



Turtles of the Mary River region

In May this year Sunshine Coast Council held a workshop on identifying turtles of the Mary River. At the workshop we were lucky to have Marilyn Connell from Tiaro Landcare share her knowledge of the endangered Mary River Turtle and the other five turtles of the Mary. Eva Ford from the Mary River Catchment Coordinating Committee was also present. Eva and Marilyn have developed an identification key on turtles of the Mary River which can be downloaded from www.mrccc.org.au or www.maryriverturtle.com

The Mary River Turtle (*Elusor macrurus*) is a river specialist, with its habitat restricted to the centre or 'trunk' of a river and the lower end of major creeks. It is not found in dams, small creeks or gullies. The genus *Elusor* contains only one species, the Mary River Turtle, and its distribution is limited only to the Mary River.

Adult Mary River Turtles can reach over 400 mm and unlike most freshwater turtles, males are larger than females. Males have a large tail similar in size to a man's wrist.

During late spring to early summer, females use sandy substrates to lay their eggs in after rain. Eggs can be predated by natural predators like Water Rats or Lace Monitors or by feral animals such as foxes, wild dogs and pigs. Hatchlings are on average 3.3 cm long and weigh 6.8 grams. Hatchlings have serrations on their carapace (shell) unlike adults. Hatchlings eat insect larvae and freshwater sponges whilst adults are more herbivorous whilst still consuming some insect larvae.

The workshop concluded with a site visit to the Mary River near Kenilworth where habitat requirements and conservation issues of the Mary River Turtle were discussed. Concerns were raised at the site visit about uncontrolled access to the



A Mary River Turtle hatchling (top) and an adult male turtle (note the distinctive large tail) with a grey tag that has been placed on its back by University of Queensland researchers for tracking where turtles spend their time in the Mary River. Photos by Marilyn Connell.

sand bank by cars which can damage turtle nests. Council is now installing bollards to restrict access to this important area as well as installing signage on the importance of the Mary River Turtle.

For more information on the Mary River Turtle visit www.maryriverturtle.com or www.mrccc.org.au

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Article by Stephanie Reif
Sunshine Coast Council

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editorial

Life can be so hectic these days, or maybe more accurately, we make life hectic these days, and it is important for our health and well-being to slow down. Spring offers us opportunities to do just that. For me, these opportunities in nature are flowers and butterflies. It is hard to walk past a plant in full flower without looking twice, or taking a few seconds to notice a passing butterfly. These simple things help remind us of our connections with the earth and other beings.

Butterflies have an interesting evolutionary history that I was reading about in the book, *The Butterflies of Australia*, reviewed on pg 13. It seems that they evolved from moths around the same time that flowering plants emerged. Most butterflies have mouthparts designed for feeding on nectar which is obtained from flowering plants. So the evolution of flowers created a niche for the emergence of butterflies, both of which have been around for about 100 million years!

On pg 12 is an inspiring story of a Land for Wildlife member, Dale Borgelt, who has almost single-handedly restored enough habitat to bring back from the brink of local extinction an endearing butterfly called the Bordered Rustic.

This edition also contains a great article by Keith McCosh on mistletoes. They have been in flower lately and are often only revealed when I see their distinctive red or orange flowers on the ground.

Mistletoes are very important in Australian ecosystems as they offer a wide range of resources to wildlife, so it is great if you have them on your property.

Another welcoming aspect of spring is that reptiles will be emerging from their winter hibernation and are best seen on hot, humid evenings. One of the most interesting reptiles I have found on one such evening was a blind snake. It also produced one of the worst odours I have ever smelt. There are five species of blind snakes in SEQ, all of them are poorly-known and rarely-seen. Hopefully the article by Nick Clancy will help raise some awareness of these interesting animals.

If you are not inclined to venture out on hot, humid evenings in search of reptiles, you may prefer to install a motion-sensor infrared camera to detect nocturnal wildlife. They have come down considerably in price over recent years and are discussed on pg 9.

As always, I welcome contributions from Land for Wildlife members. In 2012, I am offering free copies of *Mangroves to Mountains (revised edition)* for selected articles published as Fauna Vignettes or My Little Corner. So get your camera ready and inspire other readers with things that inspire you from your property.



Deborah Metters
Land for Wildlife
Regional Coordinator
SEQ Catchments

Landholder Registrations, Land for Wildlife SEQ - 01/09/2011

| Registered Properties | Working Towards Registration | Total Area Retained | Total Area under Restoration |
|-----------------------|------------------------------|---------------------|------------------------------|
| 2836 | 672 | 52,014 ha | 4,008 ha |

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

The Editor
Land for Wildlife Newsletter
SEQ Catchments
PO Box 13204
George Street QLD 4003
07 3211 4404
dmetters@seqcatchments.com.au

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Land for Wildlife Extension Officers South East Queensland

Brisbane City Council

All enquiries, 3403 8888
Jenny Staples
Fflur Collier
Catherine Madden
Cody Hochen
Peter Hayes
Tony Mlynarik

Gold Coast City Council

Darryl Larsen, 5582 8896
Lexie Webster, 5582 8344

Ipswich City Council

Peter Copping, 3810 6608
Andrew Bailey, 3810 6633
Mark Bell, 3810 6666

Lockyer Valley Regional Council

Kaori van Baalen, 5462 0376

Logan City Council

Rachel Booth, 3412 5321
Nicole Walters, 3412 4859
Lyndall Rosevear, 3412 4860

Moreton Bay Regional Council

Danielle Crawford, 5433 2240

Redland City Council

Maree Manby, 3820 1106

Scenic Rim Regional Council

Keith McCosh, 5540 5436

Somerset Region

Michelle Ledwith, 5422 0516

Sunshine Coast Council

Alan Wynn, 5439 6477
Dave Burrows, 5485 0229
Ed Surman, 5475 7358
Nick Clancy, 5439 6433
Stephanie Reif, 5475 7395

Toowoomba Regional Council

All enquiries, 4688 6611

Burnett Mary Region

**Gympie, Fraser Coast,
North & South Burnett,
Bundaberg and
Baffle Creek Regions**

For all regions contact the Burnett Mary Regional Group, 4181 2999

my little corner

The rewards of keeping bird records

Living on the wetlands can be exciting stuff, especially if you are doing your bird surveys and photo records. I got interested in bird observations when my regional officer, Sue Nolan, approached me about bird counts for my Voluntary Conservation area and Land for Wildlife spot in 2006. I felt I was up for the challenge and it's been my passion ever since.

Keeping records and going back to old ones can bring great rewards especially if a pattern emerges. I have found out in my back yard that birds have habits and mostly they arrive to the day or even week when they migrate from the other side of the world to my little corner. Keeping these records like a detective is helping to protect valuable resources for these beautiful creatures. It is rewarding to be a part of this plan for conservation and it requires a keen eye for detail and monitoring changes in your back yard while recording all details no matter how small they may be.

I noticed a Sulphur-crested Cockatoo eating a mangrove leaf and totally enjoying each bite in 2008. I couldn't believe it when I saw a female Golden Whistler also eating a mangrove leaf and enjoying each bite in 2010. Just recently I spotted a Pale-faced Rosella also eating a mangrove leaf and I wondered if it is a salt requirement in their diet.

I will always be grateful to Sue for introducing me into the bird world which has become a serious interest for me and in joining Birds Queensland, Birds Australia and Bird Observation and Conservation Australia has been helpful. Receiving updates on bird sightings in my area and keeping up to date with the changes that are happening in the bird world has been rewarding for me. I hope this can help anyone who may or is considering being a part of this invaluable contribution. Happy snapping.

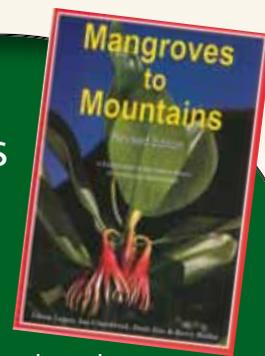
Amanda Johnston
Land for Wildlife member
Ransome, Brisbane



A Pale-headed Rosella (top image), Sulphur-crested Cockatoo (middle photos) and Golden Whistler (above) all enjoy a snack on mangrove leaves.

Free books

SEQ Catchments is giving away free copies of *Mangroves to Mountains* (revised edition) 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)



flora profile

Mistletoes: A critical link in the chain of wildlife interactions



Article by Keith McCosh
Land for Wildlife Officer
Scenic Rim Regional Council

All photographs by Todd Burrows. See more of Todd's photos at [www.flickr.com \(WildatHeart78\)](http://www.flickr.com/photos/WildatHeart78/)



South East Queensland is rich in mistletoe species. Indeed Australia is rich in species with 91 species recognised. A recent book by David M Watson (reviewed on page 13) describes all the species of mistletoe found in southern Australia, and there is such variety.

Mistletoes have a very special place in the web of life and the functioning of local ecosystems. Mistletoes have formed complicated relationships with many different animals that have evolved to depend on them. So let's go into the amazing world of mistletoes.

Mistletoes have evolved separately on a number of different occasions in the history of the world. The two Australian families have separate evolutions – Loranthaceae evolved in Gondwana in the late Cretaceous (about 100 million years ago), with species also in South America and Southern Africa; and Viscaceae evolved in Laurasia, the northern supercontinent, and moved into Australia when we collided with Asia. Many of the Australian species in both families are endemic (i.e. they are only found here).

Mistletoes are hemiparasitic plants that attach to their hosts above ground. They use water and dissolved nutrients from the host but make their own sugars and higher compounds in their green leaves. They are attached via a special structure called the haustorium and these can be quite a large lump. The haustorium intercepts the host's xylem tissues (this is where water flows upwards from the roots to the leaves).

Mistletoe leaves are usually more succulent than the host, as they draw water through continuous transpiration – the pores (stomata) remain open. Ordinary leaves open and close their stomata to regulate moisture loss. So mistletoes are sensitive to dry times and often die during dry periods. The tree just reduces water to the branch and the mistletoe dies. Being succulent,

the leaves are also a target for herbivorous animals such as possums and some insects.

Mistletoes are usually host specific (i.e. only certain species or genera or families of host plants can be infected by individual mistletoe species). Host species can range from rainforest giants to desert dwarfs. Eucalypts and Acacias are the most common host plants (they are the most common flora too in Australia). The Viscaceae are quite specialised in that they usually only choose other mistletoes – what an amazing evolution, mistletoes on mistletoes.

Mistletoes grow from seeds. You can germinate them yourself – just try it. The seed is triggered to shoot when removed from the parent plant and the skin removed. The seed is covered in a sticky translucent pulp called viscin which sticks the seed to a suitable branch. The shoot then penetrates a branch, if it can, through the actions of special enzymes. Mistletoes rely on dispersal agents to spread their seeds. The Mistletoebird and the rare Painted Honeyeater are two animals that specialise in dispersing mistletoe seed, and in-turn, rely very heavily on mistletoes for food (a mutually beneficial relationship).

Mature mistletoes flower profusely, often at different times from their hosts. Loranthaceae species have long tubular flowers of bright colours – specialised for pollination by birds. Honeyeaters in particular are specialised to pollinate these flowers and depend on the profuse and wide-spread availability of nectar (another mutually beneficial relationship). There is no better place for watching birds than at clumps of mistletoe in flower. The Viscaceae are different and have small uncoloured flowers probably pollinated by insects.

Mistletoes are used quite extensively as shelters. With many close branches forming a protection and screen, one can understand why. Birds, in particular, seek out mistletoes for nesting.

Mistletoebirds are specialists at eating mistletoe fruit and are essential in the dispersal of mistletoe seeds. Mistletoebirds have a very simple digestive system and defecate only 4-12 minutes after ingesting mistletoe fruit. This means that the seeds pass through Mistletoebirds intact. When defecating, a Mistletoebird wipes its faeces onto a branch, rather than dropping it to the ground like most birds. The sticky pulp of mistletoe fruit and seed attaches easily to the branch that it is wiped on, from which a new mistletoe plant may grow. Shown here is the handsome male Mistletoebird.



Mistletoe flowers produce nectar that is sought-after by a wide range of birds, butterflies, moths and other animals. This White-throated Honeyeater is feeding on nectar from the Apostle Mistletoe (*Dendrophthoe vitellina*).



The foliage, fruit and flowers of Needle-leaf Mistletoe (*Amyema cambagei*).

Much has been learnt about the relationship between mistletoes and butterflies and moths. Even more is unknown. There are at least 27 species of butterfly that use mistletoe as a host for their larvae. Two groups in particular are specialists – Jezebels (Pieridae) and Azures (Lycaenidae).

Azures are also doubly intriguing in that they associate with ants – usually their mortal enemies. The larvae (caterpillars) are cared for by certain species of ant and give a sugary reward in return. Each evening, the ants lead the larvae up to the mistletoe to feed and lead them back down to safety in the morning. Larvae pupate in the ants nest and emerge as adults and calmly walk out and fly off without being harassed at all. A number of moth species also use mistletoe – but that’s another story (I don’t know much about moths). What’s in it for the poor old mistletoe? – nothing at all.

Possoms also like to graze on mistletoe. In fact, possums are thought to be a key control on mistletoe density. Only where possums are thin on the ground do mistletoes become abundant – often along highways or in the middle of paddocks. In undisturbed forests, mistletoe is often hard to find. But survive they do, and our forests are better for it.

Forests with mistletoes have greater biodiversity than those without. In particular, there are more birds found in forests with mistletoes, and therefore, more potential pollinators of host trees. Such forests have an advantage. Watson calls mistletoe a “keystone” species because so many species use the resources of mistletoe that they are an essential element of forest ecosystems.

So keep your mistletoes on your bush block. They know what they are doing and have been doing it for such a long time. Look close. You might even find a mistletoe growing on a mistletoe growing on a mistletoe.

Grow Your Own Mistletoe

You can grow your own mistletoe if you don’t have any. You may have to exclude possums from the tree, as they may eat it all.

- 1 Find a suitable host – a large healthy tree with easy to get at small branches in good sunlight (not in deep shade).
- 2 Then find a local mistletoe plant (also easy to get at) that uses the host tree species. Harvest the soft fruits and collect enough for a high failure rate.
- 3 Take the skin and pulp off within a day or so. The seed will still be sticky.
- 4 Choose a branch no thicker than a pencil and a spot not too far along its length. Wipe the sticky seed on the underside of the branch so that it sticks there. Do a few and wait.

It works better in humid weather. Good luck!

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This rarely seen male Silky Jewel (*Hypochrysops digglesii*) was photographed on South Stradbroke Island with its wings closed (top right image) and open. It is a stunning butterfly species that depends on mistletoe.



Possoms love to eat mistletoe and are possibly a key natural controller of mistletoe. Is this why mistletoe is often found on trees along roads and in open paddocks where possums are less abundant?

fauna profile

The Secret Life of Ramphotyphlops: Introducing the blind snakes of SEQ



Article by Nick Clancy
Land for Wildlife Officer
Sunshine Coast Council



The Robust Blind Snake (*Ramphotyphlops ligatus*), black in colour. Photo by Steve Wilson courtesy of Gold Coast City Council.

Australia's blind snakes (family *Typhlopidae*) rate as one of our most poorly known groups of vertebrates. This is largely due to their extremely low-key subterranean existence.

Australia is home to 41 species of blind snakes all of which belong to the genus *Ramphotyphlops*. Some species have only ever been recorded a handful of times and a few are only known from a single specimen. The introduced Flowerpot Snake (*Ramphotyphlops braminus*) is the only introduced species of snake found in Australia.

At first glance blind snakes look worm-like; being of uniform thickness along their length. Their small dark dot-like eyes are not obvious and the tail is relatively short with a cone like spine on the tip. Without close inspection it is actually difficult to distinguish which end has the inlet and which has the outlet. However if you happen to pick one up you will soon find out; as when they become distressed they emit a rather unpleasant odour from their anal gland! Presumably this is used as a defence mechanism against predators such as the burrowing Bandy Bandy (*Vermicella annulata*) snake which feeds almost exclusively on blind snakes.

The overall length of blind snakes can vary between species from 12 to 75 cm. The shape of the head and the scale arrangements are the key diagnostic characteristics used for distinguishing between species. Blind snakes burrow with specific movements of their head and neck that remove soil from their path and create space to move into. Depending on the particular soil type or invertebrate chamber inhabited, this is thought to have contributed to the evolution of the variety of head shapes and scale patterns evident in the geographical variations between species.

There are five species of blind snakes found in South East Queensland. The Blackish Blind Snake (*Ramphotyphlops nigrescens*) is Australia's largest and can reach 75 cm in length. It inhabits a range of habitats and is generally found under rocks, logs and in rotting timber.

Another two relatively large species include the 70 cm Proximus Blind Snake (*Ramphotyphlops proximus*) and the 50 cm Robust Blind Snake (*Ramphotyphlops ligatus*). These gallant, armour-clad species brave the nests of Bulldog Ants (*Myrmecia* spp.) to dine almost exclusively on their eggs, larvae and pupae.

At 22 cm and 30 cm respectively the much shorter Small-headed Blind Snake (*Ramphotyphlops affinis*) and Brown-snouted Blind Snake (*R. wiedii*) generally inhabit open woodland habitats, where they also feed on ant and termite larvae and eggs.

Blind snakes live with their heads buried in the ground for a good reason; it's where their prey lives. Being a successful subterranean predator requires some specialised equipment. The smooth, polished and tight fitting armour-like scales are ideal for friction-free subterranean slithering. They are built for moving in termite and ant nests, loose soil and cracks, and beneath logs and rocks. Glands under their neck and head scales secrete a smelly substance (sebum) which probably maintains the sheen but also acts as a scale lubricant for moving through tight spaces. While the conical spine on the tip of the tail is used as a levering point for trying to penetrate difficult locations.

Blind snakes are Australia's only insectivorous snakes. Their small, curved mouth sits below and behind the tip of the snout rendering it almost incapable of biting; indeed they are non-venomous and apart from occasionally sharing their



"You are really only likely to encounter a blind snake if you are digging around termite or ant nests or when they occasionally surface above ground on warm and rainy nights."

Bandy Bandy snakes are excellent burrowers and feed almost exclusively on blind snakes. Photo by Deborah Metters.



Blackish Blind Snake (*Ramphotyphlops nigrescens*).
Photo by Steve Wilson courtesy of Gold Coast City Council.



Brown-snouted Blind Snake (*Ramphotyphlops wiedii*).
Photo by Steve Wilson courtesy of Gold Coast City Council.

special odours with herpetologists they are completely harmless to humans. When hunting, they flick their small pale forked tongue to pick up the sent of an ant or termite trail and follow it back to the nest. They rake their prey into their mouth using their upper jaw and swallow the food whole.

It appears that different species of blind snakes have quite specific prey which can encompasses a range of termite species and egg larvae of a number of different ants. Some blind snakes also eat worms and leeches. The distribution of blind snakes generally reflects that of the specific species of termite or ant larvae on which they feed.

You are really only likely to encounter a blind snake if you are digging around termite or ant nests or when they occasionally surface above ground on warm and rainy nights. It is thought that some species may permanently inhabit the nests of the ant or termite species that

they feed on. These occupied nests have a network of enlarged galleries, or blind snake pathways, that have been actively maintained at a larger diameter by the snake's movements. They also inhabit cavities and holes in decaying stumps, invertebrate burrows and deep soil cracks.

Unlike most snakes, blind snakes don't bask in the sun as they obtain their necessary warmth from soil and the thermal mass of their chosen home. If the soil becomes saturated most species will surface and seek shelter under rocks, fallen timber or leaf litter.

You can help conserve these fascinating yet poorly known snakes on your property by not removing or disturbing fallen logs and rocks from the bush and by maintaining areas with a healthy leaf litter layer, especially around termite and ant nests.

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Blind snakes feed primarily on eggs, larvae and pupae of certain species of ants and termites, such as the ant eggs shown left.

Some species of blind snakes will brave the bites of bulldog ants to raid their nests for eggs, larvae and pupae. Shown above is a Giant Bulldog Ant (*Myrmecia brevinoda*), photo by Peter Chew, Brisbane Insects and Spiders website.

pest profile

Feral Pigs: that pig is definitely no Babe!

Article by Melanie Harrison
(former) Land for Wildlife Officer
Redland City Council

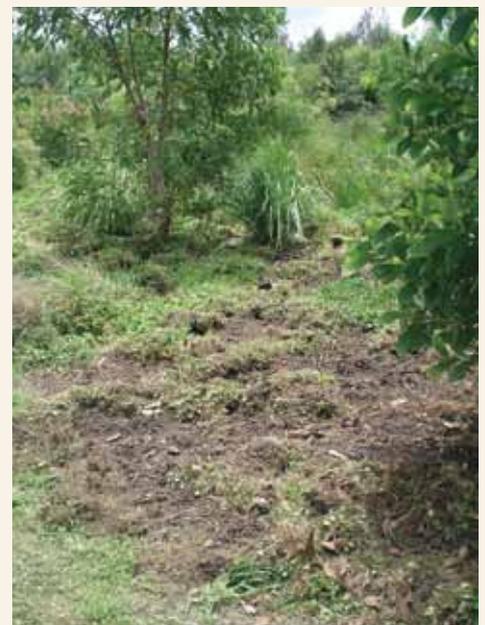
Feral pigs are one of Australia's most successful and common vertebrate pests with population estimates of between 3.5 million and 23.5 million spread across 40% of Australia. Their biology and ecology makes them well adapted to the Australian environment. They are well spread throughout Queensland, New South Wales and the Northern Territory and occupy a variety of ecosystems from subalpine grasslands, monsoonal floodplains, woodlands, wetlands and rainforests.

Feral pigs have significant economic, environmental and social impacts. In 2002, predation, habitat degradation, competition and disease transmission by feral pigs was listed as a key threatening process under the *Environment Protection and Biodiversity Conservation Act*. In Queensland they are listed as a Class 2 pest under the *Land Protection (Pest and Stock Route Management) Act 2002*. This Act puts responsibility on the owner of land to take reasonable measures to keep their land free from feral pigs.

First recorded in Queensland in around 1865, feral pigs are descendants of the domestic pig (*Sus scrofa*) which had escaped or were let loose. They are now widely distributed in Queensland with the most abundant population in Cape York but they are also found within close proximity to urbanised areas. Within South East Queensland they have been recorded at Redland Bay, Carbrook, Jacobs Well and Dayboro.

Feral pigs are generally sedentary and confined to their home range but are capable of travelling considerable distances. The females generally live in small groups with a home range of 2-20 km² and males are solitary with a home range of 8-50 km². They have two primary habitat requirements: shade and water. As pigs lack sweat glands, they tend to stay close to a water source where they wallow to cool themselves. They are generally nocturnal and spend the day resting amongst dense foliage.

Feral pigs are opportunistic omnivores and will consume fruits, seeds, foliage, stems, rhizomes, bulbs, tubers, fungi and animal



About 34 feral pigs were caught in traps at a revegetation site at Morayfield on the Caboolture River. The photo above right shows the damage done by the pigs to the site. All of this was occurring within a kilometre of the Morayfield Shopping Centre. Photos by Ed Surman.

material such as carrion, earthworms, frogs, lambs and arthropods.

The breeding rate of feral pigs has contributed significantly to their establishment success and the difficulty of eradication. Under favourable conditions, breeding can occur throughout the year. This gives pig populations the ability to recover quickly from management programs. Pigs are also intelligent, adaptable and secretive making their control even more difficult.

Feral pigs can cause many environmental problems mainly as a result of their diggings to source food and their wallowing in wetlands and watercourses. They can plough up large areas of native vegetation and can dramatically change watercourses and swamps making them less available to native animals and can change nutrient and water cycles. They help spread environmental weeds and have destroyed breeding sites of ground-nesting birds, frogs and other wildlife.

There are a variety of management options for the control of feral pigs; however, determining the most appropriate techniques would depend on the size of the property, locality, permits and skills. Some techniques to consider include:

- Exclusion fencing is an effective control measure for small high value areas, although it can be costly. The most effective fences are made of fabricated mesh held close to the ground with plain or barbed wire and steel posts.
- Trapping is a useful technique for properties that are small or in populated areas and where pig numbers are low. Traps can be made to be pig specific. Free feeding is essential prior to setting traps

and should be situated where pigs are active. Traps need to be checked daily and shade and water must be provided.

- Baiting can rapidly reduce a pig population. Biosecurity Queensland recommends the use of sodium fluoroacetate (toxin 1080) which is a restricted chemical and can only be supplied through persons authorised under Queensland legislation.
- Dogs can be used to remove a few remaining pigs after poisoning or trapping occurs. However, the use of dogs before trapping and baiting can reduce the efficacy of these operations.

Shooting pigs from the ground (as opposed to helicopters) is not effective and can train pigs to avoid humans. Further information on trap designs and feral pig management can be found under the pest animal section of the Biosecurity Queensland website at www.dpi.gov.au

It is almost certainly impossible to eliminate feral pigs from Australia; however, it is feasible to establish effective control programs for local eradication to protect sensitive areas.

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fauna monitoring

Using Infrared Cameras and Sand Traps



Article by Catherine Madden
Land for Wildlife Officer
Brisbane City Council

Sometimes all I see are weeds, and all I seem to be doing is weed control, and I miss out on seeing all the beauty of the bush. While I know weed control is important, I occasionally wonder why I do it? Then I come across evidence that a native animal has been in the area and remind myself that I am doing it to improve the habitat for native wildlife and it makes the back pain all worthwhile.

I think it is really important for everyone to take the time to look and enjoy the results of all that hard work. One of the biggest rewards for me is seeing an increase in the native animals using the area. With many of our native species being nocturnal and our busy lives reducing our time in the bush, it is sometimes easy to lose sight of these special creatures.

Non-invasive fauna monitoring is an exciting and easy way property owners can view the fauna on their property. Have you ever wondered what made that scratching in the dirt or the markings on the tree or even who belonged to that scat? Some of the many ways of seeing all the wonderful species during the day and night on your property is setting up a motion-sensor infrared night camera and video device. It is exciting replaying the images you captured the day before and see what's been visiting the area.

Another benefit of setting up these cameras is capturing images of animals that you do not want. By removing the nasties (feral animals) from your property, you are helping with the movement and survival of many native species in your area.

Did you know that research undertaken on the stomach contents of foxes caught in Brisbane have identified that they contained 46% native species? The image of the fox shown right was taken on a Land for Wildlife property in Upper Brookfield recently. The property owners did not know they had a fox, so are now working with Brisbane City Council (BCC) to trap and remove this feral animal.

BCC Land for Wildlife members are now able to borrow these motion-sensor infrared cameras. If you are in the Brisbane area, please contact your Land for Wildlife Officer on 3403 8888 and arrange for the cameras to be put in place.

Sunshine and Gold Coast Councils have also recently purchased infrared cameras which have been installed on Land for Wildlife and/or Voluntary Conservation Agreement properties. There are plans to increase the number of cameras available to Land for Wildlife members in these Council areas, so watch this space.

Logan City Council have purchased four infrared traps that are currently being trialled on a project looking for quolls. Cameras will be available to Land for Wildlife members in Logan in the near future. If you would like to register your interest, please contact Rachel Booth at Logan City Council on 3412 5321.

Motion-sensor infrared cameras can also be purchased from camping and optical shops and online stores.

If you do not have access to these cameras, another great method of fauna monitoring which gets excellent results with little fuss is to set up sand plots or pads. Sand plots can be set up anywhere on a property, but you get the best results in areas where there is evidence of animal movement; for example, a worn track or traces of hair attached to a fence, scratching on the ground or on nearby trees. These are all potentially good areas to set up sand plots.

Sand pads are so easy to set up. All you need is clean sand, a watering can, and a rake. Place the sand directly onto the area where you think the animal will move, usually an area of 1m x 1m is sufficient. If you want to go bigger go for it! Smooth the sand out with a rake and then water the sand down so it becomes firm. Prints will then be easier to identify.

Increase your chances of capturing tracks on the sand pad by putting a small amount of food in the centre of the pad so an animal has to step onto the sand to reach the lure. A good universal enticement is rolling peanut paste, oats and honey together into a small ball.

A great book to identify the tracks on your sand plot is *Tracks, Scats and Other Traces: a field guide to Australian mammals, revised edition* (2004) by Barbara Triggs.

One of the great things about non-invasive fauna monitoring is that anyone can do it. Give it a go and you may be surprised what you can find!



A motion sensor video and still camera. Placing the camera along a worn animal track or around an area where wildlife activity has occurred is the best way for an animal to be caught on film.



This Long-nosed Bandicoot was photographed by a motion-sensor infrared camera installed at Santina and Doug Waugh's Land for Wildlife property at Anstead. How cute!



This fox was caught on film using a motion-sensor camera at a Land for Wildlife property in Upper Brookfield.



This sand plot captured the footprints of passing animals including a fox.

property profile

Developing a variety of habitat with nature's help

Article by Catherine and Nick Gordon
Land for Wildlife members
Ocean View, Moreton Bay



It was with great excitement that we purchased our 5 acre block at Ocean View, Mt Mee in early 2004. At the time of purchase we were living in Emerald, Central Queensland. Our intentions when buying the block were always to build a house, establish a vegie patch and orchard and to regenerate as much bush as possible. However, as our commitments at the time were in Emerald, none of this occurred quickly. But as we shall see - this was a good thing.

Our block is located within an estate of other mostly 3–5 acre blocks. It is roughly rectangular in size, with the smallest width of the rectangle adjoining the road. It is undulating with a fairly steep, but short, drop at the front. It consists of a dam of approximately 900m², fed by overland flow that runs in from the top left hand corner. At the bottom of the block, seasonal overland flow occurs, with the water making its way to the Caboolture River.

When we purchased the land, it had recently been slashed, however a very thick strip of native bush still existed along the overland flow course that fed our dam. Some other scattered semi-mature trees were present as were some small saplings and there was extensive evidence of native grasses peeking through.

The block was left to its own devices until early 2005 when we began to build. Inevitably a couple of the bigger trees needed to be removed and an access road and driveway was established. While the roadway did cause some inevitable disturbance it also helped minimise it as trucks stuck to the roadways and left the rest of the block untouched.

When we finally moved in approximately two years after purchase, we were keen to get started regenerating; however it seemed that not attending to the block for some time had already proved a great benefit.

We noticed that during the time left unattended, nature had already started to take its course without interference from impatient land owners. While the block had been slashed shortly before purchase it appeared we still had enough trees and grasses to provide seed to begin the process of regeneration without the need to plant.

Good rainfall at the time of purchase and the fact that there were no neighbours to complain about regrowth, enabled us to get quick growth without slashing. This helped us immensely. We noted that a variety of native grasses had grown and many native saplings were well established. Some weeds were evident but not too many. Ecological succession had begun.

As block regeneration had begun we turned our attention to our 'home improvements'. We planted the planned vegie patch and orchard and also cleared around the house and along the driveway for fire protection. Having completed these additions we were now ready to look again towards regenerating the block and ways to conserve and promote a range of habitats in order to attract as great a variety of plants and wildlife as possible. After our 'home improvements' we were left with approximately three acres of the land to do this with. So what to do first?

Step 1

Visit from Land for Wildlife Officer.

As we were fairly 'green' to the field of regeneration and all things 'bush' it was first important to identify what we had. Therefore step one was a visit from the local Land for Wildlife Officer who walked the block and identified the plants and weeds and habitat types that were present. Even at this early stage the Land for Wildlife Officer was impressed by the amount of native grasses, herbs and the variety of understory and shrub layer present. It appeared our 'unplanned plan' to let nature take its course had done the trick.

Step 2

Weed management.

Once we had identified the weeds, the next step was to work out what to do with them. The main weeds on our property were Groundsel, Billy Goat Weed, Lantana, Slash Pine and Mist Flower in the gully.

Our initial approach was to do a massive cut and paste blitz before the plants flowered and set seed. We did not want to spray as we did not want to risk poisoning other plants and had always intended to use as little herbicide as possible. So together we walked the bush, one cutting, one painting the raw stalk with roundup. This was our main approach for the first couple of years. Since the initial blitz we have used a couple of different approaches including hand pulling and cutting and mulching on steeper sites. Both have proved very effective and today very few weeds are present. However vigilance is the key.

Step 3

Develop a variety of habitat.

This included not only planting out areas such as around the dam but equally important was the house garden and driveway plantings. Lomandra was our choice for driveway edging. Not only did this help with erosion but a long row of lomandra looks great as well. To keep it looking good we cut it back once a year.

Around the dam we planted lomandra and paperbark tea-trees and in the dam, Woolly Frogmouth (*Philydrum lanuginosum*). For our house gardens we were guided by drought tolerance, erosion control, appearance and value to native fauna. Most of the plants we have chosen are natives however some such as gazanias are not.

In an attempt to develop a variety of habitats and in view of the fact that we have very few old, hollowed trees on our block we also applied for a Land for Wildlife grant to install several nesting

“We noticed that during the time left unattended, nature had already started to take its course without interference from impatient land owners.”

boxes. Our application was successful and nesting boxes for a variety of animals are now scattered around the block. From observation we are certain some are regularly utilised.

Step 4

Monitoring and maintenance.

Seven years after we purchased the land we have achieved our aim of habitat variety and are reaping the benefits from the amount and variety of wildlife this attracts.

Before and after shots show just how much the canopy has thickened up and we now have a well developed understory, shrub layer and a strong variety of grasses and herbs. We continue to monitor, slash and remove weeds where required but as always, leave the rest alone. We are lucky that our neighbouring blocks have also chosen to regenerate and being the middle block we feel the benefits of this.

Though our regeneration plan was simple we feel we are a great example of how you can achieve a lot by doing very little. At all times we have tried to work with nature and not against it. For example as a seed bank already existed on our block we have planted very little and where we did plant we observed what was growing successfully in other similar areas of the block and planted these species.

We've never read extensively to work out what to do but rather have been guided through our observations and common sense. We have kept our approach simple and been pragmatic during all stages. Patience is important with this approach but really seven years has not been a long time to wait for the benefits we have been awarded.



Property in June 2007 (top) and May 2011 (lower) showing the amount of dense natural regeneration that has occurred.

Flora

Kangaroo Grass (*Themeda triandra*)
Hickory Wattle (*Acacia disparrima*)
Coastal Banksia (*Banksia integrifolia*)
Grey Gum (*Eucalyptus propinqua*)
Soap Tree (*Alphitonia excelsa*)
Native Coffee (*Breynia oblongifolia*)
Cheese Tree (*Glochidion ferdinandi*)
Tape Vine (*Stephania japonica*)
Swamp Box (*Lophostemon suaveolens*)
Brush Box (*Lophostemon confertus*)
Geebung (*Persoonia cornifolia*)
Native Raspberry (*Rubus* sp.)
Lomatia (*Lomatia silaifolia*)
Willow Bottlebrush (*Melaleuca saligna*)
Coastal Paperbark (*Melaleuca quinquenervia*)
Black She-oak (*Allocasuarina littoralis*)
Prickly Broom Heath (*Monotoca scoparia*)
Hibbertia stricta
Lilliaceae, swordsedg and lomandras.

Fauna

Black Glossy Cockatoos
Red-necked Wallabies
Bandicoots
Cockatoos
Geckos
Snakes
King Parrots
Pale-headed Rosellas
Lorikeets
Wood Ducks
Quails
Fairy wrens

fauna profile

Restoring the Rustic to Brisbane's Western Suburbs



Article by Greg Siepen
Richmond Birdwing Conservation
Network

All photographs by Dale Borgelt
Land for Wildlife member, Kenmore Hills

Much of the work in restoring native plant communities is focussed on removing weeds and establishing a framework of plants similar to ecosystems that existed before they changed. However, sometimes the focus is on providing specific plants which will encourage specific fauna. This is exactly what Dale Borgelt (Land for Wildlife member and member of the Richmond Birdwing Conservation Network and Moggill Catchment Group) has done in the western suburbs of Brisbane.

With friends and neighbours, Dale has planted many Flintwood (*Scolopia braunii*) which is the food plant for the caterpillar of the Bordered Rustic butterfly (*Cupha prosope*).

This brown and orange butterfly frequents creek and river forests and the margins of rainforest, but only occurs where its local food plant, Flintwood, exists.

The reason Dale and her friends made a big effort by planting Flintwood to encourage the Rustic back to the western suburbs was that one of its major habitats near Brisbane was destroyed in the 1980s to create a new housing estate. Essentially, no adequate known breeding habitats for Rustics remained in the suburbs of Brisbane.

Although Dale had grown Flintwood since 1990, she had not seen Rustics breeding locally for many years. So in 2003 she commenced her restoration program by buying Flintwoods wherever she could and encouraging friends and neighbours to plant them in their yards and properties.

Gradually she noted more and more Rustics emerging and breeding each year. Now in 2011 these beautiful butterflies have re-established breeding populations in Brisbane, possibly after migrating back from Central and North Queensland in autumn following good rains.

Most of the recent sightings of Bordered Rustics have been in the western suburbs but others have also turned up in eastern suburbs and south of Brisbane.

Bordered Rustic should not be confused with the other common orange and brown butterflies such as the wanderers and leafwings. Wanderers are usually found in open country and are quite a bit bigger (Rustics have a wingspan of 60 mm, wanderers are 100 mm).

Bordered Rustic butterflies lay small, round eggs singly on young leaves of Flintwood; however, many times Dale has found the egg laid on spiderwebs on Flintwood plants. The pupa is attached and suspended below a leaf or twig and is bright green with silver spots and has several long spines that stick out from the pupa.

This past year, Dale assisted these butterflies in her own garden by reducing the number of other insects that eat the same young leaves as the Rustic caterpillars. A small beetle often out-competes the Bordered Rustics and she regularly collected these beetles and disposed of them thoughtfully. This meant there has been plenty of young leaf to support an increased breeding population and the reward has been Rustics on display since late October 2010 until July this year.

A great attribute of this butterfly is that they will quite happily stay low to the ground and fly near people so you can enjoy them up close.

If you want to restore the Bordered Rustic in your area, it may be as simple as planting more Flintwood trees. Dale has also planted host plants for most other species of butterfly found in South East Queensland - an impressive and inspiring story.

For more information about planting Flintwood for the Bordered Rustic, you can contact Dale Borgelt on 3374 1035 or daleborgelt@gmail.com

References

- Orr A and Kitching R (2010) *The Butterflies of Australia*. Allen and Unwin.
Braby, MF (2000) *Butterflies of Australia: Their Identification, Biology and Distribution*. CSIRO Publishing.



The Bordered Rustic has returned to Brisbane thanks to the efforts of Dale and other landholders. Shown above is the adult butterfly and below is the larvae.



Flintwood (*Scolopia braunii*) is the host plant for the Bordered Rustic larvae, shown here in flower.



Small beetles can out-compete the Bordered Rustic larvae in eating Flintwood and may need to be controlled.

book reviews

Mistletoes of Southern Australia

by David M Watson

This book details all 46 species of mistletoe found in southern Australia. In so doing it covers 25 of the 28 species found in SEQ (this is according to the 28 species listed in the revised edition of the *Mangroves to Mountains* book).

Mistletoes of Southern Australia also covers the species found out west – from Toowoomba to Birdsville and beyond – mistletoes sometimes so noticeable in the small trees and shrubs typical out there. So this is a very handy in-depth guide to a remarkable group of plants.

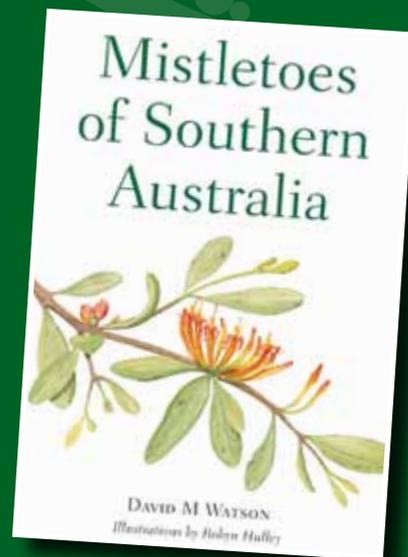
Each species has a separate detailed description with clear identification features. Photographs and paintings

by Robyn Hulley highlight the essential features of each species. The book also contains details on mistletoe origins, ecology and ongoing management.

Australia has 91 species of mistletoe so this book only covers half the national taxa – there are more species restricted to the deep north. Perhaps another book?

A fascinating read from a noted expert in the field.

Book review by Keith McCosh



Published by CSIRO Publishing, 2011

Paperback, full colour, 200 pages

ISBN: 978 0 643 0959 39

Price: \$49.95

Available from CSIRO Publishing and all good bookshops.

The Butterflies of Australia

by Albert Orr and Roger Kitching

This is a beautiful book. The authors say that they want readers to use it like a field guide and its pages should be marked from use in the field, but I won't be doing that with my copy. Its quarto size, alluring cover, thick pages, delicate line illustrations and even the font says more 'coffee table' than 'field guide'.

The beginning sections take the reader on a gentle story about the butterfly – its evolution, distribution, reproductive quirks, remarkable lifecycle and associations with other Australian plants and animals. These sections introduce the main butterfly families and get the reader thinking about attributes to help categorise butterflies, such as how do they fly? (fast rapid wingbeat or slow sailing flight); do they sit with their wings upright, open or closed?; and, are they found in the canopy or near the forest floor? All of these behaviours, as well as shape and colour, will help narrow down identification.

There are about 400 species of butterflies in Australia, so it is achievable to learn, and even see them all, as is the goal of many Australian birdwatchers. Maybe there should be a butterfly twitch as there is in the birdwatching world.

The illustrations in this book are excellent and show adult butterflies above and below (drawn from pinned specimens) as well as

images of how the butterfly would most likely be found in the wild (eg. sitting with wings closed). The larvae and pupae are also illustrated, distinguishing this book from other butterfly field guides.

If there is a downside to this book, it is the labelling and layout of the illustrations comparative to the text. All illustrations are labelled with scientific names rather than common names, resulting in the non-entomologist having to constantly check the names with the text. And they are not necessarily next to each other making it a bit of puzzle to link the images to the text.

Maybe over time the reader will familiarise themselves with scientific names, similar to plant identification. I also suspect that also over time common names of butterflies will become more entrenched, like common bird names.

I am delighted to have this book in my library, and at only \$45 it is a value-for-money purchase and a fabulous Christmas gift idea.

Book review by Deborah Metters



Published by Allen and Unwin, 2010

Paperback, colour illustrations, 336 pages

ISBN: 978 174175 108 6

Price: \$45.00

Available from good bookshops and online bookstores.

property profile

Flood Assistance at Moggill

Article by Peter Hayes
Land for Wildlife Officer
Brisbane City Council

The floods of January 2011 caused devastation across South East Queensland - homes were damaged or destroyed, residents displaced, food sources and travel routes disrupted. There were also tragic loss of lives and miraculous stories of survival. All these apply just as equally to the region's wildlife as they do to its human inhabitants.

In Brisbane, the rebuilding of infrastructure is well underway, but what about the rebuilding of the natural areas devastated by the floods? The team from Brisbane City Council's Wildlife Conservation Partnerships Program (WCPP) have been busy helping restore the city's natural assets by assisting those Land for Wildlife properties affected by the flood. While a few partners in the Brisbane Land for Wildlife program lost their homes, many others were left with severely eroded river and creek banks, or had their revegetation and hard work destroyed by layers of silt and debris.

WCPP officers, many of whom had been part of Council's immediate response to the flood emergency and cleanup, used a combination of GIS, local knowledge and web-based air photos to compile a list of flood-impacted Land for Wildlife properties. They then set about contacting the owners to check on their welfare, the extent of damage to their properties, as well as the assistance needed to repair the damage.

This initial work was followed up with property visits, where necessary, to assist owners to scope out the work required or provide advice on the best way to proceed.

Once the extent of the assistance required was collated, the WCPP team began the process of seeking funding. Brisbane City Council is committed to restoring flood affected areas, including natural environment areas. This is seen as an important part of the recovery process and WCPP has been instrumental in helping deliver this assistance.

To date the WCPP team has assisted about 20 flood affected properties, providing over 5000 native plants, 120 cubic metres of mulch and coordinating around 900 hours of volunteer labour. While this is only

Some properties lost large areas of riverbank in the January floods. The line of trees in the water indicates the previous extent of the bank.



River banks without protective vegetation were badly eroded by the January floods.

a small number compared with the overall number of properties damaged in Brisbane, it is an important step in rebuilding the City's natural assets and restoring "land for wildlife" in Brisbane.

Some property owners only required new native plants to replace those washed away or killed by the floods. A number of properties had experienced very severe erosion of river or creek banks, so Council specialists were organised to provide advice on the best ways to stabilise and restore these areas. In a few cases, the damaged areas were very large or beyond the physical capability of the owners to the replant. In these cases, Council partnered with Conservation Volunteers Australia (CVA) to provide extra helping hands to get the job done.

Ian and Janet Sampson own one of the affected properties. They had been steadily restoring their section of riverbank at Moggill over a number of years. Ian and Janet had cleared weeds and planted numerous native species prior to the flooding. Once the water receded they discovered that not only was their jetty and pontoon missing, but so were three to four metres of their property!

They immediately set to work to replant the easily accessible areas of bare soil, taking advantage of the fact that the flood had also removed a large patch of lantana but despite planting over 700 native plants, well over half their river bank remained open to the elements, with steeply eroded banks threatening to slump further into the river.



Volunteers from Conservation Volunteers Australia from around the globe helped replant the riverbank after the floods.



Native plants will help stabilise the eroded bank and provide habitat for wildlife.

Exotic grasses and other weeds quickly colonised the bare soil and while this helped slow the erosion, it did not replace the riparian rainforest species that had previously been regenerating on the site. The exposed western aspect also made life difficult for any native seedlings that managed to penetrate the thickening layer of weeds.

In early May 2011, CVA volunteers, some from as far away as France and China, stepped in to assist. After overcoming tricky access and site management issues they managed to clear sections of the exotic grasses and continued Ian and Janet's work of planting local native species supplied by Council

Ian and Janet were happy to receive the assistance. "The CVA team leaders and volunteers were friendly and trustworthy", said Janet, "and the selection of plants was highly suited to the river bank conditions. The main thing is that they have demonstrated that it is possible to access and revegetate the bank with native plants after the flood caused so much damage. It has encouraged us to follow through on their good efforts."

Grants to Support the Management of Swamp Tea-Tree Forests

SEQ Catchments is offering assistance to landholders with remnant or regrowth Swamp Tea-tree (*Melaleuca irbyana*) or Brigalow (*Acacia harpophylla*) forests on their properties. The first round of funding assisted landholders, including Land for Wildlife members, to reduce the threats to these forests from stock, fire, weeds and erosion, and to undertake revegetation. We are now seeking landholders to participate in the next round. To be eligible, landholders must:

- Have remnant or regrowth Swamp Tea-tree or Brigalow forest on their property; OR
- Manage an area adjacent to Swamp Tea-tree or Brigalow forest.

To apply, simply visit the SEQ Catchments website and follow the links to the Expression of Interest form, or contact SEQ Catchments on 3211 4404 or admin@seqcatchments.com.au.

With help from SEQ Catchments staff and/or Land for Wildlife Officers a project plan will be developed to help you identify management issues affecting the Swamp Tea-tree or Brigalow forest on/or adjacent to your property.

The critically endangered Swamp Tea-tree forest has a very restricted distribution and is only found in South East Queensland. Recent mapping by the Queensland Herbarium has found that since European settlement it has experienced a 92% decline in extent due to clearing, weeds, grazing of cattle and inappropriate fire regimes. Small remnants of Swamp Tea-tree forest remain but are still subject to ongoing threats. The majority of Swamp Tea-tree forest occurs on private land, so landholders play a vital role in the protection and management of this threatened ecosystem.





Land for Wildlife Regional Coordination is proudly managed by SEQ Catchments with support from the Australian Government.



The Scarlet Jezebel (*Delias argenthona*) is a reasonably common butterfly found across SEQ and is dependent on mistletoe. Shown above is the adult butterfly (top) and the larvae (lower). Photos by Todd Burrows.

Land for Wildlife Governance and Privacy

This year, the Land for Wildlife program in South East Queensland (SEQ) has been updating the arrangements between all the agencies that support or deliver Land for Wildlife to ensure good governance and accountability. This short article outlines two main points that may be of interest to our members. Firstly, the governance arrangements for the program in SEQ, and secondly, the management of data collected during Land for Wildlife assessments and other communications.

Governance

Land for Wildlife as a name and the associated branding is owned by the State Government of Victoria. To allow other agencies to deliver the program across Australia, there are a set of arrangements in place to transfer the rights to use the Land for Wildlife name and branding to those agencies.

In SEQ, there is an arrangement between Victoria and SEQ Catchments, and a memorandum of understanding (MOU) between SEQ Catchments and each Local Government of SEQ. The MOU outlines roles and responsibilities of both parties including the structure and function of the Land for Wildlife Steering Committee that guides strategic planning and delivery of the program in a regional context.

Privacy

All of the agencies that deliver Land for Wildlife in SEQ (reflected in the logos shown below) recognise that some of the information collected during Land for Wildlife assessments and other communications is of a personal nature and is managed in line with the *Information Privacy Act 2009* and the abovementioned signed arrangements between parties.

Data collected during Land for Wildlife property visits is collected on a property assessment form, of which a copy is given to the landholder. This may contain personal or sensitive information such as phone numbers or a location of a threatened species on the property. Land for Wildlife data is held by both the agency that collects the data (usually a Local Government) and also SEQ Catchments and is used only for the effective administration of the Land for Wildlife program and directly related services, and will not be disclosed, unless permission has been given by the landholder.

Feel free to contact your Land for Wildlife Officer of the Land for Wildlife Regional Coordinator if you have any questions about governance or privacy arrangements of the Land for Wildlife program in SEQ.



Shiny-leaved Mistletoe (*Benthamia alyxifolia*) on Willow Bottlebrush (*Melaleuca saligna*). Photo by Deborah Metters.

Opinions expressed by contributors to the Land for Wildlife newsletter are not necessarily those of the Land for Wildlife program nor any of the supporting agencies.

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Dedicated to a better Brisbane

