



Introducing the Buff-footed Antechinus

In January this year, my husband was most unimpressed to find that something, presumably a rodent, was nesting inside his lovingly self-restored 1965 classic car. The animal had made a dreadful mess behind the rear seats and inside the roof lining. Despite the use of two different catch and release traps and a diverse range of bait, we were unsuccessful in our capture attempts. Finally after a month we had some success, yet on closer inspection the creature was clearly not a rodent.

I was able to tentatively identify it as an antechinus, a small native carnivorous marsupial. However, I was unable to tell if it was a Brown or Yellow-footed Antechinus, the two species found in the greater Brisbane area. With the help of my Land for Wildlife Officer and the Queensland Museum the animal was actually (yet tentatively) identified as a Buff-footed Antechinus.

Previously thought to be just a variation of the Yellow-footed Antechinus, the Buff-footed Antechinus was last year found to be a separate genetic species. At the time of writing, there is little information on them in the public domain. Affiliates of the Queensland Museum are in the process of conducting further research and of formally

developing the classification information of these cute yet cheeky little critters. What an exciting find!

Generally our local antechinus are the size of a small rat, with males being larger than females. Their diet primarily consists of insects however they can also eat other small animals such as lizards, birds and mice. Some have been known to eat flowers and fruit. Their preferred habitat includes moist and dry forest, lantana and other thickets and around creeks. They are not usually present in the inner suburbs.

Antechinus are considered to be robust and adaptable and can sometimes be found causing havoc inside homes; nesting inside televisions and couches and raiding kitchens. However, they are not particularly abundant due to predation by cats and their distinctive mating and reproductive habits. Unlike mice that reproduce often, antechinus all mate at the same time and only once a year, producing a litter of up to 12 young.

Interestingly, all male antechinus live for only 11 months. Males engage in such frenzied mating behaviour that their

Article continued on page 15.

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editorial

I would like to start by thanking Land for Wildlife members who contributed to this newsletter. Nature offers us endless topics to write about and I encourage readers to contribute to this newsletter. I know many Land for Wildlife members like to know what other members are doing on their properties and can draw inspiration from such stories. So, if you are keen, please drop me a line or a photo.

Surprising myself, I have recently developed a bit of an interest in horses. I met a horse a few months ago with the same colour hair as me and a watchful but kind eye. I have subsequently signed up to volunteer with a community organisation working with horses and disadvantaged children and will see what eventuates. Coincidentally, if there is such a thing, this newsletter edition contains two articles by Land for Wildlife members who equally share a love of horses and nature conservation and have found a way to combine both on their properties.

It is exciting times in the ecological community when a new mammal species is found, and it would seem that such a scenario is unfolding right here in the western suburbs of Brisbane. With the help of Land for Wildlife members (see front page), the Buff-footed Antechinus may soon become the 52nd member of the Australian Dasyurid Family. This Family includes quolls, dunnarts, planigales, phascogales and antechinus. Only seven

Dasyurid species occur in SEQ, the Buff-footed Antechinus would be number 8.

I was inspired by a workshop on flying foxes that I attended last year with renowned bat expert, Dr Les Hall, I just had to write an article. I hope it helps us all appreciate another group of mammals with whom we share SEQ.

Three pages of this edition are dedicated to the humble macadamia and how this regionally endemic rainforest plant spurred a global industry. The Macadamia Conservation Committee is always keen to learn about new populations of wild macadamia trees, so if you think you have some on your property, please read the article and contact the Committee.

Finally, I would like to thank Ipswich Land for Wildlife Officer, Peter Copping, for his contribution to the program and private land conservation over many years. Peter has moved on to a new career and we will miss him at Ipswich and wish him all the best. I would also like to welcome a new member to the Gold Coast team, Todd Burrows. Many of Todd's excellent nature photographs have been used in past newsletters and I welcome him to the Land for Wildlife team.

I hope you enjoy this edition.



Deborah Metters
Land for Wildlife
Regional Coordinator
SEQ Catchments

Landholder Registrations, Land for Wildlife SEQ - 01/3/2012

Registered Properties	Working Towards Registration	Total Area Retained	Total Area under Restoration
2858	688	52,993 ha	4,164 ha

Forward all Letters to the Editor, Fauna Vignettes and My Little Corner contributions to:

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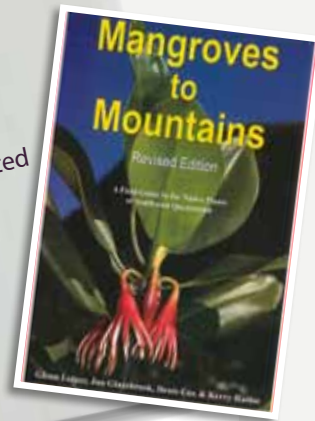
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fauna vignettes

FREE BOOKS

SEQ Catchments is giving away free copies of *Mangroves to Mountains* revised edition RRP \$50.00 to selected contributors of published Fauna Vignettes and My Little Corner articles in 2012. Limit of two free books per newsletter edition. Please send your article and/or photographs to the Editor (details pg. 2)



Poor crows

Pity the poor crow – it's a wonder it doesn't leave town around late October when the Channel-billed Cuckoos migrate from the north. Each year these chosen ones rear the cuckoo's ravenous chicks, scouring the garden for tasty morsels to satisfy their squawking foster children. I have yet to spy a baby crow so it seems survival of the fittest or noisiest ensures there's little hope for the crow's own.

Last season the crows were especially busy, catering for the needs of three chicks while more recently two were most visible in vegetation close to our

house. By the time the young birds are ready to leave us around February or March they are larger than their accommodating foster parents.

Peace reigns when the masquerade ends around February or March and the noisy ones depart, leaving the crow to reflect perhaps on the joys of motherhood and a job well done.

Val and Tom Geurts
Land for Wildlife members
Ormeau Hills, Gold Coast



A new addition

Small circles appearing on the ground usually refer to some out-of-space activity. To our amazement we were taken back by leaf movement from our verandah in the recently brushcut fire break area. The spotting scope was quickly positioned for a closer view and what a surprise when we positively identified three Painted Button-quail busily performing their circles on bare ground in search of seeds and insects. This activity was detailed in Michael Morcombe's Field Guide. We have over

many years been blessed with several Brown Quail so this addition adds to our record of Land for Wildlife sightings. It would appear our brush cutting in a small area had aided this species who prefer short grass.

Carole and Richard Green
Land for Wildlife members
Whiteside, Moreton Bay



With rain comes frogs, and...

Another wet summer in SEQ has delivered another good season for frogs, and also all the animals that like to eat frogs.

Here is an image of a Keelback eating an unfortunate Great Barred-frog

(*Mixophyes fasciolatus*), and then going for a few laps in the pool to work it off.

Steve Anthony
Land for Wildlife member
Sheldon, Redlands



flora profile

South East Queensland: The Home of Macadamias

There are four species of the genus *Macadamia*, which are members of the Proteaceae, an ancient family of flowering plants that are largely of Australian origin and include *Banksias*, *Grevilleas* and *Hakeas*. *Macadamias* natural distribution is confined to the coastal ranges of Northern NSW and South East Queensland, where they occur as evergreen trees in remnants of rainforest communities below 600 m elevation. Two of the species bear edible nuts, from which the global macadamia nut industry has developed.

Macadamia integrifolia

Integ = entire; folia = leaves. The main domesticated species of commerce. Commonly known as the Australian, Queensland, Smooth-shelled and Bauple (Bopple) Nut. Endemic from the Gold Coast hinterland to Mt. Bauple north of Gympie. Typically grows to 15 metres with three leaves to each node, creamy green flush, cream flowers born on long racemes, bearing after 3 to 5 years.

Macadamia tetraphylla

Tetra = four; phylla = leaves. Also grown commercially but usually as hybrids with *Macadamia integrifolia*. Commonly known as the Rough Shelled Nut or Bush Nut. Endemic from the Lismore district and overlaps with *M. integrifolia* just north of the NSW/Queensland border. Typically grows to 15 metres with four spiny leaves to each node and having little or no petiole. New flush is red/brown and flowers pink to purple. Nuts in shell are pebbly with the kernel not as creamy as *M. integrifolia* but a little sweeter.

Macadamia ternifolia

Terni = three; folia = leaves. Grows to around 8 metres with three leaves to each node. New flush and flowers are pink. Commonly known as the Maroochy or Gympie nut, they range from Mt Nebo near Brisbane to Goombarian near Gympie. The nuts are the size of peas and the kernel is very bitter. They make attractive ornamental trees.

Macadamia jansenii

Known only from a single population of around sixty individuals located along a small creek in the Bulburrin National Park south west of Gladstone and discovered in the 1980s. Is similar to *Macadamia ternifolia* with brown new flush and creamy to slightly pink flowers. Nuts are small, not edible being slightly bitter.

It can be difficult to differentiate between the three main species, especially at the seedling/juvenile stages, where the leaflets in all species can range up to 300 mm in length and are usually spinose, arrangement varying between 2-5 whorls, with pink flushing of new growth possible in all species. Leaf morphology in adult *Macadamia integrifolia* leaves are usually entire, but can be spinose in some individuals.

In some areas it's not uncommon to find trees that contain combinations of features that are normally associated with one or the other species. For example, *Macadamia*



The pink flush and flowers of *Macadamia ternifolia*.



Macadamia jansenii.



Photo far left: Juvenile leaves of *Macadamia integrifolia* are sharp and strongly toothed in whorls of three.

Photo left: Adult leaves and pink flowers of *Macadamia tetraphylla*.

“.. since European settlement possibly 80% of the wild trees have been lost.”

integrifolia and *M. tetraphylla* both naturally occur along the coastal ranges and foothills south of Brisbane, where they can occasionally be found growing together. In these places hybridization has occurred over many generations, with crossing and backcrossing in the population resulting in expression of characteristics from both species within individual plants.

Another possibility is that trees with multiple species characteristics are hybrid cultivars of *Macadamia integrifolia* and *M. tetraphylla*, that have been planted for their nuts, or have grown from seeds from nearby cultivars. Examples can be found in the foothills of the Blackall Range, where the trees may have derived from seeds of plantation cultivars on the ranges above, and have dispersed down the slopes.

Macadamias typically flower in late winter early spring, with nuts maturing over the summer months. They have the capacity to self pollinate however are more productive when flowers are pollinated from another tree. Pollination is by introduced European bees and native stingless bees.

In the wild they do not appear to be highly reproductive, with relatively low levels of flowering, fruiting and seedling recruitment, however once established they are robust and tend to live for long periods of time, with some individual trees assessed as being four hundred years old or more

The macadamia nut was valued by Indigenous Australians although the limited distribution of the trees and usually very small crops within the rainforest meant they were a delicacy rather than a staple food. They were one of the first products offered in trade to the white settlers usually in exchange for tobacco, rum and axes. Alan Cunningham probably recorded the macadamia in 1829, and in 1843 Ludwig Leichhardt collected a specimen which is held at the Melbourne Herbarium. Baron Ferdinand von Mueller described the new species naming it *Macadamia* after the Secretary of the Victorian Philosophical Institute Dr. John Macadam.

In the current landscape, macadamias are most commonly found in lower

topographic positions along creek lines and gullies, or in roadside reserves. However they also can be occasionally found as single trees scattered across paddocks cleared for grazing where they were left as shade trees and/or for their nuts. They tend to be infrequent and sparsely distributed or can be absent in areas of suitable habitat as their hard shelled nuts have the consequence that dispersal is limited to creek flooding, gravity in steeply sloping areas or dispersal by animals such as rodents who have been known to cache the nuts.

All four species are threatened with extinction in the wild and since European settlement possibly 80% of the wild trees have been lost. As much of the original macadamia habitat has been cleared and remaining areas are small and highly fragmented, all patches of suitable habitat have potential value for the species, whether currently occupied or not.

A Recovery Plan has been prepared, adopted by the two involved States and the Federal Government and is being used to guide their conservation. If you have potential macadamia habitat on your property, have information about wild macadamia plants or populations, are or would like more information please contact Michael Powell on leenamike@gmail.com or on 0439 854 525.



This photograph shows a large wild *Macadamia integrifolia* tree in an area that has been cleared for grazing. Macadamia trees were often left for their nuts and as shade trees for livestock. Remaining trees can be highly fragmented and their habitat may not allow for the germination and growth of seedlings.

Article by Michael Powell
Chair, Macadamia
Conservation Committee



flora conservation

The Jordan Tree Project: Identifying the historic and cultural foundation of a global industry

Although Australia is now the largest producer of macadamia nuts, it was the Hawaiian's who first commercialised the industry. Captain Robert Jordan was First Mate of a sailing vessel berthed in Brisbane in 1892 and went to visit fellow Irishmen who had left their mother country because of religious persecution and settled at Hotham Creek, Pimpama on the now Gold Coast hinterland. Jordan visited the Lahey family who had been in the Pimpama region from the 1870's.

Jordan was entranced with the flavour of the delicious nuts growing on wild macadamia trees on the property and along creeks through the district. He collected half a sugar bag of nuts from two trees on the Lahey family property and took them to his brother Edward Jordan who was establishing a small amateur botanic garden at his home in Honolulu.

At least six trees resulted and were considered of good quality. Ernest van Tassel established "Nutridge" the first commercial orchard of 1000 trees at Mt. Tantalus overlooking Honolulu in 1920 with seed nuts from the Jordan trees. Later he was to establish the Hawaiian Macadamia Nut Company, using principally Jordan tree seed stock to develop the early Hawaiian cultivars which were later made available to Australia and the rest of the world.

Back at Hotham Creek, the Laheys and then the Muntz family watched over and respected the two trees from which Jordan collected the nuts. Over time, one of the trees died with the surviving one large and healthy; however, it is under threat due to a proposed sub-division of the property.

A joint project between the Macadamia Conservation Committee and the University of Queensland headed by Craig Hardner is now underway to carry out research via DNA fingerprinting of the remaining tree, now referred to as the 'Jordan Tree'. The project will also examine the DNA of existing remnant wild macadamia trees in the area surrounding the Jordan Tree and Hawaiian cultivars to confirm if the remaining Jordan Tree is one of the major sources of DNA for cultivars that produce macadamia nuts globally. If confirmed, the Jordan Tree itself, and the site it occupies form an important part of our historic, cultural and social heritage both regionally and internationally.



Scientists and conservationists standing in front of the Jordan Tree on the day that leaf sampling occurred in 2011. Photographed are (far back) - Dr Cameron Peace, Washington State University; (front L-R) Dr Mike Powell, University of the Sunshine Coast; Barry Stokes; Trevor Miles; Ian McConachie; Dr Craig Hardner, University of Queensland; Dr Bruce Topp, University of Queensland. Not in picture, Ken Dorey.

Article by Michael Powell
Chair, Macadamia
Conservation Committee

property profile

Nature At Its Best

We moved to South Maclean from Sydney approximately 4 years ago for a number of reasons but mainly for our children. This was to get them closer to nature and give them more room to run around in.

One aim for us was to produce food on the property. We considered stock, but when everything was taken into account, including vet bills, food and fences the cost was too high. We decided that the best way to move forward in food production was to concentrate on fruit trees, vegetable gardens and chickens for egg production.

Our other love is Australian native plants. We have created an area at the front of the house consisting of various different plants from around Australia. We also started another area approximately at the middle of the property where we have planted various larger trees including the Queensland Kauri Pine, flame tree, fire wheel tree, bunya pine and others.

We discovered Land for Wildlife through various Logan City Council events and we made the step to have our property assessed. On 1 November 2010 the property was assessed for inclusion in the Land for Wildlife scheme. I was told to get off that mower in the areas where we wanted to revegetate! This was the best advice we could have received.

We have found that by leaving the grass to grow it has become effective mulch. In places the grass is approximately 250-



The beautiful Scarlet Honeyeater (above) and one of the many species of wildflowers, *Platysace ericoides* (below).

300 mm high. This has become a barrier for evaporation of any moisture which is important with sandy soils that are found on the property. This is displayed in the growth rate of the Casuarinas at the rear of the property. They have grown 300-400 mm in a few months.

We are excited by naturally occurring improvements of the property. These support the regular visits of galahs, rosellas, lorikeets, noisy miners, honeyeaters, wood ducks, black ducks, plovers, brushtail possums, wallabies and Eastern Grey Kangaroos. Other sightings have been Pacific Baza, Wedge-tailed Eagle, Bearded Dragons, goannas, whip snakes, tree snakes, water hens and Glossy Black-Cockatoos. Summer time we have to turn the television up to be able to hear it over the beautiful chorus of hundreds of frogs of various species.

Fireweed (see page 14 for more information) is rampant at present, we are controlling this by manual means and believe the war to be won. There is a small patch of mother of millions which should be treated by herbicide which I do not like using but in this case I feel necessary. At the moment there are a number of wildflowers showing their colour too.



Two Cadaghi trees have been removed which keeps the native bees happy.



Casuarina regrowth at the rear of the property has really taken off and is the start of a small ecosystem connecting to Acacia regrowth on the southern boundary. These Casuarina should attract Glossy Black-Cockatoos.



We are re-establishing native vegetation at the front of the property with help from free plants received from Council.

Article by Sue and Paul Radke
Land for Wildlife members
South Maclean, Logan

fauna profile

Our Wondrous Flying Mammals (Part 1): Flying foxes and eucalypt forests

In late summer this year when I watched them descend in their typical circular landing pattern onto my mango tree to beginning a noisy night of eating delicious ripe mangoes that I would never taste, I couldn't help but think that they looked like tiny people hang-gliding. Their outstretched arms, little legs, torso and heads are not too dissimilar to what "flying" humans might look like. The images shown to the right seem to give some credence to my imagination.

Flying foxes are evolutionary advanced mammals and there is some evidence that they share an evolutionary history with lemurs and are closely related to primates. Flying foxes and humans have shared habitats for thousands of years in Australia and continue to do so. Despite the well-documented and often sensationalised conflicts that occur between humans and flying foxes, we both do benefit from each other's existence. I hope that through greater understanding of flying foxes' crucial role in maintaining healthy

Black Flying Foxes (*Pteropus alecto*) are large bats (24-26 cm, 500-700 grams) with black or dark brown fur sometimes with dark orange fur on their shoulders. They have a wingspan over one metre and are commonly found around Brisbane, Ipswich and Pine Rivers. They always roost high up in the branches as they need to be kept cool by the breeze. They breed in summer. Females are generally either pregnant or breast-feeding their young, both of which are physically demanding.



ecosystems, more wisdom and compassion will be used to solve inter-species disputes between us and them.

Most of the facts presented in this article are derived from a workshop that I attended with Dr Les Hall in October 2011. Dr Hall is one of Australia's bat experts having studied this group of animals for many decades across the Australasian region. It is a privilege to hear Les speak and I encourage anyone to attend one of his talks if you have the chance.

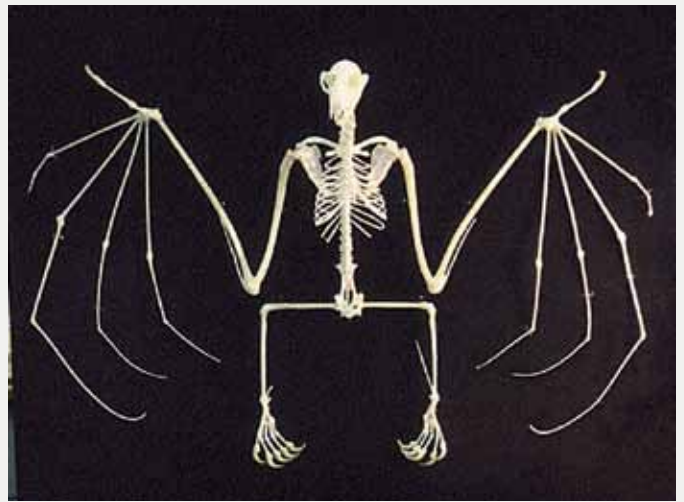
Grey-headed Flying Foxes (*Pteropus poliocephalus*) are slightly larger (23-28 cm, 600-800 grams) than Black Flying Foxes with silver-grey to grey-brown fur on their body and head, with light orange-brown fur on their shoulders. Their wingspan, distribution and breeding times are similar to the Black Flying Fox.



There are about 1000 species of bats in the world with flying foxes being the largest bats, hence why they are often called 'mega-bats' and the small insectivorous bats are called 'micro-bats'. The smallest bat in the world was not scientifically described until 1978 in Thailand - three of these bats can fit in a matchbox.

There are 85 different species of bats in Australia including only four species of flying fox. All four species occur in Queensland with the three species shown below living in SEQ.

Little Red Flying Foxes (*Pteropus scapulatus*) are much smaller (19-24 cm, 200-500 grams) than the other two species with a wingspan less than one metre. They have red-brown fur and large eyes. Little Reds visit SEQ in summer and can 'trash' the camps of the Black and Grey-headed Flying Foxes by snapping branches and basically causing trouble. They roost in bunches of over 50 individuals closer to the ground than the other two species and often leave a camp about six weeks after they arrive.





Flying foxes are important pollinators of native plants, especially eucalypts. Shown here is a Grey-headed Flying Fox feeding on nectar. In doing so, it will trap pollen in its fur and transfer this onto other plants, helping with pollination.

Flying foxes can not echolocate. In fact they hear almost the same frequencies as humans. They use their excellent eyesight and sense of smell to navigate and find food.

Different species of flying fox prefer different types of food. Little Reds have taste buds on the back of their tongue and thus feed mainly on nectar, pollen and stamens. Black Flying Foxes have taste buds on the tip of their tongue indicating that they eat more fruit.

The oldest known micro-bat fossil comes from Murgon, Queensland dating back about 50 million years indicating that Gondwanaland, as the landmass was then, was probably a key location for bat evolution on Earth. Flying foxes, however, are a much more recent evolutionary arrival, spreading across Australia when eucalypts appeared. The relationship between flying foxes and Australia's iconic eucalypts (gumtrees) is a fascinating story.

Research has found that many species of eucalypt produce fresh nectar and fresh pollen at night and that the stigma (female flower part) can only be pollinated at night. Flying foxes that feed on nectar and pollen are very efficient pollinators of eucalypts and can disperse pollen for several kilometres which is important in maintaining genetic diversity of eucalypt trees. An example of this relationship is demonstrated in the distribution of Blackbutt (*Eucalyptus. pilularis*) trees which almost exactly matches the distribution of Grey-headed Flying Foxes.

Eucalypt species that produce white flowers are likely to produce fresh nectar and pollen at night and are trying to attract flying foxes. Whereas eucalypt species with red flowers produce nectar and pollen during the day and are advertising for birds and insects as pollinators. Most of these eucalypts occur outside of flying fox range.

Flying fox numbers have seriously declined this century and can be directly linked to the loss of eucalypt forests. The changing distribution of flying foxes is another interesting subject discussed at length by Dr Hall.

Flying foxes are highly mobile, flying up to 35 kms/hr and can fly many kilometres per night. One individual was fitted with a radio-tracking device in the Melbourne Botanic Gardens and within one week was found just north of Sydney. Similarly, a Grey-headed Flying Fox has been tracked from Bundaberg to Nowra.

In general, all three species of flying fox found in SEQ are expanding their distribution in a southerly direction. Since the 1930s, Black Flying Foxes have been slowly moving further and further south and are now found in Melbourne. Grey-headed Flying Foxes have recently arrived for the first time in recorded history in Adelaide and arrived in Tasmania for the first time this summer (2011-12). Little Red Flying Foxes are moving south and west and Dr Hall predicts that they will arrive in Perth within ten years.

The cause of this southerly trend is uncertain and cannot conclusively be attributed to climate change and is more likely linked to available food resources. As eucalypt forests have been cleared, many food resources for flying foxes now come from suburban and man-made landscape, such as the mango tree in my backyard. We don't know how flying foxes share their information or decide when to disperse, but they need to be somewhat sure that their destination has food otherwise they would be in trouble.

Dr Hall and other researchers have been counting the number of flying fox camps around SEQ for many decades. The population decline of Grey-headed Flying Foxes is probably the most concerning



All three species of flying fox found in SEQ are expanding their distribution in a southerly direction. This map shows the gradual expansion of the Black Flying Fox.

trend. In the 1930's, there were at least one million individuals within a 20 mile radius of Gympie. Now the total population of Grey-headed Flying Foxes is about 600,000 individuals. There used to be five huge camps (such as Indooroopilly Island and Sparks Hill) but these have split up into smaller camps because there is not as much food. Many of these new smaller camps are in suburban areas, causing concern for residents.

As well as pollinating our eucalypt forests, flying foxes are also great dispersers of seeds, both native and introduced. They have a very fast digestion rate, only 12 minutes from eating to pooping. Hence I find it a good idea to bring in my washing from the clothes line before dusk during mango season.

I hope this article helps to increase our understanding of these amazing flying mammals and also increases the respect for the important job that they do for our forests. Talk to your friends and family about how eucalypt forests depend on flying foxes. Part 2 of this article in the next Land for Wildlife newsletter will look more closely at some of the contentious flying fox issues and proven humane and ecologically-sensible solutions.

Article by Deborah Metters
Land for Wildlife Regional
Coordinator, SEQ Catchments

All photographs and maps by
Dr Les Hall

property profile

Protecting Flying Fox Habitat on Coochiemudlo

Coochiemudlo Island is an often overlooked treasure that lies within Moreton Bay. Residents are attracted to it by its natural beauty and the tranquility that it offers and it is home to a beautiful array of flora and fauna.

When Carolyn Brammer first bought her 7.5 acre property (Coochiemudlo's largest remaining privately owned land) in the early 1990's, it was mostly cleared and very bare, with few plants and animals. A lot of the wetland with mature Coastal Paperbark (*Melaleuca quinquenervia*) on the property had been cut down and filled in.

Carolyn had a vision to protect what was left of the property and also revegetate the cleared area with native plant species such as Queensland White Mahogany (*Eucalyptus tindaliae*) and hopefully attract some wildlife back into the area. Part of the property which wasn't cleared is home to the last standing remnant wetland vegetation on private land on Coochiemudlo.

Carolyn joined the Land for Wildlife program in 2008 which has opened up opportunities to protect and restore native plants and animals including Black and Grey-headed Flying Foxes. Both species of flying fox live in relatively great numbers within the wetland on her property and the

latter species is listed as threatened.

Carolyn and her partner Lindsey Duncan have had an interest in flying foxes for some time and have been carrying out monthly 'bat counts' in the area for monitoring purposes. According to Lindsey, the great thing about monitoring bat colonies is that by comparing results with other community groups around the region they can start to paint a more complete picture of flying foxes and better understand their movements and disturbances.

Carolyn and Lindsey's property is home to a flying fox nursery, but recently it has been overcome by weeds which have compromised the wetland ecosystem and also the flying fox roost itself. Some of the weeds include Singapore Daisy, Umbrella Trees, Cocos Palms and Mickey Mouse plant (*Ochna serrulata*), all of which can have a 'suffocating' effect on the local ecosystem.

SEQ Catchments recently provided Carolyn with funding from the Australian

Government's Caring for Our Country program to tackle these weeds with the aim of improving habitat for the flying fox colony. Carolyn has been working with SEQ Catchments' Community Partnership Manager for Redlands, Joel Bolzenius, to help control the spread of weeds.

Initial weed management work occurred over a period of 5 days, and with ongoing maintenance of the site, it is hoped that the integrity of this unique remnant ecosystem will be assured. The primary aim of the work was to improve the health of the wetland area, including the flying fox roost, by prioritising weeds and controlling them on the edges of the property as some species may spread into the wetland area.

With a strong awareness for her natural surrounding environment that Coochiemudlo offers, Carolyn has been actively involved in the weed control project to improve the flying fox habitat and the wetland ecosystem.



Top photo: Carolyn Brammer and Lindsey Duncan on their Coochiemudlo property.

Left photo: A local weed contractor, William Barker, spraying Fishbone Fern.



Article by Sibel Korhaliller
Communications Officer
SEQ Catchments

ecosystem profile

Lowland Rainforest of Subtropical Australia

In November 2011 the Australian Government announced the listing of a new threatened ecological community called the Lowland Rainforest of Subtropical Australia. This ecological community is listed as critically endangered under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and is found across parts of the SEQ region.

The nomination and assessment of this ecological community has taken several years and the Committee entrusted with making a decision determined that there was sufficient evidence for it to be listed as critically endangered. This article outlines some information about the ecological community and what it means for you if you have it on your property.

The ecological community occurs from Maryborough to the Clarence River near Grafton primarily on basalt and alluvial soils generally <300 metres above sea level. In addition, Lowland Rainforest typically occurs in areas with high annual rainfall (>1300 mm) and more than 2 km from the coast. This ecological community can be found in protected areas such as Springbrook, Lamington, Kondalilla and Glass House Mountains National Parks.

The listing of Lowland Rainforest of Subtropical Australia brings the total of number of threatened ecological communities in SEQ to five. The others are:

1. Brigalow (*Acacia harpophylla*)
2. Swamp Tea-tree (*Melaleuca irbyana*)
3. Littoral Rainforest and Coastal Vine Thicket
4. Box Gum Grassy Woodland.

The Lowland Rainforest ecological community is generally a tall closed forest with a diversity of vines and trees such as Hoop Pine, figs, White Booyong, Black Bean, Bangalow and Cabbage Palms, Pepperberry, Giant Stinging Tree, Native Tamarind, Rosewood, Bolly Gum, Yellow Carabeen, Red Cedar and epiphytes. The understorey contains ferns, a diversity of vines, palms, palm lilies and shrubs.

The diversity of rainforest plants and the high nutritional content of their fruits and

leaves provide great habitat for a high diversity of animals. In turn, the plants of Lowland Rainforests rely on native fauna for pollination and seed dispersal.

Insects are the dominant pollinators in the Lowland Rainforest and many understorey species rely on specialist pollinators. Most pollinators however will not travel for more than 100 metres from the patch of vegetation. This means that clearing of understorey and fragmentation reduce pollination opportunities and reduce the likelihood of regeneration.

Most of the pre-clearing extent of Lowland Rainforest has been permanently converted to cropland, residential housing or paddocks. The ecological community that is now protected under the EPBC Act refers to the relatively natural and in good condition ecosystems that exist today.

There are detailed criteria within the EPBC Act listing of what constitutes Lowland Rainforest. As a brief overview, remnant patches of Lowland Rainforest as small as 0.1 of a hectare can be considered part of this critically endangered ecological community. These small patches need to contain mature native trees and more than 70% of the vegetation must also be native. Non-remnant patches over 2 hectares in size that have been restored through natural regeneration or revegetation can be considered part of this ecological community if the patch contains at least 30 native woody species and 50% of the vegetation is native. Many other criteria such as surrounding land use may also need to be considered.

Most of the Lowland Rainforest ecological community can be found in the Gold Coast and Sunshine Coast regions of SEQ.

In addition to hard-to-see threats such as the lack of pollinators, other threatening process affecting the Lowland Rainforest ecological community include weeds, ongoing land clearance, feral animals, grazing, Myrtle Rust, edge effects from fragmentation, fire and climate change.

With human intervention, this ecological community can restore relatively quickly to a rainforest-like state and can provide

habitat for some rainforest dependant animals. However, complete regeneration of Lowland Rainforest may take at least 44 years and possibly as long as 800 years. The listing Committee found that the Lowland Rainforest ecological community has undergone a severe reduction in its ecological integrity across most of its distribution and is currently highly fragmented and is unlikely to recover to its full ecological integrity in the near future, even with human intervention.

Mapping of the Lowland Rainforest ecological community is a difficult process because of the complexity of the listing, so it is not straight forward finding out if you have it on your property. It is recommended to have a look at the listing via the website stated below and then contact your local Land for Wildlife Officer to discuss further.

More information can be found at the Dept of Sustainability, Environment, Water, Population and Communities website at www.environment.gov.au. Or simply search on Lowland Rainforest of Subtropical Australia and your web browser should direct you to the listing page.

Listed ecological communities are considered matters of environmental significance and a person must not take action that has, or is likely to have, a significant impact on the community, without approval from the Australian Government.

Article by Deborah Metters
Land for Wildlife Regional
Coordinator, SEQ Catchments

property profile



Sustainable Horse Management

Regenerating paddock below the horse yard.

I have always loved horses and having two horses for the last few years, I wanted to ensure that I manage them in a sustainable way, to protect the environment on my property. The majority of my bushland property, approx 36 ha, is protected under a Voluntary Conservation Covenant, which I entered into in 2008. I deliberately only left a small area of approximately 3 ha for the horses to use regularly. The horses have always been handfed as I am unwilling to sacrifice native trees to create enough space for a native pasture paddock. For years, my horses had full access to the area but during the years of drought, the area got quite worn and there was little groundcover. Erosion started to occur.

I attended an inspiring Jane Myers' Equiculture workshop on sustainable horse management and as a result I have transformed the area utilised by my horses from an area starting to erode to one with excellent groundcover.

Initially, I fenced off the dam and boggy gully area at the bottom of the horse area and the waterway leading down there, to restore to natural vegetation. I then created two paddocks, controlling the grazing pressure and allowing natural

groundcovers and grasses to regenerate. I recently created a third and fourth paddock to further control grazing access.

I installed the post and wire fencing myself, digging the postholes with a crowbar. This was very hard work but it saved me a lot of money by doing the work myself. This also prevented any damage to the ground from contractor's machinery. Gates were installed to allow access between the paddocks.

A yard at the top of the hill, where the horses' impacts are concentrated, was also created. In the paddock which spans across the top of the hill, I created a feeding area where grass feed was laid down. Seed from feed grass has taken root and can be slashed to produce more feed.

It has been two years since I started this project and with the plentiful rainfall last year, plus a few months rest from grazing, the difference in cover of native groundcover on my property has been remarkable. Within two months of controlled grazing in the top paddock, there was lots of regrowth of *Lomandra multiflora*, *Goodenia rotundifolia*, and native grass species including *Oplismenus*. Now,

in the two least grazed paddocks, there is complete cover of native grasses including *Ottochloa gracillima* and *Oplismenus*.

I planted some native grasses and trees in the waterway. It has now naturally regenerated with excellent groundcover.

The Equiculture website www.equiculture.com.au has fantastic information on sustainable horse management, pasture management, horse behaviour and dates for upcoming Equiculture workshops with Jane Myers.

The SEQ Catchments website also has information on other upcoming sustainable horse management workshops that are offered across SEQ. The booklet, *Managing Horses on Small Properties* by Jane and Stuart Myers (see review on facing page) can be posted to you for free if you contact Deborah Metters on 3503 1423 or dmetters@seqcatchments.com.au

Article by Sally Jenyns
Land for Wildlife member
Burbank, Brisbane



Fenceline showing top paddock and paddock below.



Regeneration in waterway corridor.

book reviews

Wetland Weeds: Causes, Cures and Compromises

By Nick Romanowski

This book was recently published by CSIRO and provides a comprehensive guide to managing aquatic weeds. It includes background information on control as well as a compendium of weed species and families. This publication would be useful to Land for Wildlife members who have dams and wetlands on their properties and have an interest in identifying and controlling aquatic weeds.

The book includes an interesting discussion on the aquarium and pond plant trade, which is the most common source of new and emerging aquatic weeds. I was impressed to see that Amazon Frogbit (*Limnobium laevigatum*) was identified as an aquarium plant with the potential to become a significant weed. Only last year, this plant was found naturalised for the first time in Queensland at Wellington Point. Romanowski suggests that a simple and attractive poster warning people of the environmental dangers of dumping ornamental aquatic plants, as well as promoting the use of indigenous alternatives would reduce the occurrences of new infestations.

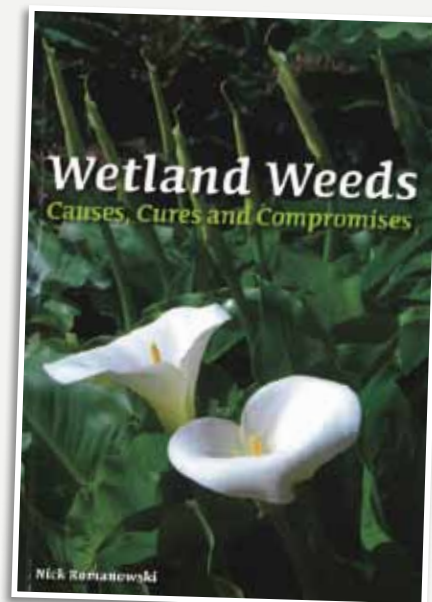
The book also covers assessment and planning of wetland weed control which

are important first steps that are often missed. Several control measures are explained including manual/physical control, reducing light levels, chemical control, biological control and competitive planting. The book details how to use these methods and explains when they are appropriate to use. Importantly, Romanowski promotes an integrated approach – using several different methods in combination to give optimal results.

The book addresses the difficult topic of native plants that have weedy characteristics as well as Australian natives that have become weeds when translocated outside of their natural range.

There are some excellent photographs of weeds and infestations which may assist landholders and professionals alike in identifying water weeds. Although not as comprehensive as some of the field guides currently available, this text does provide much more detailed information (especially on control and management) on the species that have been included.

As someone with a particular interest in wetlands, waterways and aquatic plants, I



Published by CSIRO Publishing, 2011
Paperback, colour photos, 184 pages.
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Price: \$49.95
Available from CSIRO Publishing
and all good bookshops.

found this book quite an interesting read. This book would be helpful to landholders with large dams, waterways or wetlands, who have an interest in ensuring that the plants in these ecosystems are natives. Overall, an admirable and informative publication by Nick Romanowski.

Review by Danielle Crawford
Land for Wildlife Officer
Moreton Bay Regional Council

Horse Management on Small Properties

By Jane and Stuart Myers, Equiculture

This easy to read booklet was produced back in 2010 by sustainable horse management consultants, Jane and Stuart Myers and their business Equiculture. As mentioned in the facing article, this booklet summarises information delivered in horse management workshops offered by Equiculture across the SEQ region. Jane and Stuart are passionate about horses and their work takes them around the world delivering workshops on how people can improve the health and wellbeing of their horses and their horse properties.

Good horse management leads to healthy horses and healthier people living on the property. A sustainable horse property ensures that there is less dust, less flies, less mud, clean creeks and healthy shade trees. This booklet emphasises the fact that healthy horse properties can go hand-in-hand with delivering nature conservation outcomes such as healthy

creeks and natural regeneration. Poor horse management can lead to a range of environmental concerns such as land degradation, erosion, creek pollution and loss of soil. These issues also cause health problems for horses such as eye and respiratory issues, parasites and colic and will result in higher vet bills.

This booklet promotes sustainable grazing on well-managed pastures. To achieve this, horse owners need to understand the social, grazing, sleeping and dunging behaviours of their horses and make sure that the property is set up appropriately.

Equiculture workshops advocate smart management of horse manure as it is a fantastic resource, not something to bag and get rid of. Likewise, the workshops promote the protection of trees and bushland areas and that they should be seen as a valuable asset to a horse property.



This is a free booklet that can be posted to you on request. Contact Deborah Metters at SEQ Catchments on 3503 1423 or dmetters@seqcatchments.com.au to order your copy.

weed profile

Climbing Senecios



Climbing Groundsel invading bushland. Photo courtesy of Jackie Miles.

Senecios (pronounced something along the lines of: *sa-nii-shi-o*) are a group of plants in the daisy family which includes groundsels and fireweeds. Whilst there are several ground herb species of Senecios native to SEQ there are three Southern African climbing species that have been popping up in SEQ over the past few years. These plants have been identified locally as serious emerging environmental weeds and they are already well known in Australia's southern states for causing significant ecological damage.

Climbing Groundsel (*Senecio angulatus*), Canary Creeper (*Senecio tamoides*) and Natal Ivy (*Senecio macroglossus*) have been escaping cultivation as garden ornamentals. These have the ability to dominate and destroy our native bushland by climbing high into trees or sprawling over the ground, smothering the native vegetation and preventing the recruitment of seedlings.

All three species share similar characteristics. They are all long lived scrambling or climbing plants growing to around 5 metres tall. They have glossy, slightly fleshy leaves that are arranged alternately along the stem. The leaves of all varieties are variable in size and shape

and can be 3 to 6 cm long, egg-shaped in outline or diamond-shaped with shallowly lobed or toothed edges. Natal Ivy earns its name, with deeper leaf lobes making it sometimes look remarkably similar to common English ivy.

Like many daisies, mature Senecios can produce thousands of fluffy seeds that float and disperse easily on the wind. However, its introduction into this region as a garden ornamental and the subsequent recent outbreaks into native bushland have most certainly been done by cuttings. The succulent stems of climbing Senecios take root readily when garden waste containing cuttings are dumped into bushland and the stems make contact with the soil.

Control of Senecios can be done manually for small infestations, taking care to remove the root and bagging all parts of the plant to be burned or binned for deep burial disposal. Large infestations growing on the ground have been successfully controlled by foliar spraying with herbicides, with the addition of a surfactant/wetting agent to help it stick and be absorbed into the glossy leaves.

Research suggests that a mixture of 15ml of a glyphosate 360g/L herbicide (eg Round-

up®) and 6g of a 600g/kg metsulfuron methyl herbicide (eg Brushhoff®) per 10L of water, with the addition of 15ml of surfactant (eg Pulse Penetrant®) provides good control when used as a foliar spray. The off-label application of this combination of herbicides is permissible under APVMA permit PER11463. The broadleaf selective herbicide 2,4-D amine (eg Amicide®) is very effective on other Senecio daisies (such as Fireweed) and could also be used on climbing Senecios under this permit.

Where plants are growing into the canopy the scrape and paint method can be used (see your Land for Wildlife Note EW2 for more details), this is tedious and time consuming work but has excellent results without damaging the host trees. Alternatively, all of climbing Senecio stems could be cut low to the ground and the re-growth spot sprayed. If using this method careful follow-up monitoring will be required to prevent reinfestation by any pieces of stem that fall to the ground. If you suspect you have a climbing Senecio on your property please contact your Land for Wildlife Officer for the best advice on its control.

The sure-fire way to tell the three climbing Senecios apart is their flowers:

Climbing Groundsel (*Senecio angulatus*) has bright yellow flower-heads with petals 6-9 mm long.

Canary Creeper (*Senecio tamoides*) has slightly larger bright yellow flower-heads with petals about 10 mm long.

Natal Ivy (*Senecio macroglossus*) has relatively large pale yellow flower-heads with several prominent petals more than 20 mm long.





Canary Creeper smothering a native tree.
Photo courtesy of Jackie Miles.



Natal Ivy with mature seed heads and in flower. Photo courtesy of Jackie Miles.



Many with people with horses, cattle or old paddocks will already be aware of the clumping herb weed, Fireweed (*Senecio madagascariensis*), as it is well known to be toxic to livestock. As such, Fireweed has been classified as a Class 2 Declared Pest and its control is required under State legislation. In fact, all species of *Senecio* contain certain types of alkaloids substances that can cause fatal liver damage to grazing animals.

Above images show the clumping Fireweed and its serrated leaf margins. Photos courtesy of H. Rose.

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Biosecurity Queensland (2007) *Fireweed (Senecio madagascariensis): Invasive Plants and Animals Fact Sheet*, pp31. Land Protection (Invasive Plants and Animals), Department of Primary Industries and Fisheries, Brisbane.

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Article by Scott Sumner
Land for Wildlife Officer
Brisbane City Council

Introducing the Buff-footed Antechinus (continued from page 1)



immune systems break down causing death within a couple of weeks. Furthermore females usually have only one litter which is another reason antechinus numbers often cannot rebound easily if depleted from an area.

My husband has once again heard scratching noises coming from inside his shed and is unhappily anticipating the return of the antechinus. He was none too pleased when I admitted to releasing

the animal mere metres from his shed. Personally I am pleased to have such an amusing and cute little marsupial in close proximity and am thankful for only ever using humane traps for rodent control.

Emily Corbett
Land for Wildlife member
Pullenvale, Brisbane



This strange looking frog, found on a Land for Wildlife property at Logan, is probably a Striped Marsh Frog with some kind of genetic aberration. Its dark eyes suggests that it is not an albino.



CARING FOR OUR COUNTRY

Land for Wildlife Regional Coordination is proudly managed by SEQ Catchments through funding from the Australian Government's Caring for our Country

Horses and conservation

New Land for Wildlife members, Rodger and Julee Parker, are seamlessly blending horse keeping with nature conservation on their stunning 16 hectare property at Ocean View. The Parkers are following best practice property management with their horses, which is greatly benefitting the fauna and flora on their property. Some of the principles the Parkers have employed include:

- Fencing off dams and creeks from horses – horse hooves can badly erode dam banks and damage riparian vegetation, horses which have access to dams and creeks are at risk of fungal diseases and abscesses.
- Removing barbed wire which can cause nasty injuries to horses and wildlife.
- Incorporating native grasses into pasture in paddocks.
- Gradually removing lantana (which can be poisonous to livestock) and revegetating with native plants.
- Protecting large areas of remnant vegetation.

Rodger is currently planning a charity ride from his property in Ocean View to Bullo River Station in the Northern Territory to raise money for the Cancer Council Queensland and the Royal Flying Doctor Service. If you would like to join Rodger on his ride or help support his efforts, visit the website www.brstrailride.com



Logan Eco Action Festival

Sunday 3 June 2012
10 am - 3 pm

Griffith University, Logan Campus,
University Dr, Meadowbrook

Wildlife displays

Organic food

Give-aways

Kids activities

Exhibitors

Workshops

Live music and entertainment

Free event!

For further information contact
Ph: 1300 1 LOGAN or 07 3412 3412
email: council@logan.qld.gov.au web: www.logan.qld.gov.au

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