LUCI Update No 36 … July 2024

Warm winter greetings!

2025 a milestone year for LUCI

The song title "From little things big things grow" might be an apt description for LUCI's journey over the years. Next year will mark 10 years since LUCI's beginnings as a small group of people who met to share concerns about the health of Dwyers Scrub Conservation Park. As the Friends of Dwyers Scrub (FoDS), the group early realised that the health of the park was dependent on the health of the surrounding landscape and required engagement with local landholders and local conservation efforts. To reflect this broader scope, in 2016, FoDS became Lockyer Uplands Catchments Inc, and incorporated.

July 2015, first meeting of the Friends of Dwyers Scrub and the birth of LUCI.

With over 90 members now, LUCI strives to meet landholders' needs and interests through its offerings of projects and events. Throughout the years, LUCI has benefitted from a tremendous investment of member and non-member volunteer hours and funds and in-kind contributions from numerous supporters, big and small.

The management committee believes it is time to reflect on LUCI's achievements and future directions and, as a member association, we would like to hear from you. We are planning to send out a members' and supporters' survey to get your feedback to help chart LUCI's strategies going forward. Please take the time to complete the survey when you receive it and/or feel free to email any feedback to LUCI at any time. The plan is to receive and summarise all feedback in time to report back to members at the December AGM.

LUCI's Autumn Walk

LUCI's Helidon Hills Walk in Autumn, led by Martin Bennett, did not disappoint with participants enjoying the diverse mix of Eucalypt, Corymbia and Angophera open forest tree species and associated understorey on sandstone. It was great to see flowering Acacias, *Westringia eremicola*, *Monotoca scoparia*, *Persoonia sericea*, *Pultenaea petiolaris* to name a few, and, of course, it is always a delight to see the Vulnerable *Grevillea quadricauda* in flower. Thanks to Martin, as always, for another informative, enjoyable flora lesson.

Westringia eremicola Slender or Sandstone Westringia.

Acacia julifera, Carkin Wattle.

Grevillea quadricauda Four-tailed Grevillea.

Monotoca scoparia, Prickly Broom Heath.

The walks provide an opportunity for LUCI members and supporters to socialise over a cuppa.

Upcoming events…

- **Workshop on "Diagnosis of stress levels in koalas across different habitats", Saturday 14th September, 9:30am-11:30am.** A presentation by CQU's Dr Rolf Schlagloth and Dr Flavia Santamaria on what koalas' 'poo' can tell us about their stress levels will be followed by a koala scat hunt. Venue details available on booking your place with **LUCI**.

- **Learn more about "Protecting environmental values on private property", 5th October, 9:30-11:30am, Flagstone Creek State School,** with presenters LVRC Councillor Cheryl Steinhardt and Deborah Metters. Morning tea included. **Bookings essential**, please RSVP to **LUCI**.

- It was disappointing that LUCI's Winter Walk could not go ahead but we will keep you posted on the date for **LUCI's Spring Walk in October.**

- EARLY ALERT **LUCI AGM/GM and Christmas Party, 10:30am start, 7th or 8th December (tbc).** Members and supporters are invited to celebrate LUCI's year of achievements, review future directions, listen to guest speaker Paul Donatiu from the Qld Threatened Plant Network and enjoy a delicious Christmas lunch. Further details available in October's *Update*.

Important numbers:

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

Bat Conservation & Rescue Qld Inc 0488 228134

Delma Conservation Project: A community effort…by LUCI project Coordinator Justine Rice

Early this year, LUCI, in partnership with Kholo Creek and Pullen Pullen Catchments Groups, embarked on a project to protect and restore the Vulnerable (listed by both Commonwealth and State) Collared Delma (*Delma torquata)*, a legless lizard endemic to Queensland. With funding provided by the Australian Government's Saving Native Species grant, the "Improving the Trajectory of the Collared Delma in South-East Queensland Project" is well underway.

This community-led recovery project builds on earlier conservation efforts in western Brisbane and brings together science and community to understand and safeguard the habitats and populations of this rare species in both modified and natural landscapes in Brisbane's west and the upper Lockyer.

Exciting Discovery!

A total of 38 sites have been surveyed including private properties and reserves. The project team and participating landholders were thrilled with recent sightings of Collared Delma at survey sites in Withcott and Brisbane's west and an Excitable Delma (*Delma tincta)*, whose habitat overlaps with Collared Delma, at an Egypt property.

Collared Delma *Delma torquata.* Photo M Mason.

To enhance detection capabilities, the project includes training a detection dog, "Danny," who is now ready to assist in field trials. This innovative approach will significantly improve the ability to locate and monitor Collared Delma populations.

Danny, the scent detection dog, in training. Photo Bellden Environmental Services.

Habitat assessments that were conducted alongside the surveys will now guide decisions in the next phase on locations for deployment of scent detection surveys and weed control work. Going forward, the key activities include:

- Weed Control: Removing invasive species to allow native vegetation to thrive.
- Habitat Protection: Putting in place measures to safeguard some known and potential habitats from disturbances and rock removal.
- Threat Management: Studies to be undertaken by University of Southern Queensland researchers on the species' response to various threat management strategies.
- Community field days: exciting information days to educate on the threats and significance of the Collared Delma, and to learn about the project.

We invite you to stay connected with our progress and join us in celebrating each milestone. For more information on the project and to get involved contact either Penny Kidd (Project Manager) or Justine Rice (Project Coordinator)

Bird Survey Project Takes Flight in East Lockyer…by LUCI project Coordinator Justine Rice

We're excited to share some updates from LUCI's Bird Survey Project, which has seen seven properties in the east of the Lockyer Valley added since March to the 22 properties already in LUCI's bird survey project. This expansion of the project has been supported by BirdLife Austrlia's Community Conservation Grants 2023 program. Already, 66 bird species have been recorded from initial surveys on four of the seven 'new' properties including species such as the Little Lorikeet, Australian King Parrot, Scarlet Honeyeater, Pacific Baza.

Enthusiasm for the project extends beyond landholders, as a growing number of volunteers have joined the effort. Their involvement has allowed LUCI to start winter bird surveys and commence habitat surveys to better understand bird-habitat relationships.

Each 'new' property will undergo between two to four surveys to capture data from different ecosystems, with surveys repeated each summer and winter. Going forward, LUCI will be applying BirdLife Australia's 2-hectare x 20 minute survey methodology.

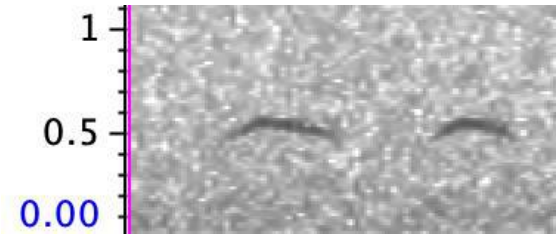
Volunteers Jasmine Zeleny and Matt Wright on the LUCI Bird Survey Project. Photo Justine Rice.

The Bird Survey Project is thriving thanks to the community's and volunteers' involvement, and particularly the incredible three-years of baseline surveying undertaken by Roger Jaensch. However, we are still **looking for experienced birders to join the project and help us increase our capacity** and enhance our understanding of local bird populations and their habitats.

Update on LUCI's Nocturnal Bird Survey Project…by Joe Joseph

To augment LUCI's efforts to build a bird diversity baseline, nocturnal bird surveys are being conducted with bioacoustic recorders (audiomoths) at sites meeting a number of predetermined habitat attributes. Surveys to date have been picking up calls from a range of owls and other nocturnal animals and the occasional dog pretending to be a barking owl!

Eighteen surveys have been completed so far across nine properties, with half being repeat surveys. All the survey data have been run through the BirdNET analyser software and 10 data sets have been manually analysed as well. The exciting news is that Powerful Owl has been detected at two of the sites while the most commonly occurring species are the Australian Owlet Nightjar and Barn Owl. Other species detected include Tawny Frogmouths, White-throated Nightjars and Boobooks.



These seemingly insignificant little audio traces recorded on the audiomoth tell us Powerful Owl is present. Photo Joe Joseph.

If you are interested in learning about how audio files can be analysed using BirdNET to detect bird presence or wildlife generally, contact LUCI. If there is enough interest, LUCI will organise a workshop.

LUCI's knowledge of birds in our landscape is receiving a boost from members of BirdLife SQ Darling Downs (BSQDD) and Toowoomba Bird Observers groups who are including four LUCI members' properties in their annual bird outings. LUCI members can benefit from joining the outings and receiving the bird records to add to our knowledge of bird diversity. You can read about the outings here.

Golden-headed Cisticola. Photo by Mitchell Roberts.

Understanding bird ecology in the Lockyer

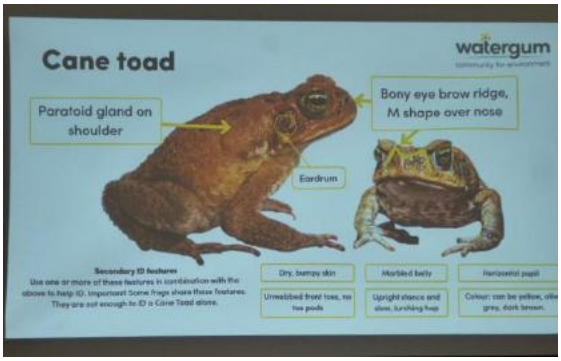
The scope of LUCI's bird survey and conservation work is about to be enhanced through field research by UQ Gatton PhD student Rhiannon Bird. Rhiannon's work will increase our understanding of the interaction of bird and insect biodiversity.

Rhiannon's specific focus will be on investigating how grassland condition and the surrounding landscape affect the biodiversity of grass dwelling insects. As the insect surveys will be conducted on the same sites as the bird surveys, the findings will inform how grassland management and insect biodiversity interact with bird biodiversity. In turn, the information will provide insight into how to manage grasslands for insect biodiversity.

Over the next couple of months, Rhiannon would like to contact landholders whose properties have been part of the bird survey project to gain consent to conduct the insect surveys. If you would like further information on Rhiannon's project please contact LUCI

Threatening Toads and Friendly Frogs Workshop – NRR Program

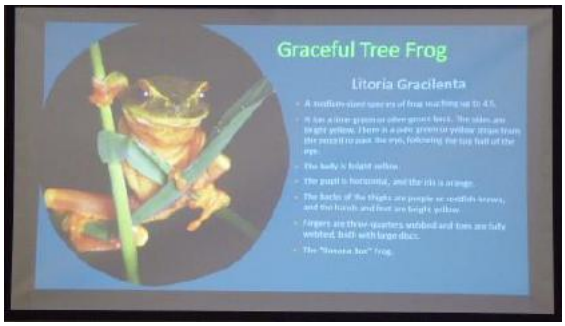
Community members were treated to two very interesting presentations at a recent workshop organised by Healthy Land & Water (HLW) with LUCI support. The workshop was funded by the Queensland Government's Natural Resource Recovery Program (NRRP), with Watergum providing good toad ID information and describing the impact of toads, alive and dead, on native wildlife. Some impacts were totally new information to participants such as the toll on animals like Northern Quoll, Common Planigale and Rainbow Bee-eaters' nests. Participants were able to view the toad tadpole trapping device that utilises cane toad bufotoxin as the active ingredient.



Presentation slide by Watergum. Photo D Guthrie

Brett Malcolm from Brett Finds Frogs shared his incredible knowledge of frogs, tailored to showcase species likely to occur in the Lockyer Valley. The level of frog diversity in the Lockyer Valley's diverse ecosystems is surprising and certainly needs more promotion from people like Brett whose passion for his subject is contagious.

Presentation slide by Brett Malcolm.



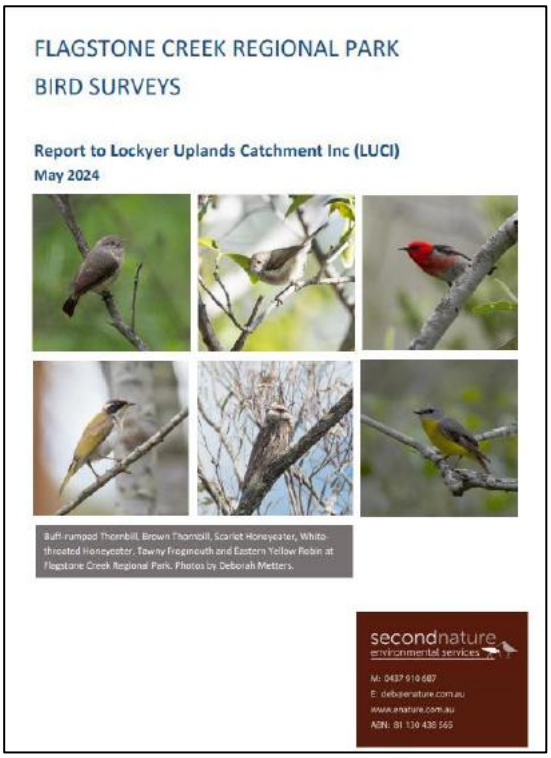
Presentation slide by Brett Malcolm

The major component of the NRRP activity in the Lockyer Valley involving weed treatment, has now been concluded with the release of more than 16,000 biocontrols for Cats Claw and Madeira vines and herbicidal treatment targeting lantana and other weeds of significance at several selected sites. LUCI values its collaboration with HL&W and the support of the Queensland Government in tackling a significant threatening process (weed infestation) to the intregity of native habitats in our landscape.

Friends of Flagstone Creek Conservation Park Project

LUCI members Penny and Mark Kidd recently hosted a visitors' day to view weed control work they had undertaken in areas of Flagstone Creek Conservation Park. The focus was on lantana and Velvety Tree Pear control inside the Park's eastern boundary fence of 1.4km. The aim is to reduce the negative impact from weed "edge effects" along the boundary and to continue follow-up control works.

The work was supported by a grant from of Friends of Parks Queensland (FoPQ), which also funded much needed bird and flora surveys to build a more accurate record of species in the Park. Sixty-six bird species were recorded representing various dietary classification groups such as frugivore (e.g. Silvereye), nectarivore (Scarlet Honeyeater), insectivore (e.g. Brown and Buff-rumped Thornbills), carnivore (e.g. Wedge-tailed Eagle), bird avivore (e.g. Brown Goshawk) and granivore (e.g. Red-browed Finch) species.



Flagstone Creek CP bird survey report compiled by secondnature environmental services

Two flora surveys provided ground-truthing of some of the park's Regional Ecosystems and resulted in 254 flora species records including five species listed as Matters of Local Environment Significance (MLES). Photos and names of the flora records can be viewed on iNaturalist under the project "Flagstone Creek Conservation Park" and on the ALA website.


Viewing volunteer weed control work in Flagstone Creek Conservation Park.

Want to give a little time to volunteering for the environment? Come and weed, once a month, with LUCI's Friends of Dwyers Scrub group. Contact LUCI to find out how.

Diagnosis of stress levels in koalas across different habitats…by UQ's Professor Joerg Henning

In February 2022 the status of the koala has been changed from vulnerable to endangered. Unfortunately, koalas are exposed to various stresses that may compromise their immune system, decreasing the ability of fighting diseases. Researchers from the University of Queensland, in collaboration with the University of Veterinary Medicine, Vienna and Central Queensland University have received an Queensland Government's Community Sustainability Actions Grant to develop a koala-specific test kit to measure stress by analysing koala scats. The kit detects a chemical in koala faeces that measures stress in healthy, injured and diseased koalas previously identified by our research team.

Photo Joe Blatchly.

The laboratory kit can be used by researchers and wildlife managers to monitor stress levels of populations in different habitats to guide interventions to reduce stressors. The kit will also allow veterinarians to measure stress in hospitalised individuals to inform rehabilitation procedures.

The assistance of LUCI's landholders who have known koala presence on their property is vitally important for achieving successful outcomes in this project. Information on the most suitable habitat where koalas can be found, can only be provided by members of the local community who are connected to their land and their flora & fauna. **We are seeking landholders' assistance** with the collection of fresh koala scats which are needed to measure stress levels of koalas. **The scats can be collected by the landholder or, with the landholders' permission, by the researchers.**

A **workshop, open to all LUCI members and supporters, will be held on Saturday 14th September 2024 (see upcoming events p. 12)** to provide more project details and to discuss the method of scat collection and storage. The research team will also be able to answer any questions landholders may have in relation to the project and general koala conservation.

The research team will provide bi-monthly updates about the progress of the test kit development over the two-year duration of the project. After the kit has been established and all koala scat samples have been analysed, results on stress-levels of koalas will be provided to property owners where scats have been found. A final workshop, held at the conclusion of the project, will be used to share summarised results and to advise how the data generated by the kit can inform conservation policies on landholder's properties. The research team is looking forward to working with the LUCI community and receiving feedback from them on this citizen science project. Dr Rolf Schlagloth is the project contact for landholders (r.schlagloth@cqu.edu.au, mobile: 0419200768).

L to R:
Prof. Joerg Henning, UQ, project leader, veterinary epidemiologist; Dr Flavia Santamaria CQU/UQ, koala biologist; A/Prof. Rupert Palme University of Veterinary Medicine (Vienna), experimental endocrinologist; Dr Lee McMichael UQ, molecular biologist; Dr Rolf Schlagloth CQU, koala ecologist.

Interesting links to follow up…

Can we really believe that the trajectory towards extinction for some threatened species will ever be reversed when Queensland deforestation saw six Brisbane CBDs cleared every day in 2022?

Then again, the Queensland Government is offering a glimmer of hope…
New protected areas announced

Critters you will only see in cabinets The Australian Museum extinction cabinets

Managing your property for diverse uses and outcomes requires a detailed understanding of the land, your goals, opportunities and constraints as outlined in Healthy Land & Water's presentation on Land Management Principles and Planning

A native insect considered a "pest" to agriculture with farmers resorting to pesticides begs the question "where are the natural predators?" Olive lace bug impacts crop yields for Victorian farmers

Read how some moths detect sound to protect themselves without knowing they are doing so How earless moths use sound to defend themselves

Plants can get cancer and develop unique defence responses Plants and their defences against cancer

Another reason to love the fascinating little Fairy Wren - Incredible disovery that wrens teach their babies to sing before they're hatched.

Toowoomba Region Koala Habitat Project is holding its inaugural Crows Nest Koala Fest on Sunday 1 September 2024 at Centenary Park, Crows Nest. With talks by koala experts, community displays, art show, children's activities and more, plan for a family day out.

If you have been following the campaign to Save Deongwar State Forest you may be aware that the deadline for signing the current petition is 3rd August.

Protection from the winter cold – but only for some…story and photos by Penny Kidd

It's not only humans who are feeling the winter cold this July. Some of our Lockyer Valley native plants have quietly switched to a cold weather protection strategy.

On recent walks around our property, I've observed native plants, *Goodenia rotundifolia* (Round-leaved Goodenia) and *Dockrillia linguiformis* (Tongue Orchid, Tick Orchid), with red and purple leaves.

Both species were found in exposed positions with no canopy or shading and are from different plant families. So why does leaf reddening (or "purpling off") occur as a response to the onset of colder temperatures ?

It appears that red or purple leaf colour is due to the production and accumulation of a pigment, anthocyanin, in leaves. It also occurs in other plant parts eg flowers, fruits.

For most plants, the pigment chlorophyll that supports photosynthesis, gives leaves a green colour. Where anthocyanin pigments also occur in leaves, they absorb blue, blue-green, and green light. This means light reflected by these leaves appears red, and not green. So, this explains why we can observe red and red-purple leaf colours.

In some plant species, anthocyanin pigment production rises when exposed to low temperatures and high light conditions. However, in these conditions, photosynthesis efficiency declines, a process called photoinhibition. This impairment can pose a risk of permanent damage to chloroplasts, cells and tissues of a plant. Red leaves also occur in new leaf growth and in the northern hemisphere's forests of deciduous trees.

For certain species that produce anthocyanins, they provide protection against the photoinhibition process by soaking up radiant energy at wavelengths, not absorbed by other pigments. In addition, anthocyanins seem to protect plants from damage by acting as antioxidants. It's known that stressors other than low temperatures and high light, can also stimulate anthocyanin production eg low nitrogen.

A burning question for me was - if the anthocyanin is so beneficial to a stressed plant, then why do only certain plant species produce this pigment? It seems that question remains under scientific investigation.

I also read that anthocyanin pigments were common among the first land plants. It's proposed that changes in their occurrence in certain species and their ability to perform multiple plant protections have evolved over time.

As is often the case, after reading more information about natural systems, I have more questions than answers. But each time I encounter a red-leaved plant in winter, it makes me ponder why that particular species evolved to retain this pigment for protection, when others have not.

I'd be happy to discuss or receive more information from anyone interested.
https://harvardforest.fas.harvard.edu/sites/default/files/leaves/2002_11_leaf_article.pdf

Fauna and flora interactions…by Martin Bennett

While recently visiting a property in the Rockmount/Egypt area, I was amazed to see a group of small scrub trees with red fruits or flowers that I didn't recognise at all. As I was at a distance, I asked the landholder if I could go closer. When I got to the three trees it became obvious that these colourful objects were not fruit or flower at all but bugs!

The bugs are called Mallotus Harlequin Bugs *Cantao parentum* and often appear on Red Kamala (*Mallotus philippensis*) and its smaller cousin Green Kamala (*M. claoxyloides*), although I have seen them on several other scrub trees. One of the 25 Australian species of jewel bugs in the *Scutelleridae* family (Shield-backed Bugs), these sap-sucking bugs appear periodically and can cover the leaves on certain trees. These bugs have tubular piercing and sucking mouthparts (called a rostrum) under

their head and they insert that into the plant to suck out the sap or the fruit as food.[1]

Mallotus Harlequin Bugs *Cantao parentum*. Photos Martin Bennett.

Female Mallotus Harlequin Bugs lay batches of eggs on the undersides of leaves and guard them by sitting on top of them until they hatch. The species name 'parentum' refers to this parental care by the female.[2]

A group of insects sporting bright metallic blue or green colouration include the jewel beetles or metallic shield bugs. The sap sucking Green Jewel Bug, also a member of the *Scutelleridae* family, can range from metallic green in colour to purplish-blue with an orange marking on the back of its thorax and orange-brown and dark green legs. Sap-sucking insects like the Jewel Bugs are considered 'true bugs'. Jewel bugs have a scutellum, a thoracic shield, which covers their abdomen and wings.[3] As a defense against threats, the Jewel Bug can produce an offensive odour like the Stink Bug (family Pentatomidae).

The Green Jewel Bug is known to breed and feed on *Breynia oblongifolia*, Coffee Bush, and feed on a variety of plants, from ferns to trees and even lantana.

A cluster of *Lampromicra senator*, Green Jewel Bugs, on Native Gardenia. Photo James Cook University.

Breynia, a single to multi-stemmed shrub, occurs in the wild over much of Queensland and New South Wales in a range of habitats including riparian woodlands and Eucalypt woodlands and forests.[4] The small inconspicuous green flowers of the *Breynia* are produced solitarily in leaf axils in spring and summer and are followed by the more conspicuous display of orange or pink berries that turn glossy black as they ripen. *The Breynia is a rich food resource for a variety of native fauna including birds and insects including the caterpillars of several Australian Butterflies and Moths.*

If you have spied a beetle (not a bug!) with a striking enamelled or metallic look then you might be looking at a flower chafer. Flower chafers can be found inhabiting woodlands and forests from Victoria, through central New South Wales to northern Queensland. They are unusual in that they fly with their wing cases closed (most beetles lift their wing covers well

[1] https://www.moggillcreek.org.au/bush-bites/harlequin-bugs-geoff-monteith-prue-cooper-white-ed-frazer/

[2] https://www.projectnoah.org/spottings/1067105534

[3] https://museum.wa.gov.au/online-collections/names/lampromicra-senator

[4] https://resources.austplants.com.au/plant/breynia-oblongifoliacoffee-bush/

clear of the body).[5] Their larvae live in rotting wood or decaying vegetable matter, a good reason to retain 'dead' fallen timber.

Punctate Flower Chafer beetle feeding on *Parsonsia eucalyptophylla*, Gargaloo vine. Photo Martin Bennett.

Belonging to the family *Scarabaeidae*, one of the more common species among the flower chafers is the Punctate Flower Chafer *Neorrhina punctatum*. A nectar feeding beetle, it is often found crawling among flower petals, particularly Angophora and Eucalyptus blossoms, although one of its food plants is the Gargaloo vine (*Parsonsia eucalyptophylla*). These vines are present in the Eucalypts forests around the Egypt and Fordsdale areas.

A tall woody drought-tolerant[6] climber, young Gargaloo plants climb by clinging roots while older plants have twining stems with rough lenticels and watery rather than milky sap. The vine leaves are linear or lanceolate, 8-24cm in length, and have a paler lower compared to upper leaf surface with its minute hairs (pubescent). Flowers appear in spring through autumn and are yellow to cream occurring in many-flowered terminal and axillary panicles (clusters) with hairy seed capsules 5-6cm long.

If you would like to share your stories and photos, we'd love to receive them.

Some flora gems recently observed in the Townson area

Striga parviflora, Witch plant, 4 SEQ records. Photo Martin Bennett.

Cucumis althaeoides, Bristly Cucumis, 5 SEQ records only. Photo Martin Bennett.

If you do not want to be included on the email list for the LUCI newsletter please let us know at LUCI

Newsletter Editor Diane Guthrie 0413 333 681. Stay connected, it's healthy!

5 https://australian.museum/learn/animals/insects/punctate-flower-chafer-beetle/

6 https://toowoombaplants2008.blogspot.com/2010/01/gargaloo.html