Quarterly Update No 16 … April 2019

Autumn greetings from a slightly greener landscape than at January newsletter time!

Recent developments…

Senate inquiry into Australia's faunal extinction crisis

"Australia is one of the world's megadiverse countries… 46% of our birds, 87% of mammals, and 93% of reptiles are only found here." And yet, Australia ranks second (after Indonesia) in the world for ongoing biodiversity loss. [1]

A Senate Committee inquiring into Australia's faunal extinction crisis released its Interim report in April this year. https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Faunalextinction/Interim_report

Since June 2018, the Committee received over 400 submissions and held a number of public hearings. Submissions to the inquiry present a litany of losses; in the worst case, faunal population trajectories of continuing loss; species which have become extinct during the past 200 years; decreasing abundance of other species, particularly among already threatened species; loss of ecological integrity across a range of threatened ecological communities; and degradation in native vegetation.

The Interim report includes excerpts from submissions to the inquiry and the Committee's conclusions and recommendations.

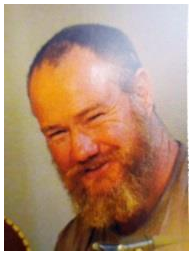
Special Wildlife Reserves

Read about a newly created class of protected area available to landholders under the *Nature Conservation Act 1992*. A first in Australia, a ***special wildlife reserve*** affords a landholder a voluntary, binding and perpetual class of protection on his/her land equivalent to a national park level of protection. To learn more about this new land conservation class and how it differs to the nature refuge class, follow this link. https://environment.des.qld.gov.au/ecosystems/special-wildlife-reserves/

Continuing our members' stories "why conservation matters to me"

… by LUCI member Chris Darvall

Local conservation is where it starts for me.



If I can make a difference in the patch of the tapestry that is currently mine to nurture, and if I can link my efforts to my neighbour's, and then to a community and so on outward, then the effect of what I do personally is magnified beyond the resources I have put in to the system.

Not the least effect of this model is the spiritual sustenance immediately available; by this I mean waking up each day in a landscape with more species, more retained moisture and healthier soil is its own feedback loop that keeps me inspired and is an antidote to the oppressive dystopia of international environmental destruction.

So, I work on the job in front of me, vote where I think a difference can be made and support any broader impulse to conservation where I can.

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[1] Cited in Section 2.2 of Interim report from Senate Enquiry into *Australia's faunal extinction crisis*. https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Faunalextinction/Interim%20report/c02

February Native Plant nursery tour

A number of LUCI members were among the 35 people who attended the open morning at *Tanglewood Natives*[2] plant nursery. Other attendees included members of Lockyer Organic Growers and Native Plants Queensland (Ipswich branch).

Owner and LUCI member, Karen Gruner, provided an entertaining potted history of her nursery business and invited attendees to check out her seedling shade house and plant hardening areas. Karen specialises in plants belonging to Regional Ecosystems found in the Lockyer Valley. Karen propagates from local seeds wherever possible and continues to expand her range.

Karen shared her knowledge and tips about a range of subjects including seed propagation methods (e.g. soaking seeds overnight in boiled water instead of scarifying them), propagation by seed compared to cuttings, seedling root pruning, the seasonality of successful seed germination, water efficiency in the nursery, the construction of a secure shade house and, on a very practical level, the value of a good hose (you get what you pay for)!

If you have native plant seeds from your property that you would like propagated, Karen is happy to take on that task for you. Karen is keen to host more open days. If you're interested let us know or visit Karen on her website (see link below).

[2] https://tanglewoodnatives.com.au/

Autumn Special Interest Walk

A combination of beautiful April weather, regionally significant plants and great company made for a very enjoyable autumn walk for a group of fifteen. Thank you to LUCI members Jim Kerr and Judy Whistler for hosting the walk on their property. We were fortunate to have Martin Bennett (LVRC Environment Officer), Rod Hobson (an ecologist) and Dougal Johnson (a geologist) in the group to share their knowledge of the flora, fauna and landscape.

Dougal gave a brief overview of the geomorphology of the area in relation to the basalt and sandstone formations, which we were able to see in our walk along an escarpment. Among the many flora species observed, Martin identified the following highlights:

Melaleuca Formosa (Cliff Bottlebrush, photo right), near threatened under Queensland's *Nature Conservation Act 1992*, and very uncommon in the Lockyer Valley;

Photos by Martin Bennett

Boronia splendida (Slender Boronia, photo right) of which there are only seven specimens in the herbarium for SEQueensland; and

Acacia blakei subsp. Diphylla (Gorge wattle) of which there are only two specimens in the herbarium.

Rod provided a list of fauna sightings from the day, which included one mammal (Brush-tailed Rock Wallaby), 23 bird species, 3 reptile species and 10 invertebrate species. Bird highlights included Wonga Pigeon, Golden Whistler, Varied Sitella, Wedge-tailed Eagle and Pacific Baza. Among the invertebrates sighted were a *Hormurus*

waigiensis (Rainforest scorpion), the exoskeleton of a *Urodacus manicatus* (Black Scorpion) and the shell of a *Sphaerospira fraseri* (Fraser's Banded Snail).

Billy tea and brunch completed a very interesting and pleasant morning in the bush.

Ever wondered about the variety of soils on your property?

…by LUCI member Michael Darvall

Soil formation is influenced by the physical and chemical composition of the parent rocks and the weathering response of rocks.

Composition of parent rocks. The area in and around Toowoomba comprises sandstone rich sedimentary units of the Mesozoic era (100 million years) overlain by much younger basalts from the Main Range Volcanics (MRV, 27 to 18 million years), which erupted in a series of flat lava flows over several million years. The MRV have a total thickness of up to 330 metres.

Basaltic rocks are high in magnesium and iron, which contain a wide range of chemicals crucial to healthy plant growth including aluminium, copper, phosphorous, calcium and magnesium. Weathering of the rocks makes these chemicals available to the plants in a form that is suitable for plant uptake.

The underlying sandstone is much poorer parent material. It is dominated by silica in the form of quartz sand grains. The reason sandstone tends to be low in other minerals relates to its formation – the compaction and cementation of sandy sediments. Imagine a sandy beach; it's mostly made up of white quartz sand, usually with some shells and shell fragments mixed in, and a few traces of black minerals, usually dominated by magnetite. Almost all the sediment is quartz – silica, the shells are mostly Calcium Carbonate which is not easily available to plants, and a few traces of iron and almost no other elements. This is poor feedstock for generating soil.

Weathering of rocks. Well compacted and cemented sandstones tend to be resistant to chemical weathering. Silica is chemically very stable (think of glass) and they have low permeability so water can't get in to break down the rock. This results in shallow soils as soil erosion rates typically match or exceed soil formation rates.

Basalt is much more prone to weathering under normal surface conditions. Although fresh basalt is typically hard and durable, some basalt boulders quickly deteriorate when dug up due to having high numbers of vesicles – tiny pitting or cavities formed by the release of gasses in the molten basalt during cooling – and hence high surface area and different chemical composition. Basalt also fractures when cooling, creating much higher permeability; water can get into the rock to start chemical decomposition through oxidation and other processes.

Soil formation. The different chemical compositions of the source rocks and the variation in their decomposition rates yield distinct soil types. Sandstone tends to produce shallow, sandy soils with low levels of trace elements and potentially hydrophobic clays. Basalt tends to produce deeper, more clay-rich soils with better water-holding capacity and higher levels of essential elements – although these may still be depleted through leaching. In fact, basalt is so useful in supplying these critical elements that there are now programs of applying crushed basalt dust as broad acre fertilizer, with the added advantage that it scavenges CO2 and can be used in reducing global warming.

Plants grow best where they have the most competitive advantage and some plants have adapted to specific soils better than others. As an extreme example, in desert regions, the dominant vegetation can vary across tens of metres based on tiny fluctuations in the levels of trace elements – at the level of parts per million. In our local Rockmount areas, the variation from sandstone soils to basaltic soils is likely to be much higher. The vegetation will respond to these differences with distinct assemblages on the different soils, reflecting the underlying rock-type.

Friends of Dwyers Scrub Project

It has been frustrating to observe in the last couple of months an extensive outbreak of Madeira vine (*Anredera cordifolia)*[3] seedlings in the SEVT areas of the park. The FoDS weeding team mapped the extent of the infestation using the Avenza software provided by QPWS. Senior Ranger Tim Wood promptly organised a crew to commence spot spraying of the Madeira seedlings with herbicide.

Photo by Reisuke Shimomura

Biological control. To supplement the herbicidal strategy, Tim has been discussing a biological control option with a Department of Agriculture and Fisheries (DAF) officer. The *Plectonycha correntina* is a leaf-mining beetle which can reduce leaf area and plant vigour in the Madeira vine allowing host plants to recover from the vine's canopy smothering habit.[4]

LUCI has the opportunity to become part of the Madeira beetle rear and release program which DAF offers community groups. With training provided by DAF, LUCI members would be able to produce a supply of the beetle and, with the support of QPWS, release the beetle in Dwyers Scrub. If any LUCI member is interested in being part of the beetle rear and release program, email lucatchments@gmail.com

New volunteer arrangements. Since our weeding program commenced in 2015, LUCI volunteers have been registered on individual work agreements with QPWS. This arrangement has limited LUCI's capacity to recruit volunteers for the FoDS project on an opportunistic basis and apply for grants for work in the park. LUCI and QPWS are discussing a Collaborative Agreement between the two parties to replace the individual agreements. The Agreement would see LUCI take responsibility for the weed management program and management of volunteers. We welcome any feedback on this new direction in our FoDS project.

VOLUNTEERS NEEDED
lucatchmentsinc@gmail.com

Feral pig control project

Action to address the feral pig problem in Dwyers Scrub and surrounding area is underway. A coordinated effort between QPWS rangers and landholders from properties adjoining Dwyers Scrub are being assisted by LVRC pest control officers and UQ researchers involved in fauna research in the area. Of particular concern is the extent of disturbance by pigs in Semi-evergreen vine thicket (SEVT) areas and the resulting damage to habitat. SEVT is listed as an *Endangered* ecosystem in Queensland. Given the wide ranging habits of feral animals, long term monitoring of their presence in the LUCI landscape will be necessary.

[3] https://www.daf.qld.gov.au/__data/assets/pdf_file/0008/59336/ipa-madeira-vine-pp86.pdf

[4] https://gympielandcare.org.au/wp-content/uploads/FAQ-about-Madeira-Vine-Beetles.pdf

Glossy Black Cockatoo Project

LUCI's project to understand the flowering, fruiting and pollinating cycles of the Glossies' feed tree species in our area has now passed the half way mark in the five-year program. The project is generously supported by an LVRC Community Environment Grant and mentored by Dr Guy Castley of Griffith University who will undertake analysis of the thousands of measurements and observations collected throughout the life of the project.

During survey work undertaken this year, we've noticed that numerous *Allocasuarina* trees, of varying maturity, are dead or dying. We assume these losses are a result of the drought. It will be interesting to watch how well the current *Allocasuarina* saplings in our transects survive the continuing dryer weather.

Cochineal insects – a biocontrol agent for tree pear

It is easy to spot Velvet tree pear (*Opuntia tomentosa)* dotted here and there in the local landscape and assume it is not a problem. However, it is one of those weeds that, out of view in an inaccessible area, can proliferate in no time at all. With seeds spread by birds, cattle and feral pigs, it is extremely hardy and can regenerate from a fallen leaf that looks quite dead. Left untreated, areas of tree pear plants can become so thick they shade out native grasses and plants.[5]

If you have a problem with tree pear, you might want to consider supplementing your herbicidal treatment regime with a biocontrol agent. While most people are aware of the Cactoblastis grub, perhaps there is less awareness of the work of Cochineal insects. Native to the tropical and subtropical Americas, the insect lives on the moisture and nutrient of *Opuntia* cacti gradually reducing the plant to a shrivelled version of itself.

Cochineal insect colony on left and a young tree pear overcome by Cochineal insect on right.

More popularly known for an association with the red dye, the Cochineal insect was brought to Australia in the First Fleet. There are four main species of Cochineal insects found in Australia and each species survives on its own specific host plant. You can read more details on the species attributes, specific host plant relationships, breeding cycle and methods of distribution at North West Weeds.[6]

A really interesting and encouraging detail is that the Cochineal insect can be manually transferred from infected plant to non-infected plant and can be bred indoors in readiness for release in warmer months.

Of interest…

Dam desilting rebates available for primary producers
https://www.daf.qld.gov.au/business-priorities/agriculture/disaster-recovery/drought/assistance-programs/australian-dam-desilting-rebate

LUCI has two Splatter guns available for loan to members in their lantana management. Contact Paul for further information 0429 880 144.

[5] http://www.northwestweeds.com.au/sample-page/velvet-tree-pear/

[6] http://www.northwestweeds.com.au/sample-page/cochineal-insects/

Fungal disease found in Eastern water dragons in SE Queensland …by Martin Bennett

Eastern water dragons, *Intellagama lesueurii*, are a member of the *Agamidae* family of lizards. As the name implies *Intella – gamma*, refers to it being an intelligent dragon. These are very smart lizards, having survived from the inner city regions to the bush.

It is the largest member of the *Agamidae* family with males growing to 1m in length. Females are oviparous (producing eggs) and have between 6 – 18 eggs that are laid in January. They are aquatic in nature, swimming under water to catch some of their prey, e.g. crayfish, fish, and other invertebrates. They perch at night and day in the overhanging trees, dropping into the water at the first sign of danger.

An outbreak of severe skin disease caused by a pathogenic fungus has been detected in ***wild*** eastern water dragons in Southeast Queensland. Researchers say this outbreak poses a serious threat to Australia's reptilian fauna.[7] Clinical signs of the disease include crusted, hyperkeratotic plaques on the skin which may be tan, brown, or yellow in colour with lesions most commonly seen on the throat, ventral abdomen, limbs, and tail, but may present anywhere on the body.

Photo from factsheet by Peterson et al.

[7] See factsheet *Outbreak of Emerging Fungal Disease in Free-living Reptiles in Southeast Queensland* by N. Peterson, S. Shaw and C. Frere.

The causative organism belongs to the genus *Nannizziopsis*, similar to *N. barbata,* which has caused fatal disease in captive coastal bearded dragons. For further information, please refer to: https://wildlifehealthaustralia.com.au/Portals/0/Documents/FactSheets/Reptiles/Yellow_fungus_disease_in_Australian_reptiles.pdf

If you observe a reptile with the symptoms described above, please contact one of the following researchers as soon as possible.

Nicola Peterson, University of the Sunshine Coast
Email: nrp005@student.usc.edu.au,
Mob: 0401 603 036

Dr Stephanie Shaw, University of Queensland
Email: s.shaw@uq.edu.au
Mob: 0413 103 886

Dr Celine Frere, University of the Sunshine Coast
Email: cfrere@usc.edu.au
Ph: 07 5456 5415

Upcoming events …

- **LUCI breakfast with guest speaker Sunday 26th May, 7:30 for 8:00am, Stockyard Creek Community Hall.** Enjoy the usual BIG LUCI breakfast and hear Steve Cupitt of Crossroads Rural and Environmental[8] talk about *"What a mobile app and a drone can tell you about the condition of your property".* Only $10 per person, under 18s $5. **RSVP essential** by 22nd May lucatchmentsinc@gmail.com

- **Property Planning Group meeting** Landholders will be joined by LVRC's Martin Bennett and Dr Darren Fielder (Red Leaf Environmental) on **Sunday 16th June, 9:30am-12:30pm** to discuss weed control, native grasses and the value of understory vegetation[9]. Bring morning tea to share. Directions to Diane and Paul's available on RSVP to lucatchmentsinc@gmail.com

[8] http://www.crossroads-enviro.com.au/about-us.html
[9] https://www.lfwseq.org.au/wp-content/uploads/2016/11/The-Value-of-Understorey-Vegetation.pdf

Local plant profile

The Mighty Mallotus…by Karen Gruner
www.tanglewoodnatives.com.au

When we first moved to our acreage at Lefthand Branch I would occasionally catch whiffs of a strong sort of herbal smell wafting from the vegetation below the hill. What and where is it coming from? I later learned that it comes from *Mallotus claoxyloides* (Green Kamala, also aptly known as Smell of the Bush). These trees are one of many pioneer species that self-sow and sucker while not being weedy, and win an award for resilience to drought, plagues of insects, and to some extent fire. They are a multi-stemmed tree to no more than about 6m with large tough leathery leaves. The foliage releases a pleasant odour intermittently, although I have noticed that it often occurs after rain. The yellow/green flowers make a nice show which precede three-lobed spiky capsules that explode revealing a small seed.

Another member of the genus *Mallotus* is the Red Kamala, (*Mallotus philippensis*). It tends to thrive in gullies, rainforest pockets or lower parts of the hills and grows to about 15m, and also self seeds and suckers. The clusters of yellow/green flowers are pretty to look at and attract a range of pollinators.

Mallotus philippensis flower - Photo by Martin Bennett

The distribution of Red Kamala includes the southern parts of Asia, as is suggested by the species name. The spikes of seed capsules are coated with a red powder which, in India, is used for making dye. The capsules crack open to expose three black round seeds.

Mallotus philippensis seed capsules - Photo by Martin Bennett

The Red Kamala also succumbs to insect attack but reproduces new foliage in no time,and for most of the year, the trees are a great source of dense shade. My local scrub turkeys tend to congregate under the shade of the Mallotus trees in the warmer months. Perhaps they are also feeding on the fallen seed.

We all lost shrubs and trees during the drought that we experienced last summer, but the mighty Mallotus trees, both red and green completely defoliated during that period, only to bounce back with lush new growth soon after the first rain. I find them to be virtually unkillable and requiring no assistance from me to thrive.

I'd like to make the point that people often plant high nectar producing species such as grevilleas and callistemons to attract birds to their gardens. *Agathis robusta* (Silky Oak) is the only grevillea that occurs naturally on the property. Otherwise, the main nectar trees we have are wattles and eucalypts. Many of them flower only once a year, and yet we have abundant bird life. Why is this so? Well, I've deduced that it is because we have huge volumes of so many species of insects feeding on the foliage of *Mallotus* and other species. The insects are a major food source for lots of birds including drongos, willie wagtails, fantails,

honeyeaters, kookaburras, friarbirds, orioles, and many more. I think it is therefore important to create a habitat that provides nectar, seed and insects for our beloved wildlife.

Melanism in birds

Recently, LUCI received a picture from a landholder in the Hattonvale area who wanted to know if she had a Black Butcherbird visiting her backyard. The picture was sent for identification to avid "birdo" Deb Metters, SEQ Land for Wildlife Coordinator, and ecologist Rod Hobson who both identified the bird as a melanistic Grey Butcherbird. Deb advised getting a second opinion by sending the photo to Australian Bird Identification[10].

The general view? Melanistic Grey Butcherbird.

Photo by Denise Chevis

What is melanism in birds? "It is a genetic mutation that results in the production of excess dark pigment or melanin. Melanism is a dominant allele, which can be passed onto the next generation."[11] The condition can be the result of adaptation to a prevailing environment, where darker birds are better camouflaged and less at risk of predation, which could mean the birds are likely to live longer and produce offspring.

A rare condition in birds but, for this particular bird, not a disadvantage as the landholder noted the bird attached itself to a group of young Grey Butcherbirds…its siblings perhaps?

Important number: Wildlife carers Kath and Steph 0410 334 661 (available 24/7)

[10] https://www.facebook.com/groups/209677085864957/
[11] https://www.avianreport.com/bird-melanism/

Test your knowledge…

(Answers overpage)

Do you know the common and/or scientific names of the following?

Photo by Judy Whistler

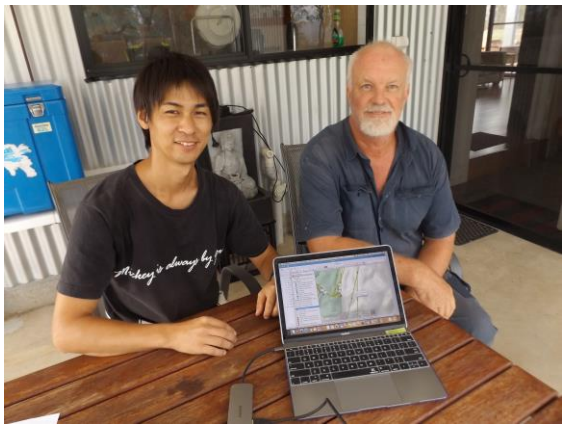
Photo by Paul Stevens

Photo Diane Guthrie

Thanks and best wishes….

LUCI members had the great fortune to meet Reisuke Shimomura (or as he likes to be called, Ray) at one of our biodiversity meetings last year at University Of Queensland Gatton Campus. Ray was completing his Masters degree, which included research on the distribution of Black-breasted Button-quail in south-east Queensland.

Ray generously gave of his time to provide expertise on LUCI projects and teach some of us basic skills in GPS use, mapping with Google Earth and camera trapping. Ray has since returned to Japan to work on a five-month black bear tracking project. We look forward to seeing him back here and hearing about his adventures.



Reisuke Shimomura and Paul Stevens discuss mapping software

Connectivity conservation is the message in this inspiring video…
https://vimeo.com/322650767

Be part of a connectivity vision, join LUCI landholders in connecting our landscape as part of the Main Range-Helidon Hills Corridor and the Great Eastern Ranges Initiative.

Find out more
lucatchmentsinc@gmail.com

Do you have a photo or item of interest for the newsletter? Or concerns that you would like LUCI to consider? Then send us an email with your photo or item and…remember…

Stay connected, it's healthy!

If you do not want to be included on the email list for this newsletter please let us know at lucatchmentsinc@gmail.com.
Newsletter Editor Diane Guthrie 0413 333 681

How did you go?
Answers thanks to Rod Hobson
- *Arcys lancearius* or Triangular Spider
- *Ctenotus taeniolatus* or Copper-tailed Skink
- *Sphodropoda tristis* or Burying Mantis (Saussure), female