

# Friends of Bats

newsletter

Issue 99, December 2010



Nick Edards

**WARNING**  
**To all flying-foxes**  
**especially mothers with**  
**young -**  
**Do not enter orchards this**  
**summer!**

NSW Government has taken no action to end licensed shooting in fruit crops.

No clear promise has been made by the coalition to end shooting as a crop protection measure.

NSW Government has made no commitment to provide a financial package to assist growers to install full exclusion netting.

## **2011-2012** **Year of the Bat** **United Nations puts** **the bat in the global** **spotlight**

The United Nations Environment Programme (UNEP) has recently launched the "year of the bat", hoping a bit of positive publicity can foster better understanding of the role bats play in pollination and dispersal of seeds and control insect populations.

UNEP is concerned that bat populations worldwide have plunged in recent decades due to habitat loss, amid increasing urbanization and epidemics. Of 1,100 bat species worldwide, half are endangered due to deforestation and other threats. Compared with animals like tigers and elephants, bats receive little

positive attention and it is time to redress the balance. Not only are they fascinating mammals but they also play an indispensable role in maintaining our environment. Most people are unaware that bats provide invaluable services to the environment. Fruit-based agriculture, vital to tropical economies, depends to a large extent on the ecological contributions of fruit bats. It is estimated about 134 plants which yield products used by humans are partially or entirely reliant on bats for seed dispersal or pollination. And of course, insect-eating bats provide important pest control services.

Visit the Year of the Bat web site at [www.yearofthebat.org/](http://www.yearofthebat.org/)

The web site is dedicated to the "incredibly fascinating, delightfully likeable masters of our night skies." Dr. Merlin Tuttle

## **Why are there more** **flying-foxes in urban areas?**

*Mina Bassarova and Nancy Pallin*

Scientists have been reporting a shift of flying-foxes to urban areas over the last 20 years. There are a number of causes of this change in distribution, particularly of the grey-headed flying-fox. These include loss of foraging habitat, loss of camp sites and increases in food sources in urban areas.

Prior to European settlement, flying-foxes migrated across the landscape feeding on the most abundantly flowering eucalypts, banksias and paperbarks. Different species flower at different times of the year and more abundantly in some years than others. Rainforest fruits mature and provide food from the end of summer through to winter. Flying-foxes do not store fat so they have to go where there is food. There were few areas in their range which had a year round food supply. Most of the soils are nutrient-poor, so many tree species have adapted by flowering irregularly instead of annually, as occurs on other continents.

## Two hundred years of land clearing

Vast areas of native vegetation have been cleared since European settlement for food production - orchards, dairying, cattle and sheep and crops. First to be cleared were the most fertile river flats along the lower reaches of every coastal river. Then settlements expanded and the gently undulating land away from the river was cleared. This is the habitat of the forest red gum *Eucalyptus tereticornis*, which produces high quality nectar most years, feeding many species of nectar feeding birds and flying-foxes. As the human population increased clearing continued, reducing the availability of many other nectar-producing species on the better soils

The especially rich volcanic soils of the Big Scrub in northern NSW and the Comboyne plateau were almost completely cleared of their mix of rainforest and tall eucalypt forests, full of many trees in the diet of flying-foxes.

As clearing occurred along the coastal valleys, the fertile soils on the western slopes west of the Great Dividing Range were cleared for sheep and wheat growing. Flying-foxes would have moved from the coast to the western slopes occasionally to feed on rich nectar flows of yellow box, white box or blakely's red gum. Today remnants of these forest remain only in cemeteries, along railways and roads, on rocky hillsides and as paddock trees.

Little red flying-foxes are the most nomadic of the

flying-foxes, moving along the inland rivers feeding on river red gums *Eucalyptus camaldulensis*, but in times of drought moving to the coast where they join grey-headed flying-foxes. Camps can suddenly be occupied by additional hundreds of thousands of flying-foxes, alarming people who live nearby. Usually they stay only for a few weeks or a couple of months and then migrate to other areas. Such migrations are adaptations to the variability of the Australian climate.

## The pull of urban areas

Gardening in cities and towns has become a national industry. Since the 1960s planting of native trees from anywhere in Australia has greened our cities and wildlife has responded. Fig trees have grown and matured providing long lasting abundant fruit crops during summer through to winter. Nectar-rich lemon scented gums *Corymbia citriodora* (pictured) which occur naturally in Queensland have been planted in Sydney, Melbourne and many country towns. They flower in winter and flying-foxes feast on their nectar and pollen. Broad-leaf paperbark and coast banksia are other garden favourites which are top of the flying-fox diet list. Add backyard peach, plum and even paw paw trees and flying-foxes find plenty to eat.

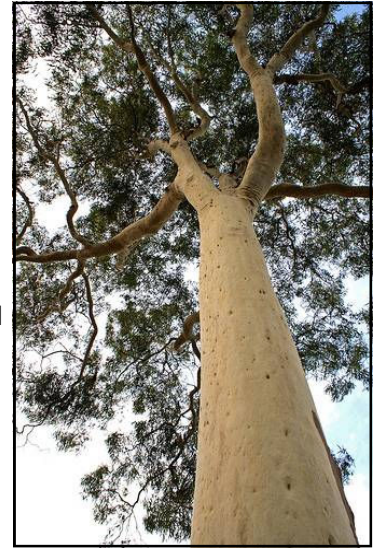
Garden fashions change and quick growing plants which take up less space, such as cocos palms, have spread across cities and even small rural settlements. These palms produce copious fruit crops and attract flying-foxes

to feast on the fruit pulp. Competition for this easy food amongst flying-foxes leads to fruit being carried away and dropped away from the parent tree, invading gardens and bushland. Today most flying-fox camps near urban areas are being infested by cocos and other non-native palms. Flying-foxes also feed on privet, and like urrawongs, spread these seeds across urban areas and into their camps. The chinese nettle tree or sugarberry *Celtis sinensis* is a very fast growing, deciduous tree in the elm family. Flying-foxes have learned to eat its small berries. Cities like Brisbane are infested with celtis and inner Sydney is having masonry damaged by this vigorous, invasive tree. Flying-fox camps are getting more and more seedlings. An attempt to have celtis listed by councils as a noxious weed several years ago failed because they would cost too much to remove. So the trees continue to spread and each one grows bigger producing more fruit.

Is it any wonder that with the loss of native diet plants like the eucalypts in rural areas and an increase in berry-fruited exotic plants in cities and towns that flying-foxes have adapted to this urban cuisine?

## Head in the sand or take action?

Will humans continue to complain, blaming the flying-foxes for moving into 'their cities' or will we work together to re-establish nectar rich foraging habitat in rural areas and reduce the alien invasive plant part of their diet in cities?



The Queensland lemon-scented gum is commonly planted in Sydney, providing another food source for bats.

## Bat flight

Researchers at Brown University are studying bat flight. They are working with the US military that is hoping to develop planes based on the way the bats fly. The study offers fascinating details: bats maintain a mostly constant speed when turning and in a typical turn, bats gain altitude during the first half of the turn and then maintain their height after turning, thereby increasing their net altitude during the turn.

The university has posted videos on the web showing how the Brown team is using wind tunnels to study bats in flight. The videos show bat flight very clearly and demonstrates that, contrary to what most people think, bats don't fly like birds – To see these incredible videos visit:

[www.brown.edu/Departments/EEB/EML/videos.htm](http://www.brown.edu/Departments/EEB/EML/videos.htm)



**We are privileged!**

*Flying-fox Reserve Bushcare Volunteers*

Tuesday mornings in Ku-ring-gai Flying-fox Reserve, Gordon are a special treat.

Our cheerful band of bush regenerators leaves the rush of highways and busy streets, to descend into the cool and leafy valley which abounds with wildlife.

The grey-headed flying-foxes are in unusually low numbers this year so we hope that the travellers are feasting somewhere in eastern Australia on rich nectar and pollen. For the first time in years, the lyrebirds are back. Two pairs have been singing lustily and moving through the undergrowth so we just get tantalising glimpses. The brush turkeys are still about and the swamp wallabies have joeys.

A neighbour of the reserve reported seeing a **female** water dragon laying her eggs in a burrow and carefully covering them with soil.

The powerful owls again produced two big white chicks and Bruce snapped this one which had a ringtail possum in its talons. Did this young owl catch its own dinner or did mum or dad supply it?

With all the rain, the vegetation is growing vigorously, especially the canopy seedlings planted in the last few years. Most have reached the top of the wallaby exclusion cages while some are three times as tall.

We know of only one *Schizomeria ovata*, a native rainforest tree with common names crab apple, white cherry or snowberry, in the reserve. This year it is flowering abundantly so we hope for lots of fruit for the bats and birds to spread

through the Reserve. The coachwoods and christmas bush are also having a good year.

Following the floods last February, the Flying-fox Reserve Bushcarers have been wondering how to grow native trees such as coachwoods along the banks of Stoney Creek. With assistance from Ku-ring-gai Council we will try long stem planting of coachwoods and several other native canopy trees. If you would like to help us get them into the ground when they are ready to plant, do let us know.



Bruce Taylor - Baby Powerful Owl

**Fly out event**

Ku-ring-gai Council is inviting local residents to a flying out event on Wednesday 8 December to view thousands of grey-headed flying foxes leaving their bushland home in the evening to feed.

Speakers from Ku-ring-gai Council and Ku-ring-gai Bat Conservation Society will give a brief talk on the ecology and importance of this threatened species. For more information contact Council on 9424 0933.

**Bat Fact - When did bats first appear?**

The earliest fossil records of microbats are from the early Eocene, around 60 million years ago, in Germany and North America. Because these fossils are of fully formed bats, very similar to today's bats, the first bats to ever exist must have evolved much earlier than 60 million years ago.

**Cabramatta Creek Flying Fox camp**



Ross Rapmund

A jewel in Fairfield Council area is the Cabramatta Creek Flying Fox camp situated on a section of creek line that is actually tidal.

Fairfield and Hornsby council staff and volunteers recently visited the area and were amazed at the diversity and health of this creek line which feeds into Chipping Norton Lake on Georges River.

The flying-foxes were camped in a large stand of Swamp Oaks (*Casuarina glauca*) which is part of the endangered ecological community *River-Flat Eucalypt Forest on Coastal Floodplains* found across larger tributaries in Western Sydney.

The locally rare blue box (*Eucalyptus baueriana*) which

*Ross Rapmund*

might also be utilised by flying foxes, was also in full flower on the day of our visit.



*Eucalyptus baueriana* - Ross Rapmund

**BELLA (1995 – 2010)**



It is with sadness that KBCS reports the death of Bella bat. Bella, aged 15 years, passed away 25 October 2010.

Bella was a bat full of character, delightful and mischievous and loved by all who cared for her. She, like all the education flying-foxes, has helped to change in a positive way, many people's negative perceptions of these wonderful little animals.

## White nose syndrome National Plan and attempts of rehabilitation

*From The U.S. Fish and Wildlife Service*

White-nose syndrome (WNS) is a disease responsible for unprecedented mortality in hibernating bats in eastern North America. This previously unknown disease has spread very rapidly since its discovery in the winter of 2006/2007, and poses a considerable threat to hibernating bats throughout North America. As WNS spreads, the challenges for understanding and managing the disease continue to increase. Given the complexity of the problems facing state and federal wildlife agencies, a highly coordinated effort is required to effectively manage WNS and conserve species of bats. The National Plan for Assisting States, Federal Agencies and Tribes in Managing White-Nose

Syndrome in Bats details the elements that are critical to the investigation and management of WNS, identifies key action items to address stated goals, and outlines the roles of agencies and entities involved in the WNS response. To see the plan visit [www.fws.gov/WhiteNoseSyndrome/index.html](http://www.fws.gov/WhiteNoseSyndrome/index.html)

A recent survey of the bat population in New Jersey estimated that 90% of that state's bats had been killed off. Bats are the primary predator of night-flying insects. That includes pests like mosquitoes, corn earworm moths and cotton bollworms. In their caterpillar forms, those insects can destroy crops. A 2006 study of counties in South-Central Texas concluded that the local bat population had an annual value of over \$740,000 a year as a pest control - or up to 29% of the value of the local cotton crop. Scientists are under pressure to find a way to save the

remaining bats and stop the spreading to other states. The problem is that it is still not understood how the fungal infection leads to death.

There are several hypotheses. One is that the fungus irritates hibernating bats in some way, making them act erratically. They emerge from their winter sleep, move about their caves and sometimes even fly outside as if in search for food - but all the activity causes them to burn through their fat reserves so they are unable to survive the winter.

Another theory is that some unknown agent attacks and weakens the bats initially and the fungus acts as an opportunist by attacking the weakened bats. The fungus causes serious damage to the bats' wing membranes, which makes flying difficult.

New Jersey experts are contemplating capturing several dozen infected bats from hibernation sites over the next month and taking them to a centre where they would be



Little brown bat; close-up of nose with fungus, New York, Oct. 2008. Photo courtesy Ryan von Linden/New York Department of Environmental Conservation

fed, given fluids and nursed back to health. They are hoping that once they get their metabolism back up, their immune system could recover, and they might be able to fight off the fungus. Then, at hibernation time in the fall, those bats would be sent to an hibernation site whose population was wiped out by the fungus. If the rehabilitated bats survive the winter without illness, it could be a sign they have built immunity to the fungus, and rehabilitation of sick bats on a wider scale might be worthwhile.

## Private members bill to "Clear the way" to the Maclean camp dispersal

Luke Hartsuyker, the National's Federal Member for Cowper, brought into Federal Parliament a private members bill which is intended to amend the Environment Protection and Biodiversity Conservation (EPBC) Act so that any dispersal of flying foxes in Maclean<sup>(1)</sup> will be deemed to be "unconditionally approved" by the Minister. In the words of the honourable member for Cowper, this proposed amendment to the legislation is intended to "afford some relief to

the residents of Maclean...from the presence of a large colony of flying foxes... This bill is about protecting the students of Maclean High School into the future against bureaucrats who have no concern for their wellbeing. This bill is about ensuring that the interests of bats remain secondary to the interests of our kids."<sup>(2)</sup>

This means that, if passed by parliament, Mr Hartsuyker's bill will see the Federal minister removed from decisions regarding the bats dispersal process, thereby removing any ministerial control for camp relocation and an important safeguard.

As David Pinson, author of The

Flying-fox Manual, says "Control for dispersal applications for vulnerable species should remain under federal control. I feel strongly that if this bill were to pass, it would set a very dangerous precedent for the 500 plus flying-fox colonies in Australia – many of which are in close human proximity; due to factors such as shooting and habitat loss – let alone the risk to any other vulnerable flora and fauna if left at state discretion."

<sup>1)</sup> See FoB No95 Dec 09 for information on the Maclean camp.

<sup>2)</sup> From "House Debates" website: [www.openaustralia.org/debates/?id=2010-11-22.63.1&s=flying+speaker%3A10285](http://www.openaustralia.org/debates/?id=2010-11-22.63.1&s=flying+speaker%3A10285)

## Bat Fact - How many bat species are there?

There are over 900 species of bats (including microbats and megabats) accounting for about one quarter of all mammal species.

## Bat Conservation Gift Fund News

Donations received from October to December 2010, received from: M Alfred, E Burgess, L Burns, B Every, D Fraser, J Gye, G Lang, R Macgregor, C Perry, G Richards, E Sehmer & D Lennard, R & J Abell, P Langley, T. Prince, Oatley Flora & Fauna Conservation Society Inc. Total donations received \$1870

**Thank you all for your generosity!**

Donations over \$2 are tax deductible - receipts are mailed with the next newsletter unless otherwise requested.

## Friends of Bats

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PO Box 607, Gordon,  
NSW, 2072 Australia.  
Website: [www.sydneybats.org.au](http://www.sydneybats.org.au)  
Email: [web@sydneybats.org.au](mailto:web@sydneybats.org.au)

Chairperson:  
Nancy Pallin (02) 9416 7334  
Subscription enquiries:  
Penny Diakiw (02) 9449-3539  
Newsletter editor:  
Valérie Insall