Contents

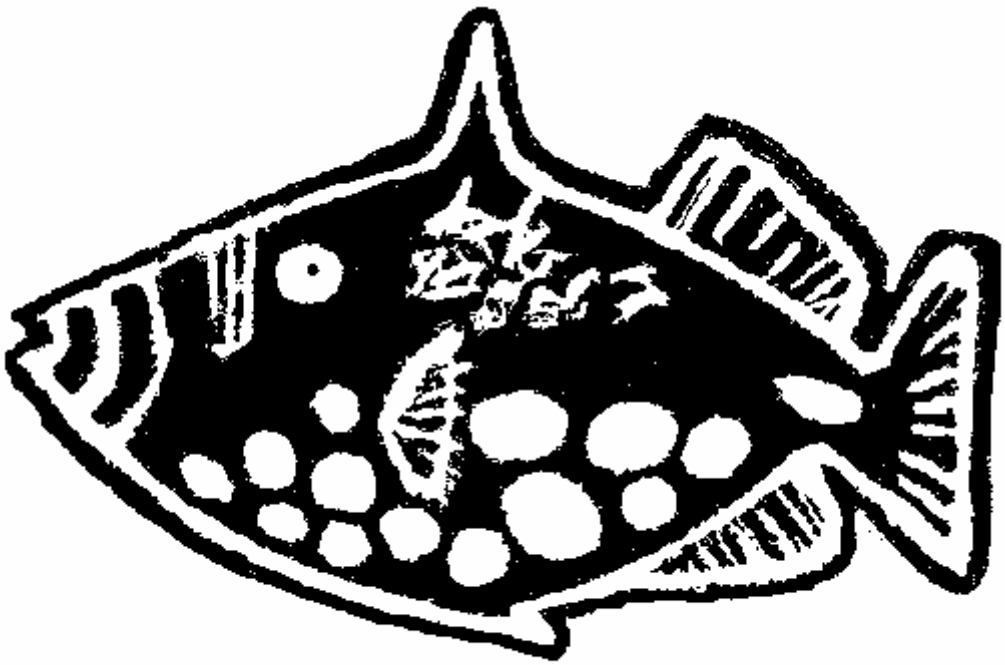
BULLETIN

of the

ECOLOGICAL SOCIETY OF AUSTRALIA

INCORPORATED

37: 4 December 2007



ECOLOGICAL SOCIETY OF AUSTRALIA INCORPORATED

2007 Office Bearers

(Listing continued inside back cover)

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EDITORIAL

Sue Murray-Jones, Hon. Bulletin Editor

By the time this issue hits the mail boxes, my Parliamentary secondment will be over and my work-load returned to a more normal state (I hope!). It has been a fascinating experience. Parliamentary inquiries are not very rigorous in terms of content. If a submission or a witness doesn't raise an issue, in theory you can't pursue it – so an inquiry could end up with very large and obvious gaps. In practice, I was able to suggest any witnesses I thought suitable, and could prime my Committee (in this case the Environment Resources and Development one) with a list of questions I wanted them to ask. Of course, like horses and water, the committee can be recalcitrant and not ask the questions, and at times the Coastal Development Inquiry veered off into all sorts of side issues that members thought interesting, from urban forests to aquifer storage.

If you are ever making a submission to such an inquiry, here are a few tips for getting your point across:

- Stick to the terms of reference! Sound obvious but it is amazing what people whack in there. And use the terms of reference as section headers.
- Be succinct, and use strong language. The report is built up of quotes. The more relevant, strong and punchy your writing is, the more likely the research officer will grab the written equivalent of a sound bite, giving you and your views prominence.
- Provide clear, concise and specific recommendations. These are the heart of any inquiry and they are hard to write. The chances are good the poor old Research Officer is not an expert in everything (depends on how wide-ranging the inquiry is, and who is running it). Any sensible recommendations already written are likely to get pasted straight in!

While Parliamentary Inquiries don't have as much influence as they used to, they are still worth contributing to. At the least they can be used to hit the government of the day over the head, along the lines of 'Your own inquiry recommended that ...'. They also offer a valuable chance for postgraduates to get some different experience into their CVs, by providing specific comments on issues within their area of expertise, something government departments nearly always add to the Job and Person thingummies.

See you in Perth.

Copy Deadlines

Material for publication in the **March 2008 issue** of the *Bulletin,* including Regional Reports, should be sent to the Editor, Dr Sue Murray-Jones (Coastal Protection Branch, Dept for Environment and Heritage, GPO Box 1047 Adelaide 5001; ph. (08) 8124 4895, e.mail: Bulletin@ecolsoc.org.au) by **Friday 8 February 2008**. Note that material for 'Ecology around Australia' should go directly to Regional Councillors, not the Editor. Contact details inside back cover.

Instructions to authors

The preferred format is a minimally formatted text or RTF file submitted as an **attachment** to an e.mail message. Please avoid sending copy as text within e.mail messages. Attachment file names should include the author's family name and the issue for which copy is intended. Please DO NOT use names such as 'abstract.doc' or 'bulletin.doc'.

Please observe the following conventions when preparing your contribution.

- single font (Times New Roman 12 point) throughout
- italicise all scientific names
- give the full wording of acronyms for organisations, agreements etc. on first mention
- keep formatting to a minimum
- no extra lines between paragraphs
- use single spacing

Advertising

The Bulletin is an A5 size publication delivered to more than 1500 individuals and institutions. The rates for camera-ready copy printed in the Bulletin are:

	One issue	**Four issues**
1/2 page	$100	$300
Full page	$150	$400

Loose inserts and pamphlets can be included in a mail-out; heavy items incur a higher rate to meet Australia Post charges. Inserts must not project beyond the covers of the *Bulletin*; inserts requiring folding will attract an additional fee. Prices for inclusions on request.

Loose advertising material will need to be delivered by Friday 8 February 2008. *Details to be arranged with Executive Officer. Contact details inside front cover.*

SOCIETY NEWS

PRESIDENT'S REPORT

Peter Fairweather

This is my final report as your President. The past three years have been a fantastic opportunity for me to serve our Society during a particularly interesting time for us and our planet. Being able to work with a group of very congenial and capable group, both volunteers and paid staff, has made my Presidency a real pleasure in the main. I want to thank them all for their inputs to the ESA but wish to single out our three Vice Presidents, who are all retiring at this time. Kris, Caroline and Dawn have been long-term contributors to the good functioning of ESA and I feel that we owe them a large vote of thanks for such selfless and sustained contribution from each of them.

It is vital that such voluntary service continue to be recognised although the complex nature of workplaces, involving juggling of many responsibilities and answering to different sorts of demands, make this a perhaps precarious way to operate a Society with our scale of membership and turnover. So we are also well served by our slim complement of paid staff – again Larelle and Lyn have beavered away very industriously this year. It was very satisfying to see us complete revision of both the Strategic Plan and the Business Plan for ESA and put them out to the membership. Such forward planning is vital to ESA continuing as a vibrant community of ecologists within Australia and elsewhere and ensuring that we can carry on delivering to members our two journals, annual conferences, student-related services and other activities.

As always, we will be seeing a small amount of turnover on ESA Council and so I thank all outgoing Council members. The newcomers will, I hope, enjoy their time of being able to influence directly the policies and practices of the Society, as well as benefiting in more nebulous ways from the networking across our nation and overseas that serving on Council entails. The Council will of course be guided under the stewardship of Carla Catterall as the incoming President. As during my term as President Elect, Carla has, I think, benefited from being to 'sit in' on Council activities throughout 2007, and so will hit the ground running as President. This will be particularly helpful in the run up to INTECOL in Brisbane during 2009, which we are jointly hosting with the New Zealand Ecological Society. It includes much opportunity for international interaction.

As for my role as immediate Past President over the coming few years, I am looking forward to still being involved in ESA Council but in a less intensive way. I hope to present to Council a modest plan to focus upon attracting more of our ecologists working with aquatic ecosystems (including marine, estuarine and freshwater) because this is a sector where membership of ESA is admittedly quite patchy. I am aiming at trialling some innovative ways to try to grow ESA membership in that area.

I also hope that ESA may be more able to assist with bringing to a resounding conclusion the stuttering process for capturing Nation Collaborative Research Infrastructure Scheme investment into a proposed Terrestrial Ecological Research Network/Australian Ecological Observing Network. Although the AEON investment is likely to be less than half that of other NCRIS programs, the science plan for TERN that NCRIS wished to use to focus the ecological community upon is a very ambitious map for future research of a new and challenging type. The confronting aspect of that plan revolves around being able to actually 'measure what counts, rather than what is countable' and so many ecologists need to rise to that challenge.

ESA's previous involvement was offering to maintain and expand our database of long-term sites as a way of integrating the new on-ground infrastructure. We can probably be much more involved in future development plans. By the time you read this, the federal election should be over and done with, the caretaking will be over and so we should be adjusting to the new regime (whatever that may be) – I hope then that we'll be back to negotiating the best outcomes from NCRIS and other opportunities.

I hope to see you at ESA 2007 in Perth and am looking forward to seeing the good work of the Local Organising Committee come to fruition at the end of the month. But in any case enjoy a happy and safe holiday season, on behalf of the ESA Council. Thanks again from your outgoing President.

Peter Fairweather
10/11/2007

EXECUTIVE OFFICER'S REPORT

Larelle McMillan

The end of 2007 is fast approaching and it has been a very productive year indeed.

At the time of writing, the Perth conference is less than three weeks away. It is sure to be a great week, jam packed with very interesting speakers, a great range of field trips, social occasions and a public forum/debate to boot. I'm personally looking forward to my first big ESA conference (as last year was in New Zealand, with the smaller Plantations workshop in December). Registrations are flowing in and we've exceeded our expectations for sponsorship income which is a great outcome by the Local Organising Committee and Well Done events.

This year the conference dinner will include a silent auction, to raise funds for the Jill Landsberg Trust Fund. It's a great way to raise awareness about the fund, Jill's great work in ecology, and to share some laughs and stories.

Having so many ESA members in one location also presents an opportunity for various people to 'meet'. I have five meetings scheduled so far in and around the conference and in the evenings, so it will be a busy week indeed. On the Sunday prior to the conference, the ESA Council members, Lyn and myself will spend a full day in Perth planning for 2008. Discussions will encompass: ESA succession planning; our environmental policy; the new endowed lecture (to be implemented in 2008); our investment strategy; 2008/09 budget planning; along with work on our position statements (& their implementation) and a discussion about how to provide support and promotion of indigenous ecologists and Indigenous ecological knowledge.

By the time you read the bulletin, the 2007 Annual General Meeting held at the Perth Convention Centre, in conjunction with the conference, will have happened. The minutes and copies of the audited accounts will be uploaded to the website in the members' section.

Larelle McMillan
December 2007

SECRETARY'S REPORT

Tish Silberbauer

Council Meeting

3rd August 2007 at 11.30am AEST (meeting 4 of 2007). Phone hook-up

1. Welcome and apologies

Present: Obe Carter, Carla Catterall, Jason Cummings, Caroline Gross, Andrew Hayes, Dawn Hawthorn-Jackson, Meredith Henderson, Lyn McCormick, Larelle McMillan, Charles Morris, Peter Fairweather, Liz Tasker, Eddie Van Etten.

Apologies: Mike Bull, Brooke Rankmore, Euan Ritchie, Debbie Saunders, Tish Silberbauer, Jann Williams, Kris French, Sue Murray-Jones, Andrew Hayes, Paula Peeters.

2: Minutes of the last council meeting

No corrections were received by Paula.

Motion: That the minutes of June 2007 Council meeting are a true and correct reflection of that meeting.

Moved: Meredith Henderson. 2nd: Carla Catterall

3: Items arising from the minutes

2.5.1 MH, JW and Larelle to refresh bushfire position statement prior to next bushfire season. Before October 2007 – in progress.

2.10.1 Lyn to organise email reminder to missing membership. Will be posting notices out not emailing, half way through.

2.11.1 Council to get comments to Charles re investment strategy prior to next Council meeting.

2.12.1 Larelle will talk with Tein on marketing EMR. Larelle has got full list of contacts – provided to Tein; next step working with Blackwells to get marketing out (in progress).

2.21.1 SMJ to talk to Jon about publication of destructive fishing practices essay, waiting for Jon to get back.

2.22.2 SMJ to contact Tim Moore and give him the go-ahead to develop position statement on desalinisation. In progress.

2.24.2 Lyn to request more details from Karen Hurley and Craig Miller regarding UQ invoice letter sent to Craig Miller, waiting on response (Larelle has followed up Craig for response, Hugh P. currently overseas).

3.5.1. Councillors to peruse product disclosure information of the considered funds (Australian Ethical Investment, Ausbil and Perpetual Trustees), and then from August meeting start making decisions. By August Council meeting.

3.6.1. Charles to up-date tables using most recent data and re-distribute to Council by next meeting. DONE.

3.6.2. Councillors to read Business Plan so that it can be voted on in August meeting.

3.7.1. Councillors to test ESA 2007 website in the next couple of weeks and send feedback to Eddie, cc Larelle.

3.7.2. Eddie to ask Patrick if he will be the over-arching contact to Council regarding ESA 2007 before Eddie goes on leave. DONE.

3.15.1. Larelle to compile addresses of ESA councillors and send to Tour Hosts to make sure each councillor gets sent a wad of postcards. DONE.

4: ESA 2007 Conference – verbal update from Patrick Smith

Things are travelling well in preparation for conference.

- LOC waiting on abstracts to be submitted via Oxford Abstracts (20 submitted to date).
- Field trips: underway.
- Closing plenary: looking for a replacement for Henry Nix (if needed) – this time may be used up to present the JLTF student award (or perhaps a local person to step in?).
- Symposia confirmed and are filling (ensure all advertising reflects symposia accurately).
- Media: discussion has occurred with the LOC, around the need for paying for media liaison. Peter advised that this is a decision primarily for the LOC.
- Most important outcomes of the conference is primarily ensuring a good experience for

delegates, showcasing students and student awards and showcasing research.
• Due to a possible deficit from Perth conference – reducing media costs might be worthwhile.
• Abstract management & program: advice from 2005 Brisbane conference has suggested that Hugh had a full-time staff member working on managing abstracts for the program – a provision may need to be made in the budget to pay someone to do this if volunteer time is stretched.
• Carla raised the issue of budget reporting process.

ACTION 4.4.1: Larelle to send a copy of Well Done contract to Patrick (Perth LOC) and Liz (NSW LOC) for 2008.
ACTION 4.4.2: Perth LOC to ensure someone has the reins of the budget in Eddie's absence.

5: Finance Officer's / Treasurer's report
• Auditing 2006/07 accounts is on track, Mathew booked in to get audit done at end of August, ready for AGM papers and treasurers report.
• The cash payments for July were presented to Council – Council were happy with these payments.

6: Investment Strategy Proposal

Table 1. Proposed split of ESA capital investment funds and JLT funds into Managed Funds

ESA capital investment funds		
Amount	**Fund**	**Fund Type**
$200K	Australian Ethical Investments Balanced Fund	Balanced
$100K	Perpetual Trustees New Fund	Balanced
$100K	Ausbil Balanced	Balanced
$100K	Ausbil Dexia Emerging Leaders	Growth
JLT Funds		
$90K	Perpetual Trustees Balanced	Balanced

Table 2. Exposure to individual Fund Management Companies

Fund	*Total Exposure*
Australian Ethical Investments	$200K
Perpetual Trustees	$190K
Ausbil Dexia	$200K

A selection of Funds under consideration is shown in Table 3. They are divided into low-risk Balanced Funds, and higher-risk Growth Funds.

Term deposits: One due on 15 August & one on 15 December

The Council agreed that the Investment sub-committee make the decision about the Investment strategy and that the term deposit (due on 15 August) be rolled over for a short period.

ACTION 4.6.1: The investment sub-committee to report back to Council at the October meeting.

Table 3: Selection of possible funds for consideration of ESA Council. Returns net of fees. Source of data shown in last column.

Balanced Funds (low risk)						Fees (%)
	income	growth	total	source	Estab.	pa
Aust Ethical Invest Balanced	7.30%	2.90%	10.20%	8-year average	0.5	2.2
Perpetual Trustees Balanced	4.10%	3.70%	7.80%	forecast: 5-year average 9.07%	nil	1.3075
Perpetual Trustees Socially Resp.	3.61%	10.97%	13.28%	3-year average	nil	??
Perpetual Trustees New Fund	5.6%	5.0%	10.6%	forecast		
Ausbil Balanced	5.54%	5.21%	10.75%	5-year average	nil	0.90
Growth Funds (high risk)						
Aust Ethical Invest Large Comp	6.40%	8.79%	15.19%	8-year average	0.5%	2.01
Ausbil Active Equity	2.84%	5.87%	18.71%	5-year average	nil	0.90
Ausbil Emerging Leaders	8.50%	7.04%	35.54%	4-year average	nil	0.85*
Ausbil Dexia Sustainable Global	4.82%	7.81%	12.63%	4-year average	nil	1.05

* 15% performance fee charged on surplus over benchmark (if surplus exists)

7: Business Plan – (for decision)
Comments: Caroline – indigenous ecologists needs emphasis and action (targeted at secondary schools).

ACTION 4.7.1: Caroline will develop some words for this initiative to be included in business plan and would welcome involvement with a working group.

MOTION: That the Council accepts this business plan (with a little tidying up) and will present to the membership at the 2007 AGM. Moved: Carla Catterall; 2nd: Caroline Gross

8: EO Report
ESA banner quote: $1110 (including supply and printing)
ESA business cards quote: $1250 (includes 2000 cards, with 5 different versions for council members and generic).

ACTION 4.8.1: Larelle to obtain some comparison quotes on banner and business card for Sept meeting.

Larelle will be on leave from 13 August – 21 August (some of this time away will be doing ESA work). She will return to the office on Wed 22 August.

9: Proposed ESA/EMR initiative to foster Australian restoration weblinks
(for feedback on initial idea)
Larelle McMillan and Tein McDonald

The idea and its rationale:

The 2009 INTECOL 10 and SERI conferences being held in Brisbane represent an unprecedented opportunity to showcase some of the best restoration projects in Australia. While this idea is in its preliminary stages, we propose that SERI's Global Restoration Network website (https://www.ser.org/project_showcase.asp) could be utilized to highlight the work of a range of Australia groups working on restoration.

Benefits from the promotion of high quality projects are self-evident, but less obvious and arguably more important benefits would be:
• strengthening internal links in Australia, particularly between practitioner and research groups
• strengthening links with the international restoration network, which could be helpful with ISI listing
• promotion of EMR to practitioner groups (particularly for encouraging feature articles in EMR between now and 2009 as Blackwell is considering a 'virtual' special issue

composed of already-published practitioner features to coincide with the conferences.)
• promotion of ESA to managers who may see ecologists as detached from on-ground works.
A web-based showcase of Australian work could also be a good tool to help international visitors to the INTECOL/SERI meetings plan their trip to Australia. If the Australian restoration organisations were keen, they could even run additional field trips and offer billeting to overseas guests, in the weeks before and weeks after the conference.

Feasibility
It is envisaged that the success of the project would depend on individual groups (such as Greening Australia, Wetland Care Australia, Australian Association of Bush Regenerators, WWF, Australian Wildlife Conservancy plus many others) selecting key projects. This would be linked to the Australian page on SERI's Global Restoration Network website (currently empty) [Tein McDonald has made some early enquiries about interests from these groups and SERI and the response has been very positive to date].

To take it to the next stage, we suggest that the webmaster of the Global Restoration Network needs to be consulted to see what potential costs would be associated with this idea.

Some coordination would be required for the website to reach a minimum standard. A role exists for ESA/EMR (we are proposing that this is via Larelle and Tein) to:

- consult the webmaster of the Global Restoration Network re potential costs and opportunities
- depending on the response, put in some networking time to form a small email coordinating group to promote the idea to restoration groups and see it to fruition.

This group would need to include practicing restorationists and restoration ecologists capable of developing:

- selection criteria for projects (to ensure they are ecologically based)
- format guidelines for organisations' websites (e.g. summary, photo, map, contact details etc)
- timelines for completion.

Importantly the project profiles could also include reciprocal links to research organisations and the conferences. Once the conferences are over, it is envisaged the project material would continue to be relevant and informative, with any specific conference promotional information removed by the organisations themselves.

Rose Williams from Wiley-Blackwell and Jann Williams (Chair of the EMR Editorial Board) have given in-principle support to this idea – if ESA supports it as a combined EMR/ESA initiative. It is envisaged that the majority of work for the site would be completed by February 2009, well before INTECOL 10 and SERI begins in August.

Comments

- some of Carla's ideas have been lost from initial idea (Tein & Larelle to talk with Carla)
- need to ensure restoration projects are ecologically robust
- somehow linked to INTECOL site too
- need to quantify the benefit to the ESA
- ensure interface between science and practice is improving ecological science and outcomes.

Council is happy for Tein and Larelle to drive this process, with a report to Council with a clear proposal.

10: Upcoming regional events & regional reports
Report from Brooke Rankmore – NT Regional Councillor

Firstly, I apologise for not being able to make the meeting again as I'll be in the field.

I have recently been contacted by the Darwin Convention Centre about hosting the EAS conference 2010 in Darwin. The New convention centre (due for completion in mid 2008) is currently actively promoting holding conferences in Darwin. The NT government has pumped a lot of money into this development and they need to show that it has been a worthwhile investment. After having talked with Larelle about what the general requirements of an ESA conference (i.e.

number of attendees, number and size of rooms required etc) I attended a meeting with the sales and marketing manager for the convention centre. We discussed these requirements and what they could do to assist the society to hold a conference in Darwin. They have since provided a quote of the costs associated with the requirements suggested by me and are very keen and eager to assist where possible.

I feel that it would be a good time to hold a conference in Darwin as the new convention centre will provide Darwin with a one-stop-shop for all our conference needs. It is also located on the Darwin foreshore on the edge of the city near shops, and hotels etc. See www.darwinconvention.com.au. As current NT regional councillor I'm supportive of holding the conference in Darwin for 2010 and if still in the position at that time would be happy to lead the NT organisational committee. I have spoken to colleagues who have said that they are supportive of the conference but would like to gauge support from NT ESA members more widely in the near future.

We are also actively promoting the events in August across the North associated with the release of the book Nature of Northern Australia: natural values, ecological processes and future prospects – by John Woinarski, Henry Nix, Brendan Mackey and Barry Traill.

Other states

Jason Cummings – keen to organize ACT events, but waiting to meet the membership at Perth conference.

Meredith Henderson – has chased up wetlands proposal with no response

11: Council planning day – Sunday 25 November

We need to start to shape up the agenda for the Council planning day on Sunday 25th November AND ascertain who will be attending.

With the business and strategic plans underway, ideas for agenda items:

- discuss ecology issues (Syd 2008 conf is an opportunity to capture these)
- regional issues
- clarify 2008/09 budget
- membership investigation and discussion (re: member numbers & disciplines etc)
- roles and responsibilities (succession planning)
- canvas other issues from membership and council
- invite 'incoming members to Council'
- research Award – clarify details, process etc.

ACTION 4.11.1: Please send items to Larelle (with time required and format) no later than late August.

12: Annual General Meeting – LUNCHTIME Thurs 29 November

Reminder of important dates for ESA 2007 AGM preparation:

Who	Date to be completed by	Task	Progress
Charles	First week July	Book AUDIT for ESA & JLTF for early August.	done
Council	25 July	Confirm location, date etc. of AGM	done
Larelle	25 July (post Council meeting)	Book print job with Pirion	done
Lyn	25 July	Organise for ESA & JLTF accounts to be submitted to Auditor	In progress
Larelle	25 July	List of reports & people responsible to Council with clear deadlines	**See email circulated & below**
All Council	**22 August**	**All reports to Larelle**	

Information and reports required by Council members:

- Are you re-nominating for Council at the 2007 AGM?
- Are you attending 1). Planning day in Perth 2). AGM?
- If so, do you require travel & accommodation arrangements to be sorted for you?

Reports to be submitted to Larelle *(NO LATER THAN Wednesday 22 August) for inclusion in AGM papers* *(see email circulated for list of reports by whom).*

13: INTECOL
Nothing more to report at this stage

14: Report on Symposium sponsored by the Ecological Society of Australia
The planned symposium to celebrate my 60th birthday on Parasites, Conservation, and Evolutionary Ecology: Connecting some disparate threads was held in South Lecture Theatre 3 Flinders University on 21-22 June 2007. The program included speakers from New Zealand, Queensland, Tasmania, ACT, Victoria, NSW and SA. See attached. In the end 26 of the 28 talks were delivered as two speakers were late withdrawals for personal reasons unconnected with the symposium.

The symposium was widely advertised around the state both through the SA regional councillor of the Ecological Society of Australia and through a network of Parasitologists through Ian Whittington at the SA Museum. Ecologists and Parasitologists from all three SA universities, from the SA Museum, the Adelaide Zoo, SARDI and DEH, plus various ecological consulting companies in the state, were invited to attend and, through various session chair positions, to participate.

Some interested people sent their apologies because they were involved with field work in the university break between semesters. However, over 160 people attended sessions on the first day, and over 120 on the second day. The attendance remained high through to the last session on Friday when there were still 69 people in the lecture theatre when we ended just prior to 5 pm.

The aim of the symposium was to draw together ideas from ecology, parasitology and conservation biology, and I believe this was successfully achieved. Very many of the speakers made specific allusions to at least two of the themes and all talks were closely integrated through specific session topics. Although this allowed a few listeners with specific interests to attend just one or two sessions, I think that in each session there were relevant and integrating talks, and that everyone who attended derived an impression of the relevant connections. The comments that were made to me all emphasized the high quality of the speakers, and the value of pulling together a group of researchers who may not normally meet at the same conferences. I think that several people went away with some new collaborative ideas about ecology and parasitology. Indeed a number of people suggested this should be an annual event (but I did not volunteer to organise a 61st birthday celebration)!

ACTION 4.15.1: Peter to send minutes from May meeti

Thanks to the sponsorship of the Ecological Society of Australia and the Research Network for Parasitology, we were able to provide morning and afternoon teas, plus light lunches each day, and this allowed for the continued collegiality in one place, that might have been diluted by the need to disperse to forage further afield.

Blackwell Publishing supported a symposium dinner that added to the general collaborative spirit.

I need to thank all of the speakers for the high quality of their presentations, and their careful attention to the symposium themes, the session chairs who cheerfully accepted my invitations to participate, Margaret Rafferty for organising much of the logistics, and Dale Burzacott for his efficient coordination of the presentation technology.

I personally found it a very rewarding two days and well worth the effort of organising. I enjoyed my birthday celebrations!

Mike Bull, 25 June 2007

15: Other Business

Endowed Lecture:

1. Administration. The agreement is in place (Larelle).
2. Financial. Two things needing to be confirmed or followed-up:
(a) Endowed lecture is being included as items in the Business Plan Budget (donation revenue $20K, ESA capital input $20K, annual income will be within amount from ESA's total investment, annual cost (awardee travel plus reg. and accommodation) as part of general expenses) (Charles).
(b) Also will need a method of keeping accounting of annual investment income (if calculated on a pro rata basis from lump sum investment) vs annual expenditure on the award so that the annual fluctuation in the capital amount can be tracked (Lyn to confirm).
3. Procedural. Two things, for which the ball needs to be set rolling:
(a) Selection panel and process for 2008. Agreed procedures state: 'The President and Council will establish a selection panel made up of 4-6 active researchers who are in touch with current peer-reviewed literature in their sector of ecology. The Chair of the selection panel will be responsible for moderating the selection process, for issuing an invitation, for liaising with the ESA and the organisers of the annual conference, and for ensuring that the process stays true to the intentions outlined here. Membership and chair of the selection panel will rotate over time' and 'About a year before each annual meeting, there will be an 'open call' to the membership inviting them to nominate papers or clusters of papers. Members of the selection panel will make further suggestions from their own knowledge. A brief nomination case may be written, or the papers may be allowed to speak for themselves'.

We need to nominate a panel and chair, to be in place by January 2008. Should we aim for the AGM?

Possible criteria for composition include:
1. being in touch with Australian ecological thought
2. spread of disciplines, geography, gender
3. seniority/experience
4. unlikelihood of being nominees.

The Chair could constitute the panel, based on criteria specified by Council; should the Chair be one of the VPs? Should Council approve panel member nominations before invitations are issued?

(b) A name for posterity, for example 'The XXX Research Lecture Award', followed by a by-line which gives a little more information. What should 'XXX' be? Some possibilities:

1. name after an eminent Oz ecologist eg 'The A&B Research Lecture Award'/'The Andrewartha and Birch Research Lecture Award'
2. name after some environmental feature or organism eg 'The Dacelo Research Lecture Award'
3. about the overall context eg 'The OzEcol Research Lecture Award'/'The ESA Research Lecture Award'.

Need a process for decision.

ACTION 4.15.1: This item to be included in Council planning day agenda

Item 16: Next Meetings:

Executive	**Council**	**AGM**
Sept 7 (Fri) 11.30 (AEST)	Oct 5 (Fri) 11.30 (AEST)	
Nov 2 (Fri) 11.30 (AEST)	Nov 25 (Sunday) All day – prior to conference	Thursday 29 November (lunch break at Conference – Perth)

Meeting closed: 1.20pm

OTHER ESA NEWS

JILL LANDSBERG TRUST FUND

At the time of reading the Perth conference will have been and gone. At the conference dinner we held a silent auction to raise funds for the Jill Landsberg Trust fund. Many of Jill's personal items, including field equipment and books were auctioned. In the next bulletin, we'll report on how the night went and how much money was raised.

The trustees of the fund presented the 2007 inaugural recipient Bryony Horton with her award at the Perth conference. Bryony is a PhD student at the Schools of Plant Science and Agricultural Science, at the University of Tasmania. Her project is focused on 'Fire management and tree decline: mycorrhizal indicators of declining forest health'. This is a focal, applied problem of high altitude eucalypt dieback in Tasmania. Funds were sought to implement more frequent field sampling, which is not possible with existing UTAS funds.

Bryony attended the ESA 2007 Perth conference to accept her award and she will give a presentation on her work at the ESA 2008 Sydney conference.

2007 marks the first year for the Jill Landsberg Student Grant to be awarded to a postgraduate student studying at an Australian University. The ESA established The Jill Landsberg Trust Fund in 2005 in honour of Jill's work in applied ecology and her outstanding contribution to the ESA.

A grant of $6,000 will be awarded each year to support the field-based research of a postgraduate student working in applied ecology. The scope of research is open to terrestrial, marine and freshwater ecology.

The selection panel also wanted to acknowledge the very impressive applications of three 'highly commended' proposals:

- **Jennifer Firn** from the University of Queensland. Project title: *In with the old and out with the new: mounting a competitive offensive against invasion using native grasses.*
- **Anna Murphy** from LaTrobe University. Project title: *The pollination biology and ecology of three* Swainsona *species in the Victoria's Northern Plains*.
- **Katherine Dafforn** from the University of New South Wales. Project title: *What factors contribute to the invasion of exotic marine invertebrates in native hard-substrate communities?*

This year we received 24 applications from students around Australia. The selection panel consisted of Peter Fairweather, David Gillieson and Rob Whelan. The panel were very impressed with the overall strength of the applications and in particular applicants' ability to communicate to a general ecology readership, a very important communication skill for ecologists. The panel were equally impressed with applicants' ability to provide a clear link back to ecological theory, and the ability to provide a clear view of the application of the project.

The application process:

- applications were sent to Larelle by COB Monday 30 July 2007
- Larelle ensured that all requirements were met with each application (including ESA membership and referee reports)
- all applications were collated into a single PDF document with feedback worksheet
- Rob, David and Peter were allocated eight applications each to assess (ranking them from 1 to 8)
- the selection panel then ranked these applications and made extensive comments (these were captured in one worksheet)
- comments on each application were crossed-checked by the panel during a phone link up
- the panel met to discuss their rankings and allocated their top three applications; the decision was reached via consensus
- the winning recipient was notified by David Gillieson, with a follow up from Larelle to talk about logistics
- three highly commended applicants were also chosen, with a letter of recognition

sent including feedback on their application
- all other applicants were sent a letter of thanks with feedback

Thank you to members who have kindly donated to the fund over the past two years. Should you wish to donate to the fund in the future – you can do so via the ESA website: http://www.ecolsoc.org.au.

STUDENT PRIZES

Allocation and ratios of carbon and nitrogen within different tissue types of *Amphibolis antarctica*

Jodi Susan Lill, School of Biological Sciences, Flinders University of South Australia , (08) 8242 5702 / 0421 957 895
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Amphibolis antarctica is a meadow-forming seagrass species endemic to Australia. Substantial populations of this species are found within Gulf St Vincent, South Australia. The release of massive volumes of enriched inputs into the coastal zones of this Gulf is believed to have contributed significantly to the loss of more than 5,200 ha of seagrasses from this region (Westphalen et al. 2004). Approximately 20,000 tonnes of terrestrial inputs with elevated N levels is released into Adelaide's metropolitan coastline every year (Bryars et al. 2007).

A study by Pedersen et al. (1997) from Western Australia demonstrated that N uptake within *A. antarctica* occurred via all leaves (old and new), but that N was then rapidly translocated to juvenile leaf growth, and that a negative linear relationship existed between leaf age and total N content. This process of translocation, if unable to be mediated by the plant, presents a potential mechanism by which a plant could become vulnerable to elevated N, or could act as a useful indicator of coastal eutrophication.

The main aim of this research was to assess whether differences exist in C & N allocation and C:N ratios between populations of *A. antarctica* in a low-N region and a high-N region. It was postulated that elevated water column nitrogen would be reflected in C and N allocation and ratios in the tissues of *A. antarctica*. Tissue types used for this experiment were old leaves, new leaves, stem, root & rhizome. The following ANOVA model was used to test for the effects of region and tissue type on total N, total C, and C:N, separately: region + site(region) + tissue type + region x tissue type + site(region) x tissue type. Tukey's post-hoc HSD tests were applied to further investigate any significant main effects of the ANOVAs.

The concentration of total C, total N, and C:N was found to differ significantly between tissues, but not regions. Post-hoc analyses of tissue type showed the following: total C, new = old < root < rhizome = stem; total N, new = old > root = rhizome = stem; and C:N, new < old < root < rhizome = stem.

Contributions to total plant biomass from the three major plant components, leaves, stems and belowground materials differed between components, but not between regions, with the exception of belowground material, where high-N regions had significantly more belowground material than low-N regions.

When C & N allocation within each tissue type was made relative to its biomass, plants within the high-N region displayed significantly higher levels of total C storage within the belowground material than low-N natives. These results are most likely attributable to my findings on absolute biomass, where plants from high-N regions appeared to produce more belowground material than plants from low-N regions.

While the concentration of C and N, and the ratio of C:N differed between the five tissues tested (new leaves, old leaves, stems, rhizomes, and roots), no differences were found between populations from high-N and low-N environments. This result indicates that increased levels of water column N within the coastal environment do not affect the concentration of macronutrients C and N, or C:N within different tissues of *A. antarctica*, and that observing internal macronutrient (C, N) composition of *A. antarctica* is not a useful indicator of coastal eutrophication. Biomass of belowground material and the proportion of total C stored within belowground material were found to be

significantly higher within the high-N region, suggesting that plants residing within these conditions are storing more C within belowground material than low-N natives, and that by observing C allocation within belowground material may prove effective in assessing seagrass responses to elevated N.

This research resulted in producing a comprehensive summary for *A. antarctica* in relation to the allocation of C and N, and C:N ratios within different tissue types. For the first time in South Australia *A. antarctica* has been completely profiled, with every major plant component, new leaves, old leaves, stems, rhizomes, and roots being considered and catalogued.

I would like to thank to the ESA for their $800 contribution toward this research, in addition to thanking SARDI Aquatic Sciences, The National Heritage Trust, and Flinders University.

References

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Examining how the structural quality of the intertidal canopy-forming fucoid, *Ascophyllum nodosum*, influences its role as a habitat provider for temperate intertidal organisms

Jacqueline Pocklington, Museum Victoria & Zoology Department, University of Melbourne
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Intertidal canopy-forming algae such as *Ascophyllum nodosum* has, in previous studies, been identified as a habitat-creating species on many Northern Hemisphere rocky shores. This alga is found on sheltered shores in the UK, though its biogeographical range is restricted by water temperature to the south where other species dominate. This study examines whether the quality of the canopy is important for determining the assemblages that are found living in association with it. It was predicted that if the canopy is patchy and degraded, then the species assemblages found will more closely reflect those found in areas naturally devoid of canopy algae than those in areas of dense, healthy canopy. The findings from this experiment give insight into the effects of canopy degradation (by natural and anthropogenic disturbance) to the intertidal community, and test whether canopy degradation does indeed modify conditions to function as a habitat.

The strength of the facilitative relationship between *A. nodosum* and associated organisms was explored using a canopy thinning, repeated measures experiment at a rock platform in Looe, Southern England. Twenty $4m^2$ plots were marked out on a reef area measuring approximately 60m x 100m and randomly assigned to the four treatments: 100% cover (Control), 50% cover, 25% cover, 0% cover. The canopy was removed by cutting just above the holdfast. Two $0.09m^2$ sub-samples of each plot were taken at every visit, before the treatment, one day after the treatment and at repeated staggered visits across 10 weeks. At each visit, the species assemblages and their abundances were recorded within the plots, as well as the light intensity and temperature.

Analyses of the data (ANOVA and MDS, ANOSIM) revealed that the canopy is important for maintaining the understorey community, where particular species have a much higher abundance in areas of platform with dense canopy cover compared to areas of bare substratum. These patterns were found to correlate with the light intensity and temperature data for the plots indicating that the canopy is mediating environmental conditions. In addition to these patterns, thresholds were found to occur within the thinned plots of *A. nodosum*. Mobile invertebrates significantly declined in the

treatments with 25% and 0% canopy cover and the same pattern was found for temperature. Sessile species, predominantly algae were found to significantly decline in the 0% canopy cover treatments, which was the same pattern for light intensity. These results imply that damage resulting in a 75% loss of canopy cover will significantly increase temperature and thus the abundance of mobile invertebrates usually found in *A. nodosum*. However, sessile species can withstand a 75% cover decline, since the light intensity doesn't significantly decline with this level of loss.

This study allows predictions to be made about the effects of disturbance or damage to the *A. nodosum* canopy in Southern England. Since this species is harvested from areas in the northern United Kingdom, this information could be used to modify harvesting techniques that would minimise detrimental impacts to the intertidal community.

Relevance to Australian system:
This study makes an interesting comparison to the dominant intertidal canopy-forming algae *Hormosira banksii* which is common to our temperate rocky shores. The habitat providing role seems to be stronger in *A. nodosum* (by observation) and could be reflective of the extensive structure and biomass of this species and the sheltered exposure of the shores investigated. A similar experiment is underway on *H. banksii* in Victoria to see if the patterns are similar.

Patterns of dispersion in two niche-partitioned species of funnel web spider: providing an ecological context for a phylogeographic study.

Amber Beavis, School of Botany & Zoology, ANU.

Initial Project Aims:
The proposed study aims to investigate the pattern and process underlying the geographic dispersion of two species of funnel web spider, the log-dwelling *Hadronyche* and the forest-floor dwelling *Atrax,* in the Tallaganda region, NSW. The specific aims of this proposal are:

- to compare the demography of the two species
- to identify the physical characteristics that define suitable microhabitats for the two species.

We met these aims by addressing the following questions:

- what are the patterns of dispersion (ie. clustered vs. random distribution) displayed by *Atrax* and *Hadronyche*?
- do *Atrax* show a preference for soil type?
- what are the patterns of dispersion of *Hadronyche*?

Project Outcomes:
A number of plots were initially surveyed in order to refine our experimental design. These first surveys revealed that it was very important to choose locations that were both accessible for surveying (i.e. did not have dense ground-cover or were situated on steep terrain) and had a reasonable density of spiders. An initial analysis of our first survey showed that the forest floor-dwelling *Atrax* displays a locally clustered distribution. Two-tailed t-tests showed that the observed data was significantly different from a random distribution of data points ($p < 0.006$), that is, *Atrax* individuals displayed a clumped distribution. We found that the logs inhabited by *Hadronyche* individuals were clumped but that distribution of individuals within logs was not significantly different from random.

A behavioural experiment which tested preferences for soil type in the ground burrowing *Atrax* presented individuals with a choice between two of three possible soil types. Soil choice combinations were rotated such that every spider (n=15) encountered all three possible choices between granite-soil, gravel and a clay-loam soil sourced from an area with a high density of spiders (henceforth referred to by location name: Harold's Cross). Spiders were found to have statistically significant preference for Harold's Cross soil over granite ($p < 0.05$) and gravel soils ($p < 0.01$) and gravel soils over granite ($p < 0.01$).

Summary of Outcomes:
Atrax individuals show a non-random pattern of spatial distribution and a clear preference for non-granite soil types.

Future Directions:
The fact that *Atrax* individuals display a non-random distribution is interesting given that this species displays fine-scale genetic structure across Tallaganda. Initially, the phylogeny for these populations suggested that historical gene flow had been restricted during glacial periods. The result of this study suggests that the reality is more complex than we first thought. In the coming months I will be enlarging upon this initial project to ask whether local adaptation to soil type may have influenced gene flow amongst *Atrax* populations. This will involve conducting a reciprocal soil choice experiment amongst four populations and a mapping project. This will involved mapping the locations of sites where *Hadronyche* and *Atrax* individuals have been found using ARC View in order to correlate presence/ absence of spiders with factors such as slope, aspect, limnology, soil profile and logging history.

Philopatry is not resulting in genetic divergence in amphibious sea snakes

Amanda Lane, Shine Laboratory, University of Sydney

My research project focuses on two species of amphibious marine snakes, *Laticauda laticaudata*, and *Laticauda saintgironsi*, which are found in the waters and on the islands of the central Pacific Ocean. Laticaudine sea snakes are unique in that, unlike true sea snakes, they spend about half of their time on land, where they rest, slough their skins, digest prey, mate and lay eggs. These animals are also highly philopatric, meaning that they return to the same island repeatedly, even when translocated to islands that are several kilometres away. It is possible that they might be returning to the island on which they hatched in order to mate and lay their own eggs. If this is the case, then populations on different islands will exhibit genetic divergence due to a lack of gene flow.

In early 2007 I conducted field work in New Caledonia and Vanuatu, collecting genetic samples from Laticaudine sea snakes and conducting behavioural experiments. I was fortunate enough to receive $500 from the Ecological Society to assist me with the field expenses associated with this trip.

Genetic samples were genotyped at nine microsatellite loci in order to assess population divergence with Analysis of Molecular Variance (AMOVA). The results of these tests showed that populations are not strictly delineated according to their island of capture in islands that are up to 180km apart (AMOVA: F_{st}=0.007, p=0.2). This suggests that while these animals are displaying a behavioural philopatry to particular islands, the behaviour does not extend to reproductive philopatry and animals from different islands are interbreeding.

By providing support for this project, the Ecological Society of Australia assisted me in ascertaining the degree and scale of population differentiation among Laticaudine sea snakes. As well as being a central aim of evolutionary biology, understanding genetic diversity at this level also aids in the management and conservation of these species.

ESA POSITION STATEMENTS

Co-ordinator Dr Ross Peacock
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A draft revision of the **clearing position statement** has been completed. Keep your eye on the web site. The authors are after information on recent estimates of clearing in the top end (N.T.), as they understand there's substantial conversion to plantations in that region. If you are not on the ESA e.list, and want a copy, please contact Caroline Gross at: (cgross@pobox.une.edu.au).

Towards the development of a Position Statement on destructive fishing practices: Should ESA promote academic discussion?

Jon Nevill, jon_nevill@yahoo.com.au.

Summary: Australia is committed to phasing out destructive fishing practices by 2012; however, neither the Australian Fisheries Management Authority (AFMA) nor the

fisheries management agencies of the States have developed policy statements on destructive fishing practices, which would chart a course towards the 2012 goal. A wide definition of destructive fishing practices would include overfishing beyond reasonable recovery, damaging levels of bycatch, fishing of spawning aggregations, bottom trawling over vulnerable habitat, and ghost fishing by discarded gear. In one form or another all these activities currently occur within the Australian Fishing Zone.

ESA is developing a position statement on this issue. Comments welcome, either to Jon or post to ESA Forum.

Raising awareness: To gather information and ideas, and to heighten awareness of the project, a student competition is running for the best paper on 'the control of destructive fishing practices in Australia' by an undergraduate, and a postgraduate. The $4000 prize pool has been donated by the Australian Marine Conservation Society, the Ecological Society of Australia, Humane Society International (Australia), Deep Sea Conservation Coalition (Australia), Greenpeace Aust., along with AMSA-SA and AMSA-Tas. Competition closes June 2008. Details and a background paper available from jon_nevill@yahoo.com.au.

LETTERS

OPEN LETTER FROM THE ESA PRESIDENT TO THE AUSTRALIAN BUREAU OF STATISTICS & OTHER INTERESTED PARTIES: Nov 5, 2007.

Dear colleagues,

The Ecological Society of Australia consists of a membership of over 1400 ecological scientists and managers from around the nation and is regularly requested to participate in or provide advice to public inquiries concerning ecological science. The Ecological Society of Australia Inc. (ESA) is thus an incorporated professional association of scientists. ESA clearly states in the Society's constitution that:

The mission of the Society is to promote scientific research in ecology and to facilitate the communication and application of the knowledge derived from that research.

ESA has been involved in discussing the proposal to shift the placement of 'Ecology' from under 'Biological Science' in the Fields of Research Codes. We have been soliciting comments, via various means, from our membership on this evolving proposal since about May 2007. Most recently we established a WWWeb-based forum for members connected to our Society webpage. I, as President, also undertook to solicit specific comments from senior ecologists within the Society, most notably recent Past Presidents and recent awardees of the ESA Gold Medal (the highest honour awarded occasionally to an ESA member in recognition of a career's excellence in achievement within ecology for Australia and the world).

Although that feedback has been mixed, there is a clear trend (running at approx. a 3-to-1 ratio) for ecologists within Australia to sincerely and profoundly regret breaking the nexus of Ecology and Biological Science.

The reasons proffered by our members for such resistance are worth summarising:

- Standard definitions of ecology in all the major textbooks are along the lines of 'interactions of organisms with each other and with their environment' or 'study of the distribution and abundance of organisms'. These clearly identify the scientific discipline of ecology as a branch of biology, both historically and in reality. Any ecology that ignores the basics of biology is thus intellectually sterile and most likely to be wrong.
- The vast majority of Australian ecologists are trained as biologists first and foremost. Most see themselves as operating in a specialised discipline that indeed grew out of the traditions of biology. In continental Europe and North America, there is a minority of ecosystem ecologists who are trained primarily as biogeochemists (i.e. as part of a sub-discipline of environmental chemistry or earth sciences) but there are almost none of those specialists in Australia. Most of our academic ecologists are located within biological sciences schools within Australian universities (with many fewer

being affiliated with geography or environmental management departments).

- The field of research codes should describe most clearly the scientific discipline that ecology operates within, rather than its political setting, source of funding, linkage to industry, etc. The latter are more than adequately described by the Socioeconomic Outcomes Codes.
- Most ecologists have had little trouble so far in choosing the emphases to place on their grant applications and descriptions of their research. So perhaps there is nothing to be fixed?
- Of course ecology is a major scientific subject relevant to informed environmental management and policy, but so also are geography, geology, chemistry, law, planning, and many other academic disciplines. There would rightly be an outcry if anyone proposed moving those disciplines entirely under the new Environmental Sciences. We therefore reject ecology losing its identity as a science.
- Moving ecology but not the other biological sub-disciplines that ecology interacts strongly with (e.g. animal and plant whole-organism sciences like behaviour, physiology, systematics or evolutionary biology) would weaken those linkages and so strain the integrity of what we do.
- Any quest for tidiness within the codes does not reflect the complex nature of ecology and its interrelationships with other disciplines, especially evolution. That complexity means that the codes cannot be purely hierarchical. Pragmatically, for ARC and other granting schemes, the current arrangement allows ecological projects to be directed either at the biological or environmental panel depending on their context; it would be a pity to lose that flexibility. The current somewhat-messy situation allows for many applied ecological projects that would not fare well in the purely biological panel and conversely many basic projects that would not do well in environment and engineering.
- The link between ecology and evolutionary biology is as strong as any link within the biological sciences. G. Evelyn Hutchinson's phrase 'the ecological theatre and the evolutionary play' encapsulates the paradigm for most, if not all, ecologists and other biologists.

ESA also acknowledges that some of the most strident views against the proposed shift have come from very senior ecologists, including Federation Fellows, a Director of an ARC Special Research Centre, several Fellows of the Australian Academy of Science, and most falling within the Highly Cited category of bibliometrics. These represent the elite of ecological science practitioners within this country and so their views should be regarded seriously.

Thus ESA wishes to formally register its view that:

1. the descriptors of ecological sub-disciplines by habitats or organisms (e.g. Freshwater Ecology) must stay with the sole or main entry for Ecology;
2. we reject as inadequate the proposal put forward by the ABS and also the partial compromise put forward by Prof. B. Beeton;
3. we can live with the compromise put forward by Prof. R. Crozier; but
4. ESA would prefer that Ecology stay under Biological Science; and
5. if there must be any entry under Environmental Sciences, then a single entry there (such as 'Applied Ecology') would give sufficient choice for researchers to place themselves and their research as they see fit.

ESA would also be amenable to the Academy (especially its Sectional Committee on Ecology and Evolution) dealing with this issue, as it is the foremost scientific advisory body within the country.

To conclude, the Ecological Society of Australia reiterates that it is the professional body whose membership reflects the practice of ecological research within Australia, and the ESA firmly suggests that moving the codes for Ecology from under Biological Science would be sadly mistaken.

Sincerely,
Peter G. Fairweather
President ESA

MISCELLANEOUS

Land clearing triggers hotter droughts
Australian researchers used the CSIRO Mark 3 climate model, satellite data and the DNRW supercomputer to show that 150 years of land clearing added significantly to the warming and drying of eastern Australia.

'Our work shows that the 2002-03 El Nino drought in eastern Australia was on average 2°C hotter because of vegetation clearing,' said Dr Clive McAlpine of the University of Queensland.

The current drought has been made worse by past clearing of native vegetation. The researchers found that mean summer rainfall decreased by between 4-12% in eastern Australia, and by 4-8% in southwest Western Australia. These were the regions of most extensive historical clearing.

Australian native vegetation holds more moisture that subsequently evaporates and recycles back as rainfall. It also reflects into space less shortwave solar radiation than broadacre crops and improved pastures, and this process keeps the surface temperature cooler and aids cloud formation.

The study will be published in Geophysical Research Letters.
http://www.sciencedaily.com/releases/2007/10/071027180556.htm

Fossil record supports evidence of impending mass extinction
Matching data sets of marine and terrestrial diversity against temperature estimates, evidence shows that global biodiversity is relatively low during warm 'greenhouse' phases and extinctions relatively high, while the reverse is true in cooler 'icehouse' phases. Moreover, future predicted temperatures are within the range of the warmest greenhouse phases that are associated with mass extinction events identified in the fossil record.

Of the five mass extinction events, four - including the one that eliminated the dinosaurs 65 million years ago - are associated with greenhouse phases. The largest mass extinction event of all, the end-Permian, occurred during one of the warmest ever climatic phases and saw the estimated extinction of 95 per cent of animal and plant species The research is to be published in the Proceedings of the Royal Society B.
http://www.sciencedaily.com/releases/2007/10/071024083644.htm

Government opposition to whale case
Federal Attorney General Phillip Ruddock has confirmed the Howard Government opposes Humane Society International's (HSI) attempt to secure a Federal Court injunction to stop hundreds of whales being killed in the Australian Whale Sanctuary adjacent to Antarctica this summer. Justice James Allsop is presently deciding whether to issue an injunction to stop Japanese whaling company Kyodo Senpaku Kaisha Ltd from killing whales in the sanctuary as requested by HSI. HSI has presented evidence to the Federal Court that an estimated 1253 minke whales and 3 fin whales have been slaughtered in the Sanctuary since it was proclaimed under the Environment Protection and Biodiversity Conservation Act in 2000. The Australian Government has so far declined to enforce the law and prosecute the whalers themselves, necessitating HSI's court action. Source: Humane Society International, Oct 12.

After drought, all ponds look the same
An ecologist at Washington University in St. Louis showed that when ponds recover from drought, the community of species in each pond tends to be very similar to one another. The researcher (J. M. Chase) created 20 artificial ponds and made each pond community exactly the same in their environmental conditions, but varied the timing in which he added species, and allowed natural colonisation.

As the communities thrived, the ponds diverged - some had only 10-20% of species in common with other ponds. Then Chase introduced drought to half of the pond environments. The communities converged in diversity. Only certain kinds of species recovered e.g. species which leave resting eggs in mud rebound well when the ponds refill. Incumbents have an advantage when the ponds refill. Niches are filled and new

colonists may be unsuccessful. Drought had less than a 10% reduction on local diversity, but a nearly 50% reduction on regional diversity.

Chase's results have implications for wetland mitigation projects. Ecologists are not sure exactly how to build functioning wetlands in the same way as the previous one, which had been assembled thousands of years ago. His findings give researchers better clues of how to go about restorations to restore biodiversity at both local and regional scales.

J. M. Chase, Drought mediates the importance of stochastic community assembly. Proc. Natl. Acad. Sci. USA, 10.1073/pnas.0704350104

Buying and selling habitats to help wildlife

Tradable permits are all the rage in environmental policy. They are already used internationally to reduce carbon emissions and improve air quality. A group of economists and ecologists from the UK, the Netherlands and Germany are working together to find out whether such schemes could work for wildlife too. So far, it looks promising, but probably only for cultural landscapes like farmland.

The European Commission expressed an interest in using tradable permits for wildlife conservation, in a recent green paper on market instruments in environmental policy. The paper calls it habitat banking. The idea is that each region sets a target for how much land it wants to keep for wildlife conservation, then leaves it up to the free market to find the most cost-effective way of doing it. If a developer wants to destroy valuable habitat, he or she has to purchase a permit to do so, from someone who has created a piece of valuable habitat elsewhere.

With habitat banking, landowners who upgrade their land for wildlife get an immediate financial gain. And it would be possible for those with an interest in conservation to stockpile permits and not sell them, increasing the conservation value of the region perhaps even above the target. One problem from an ecological perspective is that the value of one piece of wildlife habitat partly depends on how near it is to other pieces of wildlife habitat. When a habitat is newly created, it has to be possible for new species to colonise. This problem is surmountable if you build a measure of connectivity into the ecological value of each piece of land.

http://www.sciencedaily.com/releases/2007/10/071012113048.htm

Acid oceans could endanger one third of marine life

Recent research into corals using boron isotopes indicates the ocean has become about one third of a pH unit more acid over the past fifty years. This acidification is now taking place over decades, rather than centuries as originally predicted. It is happening even faster in the cooler waters of the Southern Ocean than in the tropics.

Analysis of coral cores shows a steady drop in calcification over the last 20 years. It isn't just coral reefs which are affected – a large part of the plankton in the Southern Ocean, the coccolithophorids, are also affected. These drive ocean productivity and are the base of the food web which supports krill, whales, tuna and our fisheries. They also play a vital role in removing carbon dioxide from the atmosphere.

http://www.sciencedaily.com/releases/2007/10/071017102133.htm

Invasion is backbreaking work for cane toads

Scientists from the University of Sydney and from the Department of Primary Industries found that the larger 'invasion front' toads were displaying a high incidence of spinal abnormalities.

'Bigger, longer legs increase their ability to seek out new territory but also puts pressure on the body with every hop,' said Professor Shine from the University's School of Biological Sciences. 'And with much of their energy going towards movement, less is put into their immune system, which may predispose the toads towards infection with the soil bacteria that precipitate arthritis.'

Around 10 per cent of toads had arthritis in their spine. The researchers also observed that the process of invasion appears to have selected for larger toad body sizes on the invasion front.

'The major spinal deformations of these animals testify to the great stress that

invading species place upon themselves, as well as upon the ecosystem they are overrunning. An important aspect of this research is that it highlights the importance of incorporating wildlife health perspectives in any analysis of the process of biological invasion,' said Professor Shine.
http://www.sciencedaily.com/releases/2007/10/071016083953.htm

Poor environmental performance

Australia's environmental performance is the third-worst among 21 of the world's rich nations, an independent report has found. The US ranked lowest on environmental policy, with Spain one place higher and Australia and Canada tied at third-last in the 2007 Commitment to Development Index (CDI).

Author David Roodman said Australia's poor environmental performance was largely due to global warming issues. Australia has the highest emissions of greenhouse gas per person in the world.

The CDI is produced annually by the Centre for Global Development, an independent Washington research and policy organisation. It ranks 21 high income industrialised countries on how well their policies and actions support poor countries' efforts to build prosperity, good government and security.
http://www.theaustralian.news.com.au/story/0,25197,22567550-30417,00.html

BOM goes bush for answers

This month, farmers, advisors and natural resource managers have a great opportunity to influence the Bureau of Meteorology's design of a suite of seasonal forecast products.

'This drought has highlighted the difficulty of making decisions in an ever changing climate,' says Neil Plummer, a senior climatologist at the Bureau's National Climate Centre. 'We want to make it easier for people to use long range forecasts of rainfall and temperature. And before embarking on full scale development of these seasonal forecast tools, we want to hear from farmers and natural resource managers to make sure we get it right.'

The proposed products include rainfall and growing degree day outlooks, an El Niño/La Niña alert system, and improved climate education products such as Bureau briefings in video and audio formats. The final products will be freely available on the Bureau's Water and the Land (WATL) website, http://www.bom.gov.au/watl.
Farmers and advisors can access the survey at http://www.farmerseasonalforecast.net, while regional NRM bodies can access the survey at http://www.nrmseasonalforecast.net.

Biodiesel report to help local government make sustainable fuel choices

A new report on the current state of Australia's biodiesel industry is now available. Biodiesel in Australia: Benefits, Issues and Opportunities for Local Government Uptake can be downloaded from the Cities for Climate Protection (CCP) Australia Program website at www.iclei.org/ccp-au.

Going green online

Environmental specialist, EcoVoice has introduced Carbon Market, an online market of 'green' products. Offering consumers the widest range of low carbon emission products and services online, Carbon Market showcases the carbon reducing products and services of many suppliers in true market style. Consequently, the site offers a platform for smaller retailers, competitive prices for shoppers and products which will significantly assist in sustaining our environment and make a positive contribution to climate change. Visit:
www.carbonmarket.com.au.

Harvest rainwater in your own backyard

Householders 'flooded' with information about harvesting rainwater now have a helping hand thanks to a new guide released by the Australian Rainwater Industry Development Group (ARID) and, the Master Plumbers' and Mechanical Services Association of Australia (MPMSAA). The Rainwater 2007 Consumer Guide is a comprehensive guide to assisting consumers in making choices about sustainable water options for their home. Offering practical advice, tips on harvesting rainwater and using rainwater products, the guide will help any

water user who is considering or currently installing a rainwater harvesting device within their home. The 42-page book also includes a state-by-state guide to government rebates.

The Rainwater 2007 Consumer Guide is available from October, at no cost, at your local newsagent. Consumers can also access the guide online by logging onto www.greenplumbers.com.au.

Saving Australia's precious groundwater

At a time of critical national water shortages, Australia's groundwater is at risk of pollution from industrial contaminants released on the surface. Several million Australians rely on underground water for their drinking supplies and industry also depends extensively on it, says Dr Grant Hose of CRC CARE and the University of Technology Sydney, who is working to develop the nation's first guidelines for sampling and assessing groundwater in order to protect it.

Chemical and fuel spills and seepage from contaminated industrial sites often end up in groundwater. Australia's contaminated sites would, in most cases, be leaking contamination into aquifers beneath them. Till the current water shortage, it was largely a case of 'out of sight, out of mind', but we need to put as much effort into protecting the quality of our groundwaters and their ecology as we do for surface water resources.

'Current water quality guidelines treat groundwater as if it were the same as surface water - which it is not,' he says. 'For one thing it has a completely different and unique ecosystem - one which can easily be damaged or killed by toxins leaching in from above.'

The microbes and invertebrates in aquifers help purify the groundwater, and are an important part of Australia's natural biodiversity. Despite their importance, groundwater ecosystems are rarely taken into account in the assessment and management of contaminated sites, and there are no guidelines for assessing and protecting them when these sites are cleaned up.

While his research is focussed on contaminated sites in NSW, Grant says its outcomes will have national implications. The guidelines will be in the form of a manual advising groundwater users or contamination managers how to check what is in their aquifers, and how it responds to toxins that may have leaked in from above. It will also provide advice on water quality standard.
http://www.ecovoice.com.au/enews/enews-44/WAT_pollution-threat_44.php

Also on groundwater

Most Australian rivers, most of the time, feed on groundwater. This relationship holds more strongly in the temperate south than the monsoonal north. Generally speaking, freshwater biologists and river managers underplay the huge significance of groundwater in maintaining the health of rivers and streams, with the result that groundwater policy and management does not get the scrutiny it deserves, and needs.

Groundwater management reforms were incorporated in the COAG water reform framework in 1996. These reforms are essential to protect groundwater dependent ecosystems, including rivers and streams fed by groundwater. After more than a decade, these reforms have not been put into practice by Australian water managers in any comprehensive way, in spite of binding commitments within the COAG framework. A few groundwater management areas in Victoria, NSW and Queensland have partially incorporated the reforms, but, as far as I am aware, there is not one single example of full implementation anywhere in Australia. This is a matter which should be of extreme concern to all those interested in the health of the nation's freshwater ecosystems. It also provides a fruitful research area for masters and PhD candidates, as there is insufficient knowledge, in many cases, of basic issues like aquifer sustainable yield, and ecological needs of groundwater dependent ecosystems. I have discussed the issue in the context of the Murray-Darling Basin in an online paper: http://www.ids.org.au/~cnevill/FW_MDB_groundwaterReform.doc. A related paper was published in the November 2007 issue of Water, the journal of the Australian Water Association. From Jon Nevill, phone 0422 926 515.

Groundwater action plan

A $52 million Groundwater Action Plan has two key components. A $50 million National Groundwater Assessment Initiative will focus on projects that:

- improve the management of groundwater resources that cross state boundaries
- explore the prospects of using aquifers to store urban stormwater
- develop understanding of the functional relationships between groundwater discharge and important ecosystems
- improve our knowledge of Australia's northern groundwater systems
- further our knowledge of groundwater surface water connectivity
- explore deep groundwater resources and their potential use.

A further $2 million will fund a knowledge and capacity building strategy targeting groundwater managers, groundwater users and the scientific community.
http://www.groundwater.com.au/

Genetically engineered corn could harm aquatic ecosystems

A study by Indiana University suggests a widely planted variety of genetically engineered corn has the potential to harm aquatic ecosystems. Genetically modified corn, commonly called Bt corn, is engineered to kill pests such as the European corn borer. However, a new study shows that Bt corn may also harm the caddisfly, which serves as food for fish and amphibians. The new study also shows that parts of Bt corn, such as leaves, cobs and pollen, can travel as far as 2000 meters away from source areas - a phenomenon that was not considered when Bt corn was licensed. Researchers established that pollen and other plant parts containing toxins from genetically engineered Bt corn are washing into streams near cornfields.

Researchers measured the entry of Bt plant parts - including pollen, leaves and cobs - in 12 streams in a heavily farmed Indiana region, demonstrating that these plant parts are washing into local steams. Moreover, during storms, these plant parts are carried long distances and therefore could have ecological impacts on downstream water bodies, such as lakes and large rivers. Gut content analysis also showed that caddisflies are feeding on corn pollen and laboratory trials found consumption of Bt corn byproducts produced increased mortality and reduced growth in caddisflies.
http://www.sciencedaily.com/releases/2007/10/071008171030.htm

Red list update

In September 2007, the World Conservation Union (IUCN) released the 2007 IUCN Red List of Threatened Species, the latest update to their online database of species' extinction risks. In this release, they have raised their classification of both the Western Lowland Gorilla and the Cross River Gorilla from Endangered to Critically Endangered, which is the last category before Extinct in the Wild, due to Ebola virus and poaching, along with other factors. http://www.iucnredlist.org/

Cockroaches are morons in the morning, geniuses in the evening

Dramatic daily variations in the cockroach's learning ability were discovered by a new study performed by Vanderbilt University biologists. Their ability to learn is controlled by a biological clock. Studies with mammals suggest their ability to learn also varies with the time of day.

The researchers trained individual cockroaches at different times in the 24-hour day/night cycle and then tested them to see how long they remembered the association. They found that the individuals trained during the evening retained the memory for several days. Those trained at night also had good retention. During the morning, however, when the cockroaches are least active, they were totally incapable of forming a new memory, although they could recall memories learned at other times.
http://www.sciencedaily.com/releases/2007/09/070927132543.htm

Wetland health

Healthy wetlands perform vital ecological functions in a watershed. But assessing their condition and ability to perform those functions is not easy, especially as wetlands are disappearing fast due to human encroachment. In the journal Wetlands,

Smithsonian scientists report a promising method of wetland assessment that will help environmental managers quickly take stock of wetlands across an entire watershed. Tools for this kind of rapid watershed-scale assessment - relying on a few easily measurable key factors - have been previously lacking.

Three papers contain the results of a large-scale study that combines field studies and remote-sensing data to assess the ecological functioning of wetlands in a landscape.

'The idea was to develop statistical models that would successfully predict what was observed in the field,' said Weller, whose lab performed the analysis. 'Once you've developed the models, you then can assess additional wetlands without having to go out and sample them,' he added. While the models cannot predict the precise conditions at a given site, they can provide enough information to identify potentially degraded areas and help guide management priorities in a watershed.
http://www.sciencedaily.com/releases/2007/09/070914143958.htm

Vulnerability assessment of GBR

More than 80 climate and tropical marine experts from around the world have contributed to the first comprehensive assessment of the Great Barrier Reef's vulnerability to climate change. The publication entitled Climate Change and the Great Barrier Reef: A Vulnerability Assessment provides a synthesis of the implications of climate change for species, habitats and ecosystem processes on the Great Barrier Reef.
http://www.gbrmpa.gov.au/corp_site/info_services/publications/misc_pub/climate_change_vulnerability_assessment/climate_change_vulnerability_assessment

Tax break for forests

Tax incentives introduced into Federal Parliament will provide immediate deductions for forests planted for carbon sequestration. The Tax Laws Amendment (2007 No. 6) Bill 2007 will see the growth of the carbon sink forests as an element in addressing climate change. The bill provides immediate tax deductions for costs incurred in establishing a carbon sink forest from now until 2012. Once the national emissions trading scheme has commenced, deductions will fall in line with horticultural plant provisions of the tax law.
http://www.environment.gov.au/minister/env/2007/pubs/mr12sep07.pdf

Australia River Symposium: launch of the global environmental flows network

The Global Environmental Flows Network was officially launched during the 10th International River Symposium in Brisbane. The increasing frequency of droughts and floods, coupled with the high demand for water, is having immense impacts on nature and people around the world. Activities to respond to this problem are mostly uncoordinated and dispersed, despite the knowledge and expertise being available.

The Network allows people to access and share the latest information from basic explanatory to detailed scientific knowledge on methods, case studies, links, contacts and literature on environmental flows. It connects water managers, NGOs, local communities, scientists and researchers, as well as governmental and intergovernmental agencies that are interested in sharing knowledge or experiences on environmental flows.

The newly created Network website will help open knowledge of environmental flows to new audiences by offering readily-available access to current practices and methodologies. Furthermore, the website acts as an information portal to gather and disseminate information and experiences on environmental flows, such as case studies, tools, methods for assessment and implementation, and an expert database.
See www.eflownet.org

Industry concern on climate change

The Australian Industry Group (AiG) says a new report confirms that companies are deeply concerned about greenhouse gas emissions. The AiG and Sustainability Victoria survey of 810 companies in the manufacturing and commercial construction sectors has found Australian businesses are taking action to cut their consumption of electricity, gas and water, while reducing

waste. It found 78% of the firms believed they should contribute to a reduction in carbon emissions, even if it increased costs.
http://www.abc.net.au/news/stories/2007/09/11/2029798.htm

Study looks at acid rainfall in the ocean
While acid rainfall plays a minor role in ocean acidity, the impact is much greater in the shallower waters of the coastal ocean. Ocean acidification occurs when chemical compounds such as carbon dioxide, sulphur or nitrogen are produced by power plants and agricultural activities mix with seawater - a process that lowers water pH values and thereby reduces carbon storage. The effect is most pronounced near the coasts, which are already some of the most heavily affected and vulnerable parts of the ocean due to pollution, over-fishing and climate change.
http://www.sciencedaily.com/upi/index.php?feed=Science&article=UPI-1-20070910-11494700-bc-us-acidocean.xml

Map-making highlights impact of climate change
It has been four years since the last edition of the Times Comprehensive Atlas of the World, and cartographers have had to redraw coastlines and reclassify land to reflect significant geographical changes since then. The new maps let us see environmental disasters unfolding. Some of the most marked changes highlighted in the new atlas include the Aral Sea in central Asia, which has shrunk by 74% since 1967, Lake Chad in Africa, which has shrunk by 95% since 1963, and the Dead Sea in the Middle East, which is 25m lower than it was 50 years ago. As well, sections of the Rio Grande, Yellow, Tigris, and Colorado rivers dry out each summer, and sometimes they fail to reach the sea. The Bangladesh coastline has had to be redrawn as more land and islands are lost to the sea, while the lowest country in the world, the Pacific nation of Tuvalu, is now only five metres above sea level.
http://www.abc.net.au/news/stories/2007/09/04/2023128.htm

Desalination: option or distraction?
Spurred on by the drought, pressure has mounted to solve Australia's urban fresh water supply crisis, sparking a boom in desalination plants. In November last year an Australian Government report – Securing Australia's Urban Water Supplies: Opportunities and Impediments – concluded that 'All capital cities with the exception of Darwin and Hobart now have inadequate water supplies.'

Clearly our major cities are facing a problem, but a recent WWF report – Making Water. Desalinisation: Option or Distraction for a Thirsty World? – warns that the tempting lure of using our oceans as an abundant source of potential fresh water should have 'a limited place in water supply'. The report says that while desalination plants may have a role in providing water in certain circumstances, they are diverting attention away from less costly and more environmentally benign alternatives such as water conservation, water use efficiency improvements and water recycling.

The Securing Australia's Urban Water Supplies report estimates that the price of urban water per kilolitre is between $0.63 and $1.59, depending on the city. According to Western Australia's Water Corporation, which runs Perth's Kwinana desalination plant, desalinated water there costs $1.16 per kilolitre.

The key to reducing the cost of desalination is improving the technology. In Australia, the Advanced Membrane Technologies Research Cluster is developing new membranes to improve the efficiency of reverse osmosis – forcing saline water through a membrane to separate the salt and water. Nevertheless, desalination still requires a lot of energy. The Australia Institute predicts the emissions of the proposed Sydney plant 'are the equivalent of putting another 220 000 cars on the road, or burning two litres of petrol for every 1000 litres of water'. In WA, the Water Corporation purchases wind power to offset the Kwinana plant's energy needs.

CSIRO's Dr Karen Wild-Allen reviewed the Environmental Impact Statement for the Kwinana plant and says the

salty discharge has an effect on the environment of surrounding coastal waters, which provide habitat for sea life. 'Dense salty water sits around in a hollow or a dip in the sea bed, and oxygen can become depleted in this layer, which can have a significant effect on the benthic in-fauna,' says Wild-Allen. Diffusers to spread the discharge, such as those at Kwinana, can disperse concentrated brine to minimise its negative effect.

The WWF report acknowledges the role of desalination plants within a broader water supply strategy, but says they should 'be sited, constructed and operated to best minimise or mitigate their environmental impacts'. The urban water industry also recognises they are not the silver bullet to our urban fresh water supply woes, but they do now seem an inevitable part.
http://wwf.org.au/publications/desalinationreportjune2007/;
http://www.publish.csiro.au/?act=view_file&file_id=EC138p33.pdf

Banksia awards

The 2007 Gold Banksia Award went to Westpac for achievement in the area of corporate sustainability. The founder of the International River Health Program, Arron Wood, won the PM's Environmentalist of the Year Award. The 2007 International Award winner was Californian Governor Arnold Schwarzenegger for his efforts in demonstrating 'that economic growth and the environment can co-exist'. Banksia Category Awards winners included Queensland's Northern Gulf Resource Management Group (Banksia Indigenous Award for the Carpentaria Ghost Nets Programme); Molectra (developing new technology that re-uses all parts of used tyres); Kimberley Toad Busters (WA community group working on reducing the cane toad threat); the Paintback™ system (recovery and safe disposal of unwanted paint); the Australian Conservation Foundation (GreenHome community education programme); Victoria's Birchip Cropping Group (biodiversity values of different water supply systems); and Conservation Volunteers Australia and BHP Billiton (Revive Our Wetlands programme).
http://www.banksiafdn.com/index.php?page=333

Superior software predicts marine ecosystem dynamics

We rely on the oceans around us for recreation, tourism, oil and gas, and food. In total, the marine environment contributes $70 billion and 2 million jobs annually to the Australian economy. So how do governments balance these conflicting uses, and protect the environment? Beth Fulton's simulations of marine ecosystem dynamics are delivering many of the answers. For her leadership in mathematics and ecosystem modelling, Beth, a senior research scientist at CSIRO Marine and Atmospheric Research in Hobart, receives the 2007 Science Minister's Prize for Life Scientist of the Year.

Her model is called Atlantis, and gives equal attention to the biophysical and human components of the system, and is used by the Australian Fisheries Management Authority and other fisheries managers. The UN Food and Agriculture Organisation has rated Atlantis as the best in the world for the strategic evaluation of marine management issues.
http://www.ecovoice.com.au/enews/enews-44/AWA_Software%20Predicts%20Marine%20Ecosystem_44.php

Nobel win for Gore and IPCC

Al Gore and the United Nations' Intergovernmental Panel on Climate Change (IPCC) have won a Nobel Peace Prize for their part in galvanizing international action against global warming. Specifically 'for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change.

'[Gore] is probably the single individual who has done most to create greater worldwide understanding of the measures that need to be adopted ... The IPCC has created an ever-broader informed consensus about the connection between human activities and global warming' the committee said. More than 100 Australian scientists contributed to the IPCC.
http://www.enn.com/sci-tech/article/23815

Working group to develop national code for location of wind farms

A working group has been established to drive the development of a national code for wind farms, which will provide a consistent and transparent framework for community consultation about siting and development.
http://www.greenhouse.gov.au/renewable/

World fire atlas

The ATSR World Fire Atlas provides data approximately six hours after acquisition. All available satellite passes are processed to create the Atlas. In addition to maps, the time, date, longitude and latitude of the hot spots are provided. The data are used for research in atmospheric chemistry, land use change, global change ecology, fire prevention and management and meteorology. Quantifying fires is important for the ongoing study of climate because they have a significant impact on global atmospheric pollution, with biomass burning contributing to the global budgets of greenhouse gases, like carbon dioxide. The 1998 El Niño, for example, helped encourage fires across Borneo which emitted up to 2.5 billion tonnes of carbon into the atmosphere, equivalent to Europe's entire carbon emissions that year.

One of the biggest problems during and after fires is obtaining an overall view of the damage and its evolution. With fires visible from space, Earth Observation is also being used to detect and monitor the active spots over affected areas. In October 2000, ESA and the French space agency (CNES) initiated the International Charter Space and Major Disasters, a joint initiative with now ten members, aiming at rapidly tasking Earth Observation satellites and delivering spacemaps to users concerned with emergency response, such as civil protection authorities, anywhere in the world.

The system was used in Greece, which experienced more wildfire activity in August than other European countries over the last decade. Weather conditions, including record summer temperatures and hot dry winds, in 2007 made parts of the Mediterranean a tinderbox.
http://www.sciencedaily.com/releases/2007/08/070829143607.htm

A genetic trigger for the Cambrian Explosion?

A team of scientists from the Ruder Boškovic Institute (RBI) in Zagreb, Croatia, developed a novel methodological approach in evolutionary studies. Using the method they named 'genomic phylostratigraphy'.

The only direct method of research in evolutionary history involves analyzing the fossil remains of once living organisms, excavated in various localities throughout of the world. However, that approach often cannot provide the full evolutionary pathway of some species, as it requires uncovering of many fossils from various stages. As the fossil record is imperfect, evolution research fundamentally relies on luck in discovering adequate paleontological sites.

The RBI team proposed a novel and interesting approach to bypass this obstacle. They suggested that the genome of every extant species carries the ‘snapshots’ of evolutionary epochs that species went through. They also developed the method which enables evolution researchers to readily convert those individual 'snapshots’ into the full-length 'evolutionary movie' of a species.

Applying their new methodology on fruit fly genomic data, they demonstrated that parts of the living organism exposed to the environment – so called ‘ectoderm’ - are more prone to evolutionary changes. Further, they explained the evolutionary origin of the ‘germ layers’, the primary tissue forms that form during the first days after the conception of a new animal, and from which subsequently all other tissues are developed. Finally, they discovered the potential genetic trigger for the 'Cambrian explosion', a major global evolutionary event on the planet, when some 540 million years ago almost all animal forms known today suddenly 'appeared'.
http://www.sciencedaily.com/releases/2007/08/070831180409.htm

NASA satellites eye coastal water quality

Using data from instruments aboard NASA satellites, researchers at the University of South Florida in St. Petersburg are monitoring water quality almost daily, rather than monthly. The team's findings, published July in Remote Sensing of Environment will help

tease out factors that drive changes in coastal water quality. For example, sediments entering the water as a result of coastal development or pollution can cause changes in water turbidity - a measure of the amount of particles suspended in the water. Sediments suspended from the bottom by strong winds or tides may also cause such changes. Knowing where the sediments come from is critical to managers because turbidity cuts off light to the bottom, thwarting the natural growth of plants.

Satellites previously have observed turbidity in the open ocean by monitoring how much light is reflected and absorbed by the water. The technique has not had much success in observing turbidity along the coast, however. That's because shallow coastal waters and Earth's atmosphere have complicated optical properties that make it difficult for researchers to determine which colours in a satellite image are related to turbidity, which to shallow bottom waters, and which to the atmosphere. Now with advances in satellite sensors combined with developments in how the data are analysed, it is possible to monitor the turbidity of coastal waters via satellite.
http://www.sciencedaily.com/releases/2007/08/070829162748.htm

Large-scale proteomics data

As the quantity of available biological information and the use of public data repositories increases, consistency in the information held in these databases is vital to allow full integration, exchange and comparison of their contents. As Europe's main provider of biological data, the EMBL-European Bioinformatics Institute (EBI) is involved in setting the precedent for reporting standards by applying these to its own data repositories such as ArrayExpress (microarray and gene expression data), IntAct (molecular interaction data) and PRIDE (protein identification linked to experimental evidence and publications).

The Minimum Information About a Proteomics Experiment (MIAPE) and the Minimum Information required for reporting a Molecular Interaction Experiment (MIMIx) guidelines propose the range of information to be recorded to document proteomics and molecular interaction data, respectively. The standards aim to reduce ambiguity and capture all the necessary information from an experiment to set the experimental results in both a biological and a methodological context, thereby providing a deeper level of understanding to others exploring the data.

The Nature Biotechnology Perspectives papers, published as open-source articles, outline the proposed reporting requirements for proteomics and molecular interaction experiments and discuss their implementation, impact and benefits. The later research paper shows how implementation of these standards benefits not only the reporting researchers, but also the wider community through the development of more detailed and comprehensive information resources. The three papers were published in Nature Biotechnology in August.
http://www.sciencedaily.com/releases/2007/08/070826162735.htm

Rainforest biodiversity shows differing patterns

Rainforests are the world's treasure houses of biodiversity, but all rainforests are not the same. Biodiversity may be more evenly distributed in some forests than in others and, therefore, may require different management and preservation strategies. That is one of the conclusions of a large-scale study of a lowland rainforest in New Guinea, published in the Aug. 9 issue of Nature. Most previous research has focused on diversity ‘hot spots,’ such as upland rainforests in the foothills of the Andes, where steep gradients in elevation, temperature, rainfall and other environmental factors boost diversity by creating diverse habitats within a short distance. Such change in a region's species makeup between sites is called beta diversity: some rainforests have steep environmental gradients and high beta diversity.

An international group of entomologists and botanists, including Smithsonian researchers, has assembled data representing 500 species of caterpillars, ambrosia beetles and fruit flies in the undisturbed lowland rainforest of the Sepik and Ramu river basins in Papua New Guinea.

The team collected insects and plants from eight study sites across 75,000 square kilometres of contiguous forest - an area the size of South Carolina - and noted the variation in species makeup among the different sites.

The data showed low beta diversity across the study area for all three groups of insects as well as for plants, indicating that species tend to be widespread and the biological communities change very little even across large distances. The widespread distribution of insect species was a surprise, given the sedentary lifestyles of many species. The insects also showed limited specialization in the plant species they feed upon, in contrast to the common assumption that tropical species tend to be highly specialized.

The low beta diversity seen in this study has implications for biological conservation. The homogeneity of the lowland forests suggests that the total diversity of species in tropical rainforests globally may be lower than previously thought.

The study's results also may help shape strategies for preserving rainforest species. Researchers collected data for more than three years and built on data from a decade of fieldwork in New Guinea. A key to the project's success has been local researchers.
http://www.sciencedaily.com/releases/2007/08/070808132022.htm

Carbon trading proposal may put mature tropical forests at risk

Eleven countries that have avoided widespread destruction of their tropical forest are at risk of being left out of an emerging carbon market intended to promote rainforest conservation to combat climate change. A study published August 14 in the Public Library of Science Biology journal warns that the 'high forest cover with low rates of deforestation' nations could become the most vulnerable targets for deforestation if the Kyoto Protocol and upcoming negotiations on carbon trading fail to include intact standing forest. These countries contain 20% of Earth's remaining tropical forest, including some of the richest ecosystems.

Until now, the Kyoto Protocol and subsequent discussions have focused on carbon credits for new or replanted forests that replace the carbon storage services of destroyed forests. New rules being discussed by the U.N. Framework Convention on Climate Change for implementation subsequent to Kyoto are likely to create a carbon market for countries that reduce their deforestation from levels of recent years.

That would cover countries that have lost large portions of their original tropical forest, as well as those that still have more than half their forest cover but face current high rates of deforestation. In contrast, countries with more than half their original forest intact and low rates of current deforestation would receive no credits for standing forests. Their forests would lose economic value in the global carbon market, leaving governments with little reason to protect them.
http://www.sciencedaily.com/releases/2007/08/070814082956.htm

Ecological restoration: a global strategy for mitigating climate change

The Society for Ecological Restoration International (SER) issued a position statement on global climate change during its joint conference with the Ecological Society of America (ESA) 'Ecological Restoration in a Changing World' held recently. The position statement calls attention to the vital role played by terrestrial and aquatic ecosystems in supporting humanity, and the need to protect and restore these habitats in order to mitigate global climate change and its effects. The overwhelming scientific consensus is that climate change is a real threat that requires immediate action. Changes in land use and the subsequent loss of biodiversity are a significant contributing factor to global climate change.
http://www.sciencedaily.com/releases/2007/08/070817165031.htm

Dogs bad news for bird fans

Walking dogs in natural areas dramatically reduces the number and variety of birdlife. If birds are constantly disturbed birds may desert their nests or relocate to a less favourable spot.

Researchers Banks and Bryant conducted a series of experiments involving 14 dogs and their owners. They monitored the responses of birds living in woodland in the Hornsby-Berowra-Cowan area to walkers with dogs and walkers without dogs. Dog walking in woodlands led to a 35% reduction in the diversity of bird species and a 41% drop in abundance (published in Biology Letters, short piece adapted from 'Dogs bad news for bird fans', the Australian 6/9/2007).

FASTS (www.fasts.org)

Successful ARC linkage grants

- 424 applications, of which 202 were funded (47.6% success rate)
- average funding per project = $308,000
- UQ was by far the most successful institution with 25 successful grants (followed by Sydney U, UNSW 18 each and QUT, Melb U 13 each)
- women were marginally more successful than men (49.9% to 49.4%)
- success rates between broad fields are roughly even ranging from 43% in engineering to 52.6% in physics, chemistry and geosciences
- social, behavioural and economic sciences received the highest amount of $16.7m, with engineering and environmental sciences at $16.2m, biological sciences $12.2, physics, chemistry and geosciences $6.1m, mathematics and ICT $5.8m, and humanities $5.3m.

See www.arc.gov.au for details.

Election stuff

If anyone is remotely interested in election promises, see the comparison of major parties' science commitments on the FASTs website.

Commonwealth reports released

Innovation in Irrigation: 6 Case Studies from Across Australia. (Issue 3) (booklet/ DVD or Video) - 2007
http://www.nht.gov.au/publications/case-studies/irrigation2007/index.html

Australian Weeds Strategy: A National Approach for Weed Management in Australia
http://www.environment.gov.au/biodiversity/invasive/publications/weed-strategy.htm

Managing Feral Animals and their Impacts: Managing for Biodiversity in the Rangelands
http://www.environment.gov.au/about/publications/order-form.html

The Humpback Whales of Eastern Australia fact sheet
http://www.environment.gov.au/coasts/publications/eastern-humpback-whales.html

National Threatened Species Day 2007 (Kit)
http://www.environment.gov.au/biodiversity/threatened/ts-day/index.html

Water Availability in the Mt Lofty Ranges: Summary of a Regional Report to the Australian Government from the CSIRO Murray-Darling Basin Sustainable Yields Project
http://www.csiro.au/resources/pf11b.html

ECOLOGY AROUND AUSTRALIA

SOUTH AUSTRALIA

Meredith Henderson, Regional Councillor

I think I may have pleaded with SA ecologists to get on board before, but I'm going to do it again. I think it's really important as members of the peak professional society for ecologists in Australia that everyone feels that they can contribute – and do. So I guess I am wondering just what it is that floats the boat of ecologists in SA? What is it that you want from the Society and how do you want me to represent your interests at Council? I think a little get together might be in order where we can thrash out something that you want and that you feel that can contribute to. I know there is so much going on in ecology in SA, however it is difficult to gauge that from all the Bulletin news over the past 12 months. Maybe you don't read the Bulletin, but other ecologists certainly do.

My email is always open (even if I may have a full inbox) and my phone number is usually in my email signature; so please (and yes this is me pleading again) let me know what you want.

CSIRO, Land and Water

Brett Bryan, local contact

Brett Bryan and Neville Crossman of CSIRO Land and Water at Urrbrae have been working in the area of integrated landscape science and decision-making for natural resource management. This takes us into the area of spatial ecology and restoration planning to help inform multiple-objective planning, including considerations of the impact of climate change on biodiversity. We have had a paper published in the latest issue of Biodiversity and Conservation looking at conservation planning in the urban-rural interface in Adelaide's north. Brett and Neville are keen to work with ecologists in Adelaide on existing and future projects.

Science & Conservation, SA Department for Environment & Heritage

Meredith Henderson, local contact

We welcomed to the State Herbarium and Science and Conservation a number of new staff. Dr Juergen Kellermann is working closely with Dr Bill Barker in the State Herbarium to revise the Flora of South Australia. The last Flora was published in 1986 and is out of print, so Juergen's appointment is usually met with great peals of delight. Juergen previously worked at the Melbourne Herbarium.

Dr Fred Gurgel is the new Phycologist in the State Herbarium. Fred will be continuing the outstanding legacy of Prof. Bryan Womersley. He and Sean Connell from Adelaide University have been successful in gaining an ARC Linkage grant for the project 'Forecasting change in subtidal habits: connecting local pollution with global climate in temperate Australia'.

Also on the marine front, we welcome Dr Simon Bryars in the new Marine Threatened Species Officer role in the Biodiversity Conservation Programs branch of Science & Conservation. Simon previously worked with SARDI Aquatic Sciences.

The Biodiversity Research Hub (which is kind of like a collective of ecologists and researchers from many agencies and the universities in SA) had the final half day session in early November. The session was Climate Change and Biogeography. This was the last of a series of half day sessions designed to foster information sharing and to get scientists in particular areas together to talk about their research interests and possible collaborations. There will be more of these next year, clustered around the themes of Biosystematics and Bioidentity, Species and Populations, Ecological Processes,

Landscapes and Communities and Climate Change and Biogeography.

There is a new agency-wide review of science and research and Meredith Henderson has been seconded from her research position to commence this work. The project aims to determine the current status of science and research activity across the entire agency; to collate metrics around publications, partnerships, projects and the people involved; to develop a document that outlines the expertise within the agency; and to develop the key questions that are being faced by the agency. It is an exciting project and one that will lead to greater collaborations and information sharing.

Impact of mining exploration on ecosystem characters and mallee vegetation

Lindy Scott, Plant Ecology, Uni. Adelaide

I'm coming to the end of my PhD project investigating the features of the mallee ecosystem affected by the formation of linear access tracks for the purposes of mineral exploration. Linear disturbances have a larger effect on ecological systems than their actual extension due to their low interior to edge ratio and the 'road-effect zone' radiating outward from the route. This produces radical changes in the patterns of transport and retention of materials (water, soil, propagules, nutrients, litter) across the landscape. Links between invasion success, water and nutrient availability and physical disturbance are not well understood. A consequence of the initial clearing and subsequent use by vehicles used in drilling operations has resulted in significant soil compaction. The water dynamics of the disturbed area has been shown to be different from the undisturbed area resulting in soil movement down the slope being much greater. This provides an explanation for the pattern of a larger number of species of annual seedlings growing as you proceed down the tracks compared with going down the dune in the undisturbed area. Glasshouse experiments have also shown a greater potential for weed growth in the soils from the tracks than from the undisturbed area. In preliminary results the presence of mycorrhizal fungi is less in the soil from the tracks and this has important implications as a number of Australian native species require symbiosis with this fungus to grow, whereas a large number of introduced species do not.

ACT

Jason Cummings, Regional Councillor

CSIRO Sustainable Ecosystems

Sue McIntyre, local contact

There have been a large number of absentees from the CSIRO Sustainable Ecosystems ecology group recently. Erik and Veronica Doerr and a group of volunteers from the US have been chasing brown treecreepers with receivers stuck to them through the woodlands around Wagga for the last three months, with a side trip to Western NSW to do additional bird surveys relating to landscape response.

Tony Arthur has spent some months based in Dublin, and visiting more widely, with an interest in ecosystem services. Paul Ryan is spending three months in Cowra, experiencing life in a CMA office and helping out in his role as a knowledge broker for a recently finished suite of Environmental Trust projects (Better Knowledge Better Bush). Deb O'Connell has been flashing around the country talking about the hot topic of biofuels on a fairly constant basis. So who is left? Andre Zerger has been quietly beavering away on a precision agriculture project. Josh Dorrough is up to his neck in data analysis comparing the relative effects of grazing strategies and trees in the landscape at different scale for plants, birds and reptiles. Sue McIntyre has a finger in many projects, including assembling an amazing team of field workers completing a survey of 96 1 ha plots in the Goorooyarroo and Mulligans Flat area. At least the November rain has converted some of the small crunchy fragments into actual live plants.

NEW SOUTH WALES

Liz Tasker, Regional Councillor

University of Sydney

Kristin Connell, local contact

McArthur Lab

Clare McArthur (USyd) and Peter Banks (UNSW) have a new ARC Discovery Project starting in 2008, called 'How do foraging herbivores negotiate the perils of plant toxins and predators?' Summary: Plant toxins and predation risk are two significant costs that many herbivores deal with when foraging. Coping with toxins can increase predation risk and vice versa, so foraging decisions are not always simple. A central challenge in classic foraging theory is to integrate these two factors in order to better reflect real foraging decisions and outcomes. Our project will overcome this challenge by using a common currency - patch residency time - to link, measure and compare their relative costs to individual foragers in a spatial context. For enquiries, email Clare: claremc@usyd.edu.au or Peter: p.banks@unsw.edu.au.

Helen Stephens has recently graduated after finishing her honours project on introduced rusa deer and native swamp wallaby foraging in Royal National Park (see back for abstract). Sahar Kirmani is a new honours student working with Clare (co-supervisor P. Banks) looking at how predation risk and plant toxins affect the foraging behaviour of the common brushtail possum.

Clare has a number of PhD students who are continuing with their research. Katherine Tuft is finishing up her field work looking at brush tailed rock wallaby foraging. Carolyn Finn is conducting captive trials on brushtail possum foraging looking at the role of toxins in food preference trials. Phil Borchard is continuing his work on wombats as bioengineers in Kangaroo Valley, and Kristin Connell is finishing up her field work on the trophic and behavioural ecology of native water rats.

Masters of Wildlife Health and Population Management student, Katie Saran, is looking at rehabilitation success and its use in wildlife conservation, specifically factors that influence the rehabilitation and post release success of common wombats and their survival. She is using radio-tracking to follow recently released wombats and microchips for identification of a large group of released wombats.

Shine Lab

Rick Shine had three Honours students graduate recently: Haley Bowcock (2006-07), sexual conflict in anurans (joint supervision with Dr. G. Brown); Travis Child (2006-07), ecology of metamorph cane toads (joint supervision with Dr. B. Phillips) and Crystal Kelehear (2006-07), host-parasite biology in an invasive organism (joint supervision with Dr. J. Webb).

Ben Croak has just handed his honours thesis in, and David Nelson just started on his honours project this year. Ben is investigating habitat restoration for an endangered snake (joint supervision with Dr. J. Webb) and David is looking at toad vs. frog: acoustic cues and responses.

There are a number of PhD students in the lab including: Amanda Lane (sea-snake ecology and genetics – see Student prizes, p. 12); Mattias Hagman (larval ecology of cane toads - Mattias has already handed in); David Pike (ecological effects of shifting vegetation density);

Matt Greenlees (ecological impacts of an invasive species - research based in Northern Territory); John Llewelyn (evolutionary impact of an invasive species - research based in Townsville) and Christa Beckmann (avian predation on cane toads - research based in Northern Territory).

Current post-docs in the Shine lab include: Gregory P. Brown (ecology of tropical snakes); Jonathan K. Webb, (snake ecology and conservation); Weiguo Du (lizard ecology and behaviour); Raju Radder (lizard reproductive biology); Benjamin L. Phillips (ecological impact of cane toads); Fabien Aubret (phenotypic plasticity in snakes); Michael Crossland (ecology of cane toads); Ligia Pizzatto (ecology of pythons) and Jason Kolbe (invasive species modelling - with Dr. C. Moritz).

University of New South Wales

Local contact: Alistair Poore

UNSW has recently launched the Evolution & Ecology Research Centre drawing on the diverse strengths of 18 academic staff, 8 independent research fellows, and over 40 postgraduate students from the School of

Biological, Earth and Environmental Sciences, the School of Biotechnology and Biomolecular Sciences, the School of Mathematics and Statistics and the School of Medical Sciences.

The Centre's purpose is to build capacity for and quality of research in ecology and evolutionary biology, including postgraduate research and supervision. To do so, we provide seed funding for innovative new research collaborations, recognize excellence in research, learning and supervision, run an innovative Graduate Program in Evolution & Ecology, and actively engage in public outreach relating to evolution and ecology.

Further details on personnel, research and current activities can be found at www.eerc.unsw.edu.au.

Prospective students wanting to find out more about our Graduate Program in Evolution & Ecology should contact Dr Alistair Poore (a.poore@unsw.edu.au).

NSW Dept of Environment & Climate Change and NSW Dept Primary Industries

Widespread Weeds / Biodiversity Project

This project involves Moira Williams and Paul Downey from DECC (Hurstville) and Bruce Auld, based at DPI Orange.

The aim of the project is to work with Catchment Management Authorities (CMAs) to assist them in developing priorities for weed control where weeds are impacting on biodiversity.

It is directed towards the Natural Resources Commission's Statewide Resource Condition Target (#4) and the specific indicator for this target 'Success of control programs for widespread invasive species as measured by: a reduction in biodiversity impacts.'

Through consultation and workshops with the 13 CMAs and relevant stakeholders, lists of widespread weeds impacting on biodiversity will be established together with the biodiversity affected and sites for implementation of control programs established.

A website on the project accessible through the DECC website (www.environment.nsw.gov.au) will be established in late 2007.

QUEENSLAND

Andrew Hayes, Regional Councillor

Not much to report from Queensland this Bulletin, only one person sent me in a report. I realise that everyone is busy and I am grateful to those people who take the time to send me in a report. If there is anyone out there who feels willing to provide me a brief report of what is going on in your laboratories, four times a year[1], I'd love to hear from you. It is not an onerous task, but is an easy way to let your fellow ecologists throughout Australia know what is going on ecologically in our state. I hope to hear from you. I look forward to seeing lots of you in Perth for our conference; have a great Christmas and a safe break over New Year.

The Centre for Remote Sensing and Spatial Information Science, The University of Queensland

Bronwyn Price, local contact

Clive McAlpine and a team of researchers have been successful in gaining a new three year ARC Linkage project. The project will develop an understanding of koala distributions and population dynamics in the Mulga Lands, of Western Queensland/NSW. The research will identify threats impacting on koalas and their habitat, including climate change, and develop a conservation management plan and guidelines for western koala populations. Expressions of interest are currently being sought from potential PhD students with an interest in the conservation of an iconic species, contact Clive McAlpine: c.mcalpine@uq.edu.au

Recently commenced PhD projects in the centre include: 'Developing methods for mapping and monitoring of coral reef habitat in Vietnamese coastal waters from remote sensing images', Tran van Dien; 'Mechanisms of algal growth in coral reefs

[1] *Even once a year!! If every lab or dept reported regularly once a year, the poor regional c. wouldn't have to hassle you. Its not a big commitment. Ed.*

and how they can be modelled and predicted using parameters derived from remote sensing data', Robert Canto; 'Designing a habitat network of conserving koalas throughout their geographic range', Christine Hosking; 'Stochastic modelling of wildlife populations in fragmented Brigalow landscapes', Charles Hu; 'The environmental history and cultural landscapes of Queensland', Owen Powell.

NORTHERN TERRITORY

Brooke Rankmore, Regional Councillor

Biodiversity North, NRETA

Brooke Rankmore, local contact

It has been an intensive but highly productive field season for the Biodiversity Conservation Unit this year, with a large number of projects on the go. Despite usually winding down around this time, this year sees fieldwork continuing for a number of projects.

Carol Palmer is continuing fieldwork on the Australian snubfin *Orcaella heinsohni* (formerly the Irrawaddy dolphin) and the Indo-Pacific humpback *Sousa chinensis* dolphins. Carol is conducting boat-based surveys on the distribution and abundance of both species at the local scale in the Alligator Rivers Region, and beginning in 2008 in Darwin Harbour and the Coburg Peninsula. Monitoring of individuals' distribution, social structure and movement via photo-identification will be the basis for determining population size and population dynamics.

September saw a team lead by Carol head out to north-east Arnhem Land for the first translocation of 12 golden bandicoots (GB) in the NT from Marchinbar Island to Guluwuru Island. The GB is listed nationally as Vulnerable (Endangered in the NT) and is known to have disappeared from almost all of its former distribution across half of the Australian continent. The GB is now restricted to rocky sandstone spinifex habitats and vine thickets in the north Kimberley region, four Western Australian (WA) islands (two Pilbara, two Kimberley) and one island off the northeast Arnhem Land coast of the Northern Territory (NT). The NHT funded project is a collaborative project between the Gumurr Marthakal Rangers, NRETA and the Northern Land Council. The GB translocation is following-on from the successful translocation of the northern quoll from the mainland to two English Company Islands and highlights the importance of supporting the local Gumurr Marthakal ranger group and longer-term conservation management of the islands.

The units threatened species officer, Simon Ward, has been supervising of a number of projects this year. Projects have included:

Butler's dunnart (Vulnerable) Melville & Bathurst Islands NT: This joint NHT-funded project with Tiwi Land Council and Great Southern Limited has had its ups and downs with the species proving hard to capture. Elliott traps with a variety of baits proved useless in detecting the species. Limited success came through pitfall trapping with deep (60 cm) pitfalls with the initial capture (1 from 1640 pitfall trap nights across 16 sites). Since the initial capture, capture rates have improved with 9 captures of 5 individuals in March and 12 captures of 11 individuals in June. The majority of captures have been of males (10 of 11 animals in June 07). Recently GSL and Indicus Consulting (researching masked owls on Melville Is) have caught females with pouch young (late July). So, we think we've developed a technique for catching Butler's dunnarts (they avoid Elliotts), but it is labour-intensive and we still have problems of detectability. We hope to get more information on habitat preferences and habitat use, and we are getting the first information on breeding seasonality

Northern shrike-tit (Vulnerable), Savannah country: There are relatively few records of this species but they are spread widely across the dry woodland savannah areas. This project aims to identify the foraging habitats and behaviours of shrike-tits in northern Australia (where they don't have access to abundant decorticating bark – their main foraging substrate in south-eastern Australia), in order to map out other likely areas occupied by the species.

Yellow-snouted geckos: Ted Johansen is monitoring one of the only known populations of this threatened species in the Wildman River region. They appear to be absent from a number of areas in this region where they were recorded in the 90s and early 2000s, possibly due to the prevalence of fires in the area. Last year, Ted also relocated a population in the Kapalga area of Kakadu NP that had not been seen since the species was first described there in the 1970s.

CSIRO Sustainable Ecosystems – Darwin
Sarah Bartlett, local contact

Pigeon Hole's last stand

On August 8th, CSIRO Sustainable Ecosystems in Darwin contributed to the fourth and last field day of the world's largest grazing study: The Pigeon Hole Project, held at Pigeon Hole Station, 400km south west of Katherine, Northern Territory.

As the project nears the end of its five-year term, researchers and property managers are now able to provide preliminary guidelines for ecologically and economically sustainable development of extensive grazing enterprises in northern Australia. The research has been conducted in cooperation between Heytesbury Beef and Meat and Livestock Association cooperative.

CSIRO's rangeland ecologist Leigh Hunt outlined his work on managing grazing distribution to over 200 graziers, researchers and industry representatives attending the event. Leigh described how achieving more uniform use of paddocks might improve livestock production through improving the effectiveness of pasture use and help manage grazing impacts on the pasture and soil for more sustainable grazing.

Other highlights included:

- maintaining biodiversity on intensively developed properties (Alaric Fisher, Tropical Savannas Management CRC & NT Department of Natural Resources, Environment and the Arts)
- the effect of different periods of wet season spelling and simulated grazing intensity on perennial grasses (Andrew White, Queensland University)
- optimal level of pasture utilisation by cattle in the VRD (Robyn Cowley, Kieren McCosker and Neil MacDonald, NT Department of Primary Industry, Fisheries and Mines).

The NT Department of Primary Industry, Fisheries and Mines produced a comprehensive booklet of the research – Grazing Strategies for Tomorrow - including results and recommendations presented at the field day and have made it available from their website: http://www.nt.gov.au/dpifm/Primary_Industry/index.cfm

Leigh Hunt presents GPS data on cattle grazing patterns to a large crowd (@@ update quality ED!!!)

Howard River environmental flows and social values

A project to support water planning in the Howard River Catchment: CSIRO has recently started research to support the water allocation plan of the NT Department of Natural Resources, Environment and the Arts (NRETA). The plan will state how groundwater in the Howard River area of greater Darwin is to be shared between current uses.

During recent years the number of bores extracting water in the Howard River area has grown markedly, and there is now some concern about the sustainability of current levels of water use by residents, horticulturalists and Darwin's water supply provider. This project will provide an understanding of the water needs for the social values – the features of water and water bodies that people consider to be important – and the environmental requirements of fish of the Howard River.

The project team is made up of a number of researchers from Charles Darwin

University (CDU), CSIRO, Griffith University and the NT Government. CSIRO staff – Sue Jackson, Anna Straton, Emma Woodward and Barbie McKaige – will focus on the social values and uses, while CDU's Michael Douglas will coordinate the environmental research.

A pamphlet outlining the research is available from our website, www.terc.csiro.au.

Fishing on the Howard River (@@ update qualED!!!)

WALFA wins Eureka!

Congratulations went recently to the entire West Arnhem Land Fire Abatement (WALFA) Project team for winning the inaugural Eureka Prize for Innovative Solutions to Climate Change.

The WALFA project, which aims to abate West Arnhem Land wildfires, is led by Jeremy Russell-Smith (Tropical Savannas CRC and Bushfires NT), Peter Cooke (Bawinanga Aboriginal Corporation) and Traditional Owner Lofty Bardayal Nadjamerrek. CSE's Garry Cook and Jon Schatz, along with many other organisations, traditional owners and indigenous rangers, collaborate on the project. Their research focuses on understanding the fuel burning process and how to derive better estimates of annual emissions of accountable green house gases; methane and nitrous oxide.

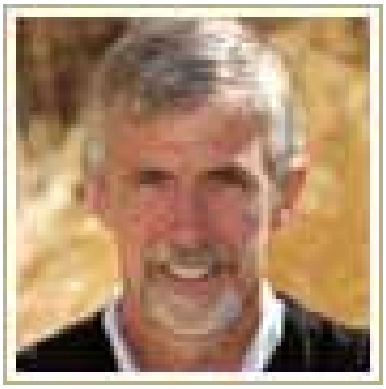
For more information see: http://www.savanna.cdu.edu.au/information/arnhem_fire_project.html

Eminent US ecologist visits CSIRO

CSIRO in Darwin were thrilled by a visit from Professor Tom Hobbs, Department from Colorado State University in the United States on the 2nd of November. Professor Hobbs presented a seminar titled: 'An alternative steady state introduced by herbivory: the role of hydrology in state resilience.'

Tom Hobbs is Head of the Department of Forest, Rangeland, and Watershed Stewardship at Colorado State University. His broad academic interests include the roles of large herbivores in ecosystems. Virtually all of his work links ecological modelling to empirical studies in the field and laboratory. Tom earned his MS and PhD in Wildlife Biology at Colorado State University. He has served NEON as Chair of the Fundamental Sentinel Unit tiger team.

Tom's seminar focussed on the work in Yellowstone National Park on elk-beaver-willow-wolf interactions. Tom described it as a charming story with an engaging conceptual model backed by data – experimental plot-level studies, landscape-level observations, carbon dating.



Visitor, Prof. Tom Hobbs

NEWS FROM OVERSEAS SOCIETIES

Bernie Masters

The October Bulletin of the Ecological Society of America contains a number of articles of general interest to Australian ecologists. A commentary signed by 16 academics and researchers responded to the Institute of Creation Research, which has launched a new, peer-reviewed, pseudo-scientific online journal. The Institute's guide to authors advises that papers must be from a young-earth prospective and aim to assist the development of the Creation model of the origin of life, the universe and everything.

The authors of the commentary criticise the ability of non-scientific bodies such as the Institute of Creation Research to be granted accreditation as an institution of higher learning, recognising that the genuine application of science and scientific analytical methods are absent from the Institute's requirements.

Under the heading 'Scientists Have Families!', another commentary announces the establishment of an online site http://tech.groups.yahoo.com/group/scienceandfamilies designed to help scientists with young children or planning on starting a family. The author attended an ESA meeting and discovered that her problems and issues were shared by many other younger ecologists, so she started the mailing list/discussion group to share information and experiences.

A report on the 2007 ESA annual meeting described 'Academic Service-Learning in Ecology'. Defined as a combining of service objectives with learning objectives to assist both students and academics, service-learning is taught in 91% of the 506 US campuses surveyed. A common outcome is that students feel empowered to take charge of their learning, feeling that they can make a difference and that they can see connections between their classrooms and university and/or community issues.

The most interesting article summaries an annual meeting symposium on the 'Effects of human choices on characteristics of urban ecosystems'. Presenters gave examples of the 'ecology of cities' where the inclusion of humans within the concept of ecosystem improved environmental outcomes. For example, riparian tree canopy cover was found by an Oregon researcher to be highly valued by adjoining urban residents, with significant increases in property values as riparian cover increased (with property values going up by 300% or more!). Yet there was no relationship between stated preference and the actual amount of riparian canopy on respondents' properties, suggesting that a well-devised education program could encourage urban dwellers to plant and protect riparian vegetation.

Other researchers found that people are willing to pay (via higher home prices) for temperature reductions arising from trees and tall shrubs shading urban properties. In the dry climate Phoenix, Arizona, urban dwellers prefer mesic and oasis landscapes over xeric and native desert landscapes, once again suggesting that people can be encouraged to make ecologically-sound decisions if they are given appropriate information.

The Bulletin can be accessed at http://www.esa.org/publications/bulletin.php .

Sadly, the Southern African Institute of Ecologists and Environmental Scientists seems to have closed its doors, judging from an absence of a newsletter for over two years. On a brighter note, the Bulletin of the British Ecological Society is to be made available for review once again, so the next News from Overseas Societies promises to be larger than normal.

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ABSTRACTS OF HIGHER DEGREE THESES

Seedling establishment in a pyrogenic flowering species: the role of time-since-fire, litter and post-dispersal seed predation

Andrew J. Denham, School of Biological Sciences, University of Wollongong. MSc Thesis.

In fire prone environments, the period immediately following fire events is perceived to provide the only opportunity for recruitment for many plant species. Resprouting shrubs do not need to recruit after every fire, because many individuals survive each fire and therefore may contribute to the population. However, without periodic recruitment, the accumulated mortality of adults both during and between fires would lead to local extinction even of these species. Most plant species establish seedlings within a year of fire from either canopy or soil seed banks. In contrast, species with pyrogenic flowering have no seeds available immediately after fire and thus have their recruitment delayed. The work of this thesis aims broadly to investigate the mechanisms by which species with delayed recruitment persist. For one of these species, *Telopea speciosissima*, I asked the following questions:

Do seedlings establish under shade and litter and tolerate competition from existing plants, or must they establish in open spaces?

Does post-dispersal seed predation strongly influence seedling recruitment or are its seeds less susceptible to predation than those of early post-fire recruiters? and

Does *T. speciosissima* have particular characteristics that tie seedling establishment to the late post-fire environment or is it only its life history (constrained by its phylogeny) that prevents earlier seed release?

Telopea speciosissima is a pyrogenic flowering species – it has no seed bank, but it resprouts, flowers and sets fruit in the post-fire environment. I examined recruitment in *T. speciosissima* using two seed-addition experiments, in which I manipulated predator access, microhabitat characteristics, and time of seed arrival in relation to fire. For contrast, I included *Banksia serrata*, a resprouting canopy seed bank species with seed mass similar to *T. speciosissima*, in one of these experiments.

In the first experiment (in sites that were 3 and 4 years post-fire), seed predation was measured by placing caches of seeds within experimental microsites. These microsites were left open or covered with 12mm wire mesh to exclude vertebrates. The habitat within the experimental microsites was classified according to litter and vegetation cover. It was then either left intact or the litter and vegetation were removed. Seed predation was high overall (47-80%), regardless of access to vertebrates. Predation varied among sites. Few seeds or seedlings survived to nine months after planting. Survival of seeds or seedlings was improved in microsites with dense vegetation and litter cover. Removing the litter and vegetation cover increased the probability of seed predation by vertebrates in the first year of the experiment, but it did not influence predation by invertebrates.

In the second experiment (in sites that were 0.5 and 2-3 years post-fire), vertebrate predators were excluded from all experimental microsites. Vegetation within experimental microsites was not modified, but the litter was modified such that half the microsites had the mean mass of the early post-fire sites, the other half the mean mass of the later post-fire sites. Here I compared seedling establishment of *T. speciosissima* with that of the canopy seed bank species, *B. serrata*. I hypothesised that seedling establishment would be linked to the timing of seed release determined by the natural history of the species, with the prediction that *B. serrata* would establish more seedlings soon after fire, while *T. speciosissima* would

establish more seedlings later after fire. The litter treatment tested the hypothesis that litter mass made a significant contribution to differences between the habitats with different times since fire. Seedling establishment overall was poor (< 36% of seeds), peaking within three months of planting. Both species established more seedlings in late post-fire sites, but litter treatments did not influence seed survival or seedling establishment. Seeds of *T. speciosissima* suffered greater predation in early post-fire sites (69.5%) than in late post-fire sites (51.2%). Predation of *B. serrata* was lower and did not vary significantly among sites (47.3%).

Since the canopy seed bank species (*B. serrata*) may establish seedlings in early or late post-fire habitats, its recruitment opportunities are determined by the timing of seed release after fire. In contrast, the greater susceptibility of *T. speciosissima* to seed predation in early post-fire sites suggests that this may be a factor favouring delayed seed release. This provides support for the hypothesis that *T. speciosissima*, as a pyrogenic flowering species, has characteristics that favour late post-fire recruitment. The seeds and seedlings of both these species tolerate relatively high levels of vegetation and litter cover. However, for pyrogenic flowering species, effective post-fire recruitment may require the coincidence of favourable environmental conditions and low levels of seed predation.

Ecology and conservation status of the brush-tailed rabbit-rat *Conilurus penicillatus*

Ronald S.C. Firth, Faculty of Education, Heath and Science, Charles Darwin University. PhD Thesis.

In this thesis I investigate the ecology of the threatened brush-tailed rabbit-rat *Conilurus penicillatus*, specifically including diet, movements and shelter sites, population dynamics, and habitat preference and use. I then use this information as a base from which to consider possible causes of decline and to provide advice for remedial management. This study was conducted primarily at two main sites, Cobourg Peninsula (with two sub-sites) and Kakadu National Park, with additional information gathered from the Tiwi Islands. The diet of *C. penicillatus* consists primarily of seed, particularly from perennial grasses. The mean home range size is 0.79 ha; whilst males had larger home ranges than females, there were no significant differences in home-range size among the sites or between seasons. *Conilurus penicillatus* denned primarily in fallen logs and in hollows of eucalypts and bloodwoods. Apparent survival probability for *C. penicillatus* varied noticeably over the study and was best described by a model that included main and interaction effects of sex, site and sampling occasion. Population densities at the three sites ranged from 0.35 to 7.1 individuals ha^{-1}. *Conilurus penicillatus* reproduced during the dry season (May-October) and most juveniles also entered the population during this period. On the Tiwi Islands *C. penicillatus* was most likely to occur in tall eucalypt forest away from watercourses, where there was more bare ground and where fires had been less severe and/or less recent. The species remains common and widespread on Cobourg Peninsula and Tiwi Islands, but is very restricted within Kakadu National Park. In common with the habitat relationships on the Tiwi Islands, in the mainland study sites *Conilurus penicillatus* was most likely to occur in tall eucalypt forests, where there was less bare ground and less cover of annual grasses and where fires had been less severe. The most likely cause of decline is changes in fire regimes as a result of the loss of traditional Aboriginal fire management.

'Too many trees!': Indigenous woodcarving and harvest sustainability in central Arnhem Land

Jennifer Koenig, School of Environmental Research, Charles Darwin University. PhD Thesis.

The growth of the Indigenous arts industry in Australia over the last few decades has seen an increase in the number of Indigenous communities producing woodcarvings from native timber species. In this thesis, I apply integrative methodology from the social and biological sciences to examine the socio-cultural, economic and ecological

determinants of sustainability in relation to harvesting timber for the woodcarving sector in the Maningrida region of central Arnhem Land. Analysis of a long term art sales database showed that the number of woodcarvers and the number of carvings produced in this region has grown rapidly over the last two decades. Accompanied with this have been major shifts in the age demographics and gender of woodcarvers with younger artists and women increasingly engaging in carving production. Whilst artists were observed to be engaged in a range of activities, art production was the prominent means of productive cash income generation. An artist's place of residence also influenced the amount of carving undertaken, with artists residing on 'country' at an outstation more engaged in sculpture production than those living in the township of Maningrida.

There were many cultural differences in harvest practice among language groups. Kuninjku and Kunibidji woodcarvers harvested a greater number of tree species, larger quantities per harvest trip and smaller sized stems compared to the other language groups. However, two tree species were predominantly used for carving across all language groups in the region: *Bombax ceiba* and *Brachychiton diversifolius*. A high percentage (65-88%) of harvested *B. ceiba* and *B. diversifolius* stems coppiced following harvest, with coppice stems growing up to six times faster than similar sized non-coppice stems. Stage-structured population models show that whilst *B. diversifolius* is more resilient to increasing harvest intensity than *B. ceiba*, current harvest regimes for both species are sustainable. This study has reduced the uncertainty surrounding the sustainability of harvesting these species for woodcarving in this region, helping to ensure the continuation of this important livelihood component for Indigenous Australians.

Herbivore-plant interactions in Royal National Park: foraging by herbivores and its impact on plants

Helen Stephens. Honours thesis. University of Sydney.

Generalist herbivores feed on a variety of plants. The vulnerability of any particular plant species to browsing by these generalists depends on the physical and chemical characteristics of that species. The vulnerability may also be affected by the characteristics of neighbouring plants. Neighbouring plant hypotheses consider the vulnerability a focal plant as a function of its own characteristics compared with those of its neighbours. Plant characteristics may influence preferences to herbivores, but herbivores also affect plants structurally, chemically and reproductively. This project investigated interactions between plants and two herbivores, introduced rusa deer (*Cervus timorensis russa*) and native swamp wallabies (*Wallabia bicolor*), in the sandy heathland in Royal National Park. Relative browsing levels (%) were determined in a field survey and a preference trial was conducted to measure deer preferences for local plant species. A subsequent trial to test neighbouring plant hypotheses found that neighbouring plants do affect the vulnerability of a focal plant, *Allocasuarina distyla,* in relation to wallaby browsing.

Allocasuarina distyla seedlings were also used to test structural and chemical responses to simulated herbivory. Artificial browsing was imposed by clipping *A. distyla* cladodes at three levels (0, 5, 50%), and rusa deer salivary extract was applied to half of these samples. Six weeks after treatment, new growth was harvested and various growth parameters measured and fibre and phenolics assays conducted. Saliva had no significant effect on most growth parameters or on fibre levels. Browsing at 5% resulted in compensatory growth while browsing at 50% was not able to fully compensate within the six weeks. Browsing also increased the length of new growth. This is thought to be due to the release of apical dominance from clipping of topmost cladodes. Browsing increased percentage fibre in new growth, although the biological significance is debatable. The

phenolic levels showed a significant interaction between browsing and saliva, indicating that the presence of saliva changes the plant response to browsing.

The reproductive output (flower production) of a potentially vulnerable heathland plant species, *Persoonia levis*, was measured as a function of fencing (i.e. removal of mammalian herbivores) for three months and browsing levels. Increasing flowering rate was correlated with a decrease in browsing levels, which represents a longer term measure of herbivory. Fencing was not a significant effect. This is probably because the plants were not fenced for long enough, or early enough, before flowering began and could be rectified in future studies.

My results demonstrate that these generalist herbivores show preferences for different plant species, and that neighbouring vegetation affects the extent to which each plant species is eaten. I have also demonstrated for the first time that *A. distyla*, which uses mainly cladodes for photosynthesis, responds to herbivory by altering growth, chemical and physical characteristics. I have also provided a basis for future research into the impact of rusa deer herbivory on the reproductive output, and potentially fitness, of long-lived plants in Royal National Park.

Powerline easements: ecological impacts and effects on small mammal movements

Tanya Strevens, Institute for Conservation Biology & Law, School of Biological Sciences, University of Wollongong (Supervisor: Professor Rob Whelan). PhD Thesis.

Habitat loss and fragmentation are recognised as the two primary threats to biological diversity worldwide. Powerline easements are linear habitat features that occur in all land tenures, including national parks. Where they occur in areas of natural vegetation, the vegetation is periodically mowed to maintain short grassy conditions. This creates a stark discontinuity with the natural vegetation in the area.

With the creation of powerline easements comes the simultaneous generation of large tracts of 'edge habitat' at the boundary between the easement and natural vegetation. In these regions, ecological processes and abiotic conditions can vary considerably from those in the bushland interior, with potentially negative effects on biodiversity. It is important, therefore, to understand the magnitude of the effects of powerline easements. By generating a series of scenarios using GIS, I explored this in a 5,735km^2 region of New South Wales that is rich in conservation reserves but highly fragmented by linear anthropogenic features. While the area of habitat replaced by powerline easements was not great (0.57% of all habitat in the study area), the total area of habitat likely to be ecologically affected by these features is very extensive, up to 14,070 ha. Powerlines make a substantial contribution to the subdivision of native bushland in this study area.

Linear features, such as powerline easements, can inhibit the movement of small mammals. Isolated populations are more vulnerable to extinction as a result of environmental stochasticity (e.g. bushfire, disease), and are also liable to loss of genetic diversity. To quantify the barrier effect posed to small mammals by powerline easements, I conducted a mark-recapture study at four sites over a two year period. This revealed an extremely low rate of easement crossing by the two common small mammal species, *Rattus fuscipes* and *Antechinus stuartii*, even where vegetation in the linear opening had grown tall and dense. There was some evidence to suggest that when animals did cross from one side of the easement to the other, it tended to be when vegetation was denser. There were generally very few captures of animals in the easements themselves, even where numbers were substantial in the adjacent forest. This suggested that competitive exclusion did not explain the infrequent easement crossings. However, one site in which easement vegetation was well-established, individuals were captured relatively regularly in the easement.

As a first step in developing a strategy to mitigate the barrier effect observed, I sought a better understanding of the habitat preferences and movement behaviour of my

study species. Using the spool-and-line technique, I followed the paths of spooled animals through the habitat and, at intervals, scored the vegetation in the immediate vicinity of the spool trail. I compared these results to availability of these habitat features in the habitat in order to quantify preferences of the two species for particular microhabitats. *Rattus fuscipes* responded positively to logs and to higher densities of shrub cover. A preference for areas with higher densities of shrub cover was also identified. *Antechinus stuartii* exhibited a significant association with leaf litter, and preferential use of larger logs and trunks.

Based on the knowledge of these habitat preferences, I constructed two habitat corridors in the easement at each of the four study sites. These 'linkages' were composed of rows of logs and branches that linked the natural vegetation on the two sides of the easement. After initial experimentation with straight linkages, I incorporated kinks to test more effectively whether spooled animals would follow the course of these structures to the shelter of the adjacent habitat or would ignore the favoured habitat characteristics provided in the linkages.

Antechinus stuartii used the linkages more than *R. fuscipes*; they were less inclined to move away from it and into the easement. While some *R. fuscipes* individuals did use the linkages either partially or entirely, others strayed from them into the open easement. They strayed significantly further when shrub vegetation in the linkage was dense. *Rattus fuscipes* was less likely to leave the linkages when they were straight than when there were kinks incorporated into them. The level of ground vegetation had little effect on the distance that *R. fuscipes* moved away from the linkages following release.

The path taken by animals released on linkages, as well as in the open easement was described using a measure of 'tortuosity'; the numbers of angles in each of four size classes per unit distance. It was then possible to compare the nature of the movement paths of animals in the open easement, on the habitat linkages, and in the adjacent habitat. Overall, the greatest number of turns per metre was made in the open easement, with fewest in the forest habitat. For both *R. fuscipes* and *A. stuartii*, the trend was for more of the smallest angles in the open than the habitat, and more large angles in the habitat. I found no significant difference between the open easement and the linkage in terms of the proportions of turns in each angle category for either species.

Finally, I carried out a series of translocations of *R. fuscipes* and *A. stuartii* to test whether easement crossing could be induced in individuals that usually showed no evidence of inclination to travel into the easement. Selection of habitat characteristics and the tortuosity of the movement path were recorded. More than half of the individuals translocated to the opposite side of the easement returned to their side of origin in 1-5 days. Others may have returned after trapping was concluded or were simply not recaptured during the trapping session. Thus, animals can and will cross the powerline easements. Translocated animals exhibited a more tortuous movement path than animals in familiar habitat, which may be related to searching behaviour as the animal investigates its new environment, perhaps selecting a travel path for the return journey to its home range.

Powerlines are a little-studied source of habitat fragmentation, despite the widespread nature of their distribution. Given the barrier effect that has been demonstrated in this study and the potential ecological consequences of this and also of edge effects, these habitat features deserve greater attention. While corridors may in some situations mitigate the barrier effect for native animal species, linkages across powerline easements constructed in this study had little impact on the number of easement crossing events. This suggests that our understanding of what characteristics of natural habitats need to be incorporated into corridors to make them more suitable is insufficient. Closer examination of the factors that influence the movement behaviour of small mammals in a variety of habitat situations will provide useful insights into how management actions could be improved.

NOTICEBOARD & ADVERTISEMENTS

Please help to keep the notice board current and informative. Items to be listed in detail as below, information should be sent to the *Bulletin* Editor ***as electronic copy*** (preferably e.mail) and in a similar format as those below **-** see details for copy deadlines in the front of the *Bulletin*. **Please give details rather than just a web address**, it can take ages to access even basic information from some sites.

FORTHCOMING MEETINGS

Dec 2-3, 2007. Environment Research Event (ERE) 2007, 11th Ann. Environmental Conf. Global Problems, Local Solutions. Cairns, Qld. www.ere.org.au

Dec 2-5, 2007. 4th Biennial Australasian Ornithological Conf. Perth, WA. www.birdswa.com.au/aoc2007/index.htm

Dec 2-7, 2007. Groundwater Quality 2007 Securing Groundwater Quality in Urban and Industrial Environments Fremantle, WA. http://www.clw.csiro.au/conferences/GQ07/index.html

Dec 3-7, 2007. 8th Invertebrate Biodiversity & Conservation Conf. 'Pacific Priorities'. Brisbane, Qld. www.ibcc2007.org/

Dec 3-7, 2007. Aust. Soc. Limnology and the New Zealand Freshwater Sciences Soc. Queenstown, New Zealand. http://limsoc.rsnz.org/

Dec 3-14, 2007. Intensive Molluscan Biology, Diversity and Evolution course. Wollongong, NSW. http://www.uow.edu.au/science/biol/events/UOW009845.html

Dec 17-19, 2007. 12th Biological Sciences Graduate Congress. Kuala Lumpur, Malaysia. http://www.bsgc2007.net

2008

Jan 16-18, 2008. The Littoral Challenge Dialogue. Lille, France. http://www.ifresi.univ-lille1.fr/Littoral2008/CALL_PAPERS.pdf

Feb 17-21, 2008. Old Forests, New Management: Conservation and use of old-growth forests in the 21st century. Hobart, Tas. http://www.cdesign.com.au/oldforests2008/

Feb 24-28, 2008. Int. Symp. Advances in tagging and marking technology for fisheries management and research. Aust. Soc. for Fish Biology, the American Fisheries Soc. and NZ Soc. for Marine Sciences. Auckland, NZ. http://www.fisheries.org/units/tag2008

Feb 27-29, 2008. EcoForum Conf. & Exhibition. Gold Coast, Qld. http://www.ecoforum.net.au/2008/pdfs/e8%20CALL%20FOR%20PAPERS.pdf

March 2-7, 2008. Ocean Sciences: From the Watershed to the Global Ocean. Orlando, Florida, USA. http://www.aslo.org/forms/orlando2008.html

March 13-16, 2008. 1st Int. Conf. on Biological and Environmental Sciences. Mansoura, Dakhlia, Egypt. http://conf.mans.edu.eg

March 31- April 3, 2008. 2nd Int. Salinity Forum. Adelaide, SA. http://www.internationalsalinityforum.org/

7-11 April 2008. 4th Global Conf. on Oceans, Coasts, and Islands. Hanoi, Vietnam. http://www.globaloceans.org/globalconferences/2008/index.html

May 19-23, 2008. Int. Symp. on effects of climate change on the world's oceans. Gijón, Spain.
http://www.pices.int/meetings/international_symposia/2008_symposia/Climate_change/climate_background_3.aspx

June 21-27, 2008. 3rd Congress and 11th Int. Conf.; Int. Soc. Applied Phycology. Galway, Ireland. www.conference.ie

July 7-11, 2008. 11th Int. Coral Reef Symp. Florida, USA.
http://www.nova.edu/ncri/11icrs

July 9-13, 2008. Joint meeting Aust. Marine Sciences Assoc. and New Zealand Marine Sciences Soc. Christchurch, NZ.
http://www.amsa.asn.au/

July 20-25, 2008. 8th Int. Wetlands Conf. Cuiaba, Brazil.
http://www.intecol.net/info-esk/8th_WWG_Conference/eighth-wwg-0.htm

August 3-7, 2008. 5th Soc. for Environmental Toxicology and Chemistry World Congress. Sydney, NSW. www.setac2008.com

August 18-22, 2008. Coast to Coast 2008. Darwin, NT. www.coast2coast.org.au

Aug 25-29, 2008. 4th Int. Symp. GIS/Spatial analyses in fisheries and aquatic sciences. Venue TBA.
http://www.fao.org/fi/gisfish/index.jsp.

Oct 23-Nov 2, 2008. Ann. Meeting, PICES. Dalian, China.
http://www.pices.int/meetings/All_events_default.aspx

Dec 1-5, 2008. 2008 ESA Annual Conf. Sydney, NSW. www.ecolsoc.org.au

Dec 1-5 2008. 4th Int. Symp. Deep Sea Corals. Wellington, New Zealand.
http://coral2008.niwa.co.nz/index.php

20th Int. Congress on Irrigation and Drainage. Lahore, Pakistan. Inq. Mr. I.B. Sheikh, ph +92 51 920 1705; Fax +92 51 922 1806.

2009

Jan 12-16, 2009. 8th Int. Temperate Reefs Symp. Adelaide, SA.
http://www.marinebiology.adelaide.edu.au/conference/

Jan 25-30, 2009. ASLO Aquatic Sciences Meeting. Nice, France.
http://www.aslo.org/meetings/aslomeetings.html

March 16-20, 2009. Int. Forest Biosecurity Conf. with 6th Int. Forest Vegetation Management Conf. Rotorua, New Zealand.
http:\\www.ensisjv.com/forestbiosecurity

May 25-29, 2009. 8th Indo-Pacific Fish Conf. Perth, W.A. More info: contact n.loneragan@murdoch.edu.au

Aug 16-21, 2009. INTECOL. 10th Int. Congress of Ecology. Brisbane, Qld. Combined with ESA09.
www.intecol.net/

Sept 29-Oct 4, 2009. Raptor Research Foundation 2009 Ann. Conf. Pitlochry, Scotland.
www.rrfconferencescotland2009.org

2010

Feb 22-26, 2010. ASLO Ocean Sciences Meeting. Portland, Oregon, USA.
http://www.aslo.org/meetings/aslomeetings.html

Interesting Websites

Website census data
This site provides access to all Census data that is available online. Census data is displayed based upon selected location and topic of interest, and can be viewed in different formats including thematic maps or tables. You can search for data based primarily on your selected location or topic, or you can go straight to one of the online tools to access data in the format you need:
http://www.abs.gov.au/websitedbs/d3310114.nsf/home/Census+data

Your Building
Information sessions are currently being held for a new national online resource - Your Building - an interactive internet portal that provides answers to sustainability in the commercial building industry and how to reduce the environmental impact of commercial buildings in Australia. Your Building was created by the Australian Greenhouse Office in partnership with the Cooperative Research Centre for Construction Innovation and the Australian Sustainable Built Environment Council.
Visit www.yourbuilding.org for Your Building solutions.

For the KIDS:
Squelch! Squelch! Is a board game and treasure hunt through the Daintree rainforest. Sustainably made in Australia by turtlegreen, the makers of Go Anna!
www.turtlegreen.com.au

Land Managers – Northern Australia
This website was created by the Tropical Savannas CRC supported by the Natural Heritage Trust. It aims to meet the information needs of north Australian land managers including pastoralists, Landcare groups, Indigenous groups and government agencies.

It enables people to make better land management decisions by providing information on the soils, pasture and plants and animals that need to be looked after, and on the problems land managers face, such as wildfire, weeds and pest animals. Importantly, the site allows north Australian land managers to share information.
http://www.landmanager.org.au/

ESA Electronic list

All messages intended for the ESA e.mail list should be sent to: esa_news@ecolsoc.org.au

Administrative commands for the esa_news list

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To save overloading all our in-boxes, ESA have moved to a series of on-line fora for discussion. These are worth keeping in mind. Go to the website (www.ecolsoc.org.au/), log in to the member's area and follow the prompts.

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- Ecology in Practice - the discussion site for all ecologists in the work force
- Ecology Views - share your opinions on a wide range of ecology issues
- Environment and Conservation discussion site
- Students and Post-graduates - discussion on student issues with your peers

The fora represent a good chance to circulate notification of publications, post docs, information and discussion, but they will only work if people get into the habit of logging on and adding to them.

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The Ecological Society of Australia is a professional organisation established to promote ecological research and communication. The Society's constitutional objectives are:

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