The Australasian Bat Society Newsletter

Number 32 April 2009

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– Instructions for Contributors –

The *Australasian Bat Society Newsletter* will accept contributions under one of the following two sections: Research Papers, and all other articles or notes. There are two deadlines each year: **10th March** for the April issue, and **10th October** for the November issue. The Editor reserves the right to hold over contributions for subsequent issues of the *Newsletter*, and meeting the deadline is not a guarantee of immediate publication.

Opinions expressed in contributions to the Newsletter are the responsibility of the author, and do not necessarily reflect the views of the Australasian Bat Society, its Executive or members.

For consistency, the following guidelines should be followed:

- Emailed electronic copy of manuscripts or articles, sent as an attachment, is the preferred method of submission. Manuscripts can also be sent on 3½" floppy disk, preferably in IBM format. **Please use the Microsoft Word template if you can (available from the editor).** Faxed and hard copy manuscripts will be accepted but reluctantly! Please send all submissions to the *Newsletter* Editor at the email or postal address below.
- Electronic copy should be in 11 point Arial font, left and right justified with 16 mm left and right margins. Please use Microsoft Word; any version is acceptable.
- Manuscripts should be submitted in clear, concise English and free from typographical and spelling errors. Please leave two spaces after each sentence.
- Research Papers should include: Title; Names and addresses of authors; Abstract (approx. 200 words); Introduction; Materials and methods; Results; Discussion; and References. References should conform to the Harvard System (author-date; see recent *Newsletter* issues for examples).
- Technical notes, News, Notes, Notices, Art etc should include a Title; Names and addresses of authors. References should conform to the Harvard System (author-date).
- All pages, figures and tables should be consecutively numbered and correct orientation must be used throughout. Metric units and SI units should be used wherever possible.
- Some black and white photographs can be reproduced in the Newsletter after scanning and digital editing (consult the Editor for advice). Diagrams and figures should be submitted as 'Camera ready' copy, sized to fit on an A4 page, or electronically as TIFF, JPEG or BMP image files. Tables should be in a format suitable for reproduction on a single page.
- Research Papers and Notes will be refereed, and specialist opinion will be sought in some cases for other types of articles. Editorial amendments may be suggested, and articles will generally undergo some minor editing to conform to the *Newsletter*.
- Please contact the *Newsletter* Editor if you need help or advice.

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– Editorial –

Hello All,

It has been an intense, hot, dry Australian summer and recent fire events are sure to have a lasting effect on the habitat of numerous native animals, including our bat fauna. Judging by the number of 'thirsty koala' e-mail photos that have been circulating, it seems that wildlife lucky enough to survive the fires have been forced to change their behaviours dramatically in the face of severe food and water shortages. Ken Sanderson's survey findings from burnt vs unburnt habitat on Kangaroo Island (p. 19) offers some insight into the lasting effects of such extreme events. The ABS offers its condolences to members, their friends and families who may have suffered adversity as a result of the fires. Donations to assist in the care and treatment of injured wildlife in Victoria can be made to the Australian Wildlife Health Centre at Healesville Sanctuary either by phone (03 9285 9406) or online: http://www.zoo.org.au\foundation (specifying '2009 Bushfire appeal'). Similarly, donations to the Australian Red Cross can be made at: http://www.redcross.org.au

The theme for the 32nd edition of the ABS newsletter is ADVENTURE! Two separate ABS members report on their bat adventures of Ireland (pages 14 & 16), two interesting bat species from the Mascerene Islands and the unfortunate conservation issues facing them are introduced to us by Steve Bourne (p. 21) and some interesting data on counts of Fijian cave dwelling bats are given by Annette Scanlon on page 17.

As promised, I have also provided an update on the Christmas Island Pipistrelle (*Pipistrellus murrayi*) situation. Thank you to all those members who contacted Minister's office and alerted politicians to the immediacy of the situation. Our letters and phone calls did initiate a response, which is gratifying, the current update on page 26 will allow you to decide for yourself whether you think this response ensures the best chance of survival for the Christmas Island Pipistrelle. The battle is far from won and again I encourage you all to be proactive in making this issue known to the wider community and to politicians.

On a lighter note, I am amazingly happy to finally include a picture of me carrying out some bat related work! It was with great pleasure that I attended the ABS FAGM and associated field trip at Yanga National Park, NSW from the 8 – 14th March. You can share in Chris Grant's entertaining report on the week on page 29. Our inaugural survey of the newly established National Park was highly successful, evidenced by the large volume of bats I am keeping warm under my top prior to release. Huge thanks to our President, Michael Pennay, for coordinating an entertaining, informative, valuable and most of all friendly field trip.

I hope you enjoy this *adventurous* edition of the ABS *Newsletter*. As always, please keep your contributions flowing in. In the not so distant future I hope to run a feature on *Tradie's tips*. So put your thinking caps on. If you are sitting on some ingenious, practical, useful and / or innovative field and / or analysis techniques, please consider sharing them!

Susan Campbell
***Newsletter* Editor**

Cover photo: One of the interesting findings from the Yanga NP field trip was the capture of Large Forest Bats *Vespadelus darlingtoni,* an inland range extension. These individuals are smaller and lighter in colour than elsewhere in their range. Photo: Lindy Lumsden, of a similar looking individual caught nearby on the Murray River, north of Tooleybuc.

– From the President –

This is my second President's report, I recently gave one at the FAGM at Yanga (which is printed on page 8) so I'll spare you all from the details twice, other than to say hello to everyone and welcome to the first *Newsletter* for 2009.

On a (s)light(ly silly) note, I just thought I had better disclose to ABS members that I spent two weeks in February making a documentary for the History Channel TV show "Monster Quest". We were in search for a living….ahem…Pterosaur in Papua New Guinea. I was the 'bat expert' to confirm if the mystery beastie was in fact a bat. I have to admit that I was a bit worried about the capacity of my mist nets to hold such a beast, if one did indeed exist! Anyway, I am not allowed to reveal the results of the survey until the show comes out, but be warned if you are sitting around a hotel room one night watching pay TV and see the Monster Quest episode "Demon Flyer." you may recognise one of the 'characters'…and please be assured the beautiful *Melonycteris melanops* really did survive unharmed!

Found one! Oh, you mean Pterosaur, not Pteropus?? A spectacular Bismark Flying-fox, one of the world's largest bats flying over West New Britain.

Hey kids, is this a Pterosaur? Yours truly 'on set' with co-star Bill, the Papuan Hornbill.

Michael Pennay
ABS President

Ed: Nope, this isn't a Pterosaur either, but a rather cute shot of the Large-footed Myotis caught at Yanga. Just because I can.

– Australasian Bat Society Inc.: Business and Reports –

AUSTRALASIAN BAT SOCIETY, INC.

ABN: 75 120 155 626

Minutes of ABS Financial Annual General Meeting
Yanga National Park field Trip, March 8, 2009 2pm

1. Open attendance and apologies

Present: Michael Pennay, Maree Kerr, Chris Grant, Lindy Lumsden, Susan Campbell, Dennis Matthews, Tony Mitchell.

Apologies: Craig Grabham, Alexander Herr, Damian Milne, Nancy Pallin, Terry Reardon, Greg Richards, Marg Turton.

2. Adjournment of FAGM

A quorum of 10 members was not present at 2 pm. As no further members arrived within half an hour, the meeting was adjourned under Item 38 (1) and (3) of the ABS Constitution, and reconvened for 2.40 pm. The conditions being met under Item 38(4), the FAGM 2009 then took place.

3. Ratification of Minutes of AGM, 2008

The minutes of AGM 2008 were endorsed as a true record.
Moved: Michael Pennay Seconded: Susan Campbell

4. Business arising from minutes

One item from the 2008 AGM was noted for follow-up: Item 7: The Southern Bent-wing Bat. Michael Pennay will follow up the proposed actions resolved at the AGM.

5. Reports from executive officers

Office bearers presented their reports.

- **President's Report – Michael Pennay**
  (report published on page 8)
- **1st Vice President's Report – Chris Grant**
  (report published on page 9)
- **2nd Vice President's Report – Lindy Lumsden**
  - Thanked Michael for doing an excellent job as President.
  - Reported that the organisation for Darwin conference was going well.
- **Secretary's Report – Maree Kerr**
  (report published on page 9)
- **Treasurer's Report – Craig Grabham**
  The report was tabled by the secretary. The report is published on page 12.

It was noted that some money should be moved from the working account to the cash management account to gain more interest.
The Treasurers' report was accepted as a true record of the accounts.
Moved: Lindy Lumsden Seconded: Maree Kerr

- **Membership Officer's Report – Damian Milne**

The membership report was tabled by the president.
(report published on page 11).

- **Editor's Report – Susan Campbell**
  (report published on page 10)

- **Website report**
  A website report was not available but Michael Pennay reported that he and Alexander Herr were looking at ways to upgrade the website. Michael Pennay is to research easily editable websites for ABS.

6. Business arising from Reports

It was noted during discussions arising from the reports that the meetings of the executive and extended executive between the general meetings have traditionally be conducted by email. Although some improvements to the duration of these meetings have been made, members agreed that a better way of conducting these meetings should be investigated, as the emailed document becomes unwieldy and it is difficult to track the most up to date version. Maree Kerr is to look at setting up electronic meetings using WIKI and report back to the executive.

7. Other Business

- Christmas Island Pipistrelle update

  Due to its importance, this item was tabled for discussion at the end of the meeting. Discussion is reported at agenda item 8.

- Gift Fund update

  The documents for finalising the gift fund have been partly compiled. Michael Pennay will check that the Gift Fund clause of the constitution meets government requirements and handle the finalisation of setting up the gift fund.

- Shooting FF in NSW update

  Following actions from the Victorian and Queensland governments to cease issuing licences to kill flying-foxes for crop protection, the ABS supported the campaign by Humane Society International (HIS) to ban the shooting of flying-foxes for crop protection in NSW by endorsing their report. A link to the report has been placed on the ABS website. Nancy Pallin attended a NSW Flying-fox Consultative Committee meeting on Friday 6th March which largely focused on licenses to shoot flying-foxes for fruit crop protection in NSW, and will update the membership via the newsletter.

- Communication Strategy and Position Statements

  During 2008, various ABS members offered to prepare Position Statements as part of the draft Communication strategy. No progress reports were available for this meeting. The Communication Strategy will be reviewed at the next executive meeting and outcomes reported to the ABS membership.

- Wind Farm document

  Lindy Lumsden will follow up outstanding actions on this topic.

- BatWorkers' Manual DVD

  The executive will follow up progress with the production of the Bat Workers' Manual.

- 2010 ABS conference

  Lindy Lumsden reported that organisation of the 2010 ABS conference in Darwin is progressing well under Damian Milne's organisation. The conference will be held in July 2010 and advance notice will be given in the ABS *Newsletter*.

The meeting was adjourned at 4 pm and reconvened at 4.20 pm for discussion on the Christmas Island Pipistrelle.

7. Christmas Island Pipistrelle campaign

Lindy Lumsden reported on the situation with Christmas Island Pipistrelle, stressing the need for urgent action, and reported on the actions of the ABS so far and responses by government, concluding with what we need to do next to have a chance of saving this bat from extinction.

Summary:

A full summary of Lindy's comments on the Christmas Island Pipistrelle can be found on page 26.

Lessons Learnt:

- ABS needs a media strategy
- ABS should use the media to promote publicity
- ABS should go to the head straight away- i.e. target the Minister
- Don't rely on scientific reports to get our message across.
- Don't let Southern Bent-wing Bats or any other bat species suffer the same problems as the Christmas Island Pipistrelle – start publicity campaign early.

Immediate Action required:

We urgently need to follow up with as many letters as possible to be sent to the Minister.

The ABS will prepare two letters – a form letter for sending to the Minister from as many people as possible and an official letter from the President. After this first official letter, a request for a meeting with the Minister or his advisers will be sought. The President and 2nd Vice President will attend this meeting on behalf of ABS.

Susan Campbell will draft the official letter and modify it to a form letter for ABS members and the wider community.

The letter will:

- acknowledge that the Department has initiated some actions;
- point out and clarify the "misunderstanding" regarding Pipistrelles and captive breeding;
- strongly pressure the department for immediate action on capturing bats for captive breeding (before the end of March);
- offer our (ABS) expertise – the ABS has the island knowledge and the ability to capture bats, plus expertise and experience on captive breeding of microbats;
- put pressure on the Minister for funding to be allocated NOW (the approach currently being taken by the government is that they need to be able to secure money to fund the entire 10 year program, before commencing the emergency rescue of the remaining bats); and
- strongly point out the likelihood of extinction if there are any delays in immediately implementing capture of the pipistrelles.

Lindy Lumsden asked members to be prepared to volunteer to capture the bats and asked for ideas on innovative capture methods.

8. Next Meeting

The next meeting will be at the AGM to be held at the 14th ABS Conference, Darwin in July 2010.

Under the Constitution, the Executive will meet at least three times before the AGM.

9. Close

The meeting closed at 6.10 pm.

President report

Michael Pennay
president@ausbats.org.au

The last 12 months seem to have flown so quickly it's hard to believe it has been a full year since the Albury conference and being elected president. Unfortunately not all of the business has been about good news, the terrible death of thousands of Grey-headed Flying-foxes in Victoria during the February heatwave is a stark reminder of challenges we are all going to face in the future. I'd like to acknowledge and thank those involved in helping the bats in Melbourne and elsewhere for their dedication and effort during some particularly grim times.

As you would all be aware the ABS has also been heavily involved in lobbying to prevent the extinction of the tiny Christmas Island Pipistrelle. Neither the latest updates from the island in January 2009 or the situation on the 'political front' are good news. The population has continued to shrink and Environment Minister Peter Garrett has either been given bad advice or is deliberately stalling (you can make up your own minds) about captive rearing of microbats, which they claim is untried, but as I'm sure most members know, is done frequently by wildlife carers and research institutions in Australia and worldwide. There is really only one option if we are to avoid extinction and that is to capture and secure the last remaining individuals for a captive breeding program. Minister Garrett has proposed an investigation of Christmas Island ecology and also a pointless 'trial run' of a captive breeding program on *Pipistrellus westralis,* all of which will be futile if there are no Christmas Island Pipistrelles left to save at the end of the studies and trials.

On a positive note, I have been really impressed with the power of the ABS and its members to lobby for a cause. We are a relatively small society but through our combined efforts, contacts and ideas we have been able to raise the profile of the Christmas Island Pipistrelle nationally and internationally. It is really impressive to see articles about the pipistrelle's demise in the Scientific American, the Sydney Morning Herald, The Age and on ABC radio, and to see the Environment Minister forced to launch two press releases on the issue in a month! It's easy to get despondent because we may not be happy with the Government's response, but ABS members should be proud that we have been able to make them really pay attention to the issue. We have also learnt some good lessons about how we can exert similar pressure in the future before it reaches such a terminal point for other species.

Other issues I have been involved in for the ABS this year include discussions with the Commonwealth Environment Department about wind farm protocols and with the Australian Quarantine and Inspection Service about white nose syndrome in North America and Australian biosecurity measures. AQIS have been very co-operative and have established liaison with their counterparts in the USA on the issue. Unfortunately the Environment Department has largely ignored bat advice issued to date in the development of its windfarm development protocols, so we need to keep bugging them about that.

In terms of directions for the society I'm really happy that many of us have come together here in the field, it's great to get together face to face and 'talk bat'. I think one of the challenges we face as a society is that we are relatively far flung in disparate places in Australia, New Zealand and the pacific. I'd like to try and help us overcome some of the challenges of being so widely spread by improving the way we communicate especially through the ABS website. If I have time over the next 12 months I'd really like to look at ways we can make the website more vibrant and current and accessible. Damian Milne has done a great job of establishing 'e-membership' and online membership payment, I know its not everyone's cup of tea, some prefer paper, but these kinds of things really help improve access to the society, I'd like to hear anyone's ideas on this.

I'd also like to improve the way the ABS deals with its funds and funding requests, so we can best achieve conservation outcomes for bats. This is something I'd like to work through with the executive over the next 12 months.

Thanks for putting up with me as president over the last 12 months, hopefully it hasn't been too painful for you all! – I look forward to seeing many of you again in Darwin next year.

1st Vice-President report

Chris Grant
Grant.chris2@saugov.sa.gov.au

I firstly would like to commend our President Michael Pennay for his efforts since taking office. In the short time I have been 1st Vice-President for only five months, the Christmas Island Pipistrelle *Pipistrellus murrayi* has dominated discussions and has absorbed the energy of many people. Thanks to everyone involved in this, especially Lindy Lumsden. The situation for the CIP is certainly dire, and I think it is worthwhile reflecting on our progress so far. Since we became involved in this issue as a society around four years ago, we have demonstrated that the ABS can be a powerful lobby group and instrument for change. I believe this is an entirely appropriate and necessary role for our organisation and not one we should shy away from. The way we have dealt with the media has at times been extremely effective, and I feel it would be valuable to continue to develop our media strategy. In particular, we have learnt the importance of acting as quickly as possible and using the media effectively to achieve change in threatened species management.

E-mail discussions can be very effective but at times it becomes cumbersome, and I feel the possibility of an on-line discussion page is worth investigating. Our loyal membership is testament to the passion of those involved in bats, and I'm sure in a large part also due to the regularity and uniting value of the ABS *Newsletter*. Full credit to all contributors and especially to the tireless efforts of Susan Campbell in pulling it all together.

I receive regular web server enquires from the ABS website. Most fall into four categories: general bat enquiry; visiting bat enthusiasts looking for opportunities to do field work; how to attract bats to an area; and how to remove bats from a house (most common enquiry). Expanding the website to encompass the more common questions would be valuable.

Happy batting and see you all in Darwin.

Secretary report

Marree Kerr
secretary@ausbats.org.au

The secretary tabled a list of correspondence and thanked Michael Pennay for his untiring work on behalf of the society.

Correspondence for Secretary's report: 2008-09

Incoming

July 08	Letter from NSW Scientific Committee regarding appreciation of input into assessment of status of Black Flying-fox in NSW and advising its determination to remove the Black Flying-fox as a threatened species.
16.7.08	Letter from Singleton Council regarding proposed removal of flying-foxes, stating that the proposed translocation has been deferred until issues are resolved.
Sept 08	Letter from Gary Davey Director of North East Region NSW DECC regarding Singleton flying-fox camp proposed translocation.
Sept 08	Letter from Department of Environment Heritage and Water stating that the Christmas Island Pipistrelle is being seriously considered and that a report has been commissioned.
15.10.08	Letter from Dr Cliff Samson Executive Director AQIS regarding 'White Nose Syndrome" they have referred it to Biosecurity Australia and have asked for advice from their counterparts in the USA.
3.12.08	Request for endorsement of report against shooting of flying-foxes for crop protection in NSW from Humane Society International.
6.1.09	Request for assistance Bat Symposium for Sept 2009 from Lisa Evans.

Outgoing

4.6.08	Letter to Environment Minister Garrett, urging urgent action to protect the Christmas Island Pipistrelle. Michael Pennay.
4.6.08	Letter to Environment Minister Garrett regarding the Southern Bent-wing Bat. Michael Pennay.

4.6.08 Letter to Elizabeth Hartnell expressing thanks for her kind donation to the society. Michael Pennay.

17.7.08 Letter to Minister Burke for Agriculture, Fisheries and Forestry advising of threat of "White nose syndrome". Michael Pennay.

17.7.08 Letter to Secretary for AQIS re White-nose syndrome. Michael Pennay.

29.7.08 Letters of support on behalf of the society to Lindy Lumsden and Martin Schulz's 'Caring for our Country' bid proposal to avert the imminent extinction of the Christmas Island Pipistrelle. Michael Pennay.

12.8.08 Letter of support to SA Department of Environment and Heritage 'Caring for our Country' bid proposal for Southern Bent-wing Bat. Michael Pennay.

13.8.08 Letter to Singleton Council on behalf of the society in response to their plan to relocate flying-foxes – expressing the society's concern regarding attempting translocation while females are heavily pregnant or have just given birth. Michael Pennay.

13.8.08 Letter to Lisa Corbyn Director General of NSW Department of Environment and Climate Change about the same issue expressing the society's concern that translocation of heavily pregnant females breaches of the DECC flying-fox camp management policy and that the approval to undertake translocation at this time should be reviewed. Michael Pennay.

21.8.08 Letter to David Borthwick Secretary, Department of Environment, Water, Heritage and the Arts. Requesting further consultation with ABS regarding Wind Energy Development Stakeholder Reference Group. Michael Pennay.

17.9.08 Letter to Ray Nias Threatened Species Manager WWF Australia, requesting WWF assist with campaign to save the Christmas Island Pipistrelle. Michael Pennay.

4.11.08 Bertrand Loyer, Saint Thomas Productions, correspondence regarding filming locations for *Pteropus neohibernicus* in Papua New Guinea. Michael Pennay.

7.11.08 John Kinghorn, Gauteng and Northern Regions Bat Interest Group South Africa. Email Correspondence about bat newsletters and story swap.

18.11.08 David Drynan, co-ordinator Australian Bird and Bat Banding Scheme Department of Environment, Water Heritage and the Arts. Letter enquiring about possibility of establishing a national PIT tag register for bats.

6.12.08 Statement of support for campaign against shooting of flying-foxes for crop protection in NSW.

8.12.08 Director, Legislation Policy Section, Department of the Environment, Water, Heritage and the Arts. Letter expressing disappointment in factual errors and lack of consultation with bat experts in preparation of the Draft Wind farm industry - EPBC Act Policy Statement 2.3.

13.1.09 Letter to Bat Conservation International supporting Annette Scanlon's application to study the Fiji Blossom Bat. Michael Pennay.

19.3.09 Letter to Environment Minister Garrett and Peter Cochrane regarding Christmas Island Pipistrelle. Michael Pennay on behalf of the ABS executive.

Editor report

Susan Campbell
editor@ausbats.org.au

Thank you for the positive feedback I received from members regarding recent editions, it is always great to hear that people are enjoying the content of the ABS *Newsletter* and it makes the time spent collating your stories much more worthwhile. I have slightly reformatted the lay-out of the *Newsletter* to make it easier to read and I am trying to add in as many photos as possible, so please keep sending them to me as it's wonderful to put faces to names.

I am focussing in on identifying a 'theme' for each *Newsletter*, previous themes have included "up & coming research" with a focus on new research activities. The theme for the current edition is "adventure stories", from both overseas and Australia. In the future I will be hoping to run editions on "technical tips and advice" and follow up "progress reports" on those student projects introduced in 2008. In late 2010 we may also have the chance to report on the outcome (or progress!) of the Christmas Island Pipistrelle. If

any one has suggestions for themes they would like to see run in the *Newsletter*, please let me know and I will try to make it happen.

Regular features of each *Newsletter* still include some form of photo competition (I will look into finding prizes for these as means of encouragement), a book or paper review and a summary of "short notes" or "tidbits" from the web or the ABS list-server. I am currently writing the book or paper review however I'm looking to outsource this task, so please feel free to volunteer or consider my request if I should ask directly!

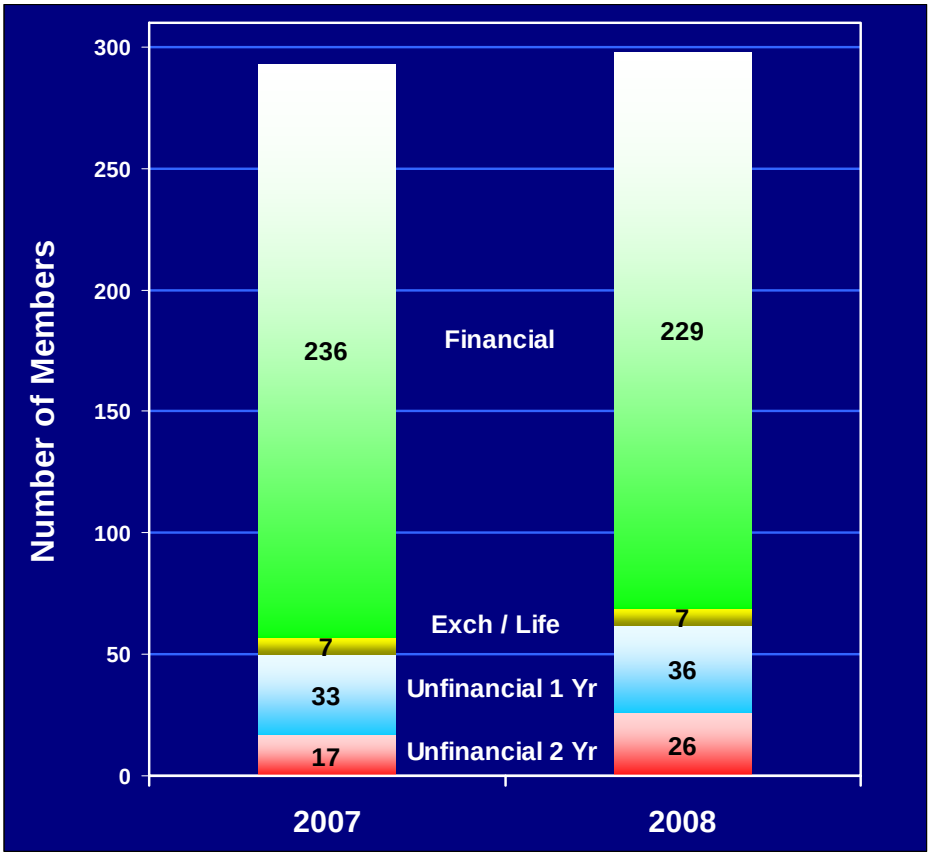
As always, this is your *Newsletter* and will only benefit from your regular contributions, long or short, funny, serious, informative or illustrative, please send them through.

Membership Officer report

Damian Milne
membership@ausbats.org.au

The total number of ABS members increased again in 2008 to 298, up 5 on the previous year. Turn over was relatively high with 27 new members and 22 members who either resigned their membership or membership was ceased due to being unfinancial for longer than 2 years. The proportion of financial members was down slightly compared to the previous year. By the end of 2008, 229 members (77%) were fully financial and 62 members (21%) were unfinancial (36 members < one year, 26 members > one year). The number of exchange and life members remained unchanged at 7.

The ABS executive is also investigating options for online membership. We have selected a provider that would enable people to join ABS or renew their current membership online. Initial testing of the system however was considered unsatisfactory and we are currently in talks with the provider to see if improvements can be made.



Financial make up of ABS members in the year ending 2008 compared against 2007.

Treasurer report

Craig Graham craig.grabham@ghd.com.au

TREASURERS REPORT FOR THE YEAR ENDING 31 DECEMBER 2008

Income	$	% (of income)
ABS Conference 2008	$16,148.50	63.2%
Membership subscription	$8,742.50	34.2%
Interest (Cash Management)	$507.36	2.0%
Interest (Cheque)	$146.16	0.6%
Interest (Gift Account)	$4.34	0.0%
Donations (ABS Gift Fund)	$20.00	0.1%
TOTAL INCOME	$25,568.86	100%
Expenditure		
ABS Conference 2008	$14,384.95	66.7%
Membership Management (renewals etc)	$1,898.80	8.8%
Newsletter (production & postage)	$1,226.83	5.7%
Insurance (public liability)	$1,963.49	9.1%
Executive (ie. webpage, donations etc)	$250.00	1.2%
Merchant Fees (Credit Card Facilities)	$1,357.36	6.3%
Bank fees (Cheque)	$259.70	1.2%
Bank fees (Cash Management)	$232.00	1.1%
Bank fees (Gift)	$0.00	0.0%
TOTAL EXPENDITURE	$21,573.13	100%
SURPLUS (DEFICIT)	**$3,995.73**	
GST Refunded from ATO	$455.00	
GST Paid to ATO	$486.00	

Membership		
Cash inflow	$8,742.50	
Costs	$1,898.80	
Surplus	$6,843.70	

Bank accounts		
Cash inflow	$677.86	
Cash outflow	$1,849.06	
Deficit	$1,171.20	

Summary		
Membership	$6,843.70	99.7%
Donations	$20.00	0.0%
Newsletter	$1,226.83	-17.9%
Insurance	$1,963.49	- 28.6%
Bank accounts	$1,171.20	-17.1%
Executive	$250.00	- 3.6%
Net result	$2,252.18	32.8%

Surplus comprises	
Excess of member subs	$2,252.18

ASSETS AT 31 DECEMBER	**2007**	**2008**	**Change**
ABS Cash Management Trust (Investment)	$7,495.77	$7,771.73	$275.96
ABS Cheque Account	$27,557.47	$29,327.70	$1,770.23
ABS Gift Fund (Donations)	$1,039.36	$1,063.70	$24.34
TOTAL ASSETS	$36,092.60	$38,163.13	$2,070.53

Note: GST refund for last quarter (September - December 2008) deposited into account by ATO in 2009.

Report prepared by ABS Treasurer – **Craig Grabham**

Report audited by ABS Auditor – **Robert Bender**

Notification of 14th Australasian Bat Society Conference

Ed: Wow! I just 'Googled' Darwin and here's the first two sentences that appeared:

'Darwin oozes that laid back feel so many crave in this highly stressed world. Edged with palm trees and a shimmering blue ocean, Australia's most northern capital is a serene contrast from the extreme centre'.

With that in the forefront of your mind, check out this hot off the press announcement:

The 14th Australasian Bat Society, Inc. Conference.

Charles Darwin University, Darwin, N.T.

12 – 14th July, 2010

July is the peak of the tourist season in Darwin. So even though the conference is still just over a year away, please start putting some thought towards your travel and accommodation requirements.

Your conference organisers are Damian Milne (damian.milne@nt.gov.au) and Chris Pavey (chris.pavey@nt.gov.au).

The design for the 14th ABS Conference:

'The Arnhem Sheath-tailed Bat *Taphozous kapalgensis*, a endemic species to Australia's Top End'.

Designed by Gerhard Koertner

– Research (adventure!) Notes –

Bat Conservation in Ireland

Robert Bender

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In September 2009 my wife and I spent three weeks touring around the Irish republic, seeing stone sage sites, ruined monasteries and national parks. Before leaving home I contacted Bat Conservation Ireland in the hope of meeting one or two of its active members while there, and downloaded some of their Natterer Newsletters to see what they get up to.

We spent an evening (which became quite a late night!) with the very enthusiastic Bat Conservation Ireland president, Conor Kelleher. We met up in Macroom, County Cork and visited several old buildings in Killarney National Park further west to survey bats inhabiting these sites using Conor's Batbox Duet bat detector. Setting the Duet bat detector involves tuning to a frequency and listening to what is detected at that frequency. It seems there are only two frequencies commonly used by Irish bats.

At the entrance to Killarney National Park is an old thatched cottage now used as an administrative building. In its basement lives a large colony of Lesser Horseshoe Bats (*Rhinolophus hipposideros*). An exit hole has been cut in the basement door allowing us to enjoy the nightly emergence of these bats and to listen to their high-pitched squeaks through the detector, which was set at 45 kHz.

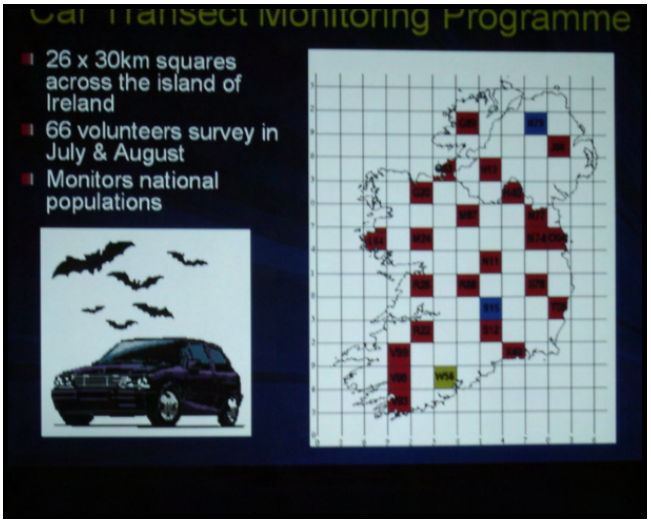
Conor Kelleher and his wife (right) with Carolyn Bender in between, Ireland. Below-left: the Batbox Duet detector.

In a neighbouring cottage live some Soprano Pipistrelles (*Pipistrellus pygmaeus*) which we watched emerge on the same night as the two species have slightly different emergence times. We walked a kilometre to Ross Castle, a major tourist attraction with a small lake beside it. Here we listened to Leisler's Bats (*Nyctalus leisleri*) trawling across the water. Finally, we spent over an hour at Muckross Abbey, currently being restored, where we saw some Brown Long-eared Bats (*Plecotus auritus*), but Conor failed to capture any with his long-poled net. Conor informed us that the Office of Public Works must pay for bat surveys before restoring old buildings, a great improvement on the early years with bat colonies sealed inside their refuges by over-eager plasterers.

Conor has spent 12 years in England, some of it working as a survey consultant for the UK Wildlife Trust conducting bat surveys. On his return to Ireland in 2004 he set up BCIreland with a few other volunteers to undertake bat surveys, conduct public education programs, rehabilitate injured bats (about 10 each summer) and to lobby for better conservation measures for Irish bats. One of their major concerns has become the qualifications of wildlife consultants who are employed to do bat surveys, with as little as only 2 or 3 hours at a bat detector workshop as their professional training. Some produce very poor quality Impact Statements with very strange action recommendations.

BCIreland opened an office in a small town in 2007 and now employ two part-time people to

manage their growing database. One researcher, who now specialises in deer, does 3 days a week of bat surveys in 1 km^2 plots, of which she does 300 per year. These surveys are all funded by the government which was much embarrassed some years ago when conservation groups took it to the European Union court for failing to meet its conservation obligations. The government now funds volunteer groups quite generously, enabling BCIreland to distribute hundreds of bat detectors each year to survey volunteers. County Heritage Officers regularly organise public education talks by BCIreland activists.



A week later we attended an evening educational talk by Tina Aughney, another very committed volunteer, at Newbridge, just west of Dublin. Tina's presentation covered the evolution and taxonomy of the ten species of bats found in Ireland, echolocation and winter hibernation patterns, the importance of old buildings and tree hollows, bat detectors, the BCIreland workshops and training programs along with their annual survey effort. Tina and her team of volunteers have selected 26 squares from a grid to be surveyed (50 km transects in each county) each year with a bat detector held out a car window. The number of volunteers is growing each year, and August surveys for Daubenton's Bats (*Myotis daubentonii*), detect this species presence in every Irish county. Tina finished up with a recruitment plea and a list of things volunteers can do to help, along with a display of bat boxes which people can build for themselves and put up on local trees to help bats find homes.

After the talk, Tina issued bat detectors to the 30 people attending and we all walked across the road to detect Daubenton's Bats cruising in figure of eight circuits across the water.

Tina Aughney, BCIreland volunteer. Left: poster illustrating the division of Ireland into driveable bat survey transects.

Tina spent an hour at the local pub after the group dispersed, telling us about her work. There are still only a handful of activists in Ireland, so she travels hundreds of kilometres each week conducting workshops, recruiting and supervising bat surveys. Since the EU court case the Irish government has been generous in funding the purchase of detectors, covering travel costs and printing leaflets, so BCIreland is doing well. [*Ed: Could there be a lesson here for the ABS and the Australian Government once the CI Pipistrelle story is resolved one way or the other?*]

It was all very heartening listening to Conor and Tina and I left feeling that bat conservation is in good hands. Like other groups, they will have problems when the current cohort of enthusiasts burn out and turn towards retirement, but at present they are doing well and achieving great results, nearly all of it with volunteers. This made possible a very well-organised program of public talks and sympathetic Heritage Officers in each county. Conor is keen to push for a big investment in postgraduate university research into Irish bats, for enforceable protocols on training and qualifications for consultants, and establishing a minimum survey effort for Environmental Impact surveys (much like as is happening in Australia). The main difference from the Australian experience is that Ireland is a very small country, so nation-wide survey work is much more manageable.

1st International Symposium on Bat Migration: Berlin, Germany 2009

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Earlier this year I was fortunate enough to attend the 1st International Symposium on Bat Migration which was held in the very chilly city of Berlin, Germany. This was a well organised, albeit short, Symposium that covered a range of topics from aeroecology through to disease ecology, population genetics and modelling. The use of new technologies to track and monitor bats on a variety of time scales was overwhelming and very impressive. Martin Wikelski from the Max Planck Institute spoke about the development of a global data repository that is being developed to display and store animal movement data (see: www.movebank.org), a program that Australasian researchers will be able to contribute to. This is an excellent way to collate long term international data sets, provides excellent mapping tools, and even allows you to protect your data prior to publication if you wish. My own presentation on micro and macro scale sensing of flying-fox camps in Australia seemed to go over well and I was pleased to discover that some of the methods I used will now be trailed to monitor bat colonies in Africa.

A pre-symposium forum on the emergence of white-nose syndrome in North America was frightening, with bat mortality escalating in the region. Interestingly, similar symptoms have been found in European bats since the 1980s without the associated mortality. A group discussion followed presentations from North America and Europe, which will hopefully lead to international collaborations to address this issue.

The symposium banquet was held in the lobby of the Natural History Museum of Berlin, the first time I have eaten a meal while being watched by dinosaurs and we were even joined at the buffet by Archaeopteryx, a real highlight! After spending time with the Irish bat team from University College Dublin (UCD) at the Symposium, I decided to make the most of being in Europe and visited their research facility and also bat researchers at Queens University in Belfast. There is now an Irish Bat Research initiative that is leading to some great work on the ecology of Irish bats and they are also examining bigger picture questions on the molecular mechanisms of sight and hearing as well as the evolution of bats. More information on the UCD bat team can be found at: www.batlab.ucd.ie

Below: The Bat Migration Symposium banquet venue. The centrepiece is a *Brachiosaurus brancai*, very impressive!

Photo credit: www.izw-berlin.de

The Long-tailed Flying-fox (*Notopteris macdonaldi*): Viti Levu, Fiji

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Introduction

This contribution is adapted from an informal report to the South Pacific Herbarium (University of the South Pacific, February 2009) and from my PhD proposal (*Bat biodiversity in Fiji: rainforest conservation and community perspectives*, University of South Australia, January 2009). The purpose is to summarise the available information for the Long-tailed Flying-fox (*Notopteris macdonaldi*), review populations at key cave sites on Viti Levu, and to share these adventurous facts with ABS members!

Bats in Fiji

The easterly distribution of megachiropterans (Family Pteropodidae) is defined by Fiji, Tonga, Samoa and the Cook Islands (Mickleburgh *et al.* 1992). Fiji has four Pteropid species (see Table 1), one endemic species (*Mirimiri acrodonta*), one endemic subspecies (*Pteropus samoensis nawaiensis*), one species endemic to Fiji and Vanuata (*Notopteris macdonaldi*), and the widespread *Pteropus tonganus* subspecies *tonganus*. Fiji is in the Polynesia-Micronesia biodiversity hotspot (Conservation International 2007) and the top 10 nations (global scale) for flying-fox diversity (Mickleburgh *et al.* 1992).

Notopteris macdonaldi in Fiji

The Long-tailed Flying-fox (also known as "beka beka" – bat; "manumanu vaka buina" – bird with tail; "ikua" – only on Wailotua, or Fiji Blossom Bat), is an obligate cave-dweller that occurs on Vanuatu and Fiji (Flannery 1995, Ingleby and Colgan 2003). The only other member of the *Notopteris* genus found in the region is the uncommon and smaller *N. neocaledonica* from New Caledonia (*N. neocaledonica* forearm = 58-60 mm; *N. macdonaldi* forearm = 64-69 mm, Flannery 1995). Bats in the *Notopteris* genus are peculiar because, unlike other members of the Pteropodidae family, they have a long mouse-like tail and ears with tragi (typically a microchiropteran trait; Mickleburgh *et al.* 1992, Flannery 1995). The tragi increase hearing capabilities in echolocating bats, but the New Caledonian species (*N. neocaledonica*) does not use echolocation (Nelson and Hamilton-Smith 1982). Distinct evolutionary adaptations led some authors to describe *N. macdonaldi* as the most plesiomorphic (primitive) of all the megachiropterans (Flannery 1995).

Annette (front) and Alivereti Naikatini (back right) with the Chief of Wailotua, Rat Savenaca Bose.

In Fiji, *N. macdonaldi* is recorded from the three largest islands: Viti Levu, Vanua Levu and Taveuni (Table 1), but cave roosts are only known for Viti Levu (Flannery 1995; Palmeirim *et al.* 2005; Palmeirim *et al.* 2007). The species was considered abundant in 1978 (Pernetta and Watline 1978), partly because they occupied a broad range of habitats. Their limestone caves are found near sea level, while habitat includes lowland forest, intermediate zone vegetation, and agricultural land (Pernetta and Watling 1978). They may also be "commonly encountered" in montane cloud forest (Flannery 1995, p. 220). The broad range and morphological adaptations as a flower specialist, imply that this species is an important pollinator in Fiji. Yet very few records of plant use by *Notopteris* species exist. In New Caledonia, *N. neocaledonica* was captured near banana flowers (*Musa* species; Medway and Marshall 1975) and in Vanuatu *N. macdonoldi* was captured while foraging in gardens near flowering nut-trees (Flannery 1995). Few data are available to assess pollination roles, population trends, distribution, or abundance (Mickleburgh *et al.* 1992; Palmeirim *et al.* 2007), and no population estimates or cave monitoring have occurred. Currently, the status of *N. macdonaldi* is vulnerable (Palmeirim *et al.* 2007; IUCN 2008, Table 1) and evidence exists for their decline in Fiji (discussed in Palmeirim *et al.* 2005).

Table 1. Pteropids in Fiji, with common names, IUCN (2008) status and global distribution.

Pteropid species in Fiji	Common name	IUCN status	Global distribution
Mirimiri acrodonta, formally *Pterolopex acrodonta*	Fiji Flying-fox, or Fiji Monkey-faced Bat	Critically endangered (pop decreasing)	Fiji (Taveuni)
Notopteris macdonaldi	Long-tailed Flying-fox	Vulnerable (pop decreasing)	Fiji (Viti Levu, Vanua Levu, Taveuni), Vanuatu
Pteropus samoensis nawaiensis	Samoan Flying-fox	*P. samoensis* listed as Near threatened (pop decreasing)	Fiji (Nayau, Ovalau, Taveuni, Vanua Levu, Viti Levu)
Pteropus tonganus tonganus	Pacific or Insular Flying-fox	*P. tonganus* listed as Least concern (pop decreasing)	Samoas, Cook Islands (Mangaia, Rarotonga), Fiji, Nuie, Tonga, Wallis & Futuma

Key cave sites on Viti Levu

Several limestone caves on the island of Viti Levu were identified by previous researchers as containing populations of *N. macdonaldi* (Gilbert 1984; Worthy and Anderson 1999; Palmeirim *et al.* 2005; Palmeirim *et al.* 2007), they are: Kalabo (pronounced Kalambo), Wainibuku, Saweni (Tatuba), and Wailotua cave sites. During pilot work in 2008, Udit and Dharam Singh caves (near Suva) were explored for bats. No bat was recorded however, and entrances were frequently blocked by debris and/ or fouled by rubbish. Indeed, fresh water prawns are no longer harvested from the creek at Kalabo village, which runs through a key bat cave, because of rubbish (Troko per. comm. 2008). Vanua Levu and many other islands in Fiji (except Lau Group) are mainly volcanic and limestone is rare. So, although *N. macdonaldi* is recorded from Vanua Levu and Taveuni, cave-dwellings are yet to be recorded on those islands (despite efforts by Palmeirim *et al.* 2005 and others to locate them in larva tubes on Taveuni for example). Thus, the existing (and still occupied) limestone caves on Viti Levu are key sites for the conservation of the species in Fiji, and on a global scale.

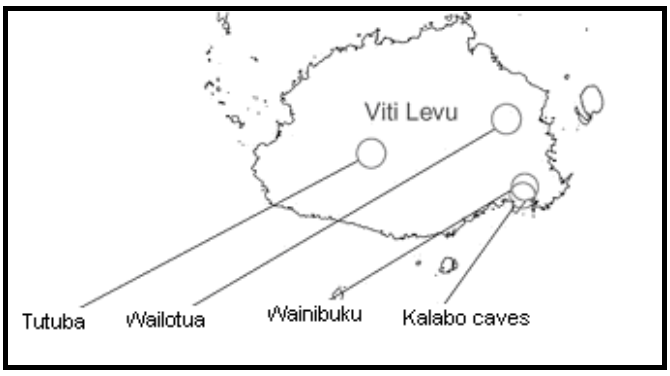

Figure 1. Four cave sites of *Notopteris macdonaldi* on Viti Levu, Fiji Islands (adapted from Palmeirim *et al.* 2005).

Cave sites

KALABO CAVE (near Suva; 18º5.17'S; 178 º28.99'E). In 2000-01 there were "from many hundred to a few thousand individuals" (Palmeirim *et al.* 2005, p. 64); in 2008 I estimated not more than 2000 individuals (estimates made with S. Petit and G. Bottroff).

WAINIBUKU CAVE (near Suva; 18º3.52'S; 178º29.26'E). In 2000-01 there was "most likely a few thousand of them [*N. macdonaldi*]" (Palmeirim *et al.* 2005, p. 64); in 2008 I estimated approximately 1000 individuals, certainly less than that observed in Kalabo cave.

TATUBA CAVE (near Saweni village, Sigatoka valley – the 'salad bowl' of Fiji; 17º54'S; 177º47.95'E). In 200-01 there was "a colony which was apparently quite small (a few dozen individuals)" (Palmeirim *et al.* 2005, p. 65). In 2008 I estimated not more than two hundred individuals, probably much fewer.

WAILOTUA CAVE (30 km north of Suva; 17º45.67'S; 178º24.46'E): surrounded by good stands of forest and an active quarry, in 2000-01 "a few thousand *N. macdonaldi* roosted in a very large chamber" (Palmeirim *et al.* 2005, p. 66). In February 2009 I estimated approximately 1000 individuals in that chamber.

Unfortunately, all population assessments are based on visual estimates, using non-repeatable observation-based methods. A confounding factor to making reliable estimates is that *N. macdonaldi* shares these caves with many hundreds, and often thousands, of swiftlets (*Aerodramus spodiopygius*), and making the distinction can be extremely difficult (Palmeirim *et al.* 2005; per obs. 2008-09). Infrared video recording of nightly exits is planned for each cave

in 2009. The footage will be reviewed in slow-motion to count population size (± 5 % standard error, C. Grant pers. comm. 2008) at each site, which future trends may be measured against (thanks to C. Grant and D. Matthews for demonstrating their equipment/techniques for surveying declining populations of cave bats at Naracoorte, South Australia).

It is reasonable to be concerned for the conservation of this species in Fiji because almost no ecological information is available, and critical cave sites face pressures from urbanisation (Kalabo and Wainibuku), agricultural intensification (Tatuba, Saweni), quarry activities such as blasting (Wailotua) and not to mention global trends in declining fruit bat populations! Indigenous land owners are also concerned for the conservation of this species in Fiji. Chief Paula Wagadau (Delaidogo settlement, Kalabo, encompassing Wainibuku cave) reported a decline in the number of Long-tailed Flying-foxes in his lifetime. Interestingly, he attributed the decline to an increase in the abundance of the exotic tree, *Spathodea campanulata* (Family Bignoniaceae), an invasive species linked to disturbance (probably indicative of changed land use in many areas). Certainly, a lack of information hinders conservation planning and management for *Notopteris macdonaldi* in Fiji and the South Pacific region (with Vanuatu populations). My research in Fiji continues until 2012 and encompasses the four fruit bat species.

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Bat observations on Kangaroo Island, April 2008

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In April 2008 I was fortunate to go to Flinders Chase, Kangaroo Island with a party of some 25 Flinders University Biodiversity & Conservation students together with intrepid field staff Duncan Mackay, Bob Sharrad, Greg Johnston, Angela McGuire and Sarah Lambert. We stayed at the well appointed Flinders-Baudin field centre which had escaped the fires of December 2007 which burned much of Flinders Chase.

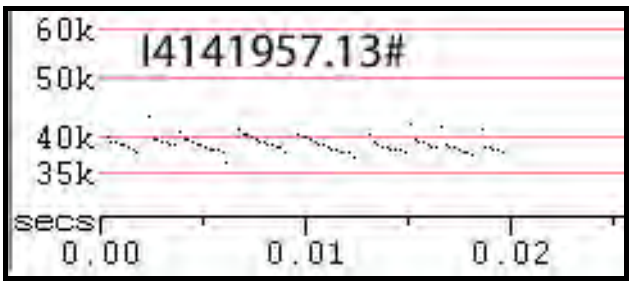
The students ran projects which tended to use the burn as a natural experiment and compared animal activity and biodiversity within burned and unburned areas, and not surprisingly often found more activity within the unburned regions. I took along some bat gear in the expectation that we might be able to sample bat activity, and perhaps do a project, but there was very little bat activity. The brief observations made there now seem

particularly topical following the recent devastating fires in Victoria in February 2009.

Flinders-Baudin Centre, plus tents.

Burned area with regenerating eucalypts and flowering grass trees *Xanthorrhoea* sp.

On our first night on Kangaroo Island, Monday 14 April 2008, we placed a bat detector on a ledge at the Flinders-Baudin Centre overnight from 18:43, with 11 bat passes recorded from 18:46 to 20:38, all fairly similar, perhaps a *Vespadelus* sp. bat, and nothing more for the rest of the night. An example of the call sequence is shown below (with space between the pulses removed).



The next night, Tuesday 15 April, we placed one bat detector on the ridge behind the Flinders-Baudin Centre, with nothing recorded overnight, and we took a second detector on a stroll in the early evening for about 75 min into a burned area, heading towards Rocky River crossing for about 2 km. Two bat calls were heard, one near the Flinders-Baudin Research Centre, and the other in the burned area. On Wednesday 16 April, we took a bat detector to a little dam for about half an hour from 22:00, but did not record any calls. I was surprised at the paucity of bat activity, but having not previously surveyed bats on Kangaroo Island, I do not know whether this is normal, or related to the season or the recent burn of much of the area.

We did see a reasonable amount of other animal life on our journeys around Flinders Chase, including this echidna (below). Light traps captured lots of moths on several nights of surveying.

[Ed: Along with Ken's echolocation recording shown here, be sure to check out page 44 for an interesting recording sent in to the ABS list-server for comment. The response to the previously unknown recording was immediate and highlighted the amazing depth of truly expert knowledge that not only exists within the ABS membership, but is ready and willing to be taped into! I strongly encourage members and/or consultants to take advantage of this knowledge base either via the list-server, or via the Newsletter: editor@ausbats.org.au]

Left: Example of echolocation recording from Flinders-Baudin Centre, April 2008, Kangaroo Island. Possibly a *Vespadelus* sp.

Bats of the Mascerene Islands

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Three islands, Mauritius, Reunion and Rodrigues make up the Mascarene Islands. I visited two of these, Mauritius and Rodrigues in November 2008 primarily to assist palaeontologists excavate sub fossil cave deposits on Rodrigues. Prior to this work, I spent a week on Mauritius and explored a large number of the island's lava caves with Greg Middleton, a Tasmanian who worked on Mauritius for four years in the 1990s. This experience and his love of caving made Greg an excellent guide because he knew all the good sites to visit!

Two species of microbats are found on Mauritius, the Mascarene Free-tailed Bat *Mormopterus acetabulosus* and the rather interestingly named Grey Tomb Bat *Taphozous mauritianus.* Despite its name, the Grey Tomb Bat tends to roost on cliffs and in vegetation and the Free-tailed Bat is a cave-dwelling species. We did find several caves with bats present, the largest colony in a site named Twilight Cave with a large colony of Free-tailed Bats in excess of 100, 000 bats. It did not appear to be breeding season and the bats did not seem overly disturbed by our presence. A sick bat was found on the floor enabling close examination and determination of the species identification. Identification is much easier when you only have a choice of two! Twilight Cave gets its name from the many large entrances that mean most of the cave's length has at least a small amount of natural light. Bats were roosting in the twilight zone, but this was not necessarily by choice as most of the cave has some natural light. In other sites we found bats deep into the caves in small numbers.

Grey Tomb Bats, *Taphozous mauritanus* roosting in a cave, Macerene Islands.

Mascarene Free-tail Bat, *Mormopterus acetabulosus*

Kanaka Bat Cave was the only cave where large piles of guano were observed, and presumably this is a maternity site. The tropical island conditions are enhanced in a lava cave full of bats and cave temperatures are probably mid 20ºC and near 100% humidity. Although the caving is easy, mostly walking and little crawling, cave conditions mean that you sweat profusely. The guano smell was not strong though which was a bit of a surprise. Invertebrate life was rich but unfortunately dominated by introduced cockroaches. The caves that Free-tailed Bats use are often co-habited by Mascarene Swiftlets *Aerodramus francicus.* These birds build nests of saliva and lichen that are plundered by locals to make soup. Bird nesters are having a major impact on the swiftlets and their activities possibly impact the bats as well. Bird nesters sticks were found in many caves and Greg delighted in breaking them. It also seems that the lit plastic bottles served as light sources which must make the cave atmosphere really unpleasant.

Close-up of Mascarene Free-tail Bat, *Mormopterus acetabulosus.*

Guano piles in Kananka bat cave, Mascerene Islands. Photo by Steven Bourne.

Camp Thorel cave was another where we found bats and the worst pollution. The cave is on the edge of a small village and has several large entrances which serve as the local rubbish dumps. Even worse were the septic pipes we found with raw sewage flowing directly into the cave. Some sections of the cave smelt disgusting while in others the detergent odours permeated the tunnels; it just depended whether it was dishwashing time or toilet time in the house above!! Unfortunately, cave conservation appeared to be a low priority and the future of this cave-dwelling species may not be secure.

Mauritius also has one megachiropteran, the Black-spined Flying-fox *Pteropus niger* surviving today with two other extinct species found in sub fossil deposits. One of these, the Rougette *Pteropus subniger* is a recent extinction and was observed by early settlers. The other, the Golden Bat *Pteropus rodricensis* was never observed alive on Mauritius but survives on Rodrigues. With so much of the endemic vegetation cleared on Mauritius and massive population pressures, this species has severely restricted habitat and is considered rare and vulnerable.

Rodrigues has just one chiropteran, the Golden Bat mentioned above which today numbers about 5,000. It is suggested this is about the carrying capacity of the island, which has an area of just 10,400 hectares. They made quite a spectacle each evening leaving roosts towards their feeding grounds. While we were there meetings were being held on how to control the bats as numbers have reached a level where they have an impact on the locals' fruit trees. It seems like a pretty fine line between being almost extinct and being regarded a pest species!! Numbers have fluctuated in recent years, reaching desperately low levels in the 1970s as a result of deliberate shooting and then devastating cyclones Monica in 1969 and Fabienne in 1972. Naturalists were only able to find ten individual Golden Bats post these events and just six pairs of the Rodrigues Fody *Foudia flavicans* and 15 pairs of the Rodrigues Warbler *Acrocephalus rodericanus.* These two species are the <u>*only*</u> remaining endemic avifauna! Each of these species is now easily found (I even found a nests and eggs of the Fody) but each must regarded as vulnerable with limited habitat and each time the island is hit by a cyclone, the numbers decline drastically.

– Reports and Viewpoints –

Christmas Island Pipistrelle Press Releases

MEDIA RELEASE

The Hon Peter Garrett MP

Minister for the Environment, Heritage and the Arts

PG /209

5 February 2009

EXPERTS URGENTLY INVESTIGATE OPTIONS FOR PIPISTRELLE BAT

Environment Minister Peter Garrett has asked Australia's leading threatened species experts - the Threatened Species Scientific Committee – for urgent advice on the Christmas Island pipistrelle bat.

Mr Garrett said a draft report on survey work carried out in January 2009 has indicated a rapid decline in pipistrelle numbers on the island.

"I have asked the Threatened Species Scientific Committee for urgent advice on the feasibility of a captive breeding program and any other appropriate conservation actions for the pipistrelle bat," Mr Garrett said.

"I have also asked the Threatened Species Scientific Committee to help establish a new expert group which will consider threats to biodiversity on Christmas Island. They will provide advice on conservation priorities to address the causes of biodiversity decline on the island in the light of dwindling populations and range of some other native species."

The Christmas Island pipistrelle is a small bat - less than 5 grams in weight – that only occurs on Christmas Island. Its status was upgraded to critically endangered in 2006 under the *Environment Protection and Biodiversity Conservation Act 1999*.

Despite years of intensive monitoring by Christmas Island National Park and research by independent experts, the direct causes of the pipistrelle's decline are not known. Contributing factors may include habitat loss, climatic conditions, disease and introduced predators and pests.

Christmas Island National Park has been implementing the national recovery plan for the pipistrelle since 2004, including action to protect roost trees and foraging habitat, monitoring of potential predators by cameras, blood tests for possible disease, and surveys of distribution. This work will continue while the Threatened Species Scientific Committee considers the draft report.

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MEDIA RELEASE

The Hon Peter Garrett MP

Minister for the Environment, Heritage and the Arts

PG /211

16 February 2009

MINISTER TAKES FURTHER ACTION ON PIPISTRELLE DECLINE

Environment Minister Peter Garrett has accepted the recommendations of Australia's leading threatened species experts - the Threatened Species Scientific Committee (TSSC) – for further urgent action on the Christmas Island pipistrelle bat.

The Committee has recommended actions to address the continued decline of Christmas Island biodiversity and to minimise the risks associated with a captive breeding program for the pipistrelle.

"Sadly, the Committee has confirmed what we feared, that the pipistrelle is in severe decline and that extinction in the wild is almost inevitable," Mr Garrett said.

"We are now at a critical stage. Despite some $470,000 spent over the last five years under the recovery plan and around $4 million spent slashing the numbers of yellow crazy ants which are the biggest threat to biodiversity on the island, combined with the huge efforts by park managers and independent scientists, these actions have so far failed to reverse its rapid decline.

"Unfortunately, the Threatened Species Scientific Committee has also advised me that there is a high risk associated with a proposed captive breeding program for the pipistrelle with so few left on the island. The bats are also very difficult to catch and no-one knows how to keep them alive for breeding.

"The Committee have informed me that they are aware of no captive breeding program for microbats undertaken anywhere in the world – we are on new ground here.

"I therefore accept that there are unacceptably high risks involved in embarking on an immediate captive breeding program .

"However, on the Committee's recommendation, a trial program on a closely related species, *Pipistrellus westralis*, will begin as soon as possible. This bat is abundant and secure in the top end of the Northern Territory and I am pleased the Northern Territory Government will work with us on this project.

"The objective, within three months, is to demonstrate safe capture methods and to identify optimal husbandry requirements of the species.

"At the same time, the Director of National Parks is preparing for a potential captive breeding program on Christmas Island, in the event that the mainland trial is successful."

Mr Garrett said TSSC chair Associate Professor Bob Beeton had agreed to chair an experts group, which will meet on island within the next few weeks to review the threats to biodiversity across the entire of Christmas Island.

"These experts will identify priorities to protect all the island's biodiversity, so that actions to intensify threat identification and abatement feed into the Regional Recovery Plan that is currently under development.

"We will do whatever is practical and feasible to save the pipistrelle, even though it is the case that bat numbers on the island have been in rapid decline for around 14 years now for reasons that are not clear. I am deeply concerned by the fact that its prospects do not appear bright on the basis of our current understanding of the situation."

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The Hon SUSSAN LEY MP
Shadow Minister for Justice & Customs
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13 March 2009

MEDIA RELEASE

For immediate release

Another one 'bats' the dust

The Christmas Island Pipistrelle is a tiny bat weighing just three grams and recent surveys suggest there may be fewer than 20 of them still remaining in the wild.

Shadow Minister for Justice and Customs, Sussan Ley, is taking the Government to task over its sloth-like response to the imminent extinction of the Christmas Island Pipistrelle, which is one of Australia's smallest bats and a critically endangered animal species.

Environment Minister Peter Garrett, has responded to the plight of the Pipistrelle bat by referring the issue to a Threatened Species Scientific Committee.

Ms Ley said "the decline of this species has been staggeringly rapid and the wild numbers are so low that it is likely there are only months before the Pipistrelle bat becomes extinct."

"My concern is that the time taken to deliberate on this species' fate by a committee is using up valuable time. We are really seeing Extinction by Committee."

Ms Ley is supportive of the plan of action put forward by the Australian Bat Society (ABS).

"Those in the ABS host some of Australia's leading experts on the Pipistrelle bat. The ABS is urging the Rudd Government to establish an emergency rescue program that will catch the few remaining bats and put them into a long-term captive breeding program."

"I call on Minister for Home Affairs Bob Debus, who has responsibility for external territories, to step in and act urgently to save the Christmas Island Pipistrelle from extinction.

Being responsible for the first extinct mammal in Australia for over fifty years is not going to do much for this Government's environmental credentials" Ms Ley said.

-ends-

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Update: Christmas Island Pipistrelle

Prepared by Susan Campbell and Maree Kerr, based on an update given by Lindy Lumsden at the FAGM.

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In the last edition of the ABS *Newsletter* (No. 31, Nov 2008, p. 5-8), I summarised for you the concerns and issues raised by the ABS executive concerning the risk of imminent extinction of the Christmas Island Pipistrelle *Pipistrellus murrayi*. Lindy Lumsden also provided a fact sheet on the state of play for this Critically Endangered microbat. The deluge of e-mails amongst the executive and membership has been no less intense since the previous *Newsletter*. Lindy's expert knowledge of the topic was again shared at the FAGM at Yanga NP, 8-14 March 2009. The following is a summary of Lindy's informal presentation and is current as of the 14 March.

Background

The distribution and abundance of the Christmas Island Pipistrelle has declined dramatically in recent years. In the mid-1980s it was common and widespread across the island. However, by the mid-1990s there had been a marked reduction in abundance and a westward range contraction. This decline continued at a rapid rate with the species declining by 99% since 1994. It is now confined to one small area in the far west of the island.

Despite research and monitoring programs, the cause of this decline remains unknown. Extensive habitat remains on the island with three-quarters of it within the Christmas Island National Park. Light trapping indicates prey is abundant and bats caught previously were in good condition therefore it is unlikely that the species faces a food shortage. There are a myriad of introduced species on Christmas Island and it is possible that predation at the roost may be occurring, however most potential predators have been present on the island for over 100 years and so do not match the timing and distribution of the decline of the pipistrelle. Black Rats *Rattus rattus* have been common and widespread since the 1890s, which replaced the two endemic native rats that went extinct within 10 years of the island being settled. Giant Centipedes *Scolapendra morsitans* are highly arboreal and reports of similar sized centipedes from overseas reveal these creatures are capable of preying on 16 g bats, so the 3 g pipistrelles would be vulnerable, especially non-volant young. These centipedes have been common and widespread for some time, but they have become more abundant in recent years. Infrared cameras set at the base of roost and roost-type trees have revealed that rats and centipedes readily climb trees. However it is not possible to observe if they enter pipistrelle roosts and prey on the bats. In 1987, the Asian Wolf Snake *Lycodon aulicus capucinus* was introduced to the island, thought to have come in with shipping materials. Numbers increased dramatically within the Settlement (the only town on the island, situated in the north-east corner). They then spread across the island corresponding to the pipistrelle's contraction. The timing and distribution therefore match closely with the pipistrelle's decline. However the biology of the snake suggests it would have little opportunity to prey on the bats. The snakes are predominantly terrestrial and occur mainly in disturbed areas, and are rarely found in primary forest, which is where the bats roost. I am currently reading Allan Burdick's "Out of Eden" which tells the story of the Brown Tree Snake *Boiga irregularis* on Guam. Despite the incredibly high density of these snakes on Guam, they are very difficult to detect and monitor in the field. The explosion in numbers of Yellow Crazy Ants *Anoplolepis gracilipes* in the late 1990s has had major impacts on a wide range of fauna. These were largely controlled in 2002, but numbers are again on the increase. Yellow Crazy Ants kill everything within their supercolonies and so any pipistrelles roosting in these areas would have been killed or displaced. The ants are not however believed to be the primary cause of the decline as the pipistrelle was in decline before the crazy ants exploded, and the pipistrelle has disappeared from many areas that have not been affected by the ants. Unfortunately controlling any of these introduced potential predators (using toxic baits for example) is incredibly complicated due to the large numbers of multiple species of crabs.

Disease was also investigated as a cause of the decline, however, except for having slightly low white blood cell counts the bats appeared in very good health. While there is no evidence of disease, some form of ill-health cannot be ruled out as only limited testing could be undertaken due to the very small quantities of blood that could be taken from these small bats.

It is possible that a combination of a number of threats is responsible for the decline.

Taking action

Management actions have focused on protecting roost trees. In 2005/06 nine communal roosts were located with up to 50 individuals in each. These roosts were under bark on dead trees. Unfortunately most of these roost trees have now collapsed, with only one roost currently known. In January 2009, Lindy observed four individuals exiting this roost. Their behaviour suggested they were lactating females with dependent young in the roost. Christmas Island National Parks staff have been monitoring this roost tree for the last three years by placing a detector at its base, accumulating an amazing 288 nights of detection data. In the first year this roost was used every day, while in the second year it appeared the bats alternated between this roost and another. Parks staff have systematically searched the surrounding area and identified potential roost trees, which they set detectors at in an attempt to locate this alternate roost, however this as yet has not been found.

In January 2009, Lindy and Greg Richards reassessed the number of pipistrelles remaining, and felt that there were likely to be as few as 20 individuals left. They also tried to trap some of these individuals at the main foraging area. It appeared that only two individuals were using this area, and both readily detected and avoided the harp traps and monofilament mist nets. In 2005 up to 1000 detector passes were recorded per night in this area. Now less than 10 passes per night are recorded. Parks staff have undertaken extensive detector searches throughout the island in the hope of locating other foraging areas. Unfortunately no bats have been located except in the known areas in the far west.

The only known roost. The arrow indicates where the bats emerge from under the loose piece of bark. Photo: Lindy Lumsden.

Going public

Lindy and Martin Schulz had been investigating the feasibility of establishing a captive breeding program for the pipistrelle, for Parks Australia. Due to the critically low numbers of individuals remaining in January 2009, they recommended a two phase approach: an immediate emergency rescue of the remaining bats, and if sufficient numbers could be caught, the establishment of a 10 year breeding program, to be located on the island. Since the animals were continuing to decline at a rapid rate, the report stated that it was essential the emergency rescue was undertaken by March 2009. Delaying it any longer would reduce the number of individuals available to catch and reduce the likelihood of success of the program.

Since January this year, ABS members (acting both on behalf of the society and themselves) have managed to generate a lot of media attention and letters to the government. One benefit of globalisation is that news can travel fast and the Christmas Island Pipistrelle story appeared in global newspapers and Lindy was interviewed on a number of radio stations across Australia. A Newslink has been set up on the ABS website entry page: http://ausbats.org.au

Other links to articles that appeared in the press on this issue in early 2009 are:

http://ecoworldly.com/2009/02/17/former-midnight-oil-singer-now-environment-minister-says-island-bat-will-probably-die-out/

http://www.theage.com.au/environment/just-four-weeks-to-save-minibat-then-its-curtains-20090208-811m.html

http://www.smh.com.au/environment/at-last-garrett-goes-in-to-bat-for-species-on-a-sticky-wicket-20090215-8889.html

http://www.abc.net.au/news/stories/2009/02/16/2492049.htm?section=world

Many letters were sent to Ministers and political pressure was applied with questions raised in parliament. The result from all this attention was two press releases from the Minister's office (included at the beginning of this article). ABS member David Gee was also able to encourage his local member, Sussan Ley to generate a positive press release (page 25). The Greens also issued a press release.

The Environment Minister Peter Garrett asked the Threatened Species Scientific Committee (TSSC) for advice on the issue in February. The TSSC advised the Minister that there was a high risk associated with the proposed captive breeding

program. The Minister's second media release stated that "The Committee have informed me that they were aware of no captive breeding program for microbats undertaken anywhere in the world – we are on new ground here." This statement was made despite Lindy and Martin's report clearly emphasising that there were many examples of microbats having been kept and bred in captivity. Although microbats have not previously been bred as part of an endangered species recovery program, there are many examples of bats having been bred during rehabilitation, research or experimental programs, and this expertise could be readily transferred to the Christmas Island Pipistrelle program. The report specifically summarised the information available on other species of pipistrelles to show that this genus could be successfully kept and bred in captivity. Despite this advice, the TSSC recommended that a 3-month trial captive program of the Mangrove Pipistrelle *Pipistrellus westralis* be undertaken in the Northern Territory to determine if it was possible to kept bats in captivity. The ABS executive believes this trial is unnecessary and is resulting in further delays.

An Expert Working Group was also formed, chaired by the TSSC chair Associate Professor Bob Beeton, to investigate biodiversity threats and threat abatement measures for all threatened species on Christmas Island. Norm McKenzie from WA was appointed to provide bat expertise. Absent from the group was anyone with ecological knowledge of Christmas Island or specific knowledge of the Christmas Island Pipistrelle! Lindy was however able to meet with Bob Beeton and Anne-Marie Delahunt (Assistant Secretary, Parks North) to provide some input into the expert group. In addition, several ABS members have spoken to other members of the group. The expert group visited the island at the end of March 2009 and their report was due sometime in April.

The small light at the end of this long tunnel is that Parks Australia have commenced planning for the captive breeding program, so that the planning has progressed, should it be given the go ahead. However, they have decided not to take the two phase approach recommended (i.e. immediately catch the remaining individuals and then do all the 'paperwork' for the 10 year breeding program). Instead they are seeking to obtain financial commitment for the 10 year program before they attempt to catch the remaining bats. Given the current global financial situation, now is not a good time to be trying to get millions of dollars committed!

So what is needed now?

- More political pressure needs to be placed on Minister Garrett to encourage him to allocate the funds needed for the captive breeding program.
- We need to continue to stress the need for the emergency rescue phase to commence immediately. If it is delayed any further there will be no animals left to catch.
- Further letters from the ABS to Minister Garrett offering to assist with the emergency rescue phase by providing a team of highly experienced bat researchers and wildlife carers to go to the island immediately to catch the remaining individuals.
- If the government gives the go ahead, people will be required (at short notice) to help with capturing the remaining individuals and acclimatising them to captivity. Lots of detectors and lots of ingenuity will be required for this to be successful.
- The expert working group is crucial in the decision making process and we should continue to provide as much input as possible to them.
- Continue the media campaign.

Lessons learned

Whilst this story is far from over, the ABS has already learnt some valuable lessons. Our strength as a knowledgeable, influential, effective lobby group is evidenced by the generation of two press releases from the Minister's Office. Given our effectiveness and ability to provide the data and information critical to such campaigns, the ABS recognises that as a society we need to act sooner. Timing the generation of these media campaigns is critical. Although the pipistrelle situation was raised over four years ago with government, the mass media campaign seems to have occurred too late. We also need to streamline and clarify individual members' roles in the face of such large campaigns. A more effective means of communicating is being investigated and will hopefully assist with this issue.

Footnote: As this *Newsletter* goes to the printer (late April) there is still no news on whether the captive breeding program will proceed. Minister Garrett visited Christmas Island on 17 April and Expert Working Group should have finalised their report, but there is still no word. Meanwhile the numbers of Christmas Island Pipistrelles continue to decline and extinction must be imminent any day now.

Yanga Roundup

Chris Grant

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Bat devotees from around Australia trickled into Yanga National Park over the long weekend of the 7-9th March 2009 in response to Michael Pennay`s enticements of batting, the ABS FAGM and the presence of modest yet rustic facilities. The facilities turned out to be rather more modest and rustic then claimed, but more later. Yanga N.P. was established in 2007 and is yet to be opened to the public. It encompasses 65,000 ha and includes over 100 km of frontage of the Murrumbidgee River, over the reach below the Murrumbidgee's junction with the Locklan River. It is dominated by riverine forest, chenopod shrublands and grasslands and ephemeral lakes, most dry. Large areas of the riverine forest are suffering severely from the altered flow regimes due to locks and weirs that have caused the demise of so much of our floodplain forests in the Murray Darling system (see Fig. 5).

Fig. 1. Around the table processing the many bats caught during inaugural survey efforts at Yanga National Park, March 2009. From left: Susan Campbell, Carolyn Wilson, Dennis Matthews, Ray Williams, Michael Pennay, Maree Kerr, Jenni Garden, Sabine Hanisch and Lindy Lumsden.

A myriad of tracks led through the ailing red gums, and as it turned out even the best of us can become momentarily spatially misplaced when Susan and I in the mighty red Mazda campervan somehow became separated from a Pennay expedition despite being smack in the middle of the convoy. I still insist it was due to a rift in the space time continuum.

At Yanga we had the delightful company of Ray, Amy (plus kiddies) and Narawan Williams, the redoubtable Tony Mitchell, technical wizard Dennis Matthews, bat aficionado and master story-teller Michael Pennay, indomitable Grant Baverstock, esteemed bat expert Lindy Lumsden, the enthusiastic Marg Turton and partner, the wonderful Susan Campbell, the ever cheerful Maree Kerr and some new faces with Jenni Garden, Tanya Straka and Sabine Hanisch from Germany, Fiona Caryl, Carolyn Wilson, Alanna Maltby and Ollie (an English PhD student and her friend). Thanks also to NPWS Field Officer, Russel Hampton for his assistance. Apologies for anyone I've omitted.

We were all lured to this remote spot by our illustrious president, Michael Pennay, with his inducements of an area never before surveyed for bats, boasting of the possibility of Large-footed Myotis *Myotis macropus,* Little Pied Bat *Chalinolobus picatus*, Eastern Long-eared Bats *Nyctophilius timoriensis* and Little Red Flying-foxes *Pteropus scapulatus.* We only encountered one of these, the Large-footed Myotis, though a very welcome one for none of us more than for Susan Campbell. More about what we caught in a while. We were also enticed with the inducement of a medium-sized fridge which sadly never eventuated, the possibility of a hot water system which may well have worked, but it tended to flood the house so had to be isolated, and a generator which did work, and well, but was noisy enough to deafen the living and wake the very dead so the beast was in the main left to its slumber. President Pennay had also mentioned that the black-soil plain gets rather boggy after rain, but "small chance" of that. Small chance or not, rain did eventuate after a few days, and the truth of the bogginess claim became exceedingly evident to all, especially to us bold but impoverished adventurers who still naively venture into the wilds in modest, and it seems, increasingly rare 2WD vehicles.

Fig. 2. The gorgeous White-striped Freetail Bat *Tadarida australis,* caught in harp traps placed next to a swamp and also in traps placed over water targeting *Myotis macropus*.

Back to the bats. It needs to be said that this place is a veritable *Vespadelus* ranch. A haven. The place is thick with them. We caught a ship-load of the little blighters. One particularly memorable scene was the Monday night mist netting over a boggy creek where an endless stream of Vespertilids entered the nets. Retrieving them became quite a chore especially when the shallow pond the net was strung over became bottomless mud as it was churned up by our feet over course of the evening. In the end, the sight of Michael Pennay wading thigh deep in grey ooze to retrieve a bat was, to me, reminiscent of a particularly large water buffalo in a Kakadu wallow (see Fig. 4). Anyhow, all up we caught three Vespertilid species: *Vespadelus darlingtoni, V. regulus* (high frequency form) and *V. vulturnus.* The most surprising was the Large Forest Bat *V. darlingtoni*, which isn't normally found this far inland. These individuals were smaller and paler than typical individuals but the distinctive penis was the give-away. We caught *Chalinolobus gouldii* (surprisingly only one or two) and *C. morio*, *Nyctophilius geoffroyi and N. gouldi, Mormopterus* sp. 4 and *Mormopterus* sp. 2. All this was exciting enough, but a clutch of *Tadarida australis* caused the gathered bat dudes and chicks to transform into an overexcited rabble of paparazzi (Fig. 3). Several were radiotagged (bats, not paparazzi) and successfully tracked to

four roosts, all around Mercedes Swamp where there had been environmental watering. The coup-de-grâce was a solitary and beautiful bright rufous Large-footed Myotis, *Myotis macropus*. The sight of this magnificent and new record for the Murrumbidgee fair sent Susan into spasms of ecstasy. This bat was also radio-tagged, but not detected after release.

Sadly, a series of spectacular thunderstorms rolling in from the north sent many of us scurrying for the bitumen earlier then planned, but the trip was extremely worthwhile and many thanks indeed for organising a successful FAGM and field trip to our beneficent president, the great Michael Pennay.

Fig. 4. Illustrious president Michael Pennay removing yet another *Vespadelus* from the mist net whilst sinking ever further into the squishy mud.

Fig. 3. L-R: Tony Mitchell, Grant Baverstock, Sabine Hanisch and author with a White-striped Freetail Bat.

Fig. 5. Signs of stress and rejuvenation in the riverine forests along the Murrumbidgee River, NSW. On the right hand side of the levee bank is relatively green vegetation, with healthier looking red gums after small environmental flows of water were provided in December 2007 and September 2008 to maintain a Southern Bell Frog population. The levee bank prevented the flow from reaching the forest on the left hand side of the image. Consequently, these areas, along with vast tracts of Yanga National Park, are severely water stressed.

Yarra Bend flying-fox counts

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If you missed out on the first few counts of Grey-headed Flying-foxes (*Pteropus poliocephalus*) at Yarra Bend Park in Melbourne this year, do not despair. There are regular counts every month and both experienced and new counters are always welcome and always much appreciated. The meeting site is the Yarra Bend Park golf course (Melways map 2D G7). The count dates and meeting times for the remaining counts in 2009 are as follows:

Date	Meeting Time*
8 April	17:45
6 May	17:15
3 June	17:15
1 July	17:15
5 August	17:30
2 September	17:45
30 September	18:00
28 October	19:30
25 November	19:45
30 December	20:15

*NB: all meeting times have been corrected for Day Light Savings time.

Paid field assistant wanted

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A field assistant is required to work closely with a University of Bristol PhD student on foraging activity and diversity of insectivorous bats and insects in the Negev desert in Israel. Work will entail capturing bats in mist nets, radio-telemetry, acoustic monitoring and insect trapping. Accommodation in the form of a shared apartment in a nearby town will be provided as well as a stipend for food and possibly flight reimbursement. The area is beautiful and there will be ample opportunity to see local wildlife. There should also be some spare time to see some of the sights of the country. This is a great opportunity to gain field experience for future jobs and/ or graduate school.

Requirements: Experience in wildlife biology, ecology or related field. Responsible, self-motivated, willing to handle bats and capture insects. Conditions are very hot and dry, especially during the day and sand flies and mosquitoes are common. Must be willing to commit to the whole season (April – August, but start and end dates are somewhat flexible). Work is all night, with few nights off, must have a good sense of humour and be able to maintain positive attitude in adverse conditions. For precautionary reasons, a series of three rabies pre-exposure vaccinations are necessary and must be completed by the start of the field season. Experience with bat survey techniques, insect identification, mist netting and fluency in Hebrew are all a bonus, but not required.

Please e-mail CV, contact information for at least two referees and a letter of interest before the 15th April 2009.

Hot and dry flying-fox camps

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The following numbers were put together from information supplied by Michael Pennay (Canberra colony), Lisa Evans (Victorian colonies) and Nancy Pallin (NSW colonies).

A particularly hot and dry run of weather struck the eastern states in late January, early February 2009. Sustained temperatures of over 40ºC dealt a severe blow to flying-fox camps, particularly in Victoria. The final death toll numbers released by the Department of Sustainability and Environment and the Australian Research Centre for Urban Ecology (ARCUE) were: Yarra Bend 4,717, Geelong 254 and Bairnsdale 333 dead bats, a total of 5,304 individuals. This represents the death of around 26% of the Yarra Bend population (assuming an initial population of 18,000) and 10% mortality in the Geelong camp. Whilst observers systematically searched for carcases, these estimates do not include bats that may have drowned, whose corpses may have been predated by scavengers or those that were simply missed. Interestingly, the death toll in the Victorian camps was biased towards adult males (L. Evans, pers. comm.).

The flying-foxes at Ku-ring-gai Flying-fox Reserve managed to see the heat event out without any record of fatalities. Similarly, only a few deaths were noted at the Royal Botanic Gardens in Sydney.

At last report, the Canberra summer camp (located in Commonwealth Park) were looking very hot and bothered during a 39ºC afternoon, with lots of wing fanning amongst the 40 odd adults and juveniles. However, no deaths were discovered in this colony.

Unfortunately, these events are not uncommon among flying-fox camps on the east coast. Please contact the ABS (editor@ausbats.org.au) if you would like to assist with the monitoring of colonies during periods of heat stress. Wildlife carer Bev Brown took several dozen bats into care at her Ashburton shelter in Victoria and was looking for help chopping fruit during the last heat event. You can contact Bev via the Flying-fox Information Conservation Network at: http://au.groups.yahoo.com/group/FFICN/

The fishing bats who didn't like fish

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Eighteen Large-footed Myotis *Myotis macropus* came into care from a heat stress incident on the Atherton Tablelands on 18th February 2009. The phone call reported a baby being on the ground and when we got there an hour later there were six on the ground. An hour later, when we returned with a long ladder, there were another seven on the ground. There were dead females still hanging out of the roost as well as a few on the ground alive. Adult bats were flying out of the roost, bumping into the sides of the shed and then eventually roosting on the sides of the shed where it was cooler. The majority of those rescued were young, varying in size from 4.3 g with 24 mm forearm to 6.7 g with 36 mm forearm. There were three groups: four with 24 – 25 mm forearms, 10 with 30 - 33.5 mm forearms, and one with a larger forearm of 36 mm. The adult females weighed 8.3 g, 8.4 g and 8.9 g and had forearms of 38 -38.5 mm.

The bat roost was in a large shed, in a groove created by two main centre beams forming a 'V'. The shed is about 20 m long and there were roost sites at various points along the shed's length. Large amounts of guano blocked sections of the groove as well as being evident on the ground. The bats were roosting about 100 mm below the roofing iron, where it would have been very hot for much of the day. There is another shed about 50 m away with more roosts, but in spaces between the posts (about 600 mm diameter) and beams. There was no evidence of heat stress in these roosts.

Young Large-footed Myotis *Myotis macropus* taken into care after intense hot weather.

The sheds are about 100 m from a river that has three large dams. We had received many weeks of rain and when the sun finally came out the days were very hot. Luckily for the bats, the owners had car trouble and were in the shed working on the car. The bats had dropped 6 m to the floor of the shed. All were injected subcutaneously with 0.5 - 1.5 ml of Hartmanns fluids. The young were fed with Wombaroo bat milk replacer, the adults with mealworms and supplements. All were alive the next day. The adults were released after 48 h. All those in care were drinking water really well and no more injections were made.

We fostered out the smallest group of young and all died on about day four. One of these still had her eyes shut and had nearly no hair. I suspect the milk formula was inadequate for this age

group. The rest thrived. They preferred mealworms to milk about a week after rescue. At this stage we moved them into a bat box that was to house them on their return to the shed. The box was taken to our microbat flight cage (8 m diameter and 3 m high) a few days later. A male *Chalinolobus gouldii* we also had in care moved in with them and remained roosting with them for the remainder of their stay. One morning an albino *Mormopterus ridei* was there as well! Most of the *Myotis macropus* were drinking about 1 ml of water at the beginning and end of each feed. This is very unusual compared to the other species with which we usually work. *Mormopterus* seem to hardly ever drink, while *Nyctophilus bifax* and *Miniopterus australis* drink only a little, up to about 0.5 ml.

One day, two of the bats escaped. The next morning one of them was roosting on the side of the microbat cage behind the bat box. We were unable to catch it, but a short time later, when sitting on the nearby back verandah feeding the other bats, it flew straight into the container we had them in.

We had a similar incident with *Nyctophilus bifax* a few years ago when four young escaped. We recaptured one of them the following evening, and the other three were all on the outside of the cage the next morning directly opposite 'their friend'. It became an excellent release situation as we could monitor their weights. Over the next few weeks we'd catch the three most mornings, weigh them and leave them inside with their 'friend' for the day. In the late afternoon we'd place them into a wild roost of *N. bifax* that was on the house verandah. They were successfully foraging as all put on weight with no supplementary feeding.

You may be wondering why the fourth bat wasn't released. He had 'no eyes' or rather a covering of skin over both eyes at the time. The covering finally disappeared after a few months though and he was released. He had been unable to feed and lost significant weight in those initial 2 days of 'freedom'.

This bond between orphaned microbats (of at least these 2 species) is very similar to that in the flying-foxes.

We were unable to get the young Myotis to eat whole mealworms independently. It would have been an ideal supported release if the shed owners could supplementary feed the orphans with a bowl of mealworms for a week or so. We tried unsuccessfully to introduce fish to their diet. The bats were taken back to the shed in their bat box on 12 March. The owners rang the next morning to say that none had returned to the bat box. Our optimistic view is that they had flown out that night, met up with family and made welcome in the established roosts. It was a lot of work rearing the young Myotis but a great opportunity to get to know them.

Bats down under – a journey to the bats on the other side of the world

Tanja Straka

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As a recently graduated zoologist and working on bats in Germany for nearly 1.5 years, I decided to make a dream come true: to travel to the other side of the world and learn more about the bats in New Zealand and Australia! I instantly got in touch with scientists I knew were working on bats; Stuart Parsons in New Zealand and Brad Law and Michael Penney in Australia. A few weeks later, at the end of October 2008, I was already sitting in a plane to New Zealand where my bat journey started.

My first stop was in the central area of the North Island in New Zealand, in Tokoroa. This is a small town that predominately services the farming and forestry industry. Here I started a position as an Ecological bat research assistant on a Long-tailed Bat (*Chalinolobus tuberculatus*) research programme based in a pine forest (Kinleith pine forest). This programme was part of the PhD study by Kerry Borkin (University of Auckland). Kerry aims to learn more about the ecology of this bat and use this knowledge to produce recommendations for forest managers and assist with the management of plantation forests. Our tasks included capturing bats, radio-telemetry during day and night as well and roost watching. Sitting in these dense forests with all the ferns made me think about how it might have looked like millions of years ago, when dinosaurs were still walking on earth. Besides catching these apparently quiet and kind insectivorous bats, we also had the chance to see and hear lots of Moreporks *Ninox novaeseelandiae* or also

called Ruru, which were caught a few times in our mist-nets.

My second volunteer position was with a Short-tailed Bat *Mystacina tuberculata* study located at Pureora Forest Park. This is a beautiful native podocarp forest, again in the central North Island of New Zealand. It was a short-term project run by DOC (Department of Conservation) under the direction of Gillian Dennis. The aim of this study was to find out more about the population size and range of the Short-tailed Bats in this forest which involved mist-netting, radio-tracking and roost watching.

Left top: Morepork *Ninox novaeseelandiae*

Left bottom: Harp trap in Tokoroa, N. Z.

Right top: Long-tailed Bat *Chalinolobus tuberculatus*, Kinleith Pine forest, N.Z.

Right middle: Author with Long-tailed Bat.

Right bottom: New Zealand Weta, Pureora forest, N.Z.

Short-tailed Bat, Pureora forest, N.Z.

In one of these big trees we observed close to 600 individuals coming out of their roost. It was amazing to see how the young bats stretched their wings before they started to fly. I have never seen anything similar to these bats, in particular how they use their furled wings and their robust legs for walking on the ground. I was also surprised how feisty these bats could be when trying to get them out of the mist-net! No wonder they can attack insects as big as themselves, like the endemic weta (but Short-tailed Bats also eat pollen and fruits). Other amazing animals I saw during my time in this forest were lots of Kaka (forest parrot), Long-tailed Cuckoos and Long-tailed Bats.

Arriving in Sydney in early February, I was keen to see the Grey-headed Flying-fox colony in the Royal Botanic Gardens and learn about the Ghost Bats in the Sydney Wildlife World. These are two interesting species that Germany does not have. After this short visit in Sydney, I started my third volunteer position on the Central Coast area of New South Wales. I was volunteering there with Susan Lamb who, along with a PhD student Leroy Gonzales, is comparing the bat composition and foraging ecology of insectivorous bats in saltmarsh habitat, forests, and urban areas. What a change now! Setting up harp traps in the night and having around 20 bats (mostly *Vespadelus sp.*) the next morning! We would identify bats, put transmitters on (*Chalinolobus gouldii* and *Nyctophilus gouldi*) and radio-track them in an attempt to discover which habitats they forage and roost in. These tasks kept me busy, as well as fighting against all the mosquitoes and walking through big golden-orb spider webs. We stayed at a remarkable place, Crommelin Research Station, with its big garden and bush access that was also a good spot to see Goanna's, Bush Turkeys and Kookaburras.

Top: Grey-headed Flying-foxes, Sydney Botanic Gardens.

Middle: *Vespadelus* sp. on a tree, central coast, NSW.

Bottom: Harp trapping, central coast, NSW. From left, Leroy Gonzales, Susan Lamb, Cara Threadfall and Brad Law.

Above: Author with *Chalinolobus morio* caught during the FAGM field trip, Yanga National Park. Ray Williams in background.

In March 2009 I had the chance to join the ABS meeting in the Yanga National Park. After an adventurous trip to the National Park it was great to meet some of the Australian bat scientists I only knew from my readings. I also gained a lot more experience with handling bats. I could only stay a few days there, but these days were very intense, catching 40-50 bats in one night and also seeing the White-striped Free-tailed Bats (*Tadarida australis*) for the first time.

It was an amazing time and I want to thank everybody who gave me the chance to see and learn more about the bats in New Zealand and Australia! I also appreciated the opportunity to learn more about the radio-tracking and handling of these bats. Thank you New Zealand and Australian bat scientists!

Ed: Following are a terrific series of 'odd stories' on some people's 'not-so-typical' encounters with bats. Enjoy!!

Holy leather jacket, Batman!

Carol West

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"HELP! There's something alive in my leather jacket!" The frantic woman at my front door, surrounded by a sea of Beckham mini-lookalikes thrust her stylish jacket into my hands. Thoughts of gift horses, and peering into mouths faded as I became aware of the rising threnody of squeaks and protestations of outrage issuing from the aforementioned jacket.

With previous experience shouting at me about the nanosecond of time that existed between microbats awake and complaining in an enclosed space and microbats exiting the space like angry furies and taking up unassailable positions in my house, I looked around for a container big enough for a leather jacket plus inhabitants. Out went the Christmas decorations and into a huge cloth bag went the leather bundle of outrage. First disaster averted, the woman told me the story of how she had hung the jacket in the carport the day before, leaving it out overnight to air. Unknown to her, a family of microbats had found the sleeves of the jacket a wonderful shelter from the fresh July air, and it wasn't until she went to put the jacket on while standing on a windy soccer field, that she realised she was second in line for occupancy! We agreed on a plan to release the microbats back at her home later on that day, just after dusk, and she returned to the soccer field, minus small squatters and minus warm coat.

At about 8 pm that night, we all assembled in the woman's carport by torch light, and I explained how lucky it had been that none of the microbats had escaped during their discovery, and relocation to the Christmas decoration's bag, as they're very edgy about being disturbed. Well, by now I should know that any statement made in a pedagogic way about bats in general is a recipe for displaying instant ignorance. I rolled back the first sleeve carefully, saying 'watch carefully, we won't have long to see them, they'll shoot out of the sleeve very quickly'…..

….the microbats, as a unit, shuffled backwards, further up the sleeve, hurling epithets of rage back at me. I could see that they were long eared bats, fat, bright-eyed, glossy and full of righteous indignation at my attempting to dislodge them from the warm space. I put my gloved hand in from the shoulder end of the

sleeve and had to remove each bat individually, giving me a good chance to examine them. From the high muzzle ridges, I thought them to be *Nyctophillus gouldi*. I had to repeat the slow, one by one, manual extraction on the other sleeve as well. Altogether, 12 small microbats were reluctantly relocated, and the leather jacket was returned to the confines of the house.

I'm constantly delighted and surprised by the attitude of many members of the public, expecting them to be anti bat, then being proven wrong by their interest and delight.

Pied bat on the fly

Michael Pennay

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After receiving a report on a poor old Bent-wing Bat (with an arm band) that had accidently been killed by a tennis ball during a game of tennis, I was curious to hear reports of other unusual bat encounters. Personally, I've had a report from a fly fisherman who caught a Large Pied Bat on the fly, and one from a farmer who blew a Lesser Long-eared Bat out of a tractor chimney. I also once caught a Lesser Long-eared Bat that flew through the open window of the land cruiser as I was stopped looking at a map!

Welcome stowaway

Maree Treadwell

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We received a bat when I was working at Kukundi Wildlife Sanctuary that had travelled by ship from South Australia to Sydney. We were eventually able to return it, I can't remember the details, not even the species, but she was a wonderful guest. We looked after her for quite awhile after her journey as a stowaway in a cabin.

Hush please…

Judith Hopper-Hallinan

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I was asked to rescue a bat in a large umbrella used for shading tables. It happened so often that I added 'umbrella' to the list of standard reasons for rescue. In this case, the umbrella was folded and leaning against the wall near the front door. When I explained that the microbat was simply settling in for a winter rest the owners were charmed. They hung a "quiet please – bat sleeping" sign on the umbrella and bought a new one for their table.

Again with the tractors

Melanie Venz

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This story is relayed via Rod Hobson (QPWS Toowoomba) from information and photos from a ranger, Leanne Simpson, at the Bunya Mountains NP in April 2003. It was a really unusual record in terms of its roost (a tractor exhaust pipe), habitat (clearing of park head quarters, but adjacent to rainforest) and distribution (Bunya Mountains is the most easterly record to my knowledge of this bat in Qld). There have been doubts cast about Leanne's measurements and her assertion that it appeared to be 'young', but Bruce Thompson, Greg Ford and Rod Hobson verified that the photos were of a *Nyctophilus timoriensis.*

Not for the squirmish

Chris Grant

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I have only two bat stories. One, my brother driving at night in the van with his arm out the window. A bat collided with his arm and stuck there, dead.

The other, an old bloke in this shed wanted a bit of poly pipe. He found some, cut a length off, and saw blood, to his puzzlement. On closer examination, he found he had cut a bat's head off while it slept inside the pipe. ☹

Devil is in the details

Jon Hall

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The oddest bat story I've got is from the NT (of course!).

I was driving late at night a hundred or so kilometres north of Alice Springs in a camper van and hit a bat. I went back, picked it up and stuck it in the car's glove box to take a look at later.

When I got back to camp the bat had gone, it wasn't dead as I thought! I couldn't find it in the car so I gave up looking.

I headed north to Devils Marbles.

Three days later I was driving back towards Alice and had reached about the same spot where I'd hit the bat. It was midday and my son gave a delighted whoop when he spotted the bat (a *Chalinolobus gouldii* I think) which had crawled out from under the driver's seat.

May just a coincidence, or may be it had some kind of bat GPS-alarm clock multi functional device!

[Ed : Back to the serious stuff now]

Mega Micro, Yino Yango; what's going on? And who do bats relate to now?

Terry Reardon

South Australian Museum

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Many of you may not have caught up on developments with the higher level classification of bats and their relationships to other mammals. So I thought I would write this very brief note to discuss some of the confusion with recent names used for suborders of bats, and mention some of the surprising results on who bats are related to. I don't intend this to be a review of the literature but I will draw attention to some of the relevant papers which you may wish to follow up on.

Changes in suborders of bats

Dobson (1875) divided the order Chiroptera into two suborders, Megachiroptera (containing only the family Pteropodidae) and Microchiroptera (the remaining 18 or so bat families). These suborders are well ingrained into us, and I suspect it will take awhile for us to let these names go.

After Smith and Madkour (1980) and Pettigrew (1986) questioned the phylogenetic origins of megabats and microbats, a huge effort was poured into resolving the ancestry of bats and the evolutionary relationships among bat families. Now after more than two decades of intense phylogenetic analysis of morphology and DNA sequences, the traditional subordinal split Megachiroptera and Microchiroptera has become no longer tenable in phylogenetic terms.

Although the relationships amongst families are not all yet fully resolved, it is clear from all this research that some previous microbat families (Hipposideridae, Rhinolophidae, Megadermatidae, Rhinopomatidae and Craseonycteridae) are more closely related to megabats (Pteropodidae) than they are to other microbats. The infraordinal names Yinochiroptera and Yangochiroptera (originally proposed by Koopman 1984) were used initially to accommodate these new relationships although later studies revealed contention about which families belonged to which infraorder (particularly the families Emballonuridae and Nycteridae). Springer *et al*. (2001) applied these names as suborders but modifying Yinochiroptera to Yinpterochiroptera to account for their concept of family membership to each suborder.

Several studies followed, producing further refinement of the phylogenetic relationships amongst the families. Hutcheon and Kirsch (2006) relatively recently argued that the names Yinochiroptera (and Yinpterochiroptera) and Yangochiroptera no longer related to the original authors' notion of family membership. To avoid confusion they suggested replacing all previous subordinal names with new ones to reflect the current version of the split in Chiroptera. They proposed the names Pteropodiformes to encompass the families Pteropodidae, Hipposideridae, Rhinolophidae, Megadermatidae, Rhinopomatidae and Craseonycteridae; and Vespertilioniformes for all other bat families.

My scan of subsequent papers suggests both subordinal name sets have been used. I recently

asked Don Wilson at the Smithsonian whether he felt there was consensus in the USA on which group name should be used. He thought that there was no consensus as yet but he himself favoured the Hutcheon and Kirsch (2006) argument.

Churchill (2008) refers only to the Yinpterochiroptera and Yangochiroptera as the new suborders. I agree with Wilson that Hutcheon and Kirsch (2006) have made a compelling case, and I think I will choose to use their nomenclature. I do think it useful for people to drop Megachiroptera and Microchiroptera as subordinal names, but of course the informal terms megabats and microbats may be useful in many circumstances.

Chiroptera relatives

We have also become used to the notion that bats, the order Chiroptera, are closely related to either shrews, flying lemurs or primates. In the last few years, enormous genetic datasets have been analysed to resolve the relationships amongst the mammalian orders. The emerging consensus is that bats belong to a major group called Laurasiatheria, and within this group, bats' nearest relatives are, in order, the Perissodactyla (horse, rhino, tapirs), carnivores (dogs, cats etc) and Cetartiodactyla (whales, dolphins, sheep, cattle etc). It's kind of hard to picture the common ancestor of a bat and rhino!

Interestingly, the insectivores (including shrews) are in the Laurasiatheria but are most distant from bats. Primates and flying lemurs are outside the Laurasiatheria (Prasad *et al*. 2008). I don't doubt that there will be further clarification of these relationships, and indeed within the Chiroptera.

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Report on deaths and injuries to Grey-headed Flying-foxes, *Pteropus poliocephalus* shot in an orchard near Sydney, NSW

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Executive summary

For several years, animal ethics concerns have been raised over the practice of shooting flying-foxes in commercial fruit orchards in Australia, and the role of government agencies in licensing the kill. In New South Wales the practice is poorly monitored and insufficient evidence has been available to assess ethical concerns. This study reports the first systematically acquired data on flying-foxes shot under licence in NSW. In spring of 2007, a licensee who believed themselves to be acting within the bounds of normal, acceptable industry practice granted permission for flying-foxes to be collected from their orchard during a short period of shooting for crop protection. A large number of animals were killed in a two week period as a result of shooting, a high proportion of animals shot in the orchard sustained significant injuries but were not killed and a high proportion of the adults shot were lactating females whose dependent young would have died of starvation or predation in the camp.

A total of 164 dead or injured flying-foxes were collected (*n* = 146) or observed (*n* = 18) from an orchard in western Sydney between 9 November and 22 November 2007, after shooting had occurred at the orchard to protect fruit crops. Deaths and injuries were caused by shooting with a shotgun with No. 4 lead shot. Of the 146 collected bats, detailed information was compiled on 136 animals. Another ten bats (eight newborn pups and two sub-adults) were sent to wildlife organisations for rehabilitation.

The sex ratio (*n* = 136, 1.67:1) was strongly skewed towards female flying-foxes, of which 22 (27%, excluding the newborn pups) were non-reproductive (had never had a young) and 61 (73%) were reproductive. Of the reproductive females, the majority, 54 (65%) were lactating at the time, four were pregnant (5%) and three (4%) had bred before. Thirteen lactating females were shot while carrying their newborn pup. Five of the young died with their mother while eight were distributed to members of a wildlife rehabilitation organisation. The dependent young of the remaining 41 lactating females would have died in the camp as a result of the death of their mothers.

Therefore, the total estimate of flying-foxes killed due to shooting in the orchard over the two-week period was 205. The 48 adult males were divided into 19 (40%) non-reproductive (1-3 years old) and 29 (60%) reproductive (≥3 years old) individuals.

Of the collected flying-foxes, 44 were alive at the time of collection (36 sub-adults/adults and eight newborn pups). Thirty-four of these animals were subsequently euthanased because of their injuries. Six of the 18 animals that were observed but not collected were alive at the time of observation. All collected flying-foxes were permanently labelled with a metal band, sexed, measured and examined; their obvious injuries were noted and in some cases photographed.

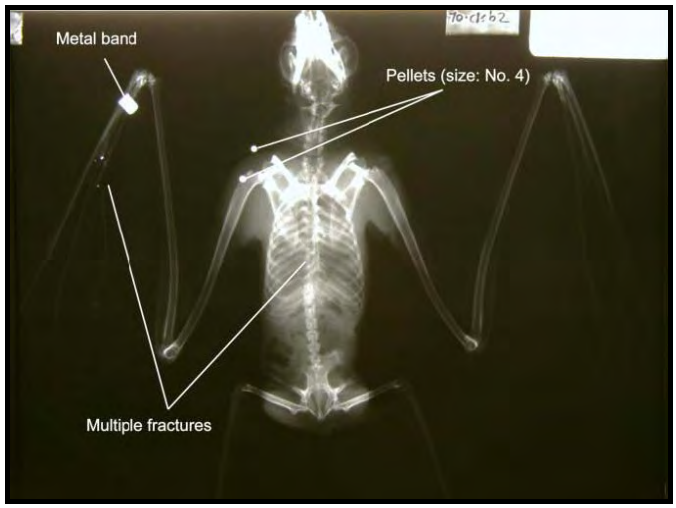
A total of 24 flying-foxes that had been collected dead were X-rayed and autopsied by a qualified veterinary surgeon. Their injuries were noted and compared and in some cases their autopsy was photographed. Each of the 34 flying-foxes that had been euthanased were also X-rayed, autopsied, their injuries were noted and compared, and in some cases their autopsy was photographed.

The most common cause of death of the animals that died before collection was attributed to internal haemorrhaging in the thoracic and abdominal cavity. Haemorrhaging was associated with non-vital organ damage, fracture of ribs and sternum and contusing of body wall and muscle. Because autopsies were not performed on all bats that died before collection, the exact proportion of these animals remains unknown. However, it is likely that since the vital organs (brain, heart and both lungs) were not directly affected, bats had experienced pain for some time before dying. In addition, 27 bats had skull and neck injuries. These had not caused an instantaneous death in at least six bats which were alive at the time of collection. This is likely a result of the shot impacting the mandible and not reaching the brain directly. In three cases these injuries had been administered from above

at close range, presumably after the bat had been brought to the ground by another injury. These three cases are likely to reflect actions taken by shooters to ensure the prompt death of injured animals as required under the conditions of the shooting licence. If so, there is evidence that only 8% of injured animals were located and killed by shooters.

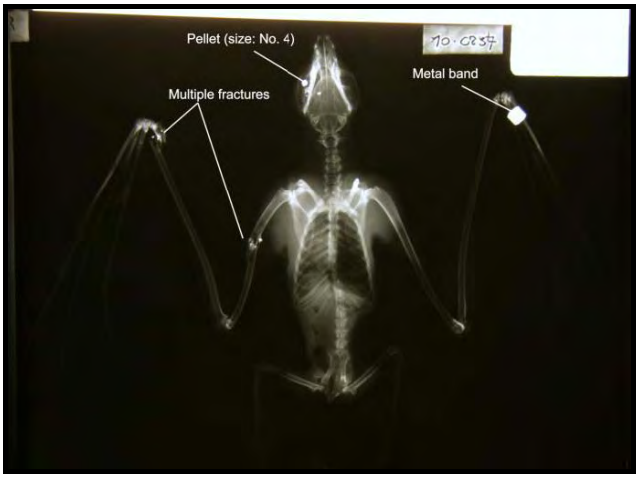
All of the flying-foxes that were collected alive and later euthanased had major or multiple injuries to their wings and considerable contusions. In the opinion of the veterinary surgeon "If no intervention had taken place to euthanase these bats they may have suffered many days before succumbing to predation, infection or dehydration and starvation".

At least 27% of flying-foxes that were shot (not including newborn pups who were on their mothers, but not directly injured) were alive hours and at times days after being shot. This is in contravention of the definition of "humane killing" in the guidelines defined by the Australian National Health and Medical Research Council (2004). Live, injured flying-foxes have been opportunistically observed or collected after shooting at several other sites where shooting has taken place, confirming that this outcome is not unique. Importantly, the Grey-headed Flying-fox, *Pteropus poliocephalus* is a threatened native species and the killing of reproducing females in crops must contribute to its declining numbers.



Images show some examples of severe injuries to shot Grey-headed Flying-foxes resulting in variable probable times to death.

The full report, endorsed by over 60 organisations including the ABS, is available to view at: www.hsi.org.au



Reappraising the status of bats on Cape York

Tamara Inkster[1], Jennifer Parsons, Terry Reardon and Simon Robson

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Thanks to the 'Caring for our Country' scheme, the School of Marine and Tropical Biology at James Cook University (JCU) and the South Australian Museum (SAM) will work together to clarify the status of a number of threatened species on Cape York Peninsula (CYP).

The project stems from a recent review of priority threatened species for CYP, where over 50% of the mammals listed were microchiropteran bats. Many of these species often rate highly in conservation assessments, because of a lack of adequate distribution data and minimal taxonomic appraisal.

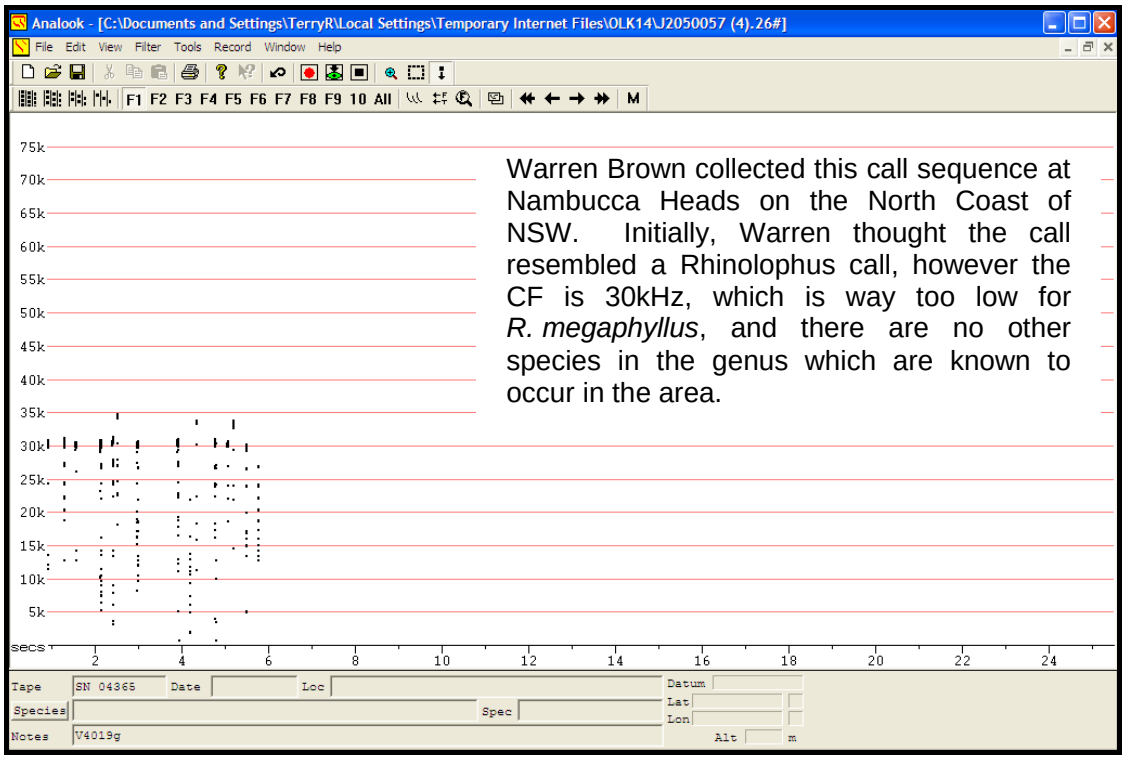
The first step involves verification of existing museum specimens and records, to clarify the taxonomic status of the relevant species and provide distributional data that will be used to develop predictive models to focus our field sampling efforts. The second step involves one month of intensive survey in target areas across CYP, leading to the development of up-to-date distributional maps and a reassessment of the taxonomic and threatened status of the target species. We also hope to develop an identification guide specific to this region in order to make continued monitoring of threatened species easier. The timing of this survey will be very dependent on the end of the great soaking we are receiving this wet season but we anticipate being in the field by mid-year.

In addition to the existing databases we would be grateful for any personal observations and records of bats in this area (north of 16°S) that you may want to contribute. Please contact Terry (reardon.terry@saugov.sa.gov.au) with any such records.

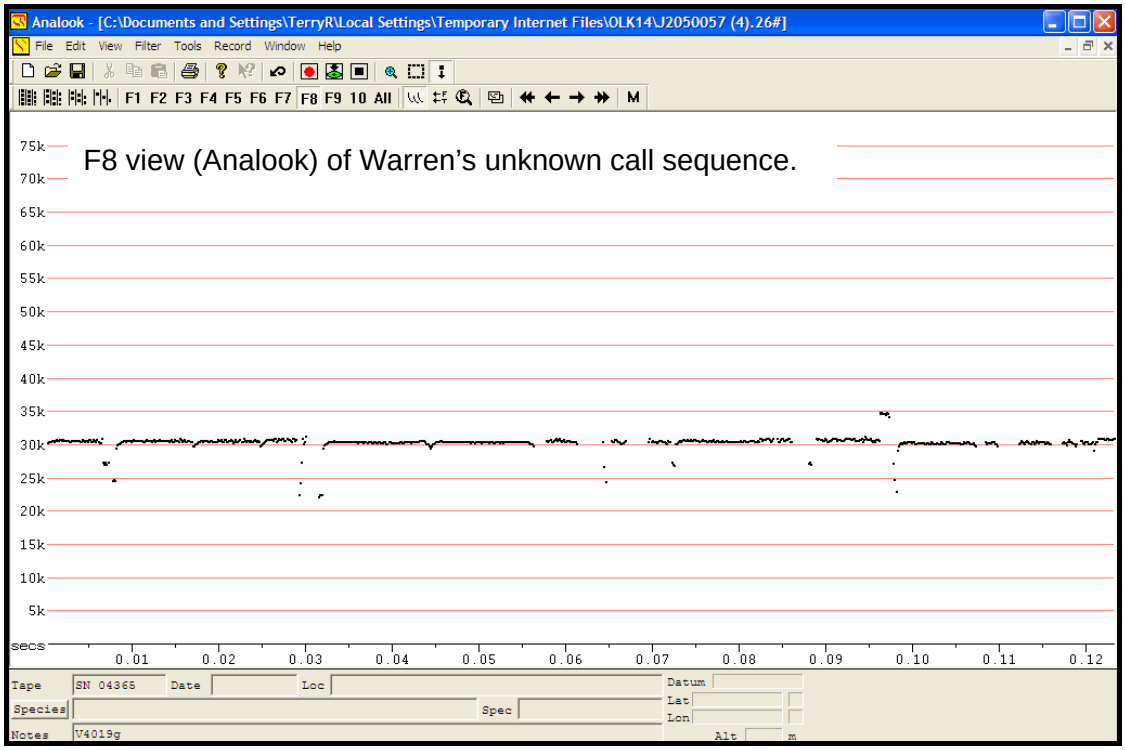
Table 1. Target species included in the Cape York bat survey.

Common name	Scientific name
Yellow-bellied Sheathtail Bat	*Saccolaimus flaviventris*
Cape York Sheathtail Bat	*Saccolaimus mixtus*
Bare-rumped Sheathtail Bat	*Saccolaimus saccolaimus*
Coastal Sheathtail Bat	*Taphozous australis*
Troughton's Sheathtail Bat	*Taphozous troughtoni*
Eastern Horseshoe Bat	*Rhinolophus megaphyllus*
Ghost Bat	*Macroderma gigas*
Large-eared Horseshoe Bat	*Rhinolophus robertsi*
Intermediate Horseshoe Bat	*Rhinolophus* sp.
Dusky Leaf-nosed Bat	*Hipposideros ater*
Fawn Leaf-nosed Bat	*Hipposideros cervinus*
Diadem Leaf-nosed Bat	*Hipposideros diadema*
Semon's Leaf-nosed Bat	*Hipposideros semoni*
Gould's Wattled Bat	*Chalinolobus gouldii*
Hoary Wattled Bat	*Chalinolobus nigrogriseus*
Little Bent-winged Bat	*Miniopterus australis*
Eatsern Bent-winged Bat	*Miniopterus oriane oceanensis*
Flute-nosed Bat	*Murina florium*
Large-footed Myotis	*Myotis macropus*
Eastern Long-eared Bat	*Nyctophilus bifax*
Lesser Long-eared Bat	*Nyctophilus geoffroyi*
Golden-tipped Bat	*Phoniscus papuensis*
Forest Pipistrelle	*Pipistrellus adamsi*
Mangrove Pipistrelle	*Pipistrellus westralis*
Northern Broad-nosed Bat	*Scotorepens sanborni*
Eastern Forest Bat	*Vespadelus pumilus*
Eastern Cave Bat	*Vespadelus troughtoni*
White-striped Freetail Bat	*Tadarida australis*
Northern Freetailed Bat	*Chaerephon jobensis*
Beccari's Freetailed Bat	*Mormopterus beccarii*
Little Northern Freetail Bat	*Mormopterus loriae*
Eastern Freetail Bat	*Mormopterus ridei*

– Gadgets, Techniques and Photos –



Warren Brown collected this call sequence at Nambucca Heads on the North Coast of NSW. Initially, Warren thought the call resembled a Rhinolophus call, however the CF is 30kHz, which is way too low for *R. megaphyllus*, and there are no other species in the genus which are known to occur in the area.



F8 view (Analook) of Warren's unknown call sequence.

Before looking at the next pair of sonograms, can you hazard a guess at the species of bat producing these calls?

Benefits of an expert knowledge base

Compiled by Susan Campbell

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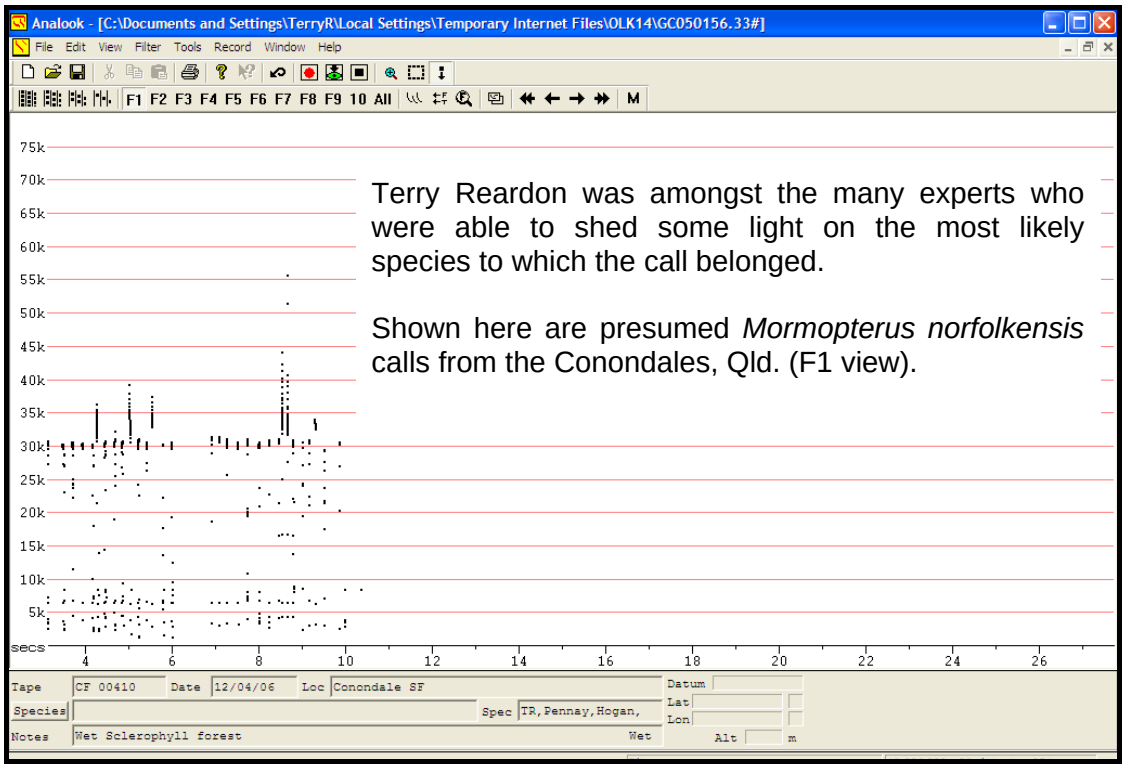
Warren Brown forwarded me his interesting ANABAT sequences (previous page) to see what I could make of them. Unfortunately I do not have a lot of experience with ANABAT, so with Warren's approval, I forwarded the calls out to the ABS list-server, an extensive e-mail list of bat enthusiasts. The response from this list-server was both immediate and impressive. I received expert comments from Chris Corben, Greg Ford, Greg Little, Rob Gration, Terry Reardon, Marc Irvin, Kyle Armstrong and Brad Law (apologies if I have forgotten anyone). Eight experts giving comment within a few days of the e-mail going out, an amazing, and invaluable, response. Some interesting points were raised regarding the ability to comment on calls based purely on an image (.pdf) file, versus the improved clarity of the original call files viewed using Analook.

Early comments (before the original files were supplied) suggested that Warren's calls were the shape of typical *Rhinolophus* calls, but at half the frequency. Chris Corben commented that there was a division ratio problem with the firmware for the SD1. The problem was that the device kept setting the division ratio back irrespective of what was set via the button. However, this problem is easily fixed by updating the firmware to the latest, available via Chris's website. There were also concerns raised over the ability of Microsoft Vista to work with detector cards and about the division ratio setting in CFCRead when downloading calls. Assuming no equipment error or human slip-up, the calls looked compelling. Kyle suggested freshly initialising the detector cards and increasing the survey effort at the site (including active monitoring along gullies and tracks with handheld detectors).

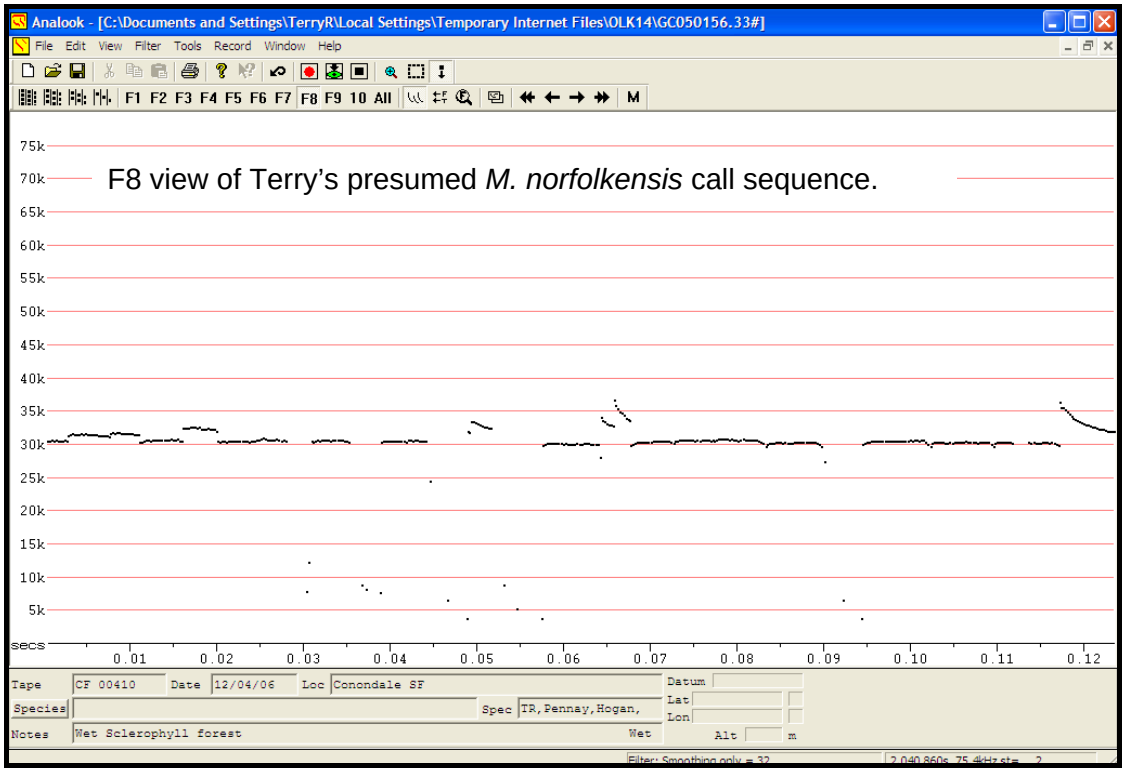
Warren was able to confirm that there was no glitch with the division ratio, and therefore other explanations were sought to identify the species. Terry recognised that the pulse rate was very slow for *Rhinolophus*. Trawling through his library of calls, Terry was able to identify a similar shaped call made by *Mormopterus norfolkensis* in the Conondale Ranges near Brisbane. Amongst these calls that Terry, Luke Hogan and Mike Pennay had collected were classic alternating type calls, but intermingled with these were some fairly flat non-alternating calls some of which resembled Warren's calls. Brad Law and Greg Ford agreed that *M. norfolkensis* occasionally produced these sorts of calls, with a short upward frequency sweep at the start and a short down-sweep at the end of the call. Also, the inverted curve ('inverted-cup') calls tend to go with the preceding features, even though *M. norfolkensis* usually produce flat calls. Greg Ford noted that the 'inverted-cup' shape of some of the flatter pulses of *M. norfolkensis* calls are also evident in calls from *Chaerephon jobensis* and *Mormopterus beccarii*. Brad and others were surprised at how different it was to view the call as a .pdf compared to viewing the files with Analook. What originally looked like a *Rhinolophus* call with a division ration setting problem, turned out to be a *M. norfolkensis* call. Images of Terry's *M. norfolkensis* call are included on the following page.

I agree with a comment made by Greg Ford, that the importance and value of gaining a second (expert!) opinion via the fantastic network of 'Anabatters' in the ABS can not be under estimated, particularly for confirming the findings placed in reports. If you have not joined the list-server already, please consider doing so, check out the contacts on the ABS website and contact Alexander Herr directly, or e-mail me: editor@ausbats.org.au



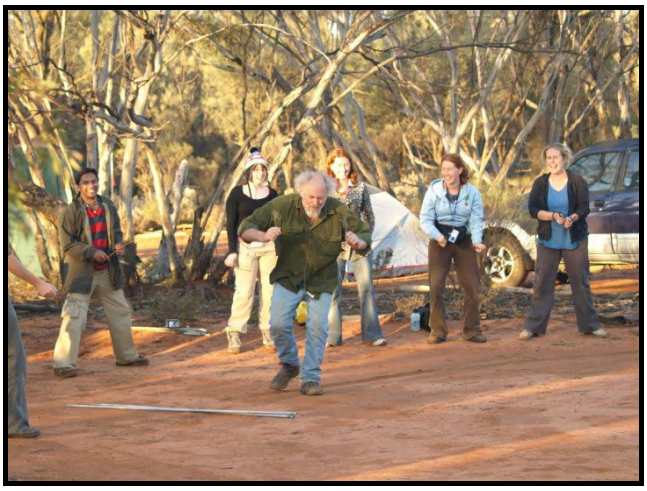
Terry Reardon was amongst the many experts who were able to shed some light on the most likely species to which the call belonged.

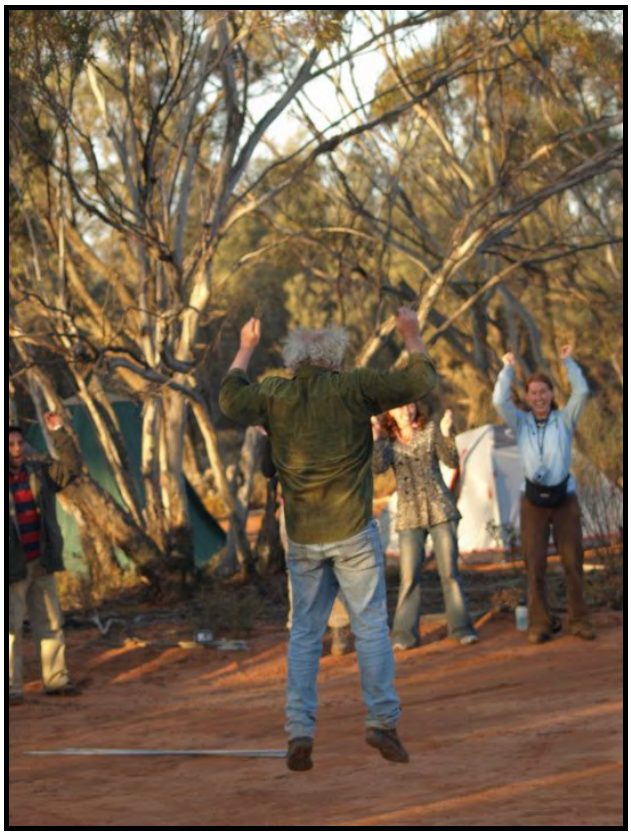
Shown here are presumed *Mormopterus norfolkensis* calls from the Conondales, Qld. (F1 view).



F8 view of Terry's presumed *M. norfolkensis* call sequence.

Witty photo caption competition





The bat dance!

From the crowd gathered around Terry Reardon, it is clear that there are a few bat folk out there who are more than familiar with the (in)famous Reardon 'Bat Dance'. Just as a rain dance brings rain, so does the Reardon Bat Dance bring forth a veritable deluge of chiropterans.

All successful dances are however accompanied by appeasing lyrics. What exactly are the words accompanying the Bat Dance that entice a bountiful night of trapping? Send through the chant, verse, prayer, cry, sonnet, limerick, rhyme, ode, prose, elegy, mantra, hymn, tune or haiku that you think should accompany this mystical dance.

All submissions will be published in the next *Newsletter* in November and the winner will receive a special bat related prize!

Send your entries to: editor@ausbats.org.au

– News and Announcements –

IUCN 2008 Redlist

The IUCN has recently launched the 2008 Red List, which includes results of the most recent global mammals assessment. In conjunction with the launch, the IUCN has released global distribution maps of over 5,800 mammal species. If interested, you can download the maps (and metadata) in ESRI GIS shapefile format from http://www.iucnredlist.org/mammals/download_gis_page

[*Ed: information via Michael Pennay*].

Bat education site

Lawrence Pope discovered a great group of people trying to educate the locals of Cyprus on the benefits of having bats around your home. In the summer of 2006, the 'Animal Responsibility Cyprus' group begun their bat education campaign after learning that the fruit bats of Cyprus were unprotected and were 'being shot for fun'. The site has some wonderful pictures and is worth checking out: http://www.animalscyprus.org/CyprusBatProject.htm

Thanks from VAFA

Still with Lawrence, President of the Victorian Advocates for Animals; the VAFA received and distributed over $3,000 for carers dealing with heat stressed and burned animals during the Victorian bushfires. Much of this came from bat-advocates around Australia and elsewhere. The VAFA would like to acknowledge these people and pass on many thanks and appreciation. Blondie and Bairnsdale are two of the 20 Grey-headed Flying-foxes Melbourne's Ashburton shelter took in for treatment. Bairnsdale was driven nearly 300 km to the carer. Both are doing well and with care should make a full recovery.

Bairnsdale (top) and Blondi, two Grey-headed Flying-foxes lucky to find their way into carers hands during the devastating Victorian bush fires.

Obituary: Otto von Helversen (1943 – 2009)

On 2nd of March 2009, Prof. Dr. Otto von Helversen, renowned German scientist, died following heart surgery.

Otto von Helversen, based at the University of Erlangen, Germany, was best known internationally for his work on Neotropical nectar-feeding glossophagine bats. He saw these animals for the first time in Brazil while on honeymoon with his first wife Dagmar. Prof. Helversen recognised the animals` unusually transparent energetic budget as a great potential for understanding physiological influences on the ecology and behaviour of these bats. His interest in glossophagine bats lead to studies in Mexico, Costa Rica, Ecuador and Cuba. His research over the following years included not only the energetics of the animals, but also their interaction with flowers, where he discovered together with his wife Dagmar that bats may use their echolocation system for recognising flowers. Prof. Helversen's 40+ years of experience with European bats also contributed to the recently published Handbook of European Bats. Being one of the pioneers in echolocation research he went only rarely to the field without a bat detector. Outside of the bat world he was also involved in numerous studies on the acoustic communication in katydids and grasshoppers and he never lost his early interest in spiders.

Otto von Helversen was a great biologist in the most original sense, whose vast knowledge we all admired. Being very accessible, he aided many young biologists in finding their professional way. Most importantly, in spite of his analytical mind he never missed to see the beauty of nature and to draw joy from his field work. With him we lost a biologist, an influential teacher and a friend.

Marco Tschapka, University of Ulm, Germany.

– Book review –

Sue Churchill's: Australian Bats (2nd Edition)

Publisher: Allen and Unwin (2008)

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The first edition of Sue Churchill's *Australian Bats* was published in 1998 and was the first field guide to cover all of Australia's bat species. A testament to its importance as a key reference is that it has remained the authoritative bat guide until its recent replacement by the second edition.

The second edition is similar in physical size and content structure. It contains another 25 pages or so, with the introductory information contained in the first 20% of the book, and keys and species' accounts filling out the rest. The publisher and author have given some thought to the design of this edition with the result that its overall presentation is appreciably different from the first. The matt pages of the first edition are replaced by gloss and there are now colour codes on the pages to represent each bat family in the species accounts section.

The text layout is different. In the introductory section and species' accounts, the line spacing looks like it is reduced to 1.5 from double and there is only left hand line justification; the result is that the text is more compact. In the keys, the font size has been increased which will make using them under the light of a head torch much easier. There are many more colour images which add to a brighter feel for the book. Some of the species' pictures vary in quality, and some suffer from poor exposure and poor colour correction, e.g. pp. 67, 144, 149 and 167. However, overall the quality is of a sufficiently high standard. Good colour images of bats greatly aid with identification.

The information in the new edition is significantly revised, especially with updates on the species accounts. There are also new taxonomic treatments, but more on that later.

Newly added to the species accounts are sonographs for each microbat species. These are a great addition to the book (Kyle Armstrong pointed out that the sonograph for *V. finlaysoni* is incorrect and should look like the one for *V. pumilus*).

One of the endearing features of Sue's book is the occasional use of the first person and use of a number personal anecdotes, as well as third party experiences, e.g. "Damian Milne tells me….", "A radio-tracking study by Michael Pennay found …"). So rather than a dry compendium of facts, the text is like a personal narrative, and is a pleasure to read.

I have not road-tested the keys but I am sure they will get scrutinised by many field workers over the coming seasons. Overall the book will certainly meet its stated aims in that it is an easily accessible and readable introduction to Australian bats for those who have just a casual interest in the fauna, but it is packed with enough (and new) information to make it of interest to the serious biologist and indeed to serious bat workers for whom the identification keys and species accounts will undoubtedly become the most soiled sections.

To write and produce a significant book such as this is a great achievement, and I am sure the author and publishers are naturally nervously awaiting the reviews. I know I felt shattered when Stan Flavel and my first book got complimentary reviews (one by Sue Churchill) but attention was drawn by one reviewer to some small typo glitches and a small mix-up in a table.

I have a few criticisms of the book to make. The first is the surprising lack of discussion of bat conservation. Even the section titled "Caves and Conservation" discusses little about issues surrounding cave bat conservation. The reader will not have any idea which species are of conservation concern nor an appreciation of the many substantial threats that currently face both tree and cave dwelling bats. This seems a serious omission given the scope of the book and its stated aims. Bats are under serious pressure – one species is facing imminent extinction, many are listed in threatened categories, and the great magnitude of habitat loss coupled with predicted effects of global warming suggest that many species face uncertain futures. I hope in any future edition, a whole chapter will be devoted to conservation issues, as well as a list of the threatened status for each species, or it at least mentioned in the species accounts.

A minor criticism not unique to this book is its geographic scope. Although this book is titled *Australian Bats*, its does not include bat species from Boigu and Saibai Islands; these Queensland islands adjacent to mainland Papua New Guinea are often overlooked in books dealing with "Australian" fauna.

However a more serious criticism concerns the taxonomic treatment presented in the book and rather than deal with that here, I have written about this in detail in a separate note later in this newsletter. While the taxonomic issues are important, they will be minor to most people and not detract from the celebration of Sue's considerable effort to pull together a great book. At the recommended retail price of $45, this the most important reference on the bat fauna of Australia, is excellent value.

Acknowledgements
I thank Harry Parnaby, Peggy Eby and Kyle Armstrong for reading the draft version and giving their constructive comments.

What's in a penis? Or a nose-leaf for that matter

Some further thoughts on 'Australian Bats' collated from bat workers at the FAGM.

Susan Campbell

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The 2nd edition of Sue Churchill's 'Australian Bats' was well road tested during the FAGM recently held at Yanga National Park, NSW. The veritable *Vespadelus* sp. haven that was encountered during our few nights of survey meant that Sue's keys and notes on *Vespadelus* sp. penis characteristics and skull morphology were frequently consulted. The final task of identifying many of these tiny critters often fell to our President, and he commented that the illustrations of glans penis would be more worthwhile if they were all drawn from the same angle. In addition, both Michael and Lindy expressed reservation over the words chosen to describe the skull morphology of *Vespadelus* sp. Sue's book frequently directs readers to feel for a 'bump on the nose bridge' to help distinguish among *Vespadelus* species. This repeated advice is somewhat misleading as it is actually the rise in the brain case that is being felt, not a bump on the nose.

Both Maree and I liked the colour scheme, whereas others expressed a dislike for some of the chosen colours. However, all agreed that splitting the guide into easily recognisable sections was a great idea.

I agree with Terry that there is not enough detail on the many threats facing bats, with no mention of bats and wind-farms. Lastly, perhaps a microbat may adorn the cover of the 3rd edition?

Which *Nyctophilus* is which? On the left is *N. gouldi* and on the right, *N. geoffroyi*, Yanga National Park. Photo: Jenni Garden

One of the many male *Vespadelus* spp. whose glans penis was closely inspected to help with species identification. Yanga National Park. Photo: Jenni Garden.

A note on the taxonomic treatment used in the second edition of *Australian Bats* by Sue Churchill 2008

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Several people now have asked my opinion on the taxonomic changes presented in Sue Churchill's new edition of *Australian Bats*, particularly those for the family Molossidae. The fact that there have been questions presumably reflects an independently derived sense of doubt about the validity of some of the decisions, and consequently, uncertainty as to whether or not the decisions should be accepted. I had begun a lengthy discussion on the taxonomy in my review of the book (earlier in this newsletter) but it was sensibly suggested that it might be better not to swamp the review and write a separate opinion on the taxonomy. In writing this I should state that my opinions are no more authoritative than those of any other experienced bat taxonomist but because of the particular circumstances with which my and my collaborators' taxonomic work on molossids has been used in the book, I am in a good (if not biased) position to explain some of that background.

Sue had consulted widely to make sure that the second edition would be as up-to-date as possible at publication. Several major taxonomic revisions (*Mormopterus*, *Nyctophilus* and *Miniopterus*) were in progress at the time and these were likely to result in a significant shake-up of the prevailing taxonomy of Australian microbats. While these projects were well underway, they were unlikely to be published prior to the proposed publication date of *Australian Bats*. I had suggested several times to Sue that it would be better to delay publication to include the new taxonomy, but was informed that the date had been set by the publisher and was not negotiable. Of course some of us involved with this taxonomic research on Australian bats had been in irregular contact with Sue during the time she was preparing her manuscript, to share preliminary thoughts on our work and to inform on progress and likely publication times of the respective revisions.

The new edition contains several changes to the previous taxonomic treatment of Australian bats (used most recently in Van Dyck and Strahan 2008). Sue gives her justifications for the various decisions in the Appendix. While some of these changes were based on her own observations, others were based on unpublished research by other workers, presumably with their agreement.

When I received an advanced copy in August last year, I was surprised and very disappointed to discover that some of my (and my collaborator's) unpublished work on the family Molossidae, inadvertently found its way into the new edition, even though I had specifically requested that it not be used because our revisions would not be published in time. Sue has been extremely apologetic for this slip and I have never doubted that this was anything but unintentional. But the book is now published with incorrect information that needs to be sorted out.

To be specific about the molossid treatment, the second edition contains the following taxonomic decisions: the generic changes from *Tadarida australis* to *Austronomus australis*, and *Mormopterus norfolkensis* to *Micronomus norfolkensis*; the elevation of the two subspecies of *M. loriae* to *M. cobourgiana* and *M. ridei*. These decisions are attributed to a revision of mine that simply does not exist, and all of those taxonomic acts were based on preliminary hypotheses yet to be fully tested. My preference is that people ignore these changes and follow Van Dyck and Strahan (2008) and use the old names until proper revisions are published, but I recognise that the genie is out of the bottle and people are likely to use these names. It was also not appropriate to put in print, either as a personal communication or by reference to non-existent work, that *Mormopterus* does not occur in Australia – while my preliminary data suggests this, again further work is required for confirmation.

It's a pity that the publisher was inflexible about publication date. In my view it would have made little difference to have delayed publication of the second edition by one year so as to include the results of these new taxonomic studies. This makes particular sense given the expected life of the second edition would likely match the 10-11 years of the first edition, and it would have avoided the second edition becoming significantly out of date within a year.

Some of the taxonomic decisions in the book appear to be made without deeper consideration of the issues. An example is that of the treatment of *Miniopterus schreibersii*. Published genetic

studies certainly confirm that the Australian species has been incorrectly assigned to the species *schreibersii*. In *Australian Bats*, Sue has argued therefore that the oldest available Australian name, *orianae*, should be applied. The decision seems logical and possibly correct although the relationship of Australian "*schreibersii*" to Indonesian *blepotis* (an older name) is not yet resolved. Resolving the very complex relationships amongst Indo-Australasian *Miniopterus* will require considerable work – investigations based on genetics have been in progress in Belinda Appleton's lab for some time.

Similarly the decision to elevate Australian *Rhinolophus philippinensis* to *robertsi* seems to be taken without consideration of the possibility for other potential relationships not covered in Cooper *et al.* (1998). The Cooper *et al*. study, which Sue has cited as part of the evidence for her decision, included only limited representation of the subspecies and allies of *philippinensis* with which Australian *philippinensis* should be compared.

There are other changes in this edition that depart from the prevailing treatment (as in Van Dyck and Strahan 2008). The genus name *Phoniscus* is preferred for *papuensis* over *Kerivoula*, and *Hipposideros diadema inornatus* is elevated to species level – neither of these is controversial and both appear to me to be soundly explained. Sue recognises *Taphozous troughtoni* as occurring widely through Queensland following the preliminary genetic results given in a report, although this has not been published yet in a peer reviewed publication. I cannot decide myself whether this is wise, even though the genetic results are mine and I think they support this interpretation of *troughtoni*. The treatment of *Nyctophilus* includes some of the unpublished work of Harry Parnaby (with permission) which recognises Tasmanian large long-eared as a distinct species *N. sherrini*, and elevating the two subspecies of *bifax* (*bifax* and *daedalus*) to full species.

Taxonomy is absolutely fundamental to every branch of biology and for that reason it's a discipline which does require rigour. But I freely admit that the practice of taxonomy may seem a little arcane to many, and those of us who are practitioners may seem overly sensitive and very nitpicking. Although it is not improper to make taxonomic decisions in a general field guide/book, I think it is better practice to make them more formally in peer reviewed journals, with rigorous analysis.

Sue has taken the care in this edition to justify the reasons for the inclusion and exclusion of species, and the rationale for her various taxonomic decisions. From a taxonomic standpoint, the decisions made in this book do not contravene any rules and therefore are valid opinions. How biologists treat the decisions will be interesting to follow. The special circumstances regarding the molossid treatment do warrant my asking that people follow the taxonomy for this family as presented in Van Dyck and Strahan (2008) until the appropriate papers are published.

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– Recent Literature –

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(*Ed: I thought the reference in bold is of particular relevance given the topical issue discussed in this issue)*

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This photo is one of four *Vespadelus* sp. rescued by Nick Gale and his family from a redundant power pole in Hornsby Heights, NSW. Photo: Nick Gale. For other great chiropteran images, check out Nick's website: http://etech.smugmug.com/

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