



# School for Environmental Research

Quarterly Highlights | January – March 2009

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## WHAT'S BEEN HAPPENING IN SER?

by Stephen Garnett

The wet season is usually a time of retreat in northern Australia—roads are impassable, rivers flood and every move is sweaty—so most of the populace heads south or retreats further into air-conditioning. But biology keeps going, which means biologists must too. This newsletter contains reports of wet season research on the ecology of flooded rivers—which, for good reason, is rarely studied—and the complete annual cycle of mosquitoes.

Those who rely on natural resources for livelihoods must also follow the seasons, both here and elsewhere in the region. Just what those livelihoods are among our neighbours to the north and the extent of their sustainability is becoming an increasing part of the school's portfolio. We now have projects in Bangladesh, Cambodia, China, Indonesia, Laos, Malaysia, the Philippines, Timor Leste and Vietnam, with new applications for graduate scholarships arriving each week. Wherever possible, we work in partnership with local institutions to build local capacity and help inform local policy. The workshop in Vietnam described in this edition (page 2), is likely to generate several exciting new projects.

We do very much want our science to assist policy-makers, which is why we recently hired Dr Heather Aslin to work on the process of taking research into policy, a process that is itself a valuable subject of research. She already has one project—looking at coastal science policy—and is generating many more.



*Erica Garcia and Andrew Raith performing electrical exclusion experiments at Edith River. Credit: Dan Warfe*



**Charles Darwin**  
UNIVERSITY

## SER in Hanoi: conservation and livelihoods policy in Vietnam

SER staff and students were among more than 100 participants who attended the 'Linkages of forest protection, economic growth and poverty reduction—issues and approaches in Vietnam' workshop in March.

This three-day workshop, hosted by the Center for International Forestry Research in collaboration with the World Agroforestry Centre, the Vietnamese Department of Forestry, the Ministry of Agriculture and Rural Development, and the Forest Sector Support Partnership, aimed to uncover ways to harmonise conservation and development, such as improving conservation outcomes and livelihoods of forest owners and agro-foresters. To achieve this goal, the workshop brought together local stakeholders and international experts to share experiences on obstacles and opportunities.

Four SER delegates delivered presentations and workshops relating to payment for environment services to the participants, who included representatives from government, national parks, research institutes, universities, donor organisations, non-government organisations and the media. Stephen Garnett presented opportunities and challenges of voluntary carbon markets; Kerstin Zander explained economic methods for evaluating environmental services; Pham Thu Thuy discussed the role of intermediaries in facilitating payment for environment services, particularly in relation to pro-poor payments; and Lisa Petheram facilitated an interactive session with SER adjunct Bruce Campbell titled 'Voices from the forest'.

Government representatives commented that the workshop presentations 'will be important influences for policy improvements and future planning'. The workshops acted as a platform for future collaborations. SER, Birdlife International, and the World Agroforestry Center discussed the possibility of future collaboration and research in the field of climate change and wetland management.



*Participants at the 'Linkages of forest protection, economic growth and poverty reduction – issues and approaches in Vietnam' workshop in Hanoi, Vietnam.*

*L to R: Do Anh Tuan (Vietnam Forestry University); Do Thi Ngoc Bich (Vietnam Forestry University); Meine van Noordwijk (World Agroforestry Center, South-East Asia); Pham Minh Thoa (Department of Forestry and the Ministry of Agriculture and Rural Development); Hoang Minh Ha (Center for International Forestry Research); and Stephen Garnett (School for Environmental Research).*

*Credit: Pham Thu Thuy*

## The buzzzzz w



*Culex annulirostris—the mosquito that carries Ross River and Barmah Forest viruses.  
Credit: Richard Russell*

SER researchers Lubomir Bisevac and Don Franklin are aiming to set the benchmark for mosquito monitoring. They analysed data collected by Medical Entomology at the NT Department for Health and Families from suburbs around Darwin, and looked at the difference in mosquito abundance and diversity between two trap types: light traps; and encephalitis virus surveillance carbon dioxide traps. What they found was consistent with similar studies done around the world: carbon dioxide traps are more effective than light traps because they detect more species more consistently.

What sets SER's work apart from the rest is that the data were collected concurrently for both trap types at six sites, sampled weekly, for a full year. This makes SER's analysis the largest of this type both in terms of length of sampling and number of concurrent trap sites. By analysing these data, Lubomir and Don learned that across habitat types, mosquito communities were behaving the same towards the two traps. In spite of their limitations, light traps detected the same overall seasonal trends and community composition as carbon dioxide traps. This has implications for mosquito management in places where access to carbon dioxide (from dry ice or carbon dioxide canisters) is difficult, such as Asia or Africa. Where a reliable source

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of dry ice is not available, light traps are just as effective in determining mosquito diversity, but not abundance. This finding could have implications for the number of monitoring sites required in areas where cost and accessibility create problems for mosquito monitoring and management.

Bisevac, L., Franklin, D. C., Williamson, G. J. and Whelan, P. 2009.

A comparison of two generic trap types for monitoring mosquitoes through an annual cycle in tropical Australia. *Journal of the American Mosquito Control Association* **25**, 58–65.

## Upcoming Events

### Conservation and business: Natural resource-based enterprise and local livelihoods

16 – 20 June 2009

SER is offering a short course on natural resource-based enterprise development. This course links theory with practical components and is led by Tony Cunningham with guest lectures by local experts.

The lecture series will cover five themes:

- 1) Poverty alleviation and the social context of bush produce enterprises
- 2) Sustainable harvest issues
- 3) Economic issues, including value-chains for bush produce enterprises
- 4) Certification (labelling and cultural branding)
- 5) Communicating research results to different audiences using a range of tools.

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## Gift giving big business in Indigenous communities

We know that natural resources are important to Indigenous livelihoods, but just how important are they? SER student Michael Honer is hoping to answer this and other questions as part of his PhD research. In late 2008, Michael and research assistant Neville GulayGulay surveyed eighteen households in the Ramingining region to learn about annual harvest patterns. Their initial observations indicate that reciprocal sharing of bush products influences Ramingining livelihoods.

'Gift giving of food and other natural resource products is not only an important tradition but it makes up a key part of peoples' livelihoods,' Michael explained. 'We saw a variety of bush foods like cycad-nut bush damper and smoked barramundi used for this purpose.'

Michael and Neville will return in May to get early dry season, or Dharratharramirri, data. Getting the bigger picture of seasonal and annual harvests will help Yolngu people decide whether their bush products can become sustainable businesses. This research is funded by the Australian Research Council, the Ramingining Homelands Resource Centre, and the NT Research and Innovation Board.

*Neville GulayGulay's family collecting green plums near Galawdjapin outstation. Credit: Michael Honer*



*Woman wrapping a gift barramundi near Ramingining. Credit: Michael Honer*

# School for Environmental Research

## Staff news

**Stephen Garnett** and **Dr Gabriel Crowley** won the prestigious D. L. Serventy Medal for their research into birds. This research has helped save some species from extinction.

**Heather Aslin** commenced her tenure as Senior Research Fellow—Policy Integration. Heather joins us from the Bureau of Rural Sciences in Canberra. She will be developing stronger links between SER research and policy-making at Territory and national levels.

**Owen Stanley** and **Riccardo Scarpa** have been appointed as adjuncts to strengthen the school's economics research capacity.

**Lindsay Hutley** and **Sam Setterfield** joined SER part-time to work as part of the Wildlife and Landscape Science theme.

**Lynda Prior** is 'leaving' to join the University of Tasmania full-time. She will remain with SER as a semi-permanent visitor.

**Ian Dixon** has been promoted to Research Fellow for the 'Framework for the assessment of river and wetland health' project.

**Ruth Duncan** joined TRaCK to work with the team developing the 'Framework for the assessment of river and wetland health' project.

**Peter Kyne** joined TRaCK working as a Research Associate on food webs.

**Pascale Taplin** joined the Wildlife and Landscape Science Theme as a Research Associate.

**Hannah Brodie-Hall** joined SER on a short-term contract to help with communications and publications.

## Postgraduate student news

**Kristal Coe** submitted her Masters thesis: Gender mainstreaming and natural resource management.

**Piers Burrow** submitted his PhD thesis: The role of fire on the ecology of Leichhardt's grasshopper.

**Nick Smith** joined SER to continue his PhD research: Weed management in Northern Australia: Indigenous perceptions.

**Susan Jacups** commenced her PhD to evaluate mosquito control in north Australia.

**Xavier Hoenner** started his PhD in the Gulf of Carpentaria: The nesting ecology of endangered Hawksbill sea turtles.

**Conrad Speed** moved to Perth to be closer to his principal supervisor and SER adjunct, Mark Meekhan, who also moved there.

## Toughing it out: wet season research vital to river health

Wet season research could be vital to unlocking the mysteries of north Australian rivers. Tropical Rivers and Coastal Knowledge researchers, Erica Garcia, Dan Warfe, and Neil Petit, are conducting wet season research in the Daly River catchment to learn more about species' interactions within and across rivers—who eats who—and the seasonal variations of these interactions—when they eat. In the past, the main constraint to seasonal analysis of tropical rivers has been the lack of wet season data. These data are lacking mainly because of inhospitable conditions experienced during wet season research. The team had two major wet season field trips. Sometimes difficult conditions suddenly became more so. 'At one of our river sites the water rose over a metre in less than two hours,' Erica said. 'We were lucky no equipment was lost given the intense rain and strong river flow.'

Their results will clarify whether dry season movement of plants and animals between terrestrial and river areas is critical to species' survival and river health. Initial observations indicate that wet season movements are also significant. This research will help government make evidence-based decisions about Top End rivers and avoid management mistakes observed in other parts of the country. This field work is part of Tropical Rivers and Coastal Knowledge project 'Bottom up and top down control of tropical river food webs'.

For more information visit the Tropical Rivers and Coastal Knowledge website [www.track.gov.au](http://www.track.gov.au).



*Erica Garcia and Andrew Raith setting up a malaise trap to trap flying insects at the Edith River. Credit: Dan Warfe*

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