



# Mammal Mail

December 2007

Newsletter of the Tree-Kangaroo & Mammal Group Inc.



*The TKMG  
Committee would like  
to wish all members and their  
families a joyous Christmas  
and a peaceful New Year*



## TKMG Annual General Meeting

**The September AGM** was well attended and guest speaker Trevor Madin gave an informative and entertaining video and photo presentation of his trip to Madagascar. He began with an overview of the wildlife before human settlement, and then spoke on the mammals he saw & filmed, concentrating on the lemurs.

The TKMG Executive committee that emerged from the AGM was a mixture of new and old. Jack Grant retained his position as President, as did Larry Crook as Treasurer. Alan Gillanders was voted in as the Vice President, replacing Sue Mathams who did not seek re-nomination and Ian Sinclair is the new Secretary, replacing Rowena Grace who also did not seek re-nomination. Our thanks to Sue and Rowena for their superb contributions to TKMG while committee members.

A brief background on the newly elected members:

**Alan Gillanders** has been running a wildlife tours business (*Alan's Wildlife Tours*) for four years on the Tablelands. His interest in matters natural stemmed from growing up in aboriginal

communities with parents with a rural background. Alan says that he had the sort of childhood that Crocodile Dundee would have had. An ex-teacher, Alan is a self-taught naturalist, a lot learnt from associating with knowledgeable people rather than academia.

**Ian Sinclair** lives with his wife Rita and children Erin and Owen on 5 acres between Malanda and Yungaburra which they are busy revegetating. They have been Land for Wildlife members for around 5 years and enjoy birdwatching, spotlighting, and revegetation on theirs and anyone else's place! They have been in the district for nearly 15 years. Ian becomes the second tragic supporter of the St. Kilda Football club on the committee, joining Larry. Ian and Larry are both very ecstatic to hear that the *G-Train* has booted retirement thru the goalposts of the far distant future and has returned to the St Kilda fold.

Ceinwen Edwards and Margit Cianelli continue as committee members and are joined by Ilona Moerman and Dale Rogers.

Congratulations to the lady from Atherton who won the TKMG raffle which was drawn by

Trevor. The prize was the Striped Possum (*Dactylopsila trivirgata*) print by north Queensland wildlife artist Robin Wingrave. Our thanks to Malanda art framers Neil

McLaughlan and Karen Coombes who donated the framing of the print. Neil and Karen can be contacted for your art framing needs at [kcoombes@bigpond.net.au](mailto:kcoombes@bigpond.net.au) or 4096316.

# Bat man visits Malanda

An estimated 60 people witnessed an exciting and inspirational presentation given by Merlin Tuttle, the head and founder of Bat Conservation International, at TKMG's public meeting in November. Based in Texas, USA, Merlin has worked with bats for 46 years, including many assignments as a photographer with National Geographic magazine. His work has taken him to many parts of the globe, including Thailand, Africa, Philippines, Australia, all over the US, Mexico and Central and South America.

Merlin believes that European man fears the unknown, with bats falling into that category. There has been precious little research work done on bats and there are examples of bats becoming extinct without any prior knowledge that were endangered. BCI is helping increase the knowledge of bats by funding research as long as it has a conservation basis (see page 3 for research on bats and wind turbines). For example, the Tolga Bat hospital on the Atherton Tablelands in north Queensland has received BCI funding for its safer fences research (see *Mammal Mail* May 2007).

Merlin pointed out that one quarter of all mammals are bats. More strikingly, one half of all mammals in the rainforests of Central and South America are bats

## Crop damage

Merlin has observed that close analyses of bats and their predation on commercial fruit crops often shows that they are of little consequence and in some cases it is birds that are having greater effect. Bats are viewed differently to bats. It is beneficial for the farmer and scientist to work together. Merlin has found that the researcher can then slowly gain the confidence of the farmer and gradually, with a pertinent question here and there, over three or four days draw out the real story of what bats are doing in his/her crop.

In many instances bats are responsible for keeping down numbers of moths that are harmful to certain commercial crops.

## Pollination

There are many instances of bats and plant species evolving very closely together. Merlin cited examples such as flowers being shaped so that when the pollinating bat swoops down the flower triggers a spurt of pollen onto the bat. The flower does not do this to any other animal, including moths which fly in close.

With the durian, as soon as the bat has been to the flower, the petals drop off to tell other bats that pollination has occurred. Unfortunately until recently when Merlin was able to explain what was actually occurring, durian farmers were blaming the bats for harming the flowers.

The flowers of the Boabab tree in Africa open at night and bats are there within a few minutes to carry out the pollination process.

For those who enjoy a Margarita or two, the bat is your saviour. Bats are solely responsible for pollinating many plant species including the cactus that gives us tequila.

## Photography

Merlin gave the audience an insight into how his National Geographic photos were taken. He would have all the furniture removed from his hotel room and set up a makeshift studio, usually a small pond of water and some pieces of local vegetation for spectacular shots of bats feeding over water. Merlin marvels at the intelligence of bats, being able to train a wild bat in 2 hours to work for the camera. There are cases where a bat has watched another bat being trained, has learnt the trained bats activity, and has copied it.

You can learn more about bats and Bat Conservation International by visiting [www.batcon.org](http://www.batcon.org). You may wish to become a member or go shopping. You will find there the multi award winning *World of Bats* DVD. There are great gift buying opportunities, especially with the Aussie dollar being so high against the Greenback.



# Bats & Wind Energy

## Seeking solutions for 'green' energy

*These two articles are reprinted with permission from BATS (the BCI magazine, Fall 2007). They are based on North American and Canadian findings which can be transferred to the Australian experience.*

**Wind-energy** turbines are spreading across North America at a remarkable pace – and bats by the thousands are being killed by the spinning blades. But scientists of the Bat Conservation International (BCI) led Bats and Wind Energy Cooperative (BWEC) are reporting steady progress in the difficult search for solutions.

Initial tests of potential bat deterrents, pre- and post-construction monitoring to identify risks, increasing cooperation from other conservation groups and the solid collaboration of some wind-power firms, especially PPM Energy, are hopeful signs. But much work remains.

BCI, the U.S. Fish and Wildlife Service, the American Wind Energy Association, and the National Renewable Energy Laboratory created the cooperative in December 2003. The alliance of state and federal agencies, private industry, universities and non-governmental organizations supports and coordinates research to minimize wind energy's threat to bats.

A possible ultrasonic deterrent device – a shroud of high-frequency sound (beyond human hearing) that "jams" bats' echolocation calls – repelled bats in lab tests. Designed by Joe Szewczak of Humboldt State University in California and Mark Jensen of Binary Acoustic Technology, the device was avoided by captive bats in a flight chamber. The bats, which easily snagged suspended mealworms when the device was turned off, were unable to get them

when the sound was blaring. The potential deterrent also reduced bat activity by about half when used near an open pond. This year's crucial field tests will mount much more powerful prototype deterrents on working wind turbines and monitor (with thermal-imaging cameras) how the bats respond over time.

BWEC Coordinator Ed Arnett of BCI and colleagues, meanwhile, conducted extensive surveys of bat activity at three sites proposed for PPM Energy wind plants. The data are being analysed to correlate activity with weather and other variables. Surveys of activity and fatalities are also planned after wind turbines are built and operating at the sites to determine whether pre-construction monitoring can be used – ideally during the site-selection process – to assess the future risk of bat kills.

At meetings of federal and state officials, scientific groups and conservationists around the country, Arnett has described BWEC research results that clearly document the wind-energy threat to bats. He also detailed the issue in testimony to a subcommittee of the U.S. Congress. A BCI-developed position statement urging "green energy" investors to favour companies that cooperate in assessing threats and seeking solutions now has 10 cosponsoring organizations, including the National Audubon Society, the Humane Society of the U.S., Defenders of Wildlife and the Wildlife Society.

## Migrating Bats & Wind Energy in Canada.....by Erin Baerwald

*(Erin's work is supported in part by a Bat Conservation International Student Research Scholarship)*

Migratory tree bats – hoary, silver haired and eastern red bats – are among the most spectacular and widespread bats in North America yet we know little about them and their migratory behaviour. Studying these bats (and their encounters with wind-energy turbines) on the Canadian prairies seems a little crazy. The featureless landscape with few trees and scarce water is hardly prime bat habitat. Strong winds make catching bats very difficult. Also high bat kills seemed mostly limited to facilities built on forested ridge tops in eastern North America.

Nonetheless, the south-western Alberta prairie is where I chose to study migratory bats and wind energy. Little did I suspect that meant

I would become a diurnal bat biologist, slogging through waist-high wheat in 40-degree heat or hailstorms or snow. Knowing that we were adding to our understanding of the basic biology of migratory tree bats while perhaps also helping to reduce the wind-energy risks to bats kept me and my team going through the unpredictable conditions of the bat-migration season on the prairie.

I began my research at the Summerview Wind Farm in autumn 2005, shortly after environmental consultants for the owner, Transalta Wind, began reporting large numbers of bat fatalities at the new facility. They found 532 hoary and silver-haired bats

under Summerview's 39 turbines in 2005. That fatality rate of 14 bats per turbine per year was unprecedented in Alberta - other wind-energy installations in the region had fatality rates of less than one bat per turbine-year. (These rates are not corrected for searcher efficiency and carcass removal by predators, which would significantly increase the totals).

It also came as a huge surprise to bat biologists and the wind-energy industry. High bat-fatality rates had been recorded at the Mountaineer Wind Energy Centre in West Virginia, and reports were beginning to trickle in from other wind-energy installations. But the flatland prairie at Summerview had little in common with the eastern ridge tops on the other side of the continent. These bat fatalities in Canada suggested the issue was much broader than anticipated.

Some patterns were emerging, however. At North American locations studied thus far, most bat fatalities at wind-energy facilities have occurred in late summer and early autumn and mostly involve three migratory species: hoary bats (*Lasiurus cinereus*), eastern red bats (*Lasiurus borealis*), and silver-haired bats (*Lasionycteris noctivagans*). This pattern appeared to hold true at Summerview where more than 90 percent of fatalities occurred between July and September and involved hoary and silver-haired bats.

I had already been in consultation with Transalta, and we took the opportunity to collaborate with other industry partners (Suncor Energy Inc., Alberta Wind Energy Corporation and ENMAX Corporation) to investigate the causes of bat fatalities and learn more about the basic biology of migratory bats in Alberta.

Among research goals, I am determining how weather and time of night might influence migrations and fatalities; how migratory activity varies across the landscape; and the effectiveness of acoustic monitoring in predicting the risk to bats at proposed wind-energy sites. Field research and data analysis continue, but my initial results include hints that might help reduce bat kills at some wind farms.

In my first field season in 2006, I spent May through September at three existing wind farms and three other sites where wind facilities are proposed in southern Alberta. Summerview was my primary study site. From mid-July to the end of September, my field assistants and I conducted daily searches around 10 of Summerview's 39 turbines, carefully looking for dead or injured bats. We searched the other 29 turbines once a week. We also used Anabat detectors to estimate the activity of different bat species as they passed through the wind-energy installations each night.

We counted 619 dead bats around the turbines in 2006. Most (62 percent) were hoary bats, and 34 percent were silver-haired bats. The eastern red bat, frequently killed at wind farms in eastern North America, is considered rare in Alberta. Yet we found the carcasses of five of them under the turbines.

Previous studies had suggested that only female hoary bats migrate into north-western Canada. We, however, found more male hoary bats than females. We also documented that both males and females, and juveniles as well as adults, are vulnerable to being hit by turbine blades.

A curious feature of bat fatalities at wind-energy sites studied across North America is that they occur mainly in autumn, as bats migrate south for the winter, but rarely in the spring. Somehow, the bats avoid wind turbines on their northward migration. That clearly is the case in Alberta: Fatalities begin in mid to late July, peak in August and taper off by the end of September.

We also found that different species and sexes migrated at different times. In July, we found mainly male hoary bats. Then came the females and their young. Mixed age and gender groups of silver-haired bats accounted for most of the fatalities in September.

It seems puzzling that bats are struck by structures as large as turbine blades, yet they can use their echolocation system to detect a fruit fly. Some biologists have suggested that bats may simply turn echolocation off during migration. My results suggest this is not the case.

With the help of Transalta personnel who climbed up inside the 65-metre turbine towers, I mounted bat detectors on the hubs of several wind turbines and on weather monitoring towers. Echolocation calls of migratory hoary, silver-haired and red bats were detected.

Detectors on the ground, however, mostly recorded the echolocation calls of the area's (non-migratory) resident bats, such as little brown myotis (*Myotis lucifugus*) and big brown bats (*Eptesicus fuscus*), that feed relatively close to the ground and away from the spinning turbine blades. Up high, I recorded few bats of these species, but many more migratory bats. This suggests that ground-level bat detectors may not accurately assess potential risks to migratory bats at proposed wind-energy sites. Monitoring at blade level, which is far more difficult, may be required.

My data from across southern Alberta also suggests that the number of migrating bats varies significantly from site to site. This may help explain why some wind farms have higher bat fatality rates than others. If there are strong correlations between migration activity levels and fatality rates, this could help in future site selection.



My initial results are less clear about factors that might influence the timing of bat migrations, a little-understood subject. Particularly high activity was recorded on some nights at some locations, but I found no clear pattern of weather variables associated with these migratory "events." Perhaps the data we are collecting this year will help us tease apart some relevant factors.

Wind energy and other alternative sources of renewable energy are important components of the energy mix and of efforts to reduce global climate change. We must remember,

however, that almost everything we do - including renewable energy - has an impact. But with the collaboration of the Canadian wind-energy industry, we are learning about wind energy's impact on bats so that we can minimize those risks. Given the rate of new construction all across North America, studies such as this are urgently needed.

*ERIN BAERWALD is a graduate student at the University of Calgary. This research is part of her work toward a Master of Science in Biology.*

## TKMG/AGS Collaboration

TKMG's Bennett's tree-kangaroo survey project has been given fund raising support by the *Australian Geographic Society*.

The threat of extinction is so great that the AG Society is raising funds for a two pronged rescue effort. The Tree Kangaroo Mammal Group will study population and distribution; while Rainforest Rescue will buy important tree-kangaroo habitat, and protect it as a nature refuge.

TKMG is constructing a questionnaire for a comprehensive Bennett's tree-kangaroo survey and is busy seeking additional funding to employ a Project Coordinator.



*Doria....Bennett's tree-kangaroo  
Photo by her carer Ruth Whiston*

## Cassowary Award Winners

**Congratulations** to the winners of the Cassowary Awards for 2007. Each year the Wet Tropics Management Authority recognises individuals who have made outstanding contributions to the conservation and presentation of the Wet Tropics World Heritage Area. Young Cassowary Awards which recognise the work of students and school classes in helping to conserve the Wet Tropics were also awarded.

TKMG member Wendy Cooper received an award for the category of Science. Wendy is the botanist behind the successful 'Fruits of the

Australian Tropical Rainforest' book. Wendy invented a classification system of tropical rainforest plants using their fruits as the primary means of identification. Her method has broken new ground in the botanical world. A new edition in 2006 provides a huge amount of detail about the extraordinary diversity of rainforest fruits.

For information on all of the award recipients visit Wet Tropics Management Authority web site.

## "Rare Bear: The Tablelands Tree Kangaroo"

is a documentary made recently by Network Ten's Totally Australian Documentary Unit. The film interviewed TKMG members, even showing footage of one of our meetings, local wildlife carers, habitat restorers, eco-tourism operator and had a chat with TKMG life member Ernie Raymont whose clan totem is

the tree kangaroo, or 'mapi'. There were a few 'bloopers' e.g., Mabi forest *does not* cover all the Tablelands; Larry *does not* have soft feminine hands with long fingernails - an unfortunate cut-away - they are Rowena's hands. The doco was shown Election Day afternoon and was well received.



## Community Tree plantings Saturdays 19<sup>th</sup> Jan. to 12<sup>th</sup> April

QPWS Mamu Canopy Walk:	1500 trees on 19 <sup>th</sup> January and 1500 trees on 29 <sup>th</sup> March
Penny Scott's place, Yungaburra:	2000 trees on 2 <sup>nd</sup> February and 2000 trees on 1 <sup>st</sup> March
Peterson Creek, Yungaburra:	2000 trees on 9 <sup>th</sup> February and 2000 trees on 23 <sup>rd</sup> February
Mike Carter's place, Tarzali:	2000 trees on 16 <sup>th</sup> February and 2000 trees on 12 <sup>th</sup> April
QPWS Massey Creek	3000 trees on 8 <sup>th</sup> March
Peter Tuck's place, Yungaburra:	2000 trees on 15 <sup>th</sup> March and 2000 trees on 5 <sup>th</sup> April

All are welcome to come along to any of the above plantings. Peter Tuck's is sponsored by TKMG. Please bring sun protection, water, and a trusty trowel, gloves and knee-pads are optional. The TREAT après-planting BBQ will be at all plantings. See local papers or ring Barbara on 40914468 for more details. Plantings start at 7 am.

# The C - word

Some light-hearted Xmas holiday reading from the ABC 'Science Show'.

Is it really possible to convert carbon-to-cash or is carbon trading the next great green hype? From mining giants to the Rolling Stones to couples attempting an eco-friendly wedding – carbon emissions offsetting is being embraced across the world. It may be the hot topic of 2007 but the carbon trading market is still surrounded by confusion and unanswered questions...

What is a "carbon product"? How can you work out how much carbon a tree sequesters?

How can you buy domestically and internationally recognised offsets that meet accredited standards?

What about the Kyoto protocol?

And, of course, how can I get a job on *Carbon Cops*?

**Laura Molina** reflects on all the talk of carbon; carbon emissions, carbon offsets, carbon trading and credits, even television programs, such as *Carbon Cops*.....

I remember when the C-word was never used in conversation, unless you wanted to offend everyone, but nowadays it's a free-for-all. It's 'carbon' this and 'carbon' that. You can't even have a simple conversation about the weather without the C-word flashing in your face. I blame global warming. It's lowered the tone of everything.

The carbon word used to be restricted to the dirty labs of organic chemistry but somehow it escaped and it multiplied. There isn't just one C-word anymore, there's a whole mineshaft full. The main one is carbon emissions. My grandmother used the term just yesterday and she didn't even blush. She said, 'Carbon emissions begat carbon trading which begat carbon credits and carbon farming which begat *Carbon Cops* which leads inevitably to carbon guilt.' God knows what she's been reading.

Now, don't get confused, as I did, with carbon dating. Carbon dating has got nothing to do with global warming. Apparently carbon dating is something that palaeontologists do late at night after a few drinks when they're feeling lonely. That's what one of them told me.

He started to go into detail but I left quickly through the bathroom window.

Of all the carbon words, 'carbon guilt' is what interests me most. In the past you could say, 'I'm looking forward to the trip to Europe. When I come back I'll show you the slides and make you jealous.' What people say now is, 'I'm looking forward to the trip to Europe. When I come back I'll plant 250 trees in my back yard and then I'll eat my hat.'

You know that TV show *Carbon Cops*? It's not as good as it could be. The cops are way too nice, no one gets punished and there is too much emphasis on education. Did I tell you I applied for the job of carbon cop but I didn't get it? I don't know why. Okay, so I don't have a degree in environmental science but I did work at the CSIRO in the staff canteen, and if it wasn't for my expertise in food hygiene and my intervention at the salad bar, that scientist would have died of food poisoning for sure.

I think I said all the right things at the interview. The producer said the role of the carbon cop was to encourage people to adopt better ways of doing things. Then he asked me, 'What qualities do you think a carbon cop needs?' I said, 'Good communication skills and the ability to instil a sense of fear.'

Thinking about it now, I know why they didn't give me the job. It's not what I said; it's what I've done. They found out about my secret life. I don't really want to but I think it's time to jump out of the closet. If it's out in the open it can't be used against me anymore. Some readers might find this part disturbing. Too bad. I am a paid-up member of the National Historical Rail Transport Museum. I love to go for rides in steam trains. I blame an early encounter with Thomas the Tank Engine, and more recently a recurring fantasy about a young, hot, sweaty fireman shovelling coal into a firebox. So there. Please address all your hate mail to my grandfather. I've got to go now. The oil industry has just released a book called *Carbon Without Guilt*. I need to read it.

*Laura Molino was a Chaser until they went unisex.*

## And what about 'personal' carbon offsets?

*Trevor McAllister, formerly of CSIRO, questions green power and the market for buying carbon offsets. Are these just a licence to sin? And what of any guarantee the trees will be planted, or the hydro dams will continue pumping?*

Now that global warming and climate change have moved from the ivory towers of science to the schoolyard of politics, offsetting your personal greenhouse emissions has become

quite the fashion amongst celebrity travellers such as Al Gore and Richard Branson, and the habit is spreading to the emitter in the street,



as entrepreneurs spring up to provide offsets in the growing market for climate change fixes.

I've been offsetting since before it became fashionable; contributing \$40 per year to provide for tree planting to offset the average car's yearly carbon dioxide emissions. I also buy so-called green power, paying a little extra on each electricity bill for renewable energy rather than coal-based generation. I should be pleased that such personal initiatives have become popular. Scarcely a day passes that there is not some informative article in our broadsheets about carbon neutrality, or the booming business of providing offsets.

Organisations are giving away compact fluorescent bulbs in shopping centres in return for a consumer's signature on a declaration transferring their offset rights which can be claimed as credit or cash on the offset market. Aren't the workings of the free market wonderful?

I do, however, feel rather uneasy about the offset business. It seemed rather like a licence to sin. How can you be sure that those trees will not only be planted but also tended so that they grow and absorb all the carbon dioxide claimed by the offset providers? And if the dams in Australia are nearly empty, where's the green power when we have so few wind farms? Isn't there something fundamentally flawed in alleviating the consciences of energy spendthrifts when what the planet really needs is a substantial decrease in carbon consumption?

Perhaps it's because I grew up in an era of rationing in the 1940s that I feel drawn to the personal carbon credit system, advocated last year by David Miliband, then British environment minister. You would have a credit card with your carbon allowance on it, and every transaction would be recorded with its associated carbon emission content, until when you had used up your ration you simply

could buy no more, whether it be French camembert or New Zealand sauvignon blanc or petrol or electricity or bread, just like the old ration cards of the 1940s. It's hardly surprising that the proposal drew howls of derision from the British tabloids.

But keeping in mind Schumacher's 1970s book *Small is Beautiful*, I would go further and calibrate each personal carbon credit with the individual's body mass index. After all, size matters a lot in transport, as the energy required to maintain a certain velocity is proportional to mass. Also, larger people need larger furniture, larger cars, larger houses, more material for clothes, all of which has more embodied energy. It's time we compact folk, who for years have been crowded out of seats on trains, trams and airlines, were recognised as the greenhouse-friendly bodies we are. It might also help curb the obesity epidemic. Dream on!

Meanwhile I look forward to some enterprising offset entrepreneur offering me an incentive to maintain my below-average weight, which can be sold in the market to heavier folk with a conscience. Or, more realistically, traded for credits to maintain my air travel emissions. And what is an average weight? You can log in to websites which will not only calculate your BMI but also let you know where your body sits on the range of normal to overweight. They exclude, interestingly, the possibility of being underweight. These tell me that my weight would need to rise to 70 kilograms given my height before I would be considered overweight in medical terms. They also reveal that it would have to rise to 76 kilograms to be average for my age and height.

So I've got 18 kilograms of personal offset to sell. Any takers out there?

## MEMBERSHIPS DUE

If your *Mammal Mail* newsletter address label has **07** on it, then your valued membership is due. Please use the enclosed form.

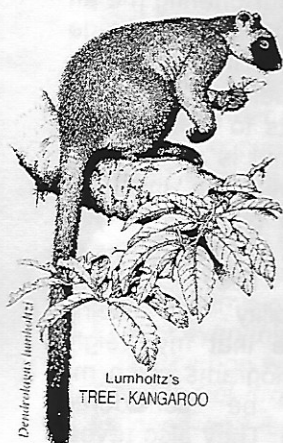
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Thankyou for your past support.

The TKMG website -  
[www.tree-kangaroo.net](http://www.tree-kangaroo.net)  
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[www.pesavento.biz](http://www.pesavento.biz)





Photos by Steve Parish



Lumholtz's  
TREE-KANGAROO

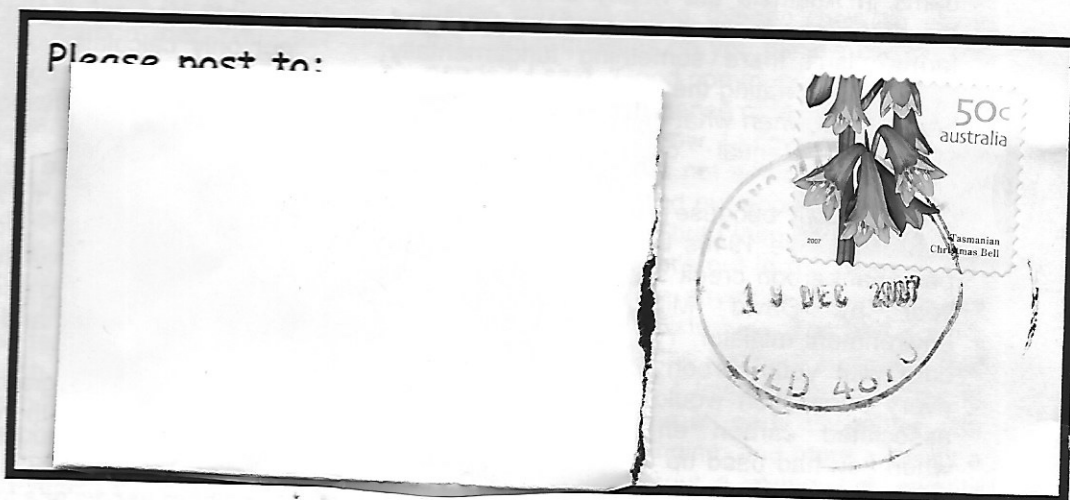
Drawing by William Cooper

## Mammal Mail

December 2007

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PO Box 1409, Atherton, Q, 4883

Please post to:



Tree Kangaroo and Mammal Group Inc (TKMG)

E-mail: [info@tree-kangaroo.net](mailto:info@tree-kangaroo.net)

Web site: [www.tree-kangaroo.net](http://www.tree-kangaroo.net)

President: Jack Grant 0410810427  
[ptiloris@bigpond.com](mailto:ptiloris@bigpond.com)

V. President: Alan Gillanders (07) 4095 3784  
[alanswildlifetours.com.au](http://alanswildlifetours.com.au)

Treasurer/Newsletter: Larry Crook (07) 4096 8243  
[freebrook@austarnet.com.au](mailto:freebrook@austarnet.com.au)

Secretary: Ian Sinclair (07) 4096 6690  
[iroesinclair@bigpond.com](mailto:iroesinclair@bigpond.com)