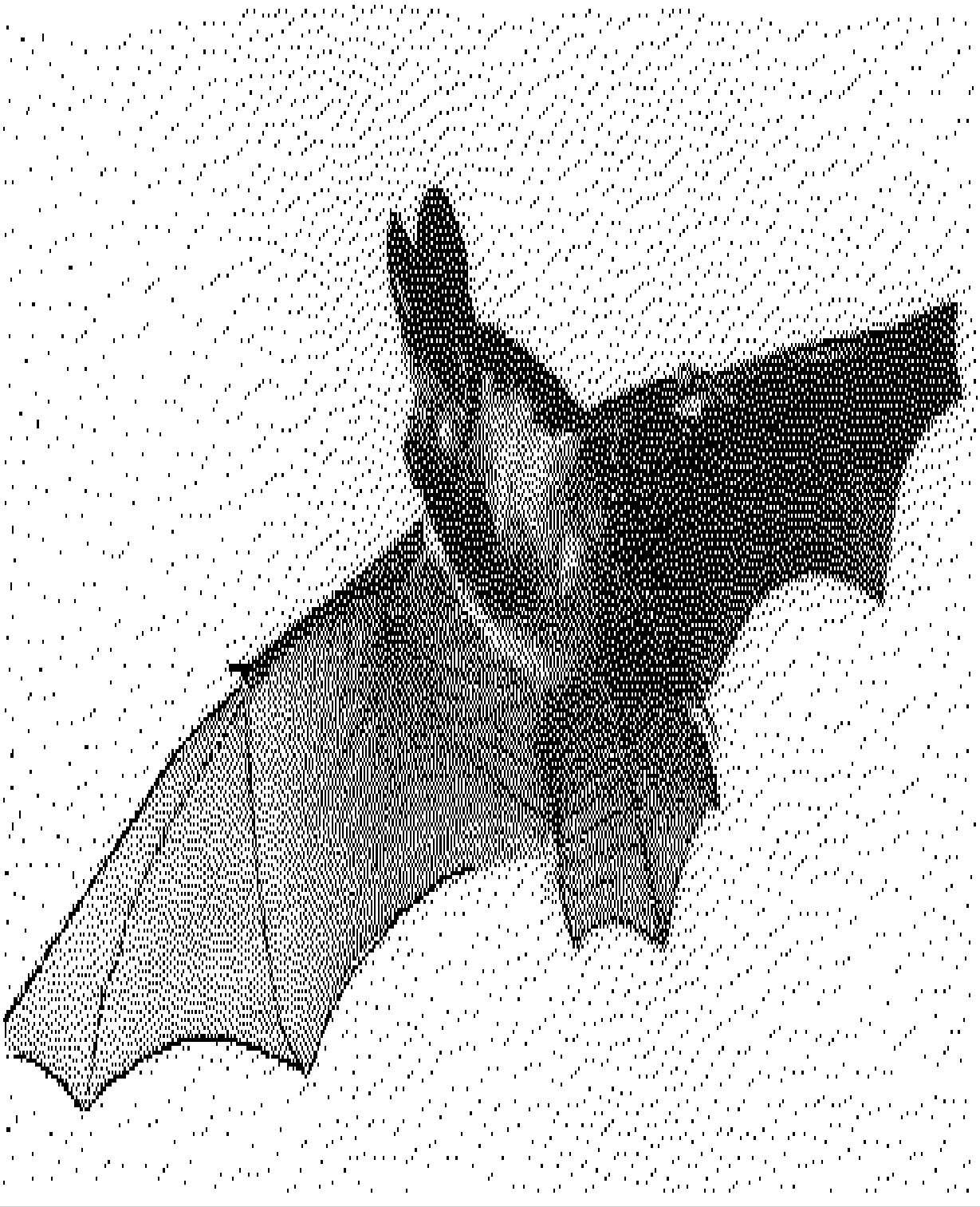
October 1995 **Number 5**

Australasian Bat Society Newsletter



EDITORIAL

Welcome to *Australasian Bat Society News* **5** for October 1995 - a new editor and a new look! My intention is to publish the newsletter regularly in March and October of each year, with deadline dates of February 21 and September 21 respectively. As each deadline approaches I'll be actively seeking material from some members, but copy in the form of research summaries, small papers, local news, conservation 'calls to arms', bats in the media, letters to the editor, and so on, are always welcome (see contributor's guide on the last page).

I would also like to take this opportunity to thank my predecessor, Dr. Phil Towers the inaugural ABS editor, for his great contribution in delivering the first four newsletters (with ***lots*** of help from Treasurer Jillian Snell). I have it on reliable authority from the two previous editors of Australian 'bat newsletters' (Phil Towers and Greg Richards), that two or three years in the hot seat is more than enough for one person. I look forward to a fruitful relationship with ABS members, before handing over to the next editor in about 1997/98 who will probably take the newsletter into the next millenium.

This issue has a very heavy bias towards New Zealand content, electronic detection and identification of microbats, but that just makes up for past absences! Much of the copy for this issue came down the (Internet) line on email from various members, and now that we are in print, I can apologise to those with email accounts that I persecuted during collation of this issue. Copy for number 6 is the responsibility of all you readers out there, not just the vulnerable ones on e-mail!

Lawrie Conole
Editor - ABS
☒

PRESIDENTIAL PROSE

Len Martin, *Australasian Bat Society* Presidential Report, September 1995

Spring News from the Great Northern Bat Camp by His Greyheaded Eminence President Len Polio-and-increasingly-glabro-cephalic Martin

Dear Friends and Colleagues, firstly, thanks to our outgoing inaugural editor, Phil Towers, for all the work he has put in to get The Australasian Bat Society [TABS] Newsletter into flight. However, I would be remiss if I did not also thank our ongoing inaugural secretary, Jillian Snell, for her efforts with the Newsletter, amongst many other things. Secondly, I wish our new editor Lawrie Conole welcome and every encouragement for the future.

The 10th IBRC has been and gone in Boston. Alas, I could not attend but various Ozbatpersons did, and I have had good reports of the conference from Helen Luckhoff and Les Hall, although I understand that the attendance was somewhat smaller than might have been expected. Les brought me back me a copy of the abstracts and program so, if you are desperate and really can't get the information elsewhere, contact me by:

Fone/Fax/Email [respectively (07) 3365 3128/3365 1766/martin@plpk.uq.oz.au].

Another fascinating item brought back from the 10th IBRC by Helen Luckhoff, is the Speleobooks! Bat and Cave Goods Catalogue, which lists and illustrates a superb collection of chiropterabilia [surely a neologism? - remember folks, you first read it here (surely a tautology?)]. Marvellous bat-jewellry, ornaments, door-knockers, posters, various gifts including guano [I have a likely recipient in mind for the latter], stickers, stamps [rubber], sweat and tee-shirts [including oversized!] and even a bat-tie [if Lawrie has space some of the foregoing may be illustrated here]. The catalogue lists almost 40 bat-books, including Pam Conder's Wings on Their Fingers and that most excellent of general bat-books, *Bats: a Natural History* by JE Hill and JD Smith @ US$25.00. The address is:

Speleobooks!
Post Office Box 10
Schoharie, New York
NY 12157-0010
USA
Fone, 518 295-7978; Fax, 518 295-7981.

Speleobooks! has an answering machine, giftwraps for free and accepts Mastercard and Visa. No folks, I don't get a commission, its just my enthusiasm for such super bat-enterprise. I wonder if we might not sell copies of TABS newsletter via Speleobooks! We could explore that possibility with their manager, Emily Davis Mobley. As a general policy I believe that we

should routinely produce substantially more copies of our TABS newsletter than are required for our current membership, so that we can distribute/sell copies internationally. We shall

also then be able to supply future new members with back issues. I believe that our current finances would stand such an expansion of publishing costs. However, this is a subject which should be discussed at

THE NEXT REALLY IMPORTANT BAT MEETING

which is, of course t**he Seventh [or Fifth?] Australian Bat Research Conference t**o be held next Easter in Naracoorte, South Australia. Terry Reardon has been telling me of all the marvellous things that are going to happen - gallons of Coonawarra reds splashing around [not that I will be allowed to be interested in that!] special visits to the bat caves and much else. So make your plans now to attend and thereby make the meeting match up to the high standards of its predecessors - the 4th and 6th-or-5th. Aside from fun-and-games and many superlative bat-papers, there are other serious issues which must be addressed at

A GENERAL MEETING OF THIS SOCIETY

for which some time will be set aside. In particular, you should all be thinking about the following items.

A formal constitution and rules for TABS: Elizabeth Hartnell drew up a draft version at our previous meeting and this should be finalised by the executive committee of TABS as soon as possible for circulation to members in plenty of time for discussion, modification and [one hopes] formal ratification in Naracoorte.

Changes to the membership of the TABS executive committee - I have already suggested that a new President would not be out of place. Presumably the executive should circulate a written call for nominations before the meeting..... or should they? Without a formal constitution and set of rules things drift. So folks, we need to get organised - please send any suggestions, concerns, comments etc to our secretary ASAP, so that the committee can organise itself and act appropriately in plenty of time for Naracoorte.

What about archives? These would include society records, copies of the Newsletter etc., but could go further. For example, many Batpublications like "*Macroderma*" are of an irregular-cum-informal nature and do not end up catalogued and accessible from libraries. Many important batbooks are rare or difficult to get. I currently have a huge collection of photocopied batpapers which I am belatedly organising. I am sure that there must be other near-dead-white-male-chiropterologists [a literary-allusion-type-

jokule folks, with apologies to David Williamson] with comparable collections. It would be a great pity for such material to go down the drain of dispersal, destruction: I don't think that the problem will be solved in the foreseeable future by developments in cyberspace. Any ideas? Should we have such a collection? Should it be available for reference? How might it be organised, where located?

Mention of cyberspace reminds me that I now subscribe to Batline an international bat-orientated, internet-mediated communication network with about 300-400 subscribers world wide. You can access it if your computer is networked [mine is] or via modem. Batline has the advantage of cheap and rapid communication amongst those with common bat-interests [note that I did not say instantaneous communication, for e-mail messages can circulate undelivered in cyberspace for considerable periods of time - hours!].

Batline has the disadvantage that you rapidly accumulate a vast number of e-mail messages, many of which are not immediately relevant to one's own interests, or which are trivial. I have made it worse for myself by deciding to copy-to-floppy all items that are relevant to our local ONARR [Orphan Native Animals Rear and Release] group, so that they can be downloaded onto ONARR's un-networked, non-modemised computer and easily read by their XTree software file-manager file-reader. I presently average anything up to a dozen messages a day. What worries me is that I am going to be out of town for three weeks in September - what happens in cyberspace if I don't plug in for that length of time? How many messages will be waiting for me in early October?

Despite these caveats, I believe that Batline's positive contributions to the International Bat-worker Community greatly outweigh any negative aspects. For example, last week I received a request from:

Minna J Hsu
Department of Biology
National Sun Yat-sen University
Kaohsiung 80424, Taiwan, ROC
Fax, 886-7-5319333;
hsumin@cc.nsysu.edu.tw

Minna is currently conducting ecological and population studies on insectivorous bats in Taiwan [where "habitat for microbats are vanishing rapidly mainly due to development"] and is asking for copies of papers for their bat library because, "It is very difficult for us to access bat literature in Taiwan". So folks, do as I did, and please supply whatever literature you

can to Minna. Among other things you will help with the development of a conservation plan for microbats in Taiwan. Alas, it is all too late for the Formosan Flying-fox. In reply to my query about megabats in Taiwan, Minna reported that, "*Pteropus dasymallus formosus* has become extinct almost over a decade now. Intensive hunting and habitat destruction have played a major role in wiping out this species".

Batline is organised for the dissemination of bat-information - a simple scattergun approach. Whatever one types in and sends to Batline goes to all 300-400 subscribers worldwide. There are dangers in this in that, if one has a message that one is driven to share, one can be tempted to send material that is not immediately relevant to bats. Alas, shortly after subscribing, one was so tempted, in the shape of a chainletter originating in Japan about the French Atom Bomb Tests. I succumbed to temptation and promulgated the letter on Batline, but alas went one step worse by titling the communication "French B*stards" with the "a" unsubstituted, and starting with "Bats are b*ggered by bombs as much as humans so I thought the following to be relevant".

I won't bore you with details of the [moderate] outcry on Batline [though some French members did unsubscribe], but I hastily disseminated an apology explaining the place of the word "b*stard" in Oz culture, that some of my best friends were b*stards [and French] and that I hadn't stopped watching "Le Tour de France". So folks, one can easily get into serious trouble on the internet, even to the extent of being sued for defamation [will I never learn? I may get a writ from the entire French population!]. So for batpersons everywhere a cautionary, and as-yet-unpublished-on-Batline [remember you first read it here folks]

Ode on the code for a new batliner

Welcome to our batline
With a little warning sign

Please be careful what you utter
As electric'ly you flutter
Through the convoluted mindsets
Of chiropt'ran cyberspace

For the micros
Might attack you
And the megas
Sharply whack you
If your sentiments offend in any way

In the meantime
We enjoy the Dreamtime

Of the Wings and Other Things
Batanic in the night

Back with feet on the ground and more mundane matters from the last newsletter.

The *Pteropus* oestrogen receptor gene remains unsequenced but one lives in hope. The *Pteropus* bat-birth data approach final analysis - Christmastime folks?

Is there any information on the location of winter [birthing!] camps of *Pteropus scapulatus*? The Dalby mob I reported in the last newsletter eventually left town in about the first week of May [as I predicted]. Where did they go? Peggy Eby is interested in this problem too. I visited Dalby last weekend [9/9/95] and saw the severe damage that the animals had caused to the trees in town. This is likely to be a continuing problem, and not just for Dalby. One long-term solution would be to immediately establish high-density tree planting programs along creeks located within the boundaries of country towns. The animals would then have the opportunity to spread themselves over a greater area, thereby minimising tree-breakage caused by their sheer weight when the roosting area is limited. So, immediate planting of fast-growing trees such as *Casuarina* and wattles (*Acacia*) with *Melaleuca* and red gum for the future. Mind you, why stick within the town boundaries?

The Ross-River-Virus-in-Flying-foxes research, mentioned last newsletter, approaches completion. It has produced interesting results which need follow-up with the latest molecular biology techniques. I hope to report on it all in Naracoorte. The results do not alter my original view that there is no need for panic.

Beth Crichton and Phil Krutzsch are editing a new book on Reproduction in Bats which is intended to come out next year. I don't yet know who the other chapter authors are but Ric Bernard of Rhodes University and I are co-authoring a chapter on sex hormone levels in bats - about which there is very little information. So, if any of you are sitting on piles of unpublished data that you would like to have cited, my Fone/Fax/Email addresses are listed above.More good news for Queensland Flying-foxes. The new

fauna protection act really does specify some hefty penalties for damaging or otherwise interfering with flying fox camps. However, the problem of policing remains and let's hope the act is enforced. The Hervey Bay City Council recently called for tenders for a

Tooan Tooan Flying Fox Colony, Hervey Bay Concept and Management Plan

The idea is that the colony be protected and could develop [in the nicest possible way] into a major tourist attraction - all a result, I suspect, of Les Hall's advice to the increasingly conservation-minded council. Your President was approached to act as consultant by a local environmental planning company who put in a tender and.... we won. So, it will be an interesting and I hope rewarding exercise. There is a local active branch of Wildlife Preservation Society of Queensland, so I'll be among friends and one would hope eventually to establish a branch of ONARR. Nevertheless it is disturbing that the council states that, "ongoing violence, directed at the flying fox, indicates a need for an information and educational program as well as physical protective measures (fencing etc)".

In September 1995, it's not just the Fr*nch who are B*stards**.**

I visited the Tooan Tooan camp last monday [11/9/95] and it is now surrounded by high wire-mesh fence. A remarkably beautiful piece of mangrove-clad creek right in the heart of town immediately behind the foreshore, with surrounding vegetation including substantial stands of mature *Callitris*. Within the area under council control there are extensive cleared/filled tracts available for revegetation and rehabilitation [eg. extension of mangrove areas] and for siting viewing platforms - without immediate disturbance to the animals. I was surprised at the size of the flying fox population present [always difficult to estimate, but probably in the thousands], predominantly *P. alecto* with about 5% *P. poliocephalus*, and there have been summer incursions of *P. scapulatus*.

Overall, the vegetation is in a good condition, but there is substantial damage to many of the mature Callitris on the western boundary of the camp, which abuts several houses. I would imagine that the occupants of these houses [unless they are bat-freaks like us] would not be enamoured by the sight, smell or sound of the bats, or by the highly visible tree damage. I was surprised at the amount of noise from the camp and the continual spooking of the animals throughout the day, with much movement and disturbance without obvious reason. Aside from the possible nuisance value of the noise to some of the general public, over-frequent movement must exacerbate defoliation. Tree damage is a major and continuing problem in the management of any flying fox camp, particularly where the area is limited as here. Again, as with the Dalby problem, the most likely solution is an immediate revegetation program with fast-growing sheoaks and wattle, plus slower-growing *Melaleuca, Eucalyptus* and *Callitris*.

I am very optimistic about the future of Tooan Tooan and Hervey Bay Council is to be congratulated on its initiative. One major plus about the site is that it offers the opportunity of placing viewing platforms and interpretive displays on all four sides of the camp at "safe" distances from the bats. This would greatly facilitate scientific study of the camp and educational visits by schools and offer tourists opportunity to view flyouts whatever directions they take. The camp could even become a major international study site. Certainly, the successful conservation and management of Tooan Tooan, together with its development as a major sustainable tourist resource would constitute a world first. Hervey Bay is already a world centre for whale watching. By adding bat-watching, tourists will be able to see two wonderful extremes of mammalian evolutionary adaptation.

Meanwhile, indicating how successful low-key wildlife-based tourism can be, the **ONARR - Wildlife Preservation Society of Queensland Batty Boat Cruises** to watch the Indooroopilly Island Camp flying-fox fly-out continue to run fully booked, with nos 57-59 planned for the Sunday evenings of October 29 and November 12 & 26 [$12.50, bookings on 07 3300 5318]. These trips were started by myself, Kay Martin, Les Hall & Helen Luckhoff in 1984 in conjunction with a WPSQ Wildlife Festival. On average they carry over 150, so a fair number of bods have been educated in flying-fox biology, with proceeds going to support a wide variety of conservation issues, not just bat-based ones.

The Batty Boat Cruises are among items to be mentioned in a presidential paper, "A history of Flying-fox Research in Queensland" to be presented on Saturday, October 14 at the Queensland Museum in

The Royal Society of Queensland Symposium "History of Natural History in Queensland".

This brief account will also touch on the relationships of flying foxes to the indigenous people, Francis Ratcliffe's great work, John Nelson's pioneering studies, the various works of Greg Richards, Les Hall, and myself & colleagues, ONARR's contribution and Jack Pettigrew's "Flying Primate Theory". Oh yes, I almost forgot. I am taking early retirement from UQ on 31/12/95. This will free me of administration & teaching and enable me to continue bat-research full-time during my declining years. See you in Naracoorte.

Len Martin
President - ABS ☒

More Advanced Notice of the 7th Australasian Bat Conference Naracoorte, South Australia

10-12th April, 1996

Plans for the next bat conference are well underway with dates set and a great venue secured.

The conference will be held in the week following Easter next year and we have use of the recently renovated Naracoorte Town Hall. The proposed program for the conference follows:

Tues. 9th April, 6-8pm: Registration/ice breaker; wine tasting and light food

Wed. 10th April, 9am-4pm: Papers
4 - 5 pm: ABS executive meeting
7pm - ?: Conference dinner

Thurs. 11th April, 9am - 1pm: Papers
2:30 - 10pm: Trip to Naracoorte Caves Reserve.

Participants will be divided into two groups, each of which will visit in turn the World Heritage listed Victoria Fossil Cave (led by Dr. Rod Wells), and the new Bat Interpretation Centre which is linked to infra red video cameras inside the Bat Maternity Chamber. There will be a barbecue at the reserve after the tours. The Ranger in charge at the reserve has offered an opportunity for a limited number (up to 30 in smaller groups) of delegates to make a brief visit to the maternity chamber.

Fri. 12th April, 9am - 1pm:Papers and workshops. Conference end.
2pm - 5pm: free time to visit wineries, Bool Lagoon local attractions
5pm until late: field demonstratioms at the nearby Penola State Forest.

Potential workshop topics include: ultrasound survey methods and ANABAT call libraries; Bat Action Plan/bat conservation issues; microbat rehabilitation; artificial roost provision. Workshops will be planned to have some introductory or opinion papers given initially, and conducted so that there are real outcomes. If anyone wants to run a workshop please contact us.

A variety of accommodation is available within a short walk of the conference venue, which itself is in the main street of Naracoorte. Registration forms, calls for papers and posters and local area information kits will be sent out later in the year. The conference, because of its location would lend itself for delegates to bring their families. Childcare can be arranged. Airfare discounts will also be available for flights between capital cities. We will arrange bus transport from Mt Gambier for those who fly to there.

Organisers:

Lindy Lumsden
ph (03) 9 450 8694
fax (03) 9 450 8737
email: lxl@dce.vic.gov.au

Terry Reardon
ph (08) 207 7460
fax (08) 207 7222
email: treardon@zoology.adelaide.edu.au

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INFORMATION REQUESTS

Bat literature to Taiwan

(From an email message to the editor)

I am taking this opportunity to write to you since I am interested in your bat research. I am currently conducting ecological and populations studies on insectivorous bats species (*Rhinolophus luctus formosae, R. monoceros, Coelops frithi formosanus, Hipposideros armigerterasensis*, and

Miniopterus schreibersii fuliginosus) in Taiwan. The habitat for microbats are vanishing rapidly mainly due to development. We are also developing a conservation plan for these microbats in Taiwan.

We are collecting research papers on bats and I would appreciate if you could kindly send copies of your papers for our bat library. It is very difficult for us to access bat literature in Taiwan.

You are most welcome to visit Taiwan and we would be delighted to show you our study sites. I look forward to hearing from you soon and close here with kind regards.

Minna J. Hsu, Ph.D.
Associate Professor
Department of Biology

National Sun Yat-sen University
Kaohsiung 80424
Taiwan, ROC.
Fax: 886-7-5319333.
E-mail: hsumin@cc.nsysu.edu.tw
☒

Bat banding injuries

Does anyone have any information on injuries to bats caused by banding with alloy wing bands. I have spoken to a number of people who have found, or who believe that banding causes injuries at an unacceptably high rate, as well as a couple of folk who think that banding is no problem. My own experience is that banding seems to cause injuries to many animals, often long after banding. Would be interested to hear any replies on the subject for a report to the Australian Bird & Bat Banding Scheme (ABBBS).

David Hosken
Department of Zoology
The University of Western Australia
Nedlands 6007, Western Australia.
☒

Bat Faecal and Guano Samples Wanted

In collaboration with colleagues in North America, I am involved in two studies concerning the bacterial flora of the gastro-intestinal tract of bats. One study aims to determine the species composition and genetic diversity of the bacterial flora of bats.

To this end, we wish to obtain faecal samples from a wide variety of bat species of diverse geographic origins.

The second study aims to address questions concerning the population structure of one or two bacterial species using bats as a host. Enteric bacteria such as *Escherichia coli* occur in two very different habitats, the gastro-intestinal tract and the environment. We have little knowledge of the extent of overlap in strain composition that occurs between these two habitats. Cave dwelling bats provide an excellent experimental model for investigating these questions. Bats are often the dominant, if not only, mammalian species using caves and there is often a large build-up of bat-produced guano to be found in these caves. We, therefore, have a system where it is easy to sample and compare the flora of the bat gut and the flora of the environment knowing that most of the 'input' to the guano deposits comes solely from bats.

Lawrie Conole
(ABS Editor)

Our first priority in this project is to sample bat faeces and guano from as many cave systems as possible in order that we can identify one or two suitable sites that would be the focus of a more intensive study in the future.

The samples are easy to collect and I will supply the necessary sampling equipment. Please contact me if you are interested in becoming involved in either project or wish further information.

David Gordon
Division of Botany & Zoology
Australian National University
Canberra, ACT 0200
Phone: (06) 249-3552
Fax: (06) 249- 5573
Email: David.Gordon@anu.edu.au
☒

AROUND THE TRAPS

WESTERN AUSTRALIA

A number of bat related projects have been undertaken in recent years. Two relate to bat predation and insect acoustic signals and a third investigated the activity patterns of a number of local species. (One published, only two to go!). Currently two projects are being undertaken. An investigation of the physiology of torpor is being

David Hosken
Department of Zoology, The University of Western Australia. Nedlands 6007, Western Australia

carried out by an honours student, Shelly Edward, under the auspices of Phil Withers. The other is a PhD project investigating aspects of bat reproductive biology. This project is being carried by David Hosken and is supervised by Jamie O'Shea. Whenever possible Norm McKenzie is roped into the department (usually the lure of animals for him to stretch is effective). Recently Norm, Stuart Anstee (a recent graduate) and David Hosken spent a week in the Pilbara looking at the Orange Horseshoe-bat *Rhinonicteris aurantius*. The data from this field trip are currently being analysed. ☒

Greg Richards
(ABS Vice-President)
CSIRO Wildlife & Ecology.

VICTORIA

During the spring - autumn of 1994/95, Grant Baverstock and I experimented with vehicle-mounted, bat detector transects in fragmented grassy woodlands in south-west Victoria. Using a method based loosely on that developed by Chris Corben in south-east Queensland, it consists basically of driving along

slowly with the detector out the window! Distance covered and time elapsed are used in conjunction with the number of bats detected to calculate relative density measurements in the form of x = bats/km/h. This technique is ideal for open woodland ecosystems where the road or track corridor is undefined in the airspace, but would probably tend to over-represent some bat species being chanelled along road intrusions into denser habitats. A significant advantage of the method is that it tends not to repeatedly record the same individuals in a single location as in a measure of activity, and does give some idea of the distribution of bats in an area of habitat. Also, when bats travel with the car for a few seconds, excellent, clean recordings often result. We see the technique having applications in studies of long term trends, as well as for rapid surveys of forest and woodland habitats (spotlight out one window, bat detector out the other!).

During stormy weather in autumn this year, we captured a number of Eastern False Pipistrelles *Falsistrellus tasmaniensis* and Gould's Long-eared Bats *Nyctophilus gouldi* at a dry woodland site at Bannockburn on the plains near Geelong, where more than a decade of trapping has failed to record them previously. Does this resuscitate the old migration theory for *F. tasmaniensis*, or does it just shed a bit of light on the effect of weather on capture rates, and the contrariness of bats? ☒

The 10th International Bat Research Conference: An Australian perspective

The 10th International Bat Research Conference was held at Boston University in August 1995, and was attended by almost 400 delegates, including an intrepid contingent of 14 from down-under. The contributions by Australasians included :

Peggy Eby - "Dispersal of large- and small-seeded diet species by Pteropus poliocephalus in fragmented forest habitat" (poster) and a paper entitled "The significance of associated gross- and fine-scale habitat use by P.poliocephalus for conserving forest ecosystem function in eastern Australia"..... still keeping us at the forefront of pteropodid research.

Les Hall - "The bats of Gua Payau (Deer Cave), Sarawak, Malaysia" (poster) ..... a challenge

for others to come up with a site having more than 12 species in the one roost.

Sue Hand - "Australian fossil bats: New pieces for ancient puzzles" (symposium paper) ..... more on Gondwanan connections and a possible vespertilionid/mystacinid from the Miocene record at Riversleigh.

Lindy Lumsden (and Andrew Bennett) - "Roost site selection of two species of vespertilionids in a fragmented rural landscape in southern Australia" (paper) ..... great compliments afterwards on this excellent work.

Doug Mills (with Rob Cunningham, Tony Norton and Harry Parnaby) - "Temporal and spatial variation in surveying for forest-dwelling insectivorous bats implications for survey design" (paper) ..... a good example of the value of stratified sampling and the use in tandem of traps and detectors in fauna survey work.

Deborah Morris - "Reconstruction of the evolutionary stages leading to chiropteran flight" (paper) ..... an interesting chronicle on how the shape and position of the shoulder girdle changed as our unique flying fauna evolved from terrestrial mammals.

Colin O'Donnel - "Identification of cryptic sub-groups in a population of a threatened bat

Chalinolobus tuberculatus in a New Zealand rainforest" (paper) ..... a pace-setting study both in its revelation of how bat populations segregate roosts and space, using tree-climbing methods that convinced me to stay with safer research such as taxonomy!

Stuart Parsons - "A comparison of the performance of four brands of bat detector under field conditions" (paper) ..... at last a rigorous study that shows that all detectors basically do the same job.

Greg Richards - "The conservation biology of bats in Australia: Are recent advances solving our problems?" (symposium paper) ..... no they are not; we may have advanced tools and techniques, but even if funding ever became adequate, the shortage of researchers will thwart the resolution of current problems.

Jane Sedgely and Colin O'Donnel - "A technique for harp trapping at bat roosts in tall forest canopy in NZ" (poster) ..... again our Kiwi mates are showing how to resolve this most

difficult of research problems, and reinforcing my decision to stay at a desk (gulp!).

Hugh Spencer (with Birgitta Flick) - "Secretion of marking fluid from the penis of the Spectacled Flying Fox, *Pteropus conspicillatus*" (poster), a video entitled "Midwife care of birthing in the Black Flying-fox, *Pteropus alecto*", and a presentation at a conservation education workshop entitled "Hand rearing and release of orphaned flying foxes (*Pteropus* spp) in eastern Australia: A significant act for species conservation or merely misguided efforts?" ..... great interaction with those who need to resolve problems with captive bats.

Hugh Spencer (with Chris Clague and Roger Coles) - "Survey of bat fauna in the wet tropics World Heritage Area of north Queensland, Australia" (paper) ..... a most important project that is providing important information, and adding another new genus to the Australian fauna (*Mosia nigrescens*?) which awaits confirmation with a specimen.

Jessica Worthington-Wilmer (with Craig Moritz and Les Hall) - "Genetic evidence for extreme population structuring in the threatened Ghost Bat, *Macroderma gigas*: Implications for conservation" (paper) ..... probably one of the most vital conservation projects done in recent times, because it shows that M.gigas populations are discrete units based upon maternity roosts.

Although he is an expatriate I will also include Chris Corben because he still retains his homeland's accent; he presented "Some comments on the use of echolocation calls to identify bats" (paper) ..... words of warning from the guru re both the regional variation in call structure, and variations between search phase and terminal buzz.

Abstracts of all papers presented at the conference will be published in the US *Bat Research News.*

Steve Hamilton, Helen Luckhoff and Natasha Schedvin from Australia, and Frank Bonaccorso and Iliaiah Bigilale from Papua New Guinea also attended.

The next conference is in Brasilia in 3 years time - start saving!

BOOK NOTICE

Danny A. Brass, DVM . (1994*). Rabies in bats--natural history and public health implications*. (Livia Press: Ridgefield, Connecticut).

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Section V - Public Health Concerns

24) Bat Rabies and the General Public
25) Concerns in Cave Exploration

Danny A. Brass, DVM . (1994*). Rabies in bats -- natural history and public health implications*. (Livia Press: Ridgefield, Connecticut).
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A call exchange network for bat ecologists and fauna managers: the South-eastern Australian bat call library.

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AUSTRALIA

Kutt (1993) and Richards (1993) pointed out in a previous newsletter that there is a need for a national archive of bat calls. After a season of intensive field work using the ANABAT electronic bat detector (Titley Electronics, Ballina, NSW), some of the bat species known to occur in the area still haven't been recorded, and recordings of their calls are not available regionally. Given that geographical variation may exist within species (Richards 1993), we chose to record our own reference calls. Using the World Wide Web (hypertext-based Internet protocol) facilities at Charles Sturt University, we have made these calls available in a bat call library as an exchange network. We hope other researchers will find the calls useful, and will be prompted to contribute their own bat calls to the library

The intention of this call library is to create a central reference source of south-eastern Australian bats calls (in ANABAT format) for use by researchers and wildlife managers. Other bat researchers are invited to contribute to the library. This call library will not provide the facilities or security of the National Archive of Bat Ultrasound (NABU) (Richards 1993), rather it is an exchange network of bat calls, relying on individual researchers to provide data.

The library currently (28 July, 1995) contains more than 30 bat calls of the 7 species. Thanks to Chris Corben the newest version of the ANABAT software (version 5.2a) is also available on line.

The network directory can be accessed via the World Wide Web (WWW) using a browser such as Lynx, Netscape or Mosaic. This provides the user with simple access to the library, on-line instructions for contributing and/or extracting bat call files, access to current discussions, an opportunity to offer suggestions, and much more. Simply use the following URL:

http://batcall.csu.edu.au/batcall/batcall1.html

The network directory can also be accessed via anonymous FTP (File Transfer Protocol), although this is a little more complicated than accessing it via the WWW. To access the library via FTP, go to

batcall.csu.edu.au

and enter the following commands (shown in bold):

login: **ftp**
password: **<your email address>**
cd pub/batcall/files

To download a specific call file, enter the following commands:

bin
get <the name of the call file>

or to download all call files:

mget *.bin

To download the file listing the contents of the library, enter the following:

ascii
get content.txt

You can send us your call files on a 3½" floppy disk via snail mail (see address above), or as email attachments encoded in MIME or UUENCODE format to the following email address, which can also be used to offer suggestions and ideas for improvement of the library:

aherr@chaos.mur.csu.edu.au

References

Kutt, A. (1993) Notes on recording reference sequences of bat echolocation calls and bat activity at different height levels. *Australasian Bat Society Newsletter* **2**: 16-23.

Richards, G. (1993) NABU: A National Archive of Bat Ultrasound. *Australasian Bat Society Newsletter* **2**: 2-3.

Mid-winter copulation by microbats.

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One bright moonlit Saturday night in July I was out with a birder, spotlighting for non-flying mammals and birds. My hearing is somewhat impaired at the very upper end of the range, but Keith Martin could hear a loud, incessant squeaking noise. We tracked it down to a dead tree, and in a down-facing spout were a pair of copulating Gould's Wattled Bats *Chalinolobus gouldii*. The male had hold of the hair on the females nape with his teeth, and her head was quite wet (from his salivation I presume). He was also mantling her with partly open wings, and holding on to the substrate with his feet and thumbs. They were horizontal with the male on top - a fairly standard mammalian technique. When we first saw them the male was pelvic thrusting at about 1 second intervals for about 3 minutes. After that the vocalisations mostly ceased (according to Keith) and there were long pauses with occasional thrusts; the male was still hanging on tight. We left them to it after about 5 minutes. The temperature was about 8-10 degrees Celcius, calm, rising fullish moon.

I've never observed this kind of activity in mid-winter by microbats before, although there are references to it in the literature. Apparently mid-winter copulation is commonplace in hibernacula in Europe. ☒

Bat flight speed measured outside the Flinders University Sports Centre.

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Bats, probably Gould's Wattled Bats *Chalinolobus gouldii*, patrol regular circuits at Flinders University most of the year, at locations where there are floodlights outside the Sports Centre and Biology building. The calls have been recorded using the Anabat system several times a year since 1991. The calls are frequency modulated with a base frequency of 27-31 kHz, a pulse length of 8-10 msec and an interpulse spacing of about 100-300 msec when the bats are in search or patrol phase of their calls. The calls often alternate a lower call (for example 27.5 kHz base frequency) with a higher call (for example 30 kHz base frequency).

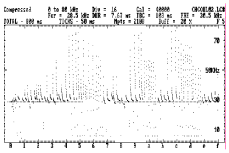
The flight path of these bats outside the Sports Centre in 1995 provided us with an ideal location to measure flight speed. The northern face of the Sports Centre has a floodlight at its eastern and western ends, with the distance between the 2 floodlights being approximately 27 m: the length of the wall is 25.8 m and each floodlight is attached to the roof approximately 0.6 m beyond the end of the wall. The ground alongside the northern face of the Sports Centre slopes down from east to west, with the eastern floodlight about 11 m above ground level and the western floodlight about 13.5 m above ground level.

On March 28th and 29th 1995 we measured the flight duration of bats flying from the western end of the Sports Centre to its eastern end, along the northern face. The observers stood about 30 m north of the Sports Centre with a stopwatch, from where we could see each of 3 bats as they passed in turn across the floodlight at the western end, flew along the northern wall and passed across the floodlight at the eastern end.

The flight times for the 27 m flight ranged from 2.4-3.6 sec [9 observations] with a of mean 2.9 sec, giving a flight speed of approximately 9.3 m/sec. On the 28th and 29th March 1995 we also recorded the calls of these bats through a Batbox III detector in order to get information about the timing of ultrasonic pulses from the bats. These recordings displayed the timing of calls from three bats, distinguishable by differences in amplitude, with the bat closest to the recorder giving the largest signal. The interpulse intervals ranged from 0.1-0.3 sec, but typically 0.2-0.3 sec. At a flight speed of 9.3 m/sec, an interpulse interval of 0.2 sec translates to a flight distance of approximately 1.9 m between pulses.

These observations are not extensive; they were carried out as part of a third year undergraduate practical class, and they were terminated by rain on the 2nd evening [29th March] when we had discovered that the most accurate way to take observations was to stand some distance from the wall and watch the bats as they flew across the two floodlights. Clearly many more measurements could be made, and probably will be in the future. Never-the-less these brief observations show that the species we observed, probably *Chalinolobus gouldii*, has an average open-field flight speed which is similar to many of the species tabulated [table 1] by Ulla Norberg in "Wingform and flight mode in bats" [chapter 4

in Recent Advances in the Study of Bats, ed MB Fenton, P Racey, JMV Rayner, 1987, Cambridge University Press]. ☒



THE BAT DETECTOR PAGE

It is my intention that the newsletter can carry this bat detecting forum on a regular basis. Participation can be by sending in questions or problems, or responses to previous issues. Guest "detectives" will be invited to make contributions to the column. In this way, the collective experience of bat detector practitioners in this developing field can be shared around. Eventually, the information collected may result in a detecting field guide to Australian bats. In the first of these columns, a range of background information, general issues and opinions are canvassed by Chris Corben (the designer of the ANABAT system), and a number of frequent users of the technology: Martin Rhodes and Maritza de Oliveira from Queensland, Ken Sanderson from South Australia, and Alexander Herr (Herry) from New South Wales. Between the five of them, they have considerable and varied experience of detecting in Australia at its inception, and on through to the rapidly expanding field that we see today. ☒

Some Thoughts From Ana-Batman.

We now have ready access to equipment which facilitates the quantitative analysis of microbat vocalizations. We hope this will make it feasible to identify microbats in an unobtrusive way, especially through identification of echolocation calls.

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I think there is a common perception that resolution of the technical hurdles has automatically made acoustic identification a routine procedure, easily performed by untrained workers, or even machines. Unfortunately, it isn't that simple. What we need now is the systematic development of identification techniques and a rigorous assessment of how successful acoustic identification can be, taking into account all the sources of variation that will be encountered.

I'd like to make the following observations:

a) In general, echolocation calls vary greatly, depending on the circumstances under which the bat is observed. The simple dichotomy of "search phase" and "approach phase" calls is effectively unworkable. We need to understand the full spectrum of call types given by each species (and perhaps also by different groups within a species) in order to understand where confusion with other species is possible, and how it might be avoided.

b) Taxonomic affinities cannot be assumed to relate in a meaningful way to the types of calls being produced. Often, closely related species will have distinctly different calls, while species in different genera, or even families, may be easily confused.

c) Visual observation of calling bats will often help identification. This is partly because species with similar calls are often NOT closely related, and thus look different, and partly because knowledge of a bat's circumstances will often give clues about the types of calls being detected. For example, some bats will give very brief, steep FM calls even in very open situations, while others will only give such calls when in a much more cluttered environment, or while performing certain types of manoevres.

d) It sure helps if the bats you are messing with have NAMES! Development of an effective taxonomy and of in-hand identification criteria will greatly aid development of acoustic identification techniques.

With the above in mind, here are some suggestions:

1) It's no longer appropriate to try to characterise the echolocation calls of a species by presenting a "typical" example. This hides the wide variability which needs to be taken into account in the identification process. Rather, there's a need to illustrate the RANGE of call types given by each species and to document how the calls vary under different circumstances. For identification purposes, we need to move on from a tendency to describe individual calls in intimate detail to a strategy of documenting the dynamics of echolocation and the way our perception of it is influenced by the equipment we use.

2) We need a better terminology to help us communicate about bat calls. Terms like "search phase" and "approach phase" are ineffective in conveying the broad spectrum of call types which most species are capable of producing. We could well benefit from the use of a richer vocabulary in describing call types than the usual combinations of "FM" and "CF".

3) We could benefit from the application of standard avian field identification techniques to bats. Although bats are much harder to see than birds, useful clues to identification can be gleaned using the same sorts of skills employed by those who routinely identify raptors or seabirds. The use of such clues, especially

together with acoustic recordings, will ultimately lead to a much better understanding of microbat ecology, and at the same time improve our understanding of identification criteria, both acoustic and visual.

4) More than anything else, what we need is greatly improved communication between those developing acoustic identification techniques. I fear there is a tendency for people to hide what they are doing in this area, whether out of a desire to protect their discoveries or from a fear of revealing how much difficulty they are actually experiencing. Such secrecy is counter-productive. Open discussion will enhance everybody's learning opportunities, while helping to put it all in perspective. Very importantly, people need to get around a natural fear of being seen to be wrong. Making mistakes is a very important part of the learning process, as long as the mistakes are acknowledged and the reasons for them are investigated.

In summary, acoustic identification of microbats is DIFFICULT and requires a lot of experience, as does the acoustic identification of birds. While birds are routinely surveyed using vocalisations, such surveys still require the use of trained observers who have mastered the necessary skills, using knowledge accumulated over many decades of ornithology. It is inherently much more difficult to identify bats than birds, and the development of bat identification criteria is at a much earlier stage. Rather than expecting too much at this time, we should aim to nurture the art of acoustic identification towards its full potential. ☒

Surveying Bat Activity In Belair National Park, South Australia.

This is a brief account of bat surveys conducted in Belair National Park in the Mt. Lofty Ranges near Adelaide, South Australia in 1993-5. A more detailed account will be published in *The South Australian Naturalist*, journal of the South Australian Field Naturalist Society. The location in Belair National Park was selected because I could walk to it from my home, and initial surveys showed that bats were regularly to be found at Playford Lake (2.5 ha area) just inside the western entrance.

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Using the Anabat II system, I made preliminary observations in spring 1993, and then in autumn 1995 supervised six Flinders University undergraduates (Kate Marshall, Rebecca Manson, Amanda Miller, Monette Swanson,

Judson Wheatley and Zoe Woodstock) who surveyed bats for Animal Behaviour projects, looking for correlations between bat activity and weather (an increase in wind correlated with decreased bat activity), and between bat activity and insect abundance (no correlation).

In total we surveyed bat activity for 27 evenings, just after dusk, for a period of 1-1½ hours using the Anabat system. Our Anabat recordings provided evidence for the presence of five species of bats in Belair NP. These are (1) the White-striped Freetail-bat, *Tadarida australis*, call base frequency approx 12 kHz, (2) the Little Freetail-bat, *Mormopterus planiceps*, call base frequency approx 27 kHz, and pronounced constant frequency final segment, (3) Gould's Wattled Bat, *Chalinolobus gouldii*, call base frequency approx 30 kHz, with alternate pulses typically 1-2 kHz higher in frequency than the neighbouring pulse, (4) a species of uncertain indentification, call base frequency of 40-42 kHz, possibly the Southern Forest Bat, *Vespadelus regulus* and, (5) a species with a call base frequency approx 49 kHz, probably the Chocolate Wattled Bat, *Chalinolobus morio*.

The most common species was number 4, which was detected on 26 of 27 (96%) evenings, but we are uncertain of its identity, because a number of candidate species exist. These include *V. regulus* and the Common Bentwing-bat, *Miniopterus schreibersii*. One *V. regulus* was caught in the park in February 1994 by Terry Reardon (who also caught two Lesser Long-eared Bats, *Nyctophilus geoffroyi* and one Chocolate Wattled Bat), and *M. schreibersii* was suggested by Martin Rhodes, following an examination of our Anabat files, based on his experience with Queensland *M. schreibersii*. The latter suggestion does not have other support, however, since *M. schreibersii* has not been reported in the Mt Lofty range for many years, and furthermore, *M. schreibersii* from Naracoorte have calls with a base frequency *circa* 50 kHz. In addition to the uncertainty surrounding the owner of call 4, it must be noted that some calls with a base frequency around 27-30 kHz, and thus presumably *C. gouldii* or *M. planiceps*, could not be unambiguously identified according to species.

These observations suggest that in South Australia bat identification with the Anabat system is progressing well, but there is need for caution in identifying bats, and corroboration of identification with trapping, as well as a need for more Anabat recordings of individuals of known species. Finally, as mentioned previously on Batline, bat detecting systems have at least two other limitations: first, they do not provide a count of bats present, only total number of bat passes, and second, some species (eg. *N. geoffroyi*) are not well represented because of their soft calls.

Our observations were made possible through the cooperation of the South Australian National Parks & Wildlife Service. Terry Reardon (South Australian Museum) and Martin Rhodes (University of Queensland) provided assistance with identification of Anabat calls. ☒

Bat Detector Hints:

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While bat detection is very useful and convenient for survey work, using detection alone does not represent a complete bat survey. Detection must be used in conjunction with direct capture. No matter how good your detector system, loud calling bats are picked up at a greater distance and more often, and soft callers are may be completely missed or underrepresented in numbers of passes.

If you are sampling a particular habitat type, detectors must be set up such that the detection distance remains within the bounds of the sampling area, horizontally (ie vegetation type/structure) and particularly vertically (ie Was that bat above or below canopy?). In some cases, below canopy occurrence can only be determined by visual observations while recording or by below canopy capture.

Use the audio recording facility of your bat detector!! Do this to record as much information as possible during recording sessions. Trying to remember where you were, characteristics of the area, visual observations and such is a risky habit. Writing down field notes at night is a bit to fiddly for me.

Keep bat detector microphones dry - and if they do get wet - if it is only rainwater or dew, dry it ASAP. One way to dry detector microphones is to place detector in a sealed container with open silica gel. It is best to avoid this. If any discoloration or corrosion is noted on the microphone film, it will have to be replaced in the interest of reliable recordings.

Happy detecting. ☒

Microchiropteran Bats & Forestry In Queensland

The Fauna Conservation and Ecology Section is a research unit of the Queensland Forest Research Institute (QFRI).. The section's interest in microchiropterans evolved from the work of Chris Corben, developer of the Anabat system. Anabat has been primarily employed by the section for species inventory. Over the past few years however, attention has focused on the impacts of forest operations on micro-bats; a requirement of the Nature Conservation Act and the National Forest Policy Statement.

The past 10 years of microchiropteran inventory and ultrasonic call identification has produced an extensive collection of calls. This collection is being organised into a library of reference calls and relational database. Both will be made available to users outside QFRI in the near future.

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A concurrent task is the collection of micro-bat voucher calls, their identification and characterisation using the Anabat system. We are currently targeting problematic members of the genera *Nyctophilus, Scotorepens, Mormopterus* and *Chalinolobus* in south east Queensland. Consequently, more voucher calls need to be collected.

Other work being undertaken by this section includes examining the differences in micro-bat assemblages in habitats with different logging histories. Preliminary results indicate that multiple and simultaneous sampling of treatments is essential. ☒

Some Thoughts On The Issues Of Bat Call Identification:

One important part in the identification of bat calls is the availability of reference calls. A large number of reference calls from different species and regions is required to deal with the interspecific and intraspecific call variation. Such a reference collections should be readily accessible for bat

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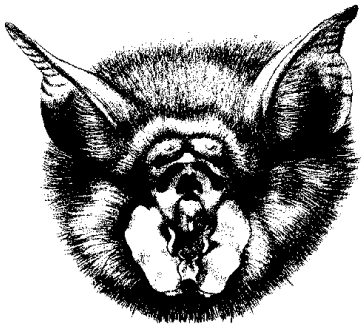
researchers and wildlife managers.

With the help of the reference collection intraspecific call variation can be analysed for different regions. For each species distinctive call regions could be identified. Regional keys for the call identification can be prepared to simplify the ultrasonic detection method and therefore to gain more information on the ecology and distribution of bats. Furthermore these keys will provide

much needed information for bat conservation. Such a key should be dichotomous and could describe a call by certain parameters like frequency range (max-min), slope, duration, time between calls (tbc), etc., as well as the key would provide pictures showing the identification features. The key of course would depend on the detection system. ☒

WHAT *WERE* THOSE BATS YOU MENTIONED IN THE NEWSLETTER?

Chalinolobus gouldii Gould's Wattled Bat
Chalinolobus morio Chocolate Wattled Bat
Chalinolobus tuberculatus Long-tailed Bat
Coelops frithi formosanus Tail-less Leaf-nosed Bat
Craseonycteris thonglongyai Hog-nosed Bat



Falsistrellus tasmaniensis Eastern Great Pipistrelle
Hipposideros armiger terasensis Himalayan Leaf-nosed Bat
Macroderma gigas Ghost Bat
Megaderma spasma Malay False Vampire
Miniopterus schreibersii fuliginosus Common Bentwing-bat
Mormopterus planiceps Little Freetail-bat
*Mosia (*syn. *Emballonura) nigrescens* Lesser Sheathtail-bat
Mystacina robusta Greater Short-tailed Bat
Mystacina tuberculata Lesser Short-tailed Bat
Nyctophilus geoffroyi Lesser Long-eared Bat
Nyctophilus gouldi Gould's Long-eared Bat
Pteropus alecto Black Flying-fox

Pteropus conspicillatus Spectacled Flying-fox
Pteropus dasymallus formosus Formosan Flying-fox
Pteropus hypomelanus Variable Flying-fox
Pteropus intermedius Flying-fox
Pteropus lylei Flying-fox
Pteropus poliocephalus Grey-headed Flying-fox
Pteropus scapulatus Little Red Flying-fox
Pteropus vampyrus Malayan Flying-fox
Rhinolophus monoceros Little Taiwanese Horseshoe-bat
Rhinolophus luctus formosae Woolly Horseshoe-bat
Rhinonicterus aurantius Orange Horseshoe-bat
Scotorepens sp. Broad-nosed Bat
Tadarida australis White-striped Freetail-bat
Taphozous theobaldi Sheathtail-bat
*Vespadelus (*syn. *Eptesicus) darlingtoni* Large Forest Bat
*Vespadelus (*syn. *Eptesicus) regulus* Southern Forest Bat
*Vespadelus (*syn. *Eptesicus) vulturnus* Little Forest Bat

NEW ZEALAND NEWS

PEKA PEKA

The Newsletter for New Zealand Batworkers

Peka Peka. The Newsletter for New Zealand Batworkers.
Issue 1. August 1995.

We see the newsletter as being fairly informal and chatty. A medium for sharing information, mainly in the form of anecdotes, short articles, notes, observations and questions. There could also be a place for longer articles, preliminary results and survey reports. We do not, however, see the newsletter as a forum for formal publication.

We're aiming to produce the Newsletter four times a year, time between issues will vary to fit in with field season commitments and access to civilization! So please, lets hear from you. You can contact Shirley and I at the addresses below.

We don't have access to Internet, so at this stage we would prefer copies of your contributions on floppy disk: WordPerfect 5.1, MS Word, or a DOS (ASCII) text file (no evil Apple Macs!). For those who don't have access to computers, typed or clearly written articles will be acceptable. Deadline for submitting articles for next issue 15/09/1995.

Editors:Jane: Sedgeley, C/o Science and Research Division, Department of Conservation, Private Bag, Christchurch, NZ. Phone: (03) 379 9758, Fax (03) 371 3770. Shirley McQueen, 17a Railway Row, Ohakune, NZ. Phone:(06) 385 9082.. ☒

A SHORT SUMMARY ON THE FIRST NEW ZEALAND WORKSHOP ON BATS.

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Though I cannot speak for others, in my mind the workshop was a great success. The way everyone participated in the discussion sessions, the quality of talks and research being carried out all made for a successful weekend. The workshop also attracted a good deal of media attention with two articles appearing in Wellington newspapers and a report on the TVNZ news on Sunday evening. All of this can only help research into native bats.

What I have written here is my account of the workshop so I apologise in advance for my poor memory (for which I am well known) .

After a slightly delayed beginning due to some unforeseeable technical difficulties, the workshop kicked off with the first set of three oral sessions planned for the day. Like most of the ora sessions this one covered a vanety of topics. Shirley McQueen updated us on her and Brian Lloyd's work on Short-tailed Bats (*Mystacina tuberculata*) near Mount Ruapehu and did a great job in the unenviable position of first speaker of the workshop. Richard Griffiths spoke about some of his MSc research into Long-tailed Bats (*Chalinolobus tuberculatus*) ecology in South Canterbury and was followed by Chris Ecroyd who told us of his work on *Dactylanthus* and the finding that Short-tailed Bats are pollinators of the Wood Rose. Finally, Colin O'Donnell updated us on his and Jane Sedgeley's work on Long-tailed Bat ecology in the Eglinton Valley, Fiordland.

The interest in the work of those in the first session was reflected in the number of questions asked the speakers. It was also a major contributing factor to the ract that thc second session started about 40 minutes late (the other factor was Andrew, the chair of the session, not owning a watch). Interest was also high for the

second session of and so not much time was made up. Serena Lockwood touched many hearts with her talk on "Ding", a Short-tailed Bat born in Wellington Zoo. Though Serena was a hard act to follow, I then spoke about some of my work on bat echolocation calls and why it is so difficult to tell the two species apart in the field. I was followed by Andrew Winnington who told of his work on Short-tailed Bat breeding biology and his investigations into the taxonomy of native bats. If I remember correctly, he also proposed a solution to world hunger and a plan to make everyone on earth love each other - a very ambitious researcher. Finally, Murray Douglas spoke about the latest version of the automatic bat monitoring boxes being developed by the Department of Conservation. I found Murray's talk to be very interesting as it cleared up several "cloudy areas" in my mind about the BatBox III.

After a hearty lunch it was up to Nick Gillingham to make sure we didn't all have an early afternoon nap - a job he did most successfully. After Nick told us about his work on the Long-tailed Bats inhabiting Balls Clearing,

Avi Holzapfel spoke about the flower morphology of bat pollinated plants and how this related to *Dactylanthus*. Avi's and Chris Ecroyd's

participation in the workshop demonstrated the wide variety of people and disciplines that must be involved in bats research before we fully understand these native animals. The last speaker of the day was Brian Lloyd. Brian's and Shirley's work should be a lesson to us all on how difficult bats are to work on and how much time is required to study them properly - not that we need reminding!!

The final event of the day was our first group discussion session. The first topic on offer was the newly released Bat Recovery Plan. We were given a brief overview of the plan and its role in the conservation of bats by Colin O'Donnell, the head of the Bat Recovery Group. Colin also told us about the role of that group and much of the resulting discussion revolved around that topic. The possible role of the group as a regulatory body was discussed as was the effect the recovery plan would have on shaping future research into native bats. A brief discussion on the effect of the plan on funding assistance from DOC and the role of advocacy in bat recovery brought the discussion to an end. The second topic up for discussion was the amount of variability in Long-tailed Bat populations throughout New Zealand. Although hampered by a lack of nationwide data, some useful discussion about the variability between Fiordland populations and those in South Canterbury was had. The day ended a littlc late but left me with the feeling that something had been achieved. This made me look forward to the next day even more - as did a few beers at the pub with my fellow attendees.

So as not to appear to be too well organised, the second day began late after the slide projector decided it was no longer interested in the workshop. After Murray and Jenny convinced/threatencd it to work, I kicked off the session with a talk about how ditferent bat detector brands compared in their ability to pick up high frequency sound in the field and how this varied between bat habitat types. The discussion stimulated by this talk was a sign of things to come. I was followed by the second talk from Colin O'Donnell. This talk presented some very interesting results from Colin and Jane's all night radio tracking sessions. The results indicated that there may be a continuum of home ranges along the Eglinton Valley with a high degree of overlap between groups. The final presentation of the session was given by Alina Arkins of Auckland University. Her research involves dietary studies on the bats living on Little Barrier Island and she presented some preliminary results on Short-tailed Bat diet - lots of terrestrial insects so take care with those poisoning operations!

The second discussion session began with an impromptu talk by Richard Holdaway on his work with bat fossil remains found in caves once inhabited by Laughing Owls (*Sceloglaux albifacies*) (now extinct - Ed.). After a most interesting talk the focus changed to a discussion of the problem of detecting bats in the field using bat detectors. Many people told of their own personal experiences while others attempted to explain why field identification is such a problem. The upshot of all this discussion was that a system is required that is capable of distinguishing between the species. I outlined a project that I hope to bcgin soon (funding pending) which involves the development of a software system capable of counting bat passes and species identification.

The final session also began with an impromptu talk, this time from Jenny Jones of Worldwide Fund for Nature. She put out a general request to anyone willing to help her with an educational package she is putting together for schools. So come on everyone and help!!! The rest of the session was spent discussing future research needs and how we could perpetuate the success of the workshop. It was decided to set up a list server similar to Batline to allow quick on-line discussion of issues relating to bats in New Zealand (see this news letter for more details). Jane Sedgeley and Shirley McQueen volunteered to produce a newsletter (you are reading it now)

so thanks to them. The survival of this newsletter revolves around you, the reader. If no-one contributes, the newsletter will not last so lets all put pen to paper. The pros and cons of joining the Australasian Bat Society were discussed as was the possibility of a joint meeting with them some time in he future. Jay McCartney (Department of Ecology, Massey University) volunteered to put together an address list for New Zealand batworkers/interested parties. So if you're not on the list and want to be, let Jay know. Finally, the organisation and format of next years workshop was brought up. A combined workshop and practical skills session was decided upon so anyone wanting to organise the next workshop just let me know. Once again, thanks to everyone who participated the workshop and helped me to organise it. Special thanks to Jenny, Andrea and WWF for a I their help.

(Taken from *Peka Peka* **1**: 4-6.) ☒

IN SEARCH OF THE GREATER SHORT-TAILED BAT (*MYSTACINA ROBUSTA*) ON KAIMOHU ISLAND, NEW ZEALAND.

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NEW ZEALAND

In April this year a survey of Kaimohu Island off New Zealand's South Island was undertaken to check for the possible presence of Greater Short-tailed Bats (*Mystacina robusta*). Jane Sedgeley assisted a team of Department of Conservation (DOC) staff from Invercargill with the survey. Kaimohu Island (a Beneficial Titi Island) is located in the Muttonbird (Titi) Island group southwest of Stewart Island. Kaimohu is a relatively small island (11ha) with a limited range of vegetation. The majority of the island is dominated by Tupare (*Olearia lyallii*) forest with Tete-a-weka (*Olearia oporina*), and some Kokomuku (*Hebe elliptica*) in the coastal zone. There are no sizeable trees and the ground cover is sparse with discontinuous leaf litter.

Previously Dr M.J. Daniel had suggested that Kaimohu Island may hold a relic population of Greater Short-tailed Bats. Reports of bats were received from muttonbirders which pre-dated th extinction of bats on Big South Cape Island in the early 1960's. It was suggested that Greater Short-tailed Bats may have persisted on Kaimohu Island. The team on this survey trip concluded that it is extremely unlikely that any bats survive. The very high level of muttonbird activity at night precluded the use of electronic bat detectors, however there were no trees on the island suitable as bat roosts and the coastal cliffs did not look suitable as there were very few overhangs or sheltered areas that were not exposed to weather. No roost sites were found. The very small size of the island also counted against it holding a self sustaining bat population and it seemed plausible that any bats previously on Kaimohu Island were individuals from the large colonies on Big South Cape and Solomon Islands. Further more there have been no reports from muttonbirders of any bats on any of the Titi Islands for over 30 years now. As Dr Daniel had thought that Kaimohu was the most promising hope for the survival of this species it seems almost certain that this species is indeed extinct.

Prior to the rat invasion both Short-tailed Bats and Greater Short-tailed Bats had lived on Big South Cape Island, but both species were wiped out by the Ship Rats (*Rattus rattus*). Other Muttonbird Islands in this group were suggested for searching (eg. Pohowaitai & Tamaitemioka Islands) but the lack of any reports from muttonbirders indicates that there is a very low likelihood of any bats remaining.

(Taken from *Peka Peka* **1**: 3.) ☒

TINY BAT POLLINATES UNIQUE PLANT

Derrick Rooney

Remember *Dactylanthus*? It is the rare native plant that was in the news briefly a few years ago when a Rotorua scientist, Chris Ecroyd, began monitoring one of its few remaining populations (in Pureora Forest) to determine its life cycle.

Dactylanthus sometimes called the "wooden rose" is a peculiar species that belongs to a small, obscure tropical family of which it is the sole

representative in New Zealand. It is a parasite with no leaves or roots of its own - it survives by "plugging in" to the roots of one or other of several species of forest trees, and is only visible part is its inflorescence: large, fleshy, dripping with nectar, and produced at ground level.

Beneath the ground, *Dactylanthus* has a large, woody rhizome, up to 50cm in diameter. Where it plugs in to the host root, a tumour-like growth is produced.

When the *Dactylanthus* rhizome is separated from this (by boiling) a disc-shaped and fluted structure is left: the "wooden rose", which is much in demand as a collectable for interior decor.

As a consequence of earlier collecting, *Dactylanthus* is now quite rare, and there may be only a few hundred plants left. The small remaining populations are endangered not only by human collectors but by possums [Common Brushtail Possum *Trichosurus vulpecula*] and rats [Polynesian Rat *Rattus exulans*, Ship Rat *Rattus rattus*], which feed on the flowers and destroy them without pollinating them.

The actual pollinator for *Dactylanthus*, and its role in the forest ecology, have long been matters for speculation.

Chris Ecroyd suggested, in a paper presented to the New Zealand Ecological Society in 1990 after his initial study of the plants in lhe Mamaku Forest, that its main pollinator was probably the

rare short-tailed, native bat. [Lesser Short-tailed Bat *Mystacina tuberculata*]

This would make *Dactylanthus* doubly unique in the New Zealand flora - not just the only fully parasitic indigenous flowering plant, but the only native plant with a mammal as its primary pollinator.

Since then, Mr Ecroyd, as part of his survey, has been monitoring the flowering cycle of *Dactylanthus* at Pureora, using time-lapse video filming with infra-red lighting.

He was looking for rats, not bats. On Little Barrier Island, one of the few places where *Dactylanthus* has survived, Polynesian rats had destroyed all the flower buds before they were fully open. One of the reasons for the video monitoring was to find out whether the ship rats, which are well established in Pureora, are doing the same thing there.

The videotapes thus provided both a shock and a bonus. Part of the bonus was that the Pureora rats were not destroying the flowers, but the really good news, and the shock, was the discovery that Pureora harbours a previously unknown population of short-tailed bats.

This sparrow-sized animal, which is endemic to New Zealand, is unique among the world's bats. It is classified in a sub-family of its own, and by all accounts it is a most unusual little critter.

Its wings are small, so, unlike most bats, it does not fly well. It feeds by crawling around on the forest floor with its tiny wings folded up (it evolved in the absence of ground-based predators), and, according to Chris Ecroyd, this gives it a special relationship with *Dactylanthus*, and makes the latter special also. It is, he says, the only bat-pollinated plant in the world that produces its flowers at ground level.

The future of this ecological curiosity is, alas, in doubt.

According to Chris Ecroyd, the survival of both *Dactylanthus* and the short-tailed bat depends on the absence of possums and introduced predators such as rats and cats. It is virtually impossible to find a mainland site free from these predators.

A ray of hope has opened recently. *Dactylanthus* plants have been raised from seed at a Forest Research Institute laboratory at Rotorua, raising the possibility that the two species can be jointly transferred to a congenial, predator-free site on an offshore island

Earlier attempts to germinate the small *Dactylanthus* seeds in the laboratory were unsuccessful, it is thought, because they can germinate successfully only in contact with newly produced host roots. Their shoots can grow only about 2mm before running out of food reserves.

Still unexplained is the means by which *Dactylanthus* disseminates itself in the wild. Mr Ecroyd's observations have been that most of the seeds remain attached to the inflorescence for more than a year. When the old inflorescence eventually breaks down and is covered by leaf litter, most of the seeds remain within a few centimetres of the parent.

This very llmited mechanism may explain why *Dactylanthus* is now confined, as far as is known, to small colonies in the central North Island and Waikato, with perhaps a few "outlier" plants in Hawkes Bay.

Further research will be needed before the ecology and distribution of *Dactylanthus* are fully understood.

Also in need of further study are the distribution and taxonomy of the short-tailed bat, and the exact nature of its relationship with *Dactylanthus*. A clear link is revealed in the distribution maps; the ranges of the known surviving populations of the two are coincidental.

The extent of the relationship, however, is undetermined, as is the taxonomic status of the short-tailed bat. Several regional races are known, and there has been speculation that some of these may be undescribed, semi-cryptic species:

outwardly indistinguishable from each other, but genetically different.

(Taken from *"Country Diary"* column from unknown New Zealand newspaper, courtesy of Dr. Wes Whitten, via *El Presidente* Len Martin.) ☒

FORMOSAN FLYING FOX EXTINCT ...

A messagc from Dr. Minna J. Hsu, in Taiwan, advises that the Formosan Flying-fox (*Pteropus dasymallus formosus*) is now considered extinct. Several hundred were known 10 years ago from Green Island, the only native habitat for fruit bats in the Taiwan territory. Now, major habitat change and hunting for food and the pet trade seem to have resulted in its extinction in the wild. The 8-10 captive individuals may not be a viable population. This is perhaps the first extinction to be announced since the publication of the fruit bat action plan in 1992 and we know that the other subspecies of this species are in trouble in the Ryukyu Islands of southern Japan

... AS NEW SPECIES DISCOVERED

About 10 new species of bat have been described in the last three years, including at least two fruit

bat species. Now we hear rumours of a further undescribed small species of flying fox, *Pteropus* species, being discovered in the Philippines very recently.

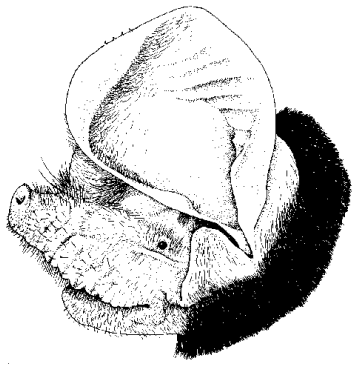
(Taken from *Bat News* **38**: 5. The Bat Conservation Trust, London, UK).

THE SALE OF BATS AS SOUVENIRS IN THAILAND

Mark F. Robinson
Cambridgeshire Bat Group

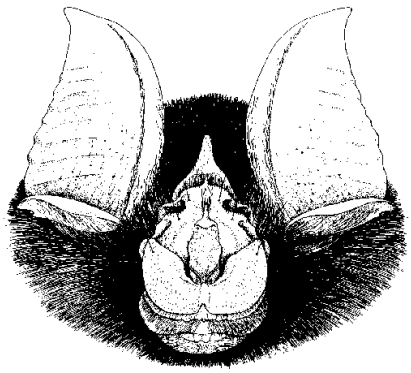
Bats are found in markets throughout the tropics. where they are usually sold as food and they are considered to be either a delicacy, an aphrodisiac or a medicine, curing ailments such as asthma. They are rarely sold as curios, but where this happens they are aimed at foreign tourists rather than local people. One of the most disturbing cases of this was seen in Thailand shortly after the discovery of the world's smallest bat *Craseonycteris thonglongyai* in Sai Yoke National Park in 1973. Dried specimens of this rare bat were stuck to card and offered for sale. The trade in bats as curios still continues in Thailand.

On six visits to the tourist market of Patpong in Bangkok between December 1992 and February 1995, five species of bat ('*Megaderma spasma*', *Rhinolophus* sp., *Hipposideros* sp., *Taphozous theobaldi* and a species of Vespertilionidae) were seen for sale. These were dried, mounted on card and presented behind glass in a wooden frame.



The price ranged from 650 to 1800 baht (£16-45). However, with haggling I am sure the price could be reduced further. I have heard that similar dried bats are for sale on the tourist markets of Chiang Mai in Northern Thailand.

In Thailand all species of Microchiroptera and all four species of *Pteropus* (*P. lylei*, *P. vampyrus*, *P. hypomelanus* and *P. intermedius*) are protected by the Wildlife Preservation and Protection Act 1992. The law prohibits the hunting of, or any disturbance that may lead to the death of bats. This protection does not extend to roost sites unless they are in a protected area such as a national park or wildlife sanctuary. However, people are allowed to legitimately sell preserved bats because of a loophole in the law. It is only an offence to possess bats killed since the Act in 1992.



Therefore bats claimed to have been obtained prior to this period can be legally sold, and it is very difficult to prove otherwise.

(Taken from *Bat News* **38**: 5. The Bat Conservation Trust, London, UK).

INSTRUCTIONS TO CONTRIBUTORS

The *Australasian Bat Society Newsletter* will accept contributions for one of two broad sections of the Newsletter. For consistency the following guidelines should be followed:

For Scientifc Articles:

1. Hard copy manuscripts should be submitted with two copies to Lawrie Conole, 2/45 Virginia Street, Newtown 3220, Victoria.
2. Electronic copy manuscripts should be submitted in plain text (ASCII) form on a 3½" floppy disk to the above address, or as an email attachment to the editor at <lconole@pioneer.mov.vic.gov.au>.
3. Manuscripts should be submitted in clear, concise English, typed with double spacing (on A4 paper for hard copy) and free from typographical and spelling errors.
4. Papers should consist of title; Name and addresses of authors; Abstract (approx. 200 words); Introduction; Materials and methods; Results, Discussion and References. References should conform to the Harvard System (author-date).
5. All pages, figures and tables should be consecutively numbered and correct orientation used throughout. Metric Units should be used throughout, and SI units used wherever possible.
6. "Camera ready" copy, sized to fit on an A4 page, is essential for diagrams and figures, and the Newsletter does not have the facilities for photographs. Tables should be in a format suitable for reproduction on a single page.
7. Manuscripts are not being refereed routinely at this stage, although editorial amendments may be suggested and specialist opinion may be sought in some cases.

For News, Notes, Notices, Art etc.:

Hard copy should be submitted with two copies to Lawrie Conole, 2/45 Virginia Street, Newtown 3220, Victoria. Electronic copy should be submitted in plain text (ASCII) form on a 3½" floppy disk to the above address, or as an email attachment to the editor at <lconole@pioneer.mov.vic.gov.au>. Manuscripts should be submitted in clear, concise English, typed with double spacing (on A4 paper for hard copy) and free from typographical and spelling errors. Art in the form of line drawings and other monochromatic media may also be submitted. "Camera ready" copy, sized to fit on an A4 page, is essential for illustrations, and the Newsletter does not have the facilities for photographs.

Manuscripts will usually be edited to conform to the newsletter.

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