



# LAND FOR WILDLIFE

## South East Queensland

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## Ghost Fungi

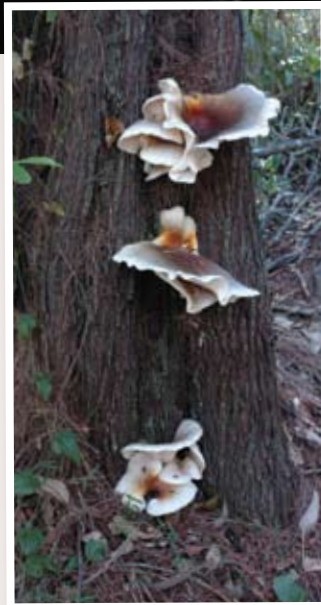
Just imagine walking through a forest at night. It is eerie and dark. Then you see a ghost! No need to call Ghost Busters...it is just a Ghost Fungi (*Omphalotus nidiformis*)!

Some lucky members of the John Oxley Reserve Habitat Group got to witness, and photograph, this special fungi at night in June last year. They had been waiting for four years for good rains, so that the fungi would appear and they could photograph it. By day it is a typical funnel-shaped fungi, with a white cap which often becomes darker yellow, brown, blue or purple (especially in the centre). By night it is luminescent.

Living things which are capable of creating their own light are called 'bioluminescent'. Bioluminescence occurs when a particular enzyme (luciferase) and a particular chemical (luciferin) react. A third element needs to be present for this reaction to take place which varies according to the type of animal or fungus. The end result is the release of energy in the form of light.

Its bioluminescence is best seen in low-light conditions when the eye develops night vision. The gills are the most luminescent part of the fungus, emitting a greenish light which fades with age. The light has been reported bright enough to read a watch face by.

Just remember...in biodiversity there are three "F's"... Flora, Fauna and Fungi!



Hard to capture images of Ghost Fungi using 3.5 minute exposures at ASA1600 speed. The trees visible in the background are illuminated by a first quarter moon. Photographs by Sandy Craig.

Article by Lyndall Rosevear  
(former) Land for Wildlife  
Extension Officer  
Moreton Bay Regional Council

### References

Carole Green and Sandy Craig,  
pers. comm.

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# editorial

Welcome readers to this May edition which I hope you find useful. There are some great land management tips plus wonderful contributions from fellow Land for Wildlife members. Maybe you will be inspired to contribute a short article and win one of the weed DVDs that we are giving away this year. See pages 3 and 9 for more details.

What great photographs on the front cover. Thanks Sandy Craig for sending them in. Long-term readers may have noticed my bias for the often-forgotten fungi kingdom. This bias is easier to defend when backed-up by impressive photographs. More inspiring photographs were taken by Susan Lee when she opportunistically stumbled across flowering orchids that could have easily been mistaken for a dead vine.

Martin Bennett provides some great photographs on pages 8 and 16 showcasing his area of expertise – plants. Martin shares his thoughts on the aesthetic and ecological values of leaves and invites you to consider leaf colour, smell and shape when planning a revegetation project.

Another issue to consider in revegetation is one of local provenance. Many revegetation agencies market their local provenance seed stock as a way of protecting local

genetic diversity. However, in fragmented landscapes, the advantages of local provenance become uncertain as you may be encouraging in-breeding. Keith McCosh's article on page 12 discusses this issue drawing on recent scientific studies.

The weed calendar on page 7 and accompanying article by Nick Clancy provides practical ideas on how to tackle the sometimes mammoth task of weed control. By planning your control activities prior to seed setting, you have the best chance of getting the upper hand on weeds and reducing their spread. Similarly, when weeds are in flower they may help you to identify new infestations and plan control activities.

Continuing on the topic of weeds, Stephanie Reif makes us question whether we should keep or remove those old fruit trees on our properties depending on their potential to become environmental weeds. There are numerous native plants with edible fruit that could be considered as alternatives.

Many Land for Wildlife Officers are asked about the differences between native frogs and Cane Toads. Lexie Webster's article on page 4 helps de-mystify these differences to help you confidently identify Cane Toad eggs, tadpoles, juveniles and adults. Furthermore, advice is provided on planting

native sedges around dams to help increase native frog populations.

On a different note altogether, if you are considering a conservation covenant as a way of protecting your property forever, I strongly recommend that you take a look at the article on page 5. Late last year, a study was commissioned by a collective of Local Governments and SEQ Catchments to examine whether statutory conservation covenants affect the market and unimproved values of land. The results are presented in this article. If you have any questions about this study or conservation covenants, please contact either your local Land for Wildlife Officer or myself.

There have been a few changes in Land for Wildlife Officers across SEQ with Lyndall Rosevear leaving her position at Moreton Bay Regional Council to join the team at Logan City Council. I am sure that Land for Wildlife members in the former Pine Rivers district will sadly miss Lyndall's enthusiasm. Finally, Amanda Ozolins is on maternity leave at Sunshine Coast Regional Council and we wish her and her family all the best.

Thank you to all contributors for sharing your images and stories.

Deborah Metters



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### Landholder Registrations, Land for Wildlife SEQ - 01/04/2009

Registered Properties	Working Towards Registration	Total Area Retained	Total Area under Restoration
2487	542	45,273 ha	2,699 ha



# fauna vignettes

## Pond Attracts a Family of Bush-hens

Eight years ago we created a small 5 metre diameter pond to rectify a boggy area of our lawn.

On 3 February 2009, while enjoying a leisurely breakfast we had the amazing, to us, opportunity to observe for nearly one hour a family of Bush-hens (*Amaurornis olivaceus*). The Queensland Museum information tells me they are now called by a new name, Pale-vented Bush-hen (*Amaurornis moluccana*).

Unfortunately, due to the distance from our house and not wanting to disturb them, I could not use my camera only my binoculars.

We had been experiencing wet weather and the adult birds appeared to be drying off, standing with their backs to the sun spreading their wings and shaking. To our great delight two totally black fluffy chicks appeared from under the vegetation to be "guarded" and fed by their parents.

All information I have read says they are mainly nocturnal, secretive and rarely seen. We may not have captured their images, but the sight is firmly in our memory.

This is what "Land for Wildlife" is all about.

Carolyn and Peter Burford  
Land for Wildlife members  
Tallebudgera Valley



Female adult Bush-hen (above).  
Photo by Jonathon Munro  
[www.wildwatch.com.au](http://www.wildwatch.com.au) or see  
Australian Bird Image Database  
at <http://www.aviceda.org/abid/index.php>



Top left photograph shows the newly constructed pond in 2001. Top right photograph shows the pond as viewed from the house balcony. The Bush-hens were in front of the Lomandras on the left side of the image. Over the years, Carolyn and Peter have identified 10 different frog species that use this small pond.  
Photographs by Carolyn and Peter Buford.

## Fauna Vignettes

is a new feature designed for you - Land for Wildlife members  
- to send in images of wildlife from your property. In 2009, all contributors to Fauna Vignettes will receive a free *Suburban and Environmental Weeds of South-East Queensland* DVD valued at \$64.90. Send good quality images and explanations to the Editor (see pg 2).



Adult Cane Toad. Photo by Lexie Webster.

# pest profile

## Native or Not: How to spot the difference between native frogs and Cane Toads?



Article by Lexie Webster  
Land for Wildlife Extension Officer  
Gold Coast City Council

It's certainly been a wet summer and haven't our little amphibian friends been loving it. Each downpour is accompanied by calls from nearby dams and waterways as tadpoles swarm and juveniles hop around on nearby banks or shelter in vegetation. But how do we know if this hive of activity is the work of our native frogs, or whether in fact, our dams are being taken over by those from further afield?

Leathery, warty, stout – we are all pretty familiar with what an adult Cane Toad (*Rhinella marina*) looks like. Their distinctive paratoid glands (poisonous swellings behind each shoulder) along with their upright posture and rapid, short hops are some of the features that identify these intruders. But how do we tell the difference between our native frogs and introduced Cane Toads at other stages of their life cycle? Here are some of the Cane Toad's distinguishing features at its various life stages to help you out.

So now that you know how to tell them apart, what can you do if those little critters in the dam are indeed Cane Toads? Firstly, reduce their habitat. Cane Toads are poor jumpers so struggle to move through thick vegetation. Accordingly, they prefer dams, ponds, drains and watercourses with edges that are clear of dense vegetation. By retaining native grasses and sedges around your dam or pond you will hinder their movement and reduce their access to water and the likelihood of them successfully breeding.

Regularly check your dam or pond for toad eggs, remove any and dispose of them by either putting them in your compost bin, burying them in your garden or leaving them in the sun to dry out. If you catch Cane Toads, the most humane method of disposal is to chill the toad to 4 degrees, then freeze and bury them.

If you're in doubt whether it's native or not, check with the Queensland Museum by sending them a photo to [InquiryCentre@qm.qld.gov.au](mailto:InquiryCentre@qm.qld.gov.au), along with information that might assist identification.

Life cycle stage	Distinguishing Cane Toad features	Comparative typical features (but with exception) of native frogs
<b>Eggs</b>	Eggs are laid in long strings of transparent jelly, often made up of pairs of eggs. Egg strands are often wrapped around aquatic vegetation. Females can lay up to 35 000 eggs twice a year.	Eggs are typically laid in a single mass, chain or individually in jelly or foam nests. Most Australian frogs typically lay 1000-2000 eggs per year.
<b>Tadpole</b>	Body is uniform black. Tail muscle is black with clear fins. Tail is approx 1¼ to 1½ times body length. Max total length is approx 28mm. Max body length is approx 11mm. Have a dark belly. Often in large swarms in shallow water.	Body can be dark, light or clear, some may have mottling. Tail muscle is pale to dark brown or blotchy. Fins may be very dark or mostly clear. Tail is approx 2 times body length. Belly is pale or translucent. Total length 25-80 mm. Body length 8-32 mm.
<b>Juvenile</b>	Are black or dark grey, usually with numerous small, orange dots and black bands across the limbs. Leave ponds or dams by day or night and can be active in daytime in dense clusters. Lack discs/adhesion pads on tips of toes, making them appear somewhat claw-like.	Are highly variable making them difficult to distinguish from cane toad juveniles. Emerge from water and disperse only at night. Often have discs/adhesion pads on toes.
<b>Adult</b>	Sit upright – almost vertically. Have toxic, swollen glands behind shoulders. Have a bony ridge running over each eye and down to nostrils. Move in short, rapid hops. Have a call like a diesel boat motor 'd-d-d-d-d-d-d...'	Aren't as vertical in posture. Lack swollen glands behind shoulders. Lack bony ridge over eyes running down to nostrils. Move in 'frog-like' leaps rather than short hops. Calls are variable, none like the cane toad.



Cane Toad eggs.  
Photo by Steve Wilson.



Cane Toad tadpoles.  
Photo by Lexie Webster.



Cane Toad juvenile.  
Photo by Darryl Larsen.

### References

Queensland Museum (2007) Wildlife of Greater Brisbane.  
Australian Museum online factsheets - <http://www.austmus.gov.au/factsheets/canetoad.htm>  
Department of Environment, Water, Heritage and the Arts - <http://www.environment.gov.au/biodiversity/invasive/publications/cane-toad/pubs/cane-toad.pdf>  
Kimberley Toad Busters - <http://www.canetoads.com.au/toadfrog.htm>

Frogs Australia Network - <http://frogsaustralia.net.au/conservation/cane-toads.cfm> & [http://frogsaustralia.net.au/documents/doc\\_12\\_bufo\\_native\\_eggs\\_and\\_tadpoles\\_of\\_wa.pdf](http://frogsaustralia.net.au/documents/doc_12_bufo_native_eggs_and_tadpoles_of_wa.pdf)  
Queensland Museum Factsheets - <http://www.maq.org.au/inquiry/factsheets/leaflet0030.pdf>  
Wetland Care Australia Factsheets - [http://www.wetlandcare.com.au/docs/fact\\_sheets/Cane\\_Toad\\_Fact\\_Sheet1b.pdf](http://www.wetlandcare.com.au/docs/fact_sheets/Cane_Toad_Fact_Sheet1b.pdf)



# conservation covenants

## The Cost of Protecting Wildlife Habitats on Private Land: The impacts of conservation covenants on market values



Article by Nick Clancy  
Land for Wildlife Extension Officer  
Sunshine Coast Regional Council



Despite the establishment of a conservation reserve system consisting of National Parks, State Forests and Council owned Bushland, many species of flora and fauna continue to suffer population declines. For this reason various governments offer landowners incentives to protect significant bushland.

Many landholders spend considerable time, money and effort managing and restoring wildlife habitats on their property, over time landholders can develop a strong affinity with their land. Unfortunately the next owner does not always appreciate these inherent values, or your efforts, and in some instances vegetation is cleared to make way for other landuses. A covenant can prevent this from happening.

Currently eight local governments in South East Queensland (SEQ) use statutory conservation covenants as part of Voluntary Conservation Agreements. A covenant is registered on title and is binding on successive owners. Voluntary conservation covenants are generally geared towards properties with significant ecological values. These agreements are voluntary in nature and require a willing landholder to participate. In return for the landholders commitment to protect part of their property in perpetuity, most Councils offer financial incentives such as annual grants for on-ground management and/or rate rebates.

A covenant will usually only apply to a portion of a property; this means that other landuses such as residential, grazing and cropping can occur on the same property, right alongside the covenant area.

In some local government areas the uptake of voluntary covenants by landholders has been slow. A common concern raised by landholders interested in placing a covenant on their property is that covenants will negatively impact land valuations. Concerns have also been raised by landholders about the re-salability of a property with a covenant. In the event that a property is subject to a mortgage, consent is also required from the lending agency. Some financial institutions have also expressed concern about the impact of a covenant on land values.

A regional working group made up of Local Governments and SEQ Catchments sought to examine more closely the impact of statutory conservation covenants on land values in SEQ. An independent professional land valuation firm was engaged to undertake a study.

The study examined seventeen case study properties in SEQ, all with a covenant that had voluntarily been registered on title. The impact that statutory conservation covenants have on both market value and unimproved values was examined. A current land valuation was determined with the existing conservation covenant, and a

comparative (hypothetical) valuation was also determined for the same land parcel as if it had no conservation covenant.

Of the seventeen case studies, the impact of a covenant on the properties market value was deemed to be negligible (less than 5%) for twelve of the properties. The other five were considered to have a significant impact (greater than 5%) because:

- The land has subdivision potential
- The land has potential for some other higher use
- The residential envelope (area outside covenant) is small or non-existent.

This study showed that the impact of a covenant on the market value of a property can be negligible where:

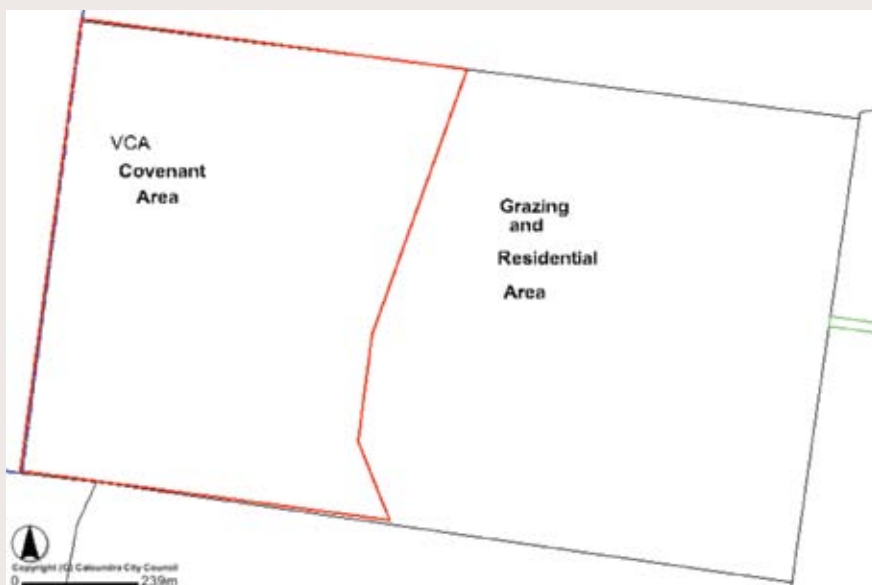
- The covenant is a small proportion of the total land area
- The land has no potential for higher use
- The land is principally residential or rural land
- The residential envelope is large enough to cater for the land use common in the locality
- The land is steep and inaccessible or low-lying and wet
- The land is infertile or of low productivity.

If the market value of a property devaluates significantly (more than \$5,000) as a direct result of a covenant, the Commonwealth government has implemented tax concessions to compensate. The amount you can claim as a deduction is the difference between the market value of the land just before you entered into the covenant and its decreased market value just after that time.

For more information visit <http://www.environment.gov.au/biodiversity/incentives/covenants-tax.html>

### References

F.P Manners & A.F Carrick (2008) *An analysis of the impacts of statutory conservation covenants on land values in South East Queensland.*



# practicalities

## Weeding with the Seasons: Developing a weed calendar for your property



Article by Nick Clancy  
Land for Wildlife Extension Officer  
Sunshine Coast Regional Council

**W**eed control on a rural property can be an overwhelming task. Most property owners are dealing with a wide range of weeds with a variety of lifecycles. Some weeds are annuals, others are perennial. Some weeds grow in full sun, while others are shade tolerant. Some produce seed just once a year while others seem to set seed every time you turn your back!

Understanding the lifecycle of a weed can assist you to target your control efforts at the optimal time of year and achieve better results. You also avoid the trap of weeding or spraying the same weed in the same place season after season.

It has been estimated that some common environmental weeds such as Large-leaved Privet (*Ligustrum lucidum*) and Mistflower (*Ageratina riparia*) can produce tens to hundreds of thousands of seeds per plant. While some other weed seeds such as Noogoora Burr (*Xanthium pungens*) will remain viable in the soil for many years.



Large-leaved Privet



Mistflower

With most weeds it's not just the plants above the ground that you will need to control, but also future plants that are lying dormant in the soil as seeds, ready to germinate in the future.

*"It has been estimated that some common environmental weeds can produce tens to hundreds of thousand of seeds per plant."*

There's an old saying that goes something like "one years weeding saves seven years of seeding". By learning more about a weed you can better exploit any weaknesses, ultimately leading to more effective weed control. Undertaking your control efforts at the right time of the year can be the difference between successful weed control and a serious case of weed induced frustration.

A good starting point is asking when does the weed produce seed?

By targeting control efforts prior to seeding you reduce the likelihood of further spread. Whether you are only dealing with a handful of priority weeds, or if you have every weed in the book, it's worth developing a basic 'weed calendar'. Some weeds are often only noticed when they flower, by writing down when you see a weed in flower you are on the way to developing a weed calendar.

A weed calendar notes flowering and seeding times and the best times for controlling different weeds. It might be as simple as a reminder list of the various weeding tasks on your property.

In order to develop a weed calendar you will need to know a little about the weed and what control technique/s you are using. For example if you are using herbicides you will generally have to undertake control when the plants are actively growing, usually through the warmer months of the year. Most plants are in a very active growth stage leading up



Lantana - one of the most common environmental weeds in SEQ.

to flowering which means that the results of herbicide application are usually very effective.

Of course some weeds don't have a strict seasonal seeding event; indeed some weeds can produce seed right throughout the year. For these weeds the timing of control efforts can be varied depending on the technique being used. For example with Lantana you may choose to use a herbicide control technique for large infestations in spring/summer when it is growing vigorously. While in the cooler months of winter when plant growth is limited and temperatures are more conducive you may choose to use a manual control method in more sensitive sites.

On the following page is an example of a very basic weed calendar. Please note flowering and seeding times for individual weeds can vary from year to year, between regions and even from property to property. There is a plethora of information available on weed control in the SEQ region, see below for some useful places to start looking.

### References & Useful Resources

Big Scrub Rainforest & Landcare Group,  
*Common Weeds of Northern NSW Rainforest*  
– A practical manual on their identification & control (1998)

Kleinschmidt et al – *Suburban Weed*, Third edition (1996).

Gold Coast City Council, *Environmental Weeds of the Gold Coast* (2006)

[http://www.dpi.qld.gov.au/cps/rde/dpi/hs.xsl/4790\\_8331\\_ENA\\_HTML.htm](http://www.dpi.qld.gov.au/cps/rde/dpi/hs.xsl/4790_8331_ENA_HTML.htm)

[www.saveourwaterwaysnow.com.au](http://www.saveourwaterwaysnow.com.au)

Weedbusters website: <http://www.weedbusterweek.info.au/>

Local Landcare group

Local Council - Land for Wildlife and/or Pest/Weed Officer.

Queensland Herbarium  
(for hard to identify plants)

*All photographs by Sheldon Navie from "Suburban and Environmental Weeds of South-East Queensland, Version 2" DVD, Centre for Biological Information Technology, UQ.*





Madeira Vine

January

Madeira Vine flowering, search for any undetected infestations along creek and treat while highly visible.

After rain - good time for hand weeding in shade (eg isolated exotic passionfruit vines) when soil moisture is high.

Privets flowering - treat while highly visible.  
Stem inject Camphor Laurels prior to fruiting.

February



Groundsel Bush

Undertake annual inspection for Groundsel Bush before it seeds.

Control Broad-leaved Pepper tree and Easter Cassia prior to seeding.

March



Molasses Grass

Control Molasses Grass before it sets annual seed.

Check fence line for Silver-leaved Desmodium flowering & control.

April



Easter Cassia

Glycine



May

Hand weed Mistflower along creek before it sets seed.

Check along forest edge for any Glycine flowering.

June

Clear next section of Lantana while weather is cool.



July

Maintain weeds in revegetation and regeneration sites before spring growth spurt starts.

August

Maintenance on revegetation site before growing season.

Control Ochna/Mickey Mouse plant prior to fruiting.



Ochna

Good time for any required herbicide control as plants start growth spurt.

Spot spray vigorous Lantana regrowth in area cleared in June.

Control White moth vines before fruiting over summer.

September



Cats Claw Creeper

October

Cats Claw Creeper flowering – check along creek and treat while highly visible.

November

Control Dutchman's Pipe before seeding.



Dutchman's Pipe

December

Stem-inject remaining Chinese Celtis prior to summer fruiting.



Cats Claw Creeper





# plant profile

## The Value of Leaves



Article and photographs by Martin Bennett  
Land for Wildlife Extension Officer  
Lockyer Valley Regional Council



The colour of leaves is often overlooked by most people when choosing a plant for the garden. Leaves are green but there are many shades of green. There are leaves that are smooth and glossy and those that are dull and hairy, leaves that are slightly rough to leaves that are so rough they can be used as sandpaper e.g. *Ficus fraseri*, *F. coronata* and *F. opposita*.

There are leaves that when crushed smell of citrus, aniseed, nutmeg, mango, celery e.g. *Backhousia*, *Eucalyptus*, *Polycias*, *Citrus* and *Gossia* and those that have a simply fruity smell e.g. *Melicope*, *Acronychia*, *Phebalium* and *Croton*. There are those that simply give of strong odours when it is wet e.g. *Gidyea*, *Brigalow*, *Mulga* and the *Eremophilas*.

*"Leaves are valuable as mulch to keep the ground cool [and] retain moisture."*

The underside of leaves is also important, as these can be very visible when blown by the wind. Some are covered with fine hairs that are white, silver, brown or a coppery colour e.g. *Alphitonia*, *Commersonia*, *Croton*, *Grevillea*, *Argyrodendron*, *Litsea* and *Neolitsea*. Leaf shape varies from narrow, broad, short, long and there are those that have quite irregular shapes even within

the same plant, some are pointed others blunt. Leaves that have angled sides can be smooth but some may have prickles on those angles, even pungent tips are found on some e.g. *Alchornea*, *Aphananthe*, *Maytenus*, *Leucopogon*, *Drypetes* and *Alectryon*.

One of the diagnostic features of plants is the colour of dead or dying leaves as not all leaves turn the same colour when they die. Leaves can turn red, yellow, light and dark brown and even black which can add some colour to the garden when there is little else of colour available e.g. *Melia*, *Brachychiton*, *Croton*, *Hymenosporum* and *Diospyros*.

Leaves particularly in rainforest communities and also gardens are valuable as mulch to keep the ground cool, retain moisture and return some goodness via worms and their castings to the soil and therefore the plants. Species like *Melia azedarach*, *Grevillea robusta* and *Ficus virens* are great for increasing the leaf fall at certain times of the year.

So next time you choose a plant check out the leaves and see where it may be best used in your garden.



Photographs (clockwise from top): *Lysipillum hookeri*, *Hibiscus heterophyllus*, *Erythrina* sp. Croftby, *Dendrobium speciosum*, *Croton insularis*, *Alchornea ilicifolia*, *Grevillea robusta* and *Brachychiton australis*.



# my little corner

## Dead? No Way!

Part of my property includes a well-treed rocky hill with many granite boulders. The soil is largely decomposed granite covered in leaf litter and there are many dead trees in this open forest.

Last September I spotted an apparently dead "vine" twining up a dead tree in a fairly exposed area.

Fortunately I looked up and was amazed to see these fabulous, fragrant orchid flowers at the end of the dark stems. The plant was identified as *Erythrorchis cassythoides*, commonly called the Black Bootlace Orchid or Climbing Orchid. This is a leafless climbing orchid which has an extensive subterranean root system which feeds on decaying timber, relying on a symbiotic relationship with a mycorrhizal fungus for nutrient transfer. The plants have dark, thin, wiry climbing stems that cling onto the tree by small unbranched roots, which can be seen anchoring the stems to the dead tree.

Although apparently "not uncommon" in the region, I have not found any more specimens in this area and it was just good luck that I saw this one at its most spectacular in spring. Its presence shows the value of retaining dead timber and looking twice at any apparently dead stems twined around genuinely dead trees.

Susan Lee  
Land for Wildlife member, Fernvale



The Black Bootlace Orchid relies on decaying timber for nutrients.



This dead looking "vine" turned out to be a spectacular orchid.



Even after death, this tree provides habitat for animals and orchids.





# weed profile

## Orchards and Environmental Weeds



Article by Stephanie Reif  
Land for Wildlife Extension Officer  
Sunshine Coast Regional Council

There are many benefits of having an orchard area on your property. Growing your own fruit is a pleasure for some and eating and sharing the produce is very rewarding. Other benefits include reducing greenhouse gas emissions through reduced food miles, eating fruit when it's in season and knowing just what chemicals have or haven't been applied to your food. Growing fruit trees is often promoted as a way for us to be more sustainable.

However it is well known that a number of popular fruit tree varieties are established weeds. In South East Queensland the following fruit trees are listed as weeds:

- Guavas (Yellow Guava *Psidium guajava* and West Indies Guava *P. guineense*)
- Loquat (*Eriobotrya japonica*)
- Blackberry (*Rubus bellobatus*, *R. discolor*, *R. fruticosus* complex)
- Yellowberry (*Rubus ellipticus*)
- Brazilian Cherry (*Eugenia uniflora*)
- Passionfruit (*Passiflora edulis*)
- White mulberry (*Morus alba*)
- Coffee (*Coffea arabica*)
- Olive (*Olea europaea*)



White Mulberry (above) and Loquats (below) are common, weedy fruit trees found across South East Queensland.



Brazilian Cherry - if the fruits are just feeding possums and spreading along creeks, why not consider removing the trees? Photograph by Michael Gilles.

It is also likely that a number of exotic fruit trees that are not currently known to be weedy may be "sleeper" weeds and may become a problem in the future. There are a number of steps that property owners can undertake to minimise the impacts that their orchard may have on their and their neighbour's bushland areas.

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*"If the previous owners made guava jelly every year, but you don't have the time or inclination to make it, then remove the trees."*

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### Assess your orchard

For properties with existing orchards look at which species are present. You could even make an inventory of the fruit trees planted. Are any of these species known weeds in your area? A good guide to assess fruit tree weediness is the SEQ Invasive species list (see further reading) available at the EPA website or from your Land for Wildlife Officer. Also helpful is doing a quick internet search to see if the plant you are interested in is a weed in other areas. When planning an orchard use these tools to assess how weedy certain plants are.

### Assess your fruit tree requirements

This is important when planning an orchard and for existing orchards. Consider:

- Do you need all the fruit trees planted?
- Will you use the fruit from all your trees?

For example if the Brazilian Cherry is feeding only your local possums and spreading along your creek maybe its time to remove the tree. Similarly if the previous owners made guava jelly each year but you don't have the time or inclination to make it, then remove the trees. This step is especially important for people who have recently bought a property with an orchard.

Research the species that you have on your property or want to plant. Are they low maintenance or do they require a lot of spraying, pruning etc? Do you have the time to undertake this management? Ideally it would be best to have no weedy

fruit trees in your orchard. Alternatively reduce the number of weedy fruit trees as much as possible.

### Find alternatives

There are many locally native plants that are edible. If your main interest is to have an edible garden try incorporating a number of locally native edible plants with non-weedy exotic plants. Numerous publications and organisations can assist you with advice and selection of plants.

Examples of locally native plants that can be used in the garden include Midyim (*Austromyrtus dulcis*) which has edible white berries with purple spots and a sweet peppery taste. Lemon Myrtle (*Backhousia citriodora*) is a small tree that can be managed as a shrub. It has lemony leaves that can be used in fish or chicken dishes.



Midyim is a small native shrub that produces sweet edible berries. Photograph by Glenn Leiper.

Remember orchards are an investment – both in terms of your time managing them and potentially your money. How much time do you have to manage the orchard? An alternative to having an orchard could be going to your local farmers market or helping out a friend or neighbour with their orchard. There are also a number of permaculture gardens or city farms where you could help out in return for a share of the produce.



## Manage the baddies

If you decide that you will plant or keep some weedy fruit trees there are a number of steps you can take to minimise their impact.

- Keep all trees to a size that you can easily pick all the fruit. This may involve regular pruning.
- Pick all fruits at the appropriate time.
- Remove all fallen fruits from the ground. This limits the spread of the seeds and also limits fruit fly numbers.
- Protect your fruit and limit its spread by wildlife through netting, covering the tree with shade cloth or covering the fruit with paper bags. Best practice netting guidelines should be followed so that wildlife is not injured. The August 2006 SEQ Land for Wildlife Newsletter discussed netting fruit trees and alternatives. This information is also available on the EPA website.



The leaves of Lemon Myrtle can be used in cooking or as a fresh lemon fragrance. Photograph by Glenn Leiper.

These points involve minimising the spread of weed seeds. If weedy fruit trees establish outside your orchard (for example along fence lines or in bushland) then regular weed control should be undertaken. With good selection of fruit trees and regular maintenance orchards are an asset. These simple steps will help you plan and manage your orchard area whilst minimising the impact on your surrounding bushland by keeping your bushland weed free.

## Further reading

Batianoff, GN and Butler, DW (2001) *Assessment of Invasive Naturalised Plants in Southeast Queensland*. Queensland Herbarium, Environmental Protection Agency.  
[www.epa.qld.gov.au/publications](http://www.epa.qld.gov.au/publications)

# weather report

## Floods in the Eastern Lockyer Valley



Article and photographs by Martin Bennett  
Land for Wildlife Extension Officer  
Lockyer Valley and Somerset Regional Councils

**N**ovember last year the residents of the Minden and Hatton Vale experienced a climatic condition not seen for many years. A narrow band of rain travelled through these localities at approximately 10 pm and stopped at 1 am, myself and many others received in excess of 250 mm in just 3 hours. No amount of drains, pipes or even dams could hold that volume of water. Many houses on the Minden Flats were not so lucky with between 1.2 - 2 metres of muddy water, cows, round bales, refrigerators, boxes, drums etc. ending up in their yards.

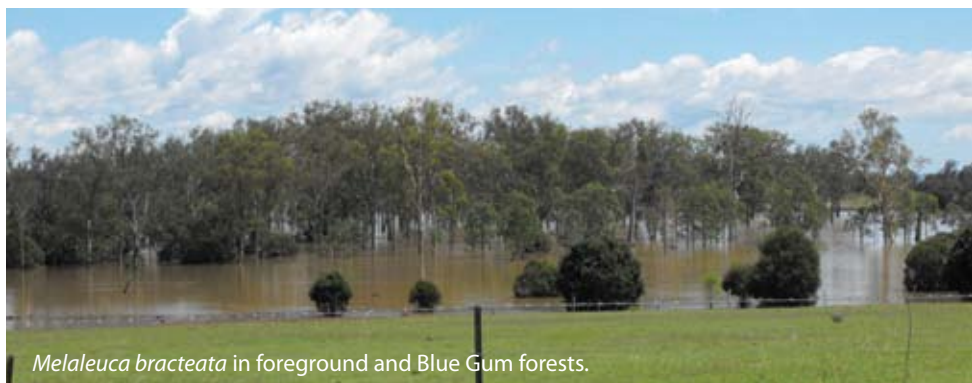
One of Somerset Regional Council's Land for Wildlife properties at Prenzlau Swamp managed to have almost their entire 25 hectare property flooded - the water almost made it to the front gate. The water stopped 30 cm under the floor of their house, they were indeed very lucky, because in 1996 the water was about 30 cm higher (the house wasn't there then).

The regional ecosystems on the property

are 12.3.7a *Melaleuca bracteata* open forest on quaternary alluvial plains, 12.3.3 Blue Gums on alluvial plains and prior to clearing, some 12.9/10.6 Brigalow open forest on sedimentary rocks.

Next door has a lot of 12.3.3c *Melaleuca irbyana* low open forest/thicket on quaternary alluvial plains, and 12.3.8 Swamps with *Cyperus* spp., *Schoenoplectus* spp., and *Elaecharis* spp. These ecosystems make up the Prenzlau Swamp; the largest freshwater swamp in the Lockyer Valley.

The landholder said the frog calls were deafening and when he awoke, he saw several snakes, lots of ants, spiders and other insects. They were all heading to the small island where the house was situated or to the nearest fence post or low branches of trees. The surrounding country really needs this inundation periodically, but 250 mm in 3 hours was a little too much. Everything has at least greened up and the plants are growing well, and the wildlife is flourishing.



*Melaleuca bracteata* in foreground and Blue Gum forests.







# flora conservation

## Sources of Seed for Revegetation



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

Many landowners and community groups are collecting seed for revegetation projects. Recent research points to the need to exercise care when selecting common seed for large revegetation projects. The issue is one of genetic fitness.

This article covers a recent reference on the genetic aspects of seed selection by Broadhurst, Lowe, Coates, Cunningham, McDonald, Vesk and Yates (2008). Seed supply for broadscale restoration – maximizing evolutionary potential. *CSIRO Evolutionary Applications*.

Two other references by the same author are also of interest:

- Broadhurst, North and Young (2006). Should we be more critical of remnant seed sources being used for revegetation. *Ecological Management & Restoration*, Vol 7 No 3.
- Broadhurst (2007). Managing genetic diversity in remnant vegetation. *Land and Water Australia*, Tech Note 01/2007.



Photograph by Keith McCosh.

Seeds from small isolated remnants usually suffer from genetic anomalies which render a newly planted forest unsustainable in the long term, in not being able to reproduce and possibly not even survive future climate changes.

We go to a lot of trouble and expense to create a new greener future. So let's make sure that the forests we plant can continue to regenerate well into the future. We need to think several tree generations into the future for our precious forests. Will subsequent generations be able to set healthy seed and regenerate, without overwhelming genetic burdens?

Restoration guidelines all recommend that "local" provenance should be used for revegetation plantings as these are more adapted to the local conditions (soil, moisture, pollinators, and pathogens) than individuals from remote locations. The local genetic history will be maintained and the trees often perform better anyway. However, we need to heed the findings that seed from local sources may be unhealthy due to genetic in-breeding.

In our fragmented landscapes, especially in agricultural areas, isolated patches of vegetation may have limited scope for pollen transfer between unrelated individuals and thus may suffer from in-breeding, with a host of genetic anomalies generally referred to as being "unfit". How much in-breeding occurs all depends on the species and its strategy for gene transfer - through pollination and seed dispersal.

The concept of "local" relates to the extent of pollen transfer, and/or seed transfer, across the landscape. This relates to choice of pollinators and seed dispersal agents. Lorikeet-pollinated Gums, for instance, would have pollen dispersed over many kilometres as flocks move widely. Insect-pollinated trees on the other hand have a small pollen dispersal area, perhaps 100m. So "local" means different things for

different species. In some species, "local" is anywhere in the region. For other species "local" is just around the corner.

Some species, like Wattle, cannot in-breed and must obtain pollen from un-related individuals. Compatible partners become difficult to find in small isolated remnants. Subsequent generations find it even harder to find unrelated individuals, as all offspring would tend to be related. Thus regeneration would be extremely difficult. So selecting seeds from these remnants would cause problems. For the same reasons it is important not to plant isolated forests.

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*"We need to heed findings that seed from local sources may be unhealthy due to genetic in-breeding."*

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In a wide-ranging flora species there are unifying processes at work that keep the species together. There is enough gene transfer to prevent separate species from developing. So "local" can be quite dispersed. Equally, selection of seed should be from widely dispersed sources.

Those species that suffer from in-breeding in an isolated situation are not to be relied on for healthy seed. In a fragmented landscape we need to widen our view to ensure that "local" extends across the landscape to the nearest large remnant (with healthy, genetically-fit seed).

### Recommendations:

- ☑ Collect seed from larger remnants containing 100 – 200 individuals of the species of interest.
- ☑ Follow Florabank Guidelines for number of source trees, etc.
- ☑ Ensure forest plantings contain sufficient numbers of unrelated individuals.
- ☑ Ensure forest plantings are close to other remnants or corridors.



# book & cd reviews

Book reviews by Lyndall Rosevear.



A Queensland Museum Wild Guide

## BACKYARD INSECTS OF BRISBANE

By Dr Chris Burwell

Backyards in Brisbane and the wider South-east Queensland region are teeming with active insects all year round. Have you ever wondered what species of insect was making that "buzzing" sound? Well this is the perfect book for you.

This pocket size guide covers only insects, which are six-legged invertebrate animals. It is impossible to cover ALL insects that might be encountered in our gardens as there are just too many! This guide concentrates on frequently encountered and conspicuous species that occur in the average suburban backyards.

The advantage to this book is that instead of grouping insects according to their taxonomic classification, it uses their lifestyles or where they are most often encountered. So for example – there is a section on what insects are found in the swimming pool!

But if you get stuck on which group the insect belongs to, you can just browse through the excellent photographs until you find something that matches.



A Queensland Museum Wild Guide

## SPIDERS OF THE GREATER BRISBANE REGION

Dr Robert Raven and Dr Owen Seeman

Spiders Spiders everywhere!!!

This pocket sized wild guide by the Queensland Museum highlights many spider species that are common in coastal eastern Queensland and which are often encountered in homes, gardens and bushland in the Greater Brisbane Region.

This book explains in detail about the diversity of their lifecycles and habits and is enhanced with some beautiful photography. It is also great for a simple identification booklet for around the house or on a bushwalk.

The highlight of the book is that dangerous spiders are marked with a red skull and cross bones with recommended first aid treatments.

I believe this pocket size wild guide is a must have for the backpack or home library. It's a quick and easy reference book with everything you need to know about spiders in the Brisbane Region.



A Queensland Museum Wild Guide

## FROGS OF SOUTH-EAST QUEENSLAND

By Gregory Czechura

Have you ever wondered what was making that tok tok tok noise outside? Well this is the Frog book for you!

South-east Queensland has 53 species of frogs. But frogs are hard to identify – they are hard to find for a start, they could be juvenile, colours vary, and patterns are similar in different species yet vary within the same species.

To help with this, Gregory Czechura has included a description of the animal's physical appearance, its call, where it is found and wonderful photographs.

So next time it's raining in your backyard, or while you are bushwalking – stop and listen to the calls, refer to this pocket size handbook, and you might just become a frog ID expert!

Produced by Queensland Museum, 2008  
Pocket size, full colour, 72 pages each  
Available from all good bookstores or Queensland Museum Bookshop 07 3480 7729.  
Price: \$9.95 each.

## Bird Calls of the Brisbane Region: An Aid to Field Identification

by David Stewart, Nature Sound

David Stewart is well known to most nature lovers who have tried to find out what animal is making that sound outside. Whether it is a bird or frog, David Stewart has provided a range of audio CDs to help ecologists identify species by their calls.

Interestingly, the main purpose of the CD is to assist people to find the endangered Coxen's Fig Parrot by recognising calls that are probably similar to the elusive parrot. Remember that the Coxen's Fig Parrot has never been recorded or photographed, but we can take a good guess at what they sound like because of closely related races of this species living in north Queensland.

I like having the names of the birds spoken after each track rather than having to look at the CD cover, but I know some birdwatchers will argue that you memorise calls quicker if you don't have the voice over.

The 50 bird species captured on this CD omit common backyard species like the Magpie, Noisy Miner and Currawong and shows a bias towards rainforest species, probably consistent with Coxen's Fig Parrot habitat. So if you need some help identifying all those dawn bird calls or are keen on being the first known person to track down a Coxen's nest, then this is a good resource for you.



Produced by David Stewart, Nature Sound, 2007

Total length 1 hr 08 mins.

Available from [www.naturesound.com.au](http://www.naturesound.com.au) or phone 07 3201 1982.

RRP \$25.

CD review by Deborah Metters.

# practicalities

## Ecosystem Dynamics Simulator (EDS): a tool that helps you trial your management before you do it

Article by Dr Michael Ngugi, Principal Conservation Officer  
Nature Refuges Branch, Department of Environment and Resource Management



### What is EDS?

The Ecosystem Dynamics Simulator (EDS) is a computer based tool that can help land managers and organisations that are involved in land management and nature conservation in Queensland to make informed decisions about vegetation management. It allows land managers to simulate the growth of trees on a site and predict the impacts of alternative management actions. Hence, land managers can evaluate the likely effects of logging intensity, fire, grazing and climate change on their vegetation. Plus, the ability to trial management before you do it means you can maximise your resources and improve the efficiency of your management. EDS can help take

some of the guesswork out of vegetation management.

Looking back, this tool was first conceived in 2004 to help in assessing the impacts that selective logging was having on long term availability of suitable habitat trees for wildlife in state forests. At the time, forest growth models that were being used in Queensland were limited to common timber species at the few locations where detailed data were available. This stirred a vision to develop a modelling tool that could account for the main factors affecting the growth of all tree species at a particular site and yet had the potential to be used at any location in Queensland. Soon after, we realised that this tool could become

a conduit for presenting current research knowledge in a form that is practical for informing on-the-ground conservation and vegetation management decisions.

EDS is based on a successful forest dynamics model that has enjoyed nearly 40 years of use within the worldwide scientific community. That model has been successfully adapted to Australian conditions and tested using more than 65 years of forest monitoring data from sclerophyll communities and 40 years of monitoring data from brigalow communities. This testing has shown that EDS delivers consistent and accurate results.

### See how your vegetation will grow

The best thing about EDS is that it needs less volume of information to operate compared to other models. EDS uses three types of data:

1. What we already know about the growth patterns of individual tree species. This information, sourced from experts and the scientific literature, is loaded into the model and is updated as better information becomes available.
2. Local site data (from a plot of less than one hectare) provided by the user. This includes information on the tree species present on the site (composition), the diameters of those trees, and the soil texture.
3. Historical climate records, obtained from the closest weather recording site, including local monthly temperature and rainfall.

EDS uses these three types of information to project the growth of the vegetation present on the site and then shows you on screen how your vegetation will look over time (e.g. 10, 20, 50 years or more from now). Because EDS uses local site data, the model is customised to your site and provides you with information specific to your needs.



Screen Capture Image 1



Screen Capture Image 2



Screen Capture Image 3



## How does EDS simulate the impacts of fire?

EDS can simulate the impacts of wildfire and planned burning on your vegetation. To do this, EDS uses accepted and standard methods for determining fire hazard. Like weather forecasters and rural fire authorities in Queensland, EDS uses the McArthur Mk 5 Forest Fire Danger Meter and Grassland Fire Danger Meter Mk 4 which have been developed by CSIRO. To simulate the effects of a wildfire or a burning regime, the user needs to provide an estimate of the fuel

load at a site, the fire danger index and the estimated/proposed time between fire events. This capacity enables you to identify the best weather conditions and fire frequency for planned burns and simulate the impacts of wildfire. Hence, EDS can assist you in designing the best fire management strategy for your property by allowing you to compare how different fire regimes will affect your vegetation, including species composition and tree diameter sizes.



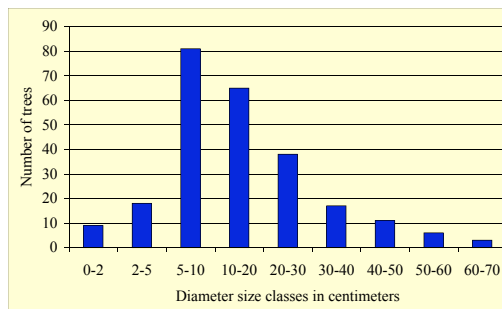
Before and after wildfire.

## What else can EDS do for me?

You can use the data generated by EDS to answer other questions. For example:

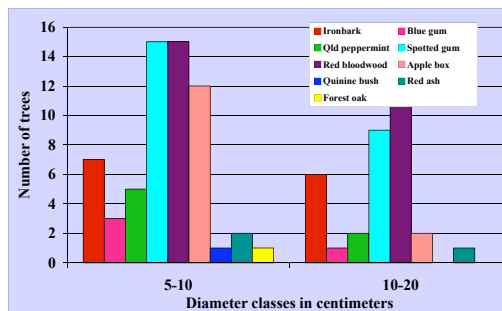
### 1. Is my vegetation healthy?

You can generate a chart showing you the number of trees in your forest in different diameter classes. This gives you a valuable indication of the capacity of your forest to regenerate.



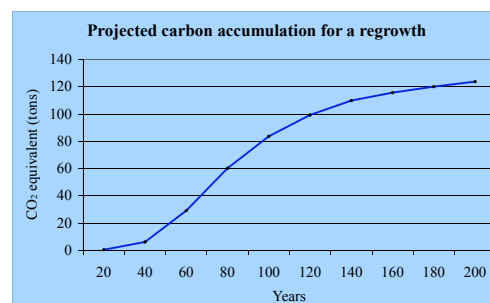
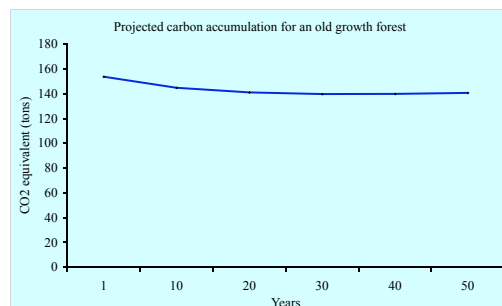
### 2. How diverse is my vegetation?

You can generate a chart of species diversity. This will show you species richness and abundance on your property now and into the future.



### 3. Is my forest accumulating carbon?

EDS uses carbon estimation methods recommended by Australian Greenhouse Office (AGO) to calculate carbon uptake or sequestration over time for a given vegetation type. Using EDS, you can project long-term changes in the carbon sequestration potential of your forest and generate an estimate of the total accumulated carbon in your mixed species forest over time.



## Who else can benefit from using EDS?

This sort of decision support tool has a wide range of applications in the planning, operational and educational spheres of natural resource management. For example:

- EDS provides an excellent tool for informing management of vegetation in the context of ecology (e.g. management of habitat for threatened species), agriculture (e.g. selecting suitable thinning and fire regimes to help manage vegetation thickening) or forestry (e.g. maximising sustainability of selective timber harvesting). EDS simulates vegetation growth and changes in species composition over time (succession), and shows the effects of environmental and man-made disturbances on vegetation. Using EDS, you can manipulate variables such as the soil type, temperature, rainfall, fire intensity and frequency, and the selective logging intensity and be able to watch vegetation in a plot grow over time. You can then analyse the resulting data by generating a variety of charts and tables depending on the question you are trying to answer.
- As an educational learning tool, EDS can allow students to test and compare management options and identify best management practice. EDS is an excellent teaching companion for courses such as environmental management and natural resource management, and provides an opportunity to integrate theory, field data collection and data analysis and evaluation.

## Expressions of Interest

We are keen to work with land managers who are interested in testing EDS. You can express your interest by contacting the Nature Refuges Branch of the Environmental Protection Agency on telephone 1800 603 604 or e-mail: [naturerefuge@epa.qld.gov.au](mailto:naturerefuge@epa.qld.gov.au).



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



This honeyeater was caught in Silver-leaf Desmodium - commonly called "velcro weed" because of its fine sticky hairs than can catch and kill small wildlife. Fortunately, this bird was found, untangled and successfully released.

Photograph by John Hansen



## Land for Wildlife State Update

Hello Southeast Queenslanders!

Well it's been sometime since the last state update but it seems there is never a dull moment in nature conservation. 2008 was a productive year with the installation of the new Land for Wildlife State database. Our new software has allowed us to extract valuable information, and lets us know that we've welcomed 165 new members outside of SEQ to the program during 2008.

Statistics like this were useful for the 10th Anniversary celebrations that were hosted in the Southeast corner with some great events and a great way to show of our achievements. Thanks again to all those who were involved with celebration activities. I have received positive feedback about the Open Property Days which created plenty of opportunities for networking with other Land for Wildlifers. Knowledge sharing and meeting like-minded people has become such an integral part of what Land for Wildlife is all about. My hat goes off to those members who facilitated meet-and-greets in their areas.

Greening Australia hopes to continue connecting people and providing support for on-ground activities and has partnered with QMDC, BMRG, and

Mackay Whitsunday Landcare, in a Caring for Our Country funding application. The application aims to enhance remnant vegetation, or return regrowth to remnant status, of endangered ecological communities in the Brigalow Belt. If successful, the project will deliver the Land for Wildlife program, educational workshops and stewardships to address key threats in this biodiversity hotspot. We have our fingers crossed and will keep you posted.

2009 looks to be another busy year and I am always happy to receive photos or stories about your trials and tribulations for state newsletters. Furthermore, if you would like to receive copies of the state newsletter then please contact myself and I will add you to the mailing list.

Cheers,

Pam Malyszczek  
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The Fiddler Beetle



*Hibiscus heterophyllus*



*Dodonaea sinuolata*

Photographs by Martin Bennett

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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