well subscribed and it seems that there will be a full complement of 25 participants. With promotional and project initiation duties, entomologists Joan Bryan (UQ), Tom Burkot and Brian Kay (QIMR) sometimes feel like travelling sales (persons?).

Brian Kay was elected Chairman of the WHO/FAO/UNEP Panel of Experts on Environmental Management for Vector Control in Nairobi and and the Australian representative on the executive of the International Federation for Tropical Medicine in Amsterdam in September 1988. During November, he visited Pondicherry and Madurai (India) as PEEM Chairman, Western Samoa in December as part of his expanding *Mesocyclops* biological control of *Aedes* project and leaves for Brazil and Tahiti on February 17 (*Mesocyclops* again). During April, he visits USSR for PEEM and in June, Vietnam as a WHO consultant. There is no truth to the rumour that he has shares in Qantas!



### Queensland Museum

Wolfgang Dorow, of the Johann Wolfgang Goethe University in Frankfurt, visits Rudi Kohout in mid-March to discuss their common interest in the ant genus *Polyrhachis*. Wolfgang will be in transit to join a joint West German-Malaysia project on the ecology of dominating insects of the SE Asian rainforest.

Frank Howarth, of the Bishop Museum, visited for three days in late January to sort the extensive collection of cave insects made during summer field work in North Queensland. Previous visits were in winter and he was able to report exciting new finds.

Gordon and Joy Burns called in and were pleased to be able to get some unexpected data on *Victorian jewel* beetes from the QM collection for their Entrecs mapping project in Victoria.

The collections from the trapping programme arranged by Geoff Monteith for the ANZSES expedition arrived in several large crates at the end of January. Judy Cantrell, employed on funds from the Qld National Parks and Wildlife Service, has been kept busy sorting and pinning the material. Among other finds on the expedition was a previously undiscovered crashed DC3 military plane, complete with human remains, which went missing with 19 personnel on a flight from New Guinea to Cairns in 1944. Who said the Daintree area wasn't a wilderness?

The Arachnology Section welcomed two temporary and diligent workers from December through January. Peter McLean, a first year university student, almost single-handedly registered the entire mygalomorph holdings of the museum (a mere 5,000-6,000 registrations), almost all are on the computer database (Rbase-for-Dos). Now comes the task of checking them all... Chris Burwell, a PhD student (University of Queensland), has helped Robert Raven working on mygalomorphs and cladistics. Robert has developed a key to the mygalomorph genera of Queensland, next Australia, then the world. This key should work with males or females. Mr David Court from Port Moresby visited on his way to New Zealand for Christmas.

### Queensland Agricultural College

During College holidays many short courses took place. The Entomology Section was involved in the Courses in Plant Protection, teaching the delegates identification, life cycles and various control measures. Delegates included

people from the agro-chemical industry and private consultancy, as well as government extension officers from all parts of Australia.

A group of nine agricultural students from Polytechnical Agricultural Colleges in Indonesia also underwent instruction from the Entomology Section (Errol Hassan and his assistant, Bill Gordon). Special emphasis was placed on tropical cropping systems.

Errol gave advice to various commercial nurseries regarding pest problems with orchids, indoor plants and cypress pine seedlings

Richard Hicks and Sezai Duyul of the Bagasene Company, Turkey, visited to discuss pests of cotton, sorghum and maize in Turkey and Australia.

### DPI Entomology Branch, Indooroopilly

During the second half of 1988 Elaine Brough joined the Branch in the new position of Extension Entomologist and since then has been as far afield as Emerald getting the feel of agricultural entomology in the State.

Greg Daghish has also joined the Branch to work with the ACIAR stored products team. Greg replaces Peter Samson who has moved onto BSES at Bundaberg.

Marlene Elson-Harris spent four weeks collecting in North Queensland rainforests during October-November. Marlene's particular interest is rainforest fruit and the associated larval fruit flies.

MARGARET SCHNEIDER  
AND ERROL HASSAN  
Regional Councillors

### NORTH QUEENSLAND NEWS

#### Good and Bad News - DPI Emerald

Good rains were very welcome in the Emerald district but Gordon Simpson reports that the increase in soil moisture level has led to an increase in false wire worm and black field earwig populations, which are able to operate closer to the soil surface. The problem has been bad enough to necessitate replanting of sorghum.

### Soil insect workshop

To be held at DPI Indooroopilly in April. Further details can be obtained from Les Robertson, DPI Emerald.

### Current Projects - James Cook University

Debbie Rae (mealybugs) and Con Lokkers (green ants - *Oecophylla*) have completed their field work and are writing up their theses.

Michael Braby is coming to the Zoology Dep. from Victoria to work on tropical butterflies.

Rhonda Jones, Chris Hill and Carole Wallace are extending current work on the impact and value of wet refuges for insects in the seasonal tropics.

Richard Rowe succumbed to the temptations of a salticid spider collecting trip in December, joining Robert Jackson who was working around the Mossman area in pursuit of *Portia* and other jumping spiders.

### Cave Insect Expedition

North Queensland saw another concerted investigation of its increasingly famous cave insects in December/January. Activities started with the Tropecon speleology conference at Tinaroo Dam where papers on cave insects were given by Frank Howarth (Bishop Museum, Hawaii), Fred Stone (University of Hawaii) and Hannelore Hoch and Manfred Asche (Phillipps University, Germany). Then they went bush for another season of subterranean slithering in the limestone caves of Chillago and the basalt lava tunnels of the Undara-Mt Surprise system further south. Certain "bad air" (i.e. very high carbon dioxide) caverns at the latter area have yielded diverse and highly adapted species even though their geologic age is measured in only thousands of years.

### Visitors to the Far North

Geoff Monteith and Geoff Thompson from the Queensland Museum spent 3 weeks in December collecting on various mountain tops on the Atherton Tableland and assisting with the organization of an ANZSES expedition in the Mt Lewis-Mossman area. Evan Schmidt from Latrobe University led the expedition's Entomology study group.

Henry and Anne Howden from Ottawa, Canada spent two months, mostly in the Mareeba area, collecting weevils and geotrupines. It is Henry's tenth visit to Australia and he still can't speak strine proper like.

Ernie Adams made another one of his collecting trips to Paluma in January. Ernie first chased beetles there in 1939 - so a fiftyyear anniversary visit! Also there this year was Ross Storey (Mareeba), the Howdens, Joy and Gordon Burns (Melbourne) and Ernie's son Eddie (to reach the tallest trees). Collecting was the best in several years, but this did not stop Ernie from abandoning his light sheet one wet night to sit in his car to listen to the cricket (Australia won).

Alan Sundholm had a buprestid collecting trip to north Queensland interrupted by car trouble in Maryborough. They did eventually make it though and hoped to catch up the Roger de Keyser of Sydney who dropped off in Cairns while returning from PNG, to pursue cerambycids in the tableland rainforests.

Alan Walford-Huggins has moved, along with his beetle collection and Kambio business, from Julatten to Yeppoon in central Queensland. We all hope the move is successful and that collecting is as good there as it has been over the years for Alan in the north.

Ken Walker and Tim New travelled up Cape York Peninsula through to Bamaga. Bee collecting was fairly good, but conditions were a bit too dry for other groups.

Barry Moore stopped in briefly to the DPI to talk beetles. He was accompanied by Alan Wheeler, a butterfly enthusiast from the UK. Another European visitor was Vladimir Sekaly from Switzerland, whose interest was beetles.

MIKE DOWNES

Regional Councillor

(with a little help from Ross Storey)

## SOUTH AUSTRALIA

### Waite Institute- Department of Entomology

The last few months have seen the arrival of several new visitors to the department. David Woodward arrived from the US to work on the lucerne/leafcutter bee project with Derek Maelzer, Virgilio Caleca arrived from Italy to study the scelionid genera *Mirotelonomus* and *Hadronotoides* under a C&R fellowship from the Italian govt and Diane Tyson and Mark Newton have joined the insect pathology group.

Roger Laughlin's group has begun monitoring for the

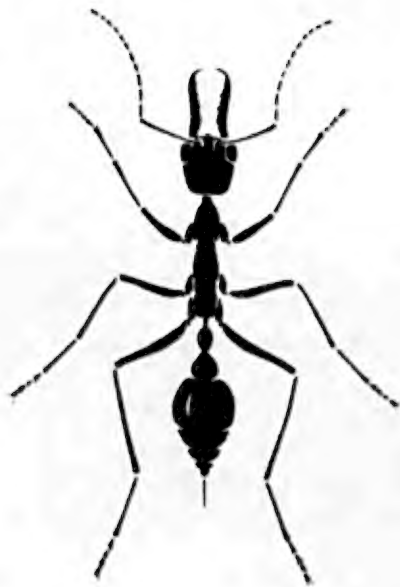
# Australian Entomological Society Membership List

January 1989

\* Foundation Members  
# Honorary Members

Stapled into the centre of this issue was an 12-page list of members from Dr I. Abbott to Dr E.C. Zimmerman.

The details have been removed to avoid any privacy issues.



'white shnozz-mozz' (*Aedes albopictus*) in and around tyre depots.

### South Australian Museum

Bob Domrow spent two weeks in October working on sarcoptiform mites parasitic on Australian vertebrates. This must be the last part of his parasitic mite checklist, so unfortunately we may not have any more visits by him.

David McAlpine and Barry Day, from the Australian Museum, worked with the fly collection for a few days in November.

### SA Agriculture Department

Paul Madge is still seen around the Entomology Unit active with contract research on the control of mites in almond orchards. Gabriella Caon commenced twelve months' maternity leave in January.

Margaret Evans (? the only entomologist between Adelaide and Esperance) is working at Minnipa on an outbreak of the native weevil *Polyphrades laetus* in cereals, together with Dennis Hopkins from Adelaide. Dennis recently attended the Russian wheat aphid workshop and the Salvation Jane (= Paterson's curse) workshop, both at Canberra. Peter James participated in the Australian Wool Corporation workshop on sheep lice, held at Melbourne. Faerlie Bartholomaeus of the Animal and Plant Control Commission recently returned from collecting fleas from native mammals in the Cooper's Creek - Birdsville areas.

Alice Wells and  
Duncan Mackay  
Regional Councillor

and having the leaf chemistry of the hybrids examined by Haifeng Li, a MAgrSc student under John Madden. The hybrids seem to be intermediate to the two species in susceptibility to leaf beetle attack. *Chrysophtharta bimaculata* leaf beetles recently caused significant damage to plantation *E. nitens* in northern Tasmania.

### Museums

Besides numerous enquiries about cicadas Bob Green received a visit from Ken Key who drew on the Queen Victorian Museum collection of Orthoptera. Alison Green at Tasmanian Museum also had her share of cicada enquiries. Alison attended the International Union of Biological Scientists conference ("Who's name - what specimen") in Canberra. Glen Hunt studied the Opiliones collection at Tasmanian Museum and Dr P.T. Lehtinen, an ICZN commissioner, from the Finnish University of Turku borrowed mites from a ABRs collection. Bob Mesibov visited Alison with live specimens of 4 Tasmanian onychophoran species and reported completion of his study "Tasmanian Onychophora" for the Lands, Parks and Wildlife Department.

### World Heritage Area

Steven Smith of Lands, Parks and Wildlife Department continues to coordinate surveys of invertebrates in the Tasmanian World Heritage Area. Peter McQuillan joined Ebbe Nielsen for a brief survey in the Mt. Ossa area. Dan Bickel from Australian Museum will survey forest diptera in January.

Lionel Hill  
Regional Councillor

## TASMANIA

### Agriculture Department

Margaret Williams is employing Clodagh Jones for several months to assist with the Integrated Mite Control program. Sandra Leighton has resigned as Entomologist at Launceston.

### APPM Forest Products

David de Little is conducting feeding trials of paropsine leaf beetles on hybrids of *Eucalyptus globulus* and *E. nitens*

## NORTHERN TERRITORY

The usual Top End Wet season "build-up" from late September to December and known as the suicide season for obvious reasons, was almost benign this year and generally quite bearable for residents who did not take the opportunity for annual leave to more temperate climes. In fact, the Met. Bureau officially declared the "Wet" to have arrived (the presence of the annual monsoonal trough over the Northern Coastline) by mid-December, the earliest for many years.

## Department of Primary Industry and Fisheries (DPIF) DPIF, Weeds Section

The Section has two major field projects over the Wet season - documenting the impact of released biocontrol agents (a gall moth and a rust fungus) on Noogoora Burr and examining the effect of native insects on the biomass and seed production of *Cassia obtusifolia*. On one of these surveys to the Daly River area, Colin Wilson and Mark Lonsdale managed to get themselves bogged for two full days.

In November, some time was spent filming the wetlands with a crew from Channel 10 in Sydney who were doing a special on Mimosa.

## DPIF, Agricultural Quarantine Section

The flurry of activity connected with new quarantine initiatives in Northern Australia continued. Ted Fenner attended a meeting in Canberra of the Plant Diseases, Pests and Weeds Scientific Working Party under NAQS. In late November David Yeates, Plant Quarantine entomologist in WA, spent a few days in the Darwin area as part of a visit to familiarise himself with northern quarantine operations.

In early December a fact-finding team comprising Drs Roger Hall, (Bureau of Rural Resources), Gordon Hooper (Plague Locust Commission), Lindsay Barton-Browne (formerly CSIRO) and James Novy (USDA/Mexican Screw-worm Commission) visited the Top End looking at screw-worm surveillance and prospects for eradication in the event of an incursion.

In his spare time Ted, along with Steve Collins, is researching the life history of *Protographium leosthenes geimbia* in Kakadu National Park under a permit from ANPWS. This butterfly and its larval food plant are apparently confined to the escarpment area of Arnhem Land.

## DPIF, Entomology Section

The screw-worm review committee (mentioned above) also visited this Section to inspect the monitoring programme and discuss problems associated with the project. Mr Lac Quan Tien has been appointed as a Technical Assistant to the project which will run until June 1989. Trapping catches from the 15 sites in the Top End averaged over 13,000 calliphorids per month between June and December 1988.

Stuart Smith and Deanna Chin spent several days in Kakadu National Park in October collecting possible native hosts of NT fruit flies and enjoying a welcome break from

on-going disinfestation studies of export fruits.

## NT Health - Medical Entomology Branch

Due to the unavailability of helicopters at critical times to spray breeding areas of the salt marsh mosquito, Darwin residents were on the defensive during the early Wet season with mossier numbers at their highest for several years. Graeme Dobson was kept occupied firstly with the mosquito plagues and more recently in attempting to allay fears of a malaria epidemic after media coverage of several cases contracted in overseas malarial areas.

David Booth resigned from the Branch in December for PhD studies at London University and Paul Barker-Hudson will take up duties in mid-January. Paul has spent 20 years working on public health mosquito problems the past 6 years of which were in Townsville.

Peter Whelan has timed his holidays well to escape the publicity of salt water mosquito plagues, encephalitis and malaria scares and has taken a well-earned break in Southern States.

## Museum of the Northern Territory

Mali Malipatil has recently been awarded a Fullbright Senior Scholarship to visit the US. He intends to spend 3 months, beginning mid-April 1989 studying aspects of the cladistics of Reduviidae with Drs R.T. Schuh and N. Platnick at the American Museum of Natural History in New York. Whilst in the US, Mali will visit other entomological centres including the Smithsonian in Washington, the University of Connecticut and the Bishop Museum in Hawaii.

During his holidays in December, Terry Houston of the WA Museum visited Darwin and spent some time examining the bee collection at the Museum.

## CSIRO - Tropical Ecosystems Research Centre

Alan Anderson will have a spate of visitors during the early part of 1989. Firstly, Deb Hlavaty, a PhD student in ant ecology from University of California at Davis will spend two weeks in the NT and during February, Sydney University Science students Melissa Fitzgerald and Joanne O'Sullivan will examine aspects of fire treatment on the insect fauna in the eucalypt savannah.

STUART SMITH  
Regional Councillor

## News from affiliated Societies

### Entomological Society of Queensland

The December Notes and Exhibits meeting which was preceded by a barbeque, proved to be a most enjoyable and successful evening. Henry and Anne Howden from Ottawa, Canada were unexpected visitors who happened to be in Brisbane just at the right time. They are currently in Australia to continue studies and collection of scarab beetles, particularly geotrupines, and weevils. The main notes of the night were 'The rubber vine hawk moth' (R. McFadyen), "Insects from Australia to control *Hydrilla* and *Melaleuca* in United States of America" (M. Purcell) and "Changes to quarantine surveillance of northern Western



Members enjoy collecting in the creek (top) and in the rainforest (Bottom) on the ESQ excursion to Booloumba Creek in October.

Australia" (D. Yeates). Neil Gough reported on the Society's weekend camp held at Booloumba Creek in October (see photos).

The Society's activities for 1989 commence on Monday 13th March with the Annual General Meeting. Election of office bearers will be held at the meeting and the address given by the retiring President, Hugh Paterson. Members are reminded that to take advantage of the discount rate, annual subscription must be paid by the time of the AGM and that only financial members are entitled to vote.

Another excursion is planned for the weekend of March 11 and 12 at Doug Cook's property in the Gold Coast hinterland. Full details are to appear in the Society's News Bulletin or contact Neil Gough (377 9362) or Geoff Monteith (840 7699).

Visitors are always most welcome at the Society meetings which are usually held at the University of Queensland on the second Monday of each month except January, February and July.

GREG DANIELS  
Representative Councillor

### The Entomological Society of New South Wales

The Society became officially incorporated on the 21 November 1988. Apart from the addition of "Inc." to our name there should be few changes and the Society should continue to function as it has in the past.

The Society Christmas function took the form of a weekend at Cromelin Field Station at Pearl Beach in early December. The weather was not the best, however, 17 people attended the weekend and managed to get in some collecting as well as a trip or two to the beach. Rain on the Saturday night made running the light trap difficult but members managed to get insects of interest in between the showers of rain. I think all who attended had a relaxing and enjoyable time.

Prof. Andrew Beattie (School of Biological Sciences, Macquarie University) will be speaking at the forthcoming meeting of the Society in February. Andrew will be talking on Ant-Plant Interactions, an area in which he has had vast experience; the talk will certainly be of interest to Society membership.

JOHN MACDONALD  
Representative Councillor

## Entomological Society of Victoria

The summer months in Melbourne tend to mean quiet times in the Victorian Society as many members are out swinging a net on collecting trips. Gordon and Joy Burns and Peter Kelly are but a few members who have headed out for several months field work both in Victoria and interstate.

The Society has great pleasure in announcing that this year's recipient of the "Zoo" Le Souef Memorial Award is Mr Robert Fisher from South Australia. Many readers would know Bob's work through his books on insects especially "Butterflies of South Australia". Bob is currently working on a project to compile a "library" of colour transparencies of the life history and biology of Australian butterflies. The Society congratulates Bob on his work and on receiving this award.

KEN WALKER  
Representative Councillor

## Overseas News

### NEW ZEALAND

I reported last year that the Australian Sheep blowfly, *Lucilia cuprina*, was suspected of being established in Northland. We can now confirm that this unwanted Australian is very much in evidence and has probably spread over much of the North Island. A number of confirmed reports have been received over the summer months and it is definitely recorded as far south as Wairoa on the east coast. Flystrike is becoming a major threat to the sheep industry in New Zealand and the confirmation of *L. cuprina* is another problem for the already beleaguered farmer. Another Australian, the redback spider, is also well established in New Zealand - what are you guys trying to do to us?

JOHN TENQUIST  
New Zealand Correspondent

## Contributed items

### INSECT CONSERVATION - THINGS WE CAN DO

The comments by Penny Greenslade and Mike Downes in the last AES News Bulletin echoed the current state of invertebrate conservation - a poor awareness in the public arena of the role invertebrates play in healthy ecosystems, specific problems involved in confronting the conservation of species and their habitats, and the considerable obstacle of placing invertebrate conservation issues on the agenda of environment groups already burdened with their own conservation priorities.

Entomologists, possibly more than most, are at the heart-throb of terrestrial ecosystems. When a woodland or forest disappears we not only mourn the loss of the plant community and the relative handful of vertebrates but we are acutely aware of the loss of that great myriad and mass of insects that gave the community its tremendous inter-related complexity and vibrancy - and our reason for being.

In this we are in a unique position to contribute to habitat, species and community retention and to a more widely considered habitat management. For at present land usage, planning and nature conservation policies are heavily weighted towards consideration of vegetation and vertebrates with at best (with some exceptions) only incidental inclusion of invertebrate values and requirements.

I add nothing new or original to the discussion by stating that there is an obvious and pressing need for education on the part invertebrates play in our environment and the problems species and whole groups can face when even subtle land-use and ecosystem modifications take place. But there are the major problems of time, energy, organisation, infrastructure and funding that some education activities entail - although offering boundless extra employment areas for entomologists and no limit of sales openings for the AES MARKETING DIVISION. Just contemplate the great range of philosophically appropriate posters, T-shirts, calendars and "soft toys" we could come up with!

There is also a need to modify perceptions of habitat values encumbered with notions of "pristine" (eg. logged vs unlogged) qualities and extent (eg. a big habitat area is better than a small habitat area). Intrinsic biological values of sites, weighted with regard to invertebrates, often have



scant regard for what are really human perceptions. If you have a relatively degraded piece of vegetation that still maintains an insect population of scientific interest or that represents the type locality of your newest bug then biological conservation priorities based on the historical tramlings of D9 bulldozers are no longer really valid.

At present there appears to be an inadequate voice from the scientific lobby in the initial stages of nature conservation issues and decision making (again the establishment of priorities) and there are inherent dangers for biologically based policies and reservation strategies when some issues are increasingly dictated in the public arena. Alex Floyd (NSW NPWS), writing on the status and eventual reservation of north coast rainforests of New South Wales, stated "the effect of a 175 per cent increase in the rainforest area within the national parks system in nothern New South Wales has only been to reduce the number of inadequately conserved suballiances from twenty-two to nineteen. This disappointing result probably accurately reflects the main thrust of the conservation campaign in the area, which was for larger areas of rainforest to be preserved for their aesthetic and recreational qualities. The scientific argument was put less vociferously by the National

Parks and Wildlife Service and other biologically oriented bodies, and would not evoke the same emotive response from the general public. Hence, the magnificent towering figs, yellow carabeens and booyongs in the subtropical rainforest and the ageless antarctic beeches of the cool temperate rainforest are now well conserved, but the less appealing suballiances of the dry and littoral rainforests are still 67 per cent and 100 per cent inadequately conserved".

Whilst this situation did improve for littoral rainforests, biologically important relict tracts, logged rainforests and rainforests distant from the centres of population lost out. There is a parallel lesson here for us because invertebrates seem destined by their inescapable size and nature (they generally suffer from "bad press") to run a poor second to vertebrate concerns unless their profile can be lifted.

Education is a long-term undertaking but in the immediate term considerable and significant input could be achieved by commenting on regional and local environment

Littoral rainforest remnant on the mid-north coast of New South Wales. The remaining littoral rainforests are beset by major management problems and have been reduced by agriculture, mining and residential development. They represent a whole vegetation community at risk throughout its NSW range and contain many insects new to science or of considerable interest.



plans where these impact on invertebrates and their habitats, by influencing government/departmental policies and by proposing reserves (or additions to existing reserves) based on invertebrate values. The latter allows you to avoid knee-jerk reactions to someone else's development initiatives on your favourite bit of bush.

But who is going to care about my new tulpid locality or my odd-ball southern record of an otherwise more northerly lycaenid population? Possibly few (although I'm being increasingly surprised to the contrary) but when you start adding an unusual or critical record here with another one there and then start lumping in known vertebrate records and plant community data and consider such things as corridor and refugia roles, general biologic and geologic diversity and aesthetic impacts and emphasize the scientific and educational importance you just might be surprised at what a chunky report or submission can be arrived at. Even if you can do little more than provide a basic species list with the interesting records highlighted then that, at its least, will be supportive to submissions from other groups and individuals and will establish some consideration of invertebrates. Every bit helps.

Local council planning departments may be more sympathetic to submissions based on invertebrate values than you may realize. As examples, in local environment plans undertaken by Greater Taree City Council conservation zonings were readily applied to privately owned rainforest gullies containing scarab populations of unexpected diversity whilst conservation zones at Harrington were up-graded from "coastal protection" (which essentially still allowed you to clear a lot of vegetation) to "scientific" (which essentially meant you could do a lot less damage) largely on the basis of intrinsic insect interest. These are not isolated cases and at least two nature reserves in New South Wales, near Ballina and the Illawarra region, owe much of the reason for their establishment to insects in them whilst one NSW State Environmental Planning Policy (littoral rainforests) had a consideration of insects in its genesis.

In addition, when submissions and reports are undertaken there is a spin-off benefit gained because the information included, often otherwise the preserve of specialists becomes more generally accessible and apart from the future conservation use to which the information can be put it also contributes in an accumulative way to education on the role and importance of insects and lifts their profile in future

planning procedures; a not unreasonable expectation if we are to address the retention of national genetic resources.

GEOFF WILLIAMS  
Research Associate  
Australian Museum

## REPORT OF THE CONSERVATION COMMITTEE

During the last three months we have prepared submissions to various bodies concerned with land use and management. These submissions have all been in response to advertised calls for public comment. It has been suggested that this is the most productive way in which the committee can raise awareness of insect conservation in general. One of these submissions was directed to the Tasmanian Forestry Commission and dealt with amendments to the Forestry Practices Code. It was prepared by Lionel Hill and he found that there was much room for improvement in the code as regards conservation measures which could be taken. Another was by Alan Andersen and dealt with the proposed Jabiru pipe line in the Northern Territory and is given below. If any members of the society are aware of or become aware of conservation issues on which we should comment could they please write to me or to the executive and let us know of them?

PENELOPE GREENSLADE  
Convener,  
Conservation Committee  
c/- CSIRO Entomology  
GPO Box 1700  
Canberra ACT 2601

## KAKADU POWER LINE, ENVIRONMENTAL IMPACT STATEMENT REVIEW

### Background

The power demands of the Kakadu region are currently met by independent generators operating on diesel fuel (e.g.

at Ranger Uranium mine, Jabiru township, ANPWS headquarters, CSIRO Kapalga Research Station). The NT Power and Water Authority (PAWA) proposes that the best option for meeting future power needs in the region is to construct a 132kV transmission line linking Jabiru with Darwin's Channel Island power station.

PAWA gives two reasons for its proposal. The first is to provide 'the most economic and reliable electricity supply to the Alligator River region'. However the problem with this justification is that current power demand in the region does not justify the transmission line - PAWA admits that it is relying on potential increases in demand following future tourist and mining development. The EIS assumes a greatly increased future demand when really this is impossible to predict with any certainty as, for example, the whole question of mining in the region remains unresolved. The second reason provided by PAWA for its proposal is to "improve the viability of the Channel Island power station ... by increased sales of energy". It therefore seems that the prime motivation behind the proposed transmission line is to sell PAWA's excess energy, rather than to meet any real power demand.

### Environmental Impact

The proposed route of the transmission line traverses savanna woodland and open forest dominated by Eucalyptus, vegetation formations that occur extensively throughout northern Australia. The principal environmental safeguard proposed by PAWA is to route the line to minimize visual impact and to avoid environmentally sensitive habitats (eg. wetlands, billabongs, mangroves, monsoon forests). PAWA propose to engage a full-time officer during the line's construction, who will liaise with the Australian National Parks and Wildlife Service, and the NT Conservation Commission. The EIS considers, in my view correctly, that the main adverse impact of the line would be visual and psychological, rather than ecological.

### Treatment of Invertebrates

The invertebrates of the region are extremely poorly known, so it would be unrealistic to expect the EIS to treat them in anything other than a general way. It is pleasing to note that the EIS recognises the ecological importance of invertebrates and the need for their conservation. Unfortunately, however, the only invertebrates mentioned

are termites (which are discussed at some length), which gives the misleading impression that these are the only invertebrates worth considering. The EIS should have highlighted the fact that the region harbors an extraordinarily rich invertebrate fauna, with termites being just one of many extremely important groups, and that the invertebrates themselves are one of the special features of Kakadu.

In the absence of specific information on invertebrates, the best way of protecting their interests is to protect their habitat. The EIS appears to have achieved this by routing the line away from sensitive habitats, as outlined above.

### Conclusions

The proposed transmission line would appear to have a negligible impact on the invertebrate fauna of the Kakadu region. However the need for the line is highly questionable, especially given its intrusion into the wilderness experience of Australia's foremost national park.

ALAN ANDERSEN  
AES Conservation Committee

## COMING EVENTS

### 20th AGM of Australian Entomological Society

Our annual Conference will be held this year at Macquarie University in Sydney over the period May 3-6. The Conference theme is "Insects '89: Prospects and Problems" and a wide-ranging programme will be offered. An enrolment brochure is available from John Macdonald, BCRI, PMB No. 10, Rydalmere, NSW 2116. A late fee applies to enrolments received after February 28.

### Future of Butterflies in Europe: Strategies for Survival

This is the title of an international congress to be held in Wageningen, The Netherlands, from 12-15 April, 1989. The meeting will review the current knowledge on butterflies in order to set up a working programme for their conservation in Europe. The meeting is being jointly organized by the Wageningen Agricultural University, the Dutch Butterfly Foundation and the Netherlands Entomological Society.

Details available from: Congress Building, International Agricultural Centre, PO Box 88, 6700 AB Wageningen, The Netherlands.

### National Mallee Conference

This conference will be held in Adelaide over the period April 18-21, 1989, and has the theme "The Future of Mallee Lands: The Conservation Perspective". Details are available from: Conference Manager, National Mallee Conference, CSIRO Wildlife and Ecology, Private Mail Bag, Deniliquin, NSW 2710.

### The Conservation of Insects and their Habitats

This is the 15th Symposium of the Royal Entomological Society of London and will be held at Imperial College, London, on 14-15 September, 1989. The meeting will take a global view of the problem and contributors will include Tim New and Penelope Greenslade from Australia. Details are available from: The Registrar, Royal Entomological Society of London, 41 Queen's Gate, London SW7 5HU.

### Australian Wool Corporation Conference

The Australian Wool Corporation periodically reviews major subject areas to identify priorities for future research. In May, the Corporation is holding a Conference on "Weed, Invertebrate and Disease Pests of Australian Sheep Pastures".

The Conference will be held from the 28th May until 1st June at the Old Ballarat Village, Ballarat, Victoria. It is the intention of the organising committee to achieve a broad mix of participants including researchers, extension officers, industry representatives, consultants, and importantly, woolgrowers from the high rainfall, sheep-wheat and pastoral zones of Australia.

Abstracts of possible submissions are currently being sought. Researchers are expected to submit a paper or poster. It is preferred, but not essential, for extension officers, industry representatives and consultants to submit a contribution. Contributions are due by February 1st, 1989. Farmer participants will be invited.

Further details including copies of the Conference brochure are available from the convenor, Dr Ernest Delfosse, CSIRO Canberra (062-465 834) or Mr David Conley, Australian Wool Corporation, Melbourne (03-341 9182).

## HYMENOPTERISTS' CORNER

### New Books

Boucek, Z. 1988. The Australian Chalcidoidea. A biosystematic Revision of Genera of 14 Families with a Reclassification of Species. CAB International. 832 pp.

Ian Galloway is currently reading this book and a review will be given in a future issue of "Myrmecia".

1988. Encyrtidae of New Zealand. Fauna of New Zealand. (No further details available).

Ted Dahms will present a review of this monograph in a future issue.

### Field Work

Ted Dahms will be in the field in Southeast Queensland this summer, collecting Encyrtidae from arid areas. Search through your collections and bury him in study material.

Woody Horning collected wasps around Wombat, New South Wales, in early November. Just as he was reaching for a small green chrysidid on a tree, he felt something soft and round underfoot. Oh no, he thought, but oh yes, he was standing on a nearly two metre long Brown Snake, fortunately only centimetres from its head - the chrysidid escaped.

### Visitors

Dr Gerhardt Prinsloo, Plant Protection Research Institute, Pretoria, South Africa, worked with Ted Dahms on Encyrtidae at the Queensland Museum in mid-October.

Dr Donald Quicke, University of Sheffield, worked at the Australian Museum as a Research Fellow in October. He and Geoff Holloway have submitted several manuscripts on Australian Braconinae to the Australian Museum Records.

### Contributions

Hymenopterists - this is your venue for informing fellow colleagues about what is happening in your field. Contributions are needed and please send them to Dr Woody Horning, Macleay Museum, University of Sydney, NSW 2006. Woody does not want to continue enduring hazardous collecting just to make this column interesting.

## OBITUARY



**Thomas Graham Campbell**  
(21 Nov 1904 - 29 Sept 1988)

Thomas Graham Campbell was born on 21 November 1904 at Yarragal near Wellington, NSW. After secondary schooling at Sydney High he joined the Australian Museum in Sydney as a cadet in 1920, rising to the position of Assistant Entomologist after attending a course in Zoology and Entomology at Sydney University. He did particularly well in entomology courses. His first papers (four of them, all popular, appeared in 1926 - dealing with the emperor gum moth, the common paper nest wasp, common Sydney butterflies and insects as human food). During his period at the Museum (1920 to 1928) he got to know a number of entomologists who were to be important in his later career - R.J. Tillyard, A.J. Nicholson (Senior Lecturer in Entomology), I.M. Mackerras (Linnaean Macleay Fellow) and G.A. Waterhouse

He applied for, and was appointed to, a position of Entomological Assistant in the newly formed Division of Economic Entomology of CSIR in Canberra at the same time as G.A. Currie, A.L. Tonnoir and M.E. Fuller. He commenced duty in Sydney on 3 January 1929 but moved to Canberra to take up residence in the Bachelors' Quarters, Acton, a few days later.

Although attached to the Museum section in Canberra he was very soon (at the end of February) whisked off in the SS 'Malabar' to Darwin to investigate the life history and spread of the buffalo fly. This had recently come in from Indonesia and was rapidly extending its range in northern Australia. He created such a good impression in the minds of R.J. Tillyard and I.M. Mackerras that he was reclassified as Junior Entomologist in December of that year, 1929. He spent time in Wyndham and elsewhere in the 'Top End' until December 1930 when he returned to Canberra. However, he was back in Cloncurry with I.M. Mackerras by May 1931 and in November of that year he was back in Darwin.

After this substantial period in the north Tom was based in Canberra except for shorter periods in the field. He was mainly concerned under A.L. Tonnoir with building up and maintaining the insect collections, in carrying out the biological observations on various pests and in assisting in a wide range of biological control activities. He was reclassified as Research Officer in June 1943.

It would take a considerable time to outline all of Tom's many and varied activities over his last thirty years with the Division. He travelled widely, collecting insects in many areas of Australia and was involved in several overseas activities. For example, he acted as Senior Entomologist in Suva for six months in 1954/55. He carried out insect surveys of Cocos (Keeling) Islands in 1952 and 1964 for the Quarantine Authorities who were planning to establish a Quarantine Station there. In this activity he also visited Singapore and Kuala Lumpur. He also carried out an insect survey of the Monte Bello Islands before the first nuclear explosion on Australian Territory - a top secret mission at that time. In his final years at CSIRO he had charge of the Hemiptera Collection in the ANIC.

I first met Tom a little more than fifty years ago at the very beginning of January 1938 when I was employed in a short temporary job at the Division of Economic Entomology. This was at Manner's boarding house near Corroboree Park, Ainslie. Tom was the star boarder of the twelve or so

bachelors - the longest standing and with the luxury of the only single room whereas the rest of us were in two's, three's or four's. He was the proud owner of a gleaming 1936 Oldsmobile coupe securely housed in the only garage - and he would carefully warm this up for five minutes or so, particularly in cold weather before starting off for work in the morning.

Tom's talents lay more in field than in laboratory activities (compatible with his love of outdoors), he was a keen cross-country skier and a foundation member of the Canberra Alpine Club. I recall that he hired a huge, high-standing early '20s Buick, complete with dickey seats, to take a number of colleagues, myself included, to the opening of the Mt Franklin chalet in 1938.

He was a foundation member of the Canberra Aero Club, not only learning to fly and navigate their Piper Cub - but later owning a light 'plane of his own which he had to fly to Sydney at intervals for airworthiness checks. On one occasion during the War he was involved in an air raid precaution mock exercise and dropped a few brown paper bags of flour near the Black Mountain laboratories to simulate a bomb attack.

Tom was a loyal and dependable member of the Division and a good person in the best sense of the word. He was ever willing to lend a hand when some crisis occurred in the field. Quite a number of us were helped in the early days when a car broke down - and long before NRMA was available to come to the rescue at short notice.

Tom was always on for a good yarn - preferably one that could be allowed to take its time to develop and mature - and sometimes he was loathe to release his listeners readily to their other current activities.

Although steadily failing in vigour I believe that, as recently as August, Tom visited Expo and that his final decline was a rapid one.

We salute his memory and mourn his passing as one of the earlier survivors of the pre-1930 days of CSIR in Canberra.

DOUG WATERHOUSE  
Canberra

## REQUEST

Dr Harry Brailovsky (Departamento De Zoologia, Instituto de Biologia, Universidad Nacional Autonoma De Mexico, Apartado Postal No. 70-153, Mexico 20, D.F. 04510 MEXICO) needs Australian Coreidae (Heteroptera) for his research studies, and would be keen to hear from people interested in exchanging material with him.

## SKIPPER BUTTERFLIES OF THE WORLD

Prominent British entomological book publishers, E.W. Classey Ltd, have announced that they are once again considering going ahead with the publication of this comprehensive, 3-volume work which will be authored by Australian skipper authority and artist *par excellence*, Andrew Atkins. The intention is for the volumes to be divided into three faunal regions with every species illustrated in colour and accompanied by explanatory text. Currently there is a desperate need for a global treatment of this difficult family of butterflies which have not been considered on a broad scale since the monographs of Brigadier W.H. Evans in the 1940s. The skippers are, of course, conspicuously absent from Bernard D'Abrera's progressive series of Volumes, "Butterflies of the World". Classey's have called for expressions of interest by possible purchasers of the skipper series. There will be no obligation to buy but, if you do not express your interest in the project, this important publication may never see the light of day. Write today to:

E.W. CLASSEY LTD  
PO Box 93  
Faringdon, Oxon  
SN7 7DR ENGLAND

## 20TH AGM AND SCIENTIFIC CONFERENCE

Sydney, 3-6 May 1989

Plans for this year's meeting are proceeding well and we can now provide a program for the major symposium to be held on the afternoon of 3 May. It is divided into two sections, with speakers as follows:

### CHEMICAL CONTROL OF INSECTS AND MITES: PROSPECTS AND PROBLEMS

#### Urban Entomology Section (Termite Control)

1. Mr R. Eldridge (Forestry Commission of NSW)  
"Termites: Taxonomy, Biology and Economic Impact".
2. To be announced. (Australian Consumers Association). "Termite Control: Consumer Problems and Attitudes".
3. Mr P. Lamond (W.A. Flick and Co Pty Ltd). "Termite Control: The Australian Standards and Pest Control Policy".

#### Agricultural Entomology Section (Mite Control)

1. (Grower, to be announced). "Mite Control: Problems Facing a Producer".
2. Mr R. Mayr (Shell Chemicals Australia Pty Ltd).  
"Chemical Control of Mites".
3. Dr V. Edge (NSW Agriculture and Fisheries).  
"Insecticide Resistance Management in Mite Control".

Our "mini-symposia" are also coming together, with some familiar names as definite or probable lead speakers:

Advances in Systematics: Dr D.H. Colless  
Biological and Integrated Control: Dr R.A. Bedding  
Current Investigations in Ant Biology: Dr R.W. Taylor

What we need now are registration forms, abstracts and cheques; please help your committee by registering and providing abstracts early. We have some unexpected logistical problems with the temporary and scattered relocation of many Rydalmere staff (including important members of the Organising Committee), so your co-operation would be particularly appreciated. Please also draw the meeting to the attention of other members and/or students at your institution. We look forward to seeing you all in May.

### ADVICE FOR POSTER PRESENTATION

The Organisers wish to encourage participants to consider presenting material in the form of posters. It is intended to display posters throughout the meeting and to have a special "poster session" on the afternoon of 5 May. The following advice has been slightly modified from instructions given out at various other scientific meetings as a guide to effective poster design and presentation.

Poster boards are approximately 1.7 m wide by 1.1 m high. A poster exceeding these dimensions cannot be accommodated. Materials for mounting light card will be provided.

Each poster should have a heading strip approximately 150 mm high which runs the full width of the poster. The title (which must be the same as in the Abstracts) should be printed in block capitals about 50 mm high. Under the title print in smaller letters, the name of the authors, institution, city and state. It is desirable to include a postcard sized photograph of the author(s) at the right-hand end of the title board. All information in the posters should be readable by viewers 2 metres distant. The message should be clearly understandable without need for further oral explanation.

Accordingly authors should remember to:

- ensure that the sequence of text and graphics is clearly indicated (use of numbers or arrows)
- lettering: text should be at least 10 mm high.
- typeface: should be simple sans serif or gothic.
- graphics: keep as simple as possible, use black ink, lines should be 2 mm thick, should have good contrast and sharp focus, should give indication of scale (if relevant), must have caption and legends (if needed).
- ensure balance between text and graphics, make sure sheets/items are labelled on the back so that you know where they go.

Time will be available for authors to stand by their presentations to answer questions.

The Abstract should be sent to the Conference Secretary as for a "Paper Presentation" for inclusion in the Abstracts.

DINAH HALES (Convener)  
JOHN MACDONALD (Secretary)

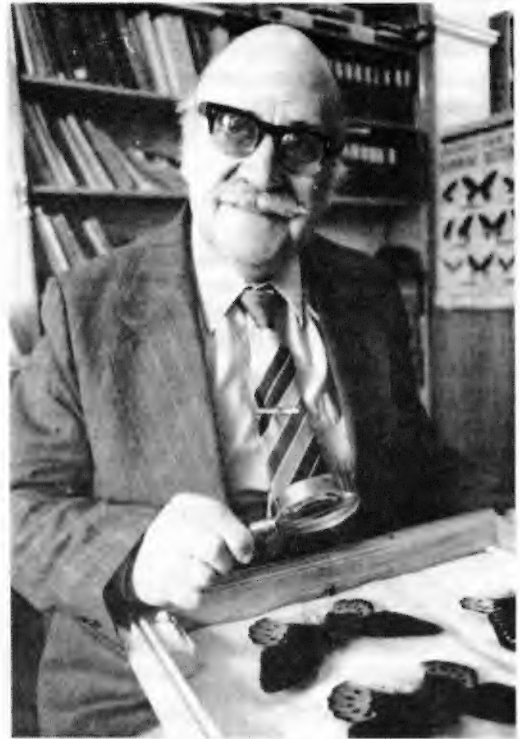
## AGENDA OF THE 20TH ANNUAL GENERAL MEETING

As announced in the November News Bulletin (24(4) 1988) the Society's 20th Annual General Meeting will be held at Macquarie University at 8.00 pm on Thursday 4th May, 1989.

### Agenda

1. Opening.
2. Announcement of proxies and apologies.
3. General announcements.
4. Deaths recorded since 19th AGM.
5. Minutes of 19th AGM and business arising (copies available at the meeting or from the Secretary).
6. Executive Annual Report, including reports of Treasurer, Chief Editor, Myrmecia Editor and Business Manager.
7. Conservation Committee Report.
8. Competitions - announcement of awards.
  - (a) Student Award 1989.
  - (b) Biological Illustration Competitions 1989.
9. Business arising from 37th General Meeting.
10. Announcement of Office-bearers and Councillors for 1989/90.
11. Report of the 20th AGM Organising Committee.
12. Report of the 21st AGM Organising Committee.
13. Other business (arranged with Secretary not later than April 4).
14. Close.

## OBITUARY



**Joseph Julius Herbert Szent-Ivany**  
(1910-June 10, 1988)

Joe Szent-Ivany, Honorary Entomologist at the South Australian Museum since 1966, died in Adelaide on 10 June 1988 at the age of 78. A passionate and active entomologist until shortly before his death, Joe's long career spanned Europe, New Guinea and Australia and was inextricably influenced by the political and war-time events of his central European homeland.

He was born in 1910 in the Tatra mountains of southern Slovakia, where his family had extensive property in the Szent-Ivany Valley, including a famous scenic lake. The region is now part of Czechoslovakia. His family retained an English governess and Joe and his sisters became as fluent in English as in Hungarian. He went on to obtain a diploma in political science and economics from the University of Vienna and a PhD in entomology from the Pasmány Peter University in Budapest (1936). He was subsequently on the



staff of the Hungarian Museum of Natural Sciences in Budapest and also lectured in Zoology at the University of Science, Szeged. His interest was always particularly with the Lepidoptera and he became an authority on the European Pyralidae.

During this time of political turmoil in Europe Joe Szent-Ivany's citizenship changed from Hungarian to Czechoslovakian and later back to Hungarian. For a short period between the two world wars he served in the Czech army.

In 1940 he married Maria who was an artist at the Museum (she illustrated a well known book on birds) and daughter of an eminent politician with properties at Kassa in northern Hungary.

As World War II was drawing to a close Joe Szent-Ivany had been sent to Germany. There he was engaged by the Canadian Army to assist with their camp management and with translation. Later he joined the Australian Immigration Service as a selection officer in Germany and, in due course, migrated to Australia himself in 1950, leaving Maria to follow when she could.

In Australia, Joe joined the Commonwealth Public Service as a clerk until 1954 when he was appointed as Entomologist with the Department of Agriculture, Stock and Fisheries in the then Territory of Papua and New Guinea. He was based at Port Moresby. While there he heard news of the 1956 uprising in Hungary, followed soon after by a telegram from his wife in Vienna with the tumultuous news that she and their daughter Ildi had successfully escaped from Hungary. They joined him in Port Moresby soon after.

During his time in New Guinea Joe became one of the best known entomologists in the Pacific Region, hosting and advising innumerable entomological visitors to New Guinea. He collected and sent material from NG far and wide for identification and study. He undertook landmark documentation of pest insects in the developing country, where the great proportion of pests were native insects which had moved on to exotic crops after their introduction. He was a driving force in the establishment of the PNG National Museum and Art Gallery and was one of its six trustees as well as its Honorary Consultant in Entomology.

A particularly fruitful friendship developed between Joe and J.L. Gressitt of the Bishop Museum in Hawaii. Gressitt had started a Museum field station at Wau in 1960 and this was later to become the Wau Ecology Institute. The Szent-

Ivany family visited often, Joe to study the biology of plant-feeding insects while Maria prepared illustrations for their publications. Joe and Lin Gressitt collaborated for 7 years in preparing the landmark "Bibliography of New Guinea" (674 pp.) published in 1968. In November 1975 a new laboratory at the Institute was dedicated to Szent-Ivany.

Joe Szent-Ivany retired from NG in 1966 and settled in Adelaide where he became an active Honorary Associate of the South Australian Museum. At this point the story is best taken up by Gordon Gross' personal reminiscence:

"Joe first called into the South Australian Museum, probably in 1965 (our Visitors Book was not started until 1969 so I cannot check the date of this visit), along with his wife Maria and daughter Ildi. Joe had already amassed a formidable reputation as the foremost entomologist in New Guinea and the one that you simply had to see if you went up there. In the conversation on that day Joe mentioned



that he would shortly be retiring to Adelaide, and was promptly sounded out if he would like to be an Honorary Research Associate of the South Australian Museum, to which he agreed. When the family arrived in Adelaide in 1966 to live in their new house at Athelstone (appropriately opposite a nature reserve), the formalities had been completed. He was then 56 years of age.

For nearly every working day over the next 18 years Joe came in, starting mostly at the same time as we others did and leaving when we did. Only for a few holiday periods and during several study trips overseas was he not there at his desk. Back in our old quarters in the main Museum building we were terribly cramped and I have vivid memories of how Joe, Jan Forrest and I used to work on secondhand school desks lined up along a wall in front of the cabinets in the upstairs collection room.

In 1974 when the Entomology Section was relocated to Goldsbrough House where we rented several floors, included one whole floor for Entomology, we were at last able to provide Joe with his own workrooms. Joe spent endless hours in his room pounding away on a battered typewriter and chewing endless cigars as he prepared the text for a massive work on the insects of economic importance of Papua New Guinea. He broke off from time to time for something that he both liked and was good at - a chat with one or more of us about an incredible variety of subjects. While Joe was with us he mainly continued his work on New Guinea insects and did not try to become very familiar with yet a third fauna, the Australian, over the two he already knew (Europe and New Guinea). During this period the massive work with the late Lin Gressitt on the "Bibliography of New Guinea Insects" appeared (1968) together with 12 other papers on New Guinea insects and 2 reviews of works on Australian insects.

In 1977 Joe was elected President of the Royal Society of South Australia and in 1985 was awarded the Order of Australia (AM) for "Services to Science, especially Entomology in Australia and the South Pacific". He was also active in the Nature Conservation Society of South Australia and the Fauna Committee of the National Trust of South Australia.

But we are not eternal and as the time came after a decade in Goldsbrough House to move to new, and in some ways, less capacious, quarters (though amalgamated again with the rest of the Natural History Sections) it was obvious

to Joe (and though we did not say anything to him - us also) that he was slowing down. Joe was then around 75 years of age, his health was failing, and he was finding it increasingly difficult to make his way in to Adelaide. He was regrettably able only to visit us a few times in our new quarters before his death.

Above all of his professional excellence Joe Szent-Ivany was noted for his "old world" charm and generous nature. He was a devoted family man who leaves behind his wife Maria and daughter and her family as well as many professional friends".

(Compiled from information from the South Australian Museum, Joe and Maria Sedlacek, Gordon Gross, and an obituary by R.W. Paine in *Antenna* 12(4): 154. Photographs by Jan Forrest).

# CSIRO Journals

## CONCESSION RATES FOR MEMBERS

Members are notified that as members of Australian Entomological Society they can subscribe to Journals published by CSIRO at the very attractive concessional rates shown below. Note that in 1989 the Australian Journal of Biological Sciences changes its name to REPRODUCTION AND DEVELOPMENT >

	Normal Price	Concession Price		
Australian Journal of Agricultural Research	\$130.00	\$ 65.00	<input type="checkbox"/>	<p>If you wish to subscribe to one or more of the Journals please tick the appropriate boxes and forward this form (or a photocopy) to the Treasurer at her address below with the correct amount of money by March 15. Cheques must be made payable to <i>Australian Entomological Society</i>.</p> <p>Ms A. Hill, AES Treasurer Agriculture Department Baron-Hay Court South Perth WA 6151</p> <p>Name: .....</p> <p>Address: .....</p> <p>..... Postcode: .....</p>
Australian Journal of Botany	\$130.00	\$ 65.00	<input type="checkbox"/>	
Australian Systematic Botany (new journal)	\$ 90.00	\$ 45.00	<input type="checkbox"/>	
Australian Journal of Chemistry	\$330.00	\$160.00	<input type="checkbox"/>	
Australian Journal of Marine and Freshwater Research	\$140.00	\$ 70.00	<input type="checkbox"/>	
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Australian Journal of Experimental Agriculture	\$130.00	\$ 65.00	<input type="checkbox"/>	
Australian Wildlife Research	\$120.00	\$ 45.00	<input type="checkbox"/>	

# Australian Entomological Society Inc.

## APPOINTMENT OF PROXIES

(This completed form should reach the Secretary prior to the meetings(s) concerned).

I, ..... of .....

being a member of the above-named Society, hereby appoint .....

of .....

as my proxy to vote for me on my behalf at the Council Meeting, Annual or Special General Meeting, as the case may be, of the Society, to be held on the 3rd to 6th days of May, 1989 and at any adjournment thereof.

Signed this ..... day of ..... 19 .....

(Signature) .....

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AUSTRALIAN ENTOMOLOGICAL SOCIETY



**20TH AGM AND SCIENTIFIC CONFERENCE**

TO BE HELD AT  
MACQUARIE UNIVERSITY, SYDNEY  
3rd — 6th MAY, 1989

**CONFERENCE THEME:** Insects '89: Prospects and Problems

**MAJOR SYMPOSIUM:** Chemical Control of Insects and Mites

**ADDITIONAL SESSIONS:**

Advances in Systematics	Biological and Integrated Control	
Forest Entomology	Medical and Veterinary Entomology	
Hormones and Physiology	Ants	General Entomology

In addition to the formal sessions, the Organising Committee hopes that members will continue the recent tradition of convening small special interest workshops within the Conference period.

Macquarie University is situated in the north western suburbs of Sydney, about 15 km from the city. To the north, the University buildings look out over rolling grasslands leading down to bushland reserves in the Lane Cove River valley. Accommodation has been arranged at Dunmore Lang College, a pleasant modern college about 5 minutes walk from the University buildings.

For further information, contact:  
Dinah Hales, School of Biological Sciences, Macquarie University NSW 2109 (02) 805 8181  
OR  
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