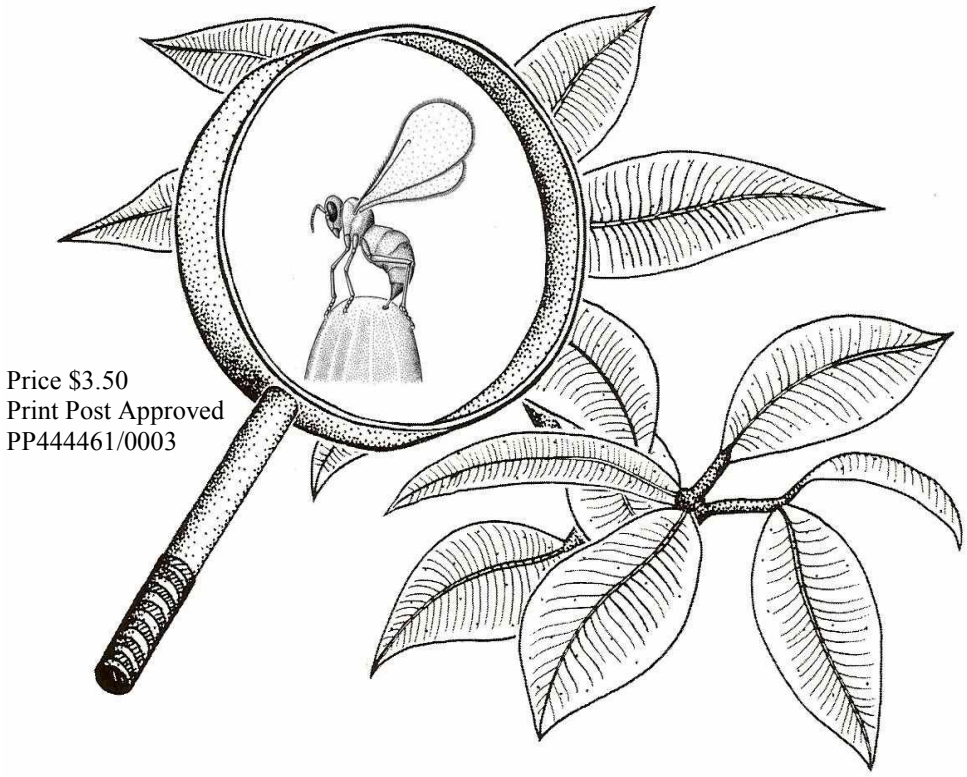
ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC

NEWS BULLETIN



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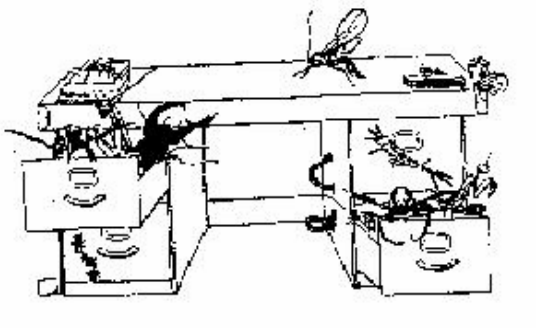
The **ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC.**, since its inception in 1923, has striven to promote the development of pure and applied entomological research in Australia, particularly in Queensland. Membership is open to anyone interested in Entomology. The Society promotes liaison among entomologists through regular meetings and the distribution of a *News Bulletin* to members. Meetings are announced in the *News Bulletin*, and are normally held in the Goddard Building, University of Queensland at 7.00 pm on the second Monday of each month (March to June, August to December). Visitors and members are welcome. Membership information can be obtained from the Honorary Secretary, or other office bearers of the Society.

Contributions to the *News Bulletin* such as items of news, trip reports, announcements, etc are welcome and should be sent to the *News Bulletin Editor*.

The Society publishes **THE AUSTRALIAN ENTOMOLOGIST**. This is a refereed, illustrated journal devoted to Entomology in the Australian region, including New Zealand, Papua New Guinea and the islands of the South Western Pacific. The journal is published in four parts annually.

EMBLEM: The Society's emblem, chosen in 1973 on the 50th anniversary of the Society, is the king stag beetle, *Phalacrognathus muelleri* (Macleay), family Lucanidae. Its magnificent purple and green colouration makes it one of the most attractive of all Australia Coleoptera. It is restricted to the rainforests of northern Queensland.

COVER: *Trichogramma, sp*., an egg parasitoid. Drawn by Catherine Bryant.



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The Entomological Society of Queensland

General Meeting October 2007

Minutes of the general meeting of the Entomological Society of Queensland Inc. held in Room 139, Goddard Building, The University of Queensland, on 8 October 2007, at 7 pm. Chaired by Sassan Asgari

Attendance:

Peter Allsopp, Sassan Asgari, Richard Ball, Lyn Cook, Stephen Frances, Jason Jeffery, Geoff Monteith, Lynda Perkins, Don Sands, Margaret Schneider, Geoff Thompson, Desley Tree.

Visitors:

Maggie Gentz, Leon Hugo, Michael Oshea.

Apologies:

Mike Furlong, Matthew Purcell, Gunter Maywald, Anna Marcora, John Moss, Ross Kendall.

Minutes: The minutes of the September ordinary General Meeting were circulated in the News Bulletin Vol. 35 Issue 6. It was moved by Margaret Schneider and seconded by Sassan Asgari, that the minutes be accepted without amendment.

Nominations:

The following nomination for membership was received and approved by Council, and is now put before the meeting for election:

Mr. Antony Moore

In accordance with Society rules, the nominee was elected by a show of hands.

General business:

Geoff Monteith indicated that the information for the next bugcatch trip has been sent to all members and hard copies can be obtained from him. Twenty-two people have already registered to go to the trip.

Main Business:

The main business of the meeting was a presentation by **Dr. Steve Barker**, University of Queensland, entitled "**Why are there so many head lice, *Pediculus capitis*?**"

As there was no further business, the Chair closed the meeting.

The transcript for the talk was not available at time of printing. Apologies– Ed.

Why are there so many head lice, *Pediculus capitis*? And the efficacy of pediculicides *in vitro* and *in vivo*

Stephen C. Barker

Reader

Parasitology Section, School of Molecular and Microbial Sciences, The University of Queensland, St Lucia, Brisbane, Queensland 4072, Australia

Pediculus capitis, head lice, are prevalent in all social-economic groups world-wide. In Australia, one quarter to one third of primary school-aged children are infected with *P. capitis* each year. Over 50 pediculicides are sold in Australian pharmacies and supermarkets. Pediculicides are a popular way to treat head louse infections. The efficacy of these pediculicides, however, is often not sufficient to cure infections. My students, colleague and I are presently assessing the efficacy of pediculicides against *Pediculus humanus* (body lice) *in vitro* and *P. capitis* (had lice) *in vivo*.

Notice of Next Meeting

Perkins Memorial Lecture

Monday 12th November at 12 Midday

CSIRO Long Pocket Laboratories

Large Conference Room

120 Meiers Rd Indooroopilly 4068

'Taxonomy, biology and DNA - essential components for studying the evolution of insects'

Andrew Austin

Join us for a free BBQ after the talk, refreshments will available for purchase. Please note, all visitors to CSIRO must sign in at the reception desk

People & Projects

Smithsonian Institution Washington DC

Des Foley sends greetings from the Walter Reed Biosystematics Unit based at the Smithsonian Institution in Washington DC. Des says "Since 2004, I was funded by the US National Research Council under their Research Associateship award scheme but I'm now a contracter here at the WRBU. We have recently published a long- awaited study on the Australasian *Anopheles annulipes* complex, which we found comprised at least 17 species (species A to Q). Our results substantially increase the size of the subgenus *Cellia* in Australasia, and will assist species-level studies of the Annulipes Complex (see reference below). I am now involved in mosquito distribution modelling and vector disease risk assessment. As part of this work I recently spent two weeks in South Korea assisting with the collection of members of the Hyrcanus group of *Anopheles* that can only be identified using molecular markers. Much of this work involved larval collections in rice paddies near the Demilitiarized Zone (DMZ). We even got a mention as "mosquito hunters" in the local version of the US Army newspaper "Stars and Stripes"! South Korea has the non-fatal *vivax* malaria and most of it is transmitted near the DMZ. Australians are few and far between. I found a "Down-Under" Australian bar in Seoul but despite the XXXX and Australian flags it turned out I was the only Australian there (but the barmaid had studied at Griffith University's Nathan campus for a few months, and loved it)! In other news, we have recently received funding for a website called "MosquitoMap" that will serve as an online repository for world-wide mosquito collection records and distribution maps. More on this later."

Reference

Foley, D.H., Wilkerson, R.C., Cooper, R.D., Volovsek, M.E. & Bryan, J.H. (2007). A molecular phylogeny of *Anopheles annulipes* (Diptera: Culicidae) sensu lato; the most species-rich anopheline complex. *Mol. Phylogen. & Evol.* **43**: 283-297.

NEWS FROM DPI&F INDOOROOPILLY

In August the Board of the CRC for National Plant Biosecurity met at Indooroopilly and made time to meet several entomologists including Pat Collins and Manoj Nayak. Pat is the Program Leader for the new Post-harvest Integrity Research Program, and Manoj is leading a project on fumigant and insecticide resistance in stored grain insects. In the same month Pat visited WA to discuss resistance to phosphine with staff of Cooperative Bulk Handling Ltd at their Grain Protection Conference.

USDA ARS AUSTRALIAN BIOLOGICAL CONTROL LABORATORY– INDOOROOPILLY

Ryan Zonneveld travelled to Florida to train quarantine staff in rearing the eriophyid mite, Floracarus perrepae, a biological control agent for the climbing Fern, *Lygodium microphyllum*. Jeff Makinson and Tony Wright are evaluating a stem-boring moth collected from *L. microphyllum* in Hong Kong. Several borers have been found in SE Asia however these insects have proved difficult to rear. Bradley Brown is regularly collecting *Fergusonina turneri* galls from Melaleuca quinquenervia for shipment to quarantine in Florida. This gall fly is yet to establish in Florida and recent shipments from Australia will be used to boost field releases. Tony Wright and Matthew Purcell will travel to the USDA ARS Invasive Plant Research Laboratory in Fort Lauderdale in late October to attend a review of the *Lygodium microphyllum* project.

Queensland Museum

Robert Raven has just left for Maningrida (Arnhem Land, NT) where he will meet up with Mason Scholes, a science teacher whose students have collected a plethora of new species of spiders. Mason was recently awarded the Eureka Prize for science teaching and Robert is looking forward to seeing what they collect this time.

CSIRO Entomology - Long Pocket Laboratories

Dr. Mark Lonsdale has been appointed Chief of CSIRO Entomology and Dr. Gary Fitt has accepted the position of Deputy Chief.

Two of Ento's women at Long Pocket shone in the Queensland Smart Women - Smart State Awards. Anne Bourne won the special Lifetime Contribution to Science Award and Alice Yeates was one of four PhD students with The University of Queensland to win the category for Postgraduate Students - Science. Alice is co-supervised by Rieks van Klinken. The others in the group were Megan Ward, Nikki Sims and Jennifer Firn.

World Cotton Research Conference - 4

Gary Fitt has just returned from the World Cotton Research Conference - 4 in Lubbock, Texas. In his role as a plenary speaker, Gary presented a paper entitled "Resistance Risk and Resistance Management for Bt cotton." He had the opportunity to interact with many colleagues working in the sustainability of GM cottons around the world. He was also able to catch up with colleagues from CIRAD (Centre de coopération internationale en recherche agronomique pour le développement or French Agricultural Research Centre for International Development) in France and discussed Bt resistance management strategies for Africa.

National Invertebrate Pest Initiative (NIPI)

As coordinator of NIPI, Gary was pleased with the recent advice from GRDC that Phase 2 has been funded for another three years. This will allow us to build on current activities in research and adoption and launch some new initiatives.

Over 25,000 people engaged with CSIRO Entomology and other CSIRO divisions at the Ekka [Brisbane Show] in Brisbane during August as part of National Science Week. Entomology displayed examples of research including work on the invasion ecology and management of Silverleaf

Whitefly and various biocontrol agents for invasive plants including the Melaleuca Gall Fly.

Tim Heard travelled to Brazil and Peru with Ricardo Segura to observe several plant species that are invasive in Australia and to determine the best way to do survey work in those countries. The north east of Brazil is one of three semi-arid zones in South America and so needs to be assessed for its suitability for conducting surveys on our target weeds. They found plant samples for future natural enemy surveys and for genetic analysis of plant species including *Parkinsonia aculeata*, *Jatropha gossypiifolia, Lantana camara* and *Phyla canescens*. They also found a rust that European colleagues are seeking as a potential agent for biocontrol of *Ambrosia artemisifolia*. Negotiating horrendous roads through the Andes was challenge but there were wonderful treats too, including eating fired local rodents for lunch. Ricardo and Tim finished their trip with a stopover in Mexico City to conduct interviews for a new staff member for the CSIRO Mexican Field Station to allow continuation of work funded by the Cabomba project.

Collecting Permits

The State Forests Permit **TWB/30/2006** has now expired. I have sent out the renewed permit No. **TWB/34/2007** to all permit holders who are both financial and have sent in their returns. If you haven't received your copy of the new permit please contact me.

QPWS have also changed the form they wish us to use for our returns so I will be sending out the revised form via email soon. For those members who don't use email I will send out a hard copy of the form. There are some further requirements so please read the form carefully so when you collect you also gather the information you need for the return.

If any members have changed their postal address or email address could you please remember to let me know.

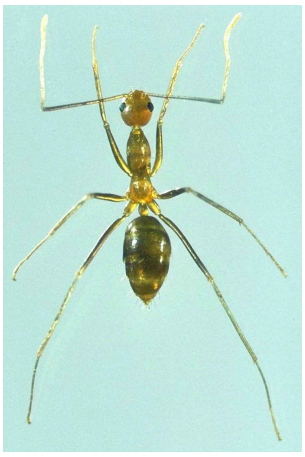
Happy collecting.

Susan

The Yellow Crazy Ant, *Anoplolepis gracilipes* - the management challenge on Christmas Island.

Mick Jeffery, Natural Resources Manager, Christmas Island National Park.

The yellow crazy ant, *Anoplolepis gracilipes*, has truly found its niche on isolated Christmas Island. This ant is listed as one of the world's most invasive tramp ant species, having been introduced to hundreds of locations across the Indian and Pacific Oceans. On Christmas Island in the Indian Ocean, the ant forms vast multi-queened supercolonies which can cover hundreds of hectares of rainforest. Crazy ants have been recorded at densities of greater than 20 million foraging workers per hectare, the highest recorded densities for any ant species in the world.



Yellow crazy ant, *Anoplolepis gracilipes*

Christmas Island is also famous for its endemic red crab, *Gecarcoidea natalis*, which covers the island with a population of 60 million, migrating to the sea each year in vast red carpets to mate and spawn. The crazy ant has already reduced the crab population by 30 million by spraying the crabs with formic acid, and consuming the remains.

Since 1999, many partners have been involved in research into this invasive ant, helping to develop methods to reduce its impact on the biodiversity values of Christmas Island. Christmas Island National Park staff have undertaken on-ground control, with excellent applied research feeding into this management from Monash University scientists. A Steering Committee made up of some Australia's leading ant, ecology and invasive species experts has provided technical support to make the crazy ant program one of the world's cutting edge invasive ant programs.

In 2002, Christmas Island National Park staff and Monash University received a Banksia Environmental Award for an extremely successful aerial

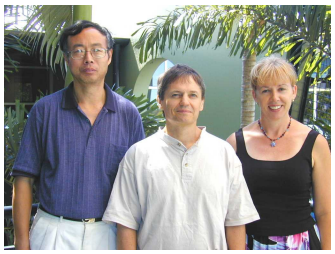
ant baiting program. All known supercolonies, which then infested 25% of the island's rainforest, were reduced in density by 99%. Since then, vigilant National Park staff continued to bait new supercolonies as they were discovered. But, by 2005, it was evident that the crazy ant could reform supercolonies at twice the rate that we could ground bait.

The resurgence of the crazy ant on Christmas Island has been recognised by the Australian Government, and $4 million has been committed to accelerate management and research over the next four years. With this additional funding, researchers will investigate whether controlling the ant's scale insect mutualists (primarily *Tachardina aurantiaca*), will remove a large part of the available food resource in the rainforest, and consequently restrict supercolony development.

The next few years will be an exciting time for crazy ant management on the island, and lessons learnt on Christmas Island will be of great assistance to many other islands around the world battling with rampant tramp ants.

Crazy ant feeding on honeydew from *Tachardina aurantiaca*.

Green ants as biological control agents of insect pests in tropical tree crops and forest trees



Renkang Peng, Keith Christian & Karen Gibb
Charles Darwin University, NT 0909, Australia

Background

Mango is the most important commercial crop in the Northern Territory of Australia. To protect the crop from insect pests, conventional growers rely heavily on insecticides, and this has resulted in increased costs, environmental pollution and disputes among neighbours. Organic growers generally have few resources to deal with insect pests, resulting in reduced yield and fruit quality.

Cashew has substantial potential for development in northern Australia with several pilot cashew plantations established since 1985. Unfortunately, these have suffered severe insect pest damage, threatening the infant industry. Heavy use of insecticides has caused regular outbreaks of the pests and resulted in decreased profits, pollution, and the reduction of pollinators and natural enemies of the pests.

Green ants protecting cashew nuts

To tackle these problems, we initiated a project (#1, Table 1), to look for an integrated pest management (IPM) solution. We found that the green ant (*Oecophylla smaragdina*) played a very important role in regulating the main insect pests in cashew plantations (Peng et al. 1995, 1997, 1998a). Because many of the pests in cashews are also pests in mangoes, we reasoned that green ants

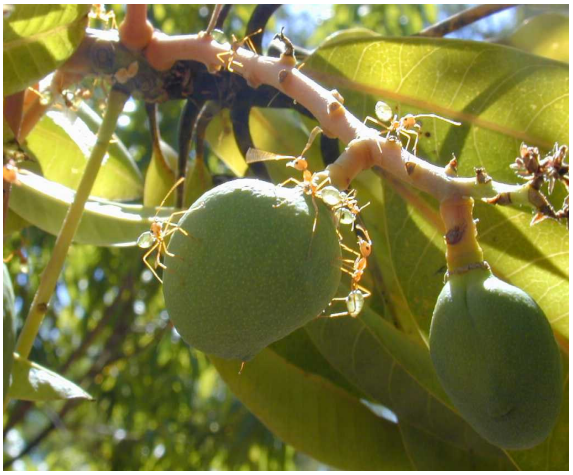
should also be effective in mango orchards. In our projects #2 and #4 (Table 1), we concentrated on the development of IPM programs using green ants as a major component to manage pests in cashew and mango orchards.

Table 1. Research projects

Project No.	Title	Funding *	Duration
1	Impact of native vegetation on cashew insect pests	CDU and RIRDC	1993 -1996
2	Utilisation of green ants to control cashew insect pests	RIRDC and CDU	1996 - 1998
3	Implementation of the ant technology	RIRDC and CDU	1999 - 2000
4	Integrated control of mango insect pests using green ants	ACIAR	2001 - 2005
5	Implementation of the IPM program using weaver ants as a major component for cashew growers in Vietnam	CARD	2006-present
6	Green ants as biological control agents in agroforestry	RIRDC and NTRIB	2006-present

*CDU = Charles Darwin University; RIRDC = Rural Industries Research & Development Corporation; ACIAR = Australian Centre for International Agricultural Research; CARD = Collaboration for Agriculture & Rural Development, which is a joint initiative between AusAid and the Ministry of Agriculture and Rural Development of Vietnam; NTRIB = Northern Territory Research and Innovation Board.

Development and implementation of IPM programs



Green ants protecting mango fruitlets

Although green ants can effectively control the pests of cashew and mango, fierce boundary fights between colonies can limit their populations and control efficiency. From our study of green ant behaviour (#2 and # 3, Table 1), we successfully solved this problem by identifying, separating, transplanting and monitoring the ant colonies, by managing queen ants, and supplying food to the ants when the trees are dormant (Peng et al., 1998b,c, 1999, 2004). We have successfully developed an IPM program for cashews using the green ant technology with four components (Peng et al., 2004):

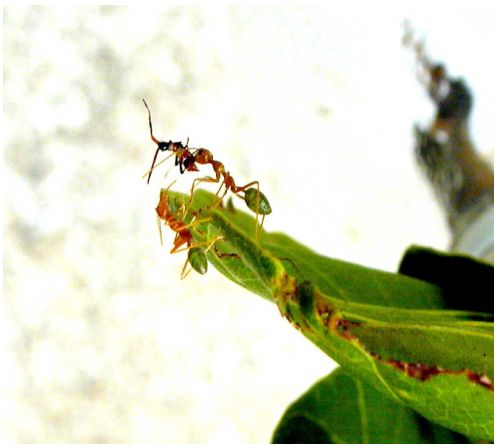
- Reduction of populations of other ant species that compete with green ants
- Management of ants at the colony level
- Creation of a mixed-cropping system in cashew orchards
- Construction of an ant nursery

Compared to the use of insecticides, the IPM program allows cashew growers to:

- Increase profits by at least $1500 /ha/year,

- Produce higher quality cashews because the ants continuously clean developing nuts,
- Produce 'organic' nuts, which attract a higher price, and
- Avoid environmental problems associated with insecticides.

For implementation in cashews, we have produced an explanatory booklet, a series of posters, and PowerPoint slide shows for growers (Peng et al., 2004). This cashew IPM program has been implemented in cashew farms in the Northern Territory (Peng et al. 2004), in Papua New Guinea (Peng, 2000, 2001; Peng and Duncan, 1999), Sri-Lanka, and Mozambique (Peng, 2002). Currently, we are implementing this IPM program for cashew growers in Vietnam (#5, Table 1).



Green ants catching a nymph of fruit spotting bugs

Compared to cashew, using green ants in mango orchards has additional challenges:

- Ant aggression towards farmers during harvest,
- Secretion of formic acid by ants can cause black spots on fruit, and
- Ants can encourage soft scale insects, which can cause sooty mould on fruit.
- In project #4 (Table 1), we successfully developed the following

methods to solve these three problems (Peng and Christian, 2004a):

- Ant aggression is greatly reduced by spraying water on trees before harvest,
- Fruit damage by formic acid is substantially reduced by separating the ant colonies, and
- Scale insects are significantly reduced by spraying one of several environmentally friendly soft chemicals that do not disrupt green ants.

In project #4 (Table 1), we developed two IPM programs for conventional and organic growers in the NT (Peng and Christian, 2005a,b). These IPM programs use green ants together with conventional agricultural methods and soft chemicals to manage the mango pest complex.

Three years of field experiments to test the IPM programs in mangoes on six properties demonstrated that:

In organic orchards, the net income was $19.94/tree/year from trees without green ants or soft chemicals, but $33.86/ tree/year from trees managed with green ant colonies (a 70% increase in profit) (Peng and Christian, 2007a).

Green ants catching a mango seed weevil adult

In conventional orchards, the net income was $11.86/tree/ year from trees protected by insecticide spray, but $17.73/ tree/year from trees protected by the IPM program (a 73% increase in profit) (Peng and Christian, 2005a).

Even greater profits can be gained if conventional orchards are converted into organic orchards. Over the last three years, market price for organic mangoes was over 60% higher and more stable than conventional mangoes because there was an over-supply of conventional mangoes, and consumers are willing to pay more for organic.

For mango growers, we have made an instructional video/DVD (23 min.), a series of posters, and booklets to explain the IPM programs (Peng and Christian, 2004b, c, 2005b). These materials can be obtained from the Crops, Forestry and Horticulture Division of the Department of Primary Industry, Fisheries and Mines (Phone: 08 8999 2357; email: horticulture@nt.gov.au). Mango growers involved in the project #4 (Table 1) in the NT have already adopted the IPM program for organic fruit production. More farmers are planning to use the IPM program to convert to organic production. In project #4 (Table 1), we collaborated with the Southern Fruit Research Institute in Vietnam and the Prince of Songkla University and the Department of Agricultural Extension of Thailand. The project has received much attention from local mango growers, the general public and journalists in these countries (Peng and Christian, 2004d). Farmers who participated in the Thailand and Vietnam research programs are happy with the high mango yield and reduction of insecticide use. More Pest Management Centres in Thailand have expressed an interest in using the IPM programs. With this high level of preliminary adoption, we are confident that the IPM programs will be adopted by more mango growers in northern Australia, Vietnam and Thailand, and in other SE Asian countries through extension services using our educational materials.

Insect damage is a serious problem in tropical tree crops and forest trees. Apart from the cashew and mango IPM programs we have developed, we are currently developing a green ant based biological control system for African mahogany trees in northern Australia (Peng and Christian, 2007b; #6, Table 1). Given the similarity among pests, and the effectiveness of the ants against

a wide range of pest types (leaf chewing caterpillars, sap sucking bugs, shoot borers, fruitflies, etc.), it is likely that with modification, these IPM programs can be used in other tropical crops or forest trees including macadamia, avocado, citrus, coconut, cocoa, lychee, longan and Acacia trees.

We independently discovered the effectiveness of green ants as predators and deterrents of insect pests in tree crops, but we subsequently learned that these ants have been used for many years in southern China and Vietnam. However, the methods we have developed are very different from the traditional Asian methods. We have developed innovative techniques using the ants at the colony level (as opposed to the nest level) that increase efficiency, decrease costs, and substantially decrease the farmers' workloads. This research was highlighted in The Australian Government's Innovation Report 2004-05, and it was the winner of Tropical Knowledge Research Award awarded by the Research and Innovation Board of Northern Territory Government 2006.

Green ants protecting a mahogany tree flushing

Summary

Mango is the most important crop in the Northern Territory, and cashew has great potential. To protect these crops from pests, growers rely on insecticides, resulting in pest resistance, additional costs, chemical residue and disputes among neighbours. To reduce insecticide dependency, alternatives are needed. We have developed techniques that use green ants to control the insect pests of cashews and mangoes. Compared to conventional methods, our techniques result in higher quality fruit, lower costs of production, higher profits, the ability to produce 'organic' products, and benefits to the environment and human health. We developed an Integrated Pest Management (IPM) program for cashews that has been implemented in cashew farms in tropical Australia and four other countries. The IPM program for mangos has been adopted by some growers in the NT, and we have completed educational materials in three languages to facilitate implementation by additional growers in the NT and SE Asia. These materials include both print and video resources that show farmers step by step methods to get them started, help them maintain their orchards, and troubleshoot. This research was highlighted in The Australian Government's Innovation Report 2004-05, and Renkang Peng, Keith Christian and Karen Gibb were the winners of Tropical Knowledge Research Award awarded by the Research and Innovation Board of Northern Territory Government 2006.

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Announcement

Indian Journal of Applied Entomology

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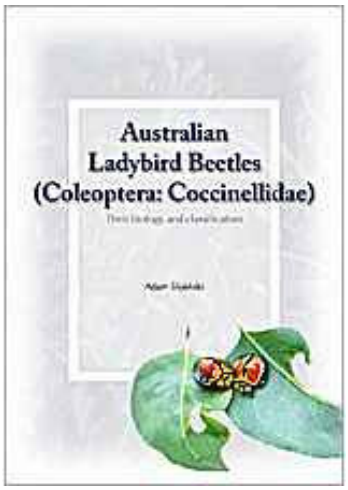
Australian Ladybird Beetles (Coleoptera: Coccinellidae)

Their biology and classification



Author
A.Ślipiński
Publisher
Australian Biological Resources Study 2007
Illustrations
57 colour plates
26 black and white plates
Price
AU$90.00
(includes surface postage for overseas orders, or GST and postage within Australia)

http://www.environment.gov.au/biodiversity/abrs/publications/other/coccinelids.html

This book, by Australia's ladybird beetle specialist, Adam Ślipiński, illustrates Australia's diverse and fascinating ladybird beetle fauna—the commoner spotted species and the many others that are striped, glossy, and even very hairy. Most are predatory, but some are leaf feeders.

Australian Ladybird Beetles reviews all 57 currently recognised genera of Australian Coccinellidae. It recognises 260 valid described species, and includes some genera and species newly described here.

All genera are diagnosed, described and illustrated and a key to their identification is provided. Larvae of 30 species are described, illustrated and keyed.

These often beautifully colourful beetles, and their key features, are displayed in sets of colour and black and white plates. The book is a must for all people interested in Australia's beetle fauna, in biocontrol and in natural resource management.

Dr Elizabeth M. Exley 1927–2007

Elizabeth Morris Exley was born in Brisbane in 1927. Elizabeth completed her B.Sc. at The University of Queensland in 1948, joined the Department as a Demonstrator in Zoology and Entomology, and gained B.Sc. Honours in 1950. In 1952 she travelled to London to take up a fellowship at Imperial College, and received a Diploma of Imperial College in 1954. On her return to Brisbane that year Elizabeth joined the Queensland Department of Agriculture as an entomologist.

Elizabeth Exley with Pat Marks investigating mosquito trap circa 1960

Following the award of an M.Sc. from The University of Queensland for studies on fruit flies, Elizabeth rejoined the UQ Entomology Department in 1958 as a tutor and later lecturer. She remained in the Department until her retirement as Associate Professor in 1992.

Initially her research involved the systematics of ants. However her interest in native bees was inspired by Professor Charles Michener, a world authority on bees from the University of Kansas, who was visiting Queensland. Elizabeth realised how little was known of the native bee fauna of Australia. Michener encouraged her to study the systematics of the tiny bees in the family Colletidae, sub-family Euryglossinae, an endemic Australian group. Their study was to become her life's work and she received her Doctorate in 1968 for her taxonomic thesis on the Euryglossinae. After her retirement in 1992 the work on the systematics of the Euryglossinae continued. She has collected, described and named more than 230 new species, with another publication still in review. Her death is a great loss to bee research and to entomology in general.

Entomological Society of Queensland

Elizabeth was a Life Member of the Queensland Entomological Society, which she joined in 1948. She was elected honorary secretary in 1949-1951 and again in 1954-1955, served as a Councillor from 1958-1964, in 1970 and from1976-1978. She was elected President in 1968, only the third female President of the Society. In 1962, while Elizabeth was Proceedings Editor, she was involved in getting the Journal of the Entomological Society of Queensland started. This Journal later became the Journal of the Australian Entomology Society and later still the Australian Journal of Entomology. She strongly supported the Queensland Society, regularly attended meetings, presented talks and contributed to discussions, and was straightforward and direct in her opinions on lax procedure in meetings, changes to the Constitution and late delivery of Bulletins. She continued to attend meetings until fairly recently, and her knowledge of the society's history and constitution will be missed.

Elizabeth was also an Honorary Life Member of the Australian Entomological Society, which she joined when it was established in August 1965. She attended the first annual general meeting in 1967 and was a member of the society's Council from 1970 to 1972, and was President in 1986.

Elizabeth has left a huge body of information on Australia's rich bee fauna, from her own work and that of her students. She maintained her belief in the importance of systematics, and passed it on to her rigorously trained post-graduate students, some of whom, in turn will pass it on to their students. Her undergraduate and post graduate students have contributed significantly to entomology in Australia and overseas. Entomologists and other colleagues will remember her fondly and with admiration for her dedication to research and education in her chosen field.

Entomological Society of Queensland

DIARY DATES 2007

Meetings held 2nd Monday of the month (or Tuesday if Monday is a Public holiday)

November 12th	Andrew Austin (Perkins Memorial lecture)	Taxonomy, biology & DNA– essential components for studying the evolution of insects
December 10th	Notes & Exhibits	

IMPORTANT NOTICE

The official address for the Entomological Society of Queensland and *Australian Entomologist* and to which all communications should be addressed is:

PO Box 537, Indooroopilly 4068, Qld.

Sustaining associate of the News Bulletin:

TROPICAL FRUIT FLY RESEARCH GROUP, GRIFFITH UNIVERSITY

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NOTICE OF NEXT MEETING

The next meeting of the Society will be the Perkins Memorial Lecture held at 12 pm on **Monday**, **12th November** in the **Large Conference Room**, CSIRO Long Pocket Laboratories, 120 Meiers Rd Indooroopilly. The main business will be **Andrew Austin: Taxonomy, biology & DNA-essential components for studying the evolution of insects**. BBQ and refreshments served after talk.

VISITORS ARE WELCOME

(Please sign in at CSIRO reception)

HONORARY LIFE MEMBERS OF THE SOCIETY

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D.S. Kettle R. P. Kleinschmidt