LAND FOR WILDLIFE
South East Queensland

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Landholders Conserving the Richmond Birdwing Butterfly

The *Ecological Management & Restoration* Journal recently ran an article highlighting the role of private landholders in the conservation of the threatened Richmond Birdwing Butterfly. Some key points from that article are presented here.

The Richmond Birdwing (*Ornithoptera Richmondia*) occurs only in subtropical northern NSW and south-east Queensland. This iconic butterfly was originally found as far north as Maryborough and Gympie, out west to Toowoomba and were once common in the suburbs of Brisbane. Thousands were seen in the Blackall Range in 1883. Declines in abundance of the Richmond Birdwing due to rainforest clearing began in the 1900s and have continued since.

Clearing, underscrubbing and burning of rainforest continues to destroy already fragmented Richmond Birdwing habitats. The prolonged drought has placed added pressure on the Richmond Birdwing by affecting the quality of the food plant and making the leaves too tough and unpalatable for the larvae.

Roadside patches are particularly vulnerable to burning, weed invasion and changes to soil moisture. Invasive weeds such as Morning Glory and Madeira Vine are key threats to the Richmond Birdwing host vine. Dutchman's Pipe Vine is particularly problematic as its leaves are poisonous to Richmond Birdwing larvae and everywhere that Dutchman's Pipe is present, dead larvae of the Richmond Birdwing have been found, including in national parks. In addition, climate change is predicted to favour and expand the range of such invasive weeds.

Propagation of the Richmond Birdwing Butterfly Vine by Land for Wildlife members are proving to be vital in bringing back the declining butterfly.

Richmond Birdwing Butterfly larvae only eat the Richmond Birdwing Vine. This vine is poorly conserved in SEQ and its numbers in reserves are insufficient to sustain healthy breeding populations of the butterfly. It is therefore essential that private landholders protect the host vines to support butterfly populations. Programs such as Land for Wildlife have been instrumental in encouraging community involvement. Several Land for Wildlife members have set up propagation facilities to grow host vines and have inspired their neighbours to become involved in recovery efforts.

"Despite population declines, there is still hope for the Richmond Birdwing"

Despite population declines, there is still hope for the Richmond Birdwing. Breeding populations can be found in the Conondale and Blackall Ranges, at Mt Mee and from Nerang to Tallebudgera Valley. Additionally, community enthusiasm for the butterfly has sparked impressive recovery efforts which are bringing this impressive butterfly and its habitats back from the brink.

The Richmond Birdwing conservation project was initiated in 1989 with aims of propagating the host vine in sufficient

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editorial

Welcome to the Land for Wildlife SEQ newsletter for autumn 2008.

As part of the Land for Wildlife (Qld) 10th anniversary, an Open Property Scheme will be held during September. An invitation to scheme will be sent out to all Land for Wildlife members with the next newsletter - so keep an eye out for it and book in early to secure your place.

27 properties are involved in the Open Property Scheme, of which 25 are in South East Queensland with 1 in North Queensland and 1 in the Granite Belt.

Pages 10-11 showcase a property that will be part of the Open Property Scheme. This property, Kalisha, is registered with Land for Wildlife and also has a Nature Refuge conservation covenant. There is an amazing diversity of Land for Wildlife properties and I hope you are able to visit one or two in September to see how other landholders are managing their properties for nature conservation.

Great articles in this edition on the floods that affected the southern catchments and a personal story of looking after native bees. The emerging weed, Kudzu, is a real concern - so please watch out for it and contact your local Extension Officer if you find some.

Many thanks to all those Land for Wildlife members who are helping to bring threatened species, like the Richmond Birdwing Butterfly, back from the brink.

Finally, I would like to welcome Amanda Sargeant as the new Land for Wildlife Officer for the Caboolture District of Moreton Bay Regional Council.

As always, I welcome any comments or contributions that you may have.

Happy reading.

Deborah Metters
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Above are images of Land for Wildlife Extension Officers at a grass identification workshop in March. Given that grasses are one of the hardest groups of plants to identify down to a species level, officers indicated the need for grass ID training to help them provide better advisory services to landholders.

John Thompson from the Queensland Herbarium delivered an excellent workshop on native and exotic grasses found in SEQ.

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Landholder Registrations, Land for Wildlife SEQ - 01/05/2008

Registered Properties	Working Towards Registration	Total Area Retained	Total Area under Restoration
2216	459	43,454 ha	2,895 ha

fauna profile

Brush-tailed Phascogale

Article by Tina Manners
Conservation Partnerships Manager
Brisbane City Council

Tallowwood flowers. Photograph by Keith McCosh.

Brush-tailed Phascogale. Photograph courtesy of Queensland Museum.

The Brush-tailed Phascogale (*Phascogale tapoatafa*) is an arboreal, nocturnal, marsupial with a most distinguishable feature by which it is aptly named – its black bottle-brush tail measuring around 19 cm, with hairs up to 4 cm long. Its body is similar in size to the tail, with grey fur covering the head, back and flanks and pale cream fur underneath. It also has large, bare ears and prominent large black eyes.

This highly agile climber, which can leap a distance of 2 metres between tree canopies, forages either in the canopy of trees or specifically on the trunks of rough barked trees such as stringybarks, for example Tallowwood (*Eucalyptus microcorys*), normally of 25 cm DBH or greater.

Classified as a carnivorous marsupial, it occasionally feeds on small vertebrates, however its preferred diet consists of nectar and invertebrates such as spiders, centipedes and cockroaches. It uses its large front incisors to rip away the bark and then its fingers to extract the prey from under the bark.

The Brush-tailed Phascogale, also known as Tuan, Common Wanmbenger or Black-tailed Phascogale, mainly occurs in dry sclerophyll open forest, with a sparse ground cover of herbs, grasses, shrubs or leaf litter. Examples of this community are Eucalypt open forest dominated by Spotted Gum (*Corymbia citriodora*) and Narrow-leafed Ironbark (*Eucalyptus crebra*) open forest.

The Brush-tailed Phascogale has a patchy distribution around the coast of Australia, from near sea level up to 1500 metres with one of the four isolated populations ranging from Rockhampton in Queensland to the Mt Lofty Ranges in South Australia.

The phascogale utilises up to 20 nests in a single year for mating, nesting and resting. Nests are located in hollow tree limbs between 25-40 mm wide, but have also been recorded in rotted tree stumps or globular birds nests. With a home range of 20-70 hectares for females and twice as large for males, the phascogale is a species highly reliant on hollows. As such, it is no surprise that one of the largest threats to this species is the loss of suitable nesting hollows by hollow-bearing trees being removed. Another threat is predation by invasive species or domestic animals.

The last part of its scientific name '*tapoatafa*' is an Aboriginal word, based on the tapping sound that the phascogale makes. When alarmed, the phascogale repeatedly taps its forefeet against the bark of the tree or a hollow log. It is thought that this is to let predators know that the phascogale has spotted them.

Phascogales are so hard to observe through traditional methods such as spotlighting, that the NSW NPWS has used ink pads to record this species. Ink pads loaded with blue food dye are located at the entrance of PVC piping bracketed to trees. The idea is that the phascogale uses the PVC piping as a substitute for a hollow and in doing so, walks through the ink-pad and leaves its footprints on paper lining the PVC piping. This is an innovative, non-intrusive technique of being able to monitor the presence of this species.

"tapoatafa is an Aboriginal word, based on the tapping sound that the phascogale makes"

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practicalities

After the flood... Reflections on recent flood events in southeast Queensland and implications for property management

Article by Darryl Larsen
Land for Wildlife Extension Officer
Gold Coast City Council

Just when we wondered if we would ever see some water in our creeks and dams again! Some southeast Queensland properties certainly got a bit more than they'd seen for a long time but rain events were quite localised. For example, in the Gold Coast hinterland the Springbrook Plateau experienced extremely heavy rain over a 24 hour period in early January causing significant flooding in Numinbah, Tallebudgera and Austinville Valleys. In these river valleys, Land for Wildlife properties suffered considerable damage to tracks creek crossings and revegetation work. Some long term residents considered it the worst flooding they'd ever experienced! However, other parts of the Gold Coast received only moderate rainfall at that time.

Many factors affect the severity of flooding at a particular location. These include the size of the catchment, the amount and intensity of rainfall and the extent to which the soil is saturated from earlier rainfall events. In this case, extremely intense rainfall at Springbrook following heavy rainfall in the previous weeks resulted in severe but relatively localised flooding.

From an ecological point of view floods are simply part of a natural cycle which the native wildlife is adapted to survive or even benefit from. However, where humans have modified waterways and catchments there can be problems.

From the human point of view one of the difficulties with floods is their unpredictability. The next big flood could be in twenty years...or it could be tomorrow. We can become complacent. Residents who are new to an area will not have experienced a severe flood and may have difficulty imagining how a flood will affect their property. The resulting ignorance or complacency can lead to injudicious clearing of vegetation, poorly sited or constructed driveways, fences, tracks and creek crossings.

While the severity of the recent floods was exceptional in some locations the lessons reinforce past experience:

Dec 2007 - Jan 2008. Floods can dramatically change the appearance of a watercourse overnight. These photos of a Land for Wildlife property on the upper Nerang River were taken one month apart. Floods scour out sediment bars and weed clumps, undercut banks and deposit logs, rocks and gravel (along with assorted pieces of outdoor furniture) from far upstream. Photographs by Darryl Larsen.

- Clearing of vegetation on slopes leaves the land vulnerable to erosion and slippage.
- Riparian revegetation projects are always a bit of a gamble – the new plants can disappear downstream if they've not had time to establish or they can be flattened and smothered by flood debris.
- Some native plants, like sedges and rushes, can stand up to flooding amazingly well.
- The appearance of streams can change dramatically after a flood due to flattening or complete removal of native vegetation and weeds and scouring of sediment bars deposited over the years. Heavy logs and boulders are floated, bounced and dragged far downstream causing havoc on the way. The main channel may migrate some distance from its previous position, particularly where the original stream channel has become blocked by sediment, debris and weeds.
- Floods can be very hard on infrastructure like roads, bridges, crossings and fences.

This revegetation site on the Nerang River has suffered considerable damage with many plants flattened and covered with flood debris. After recovering from the floods, quick remedial action, removing debris and straightening plants can still save many.

Where to find Flood Records

The Australian Bureau of Meteorology keeps flood records for major watercourses in South East Queensland, viewable on their website www.bom.gov.au/hydro/flood.

If you're in a major catchment e.g. Maroochy, Noosa, Brisbane, Logan/Albert it's worth having a look. Taking the Nerang River as an example, six major to moderate floods have been recorded since records began in 1920 (the January 2008 flood may be a new addition though construction of the Hinze Dam makes historical comparisons difficult as the river height station is situated downstream from the dam). Floods in 1931, 1947, 1954 and 1974 resulted from cyclonic activity (1974 was blessed with two major floods, the second resulting from thunderstorm activity associated with a trough extending through the area). The 1967 flood resulted from a moist tropical low pressure system.

A flood-damaged site on the Nerang River shows the uprooting of large river oaks while Lomandras in the foreground appear to flourish on floodwaters. Photo by Darryl Larsen.

A collection of images taken at various locations in the Gold Coast, Logan/Albert and Bremer Catchments, January 2008.

(Above) Flood debris at Glen Logan Park horse stud, Innisplain. Photo by S. Wynne.

weed profile

Kudzu

Article by Michael Banks
Land for Wildlife Extension Officer
Gold Coast City Council

In infestation of Kudzu in the Tallebudgera Valley, Gold Coast hinterland. Photograph by Darryl Larsen.

Kudzu's leaf and flower arrangement. Photograph by Forest and Kim Starr, 2008.

Described in a poem as a "green, mindless, unkillable ghost", embroiled in USA conspiracy theories, nominated on the '100 World's Worst Invasive Alien Species' list and even a star on its own YouTube website, Kudzu (*Pueraria lobata*) could certainly be described as a high profile floral celebrity. But what makes it so special?

This formidable exotic competitor originated from South-east Asia and was introduced to Australia as a potential forage resource, garden ornamental, erosion control measure and traditional medicinal herb (apparently a hangover cure!). However, due to its vigorous growth characteristics coupled with its ability to root, and develop tubers, at each node and long seed viability (up to 10 years) it was only a matter of time before this intruder, free from natural bio-control agents, was to become a significant environmental weed.

Kudzu can grow up to 30 cms a day

Living up to its international reputation, Kudzu has now become an apparent threat to localised bushland areas in South East Queensland and northern NSW. Outbreaks have also been reported in northern Queensland, however, in southern regions the vine has been observed to exhibit markedly more aggressive growth possibly due to more optimum climatic conditions.

The vine, with its large leaf area supported by huge football sized tubers, can amazingly grow up to 30 cms a day reaching heights of 20 metres. This enables Kudzu to smother and eventually collapse fringing bushland canopies and edges, subsequently providing sun-drenched conditions to foster its advance.

Beneath the vine-spread, native seedling recruitment can also be suppressed due to the restrictive and stifling nature of the vine. Another consequence of the vine's sprawling habit can be the simplification of the invaded forest's structural diversity reducing opportunities for native fauna. Due to these physical characteristics, energetic growth and obvious destructive capabilities, Kudzu is now being compared with other invasive weeds such as Madeira Vine and Cat's Claw Creeper.

When not in flower the vine can often be confused with other exotic vine species such as Morning Glory (*Ipomea indica*) that has similar trifoliate leaf arrangement and preference for sunlit habitats such as roadsides, watercourses, rainforest margins and abandoned pastures.

Kudzu Leaves

Kudzu leaves are alternate, compound and trifoliate (3-leaved) arrangement. Each of the 3 leaflets can have an oval to rhomboid shape 7-15 cm long, 5-13 cm wide and relatively hairy. Confusingly, these leaflets can be 3 lobed or unlobed.

The upper leaflet surface is usually green whilst the lower surface is greyish green. Petioles or leaf stalk are approximately 8-16 mm long. Kudzu is deciduous during the cooler months. The whole plant has been reported to turn brown and drop all leaves during winter.

Kudzu Flowers and Fruit

Flowers in summer producing pea-like (Fabaceae) fragrant elongated flower clusters, 10-25 cm long, purple, blue or occasionally pink. The fruit develops to form a flattened hairy seed pod about 5 cm long containing hard oval seeds.

Declared Weed

In Queensland, Kudzu is listed as a Class 2 declared plant under the *Land Protection (Pest and Stock Route Management) Act 2002*. This means that it is an offence to introduce, keep, supply or transport this pest without a permit issued by Department of Primary Industries and Fisheries (DPI&F).

In NSW, Kudzu is also a declared Class 3 weed and has been identified as a key threatening process to threatened species. Internationally, Kudzu has been listed by the IUCN as one of the '100 World's Worst Invasive Alien Species'.

In the USA, Kudzu engulfs a forest edge. Kudzu causes an estimated $50m of damage each year and infests 2–3 million hectares of land. Photograph by James H. Miller, USDA Forest Service.

On the brighter side, Kudzu outbreaks have been relatively isolated and localised both in northern NSW and South East Queensland. With current legislation firmly in place and an elevated awareness of the weed, this now provides a good opportunity to control and contain its spread though early detection and appropriate judicious management.

So what do you do if you find Kudzu?

To control Kudzu, an integrated approach is recommended using a variety of control techniques. The technique selected for the management of Kudzu will however vary depending on factors such as the location, size and character of the infestation. Therefore before attempting to tackle an outbreak it is important to contact your local Land for Wildlife Extension Officer and/or the DPI&F who can provide you with advice on how to best manage Kudzu on your site.

Further Reading

Lowe S, Browne M, Boudjelas S & De Poorter M (2000) *100 of the World's Worst Alien Species: A selection from the Global Invasive Species Database*. IUCN. http://www.invasivespecies.net/database/welcome/.

Kudzu Warning flyer on the Department of Primary Industries & Fisheries website: http://www.dpi.qld.gov.au/cps/rde/xbcr/dpi/IPA-KudzuVine-Warning.pdf

The NSW Plantnet information page on Kudzu at http://plantnet.rbgsyd.nsw.gov.au. Royal Botanic Gardens & Domain Trust, Sydney Australia.

Kudzu in the news, http://www.abc.net.au/news/stories/2007/11/29/2105512.htm

Kudzu Conspiracy, http://www.mindspring.com/~mdpas/kudzu.html

James Dickey's Kudzu Poem, http://www.breakoutofthebox.com/kudzu.htm

Kudzu on 'YouTube' http://www.youtube.com/watch?v=iLH1qLCvqSg

practicalities

Floods and Fences

Article by Darryl Larsen
Land for Wildlife Extension Officer
Gold Coast City Council

Barbed wire fences draped with flood debris were much in evidence in the river valleys of the Gold Coast after the 2008 floods. However, where stock are present on a property, fences are necessary to protect riparian vegetation and maintain water quality. Damage to fences can be avoided or minimised by:

- Not building fences on flood-prone land unless essential. The further the fence is from the main stream channel the lower the velocity of water and likelihood of damage.
- Not building fences at right angles to the flow. Build at 45 degrees to, or better still, parallel to the flow.
- Avoiding having fences crossing the main channel of waterways and on high velocity turbulent stretches such as river bends. If this is unavoidable there are patented designs which allow a section of fence to be lowered temporarily during floods, as shown above. This flood-proof fence shown is available from Ian Bell on 3408 3034.

A flood-proof fence on the Murray River. This fence has survived several floods unharmed.

- Keeping a small profile. Use plain wire rather than barbed where possible as barbed wire collects more debris. For the same reason hinge joint, ring lock or wire netting are also unsuitable for flood prone areas. Keep the number of strands to a minimum. Also keep fences as low as possible.

fauna profile

Native Bees - A Tale of Trigona Tragedy

Article & photographs by Bernadette May
Environmental Officer
Moreton Bay Regional Council

Dr Tim Heard levering out a native bee hive nest from a rotted log to transfer into a box.

Moving a colony from a hollow log - note the brood chamber.

A colony relocated into a box.

All of these images were taken at the Native Bee Workshop - see box on facing page.

Native bees are nature's miracle workers busily going about their business collecting and dispersing pollen in bushland, rainforests and home gardens. These insects are captivating little critters, and as a hobby are fascinating to keep and watch.

The following story is an account of my first experience keeping native bees.

February 2007

The plan was for me to baby sit a recently split hive of *Trigona carbonaria* (a common native stingless bee species) until it had recovered and was heavy enough to be divided again. The second division would be returned to the original owner, and I would retain the other half. Simple enough, it sounded like fun.

During the initial division, the top half of the colony (which included half the brood chamber) was inverted. Inverting the brood chamber can influence hive revival time because the larvae food store will spill down drowning the bee larvae and compromising the potential of the new colony. It is not a recommended practice – however robust hives usually cope.

The upper half of the colony was placed in the bottom third of a specially designed multi-chambered bee box. The entrance was sealed with a ventilated plug (made from plastic hose with mesh at one end) ready for transport to lofty Mt Glorious.

February / March 2007

Once home, the hive was placed in a sheltered position on a north facing veranda where it would receive morning sunshine and afternoon shade. The entrance hole was unplugged.

Three days passed and no bees were seen leaving or arriving through the entrance hole. 5 days passed and still no bees – although they could be heard humming inside. After a week, the bees began throwing debris out of the entrance; a good sign. The bees were starting to clean up after the trauma of the split and the long winding road trip to the summit of Mt Glorious.

Ants

The first 'problem' encountered was ants. Attracted by spilled honey, little black ants trailed over the box. Ants were clustered close to the drainage hole where honey from the wounded hive had bled out.

A recently divided hive is destabilized and may have trouble defending itself against ant attack. These particular ants were probably not life-threatening to the colony, but would be an ongoing concern if they became regular visitors. In nature, ants do nest close by with few adverse effects on native bees – though not all ant species are benign to bees.

Reluctant to use 'ant sand', a friend made a bee box stand complete with a moat at the bottom to prevent ants from climbing. A squad of Susie Maroney ant types managed to swim across, but the majority were less brave. (Some bee-keeping books suggest mounting the boxed colony on a stake and applying a thick layer of grease to prevent ants from invading the hive).

April 2007

By April the little black bees were freely coming and going from the hive, and were mesmerising to watch. I was impressed by their take-off thrust and kamikaze-style landings. A small number of bees missed the entrance, crashed into the front of the box, or crawled aimlessly over the roof in search of the front door. The odd bee would score a 'hole in one' straight into the entrance. Some drowned in the moat.

> *"Little black bees were freely coming and going from the hive and were mesmerising to watch"*

Spiders

Once the bees became regularly active, spiders began casting nets around the base of the hive to capture them. In the mornings I carefully brushed away cobwebs created by spiders intent on catching a bee breakfast.

When spiders were found around the joins in the box, I taped the gaps with clear masking tape to help seal the box until the bees could line the inside with a hard layer of cerumen and batumen. Cerumen is made by bees combining their wax secretions with tree resins, and is used to construct honey pots and to give the hive structure. When mixed with other materials it forms batumen – used to form a waterproof seal and to keep predators

out of the hive. For more information about the different building materials made by bees, see John Klumpp's excellent book *Australian Stingless Bees: A Guide to Sugarbag Beekeeping*, reviewed on page 13.

May 2007

Due to rains and the damp, black mould colonised the outside of the box. The misty climate of Mt Glorious caused the masking tape to go gooey, resembling wood glue. Some bees found their way under the tape and got stuck. The activity around the hive was noticeably less, though the hum inside sounded strong.

June 2007

In June a bitter cold blew in and the bees became sluggish. A few guard bees were posted at the entrance. Occasionally one would crawl out but no bees were flying. A crude attempt to insulate the box with woollen material and cardboard was undertaken in haste.

The cold weather persisted preventing the bees from foraging. The temperature hovered around 10 degrees during the day, dipping low at night. Bees won't forage if the temperature is too cold, though strong hives of *Trigona carbonaria* can survive frosts. The humming inside the box was notably fainter suggesting the colony was suffering.

Then one morning following a terribly cold night, the guard bees were dead. The box was silent, and the colony was lifeless.

A post mortem of the hive a few weeks later revealed a small colony with limited honey storage and brood area. Evidently this hive was not robust enough to survive the unfavourable weather conditions.

In hindsight the hive, which was most likely weakened by the brood chamber inversion, should have been insulated much earlier with polystyrene or polyurethane foam. Many beekeepers use discarded fruit and vegetable boxes for this purpose. Although the subject of supplementary feeding is controversial amongst native bee keepers, I believe that a food supplement, either a sugar water or honey water mixture, may have helped the struggling bees when they could not forage during the cold.

References

Klumpp, J. (2007) *Australian Stingless Bees: A Guide to Sugarbag Beekeeping*. Earthling Enterprises Pty Ltd.

Dr Tim Heard. Native Bee Workshop, 24th February 2008.

John Bowden, personal communication.

Native Bee Workshop

In late February 2008 Pine Rivers Shire Council arranged for Dr Tim Heard to facilitate a Native Bee workshop to teach residents about native bees – their place in the natural environment and how to keep them.

The workshop was excellent – professionally presented and practical. We tasted the tangy honey and examined a range of products made from the native bee wax.

We learned how these little creatures lived and we asked many questions. Our group watched in wonder as the hive of *Trigona carbonaria* was divided in two, and a nest of native bees was transferred from a hollow log to a hive box.

At the end of the workshop, I took charge of a second colony, one much larger than the previous, and one where the brood chamber had not been inverted.

To address cooler climate of Mt Glorious, this colony has been placed where it will receive morning and late afternoon sunlight, and bright dappled light throughout the day. A sugar water solution has been provided for the duration of its recovery (and most likely will be again during the cold months) and the box will be insulated from mid-autumn to spring.

Dr Heard carefully relocating some brood chamber from the top half of the hive, to add to the bottom half while avoiding brood chamber inversion.

Gently easing out a layer of the brood chamber.

Bees hovering around some honey pots.

property profile

Kalisha Nature Refuge

Article and photographs by Ken Cunliffe
Land for Wildlife landholder

Readers will have the chance to visit Kalisha as part of the Open Property Scheme in September to help celebrate the 10th anniversary of Land for Wildlife in Queensland. Keep an eye out in July for the Open Property Scheme invitation.

Kalisha Nature Refuge, owned by the Cunliffe family, is located in the foothills of the Toowoomba Ranges. The 66 acre block enjoys a unique setting overlooking the Flagstone Creek valley to the south, rising steeply to the north and west, thus forming a picturesque amphitheatre. The aspect and slope protect the soil from hot drying winds to create a cool and moist environment and some rather unique vine scrub habitat. It must have been stunningly beautiful before a series of failed attempts to tame the bush for farming.

Entrance to Kalisha proudly displaying Land for Wildlife and Nature Refuge signs.

History

Indigenous and non-indigenous historical records about the area are rather sketchy. Hard-up sheep farmers took up dairying and grazing in the Flagstone Creek and neighbouring valleys. The dominant Narrow-leafed Ironbark (*Eucalyptus crebra*) and other large tree species provided a bounty of sawlogs and fenceposts. This was to be the first significant deforestation of this property. Dairy farming declined rapidly probably because of a series of severe droughts possibly induced by the effect of wholesale land clearing on local climate. With passing years the forests regrew, albeit with fewer endemic species and several new comers (weeds and feral animals). Then, shortly after World War II, government policy was strong on land clearing for farming. Once again the forest giants fell to the saw.

"A well resourced and informed farmer is the best custodian of the land"

This scenario of double and sometimes triple land clearing appears to have been common throughout South East Queensland.

Over the past quarter century or so it seems that much of this property and its surrounds has been left to "go bush". Fence lines, which were once the bastion of productive farming, lie derelict and rusting. A great deal of the original vine scrub has managed to claw its way back. Unfortunately, several aggressive weed species have also rampaged. It serves no useful purpose to apportion blame for the sorry state of this land, but I do want to say this: A well resourced and informed farmer is the best custodian of the land.

A well forested area following brushcutting and one round of follow-up spraying of lantana.

We purchased this property in 2003 and joined Land for Wildlife soon afterwards. Our reasons for choosing this piece of country included the tranquillity of a country life with close proximity to the city and the potential that we saw for restoration. We were fortunate to receive a Vegetation Incentive Program (VIP) grant from the Queensland Government to clear lantana in return for signing a perpetual Nature Refuge covenant. Kalisha Nature Refuge was born in February 2007.

"Many landholders seem to fear entering a perpetual conservation covenant. Allow me to ease your concerns"

The Covenant

Many landholders that we have spoken to seem to fear entering a perpetual conservation covenant. Allow me to ease your concerns. A covenant does not have to cover every square inch of your property – only the area that you want to conserve in perpetuity, and with almost any exclusion clauses that you wish. What it does do is protect your conservation efforts for future generations. Most properties have areas that are best left alone and not grazed such as creek areas or steep slopes. Having a conservation covenant on these areas potentially opens doors to information and resources for restoring the natural habitat.

Panic Grass can take over wherever lantana is removed. Panic starves native seedlings of space, light, water and nutrients and presents a dangerous risk for fire that can kill native vine scrub species.

A new planted forest of endemic native understorey, mid and upper canopy species that will shade out the rampant growth of the Panic Grass and lantana regrowth to pave the way for natural forest regeneration.

Three invertebrate species (butterfly, spider and fly) on lantana.

Flora

Our current Land for Wildlife Officer, Martin Bennett, visited Kalisha. In the space of several hours he recorded in excess of 130 species of plants, many of them uncommon or rare. This proved that the natural value Kalisha was well worth looking after. A diverse floral ecology provides for a diverse faunal ecology.

Fauna

Whiptail and Swamp Wallabies are the most frequently seen mammalian residents of Kalisha. Echidnas, possums and antechinus are also quite common. We have never seen Koalas but have heard the males from time-to-time. Around 60 bird species have been identified. Some of these, like the Channel-billed Cuckoo are seasonal migrants. Parrots of all species are rather uncommon. Invertebrates of all kind abound. Frogs, often regarded as a barometer for ecosystem health number around 10 different species.

The reptiles of Kalisha are rather interesting, especially the snakes. Each year we see around 50 snakes. We have yet to identify one of the more venomous ones. We choose to let all snakes live. Harmless snakes prey on the same food as poisonous snakes. Therefore, by accepting and encouraging the harmless ones depletes the food supply for the poisonous snakes.

Weeds and pests

Lantana is by far the most obvious weed on Kalisha. However, in many ways I regard Panic Grass and Rhodes Grass to be more serious threats to the recovering vine scrub. This is because the grasses form an enormous amount of biomass during the summer months, which shades out and starves native seedlings of space, water and nutrients. It also generates a fire hazard. Fire kills vine scrub and sets the process of recovery back to the beginning.

Each year we remove around 50 Cane Toads. This year however, we have encouraged plant growth in our small dam. This has provided valuable shelter for native frogs and discouraged Cane Toads. Hares, foxes, pigs and wild dogs have been seen or are otherwise evident.

The road to recovery

The restoration of Kalisha has become our focus since acquiring the VIP grant to clear lantana. Our objective is to preserve all native species. We are removing the lantana ourselves and not using contractors even though the lantana covers most of our block. We believe that it is achievable and contractors would not exercise the same level of care that we do. We had a comprehensive weed management plan drawn up and while we have varied our plan of attack, this plan does form the basis for our operational control and decision making. We have found that limiting activities to an achievable area is paramount and timely follow-up is vital for success.

Our method involves first cutting the lantana back with brushcutters (the more powerful the better) and following up by spraying regrowth with concentrated glyphosate using a splatter gun to get a targeted spray. We are planting trees and shrubs (all layers of the canopy) in clear areas selecting a range of species that already grow on Kalisha and Red Cedar which we believe was removed in the first deforestation.

We will succeed!

We have made an effort to involve conservation and environmental education organisations such as field naturalists, SGAP, University of Southern Queensland and Scouts. The knowledge that can be gained from such organisations is invaluable. Through this article we extend our invitation to any other environmental interest groups that would like to experience Kalisha.

flora profile

Bahr's Scrub Croton

Article and photographs by Lui Weber Consultant Botanist for Moreton Bay Regional Council - Caboolture District

Article from forthcoming Queensland Museum Wild Guide to Caboolture.

Bahr's Scrub Croton (*Croton mamillatus*) is a small shrub with white hairy leaf undersides growing on the edges of drier rainforests in South East Queensland. Until its discovery in the Caboolture Shire, this plant was previously only known from three locations south of Brisbane with less than 100 wild plants known on Earth.

Until recently it was thought to be a hybrid between two common species and was only recognised as a separate species in 2003. The species is named *Croton mamillatus* from the Latin meaning nipple from the appearance of the fruit. However despite its small population size and limited known range, the species was afforded no formal protection under the Queensland *Nature Conservation Act*.

Moreton Bay Regional Council - Caboolture District staff discovered a new isolated population of 36 plants of Bahr's Scrub Croton on a Council owned property in Campbell's Pocket on the upper Caboolture River. This property is registered as a Nature Refuge to protect its nature conservation values. This discovery increased the known population by more than a third. Fortunately this discovery was made just in time as a nearby road was scheduled to be widened which would have destroyed the Bahr's Scrub Croton population.

The Queensland Herbarium asserted the importance of this population of Bahr's Scrub Croton and as a result, the road works were modified to protect this significant site. This story is an example of how a good environmental outcome was made possible through knowledge of what needed to be conserved.

The ecology of the Bahr's Scrub Croton is virtually unknown. These images show the plant in fruit (left) and with a well camouflaged Longicorn Beetle (above).

Caboolture and District Wild Guide

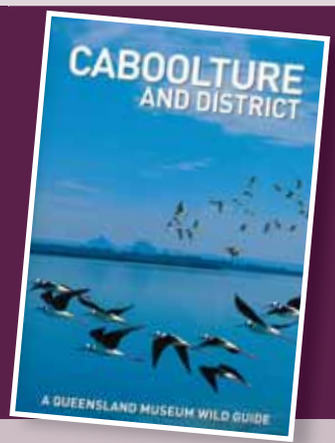
by Queensland Museum

This booklet is a great addition to the 4 other Queensland Museum Wild Guides (Ants, Fishes, Raptors and Snakes). This guide contains an interesting mix of information about the natural assets of Caboolture and community involvement in conservation.

The iconic landscapes and associated geology and ecology of the Pumicestone Passage and Bribie Island are discussed including shorebirds, dugongs, historic records of Emu on Bribie and the toxic marine algae, Lyngbya.

Native plants, weeds, threatened plants and ecosystems of Caboolture are discussed and illustrated. A general assortment of local wildlife are presented with good images.

Finally the booklet covers community involvement in conservation such as Koala rescue groups, landholders protecting their properties with Voluntary Conservation Agreements and residents planting fig trees for the endangered Coxen's Fig Parrot. This is a cheap and informative 'must-buy' for all Caboolture landholders and visitors.



Queensland Museum, 2008
Soft cover, 80 pages, colour photographs
ISBN: 978 0 9775943 68
RRP: $9.95

book reviews

Australian Stingless Bees: A Guide to Sugarbag Beekeeping

by John Klumpp

Earthling Enterprises Publishing, 2007.
Soft cover, 120 pages, full colour.
ISBN: 9780975713815
Available from Earthling Enterprises for $38.95 (incl. postage) on 3844 6677.

This book is a welcome and needed addition to the available information on the stingless bees in Australia. John has drawn on years of experience and innovation to put together information essential to helping the amateur and enthusiast to understand the biology and needs of Australian stingless 'sugarbag' bees. At the same time he has presented information that will help all readers keep bees themselves, whether it be for a garden 'pet', pollination or production of that valued 'sugarbag' honey.

John describes how he "caught the bug", a condition so common among stingless bee keepers. They are very captivating little insects. How they can be incorporated in gardens of all sizes is discussed. The species of bees that exist in Australia and their different nest structures and biology is covered in some detail. The "how, when, where and why" of finding their natural homes is covered, including a list of colonies in public places where people can observe the everyday life of these little bees.

The everyday care of colonies, the retrieval of colonies from damaged trees and their boxing is described and illustrated to the point that even a beginner can proceed with excellent chance of success.

The diverse range of artificial structures in which the bees are being housed is presented. Foremost, in overall design and finish, is John's own KITH round hive that he assembled with a superb finish, and uses with great effect to house and propagate his colonies. The more advanced tasks of boxing from retrieved logs and splitting is very thoroughly covered. Descriptions of some of the pests and problems that have been found to affect the stingless bees in domestication, and ways to manage those problems, are discussed.

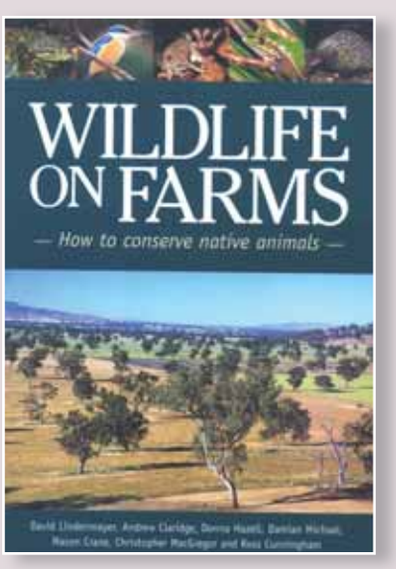
The Cadaghi tree, and its interaction with a native bee has its own chapter, as the obsessive resin collection that Cadaghi encourages may impact negatively on hives. A section is dedicated to enriching garden plants to favour native bees.

This book is profusely and instructively illustrated, the writing style friendly but illuminating, with a touch of the lighthearted humour for which John is known. It is an easy but effective read as it draws one into the amazing intricacies of the social life of these little insects.

Review by Bob Luttrell (Bob the Beeman).

Wildlife on Farms

by D. Lindenmayer, A. Claridge, D. Hazell, D. Michael, M. Crane, C. MacGregor & R. Cunningham.



CSIRO Publishing, 2003
Soft cover, 128 pages, colour photographs
ISBN: 064306866X
RRP: $34.95

A small but easily readable book packed with colour and practical information on how to get and keep more wildlife on farms. Wildlife conservation is important on farms. The book is based on the fact that much of our wildlife will depend on farmland for survival into the future. It is far more effective (and economical) to save existing habitats than it is to create new ones. So, the book aims to provide practical information without undue farm productivity losses.

One chapter on integrating farm management and wildlife conservation is particularly relevant to Land for Wildlife and covers some common land management problems and practices.

There are lots of descriptive drawings and good photographs. The book is basically in two parts. First part details various aspects of the different habitats found on farms – such as trees, understorey, logs & groundcover, and creeks & dams. Second part details a range of wildlife species and their specific habitat preferences. Examples of the species include Squirrel Glider, Koala, Yellow-footed Antechinus, Cunningham's Skink, Common Eastern Froglet and Rufous Whistler.

Many farm owners do appreciate their local wildlife as a key part of the quality of rural life. So the book will be quite relevant to them and is aimed at people who already value the wildlife on their farms and want more information. It is not a wildlife identification guide.

The book, unfortunately for us in SEQ, is more identifiable with the Western Slopes of Northern NSW and further south. But many of the animals are also common here and the practical advice is certainly relevant.

Review by Keith McCosh.

fauna profile

Landholders Conserving the Richmond Birdwing Butterfly

continued from page 1.

Richmond Birdwing females (left) and males (right). Image from RBRN website.

numbers to encourage the butterflies into urban areas. In 2005, the Richmond Birdwing Recovery Network (RBRN) was established to cultivate more host vines and raise community and government awareness of the butterfly. Members of the RBRN are encouraged to plant host vines in corridors to provide breeding sites for the Richmond Birdwing and breach the gaps in fragmented habitats to prevent inbreeding depression.

When populations of plants or animals become fragmented and isolated there is a risk of inbreeding which results in a loss of genetic variations and potential extinction. Many wild Richmond Birdwing vines are no longer producing seeds; possibly due to drought or the absence of pollinators. Inbreeding of the Richmond Birdwing Butterfly is known to cause sterile eggs and local extinctions at two localities in SEQ. This has prompted experiments to work out ways to enhance genetic quality at in-bred sites and to promote wider breeding.

Two main experiments are being conducted at David Fleay Wildlife Park and at Gold Creek Reserve. At these sites, cages for Richmond Birdwing Butterflies have been built to allow reproduction of females and males that have been collected from localities at least 40 kms apart. Females have been observed to travel up to 30 km for a breeding site. 30 kms is thought to adequately avoid inbreeding depression. Egg hatching and larval development is being monitored in the cages with young larvae being released at the two localities where inbreeding is suspected.

Land for Wildlife members and the RBRN are working cooperatively to cultivate and distribute vines and also locate and map wild vines. Several Land for Wildlife properties have 'enriched' their habitats with cultivated vines. Richmond Birdwing populations appear to be recovering locally at some of these sites.

On the Sunshine Coast more than 1500 Birdwing Butterfly Vines have been planted on 22 privately owned properties and 13 Council-owned reserves. Similarly, on the Gold Coast more than 5000

This fight cage at Gold Creek Reserve is designed to research, and eventually combat, inbreeding depression of the Richmond Birdwing Butterfly.

Watering Richmond Birdwing vines in the flight cage.

Birdwing Butterfly Vines have been planted from Tamborine Mountain to Tallebudgera and at Canungra.

Most Richmond Birdwing Butterfly breeding sites are found on private land. The only public reserve with adequate numbers of food plants to sustain the

Don Sands and Christine Hosking in a RBRN propagation facility for the Richmond Birdwing Vine.

butterfly is Conondale National Park. Therefore, the engagement of private landholders is critical to the survival of the Richmond Birdwing. In gardens, host vines can be watered and fertilised, keeping vines alive and leaves soft enough for young larvae to feed and survive. Community propagation and care of vines is proving to be the most significant means of promoting survival of the butterfly. By maintaining small but viable colonies, the butterflies are able to return to breed in natural bushland.

The RBRN runs community workshops and publishes illustrated newsletters for members with information on the Richmond Birdwing and its food plants. There is also an excellent website featuring maps of wild and planted vines and recent butterfly sightings.

If you are interested in planting Richmond Birdwing Vines on your property, or simply finding out more about the butterfly and recovery activities in your areas, contact your local Land for Wildlife Extension Officer or visit the RBRN website on www.210west.org.au/rbrn

This article is a modified extract from:

Sands, Don (2008) Conserving the Richmond Birdwing Butterfly over two decades: Where to next? *Ecological Management & Restoration*. Vol 9 No 1, April 2008.

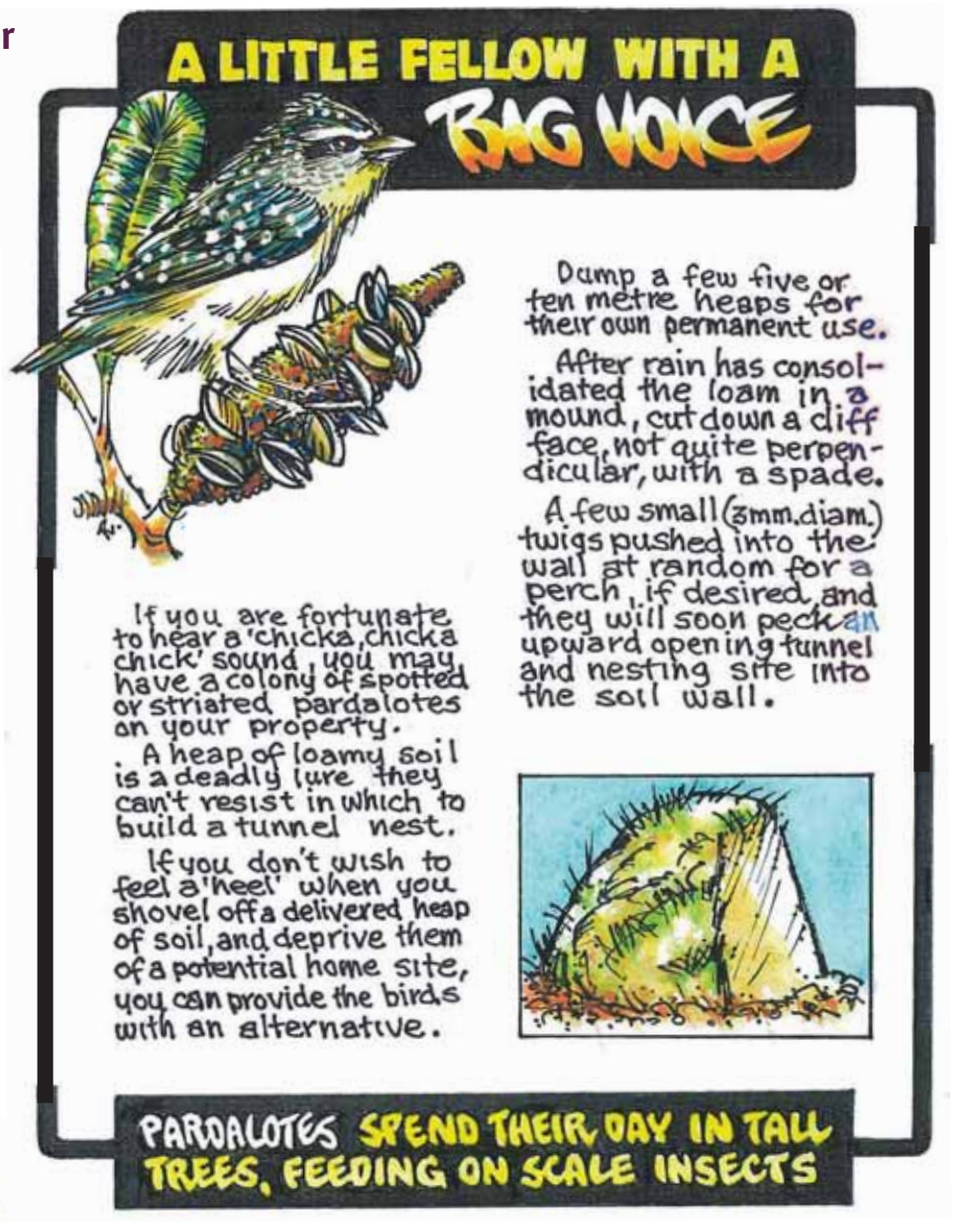
letters to the editor

Pardalotes & Bush Litter

Enclosed are a couple of procedures I use here at Rochedale. Although they are not earth shattering ideas, they may be of interest to a few of your readers.

G. Reese
Land for Wildlife landholder
Rochedale

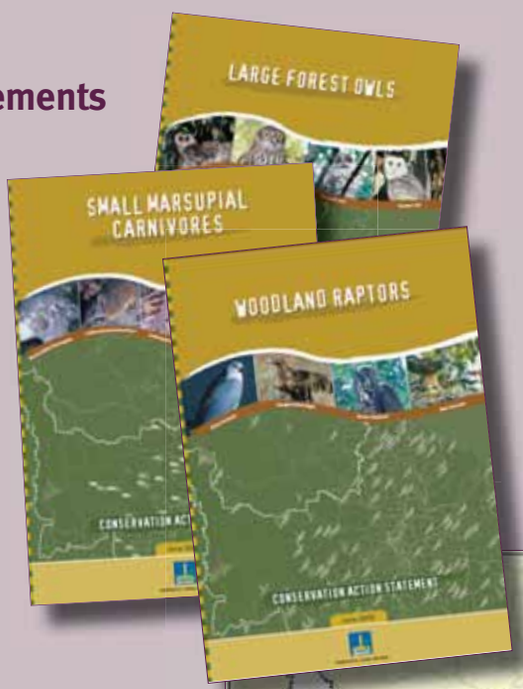
Ed. - Thank you for your two hand-painted and hand-written articles. I am always inspired by the interests and skills of Land for Wildlife members.



*A black fruiting Chain Fruit (*Alyxia ruscifolia*) found in the Rosewood Scrub. Some black fruit seed was planted and produced a red-fruited plant (as shown below), which is the normal fruit colour.*

Photographs by Heather Knowles.

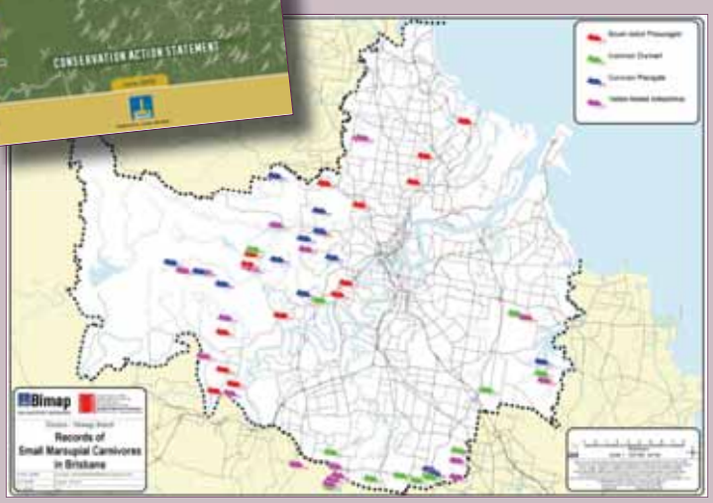
Conservation Action Statements



Brisbane City Council has produced easy to read booklets on significant plants and animals found in Brisbane. The booklets (called Conservation Action Statements) are packed with useful information for landholders interested in finding these plants and animals, learning about their ecology and assisting with their conservation.

Most of the featured plants and animals are found across South East Queensland. Ten Conservation Action Statements and corresponding brochures are available on:

- Squirrel Glider
- Platypus
- Grass Owl
- Collared Delma
- Large Forest Owls
- Small Marsupial Carnivores
- Woodland Raptors
- Coastal Raptors
- Cunningham's Jute
- Angle-stemmed Myrtle



Conservation Action Statements are about 20 pages long with sections on ecology, threats, management and distribution maps (example shown to the right). All Statements are available on CD from Amelia Selles at Brisbane City Council on 3403 4906 or amelia.selles@brisbane.qld.gov.au. Printed versions can also be requested.

Land for Wildlife South East Queensland is proudly managed by SEQ Catchments (the accredited regional body for Natural Resource Management in South East Queensland) and proudly delivered by the following 11 Local Governments:

Brisbane City · City of Ipswich · Redland City Council · Lockyer Valley · Toowoomba Regional Council · Gold Coast City Council · Logan City Council · Scenic Rim Regional Council · Somerset Regional Council · Moreton Bay Regional Council (Incorporating Caboolture, Pine Rivers and Redcliffe) · Sunshine Coast Regional Council

SEQ Catchments
Healthy Land – Healthy Water

Australian Government

Land for Wildlife South East Queensland Regional Coordination is supported by the Australian Government.