

WILDLIFE DIARY

July 2011



Great Finds

Pacific Baza, *Aviceda subcristata* active along Tarradarrapin Creek.

Short-Beaked Echinda, *Tachyglossus aculeatus*, seen at Carindale.

POPULATION MATTERS

Population Film Festival Brisbane: Recent documentaries and short films on the contribution of population growth to ecological, social and economic crises. Covering global, Australian and local perspectives. Includes films by David Attenborough and Dick Smith, as well as the Australian Premiere of *Mother: Caring for 7 Billion* (2011), and Queensland Premiere of *Dennis Grosvenor's State of Siege* (2011). Followed by public discussion forum.

For full program and online tickets, visit www.populationfilmfestival.com

Sunday 28 AUGUST 10:00 am to 6:30 pm.
Tribal Cinema, 346 George Street, Brisbane.

A Mangrove with Persian connection

Grey Mangrove, *Avicennia marina* is one of more common mangroves in Moreton Bay but did you know where its name came from? *Avicennia* is named after Ibn Sina (980-1037 AD), a Persian physician-philosopher who gained fame by curing, at the tender age of 17, the King of Bukhhara of an ailment that other physicians were unable to treat. As a reward, he asked only for permission to use the King's library. Ibn Sina went on to write an immense encyclopaedia of the medical knowledge of his time. His *Qanum* (Canon of Medicine) remained the standard medical textbook on plants for 500 years. *Marina* means *of the sea* in Latin. Currently Grey mangroves are dropping their propagules.

Melaleuca quinquenervia

Melaleuca quinquenervia are finishing their flowering. *Melaleuca* coming from Greek *melas*; black and *leukos*; white, referring to black marks on the white trunks of some species due to fire; *quinquenervia* comes from Latin *quinque*, 5 and *nervus*, a nerve, referring to the pattern of veins on the leaves.

Did You Know?

Did you know flying foxes are important pollinators and seed dispersers of many plant species? They play important roles in the reproduction, regeneration and dispersal of plants within rainforests, eucalypt forests, woodlands and wetlands.

Did you know also that many of the conflicts between humans and flying-fox camps may be attributed to poor planning and inappropriate development near established camp sites? Creating public open space buffers around established camp sites, aligned with more sympathetic developments, could minimise future conflict, particularly in new residential areas.

Often when disturbances were used to disperse flying-foxes from camps they: initially roosted within 500 m of the site; did not simply join pre-existing camps; did not shift their roosting activities into the "pre-determined" target sites; and did not move to locations acceptable to the broader community. More generally, flying-foxes are very mobile animals, and the availability of food resources in the local area is an important influence on patterns of abundance in flying-fox camps, therefore it is not surprising that disturbance actions have rarely had lasting long-term effects on how flying-foxes use roost habitat. Source: Roberts, Eby, Catterall, Kanowski and Bennett (2010).

Great Walks



If you like to view Flying foxes in the Bayside and Redlands they can be readily seen at the Black Swamp on Shore Street, Cleveland. Tarradarrapin

Wetlands also known to support Flying Foxes.

WWW

Super Quarry - it's back again

<http://www.superquarry.org.au/>

http://www.youtube.com/watch?v=wjyQoQB8onA&feature=player_embedded#

Flying Fox camps in urban areas

http://www.jcu.edu.au/rainforest/issues/ITFL_flyingfox.pdf

Population film festival

<http://population.org.au/index.php/events/spa-events/689-population-film-festival-brisbane>

Great photos of local wildlife

<http://ozbirds-wildlife.com/>

Flying Foxes

By Les Hall, Wildlife Consultant

Conflicts between humans and flying foxes have a long history in Australia. Initially the damage done by flying foxes to fruit crops was the principal reason. The recent advent of netting as best practice for modern orchard management has switched the conflict to urban camp management. Flying foxes are establishing camps in urban areas and nearby residents complain of noise, smell, droppings and health concerns. Policies exist for the management of camps, but each camp has its own set of circumstances. No one plan suits all. Camp dispersals have been attempted but have some drawbacks, the main one being that it cannot be considered permanent without continued monitoring and further dispersals. Camp dispersal activities are costly and time consuming and do not solve the fact that flying foxes need a roost site. The establishment of new camps by displaced flying foxes usually means the same problem is only repeated in a new area. Management of camps in situ via public education and vegetation management has been shown to be more efficient and less costly. Decreasing numbers in several species of flying foxes has resulted in them being listed as vulnerable species. As the major nocturnal pollinator, flying foxes play a valuable role in the health of commercially important hardwood forests in eastern Australia. Flying fox camp site characteristics are only just being researched. Using this information it is hoped that future planning will provide permanent, problem free camp sites that are essential for flying fox survival.

HISTORY OF CONFLICT

There is a long history of human/flying fox conflicts in eastern Australia. The appointment of Francis Ratcliffe to investigate flying foxes in 1929 was probably the first time a vertebrate pest was officially studied in detail. Ratcliffe investigated flying foxes in regard to fruit crop damage and destruction. His conclusion was that the problem was over-stated. In subsequent years it was obvious that serious damage was being caused in orchards by flying foxes particularly when their natural food was scarce. The frequency pattern was as irregular as the weather and during good times (ie, no flying foxes) fruit growers and state government officials mostly forgot about the problem. This was reflected in the lack of monies made available for research into predicting "bad" years for flying foxes in fruit growing areas.

At one stage, New South Wales and Queensland authorities took flying foxes off their protected fauna lists. This allowed fruit growers and sporting shooters to take flying fox management into their own hands and they severely reduced flying fox numbers by holding organized shoots at flying fox camps. Thousands of flying foxes were killed in these shoots. Unfortunately no records of these shoots were ever kept and the information that could have been obtained from such large samples for research and management was squandered. The impact of this shooting has probably been a major contributor to the declining numbers of Grey-headed flying foxes.

Some past research efforts have centered around crop protection and these showed that most (eg, bright lights, sound emitters, electric wires) were ineffective, particularly when flying foxes were hungry. In some cases deterrents, such as bright lights, probably attracted flying foxes. In the last 20 years netting of orchards has been developed and shown to give 100% protection if used correctly. Properly designed netting will exclude all vertebrate pests, including flying foxes and is considered best practice in modern orchard management. Due to the terrain, configuration and size of trees, some older orchards are impossible to net and still suffer from flying fox "attacks". Despite numerous applications, no funding has been made available for predicting flying fox movements that would greatly assist these fruit growers in protecting their un-netted crops.

With the advent of successful orchard netting there has been a shift in the human/flying fox area of major conflict from fruit crop damage to urban flying fox camps. Increasingly, flying foxes are establishing their camps in urban areas and are causing serious and costly management problems. Frequently there is media coverage on places like the Royal Botanic Gardens in Melbourne and Sydney, Charters Towers, Maclean and Mataranka showing conflicts between humans and flying foxes. The media focuses generally on negative aspects such as disputes between residents who are for or against the flying foxes and attempts to move the flying foxes, and rarely gives an overview of the role of flying foxes in our environment. These conflicts are further exacerbated by people who just don't like flying foxes and support the complaints of others who live near flying fox camps. The major complaints are about noise, smell, droppings and health concerns. Such groups exert enormous pressure on local and state government officials and get good media coverage. The first reaction of these people is to want to get rid of the flying fox camp, ie, the bats can go somewhere else and be someone else's problem. Pandering to these requests does not solve, but further compounds flying fox roost management problems. Flying foxes need to have roost sites.

FLYING FOX ECOLOGY

Recent research on the feeding ecology of flying foxes indicates that a number of commercially important hardwood timber species are dependent on flying foxes for pollination. The flowers of these trees produce fresh pollen and nectar at night, and most importantly, the stigma is only receptive at night. The trees either self-pollinate or use a nocturnal pollinator. Some nocturnal moths may play a role, but it is flying foxes and their ability to transfer pollen over long distances, or from one isolated tree stand to another, that is the principal pollinator. During the day bees, lorikeets and honeyeaters only mop up the previous night's nectar and do not play a role in pollination. Flying foxes are a key species in the health of forests in eastern Australia.

FLYING FOX CAMP MANAGEMENT

The publicity and community emotion generated by attempts to disperse flying foxes from some of their camp sites is in stark contrast to where successful strategies involving education and camp site vegetation management have been used and where flying foxes remain at their camp site. These passive solutions far outnumber the aggressive dispersal attempts. Notable amongst the passive solutions are the camps at Bellingen and Ku-ring-gai (Gordon) in NSW and Slacks Creek and Woodend in Queensland. These flying fox camps have been the focus of community revegetation programs, education days and now generate money from tourism. There are six flying fox camps in suburban Brisbane that potentially could have been major conflict sites, but through successful camp management and education, flying foxes continue to use the camps without complaints. Brisbane City Council funded revegetation programs for these flying fox camps and community wildlife and environmental groups did the work and organized education days. In most camp sites it required the removal of exotic plant species and planting of fast growing and suitable roost trees for flying foxes. Combined with flying fox education days this restructuring of the vegetation has been highly successful. Due to tree growth rates, it is not a quick fix solution and needs 10 to 15 years to be fully effective. In a forward-looking plan, Brisbane City Council is revegetating areas for wildlife habitat and possible future sites for flying fox camps.

Another example of successful management was the way the Helensvale flying fox camp was dealt with by the Gold Coast City Council. Due to a walkway being placed right beside and through part of a flying fox camp, the bats were regularly disturbed by school children. The bats moved to a new area beside houses resulting in residents complaining about noise and smell. Planting of additional trees along the walkway to provide new roost sites and screening for bats, as well as a local education program has resulted in the bats gradually returning to their former roost site. Earlier attempts using noise and silver balloons tied to roost trees failed to move the flying foxes. Identifying reasons why flying foxes move into a new roost site is not always as simple as at Helensvale, but should be thoroughly investigated before any form of management is contemplated.

Unfortunately no two flying fox camp sites are the same and each camp site has to be evaluated separately. State fauna authorities have developed policies for managing flying foxes, but at times they lack the flexibility needed to cover all situations. Different camps serve different purposes for different flying fox species at different times of the year.

There are instances when it is desirable to move flying fox camps. One situation is where the amount of vegetation in a camp site is not sufficient to allow regular movement of flying foxes to new trees and irreparable damage is done to the vegetation. Some locations very close to human dwellings may also be unsuitable for flying fox camps. Research into the characteristic features of flying fox camps has only recently commenced and further work is needed to accurately predict or plan for alternate and future camp sites. Despite the considerable cost and effort put into enticing bats from the Melbourne Royal Botanic Gardens to disperse to a new prepared site, the flying foxes chose a totally different location on their own accord.

Most dispersals of flying fox camps (usually by noise and continuous human disturbance) initially result in them only moving a short distance away. They stay there while the noise continues, but return soon after the noise stops. If noise is continued they may adopt this new area as a temporary or semi permanent roost. Often these new places are less suitable as roost sites. An example is at Mareeba in Queensland where a flying fox camp in a park near houses was disturbed (using a helicopter and noise) and it relocated next to a hospital. Relocations such as these may satisfy disgruntled residents but are a real headache for wildlife managers who then have to face a new lot of people when flying foxes set up a camp site in a new location.

There are major problems with flying fox camp dispersals. One is that there can be no guarantee that flying foxes will not return to the same site in two days or two months or anytime in the future. Flying foxes are highly mobile animals and individual Grey-headed flying foxes travel anywhere between Bundaberg and Melbourne. A group of flying foxes chased from a camp could soon be replaced by a totally new group unaware of the disturbance. Maternity camps appear to attract the same group of individuals each year, but the varying numbers at these camps indicates that additional bats will also use the camp. To ensure that a flying fox camp is not reoccupied requires constant monitoring and further disturbance – both time consuming and expensive. Noise disturbance (gas guns, motor mowers, tin bashing, and even helicopters) causes as much disturbance to residents and their pets as it does to flying foxes. At Woodend noise from an attempted disturbance caused angry complaints from residents, dogs ran away from their homes and cage birds died of fright. The Woodend camp site was subsequently turned into a nature reserve and is now being revegetated. The camp is a popular tourist attraction and has featured in several of David Attenborough's documentaries.

Evidence suggests that continued disturbance severely interferes with reproduction in flying foxes. The numbers of Grey-headed, Spectacled and Little Red flying foxes are declining in eastern Australia. This has resulted in some states and the Commonwealth Government listing the first two as vulnerable. Camp dispersals are expensive, disruptive, community splitting and require ongoing monitoring. The removal of flying foxes from the Melbourne Botanic Gardens has cost over \$3 million to date. Education and camp site vegetation management are more preferable options.

MYTH BUSTERS

- Flying foxes and their droppings are a human health hazard. Wrong. Only two people have died from flying fox bites, and that was before the presence of Australian Bat Lyssa Virus was known. Treatment for flying fox bites is now widely available. Droppings and urine from flying foxes do not pose a health hazard. Queensland Department of Health lists flying foxes as "of low concern".
- Flying fox camps can be permanently moved. Wrong. All attempts to remove flying fox camps have only resulted in moving the problem somewhere else and the conflict usually starts all over again. Flying foxes will return to their camp anytime after the disturbance ceases. After 100 years of continual disturbance, flying foxes still return to their camp at Maclean.
- Sustainable harvesting of flying foxes is viable. Wrong. Research has shown that due to the low reproductive potential (only one young per year and most females are 2 to 3 years old when they have their first young) only a 10% harvest will cause a permanent decrease. Also, natural juvenile mortality is high in the first two years and flying foxes are subject to their own population regulating factors, such as mass spontaneous abortions. In the case of abortions, a whole year's cohort can be removed from a population. If commercial enterprises are involved with harvesting, money will always over-shadow animal and ecological factors.

ACKNOWLEDGEMENTS: I would like to acknowledge the many conversations with P. Birt, P.Eby, N. Markus, G. Richards and B. Roberts as having had an influence on this article. However the opinions expressed in the article are those of my own.

Never doubt that a small, group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has. Margaret Mead.

