The Australasian Bat Society Newsletter

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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. 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. 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 affiliation of authors and an email address for corresponding author; 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 affiliation of author(s) and an email address for the corresponding author. 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.
- Colour or black and white photographs can be reproduced in the *Newsletter*. Diagrams and figures should be formatted so that they fit on an A4 page. All photographs, diagrams and figures should be submitted as separate TIFF, JPEG or BMP image files, rather than embedded in the Word file. Tables should be in a format suitable for reproduction on a single page.
- Editorial amendments may be suggested and all articles will generally undergo some minor editing to conform to the *Newsletter* style.
- Please contact the *Newsletter* Editor if you need help or advice.
- **Advertising:** please contact the editor for current advertising (half and full page) rates.

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– Editorial –

Hi everyone,

Welcome to the spring 2015 edition of our ABS *Newsletter*. Find a warm, quiet spot, preferably outdoors, and soak up the news and reports from your fellow members. To maintain this ambience, be sure to follow up Steven Saphore's excellent report of an appalling flying-fox dispersal event (page 24) with Glenda Pym's heart-warming images of a successfully rehabilitated lesser long-eared bat and her surprise pups (page 33).

As always, our society has been productively busy since the last *Newsletter*. A successful Financial Annual General Meeting was hosted in Melbourne (see page 6 for minutes of this meeting). The executive has also been busy behind the scenes maintaining communication and providing another parliamentary committee submission. The latest submission (page 15) was in response to Tony Abbott's proposal to remove the right of concerned organisations to comment on proposals considered under the Commonwealth EPBC Act (1999). The executive firmly believed that the proposed amendment fundamentally undermined the ability of concerned people and organisations to contribute critically important information required under the existing Act. Thank you very much to the executive, particularly Robert Bender, for assisting with this submission. Since the change of leadership, the proposed amendments to the Act have been put on hold, hopefully indefinitely.

Still at the Commonwealth level, the Department of the Environment has published the referral guideline for management action in grey-headed flying-fox (*Pteropus poliocephalus*) and spectacled flying-fox (*Pteropus conspicillatus*) camps: (http://www.environment.gov.au/biodiversity/threatened/publications/referral-guideline-management-actions-flying-fox-camps)

The guideline urges proponents to consider dispersal of flying-foxes from camps as a last resort, and describes which actions at camps are likely to have a significant impact. Well done to ABS members who provided extensive comments on drafts of these guidelines in an attempt to improve them.

Coming up very soon is the next ABS Conference in Hobart! It is shaping up to be a fantastic affair and I strongly encourage all our members, particularly the students, to journey down to Tassie for this event.

A few days ago I received my two 'A year in the life of a flying-fox' calendars from Pipeline Calenders. They are really very beautiful and also provide plenty of facts on flying-foxes. Proceeds from the sale of these calendars come directly back to the ABS for our Conservation Grant fund. So please, check out the details on page 37, then take my word for it and order yourself and your friends a couple.

Thanks again for your contributions to this edition, as always, I welcome feedback any time – and I'm happy to receive articles and photos throughout the year. Happy batting.

(P.S. Check http://www.islandbiology2016.uac.pt/ for information on the second Island Biology Conference in Terceira Island, Azores, 18-22 July 2016)

Susan Campbell
ABS *Newsletter* Editor.

(Above is the most 'bat-related' photo (owls eat bats…) I could come up with from my own experiences since the last *Newsletter*. This very dark Southern Boobook was curiously watching us until it was excitedly spotted by our 4 yr old).

Cover photo: Eric Vanderduys took this photo of the four of the surviving *Saccolaimus saccolaimus nudicluniatus* in their 'veranda hollow' where they stayed until they were ready to fly off. April Reside and colleagues rescued these bats from a felled tree hollow on Magnetic Island, Queensland (see page 19 to read of their plight).

– From the President –

A big thank you to everyone who attended and helped with the recent Financial Annual General Meeting and workshops—and a special thank you to Lindy Lumsden and the Arthur Rylah Institute in Melbourne for hosting the show. If you were unable to come to Melbourne, you can peruse the minutes in this issue, and I mention below a few additional things that we discussed.

The FAGM (pronounced 'fffajjim' for the uninitiated) is a good chance to talk about society business that we do not have time for at conferences, and it helps the executive get input and feedback from the membership. On the first day we discussed the draft of the echolocation survey guidelines, which had been circulated for comments previously. There was some good additional feedback, and I am currently finalising the document.

The second item discussed was an idea I put forward about gathering our collective experience and recommendations into a single 'compendium' of some sort. We have a growing number of position statements and guidelines resources, and I think the idea of combining these into a single resource gives us the chance to further promote our society as an authority. There is a precedent in the UK: "Bat Surveys: Good Practice Guidelines" by the Bat Conservation Trust, though it does not contain many issues that are relevant in our corner of the world. Of course this would require a greater effort be put into developing more of such resources, but I feel at the moment we need to be actively and collectively working on some kind of project that advances the perception of our society having specialist knowledge. If that knowledge is captured in a dynamic electronic document, then it should become easier to further our societal aims. We have spent some great efforts since the last FAGM on advocacy and our social media presence, but I think it is important to keep up efforts around science. There were some offers of contribution at the FAGM session, and I hope we can get some momentum on this in the coming months.

Our third session was on flying-fox issues, led by Maree Kerr, who gave an update on the happenings of the flying-fox subcommittee, outlined some proposed new efforts, and we reported the outcomes of a meeting between several of us (myself, Carol Booth, Louise Saunders) and Evan Quartermain from Humane Society International and a representative from the office of the Queensland Minister for Environment and Heritage Protection, Steven Miles. The meeting was very positive, and the Government was already heading down some of the paths we were there to promote. Perhaps things are starting to turn around in Queensland.

Finally, on the second day after the FAGM meeting itself, we went through the IUCN accounts of selected species as part of the reassessment process that the ABS is helping the IUCN with. While we did not have time to consider every species, we chose a subset for which we had experience and expertise in the room. We will be circulating updated draft profiles in the coming weeks. If you have any information that could affect the listing of a species, and think it might not have been incorporated into the Action Plan for Australian Mammals, please contact me.

The end of the year rushes towards us as usual, and then it will not be long until the Tasmanian conference! The Tasmanian Special Excellent Team has been doing a great job organising the event, and I hope to see as many bat friends as possible down under, Down Under. At that time as part of our Annual General Meeting we will declare all executive positions vacant—so if you have a desire to help set the path of the society in the next two years, please let one of us know. See you there, then.

Kyle Armstrong
ABS President

– Australasian Bat Society Inc. Business and Reports –

AUSTRALASIAN BAT SOCIETY, INC.

ABN: 75 120 155 626

MINUTES OF THE ABS FAGM 2015, Melbourne

[2 August 2015]

1. Present

Attendees: Brad Law, Lindy Lumsden, Kyle Armstrong, Kirsty Dixon, Manisha Bhardwaj, Cecilia Sanchez, Damian Milne, Stuart Parsons, Amanda Bush, Emmi Scherlies, Narawan Williams, Sandra Penman, Tony Mitchell, Maree Kerr, Robert Bender, Sue Bendel, Lisa Cawthen.

Apologies: Susan Campbell, Pia Lentini, Tanya Loos, Nancy Pallin, Roger Coles

2. Ratification of Minutes of last AGM meeting.

Minutes from the last AGM on 24 April 2014 are published in the ABS *Newsletter* 42 (April 2014).

Move to ratify minutes of the last meeting: Maree Kerr
Seconded: Lisa Cawthen

Carried Unanimously.

3. Business arising from last AGM (04/14) minutes

The following actions from the AGM minutes were noted as not completed.

a. Flying Fox Sub-committee report (MK & LS);

Kyle thanked the sub-committee formally for all their considerable work and progress. See Report at 4.10 below.

b. Discussion, review and refinement of new ABS positions, especially allocation of designated Web-master and Social Media positions.

Lisa Cawthen reported on three new positions created in 2014 AGM. The meeting recognized the need for position descriptions to direct the tasks for these positions. The Communications Officer stepped back from their role in 2014 and consequently the Communications Plan was not finalised. The executive committed to investigating options for finalizing the plan. A number of those present offered their assistance with the plan and with social media. Lisa Cawthen indicated that the ABS Facebook has at times reached up to 40,000 people, making it a key communications portal for ABS and one that ABS will pursue in a significant way. Kyle thanked all those involved with communications at ABS over the last year. While there have been a number of set-backs we have made significant progress.

c. ABS Conservation Grants awarded in past year

Kyle: Two grants of $1000 are awarded per year. Diverse proposals have been received. Seven applications received in each round – applications need to have a strong link to conservation. Successful applicants: 1. Cathy Hartley – Improving mortality rates in juvenile grey-headed flying-foxes during heat events (Adelaide). 2. Tyrone Lavery and Michael Pennay – Reference call library for bats of Solomon Islands.

4. Reports

4.1. President's Report – Kyle Armstrong

Thank you to everyone who has joined us at the 2015 Financial Annual General Meeting—I am somewhat humbled by people's efforts to come to a meeting that does not offer the same fun and interest factors as the biennial conference. I hope people have found the sessions yesterday on echolocation survey standards, the compiled standards book idea and the flying-fox strategy useful and interesting—we certainly appreciate people's input.

In terms of updating the membership on what the society has been doing in the past year, I have summarised some of the main efforts in the previous two ABS *Newsletter's* (numbers 43 and 44—perennial thanks to Susan and Lindy) since the excellent conference in Townsville.

I have been just over three years in this role now, and it is a good time to reflect back on how we have been going with various things. When I was first elected into the position, I inherited a society that had an excellent reputation, but I gleaned that there was a wish that we involve ourselves more in advocacy and speak out more often in the public sphere. I also realised that we needed to get some kind of organisation around how we involve ourselves in flying-fox issues, and this became very relevant as various unfortunate things happened in the flying-foxy world. So the ABS formed the Flying-fox Subcommittee, and we had the 2013 FAGM surrounded by some presentation and discussion sessions on echolocation survey standards, strategising and communications, and flying-fox issues. But the main intentions of that meeting were threefold—to collate our resources and experience, develop a collective strategy and seek involvement. The feedback at the meeting was very helpful and has guided our initiatives and reactive responses in the past two years.

I feel that the ABS is a little more self-aware these days. While there is feeling amongst the membership that the society should be doing more, I think people understand that we simply do not have the capacity to do everything. Rather than pressure or cajole people to contribute, my approach has mostly been to support proactive initiatives—and our society has made some very good submissions based on some great individual and small-team efforts that just magically happened. Of course there have also been very sustained efforts by some people that have the ABS on their agenda every day. We have also become more aware of the advantages of working with other groups, and there have been several occasions where we have shared information and joined our efforts with other groups. At a recent meeting with the Minister's representatives from the Queensland Department of Environment and Heritage Protection, we were joined by Evan Quartermain from Humane Society International—which was terrific as HSI have been a supporter of flying-fox conservation for some time and have achieved some good successes. In other cases, we have had letters of endorsement from bat conservation groups outside Australia to accompany our submissions on draft government policy documents.

In addition to the advocacy work, we now have a very wide social media presence, and some very dedicated people manage this on a daily basis. Together with the updated website from Michael Pennay's time as president, which is constantly being improved, we are gradually building our public face, as well as our own systems behind the scenes with the new membership website (thanks to the initiative and efforts of Damian Milne and Micaela Jemison). In the past few years we have also put out media statements, though have held back on other occasions when we decided it was not helpful to speak out. I feel that the society has begun to broaden its skills and resources for advocacy activities, and while there is always more and more that we could do, we have certainly been improving.

Our ability to have influence comes from the very specialist knowledge, long history of experience and the connection of members to various government and commercial organisations as part of their regular jobs. But for such a small society to have an influence on powerful State and Commonwealth Governments, it is not enough to just rely on letter-writing and public statements of dismay. Also, given that we do not know just how much of our critical comment is used to improve policy documents that are put out for public comment, it seems very relevant to keep in mind where our influence comes from. I think we have considered advocacy quite a lot in the past three years, and we should keep improving where we can—but on a set of things that we can manage and that are less likely to end up as wasted effort.

I recognise that it is tangible outputs that help to demonstrate our collective knowledge and experience, and which then allow us influence. These are our society publications (e.g. the compiled book of papers "*The Biology and Conservation of Australasian Bats*" published by the RZS NSW), our position and recommendations documents, our involvement in such things as conservation listing updates, as well as our work in our own daily roles. We need to be seen as authoritative, and our involvement in science is what sets us apart from other groups involved in conservation. Thus, in the next year I hope to give special focus to the capture of our experience in written resources.

I will end off by thanking everyone who has contributed their valuable time and resources to the ABS in the last year—if it has gone unnoticed at any time, it is certainly not unappreciated. Let's meet again in Tasmania for more bat fun!

4.2. 1st Vice President's report – Lisa Cawthen

In my first year as VP1 I have gained a good understanding of how ABS operates by working on a range of ABS related matters including working on finalising our communications plan, liaising with the Flying-fox Sub-committee, assessing grant applications, revising ABS roles and responsibilities, networking with other organisations, running bat night activities, getting ABS promotional materials, updating our digital content, and organising the 2016 ABS Conference and AGM. Our ABS communication plan is still pending finalisation, and I strongly believe that such plans are crucial for us to be an effective society in responding to bat conservation related matters in Australasia. The executive and I have discussed the importance of finalising the communications plan, and agree we will work on getting this completed over the coming months. It has been fantastic to see our Flying-fox Sub-committee finalising their strategies, and they should be congratulated for doing this. This is something ABS could also do as a society to improve how we operate. Given the importance of community engagement for the society, I urge all members to consider whether they can take on active roles within ABS to assist in core areas such as managing our digital content and communications. I look forward to seeing many of you in my home city of Hobart in 2016.

4.3. 2nd Vice President's report – Lindy Lumsden

The role of the 2nd Vice President is to ensure the ABS conference happens every second year, and as you can see from Lisa's report organisation is progressing well for the next conference in Hobart in April 2016. Damian has compiled a detailed document on 'how to organise an ABS conference' to capture the learnings from previous conference organisers, and I have been adding to this document as well. I was very pleased to be able to host this year's FAGM where I work at the Arthur Rylah Institute, the biodiversity research institute of the Department of Environment, Land, Water and Planning. It was great to welcome everyone here and showcase our research institute. In addition, I help Susan finalise the *Newsletters*, doing a final proof-read, printing and postage. I also assist Robert with the finances where a second person is needed to authorise payments of bills. Both Susan and Robert are very efficient in their roles and so it is a pleasure to help out.

4.4. Treasurer's Report – Rob Bender

Treasurer's Report for year to 31 December 2014

Income

This was a conference year so as usual income was much larger than in the previous non-conference year, though slightly smaller than the 2012 conference year. $11,488 from membership, boosted by the new facility of Paypal, and $1,215 from interest on bank accounts as most of the ABS money was held in an interest-bearing account since January 2013. Plus Michael Pennay kindly donated the fee for his Canberra flying-fox count, Cecilia Sanchez donated $535 from her Geelong Bike4Bats ride and there were two other small donations.

Expenditure
Income exceeded expenses by $16,453, the biggest-ever surplus (allowing for the big grant that inflated the 2011 surplus). $12,061 of this was from the very profitable Townsville conference, membership increased, and only one newsletter edition was published, the other being in the pipeline at year-end. The ABS public liability and officer protection insurance policy cost $1,815, and $3,000 was spent on upgrading the ABS website. For the second year bank interest exceeded all banking and money transfer costs.

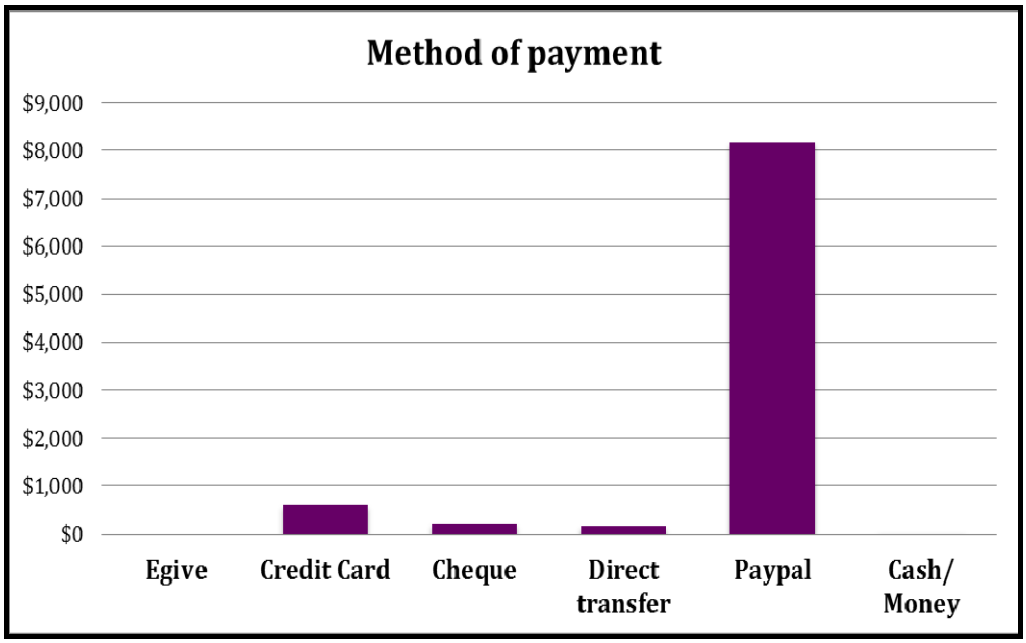
Surplus
The surplus is 25% of the year's income, so ABS spent $0.75 for each $1 in income. Accumulated surpluses now total $73,070 since 1999, so 22.5% of that total came from this year.

Assets
Total assets have been about $55,000 for three years but this year leaped up to $68,000. The various bank accounts grew in total balance by $11,960 over the year. Much of this was due to the profitable conference and postponing the cost of the year's second newsletter.

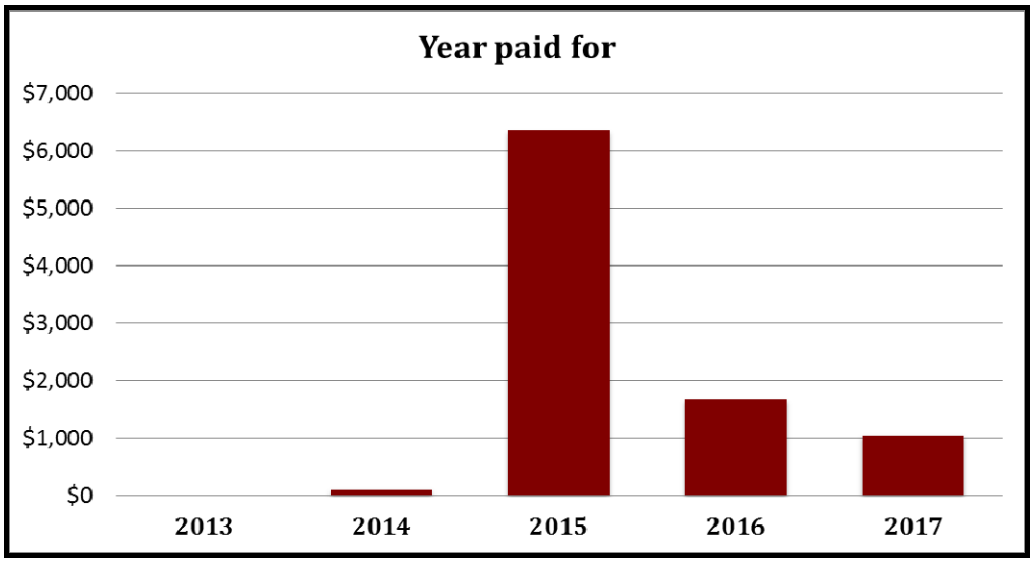
Since balance date
GST for 2014 will grow by $133 for the last quarter, with the net result for 2014 of ABS having gained $215 from GST refunded.
The Java software programmers decided early in 2015 to abandon 32-bit Java for Macintosh computers and shift to 64-bit, which is incompatible with Taxation Office BAS software, so apparently thousands of little NGOs and small businesses with Macs were unable to complete their December quarter BAS until early March. By April this problem was solved with a 32-bit Java for Macs made available and the GST for the March quarter was paid in May.
Paypal has become the major facility for renewing membership, yielding over $8,500 to late July, being 88.7% of member subscriptions received this year.
Combined bank accounts total $73,160, up $4,900 since the end of 2014. The seasonal pattern is that membership floods in during the March quarter and spending on newsletters and other items starts later in the year, so having paid for some website work, insurance renewal, the auditor's fee and the second 2014 newsletter, the account balances rose rapidly to March, then declines just as rapidly and since a low-point in April has crept back up to $10,450 by late July. The surplus to 22 July is $7,950.

Robert Bender
Treasurer
22 July 2015

This year nearly all members paid subs using Paypal. In 2014 it was mainly credit card.



Most members pay for just the currrent year. A few pay for 2 or 3 years.



Some discussion was had on current finances and surplus to fund more Conservation Grants. Robert suggested that based on current surpluses the ABS is in a position to fund additional Grants each year and potentially other priority activities. Also, registration of ABS as an Environmental Organisation is waiting on approval from Federal Minister, but is expected at any time. This is important for offering potential sponsors tax deductibility. It was suggested to add a tick box for donations when members are renewing their membership to help raise additional funds.

Robert suggested we should continue to accumulate surpluses for a little longer before deciding on setting an annual target for surpluses and spending excess on ABS priorities.

Kyle formally thanked Robert for his thorough and detailed efforts as Treasurer.

Motion (Lindy): Treasurer to explore options for investing ABS assets in term deposits with a higher rate of return than current 'on-line saver' account.
Seconded: Kyle Armstrong

Move to accept Treasurers Report: Kyle Armstrong
Seconded: Sue Bendel

Carried Unanimously.

4.5. Membership Officer's Report – Damian Milne

The total number of ABS members to the end of 2014 was 397. This was again a significant increase in the total number of members compared to the previous year (365) and is now the tenth successive year in a row that ABS membership numbers have increased. This year the membership has surpassed the 400 mark and as of 28 July 2015 the membership stands at 412 (Figure 1).

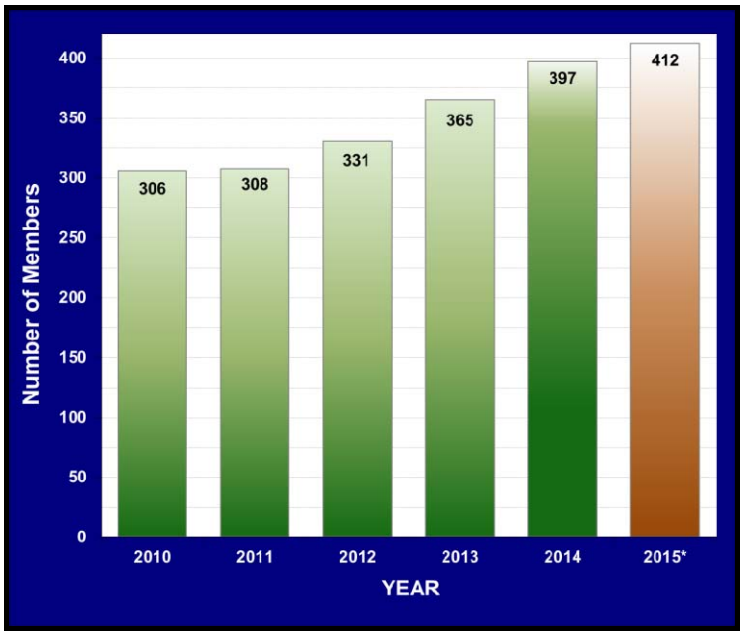


Figure 1. Total number of ABS members in 2014 with comparison against previous years, including total number of members to July 2015.

There were 69 new members who joined the ABS in 2014 (the most number of new members to join the ABS in a single year), and 37 members who either voluntarily resigned their membership or their membership expired, i.e. unfinancial for more than two years (also the highest number to forfeit their ABS membership in a single year). The number of members who are overdue on their membership payments for either one or two year continues to be relatively consistent with recent years (Figure 2).

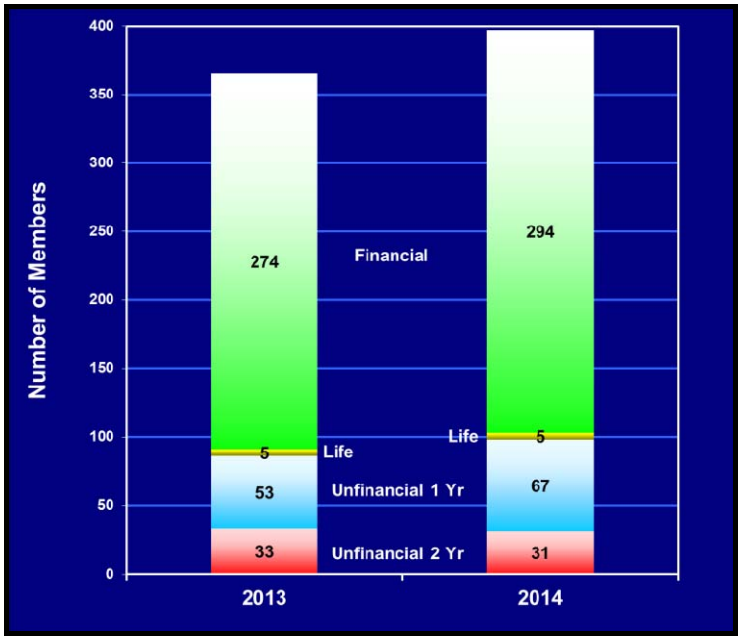


Figure 2. Financial make up of ABS members in the year ending 2014 compared to 2013.

The new ABS membership portal, including membership renewal facility, Discussion List, latest Newsletter download and administration functions, went live in August 2014. Most ABS members appear to be utilizing the new website. Since the inception of the portal, 171 payments have been received from either new or renewing members, 166 (97%) of those payments were made through the membership portal. A number of enhancements have been made to the portal since it went live, but if anyone has any suggestions for further enhancements, please let me know.

4.6. Secretary's Report – Brad Law

The Secretary has the role of organising executive meetings and keeping minutes for the society. Since the AGM and conference in April 2014, the ABS had exec meetings twice: in August 2014 & February 2015. In between meetings I took 3 months leave of absence.

I'm pleased with the progress made by the ABS over the past year – there has been a lot of politics and issues to deal with, which is not trivial for a volunteer run society. Part of this progress means that the ABS is producing ever more position statements on policy issues and submissions to Government. This is a new thing for the society and we have no formal process of archiving. I suggest that it fits with the role of Secretary to fill this archiving role, so I recommend that every final draft of such documents need to be sent to the Secretary for archiving. Google drive would be the appropriate place to do this.

Suggestion for the exec to meet via skype in between extended exec meetings on Google Drive.

4.7. Newsletter Editor's report - Susan Campbell

I have enjoyed continuing in my role as Editor for this great Society. In the political and social space that we currently occupy, the ABS should be proud of its achievements. The *Newsletter* provides a terrific medium for communicating our work and advocacy of bats.

The last two editions have included some very emotive images and text. I have not received any negative feedback regarding these articles, as such I will continue to accept and publish similar contributions. However, I would also like to take this opportunity to strongly encourage researchers to publish aspects of their work in the *Newsletter* as well. We are a balanced Society and I would like to see that the content of the *Newsletter* reflects this.

It has been over a year since I have been contacted by any publishers or authors requesting reviews of bat literature. I would encourage those members with contacts in this area to actively pursue offers of reviews for publication in the *Newsletter*. I will also contact relevant publishers on behalf of the ABS once I am aware of any recent bat publications.

Thank you all for your patience with the last few late editions. The *Newsletter* is a team effort. Thank you to Sheryn Brodie for compiling the recent literature section. This comprehensive database search is as time consuming as it is thorough and I greatly appreciate the help that Sheryn provides. Lindy runs her expert eye over the whole *Newsletter* prior to you receiving it, correcting, reformatting as needed and also organising the printing and posting. Thanks Lindy.

The content of the *Newsletter* reflects the work that you are all doing, thank you. Please continue to be proactive in sending articles and images to me – don't leave it until the last minute!!

4.8. Bat night Coordinator's Report (Maree Treadwell-Kerr)

For those who don't know, Australasian Bat Night is a series of locally run community events, coordinated by ABS, held throughout Australasia during March and April to raise awareness of bats.

The extremely successful 2015 Bat Night comprised over 50 events throughout Australia and New Zealand.

The level of interest in Bat Night is increasing among land management agencies and local councils and demand for Bat Night speakers is beginning to be hard to meet.

Some suggested solutions to the demand is to create Bat Night presentation templates, and to consider educating potential Bat Night hosts so they can run their own Bat Nights and/or ABS members to create an increased pool of Bat Night speakers.

One Bat Night presentation template has been created, but more would be welcome so that people could choose from a range of potential presentation styles and formats. This should be backed up with an information file and photographic file.

This year has also highlighted the importance of factual information to support bat nights – the ABS Bat Facts have proven to be extremely beneficial to hosts of Bat Nights both for themselves and to the public attending the events.

One other potential issue arises from the popularity of Bat Box projects. This raises the question of whether the ABS should hold a master file of all bat box projects in Australia and produce guidelines for a bat-box project including the importance of before and after monitoring and safe handling techniques when checking bat boxes.

Overall, Bat Night is raising awareness of bats to the public and ABS is increasing its networks amongst land managers and it is proving to be an important tool in raising the profile of the society itself.

Discussion: Nara, Pia and Robert to develop Bat Box project form to be downloaded from the ABS website, for the purpose of providing basic information and guidelines for those considering a bat box project.

4.9. Flying-fox Sub-committee Report – Maree Treadwell-Kerr

The Flying-fox Sub-committee was reformed at the 2014 AGM to assist the ABS President with engagement in public debate for issues concerning flying-foxes, and to ensure that ABS's position is defensible and based on published science and documented experience. It reports to the First Vice-President of the ABS and participates in quarterly executive meetings through its convenors, Maree Treadwell-Kerr and Louise Saunders.

Over the last year, the sub-committee has drafted a strategic plan which pulls together the collective expertise amongst ABS membership in general, and the sub-committee in particular, to combat threats to flying-fox conservation with evidence-based science and strategic media engagement.

The strategic plan is divided into a number of key strategic areas:

- ABS policy
- Information collation
- Information dissemination (media and public engagement)
- Political engagement
- Legal engagement
- Strategic alliances
- Focus on critical priorities

During 2014, the sub-committee produced two important documents to assist its objectives, *Fast Facts on Flying-foxes* and *Media and Public Education Plan,* and has worked with the executive on submissions on the *NSW Flying-fox Camp Management Policy 2014* and *Draft EPBC Act Policy Statement: Camp management guidelines for the Grey-headed and Spectacled flying-fox (December 2014).*

As well as commenting on government policy documents, members of the Flying-fox Sub-committee, together with Kyle Armstrong and a representative of Humane Society International met with the Queensland Department of Environment and Heritage in July 2015 to discuss issues affecting flying-fox and camp management in Queensland.

As the scope of the strategic plan is comprehensive and long-term, during 2015-2016, the sub-committee will focus its attention on a few selected areas, building upon its work this year to deal with flying-fox issues pro-actively and strategically. Flying-fox issues identified are netting, dispersals, heat and starvation events.

The sub-committee has developed monitoring and reporting guidelines for dispersals, and hopes to encourage use of this to develop the knowledge base of these actions/ events.

We will be working on developing relationships with governments for better management of flying-foxes, and focusing on community engagement to build public support for conservation management of flying-foxes.

We will further refine *Fast Facts on Flying-foxes,* create a short film to promote flying-foxes and raise awareness on dispersals, look at live-streaming from a bat colony to engage the public, and will be promoting a fund-raising calendar for 2016.

5. Conference update

2016 Conference in Tasmania (Lisa Cawthen): a team of 17 people are helping to organize the conference. The meeting discussed the pros and cons of possible conference dinner venues (e.g. MONA).

6. Other business arising

The possibility of holding the 2019 International Bat Research Conference in Australia was raised. Sue Hand has been approached by an organizing committee about whether Australia is interested in hosting the conference. Cairns could be a possibility, but a huge organizational load is involved. It may be that 2019 will be a meeting close to North America or Europe. Kyle will follow-up with Sue for more details. One suggestion was to combine with the SE Asian bat society in bidding for the conference.

Bat Facts information sheets to be updated – especially bats and diseases. Comments on bat facts should be provided to Maree and Maree will contact Hume Field, the original author, for updating the disease bat facts sheet.

Update on meeting between Kyle and Ministerial advisors of the Qld Department of Environment. Kyle said the meeting was very receptive. The government was already actively involved in further developing their policies towards flying-fox conservation.

Current bat taxonomy list – now on ABS web-site. Developed by a small team of ABS taxonomists, led by Terry Reardon. The meeting suggested to alter the Excel sheet to a non-editable PDF with ABS logo and/or to have a dedicated web-page with the species list hyper-linked. Another suggestion was to publish the list in a journal as has been done for selected families in Acta Chiropterologia. It was also suggested the list could be expanded to the Pacific Islands and Papua New Guinea.

Passing of Elery Hamilton-Smith – one of the fathers of bat biology in Australia, beginning work in the 1960's. The ABS would like to recognize and acknowledge the contribution of Elery, a life member of ABS, to the study of bats in Australia. Lindy attended his memorial service on behalf of the ABS. There was a suggestion to update the Wikipedia page on Elery to include his work on bats.

No other matters raised.

7. Next executive meeting

September 2015.

8. Close

12:00 pm.

Dr Kyle Armstrong

President, The Australasian Bat Society, Inc.
PO Box 481, Lindfield, New South Wales 2070.
Email: president@ausbats.org.au

AUSTRALASIAN BAT SOCIETY, INC.

ABN 75 120 155 626

11 September 2015

Senate Standing Committees on Environment and Communications
PO Box 6100
Parliament House
Canberra ACT 2600

To the Committee,

The Australasian Bat Society, Inc. (ABS) wishes to express a strong opposition to the proposed Environmental Protection and Biodiversity Conservation Amendment (Standing) Bill 2015. We believe that the opportunity to comment on proposals that trigger the EPBC Act 1999 should be open to all citizens and organisations, not just those located in the immediate vicinity of a proposal. Appropriate sections under the EPBC Act 1999, when triggered, should be informed by the most relevant, knowledgeable and appropriate bodies. These sources of information should be sought from anywhere throughout the country. The ABS does not seek to unnecessarily delay development; however we firmly believe that the proposed amendment will fundamentally undermine the ability of concerned people and organisations that have relevant research expertise to contribute critically important information required under the existing EPBC Act 1999.

The primary aim of the ABS is to advocate for the conservation of bats and their habitats through the advancement of quality science (Appendix 1). Bats make up around a quarter of Australia's land mammal species—about 82 species of small cryptic insectivorous bats through to the large conspicuous flying-foxes. We recognise the intrinsic value of all bat species, their contribution to biodiversity, and their roles in ecosystem services such as maintaining the structure and diversity of Australia's native forests.

This Submission document represents the collective views of the Australasian Bat Society, Inc. It was authorised by the elected executive members and released by its president to The Senate Standing Committee on Environment and Communications.

Sincerely,

Dr Kyle Armstrong
President,
Australasian Bat Society, Inc.

Submission in response to the Environment Protection and Biodiversity Conservation Amendment (Standing) Bill 2015

A submission from the Australasian Bat Society, Inc. to the Australian Government's Standing Committee on Environment and Communications

Introduction

There is absolutely no question that Australia's landscape continues to be degraded, our unique and often fragile biodiversity continues to diminish, and the intricate ecological systems on and around our continent continue to be unravelled by a vast array of influences such as habitat fragmentation and degradation, pollution, the introduction of feral organisms, inappropriate and uncontrolled fires, and climate change. Within this context, the current Government seeks to weaken Australia's premier piece of nationally-focussed environmental legislation, the Environment Protection and Biodiversity Conservation Act 1999 ('The Act') by removing the right to judicial review from individuals and organisations engaged in environmental research.

By repealing section 487 of the EPBC Act 1999 ('The Act'), the right of concerned Australian citizens and organisations to access judicial review of proposals that trigger the EPBC Act 1999 is removed. It is highly likely that the most knowledgeable and informed sources that should be providing information relevant to sections under The Act, will not be located in the immediate vicinity of a proposed development. Certainly, many developments that trigger The Act may occur in areas of high biodiversity and conservation value where human population density (and hence expertise) may be low. As such, removing the fundamental right of judicial review from individuals and organisations engaged in research into the environment will prohibit effective and meaningful functioning of The Act, thus compromising the conservation of Australia's unique biodiversity.

It is completely inappropriate to assume that the only persons aggrieved by a potentially unacceptable proposal are those in close proximity. Australia's unique biodiversity and environment are able to be valued by *all* our citizens and organisations. For example, the research workers attached to universities and to professional associations involved in biological research, no matter in what part of the country their offices or functions are located, have every right to be concerned about, and comment on, a proposal that triggers The Act. These are the individuals and organisations best able to offer good quality professional advice and input on the quality of Environmental Impact Statements and other matters being tested in the Federal court. Without this right, there will be no balance in the 'profit versus protection' debate.

Knowledge of threatened species that are meant to be protected under The Act is incomplete. Removing the right of judicial review from research workers and organisations may result in critical, species-specific information being omitted or overlooked. It is critical that the opportunity exists for such organisations to have a right of input to court proceedings where the quality of preparatory environmental assessments can be shown to be deficient. The ABS is a professional organisation with a wealth of expertise and knowledge of bat ecological requirements throughout the Australasian region. We believe it is essential that organisations, including the ABS, have the ability to impart both their knowledge and concern once a proposal has triggered The Act.

Appendix 1

About the Australasian Bat Society, Inc.

The ABS is a professional body comprising around 400 members, representing research scientists in universities and government, students, educators, wildlife rehabilitators, environmental consultants and members of the public with a general interest in and concern for our native bat species and their habitats. We aim to promote the conservation of all populations of all species of bats in Australasia, and our activities extend from grass roots advocacy to scientific research, and the development of standards and the provision of conservation advice at State and Commonwealth Government level.

Our members have been instrumental in the development of Commonwealth documents and resources such as "The Action Plan for Australian Bats", "Survey guidelines for Australia's threatened bats",

entries in the Species Profile and Threats Database, and several Recovery Plans for Threatened-listed species.

Through its members, the ABS has strong links with similar societies in other countries such as Bat Conservation International and the South East Asian Bat Conservation Research Unit, and our members contribute our specialist knowledge to international organisations including the International Union for the Conservation of Nature (IUCN), Flora and Fauna International, the World Wildlife Fund and Conservation International.

http://abs.ausbats.org.au

Above: A mother's cuddle: Lesser long-eared bat *Nyctophilus geoffroyi* mother and 1.5 week old pup that came into the care of Glenda Pym. See page 33 for the full story of this remarkable family.

– Research Reports –

Strange behaviour observed in the southern bent-wing bat

Emmi Scherlies

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It was late September and we were in Bat Cave at Naracoorte, South Australia, to set up equipment for research on the population dynamics of the critically endangered southern bent-wing bat. My Latrobe University supervisors – Noel Meyers and Ruth Lawrence – and I were following Andrew Hansford through the maternity chamber when we noticed two bats take off in flight from a pile of guano.

Thinking this quite strange, we had a closer look in the vicinity of where the bats had been, and found two other bats entangled in a 'bat ball' on the guano. They were embraced face to face with forearms and feet wrapped around one another. One in particular seemed to breath quite rapidly. We noticed the continual re-gripping of feet around one another, whilst the more active bat gently thrust its body, and its open mouth, against the other. They didn't seem to be disturbed by our presence.

Within an hour Terry Reardon was brought down to have a look, and the 'bat ball' appeared to have rolled approximately 45 cm further down the guano from where it had been seen last. Terry picked the bats up in his hand, and one of the bats swiftly flew away. The other bat, a male, was dead. It was thought to have died recently, as rigor mortis had not set in and the bat was still warm. Wounds were also observed around the mouth. Upon returning to Victoria, I described the behaviour to my trusty bat supervisor Lindy Lumsden, who confirmed that she has not observed this behaviour before. I am curious to hear if anyone else has observed this behaviour in bats.

Was this a wrestling fight to the death? Or perhaps strange behaviour caused by Australian Bat Lyssavirus? The deceased male bat was frozen as soon as possible and will be given to vet Peter Holz who is researching the health of southern bent-wing bats. Perhaps he will be able to provide some answers.

The unfortunate end of a bare-rumped sheathtail bat (*Saccolaimus saccolaimus* subspecies *nudicluniatus*) roost on Magnetic Island

April Reside[1], Eric Vanderduys, Katharina Fabricius & Libby Evans-Illidge

[1] *Research Fellow, Centre for Tropical Environmental & Sustainability Sciences, College of Marine & Environmental Sciences, James Cook University, Townsville, QLD 4811*

April.reside1@jcu.edu.au

On Sunday the 23rd of August I got a call to ask if Eric and I could come and assist with a roost of bats that had just fallen not far from where we live on Magnetic Island. When we arrived we immediately identified the bats as *Saccolaimus saccolaimus* subspecies *nudicluniatus*, the mysterious bare-rumped sheathtail bat.

Local resident Katharina Fabricius was early on the scene and witnessed approximately 50 bats lying on the ground amongst the rubble of the fallen roost. A few of them subsequently flew off from the ground. The remaining bats were being attacked by ants, so Katharina used a stick to hook the feet of individual bats to lift them into a nearby tree. From there a few more flew away, but within minutes the green ants (*Oecophylla smaragdina*) found the bats in the tree and started attacking *en masse*. We rounded up all the remaining live bats into individual cloth bags. 17 bats were found dead on the ground near or in the fallen hollow, presumably they had died on impact. Another four died from probably a combination of injuries, green ant attack and stress.

The tree containing the roost was a large (~18 m tall), long-dead (dead for at least 17 years), completely hollow, Moreton Bay Ash (*Corymbia tessellaris*) near Gustav Creek on the foot of the Nelly Bay hills, in Hideaway Estate on Magnetic Island. The bats appeared to only occupy the uppermost four meters of one of the hollow spouts as evidenced by the clean nature of the hollow walls, the lack of spider webs, the apparent staining of the inside of the hollow and the location of three dead bats within the spout

Above: Nine dead *Saccolaimus saccolaimus nudicluniatus* from fallen roost: there was substantial variation in the white flecking of the pelage across all individuals found. Photo credit: Eric Vanderduys

on the ground. The hollow in this section was 12-20 cm internal diameter and the entire spout was 6 m long.

Left, top: The fallen roost tree, with the spout in the foreground where the *Saccolaimus saccolaimus nudicluniatus* were roosting until the tree came down. Photo credit: Katharina Fabricius.

Left, bottom: The fallen roost tree of *Saccolaimus saccolaimus nudicluniatus* where it was moved to clear the road, with Eric Vanderduys for size comparison (note he is 195 cm tall!). Photo credit: April Reside.

That night we placed the remaining seven live bats in a piece of tree hollow on Katharina's veranda (approx. 50 m from the fallen roost; cover image). We attempted to give the bats some water but only one would drink. The bats stayed in their new veranda-hollow for one night, and all but two had flown off on their own accord by the following night. With help from local bat carer Libby Evans-Illidge, the two remaining bats were taken to Townsville for further care; one was rehabilitated and later returned to the site and released, but the other developed complications from its injuries and was euthanized.

Because of the paucity of knowledge on this species, we wanted to collect as much information as possible from this unfortunate event. An extensive photographic record was

made, and we measured the dead bats – three males and 18 females (Table 1) and will take them to the Queensland Museum.

Saccolaimus saccolaimus nudicluniatus is listed as Endangered in Queensland (Nature Conservation Act 1992, August 2015 list) and Critically Endangered under the Commonwealth EPBC Act 1999. Any development projects in the Townsville region that may impact on the *Eucalyptus*/*Corymbia* or *Melaleuca* woodland have to make concessions for this species. However, understanding its habitat requirements is difficult: only one other confirmed record of this species is known for Magnetic Island, from a road killed individual, and records are patchy elsewhere – or not in the public domain. Therefore, it is hard to have any confidence that development concessions are in any way adequate for the conservation of this species. Research is required to better understand their population size, habitat requirements and seasonal movements. In the meantime this is further evidence that standing hollow trees and limbs should be maintained in the landscape as critical habitat for this and other species.

Acknowledgments:
Thanks to Linda Barrett for her efforts at rehabilitation of the few unfortunate bats that survived the initial tree fall and ant exposure. Thanks also to other Magnetic Islanders on the scene helping rescue the bats including Phil Sheather.

Table 1. Measurements of three male and 18 female *Saccolaimus saccolaimus nudicluniatus* specimens from Magnetic Island 23/8/2015

N=21	Forearm length (mm)	Ear length (mm)	Outer canine width (mm)	Tail length (mm)	Tarsus length (mm)	Weight (g)
mean	76.0	18.1	5.4	28.7	30.6	51.5
stdev	1.64	0.73	0.12	2.01	0.84	5.60
min	71.9	16.2	5.1	25.3	28.7	41.5
max	77.8	19.0	5.6	32.9	31.9	64.5

Canning River Regional Park Volunteers Group

Jim Prince

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The Canning River Regional Park Volunteers group has been funded by Lotterywest to find out about, protect and promote bats, and educate people about bats in Canning River Regional Park (CRRP) and environs. CRRP is a 600 ha reserve about 10 km south of the Perth CBD.

We are not bat researchers and don't wish to catch bats, rather to use the remote methods of bat detectors and faecal DNA analysis to identify them. Experienced batters are mentoring and assisting with this project.

Sections of the project are:

1) Removing feral European honey bee colonies throughout the whole CRRP and adjacent urban areas.
2) Assessing and refurbishing the existing 13 bat boxes and supplying new bat boxes.
3) Identifying the species of bats occupying the existing bat boxes using DNA analysis of faeces, and, using bat detectors, of other bats in CRRP.
4) Conducting counts of bats leaving the bat boxes, which will give a minimum bat abundance.
5) Using faecal DNA analysis, identifying what the bats using the bat boxes are eating.
6) Clearing the area beneath the existing bat boxes for bushfire control and safe people access.

7) Promoting any benefit of micro-bats for mosquito reduction, and the bat's position in the ecosystem.
8) Installing a camera in a bat box, with a connection to a screen in the Canning River Eco Education Centre.
9) Promoting the existence and position of our bats in CRRP and elsewhere.

We don't know how far we can go with some sections of the project.

The budget allows about $3000 for the camera in a bat box, but we have not yet found out how to do it. We would welcome any ideas or examples.

Developing non-invasive methods for the detection of toxic heavy metals (e.g. Cadmium) in the Christmas Island flying-fox (*Pteropus melanotus natalis*), using the grey-headed flying-fox (*P. poliocephalus*) as an analogue

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Ed: Jane was the recipient of an ABS Conservation Grant. Following is her project update on work that will contribute towards our knowledge of the threats facing the Christmas Island flying-fox.

Very little is known about the Christmas Island Flying-fox (CIFF). In 1985, Tidemann estimated the population to be approximately 6000 individuals. After precipitous population crashes over the last 30 years, the population is currently estimated to be around 900 individuals. In June-July 2012 Woinarski *et al*. (2014) recorded a statistically significant decline in the abundance index between 35–39% over a 6 year interval.

A Risk-Based Decision-Support Workshop aimed at identifying threats to the CIFF population ranked cadmium and other heavy metal toxicities as the greatest potential risk to the health and sustainability of the flying-fox population (Walshe *et al*. 2012). Cadmium occurs naturally in high concentrations in phosphates on Christmas Island and phosphate mining on the island liberates cadmium and other heavy metals that may be directly toxic, or may have more subtle effects on bone development and reproduction.

There are currently no data, nor non-lethal methods available to assess heavy metal concentrations in flying-foxes to provide the means to accurately quantify the threat posed by heavy metals and the benefits of heavy metal mitigation action. In 2014, we were lucky enough to be granted an ABS Conservation Grant to assist in conducting a pilot project to develop non-invasive techniques for detecting heavy metals in flying-foxes, primarily the CIFF, by using the grey-headed flying-fox (GHFF) from the Sydney region as an analogue.

Above: Christmas Island flying-fox. Photo credit: Carol de Jong, Queensland Government Department of Agriculture and Fisheries.

Sydney basin rainbow lorikeets, which have a very similar feeding strategy to flying-foxes, have been found to have reasonable cadmium concentrations (David Phalen, pers comm.), so we intend to target GHFF from this region to ensure that our data is not all below the threshold of detection. Though we acknowledge that the

GHFF is listed as vulnerable, we intend to only collect samples from animals that are to be euthanased on welfare grounds after being found irreparably injured.

To this point, we have been concentrating on liaising with Sydney based bat rehabilitators for suitable study animals, and coordinating transport of these animals to the Taronga Wildlife Hospital for veterinary assessment, blood collection and euthanasia. So far, we have been able to collect six full sample sets (urine, blood, fur, liver and kidney) from individual GHFFs brought in by carers for the purpose of inclusion in this study. While we would appreciate the opportunity to sample more animals, we realise that logistically this is sometimes difficult and therefore are now looking at having samples analysed at the Australian Nuclear Science and Technology Organisation (ANSTO).

Data will be analysed to determine the most accurate and least invasive samples that can be collected from live flying-foxes as an estimate of kidney and liver heavy metal concentrations. Cadmium, calcium, phosphorus, lead, iron and mercury concentrations will be measured by ANSTO using two different methods. These methods vary from traditional chemical analysis in their accuracy and capacity for non-destructive analysis using very small sample sizes.

If results indicate that these non-invasive techniques can be used to successfully determine heavy metal concentrations in a live animal, they will be adopted into a larger project being developed to further investigate the health of the critically endangered CIFF.

References:

Walshe T, McDonald-Madden E, Southwell D. (2012). Christmas Island Flying Fox Risk-based decision-support. Outcomes of a workshop held 28-29th November. University of Melbourne and National Environmental Research Program.

Woinarski JCZ, Flakus S, James DJ, Tiernan B, Dale GJ and Detto T. 2014. An Island-wide monitoring program demonstrates decline in reporting rate for the Christmas Island Flying-Fox *Pteropus melanotus natalis*. *Acta Chiropterologica* **16**(1):117-127.

Poo, glorious poo. Robert's book review (page 41) has inspired me to share a photo taken of a prey item from bat poo. I isolated this aquatic beetle tarsus from large-footed myotis, *Myotis macropus* poo. Now, I KNOW I'm not the only one that has spent countless hours staring down a dissecting microscope at bat poo. Before this traditional technique is (rightly so) made obsolete by molecular methods, SHARE YOUR intriguing bat poo images with us all – send them to editor@ausbats.org.au

– Reports, Viewpoints –

Above: 100,000 little red flying-foxes return to roost as the sun rises over the tiny outback town of Duaringa. A keystone species of Australia, flying-foxes play an ecologically paramount role in the region as forest pollinators. Naturally nomadic, little reds follow the flowering eucalypt as it seasonally blossoms across Australia. All images: Steven Saphore.

Australia's war on bats

Steven Saphore

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Welcome to Duaringa

Rumours of fires, reports of gun shots, deadly viruses and trees decimated by the dozen... *Welcome to Duaringa* (inland from Rockhampton, Qld). A nine hour drive to the arid outback, gum trees punctuate the plains while starlit nights illuminate the dusty roads of this remote town. What is the commotion surrounding this enigma with a population of just 250 people? Perhaps the answer lies amongst the *other* population that resides there: 100,000 little red flying-foxes.

A melancholy hum of generators harmonise like a dark ensemble that drones throughout the dusty town, echoing off the streets and resonating through camping grounds in the park. The notes singing appending doom are emanating from the *Exclusion Zone*, a four block area encompassing the trees where a colossal colony of little red flying-foxes are roosting. Cordoned off to the public with hefty construction barricades and no shortage of fluorescent pink tape, workers of the Central Highlands Regional Council [C.H.R.C.] will toil tirelessly through the night to ensure Duaringa is as inhospitable as possible for the newly unwelcomed residents.

One does not need long in this town to realise the disdain for these bats amongst its residents. From the first day of the influx, mid-2012, C.H.R.C. has received an uninterrupted torrent of complaints from upset townsfolk regarding the little reds sojourn: *"Irreverent squabbling", "[Defecation] covered cars and backyards"* and *"the pungent smell."* One resident, with great concern for my safety, yells at me from across the road: *"Get indoors mate, it's not safe to go outside in the day!"*

However, any attempt to disturb flying-foxes or their colonies is a punishable offense. Classed as a protected species, two of the four flying-fox species found in Queensland are federally listed as threatened. Regardless, bulk of the ambient chatter overheard today involves the current *'Dispersal'* [euphemised as a 'Damage Mitigation Permit'], a Government-authorised assault that will utilise sound, light, smoke and limb-lopping to banish the little red flying-foxes from Duaringa once and for all.

"A keystone species of Australia, flying-foxes are a nomadic, floating population who follow the blossoming eucalyptus flower across Australia. If left alone, they would move on by themselves, but the more they are intimidated, the more encouraged they are to stay here for protection."

I'm told by Lyn Laskus, a Rockhampton wildlife rehabilitator of remarkably petite stature. With nectar and pollen as the favoured diet of flying-foxes, they unwittingly rank among the main pollinators of Australian forests, proliferating eucalypts, melaleucas, figs and other native trees. If these winged-mammals are removed from the ecosystem, the devastating impact on the region's biodiversity would be unjustifiably immense. Possessing one of the outback's most pertinacious attitudes, Lyn has garnered much notoriety in Duaringa following her fortitude to educate the township on the ecological importance of bats. During her last trip, she erected informational signs around the roost which were vandalised and destroyed within days. Forced to leave for her safety, Lyn claims she was eventually driven out of town by a discontented resident endeavouring to run her over with a ride-on lawnmower.

"I fear for the future of both the little reds *and* the environment they support if Duaringa is not willing to learn," laments Lyn.

In the last decade, media sensationalism has characterised flying-foxes as a disease-ridden, winged menace; a widespread misconception stemming from the fact that flying-foxes remain one of few creatures to naturally harbor the mysterious and deadly Hendra Virus. First discovered in 1994, Hendra stirred much panic within Australia's lucrative horse-racing industry as the malignant hand of the outbreak pointed its spindly fingers to the equine population and their vets. Each recorded outbreak of Hendra among horses brought along a 75% fatality rate. With grave concerns of health, noise and soiled washing, it is no surprise Duaringa wants them gone.

In a dubious position of power sits Peter Maguire, mayor of the Central Highlands Regional Council. Over the phone, he casts some insight on the importance of this dispersal.

"Health."

"Are you talking about Hendra Virus?"

"Yes. If [flying-foxes] can kill a horse, they can kill a human,"

after which Peter assures me,

"…but I'm not a bat expert."

Right: A resident of Duaringa watches as the Central Highlands Regional Council fells trees of the tiny town. Part of a government-sanctioned flying-fox dispersal, C.H.R.C. will utilise 'limb-lopping' as a means to prevent Duaringa's roosting flying-fox population from returning to town after their night of nectar and pollen feasting.

The devil lurking nonchalantly in the details would award Peter full marks for the accuracy of his self-assessment at this instance. Since its discovery, Hendra Virus has claimed the lives of four people, who contracted it from horses, not flying-foxes. Although 70+ horse deaths have been caused by the virus, no case has revealed direct evidence of contraction from flying-foxes. Unaffected by its symptoms, how flying-foxes have come to harbor the virus still baffles the scientific community. However, with the successful development and sale of an equine vaccine, there is now a way to protect horses, and therefore humans, from Hendra Virus.

"Nonetheless, humans before animals," continues Peter.

"It's not Australia when you can't sit outside and have a barbie without worrying about bat shit in your food and drink."

"[The little reds] have got to go."

No joy or bewilderment was to be heard either of the spectacular evening fly-out of 100,000 flying-foxes, an amazing phenomenon only a few in the world have the privilege of witnessing. In an astonishing display of synchronicity, the little reds form dark swirling vortices radiating from the trees in which they roost. Within minutes, the sky has exploded into a spectacled canopy. The fiery sunset is even momentarily obscured as their profuse population appears to amalgamate into a single, monumental being. However, as the starving colossus dissipates into the darkness of the evening above, C.H.R.C. workers are yanking on pull-starts of floodlights in the *Exclusion Zone* below.

Despite the systematic razing of Duaringa's vegetation with their sap-stained chainsaws, Central Highland Regional Council's cuspate cutting chains could not chop the tension in the air tonight. A Police officer overseeing tonight's operation promptly motions me to keep my distance from the *Exclusion Zone* barrier and issues a stern warning,

"NO photos of this operation. NO photos of council workers. NO photos of council vehicles and NO photos of me."

Inquisitive residents peek their heads through curtains to watch as bulldozers uproot decades-old trees. The woody fragrance of resin mixes with the taste of high-octane fumes and impregnates the breeze. Leaf litter left on the streets blows into the goggles and respirators of council workers as they dismember fallen trunks and load the limbs into dump trucks. Suddenly, the first flying-fox is spotted returning from a night of nectar and pollen feasting. Like the first shot of a flaming arrow between enemies on a battlefield, this is the signal for the skirmish to begin.

In anxious anticipation, the police car patrolling tonight's operation is joined by a firetruck and dozens of locals in their cars eager to join the barrage. Much to the confusion of abruptly awoken campers in the park, they form a battalion and begin traversing the grid of roads around the exclusion zone with lights flashing, horns honking and sirens wailing. As more flying-foxes begin to arrive, C.H.R.C. workers introduce their line-up of heavyweights to the armada:

- 4WD utility trucks with rear tray and trailer mounted *'ULV fogging machines'*. Using a large volume of air to disperse miniscule liquid droplets into the atmosphere, *'foggers'* will fumigate the remaining foliage that bats attempt to return to with plumes of herbicide and pesticide.

- 4WD utility trucks with rear tray and trailer mounted *'scare-guns'*. A combustion-based, projectile-less canon system, a *'scare-gun'* relies on the ignition of propane from an attached gas cylinder to disorientate and deter the returning flying-foxes with the noise of a concussive '*BANG*'.

Taking to the streets with militant uniformity, emblazoned across each machine are the initials of the Central Highlands Regional Council in bright yellow stencils. Weaving between swing-sets and see-saws, artificial smoke soon permeates the local park. Ricocheting shock waves of scare-guns rattle the sensitive ears of discombobulated bats as they fill up the remaining treetops. Spotlights (below) blast garish rays through the haze while the red/blue

flashing of police sirens dance across windscreens and windows. Given that flying-foxes typically produce one baby per year, the potential of stress to devastate a colony is exceptionally enormous. When tormented, build-up of the cortisol hormone in bats will frequently result in abortions by pregnant mothers. As the majority of little reds inadvertently return to the siege, it is an understatement to call Duaringa a war-zone at this point.

Amid the turbulence, however, there is some respite to be found. Within this coordinated hurricane, the eye of the storm is denoted by a perimeter of bright orange cones. Growing from this incongruous sanctuary is the '*crèche*'; the nursery tree of a flying-fox colony. Pups who are too heavy to haul, yet still too young to fly are temporarily deposited here by mothers before embarking upon their nightly flights. The conditions of the dispersal dictate: "*As long as there are juvenile flying-foxes in the crèche* [Of which there are four according to the supervising environmental officer], *the tree cannot be touched*." As such, C.H.R.C. and anyone else who wanders too close risk hefty fines and potential jail-time. Returning to the roost, flying-fox mothers will call out to their young with a unique vocalisation. Recognising the signal, offspring will respond in the same manner. This allows parents and their dependant young to unite amid the often thousands of near-identical flying-foxes inhabiting a single roost. Despite the booming cacophony, it is easy to hear the frantic cries between mothers and babies who now cannot find each other.

Upon the arrival of dawn's light, the last scare-gun is fired and the final siren silenced. While the rising of the fiery sun begins to reveal the aftermath, it quickly becomes apparent that Duaringa's crusade has been somewhat successful. The vast majority of the little red colony is now settling into a new bushland roost just over a kilometre from the town. However, with limbs of dead trees now littering the streets and pathways of Duaringa, residents are left to restore a misconstrued sense of balance to their community (image previous page). Yet, as the suffocating smog of last night's battle gently drifts into the surrounding valleys and plains, hazy allegations of gunshots, fires and slaughter of innocent bats soon waft onto the radars of conservationists worldwide.

Eve of the Hallowed

"Behind me you can see blacks and the threatened grey-headed flying-foxes" says Louise Saunders, President of Bat Rescue & Conservation Queensland. On a gloomy Halloween evening in Brisbane's south-east suburbs, she is addressing a gruesome gang of children dressed as vampires, fairies, zombies and bats. Coordinated by her entirely volunteer-based organisation, this unique event provides Louise with an opportunity to dispel the great amount of misinformation and hysteria currently surrounding bats. The hideous horde patiently waits for the climactic finale of her presentation in which Cleveland's largest flying-fox colony will take to the skies only meters above their heads.

"As a matter of fact, flying-foxes are nothing like the spooky, bloodsucking, cave-dwelling characters many think they know through television and movies."

Much unlike their insect-eating, microbat cousins, a flying-foxes vegan diet consists of pollen, nectar and fruit. They roost in trees rather than caves and other dark, dank places. They do not use echolocation to navigate, instead, their nocturnal vision grants them better eyesight than a human in the day, and a cat at night.

"But of course we all know they're just puppies with wings!" Louise laughs, referring to their playful nature and incredibly canine-like face, "That's why we call them flying-***foxes***..."

Today's occasion was inspired by the recent ecocidal death sentence announced by the Australian Government. On National Threatened Species Day 2012, the Queensland State Government gazetted changes to the Animal Care and Protection Act in order to legalise the shooting of flying-foxes. Outlawed in 2008, the Australian Animal Welfare Advisory Committee previously declared shooting flying-foxes an act of cruelty.

Above: A demonstrator takes stand outside the gates of the Queensland Parliament Building as part of a rally organised against the legalised slaughter of flying-foxes. On National Threatened Species Day 2012, the Queensland Government announced intentions to legalise the shooting of flying-foxes.

"...and it's still just as cruel now as it was then," Louise passionately explains to her freakish flock.

"In 2008, we found 92% of flying-foxes would be shot through the wings and slowly left to die.[…] Half of the flying-foxes shot will be females, meaning the babies of victims will be left to starve."

"Most importantly, bullets don't discriminate between blacks, little reds, grey-headed, or spectacled flying-foxes; threatened species will be shot too."

The new law will once again grant orchardists the right to cull flying-foxes as a means of crop protection. In 2001, a single farm in Queensland slaughtered one fifth of the world's population of spectacled flying-foxes; 18,000 members of a threatened species over a 6 week period using no more than an electric grid. As the camp of flying-foxes before us amass and go airborne, children point in astonishment with witch's fingernails while parents take photos.

Above: Louise Saunders, president of Queensland Bat Conservation & Rescue, speaks to the media about the legalised slaughter of flying-foxes by the Queensland Government. In her hand, she holds an orphaned juvenile black flying-fox rescued that morning.

Pulling me to the side, Louise is abhorrent.

"We're fighting politics, conservation is not about politics. When Koalas needed support, they got funding and education; we get *bullets*."

The Unsung Savior

In one of *Down Under's* darkest environmental epochs, ignorance and misinformation circling flying-foxes is higher than ever before. An *'Africa'* of the Pacific, megadiverse *Terra Australis* is home to thousands of the world's most unique animals. Yet, living in one of Australia's most wildlife-abundant regions, inhabitants of a rural town would rather inundate their own environment with *pesticides & herbicides* than live harmoniously with arguably the most important animal in the country; Instead of cost-efficient, environmentally/wildlife friendly methods of crop protection, the Federal Government prefers to issue farmers with permits to *cull* 10,000 flying-foxes per year.

Set before a backdrop of people whose destinies are interlaced with bats, the dichotomy of human prosperity and conservation of nature demonstrates, if nothing else, a hauntingly severe lack of education. As the taglines of Louise Saunders' campaign resonate from the tropical rainforests of Queensland to the xeric deserts of Northern Territory, the Australian government remains intransigent. With the salvation of Australia's rich flora and fauna hanging upon the survival of the countries most hated creature, these indispensable, sentient forest pollinators need our understanding now more than ever.

ABS flying-fox report: 2015-16

Maree Treadwell Kerr and Louise Saunders, on behalf of the Flying-fox Sub-committee

maree.treadwellkerr@gmail.com

Who are we and what do we do

The Flying-fox Sub-committee was formed by the ABS executive under the constitution and rejuvenated at 2014 AGM. The impetus for its formation was to assist the ABS President with engagement in public debate in issues concerning flying-foxes, and to ensure that our position is defensible, indeed unassailable, and based on published science and documented experience. It reports to the First Vice President of the ABS (currently Lisa Cawthen) and participates in quarterly executive meetings.

The over-arching aim is to improve management of flying-foxes and their roosts and foraging habitat for conservation of flying-foxes and for people, ensuring it is based on science and documented experience through working with governments at all levels and in collaboration with other community and conservation organisations, including bat groups.

The sub-committee comprises members with scientific/ technical, media and legal expertise, carer representatives, and people with interest in flying-foxes, and is co-convened by Maree Treadwell-Kerr and Louise Saunders. Many of our members actively work for the conservation of flying-foxes across Australasia.

Our objectives

The objectives of the Flying-fox Sub-committee (FFS) are:

- To provide a point of focus for ABS members with a specialist interest in Australasian megachiroptera.
- To provide information and guidance to the ABS executive in all matters regarding megachiroptera.
- To be the preferred source of reliable information in regards to the conservation and recovery of megachiroptera within Australasia.
- To effectively contribute to the conservation, recovery and scientific body of knowledge about Australasian megachiroptera.

In order to achieve its objectives, the FFS has identified a number of strategies to take us forward into our first years of operation under an overall strategic plan. This strategic plan will pull the collective effort of expertise amongst ABS membership in general and the sub-committee in particular together to combat threats to flying-fox conservation with evidence-based science and strategic media engagement.

Strategic plan

The strategic plan is divided into a number of key strategic areas which the committee believes focus on the current issues of priority.

The key areas that this strategy will focus on and develop are:

- ABS policy
- Information collation
- Information dissemination (media and public engagement)
- Political engagement
- Legal engagement
- Strategic alliances
- Focus on critical priorities

What have we done and where are we going

Over the last year, as well as the Flying-fox Sub-committee Strategic Plan, the sub-committee has produced the following documents:

- Fast Facts on Flying-foxes
- Media and Public Education Plan

And led, with executive assistance, the ABS submissions on:

- NSW Flying-fox Camp Management Policy 2014
- Draft EPBC Act Policy Statement: Camp management guidelines for the Grey-headed and Spectacled flying-fox (December 2014)

Working effectively to manage national issues

The sub-committee has identified a number of issues affecting flying-foxes throughout Australia which it is trying to find national solutions for:

- netting
- dispersals
- heat events
- starvation events

To work effectively, the ABS needs to know about events (e.g., dispersals, heat events affecting flying-foxes) and requests that ABS members

keep us informed. We often don't hear about such events until it's too late so please keep in touch about issues that need a voice, we are here to help if we possibly can.

The sub-committee has developed monitoring and reporting guidelines for dispersals, and habitat/vegetation modification of camps (which can be modified for heat events and other events) comprising of a simple standardised questionnaire to record information which will help develop our knowledge base of these actions/ events. This was workshopped at the FAGM and it was agreed that this would be an effective means to collect data and manage future events.

By working with other bat groups, individual ABS members and HSI (Australia) and with the advice and assistance of Bat Conservation International, the sub-committee is forming an informal flying-fox alliance, which may be formalised along the lines of the 2014 proposed Flying-fox Alliance which was created to handle flying-fox issues but has not progressed due to other issues of the larger environmental groups.

We believe public perception to be a key tool in improving management of flying-foxes and their camps, so we ask for the cooperation of ABS members in their local areas to help raise awareness of flying-foxes, and to keep us advised of issues involving flying-foxes.

Working with governments

The flying-fox situation varies considerably within Australia and within the wider Australasian region, and different government protocols exist regarding them (for instance dispersals are managed at local government level in Queensland and by state government in NSW and Victoria, and are generally not considered in other states; heat events are more frequent on the eastern coast and in southern states than in tropical areas, whereas cyclones are a threat in tropical regions and are managed at different government levels). Consequently, the sub-committee needs to develop different approaches to all levels of government within Australia, and through the ABS President and executive outside Australia.

Three species of Australian flying-foxes are listed as threatened under the EPBC Act, the Christmas Island flying-fox is critically endangered and two mainland species, the grey-headed and spectacled flying-fox as vulnerable. The grey-headed flying-fox is also listed as vulnerable under Victorian and NSW state legislation, and the spectacled flying-fox (which only occurs in Qld) as vulnerable under Qld threatened species legislation.

The sub-committee will work with the executive, particularly the 1st Vice President and the President in communicating at local, state and federal government level, including LGAQ, and is considering working with selected councils in developing alternative flying-fox management strategies to dispersal, such as education and interpretation as models.

Meeting with the Qld minister's advisors

Our first meeting with government occurred in Qld in July with Senior Policy Advisor Danielle Cohen and two of her colleagues in the Qld Department of Environment and Heritage and was attended by Kyle Armstrong, Evan Quartermain, senior programs manager for Humane Society International (HIS) Australia, Louise Saunders co-convenor of the ABS flying-fox sub-committee and Carol Booth, a member of the sub-committee with extensive experience in negotiating with Qld governments on flying-fox matters.

The purpose was to start a dialogue around repealing shooting legislation, to obtain a better process for assessing/managing flying-fox dispersals and to develop an overarching conservation plan for pollinators (including flying-foxes).

The meeting was positive, and the department is already interested in getting rid of 'lethal take' and better managing dispersals. Their first priority was to list the spectacled flying-fox as vulnerable in Qld, but Danielle Cohen highlighted the potential difficulties of getting policy changes through parliament. She seemed receptive to the conservation plan, and we discussed some ideas about that. We got across the messages that there is too little science in the current management of flying-foxes, the issues are best resolved through collaboration and that the ABS is keen to help, which seemed to be welcome. We left with the understanding that the ABS and HSI would be a part of future consultations.

Nomination of spectacled flying-fox as vulnerable in Qld and for upgrading to endangered under EPBC Act

The spectacled flying-fox has declined 50 to 60% over the last decade at an annual rate of 4 – 6%. While two sharp declines can be attributed to severe cyclones, the cause(s) of the last sharp decline is unknown.

The nomination for listing the spectacled flying-fox as vulnerable was approved in Qld in August 2015. The Threatened Species Scientific Committee recommended to the federal government to update the species' status to endangered, and this has been approved. It can be assumed Qld will follow as an obvious progression. In our follow up letter to Danielle we made this one of our points for consideration.

Crop protection

With the cessation of shooting for crop protection (except under special circumstances) in NSW, Qld is the only jurisdiction that allows this. Previous Labor governments had ended shooting for crop protection in 2008 on the grounds that shooting can never be humane but this was allowed again under the last LNP government under Premier Newman Campbell by exempting the need to be humane when culling flying-foxes.

On this issue, Danielle Cohen said that the minister was committed to review damage mitigation permits and would put an end to damage mitigation permits (DMPs) by the next growing season. She stated that they needed to be strategic for parliamentary support.

Dispersal policy

We discussed dispersals and she said there would be difficulties in reforming legislation to strengthen protection for flying-fox camps. Danielle agreed to a collaborative look at lightening the protocols around the code of practice and invited ABS and HSI to nominate three ways to strengthen the current code of practice which applies to dispersals. We put forward recommendations that the government adopt the previous policy outlined in the 'Procedural Guide, Wildlife Management, Management of Flying-fox Colonies in Urban Areas', with amendments to reflect current legislation.

The three ways that we recommended dispersals be strengthened in the code were as follows:

- Consider the reproductive status of flying-foxes with any camp management actions – no disturbance or camp modification likely to lead to disturbance occur while there are dependent young and during late pregnancy, regardless of species.
- Impose stricter guidelines on methods and equipment used at dispersals – no use of aircraft, paint ball guns, fireworks, chemical fogging or water cannons.
- Environmental stressors such as extremes in temperature, food availability, low body condition as well as imminent and recent cyclones in the general area (within 200 kms due to the devastation to food resources). These factors should be taken into consideration in determining timing and the duration of actions.

Community engagement

Instead of dispersals, which are usually ineffective and often create worse problems, we recommended community engagement and education to counter the general ignorance about flying-foxes, the rehabilitation of camps to create buffers between people and flying-foxes and to improve the amenity for residents in the vicinity of camps. We also suggested that timing would be right to revisit the 'Education Strategy' which was not completed by the then Labor government back in 2006.

Conservation plan for pollinators

We also asked that a long-term focus on sustaining and recovering populations of flying-foxes and other pollinators to improve the resilience of ecological communities be considered. The focus would encompass multiple conservation issues – habitat protection, climate change adaptation and community engagement. This proposal could be developed in collaboration with other NGOs and with the support and involvement of the minister and his department.

Our focus for 2015-2016

The sub-committee acknowledges that the strategic plan is a long-term commitment and so has limited its focus for 2015-16 to a few tasks in addition to those described above regarding working with governments to manage flying-foxes based on science, and dealing with other issues we consider important as they crop up – e.g., following up on various draft camp management policies we have commented on. Our focus areas for 2015-16 are:

- **Fast Facts on Flying-foxes**

This is a key document that can be used when talking to governments, education of public, or response to media. The sub-committee will further refine this master document into separate documents targeted for these specific audiences.

- **Camera proposal – live streaming from one (or two) flying-fox camps**

This proposal is for a new externally funded project to have internet capable cameras in one or more flying-fox camps that will enable the public to watch flying-fox behaviour in the camp from the comfort of their home. By gaining an appreciation of flying-foxes through this medium the public and management authorities will gain understanding and awareness. Changed public perceptions should lead to changed management and policy and may even help bring tourism dollars into local communities. There is interest from at least two Queensland local councils in this proposal.

Crowd funding or other sources of funding need to be found to finance this. Cameras capable of providing this capability range from $2000 and the set-up could be in the order of $7,000 +. It is possible that some assistance in funding may be provided through interested local councils.

- **Short film on importance of flying-foxes**

This is another public perception project to engender engagement with flying-foxes. Again, this is a project that needs funding, but could be highly effective in engaging the community with flying-foxes. The key messages would be to show why dispersals don't work, and how we need bats.

The idea is that this short film could be shown on a 5 minute television slot, and later on-line through social media, to gain maximum exposure to the public that has not thought about flying-foxes and perhaps convert a few who may have negative feelings about flying-foxes to at least think before demanding that flying-foxes be moved on.

An example of the type of film is *Protect them or Lose them*, a film by Ofer Levy produced for Queensland Bat Conservation and Rescue.

- **Flying-fox Calendar – a year in the life of a grey-headed flying-fox.**

This calendar has been produced by Pipeline Calendars as a fund-raiser for ABS and to raise awareness of flying-foxes.

The calendar costs $13.25 plus postage and $5 of each sale will go to ABS to help fund research/ conservation grants. With 5000 being produced, there is the potential of raising quite a bit of money for ABS.

More about how to buy this fabulous calendar which features stunning photos from many of our own members who are some of the best wildlife photographers is on page 37.

We encourage every member to buy at least two and to tell everybody else.

Communication

The ABS Flying-fox Sub-committee will keep ABS members informed through the executive, through the *Newsletter* and other ABS fora and will be reporting formally at the 2016 conference.

We thank all members for their support in improving public perception, management and conservation policy of our flying-foxes.

Surprises – when one becomes three

Glenda Pym
Bat Coordinator, Publicist and Membership Coordinator, WIRES Riverina

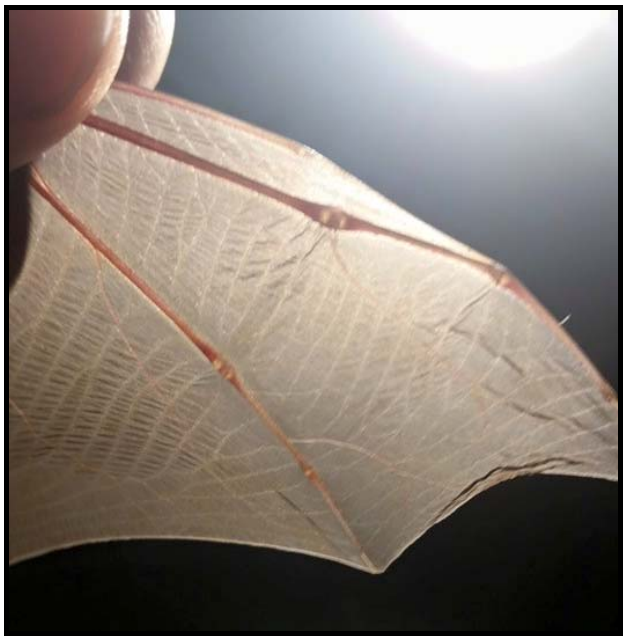
glendapym@me.com

0n the 9th of May a lesser long-eared bat female came into care with severe bruising to her body following a close encounter with the windscreen of a very large truck. The wonderful member of the public, who had found the microbat on the ground, contained her safely and placed her near a heat pad. She was taken into care by a very dedicated bat carer with WIRES Riverina NSW, Ellen Kemp.

By the time the bruising had healed enough to consider flight training and potential release, the weather had turned very cold with very limited insects available for feeding on. It was decided to keep her in care for the winter duration so she would have a better chance at survival after release, with warm weather and many insects to hunt.

She fed well on the room service supply of tasty snacks and when she gained three grams – thought was given to possibly cutting down on the amount being offered. It was around this time that Ellen noticed an expanding abdominal area and being relatively new to the care of microbats, she posted some images on social media for advice.

On the 8th of August the consensus agreed that she must be pregnant. The high life in care had triggered her biological clock to progress the breeding process. Only seven days later two pups were born, both boys. Their mother cared for them beautifully from the start, keeping them tucked right up under her wings while they grew at a phenomenal rate.



Images thanks to Glenda Pym.

Top left: Very pregnant, pups were born the next day.

Middle left: Zero days old, pup just visible.

Top right: Mum and 2.5 week old pup.

Middle right: Sini and Dex, 4 week old lesser long-eared bat pups with mum

Bottom right: A lovely example of the incompletely ossified wing joints in a juvenile bat.

Their forearm lengths doubled in less than two weeks. They sprouted soft velvety fur and began having very short excursions out from under Mum's wing, in less than one week. At three weeks old they started eating small quantities of solid food, and typical of long-eared family, they love their food. They began learning to fly at three and a half weeks old, climbing to the top of their enclosure, whilst chirping at the top of their lungs, then turning around and taking off.

This happy trio will be released in December - January, when the weather is fine, there are plenty of insects for them to eat, and they will have had sufficient time in care to hone their hunting and flying skills. Due to the positive reach of social media, the birth of these pups and their progress since has provided an invaluable learning experience for not only Ellen but to many others who are committed to the rescue and care of these unique and critically import animals.

[Ed comments: for those unaware of the breeding cycle of long-eared bats, it is likely that this female had mated prior to coming into care, and she had sperm stored in her reproductive tract. In the wild the sperm remains viable until early spring when the female ovulates and she becomes pregnant, with birth occurring in late spring. In this case the ovulation and fertilisation process was probably triggered earlier due to the female being in care with plenty of food. Lindy]

Bat night at Beaumaris, 31st August

Robert Bender

Redneb.trebor@gmail.com

The Bayside Friends of Native Wildlife conducted a widely advertised public information session at the Senior Citizens rooms behind the Beaumaris Library. Elizabeth Walsh organised the event with a small team of supporters. The group is keenly interested in learning about the bats inhabiting local parks and has done much research of their own. Elizabeth Walsh introduced the evening.

I gave a presentation about microbats, about what has been learned from my two bat box projects, the other projects that have spun off them, and on the problems of managing a long-term project, to an audience of about 30 people – members of the Friends group and many casual visitors who responded to their advertisements – little laminated A4 sheets pinned up here and there.

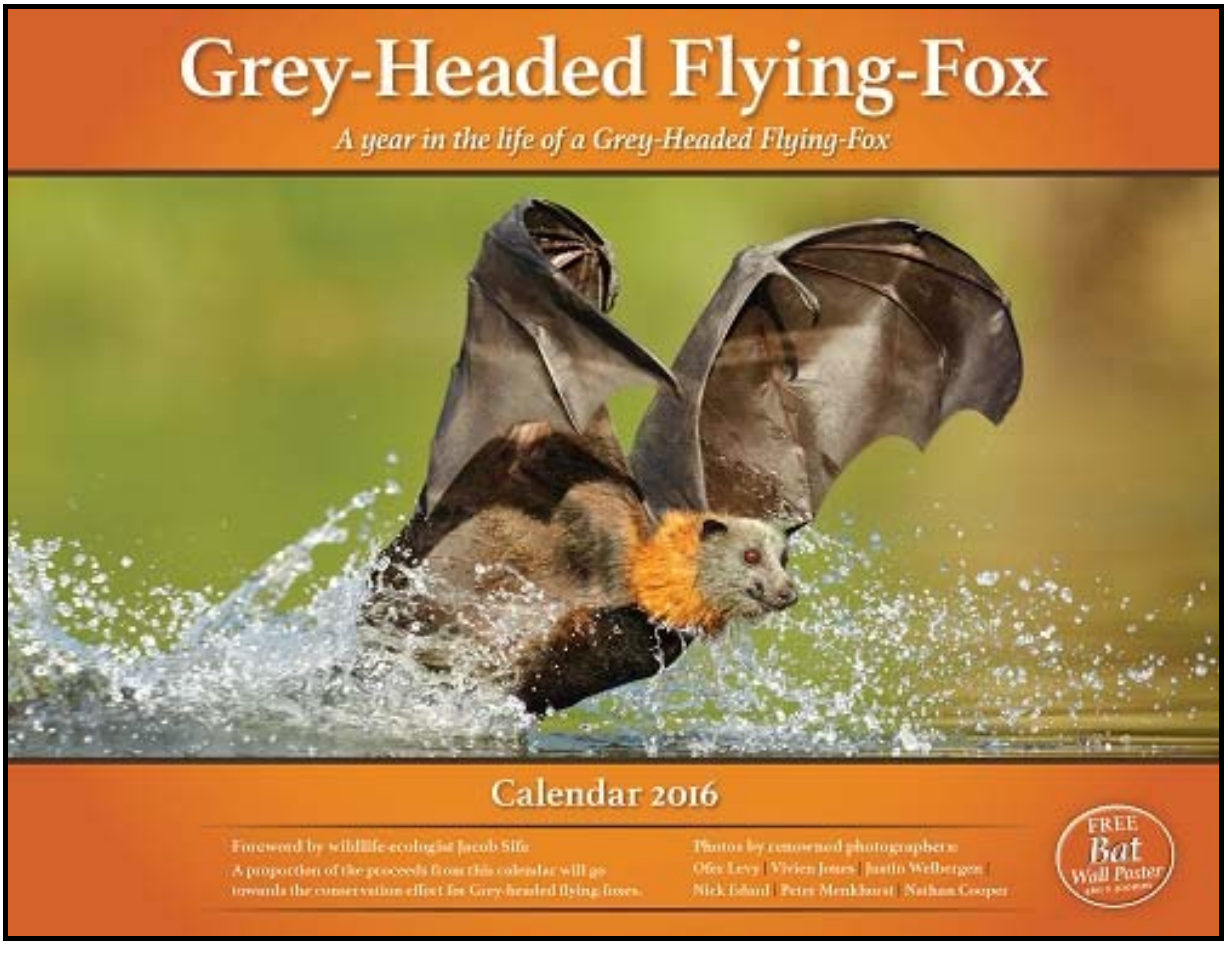
Above: Geoff Daniel (box maker), Paul Foxworthy, Anne Jessel and Elizabeth Walsh.

Then it was Paul Foxworthy's turn – he has been co-ordinating a big effort by FONW to study the local bat fauna, partnering with Grant Linley, who leads a small ecological consultancy and is studying the Bayside bats. They did a large-scale bat detector survey, generating over 50,000 call records of which around 10,000 were definitely from 11 species of bats, two thirds of them Gould's wattled bats, and a sixth were little forest bats. Anne Jessel and Grant did the analysis, manually, with some help from Lindy on the difficult ones. The findings are to be published shortly.

Grant (above – not holding a bat!) is the Director /Ecologist at Ecological Insights. Currently his research is focused on the impacts of artificial lighting on microbats along the Bayside foreshore, as well as investigating the effectiveness of a community led culling of common mynas. Ecological Insights is focused on researching Australian flora and fauna, and through research, providing outcomes that have positive outcomes for the preservation of Australian ecology (*from his LinkedIn website*)

The group had some bat boxes on display (image below), made by one of their members, Geoff Daniel who in his other life is a chef. The boxes are long and narrow, with little vent holes near the bottom and narrow entrance slits on the underside, and with hinged lids.

It was a good evening, and I scored three potential recruits to my bat box projects. The group is doing really interesting work on the bats of the eastern bay suburbs.



– News and Announcements / Classifieds –

Flying-fox Calendar – A Year in the Life of a Grey-headed Flying-fox

When Pipeline Calendars contacted the ABS with this fabulous fundraising proposal, it was just too good to pass up. The calendar was already completed when we first saw the drafts in July. Sean of Pipeline Calendars, had been told about the problems facing our flying-foxes so he thought they could put a proposal together to help raise funds.

The calendar photos are stunning and from many well-known bat photographers and researchers both known to ABS members and/or members themselves: Nick Edard, Vivian Jones, Ofer Levy, Nathan Cooper, Justin Welbergen and Peter Menkhorst. The forward and monthly life of a flying-fox was written by ecologist Jacob Sife.

Now for the best bit.... we can raise $5.00 from the sale of every calendar, so there is great potential for all bat people to get these beautiful bat calendars out there with 5000 printed. Naturally we want to raise the funds for the ABS Conservation Fund but the wonderful people at Pipeline will give any wildlife organisation discounted calendars for their group to raise funds as well. The calendar format measures 230 x 300 mm and is printed on high quality, 150 gsm paper. It comes with a free, A3 wall poster (460 x 300 mm) and cut-out bat shadows for the kids.

Only $13.20 each incl. GST plus postage OR buy in bulk to onsell and raise funds for your own Bat Group $7.70 each incl. GST plus postage – can't get better than that!

If you have Halloween or education events planned the calendars can be sent freight free and the profits can go to your own group or you can direct funds to the ABS. You don't need to pay Pipeline until your calendars are sold. Or you can take advantage of the order form and postal service and have the calendars posted to family and friends right now. If you would like to order the calendars in bulk please call Michal on 0433 086 026.

The order form is attached and the link to send out is http://www.pipelinecalendars.com.au/ Please remember for this to be successful to raise the funds we kindly ask you to share the order forms and the link with your social media outlets, friends and families. Thank you!. We will send reminders from time to time!

ORDER FORM ABS

I/We would like to purchase _____ calendars @$13.20each incl GST plus postage
For bulk purchase please call Michal on 0433 086 026.

Name: _____

Postal Address: _____

_____

Contact: _____ Phone: _____

Email: _____

PAYMENT DETAILS: ☐ Cheque (made payable to Pipeline Calendars Pty Ltd) ☐ Visa ☐ MasterCard ☐ Amex

Card Number: ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ CVV: _____

Expiry Date: _____ Amount: $ _____

Name on Card: _____

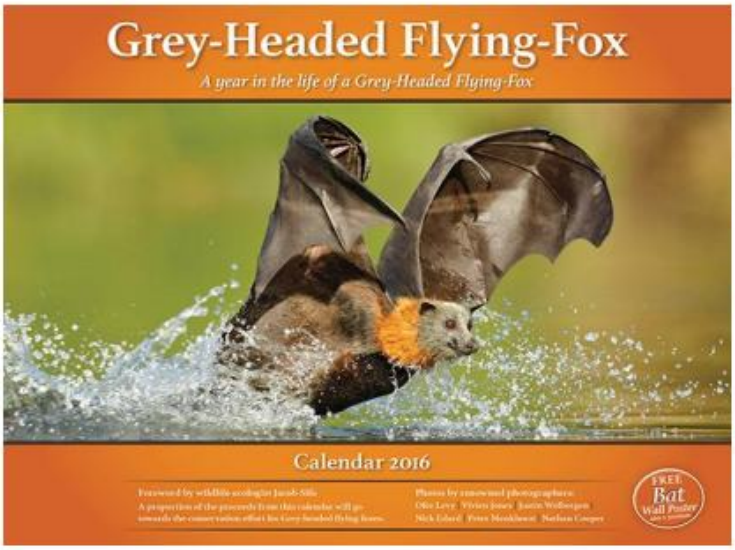
Signature: _____

Please send your completed order form to: sales@pipelinecalendars.com.au / Fax: 02 9905 4858 /
PO Box 644, Freshwater, NSW 2096

Postal Rates

Australia	New Zealand	Asia Pacific	Rest of the World
1 calendar $2.10	1-3 calendars $10.50	1-3 calendars $12.50	1-3 calendars $17.00
2 - 3 calendars $4.00			

Help Raise Much Needed Funds



- A unique calendar that sheds some light on this highly intelligent species and their quirky habits.
- Stunning images of their beautiful faces and their environment.
- Month by month format measuring 230 x 300 with high quality 150gsm paper.
- Full colour photographs with descriptive text by Wildlife Ecologist Jacob Sife explaining the year in the life of the Grey-headed flying-fox.
- Free A3 wall poster (460 x 300)
- Cut out bat shadows for the kids.

A sampling of images from inside the 2016 Grey-headed flying-fox Calendar:

Only $13.20 each
incl GST plus postage
or
Buy bulk to onsell and raise funds for your own Bat Group
$7.70 each incl GST plus postage

See reverse for order form and postage rates

A proportion of proceeds from this calendar will go towards research and conservation of Australasian bats.

17th Australasian Bat Society Conference:

Hobart, Tasmania

29th March – 1st April 2016

Fishing bats found around Sydney harbour

Nice work Leroy and Brad:

http://www.smh.com.au/environment/animals/endangered-fishing-bats-found-around-sydney-harbour-20150818-gj1guf.html

For the first time ever, Australia's only species of fishing bats have been recorded roosting and breeding in hotspots near some of Sydney's premium harbour addresses. Dr Leroy Gonsalves and Dr Brad Law, both with NSW Department of Primary Industries, found the fishing bats flying through mangroves near Wollstonecraft in January 2014. Subsequent surveys revealed large-footed myotis *Myotis macropus.*

Seeking volunteers

This is a call out for interest from prospective volunteers to help with some fieldwork on southern bent-wing bats in Naracoorte, SA, this summer. The work will involve trapping, processing and microchipping up to 1000 bats as part of my PhD project on the population dynamics of this critically endangered bat. We are looking for vaccinated bat handlers, including (but not limited to) people with microchipping experience. We will also need several scribes with neat handwriting! The fieldwork will occur over two trapping efforts between the dates of 8th and 18th of January, predominately over weekends, and accommodation will be provided. If you are interested, please contact me (Emmi Scherlies) by emailing e.scherlies@latrobe.edu.au

Australasian Bat Society Conservation Grant

The current round of the ABS Conservation Grant closed on the 9th November. There were two grants worth $1000 each on offer.

Application guidelines for future grant rounds are available on the ABS website: http://ausbats.org.au

Go to 'About Us' > 'Grants'.

Make sure you *very* clearly describe how your project will directly contribute to the conservation of bats. In applying you will also be required to confirm your membership status.

Successful applicants are advised within four weeks after the deadline. Please send your applications and any queries to kyle.n.armstrong@gmail.com

Successful applicants are also required to write a report on their ABS sponsored project for the ABS *Newsletter*.

– Reviews –

Effects of roost specialization on extinction risk in bats

Sagot, M. and Chaverri, G.
Conservation Biology (ahead of print) DOI: 10.111/cobi.12546

Reviewed by Susan Campbell
ABS *Newsletter* Editor

editor@ausbats.org.au

A long (lifetime..!) time ago I researched the ecology of a specialist bat, *Myotis macropus*. So purely out of personal interest, the title of this paper caught my attention and I thought it was high time I renewed my attention to current literature!

Specialist species use a restricted range of resources, and for bats, roosts are a critical resource for reproduction and survival of individuals. Knowingly, the authors of this paper have compared the number of roost types used per species (accounting for phylogenetic non-independence) with the International Union for the Conservation of Nature (IUCN) Red List bat data to determine whether roost specialisation is correlated with extinction risk.

From Least Concerned to Critically Endangered, the authors assigned numerical values to IUCN threat categories listed for 385 bat species. For these species, the authors were then able to locate 532 peer-reviewed publications (via Web of Knowledge search using species name and the word 'roosts' as key search criteria).

From this literature, the authors compiled a list of roost types used by each species based on 13 categories: caves, cliffs & crevices; tree cavities; banks & ledges; tree bark; human-made structures; leaf litter; tree boles; bamboo culm; modified leaves and stems; foliage & plant structures; termite nests; bird nests; furled leaves, and also assigned species to one of five range size classes.

They show that species that use *fewer* roost types have a *higher* risk of extinction. All three species considered Critically Endangered (*Coleura seychellensis* – Seychelle's sheath-tailed bat; *Aproteles bulmerae* – Bulmer's fruit bat and *Pteropus pselaphon* – Bonin flying-fox, from small islands off Japan), use a single roost type. Surprisingly, the authors report that Red List category was *not* associated with range-size ($P = 0.06$), yet further on they state that all the Critically Endangered bat species live on islands and therefore have a very small or very restricted range size. Furthermore, around 60% of species considered Endangered and 50% of Vulnerable species occur on islands. These facts suggest that 'island effects' (e.g. range-restriction, presence of introduced species, habitat destruction) also play a significant role in species' extinction risk.

Another interesting result that caught my eye was that two species of bat (IUCN = Least Concern) were listed as *exclusively* using man-made roosts. Trawling through the associated supplementary data, these species were reported to be *Mimom bennetii*, southern golden bat and *Taphozous mauritianus*, Mauritian tomb bat (cool name). However, the former is referenced by the IUCN Red List as being particularly sensitive to roost disturbance and as roosting in caves and hollow logs. Similarly, the tomb bat is listed on the IUCN site as roosting under covering vegetation on the outer bark of trees in addition to human occupied dwellings. So, I'm not too sure how these two species earned their 'exclusive man-made roost' status for this review.

Lastly, the authors acknowledge that a limitation of their study is that they have focussed on a single life-history trait (roosting) and that they therefore cannot show how other life-history traits may also correlate with extinction risk to varying extents relative to roost specialisation. They also state the lack of detailed information on roosting ecology from Asia and Oceania as another limitation of their study. While this editor agrees whole heartedly that more detailed ecological studies of Australasian bats are incredibly important and valuable, my own self-centred interest was again curious to see what Australasian species made the authors list of 385.

A (very) quick filter of their spreadsheet revealed no representative species from genus *Vespadelus*, none from genus *Nyctophilus* and *no Myotis macropus*! Bent-wing bats, ghost bats, short-tailed bats all made the cut, but we all know there exists a good representation of peer-

reviewed literature containing both the species name and the key word 'roost' for these others species and genera, begging the obvious question as to how they were overlooked in this study.

Nevertheless, the paper provides good evidence for the correlation between roost specialisation and extinction risk and rightly concludes that there is '*enough evidence to assume that roost loss, particularly for species that rely on a single roost type, is an important cause of extinction risk'* and therefore that '*protecting essential roosting habitat* [particularly on islands] *should be a conservation priority'.*

Poo: a natural history of the unmentionable

Nicola Davies and Neal Layton
Walker Books, 36 p.

Reviewed by Robert Bender

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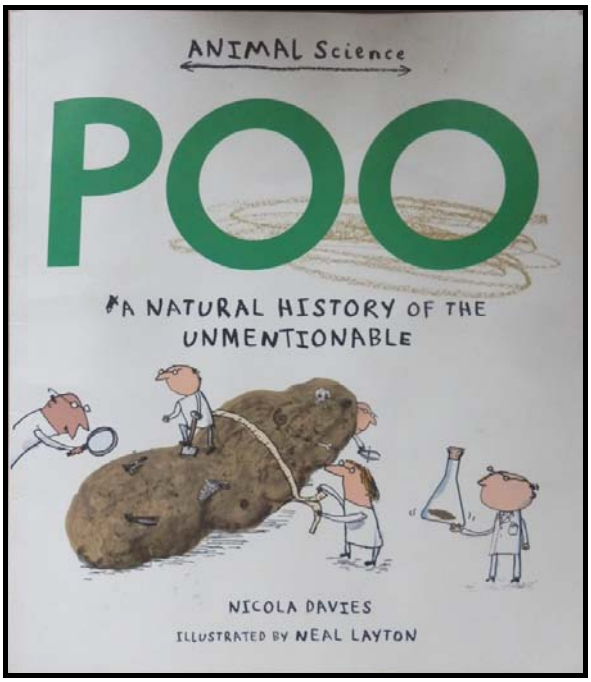

This is a children's book about animal dung, which my grandchildren decided is disgusting but fascinating. It describes, with entertaining illustrations, the different characteristics of carnivore and herbivore poo, the poo of animals that drink and those that don't, why bird poo is whitish, why some herbivores re-ingest their own poo, and some animal babies ingest their mothers' poo to start their gut colony of digestive bacteria, the territory-marking habits of otters, the nest-cleaning habits of parent birds, poo as a message-board at communal latrines, trail-marking, and other delightful aspects of faeces.

Then there are the wonderful habits of coprophages who save us from drowning in the stuff by eating the poo of other animals (like dung beetles) and by recycling organic matter make ongoing life possible. One page is called "holy bat poo", about cave bats whose guano piles support whole food-chains of poo-eaters and carnivores preying on them, flying-foxes seeding forests with their seed-rich dung ("postman poo"), those strange scientists who devote their days to staring down binocular microscopes at bat poo, unraveling the mysteries of what bats eat, and the smart mistletoes that make their seeds so sticky that mistletoe birds need to wipe their bums on branches to get rid of the seeds, and thus start another mistletoe.

It finishes up with a page of "poo facts" on the biggest, smelliest, highest and weirdest poo, with the smallest being that of the bumblebee bat's pinhead-sized poo. Altogether a delightful book on an important biological process, with much value added by Neal Layton's illustrations. The pages about bats are fitted into a general story about waste and its recycling, food chains and animal communication, digestion and animal diversity.

It is one of a series of books by this pair, all of them first-rate educational resources.

Just the right size: why big animals are big and little animals are little

Nicola Davies
Walker Books, 2011, 60 p.

Reviewed by Robert Bender

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This little book aims to teach some basic biology to children in upper primary school, with clever and entertaining illustrations by Neal Layton. It's partly about debunking the idea of "superheroes" so dear to children, announcing that the real superheroes who can fly fast, lift weights heavier than themselves and run up walls are all very small: insects or geckoes, and there are no giants or monsters as they are physically impossible.

This is based on the BTLT rule (big things, little things) that doubling the dimensions of an animal quadruples its surface area and octuples volume and therefore its need for oxygen, food, and strength of leg bones. So giants' (and giant spiders') legs would snap from supporting the body weight, huge insects or birds would need far larger and heavier wings than muscles could flap, only tiny insects can walk on water without piercing the surface tension and sinking, and only geckoes can cling to ceilings as the sticky hairs on geckoes' feet would require hectares of feet to support our weight upside down.

The idea extends to the impossibility of growing digestive systems big enough to support larger whales; the impossibility of single-celled organisms inhaling adequate oxygen beyond the tiniest dimensions; the development of folds and wrinkles via gills, spider book-lungs then lungs, to enable larger animals to evolve, and the limit of about 2 cm thorax diameter to insect spiracle-trachea structures, the danger to insects of getting wet as heavy water films on their bodies would prevent movement, the importance if size to marine mammals to sustain body heat, and the longer hunting days of the biggest dinosaurs that remained warm and active longer than small ones, the need of small animals for high quality food and the problems of long-distance travel for small animals of high metabolic rate.

Getting more sophisticated, it applies the BTLT rule to sexual selection for tail size in birds, deepening of voices for long-distance communication by elephants and whales. At this point bats are introduced, having tiny bodies and very high-pitched squeaks effective only over short distances, but yielding very detailed sound-pictures of the near environment, enabling bats to hunt insects and navigate in cluttered environments as well as being able to hide in small spaces and occupy micro-niches.

The book, one of series by Davies, covers a much wider field than just bats, but is an excellent introduction to why bats are so small, densely furred, non-migratory, with high-pitched echo-location squeaks, as well as females being able to carry nearly full-grown juveniles between roosts just before weaning. It helps fit bats into a wider context of animal size and its consequences.

Professor Elery Hamilton-Smith AM – an exceptional man (28/12/1929 – 27/06/2015)

Obituary – prepared by Terry Reardon, image (over page, thanks to Dan Lunney)

Since Elery's passing, much has been written about his remarkable life. There are so many facets to his career and contribution that I have concentrated here on his relationship with bat research and the Australasian Bat Society. I highly recommend members open the following two links because they will explain why so many people think of him as a true humanitarian as well as a leader in education, science, conservation and philosophy. The first is by his daughter: http://www.smh.com.au/comment/obituaries/elery-hamiltonsmith-am-caves-just-part-of-conservationists-pursuits-20150830-gjb76i.html,

and the other more expansive on his achievements is by his close friend, http://www.scenicspectrums.com.au/blog/2015/7/21/blog-2-vale-professor-elery-hamilton-smith-am

Elery's lifelong association with bats had its origins in the early 1950s when he and some friends decided to take up cave exploring. He wrote that his early interest in bats was stimulated by a visit the Naracoorte's Bat Cave (ABS *Newsletter* No.12 March 1999, p. 14-15). Norman Tindale of the South Australian Museum encouraged the small caving group to keep records of their activities and to collect and deposit specimens with the Museum. This soon led to the formation of the Cave Exploration Group of South Australia with Elery as the inaugural president. Elery's story of this beginning can be found here: http://www.cegsa.org.au/index.php/aboutcegsa/cegsa

In June 1964, Elery started producing the Australasian Bat Research News (ABRN) which he edited until 1974 with 13 issues (the series is available on the ABS website). The ABRN was an important connection for bat researchers… in issue number 6, some 39 Australian and overseas researchers were listed as being interested in Australian bats. The ABRN newsletters contained original research, comment and importantly, a comprehensive bibliography of Australian and overseas bat research (a tradition kept in this *Newsletter*). The bibliography must have been incredibly helpful.

Elery's own contributions to the ABRN (apart from editing and distributing it) included a design of a portable harp trap (ABRN, issue 5), which Elery was insistent in calling the Constantine trap after it's inventor Denny Constantine, who incidentally was involved with the US bat bomb project which aimed to have bats deliver incendiary devices to houses in Tokyo to burn them during World War II. There are lots of gems in those old newsletters.

I recently re-read Elery's article on the beginnings of the ABRN (ABS *Newsletter* No. 12) and was reminded that he was part of the team to get bat-banding going in Australia. In this article too, we are informed that he published the first field key to Australian cave bats in 1964.

Elery also published studies on bent-wing bats (sometimes in collaboration with Peter Dwyer whose prolific bat papers still remain the gold standard for bat ecological research and whose contribution is honoured in the naming of *Chalinolobus dwyeri*). Elery's 1964 population counts of southern bent-wing bats were the foundation upon which the subsequent population declines were based and of course the subsequent listing of that subspecies as Critically Endangered (Dwyer & Hamilton Smith 1964).

He contributed occasional articles to the ABS *Newsletter* and gave conference papers including one in which he challenged us "to think like a bat". Amongst his published papers is one entitled 'The remarkable "Adaptable Bat": a challenge to ecological concepts in the management of Australian forest bats' (Parnaby & Hamilton-Smith 1984)…a paper that every bat ecologist should read and perhaps re-read. Importantly though, despite his ever increasing professional responsibilities, he managed to keep in touch with bat researchers and bat cave managers. In 1998, Elery was made a life member of the ABS.

Elery's professional interest in bats extended to south-east Asia where a new bat species *Murina eleryi* (the Mekong bat) Furey, Thong, Bates & Csorba 2009, was named in recognition of his contribution. I feel happy also that we were able to honour him by associating his name with an Australian bat *Mormopterus eleryi*.

While his contributions to bat research were manifold and influential, they were but one small part of the totality of his interests and projects he was involved with. I recall the last time I spoke with Elery, a long chat at the Melbourne conference – he was quite ill with a chest infection but he made the effort to come and visit bat friends. He was always a charismatic individual, with a warm and ready smile, and not in the least bit arrogant with his profound intellect and knowledge. I believe he was a mentor and wonderful help and supporter to many of us working on bats. No-one lives forever, but someone like Elery perhaps should have.

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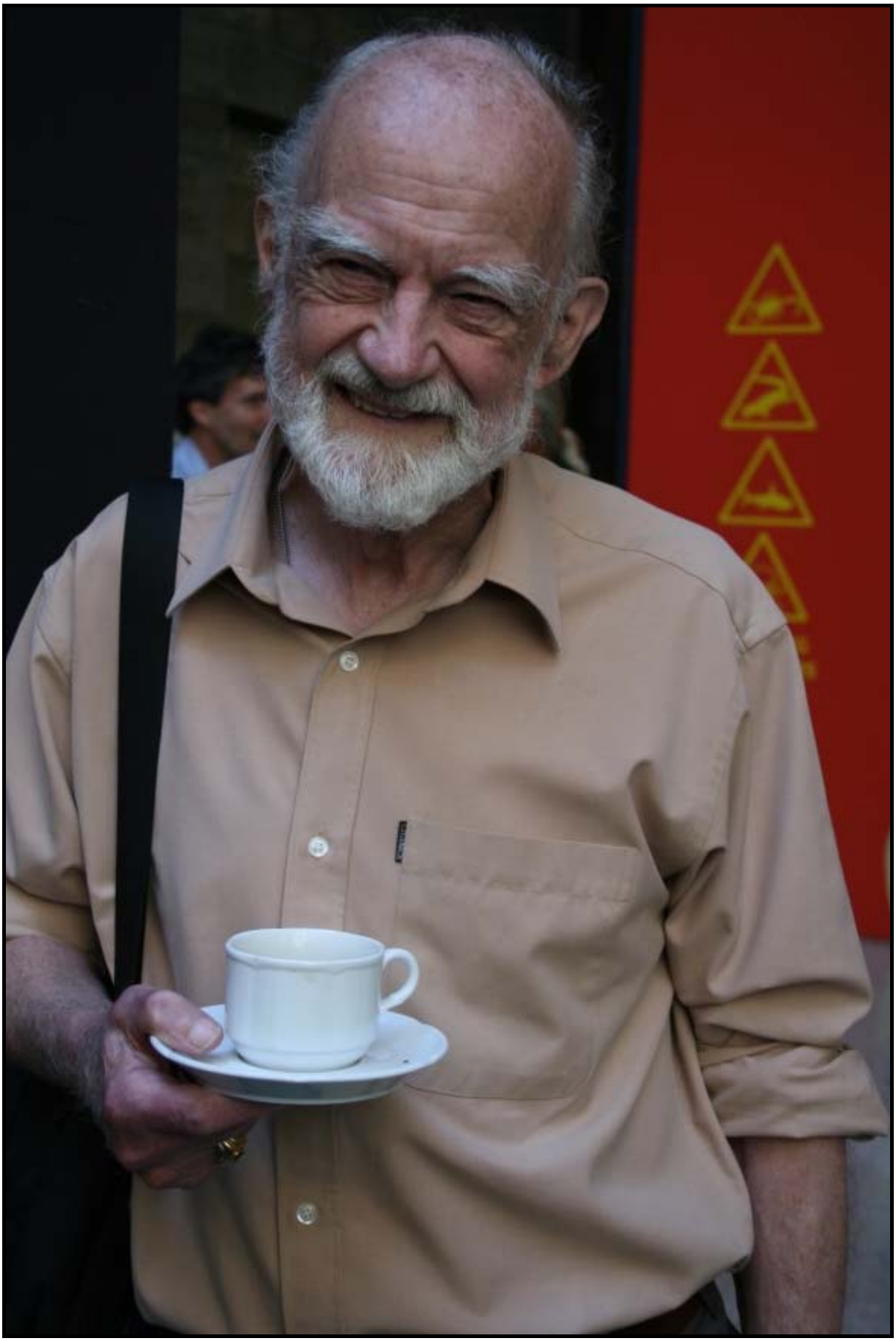

Professor Elery Hamilton-Smith AM – an exceptional man (28/12/1929 – 27/06/2015)

– Recent Literature –

This literature review was prepared by Sheryn Brodie using Web of Science – using keyword 'bat'. (New literature between May 2015 and October 2015)

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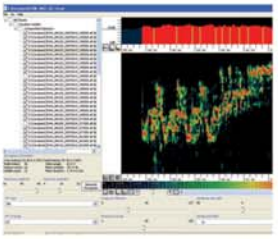
- Backed by 3 year warranty and legendary local Faunatech support.

Song Scope / Song Meter Training Unleash the full potential of these powerful tools!

Faunatech Austbat offers tailored bioacoustics training:

- Learn how to correctly configure your Song Meters, Echo Meters and peripherals.
- Explore and maximise Song Scope and Kaleidoscope call processing software.
- Flexible format - bring along your own recordings, or use our generic files.
- We can travel to a venue of your choice, or we can host you at our facility.
- Course notes included.



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BIOACOUSTICS MONITORING SYSTEMS