



Quarterly Update No 26 ... October 2021

Spring greetings. With the very welcome rains there has been an amazing show of native blossoms lately and this *Update* has a definite flora focus this quarter. Enjoy!

Ecosystems, habitats, woodlands, open forests: what's in a term?

Every discipline has its own language, whether it be scientific, technical or sociological. For a layperson becoming involved in a new field of interest, such as the natural environment and native flora and fauna, language can be confusing, a barrier and, at times, alienating. However, if your interest survives the initial head-spinning immersion in the field, you might embrace the challenge to learn new terms, their meanings and how to apply them.

The web is full of useful sites to start your self-education. A good starting point is to understand some of the more general terms such as ecosystem and habitat.

An **ecosystem** describes a particular area or space in terms of all the flora, fauna and fungi (i.e. living things or biota) along with all the physical elements (non-living things or abiota) that make up that area.¹ The non-living elements include, for example, air, water, geology, landform and soil and their characteristics (e.g. sedimentary rock substrate or alluvial flats, the amount of nitrogen in the soil, etc).

A **habitat** often describes a smaller area than an ecosystem and is the natural home or environment in which a species (animal or plant or other organism) finds water, food,

shelter and a mate. A habitat could be found in a particular part of a vegetation community in an ecosystem or in a water body or even in a particular tree. Habitat availability determines the distribution and persistence (survival) of a species. For example, the Black-breasted Button-quail requires habitat with a thick leaf litter layer (3-10cm deep), dense shrub cover and soil fertility, features found in Vine thicket (i.e. dry rainforest) vegetation communities.

Ecology is a broad field of study covering the interrelationships between various organisms and the flow and transformation of materials and energy in an ecosystem, the development of an ecosystem over time and the distribution and abundance of species in response to changes in an ecosystem.

Learning some basic types of vegetation communities in our local area is another good starting point. For example, what is the difference between a eucalypt forest and a eucalypt woodland?



A Eucalypt open-forest with mixed species and canopy cover between 50-80%.

¹ <https://courses.lumenlearning.com/boundless-biology/chapter/the-scope-of-ecology/>

A **Eucalypt open-forest** (or dry sclerophyll forest) is the typical forest of gum trees where the tallest trees provide a canopy cover between 50-80% of the sky.² The tallest trees are eucalypts and their relatives (*Corymbia*, *Angophora* and *Lophostemon*), and several tree species may be present at any one site. Usually bright and sunlit, the open-forest floor may be grassy or shrubby. The shrubs that grow in these forests tend to be hard-leaved and relatively fire tolerant (i.e. they can re-sprout after fire, or have hard-coated or hard-capsuled seeds that can survive fire).

A **Eucalypt woodland** involves a scattering of eucalypts and bloodwoods (*Corymbia*) over an understory of grasses and sparse shrubs. The trees provide a canopy cover between 20-50% of the sky. Some of the more common and widespread woodland tree species in the Lockyer Uplands are silver-leaved ironbark (*E. melanophloia*), narrow-leaved ironbark (*E. crebra*), grey gum (*E. major*) and Queensland blue gum (*E. tereticornis*).³



A Eucalypt woodland with scattered Eucalypts and canopy cover between 20-50%.

Then, there is the **low open-forest to woodlands**, which, in our local area can include a scattering of mainly eucalypts and Brush Box (*Lophostemon confertus*), with an understory of she-oak species (*Allocasuarina torulosa*, *A. littoralis* and *A. inophloia*) on steep ridges and rocky hill slopes and crests. Shrub layers are sparse

or absent while the ground layer may have a mix of grasses and forbs.



Low open-forest to woodlands with low canopy cover but extensive she-oak understory.

Continuing our members' stories... "Sustaining our land" by Roxane Blackley



I've done a whole bunch of studies looking at soils, environmental planning, app building, livestock nutrition, biotechnology, rangeland management, soil foodwebs, compost, Keyline, Landcare, Permaculture, syntropic farming (now that's a rabbit hole to lose yourself in) drones, mapping and more recently machine learning. Only a small fraction of which I've been able to apply at home! So many buzzwords, happy to share resources if you want to know more.

We've focused on securing our asset (property). Now, after 25 years, we can finally start working on making it 'permanent' and self-sustaining. The Millennium drought really set things back, and it's taken 15 years for it to recover. We still have a massive weed legacy from back then, yet another job that needs some prioritisation. About a third of our 290

² <https://www.qld.gov.au/environment/plants-animals/habitats/habitat>

³ *Ibid.*

acres is remnant, with a third left to naturally try and regenerate.

We've been fortunate to be able to host a wide range of experts looking for all critters great and small. Much of this is thanks to Land for Wildlife, our local Council, the Citizens of the Lockyer and now LUCI. They've found some pretty interesting species at the edge of their range, surviving in our large patch of softwood vine scrub.

We have an abundance of land, diverse grass and trees, although not much garden quality water and gullies drier more often than they are wet. We are in the fortunate position of being able to pool our resources with others in our community to reintroduce a small, but balanced herd of cattle to help manage our fire risk.

Most of these paragraphs start with a 'we'. I wouldn't be able to gallivant about the place without Mum (Trish) looking after things at home, and without my fantastic employer supporting staff to work from home. This will be an exciting year as our dwarf backyard orchard will bear its first fruit. It's only taken about 6 tonnes of compost and a bunch of visits to the nursery. By tripling our rosella plantings this year, we'll hopefully have some handy bush currency, it was by far the easiest way to share our abundance.



One of our regular visitors, the Lewin's honeyeater (*Meliphaga lewinii*). Photo by Trish Walton.

Profile of one of our smaller marsupials...by Martin Bennett

I photographed this Yellow-footed *Antechinus Antechinus flavipes* at Kensington Grove in the middle of an overcast day. In the Lockyer we have two other *Antechinus* species, *Antechinus subtropicus* and *Antechinus mysticus*.



Yellow-footed *Antechinus* (*Antechinus flavipes*). Photo by Martin Bennett.

The [Queensland Museum website](#) describes the Yellow-footed *Antechinus* as follows: It has a body length of 110 mm, a tail length of 90 mm and its weight is 47 g, if male, or 28 g, if female. It is the size of a small rat with a flattish, broad head, pointed snout, cat-like teeth, and the inner 'big' toe on the hind foot lacks a nail. Its features include a grey head, white eye ring, orange-brown sides, belly, rump and feet and a black tail-tip. It has broad 'Charlie Chaplin'-like hind feet, a poorly developed pouch and displays jerky movements.

The Museum notes that *Antechinus flavipes* occurs often in moist bracken, lantana and creek verges and also in dry eucalypt forest. While absent from the inner city (closest recent report was from Bardon), it is uncommon elsewhere although it can occur from Cooktown in the far north to Mt Lofty Ranges in South Australia and as far as south-western Western Australia. It is mainly nocturnal similar to the Subtropical *Antechinus*.

With some keen attention, you may hear the characteristic tssst-tssst call of the *Antechinus* nestling young around December-January. If you are keen to

identify presence of the Antechinus from their droppings then read [Tanya Loos' account on her resident Antechinus](#) in which she notes the scats are "friable", may be cylinders or curled and often contain the iridescent remnants from their mainly insectivorous diet. However, the Antechinus scats may be hard to distinguish from bat scats.

One [interesting Antechinus fact](#) is the male's mating frenzy behaviour, which eventually leads to his death. As well, many females die after weaning their first litter.

The Queensland Museum lists the Antechinus' main threat as cats. Another good reason to keep your cats indoors at night. However, equally threatening for the Antechinus is its resemblance to non-native rats and mice, which often spells its demise at the hands of landholders who don't know the difference.

Remarkable potential of Acacias ...by Jim Kerr and Judy Whistler

A series of papers, recently published by Mark Adams of Swinburne University of Technology, examines how trees, especially our Acacias, have a unique role in the decarbonisation of our atmosphere. These studies show that in dry climates like Australia, acacias and other forms of vegetation respond to rising carbon dioxide in the atmosphere by increasing their efficiency in using water to acquire carbon.

As Mark Adams explained on the [ABC Science Show](#), 'for every gram of carbon that gets taken up by a plant, we need a kilogram of water to go back to the atmosphere...[while] a really efficient plant might take up four grams of carbon for every kilogram of water that it sends back to the atmosphere'.

Eighty percent of atmospheric water, coming from the land, actually is recycled through trees. In some parts of the world, as in the river basins of the Amazon and the

Congo, as much as 90% can be returned to the atmosphere through plants.

At Swinburne they measured the amount of wood laid down by various species and the amount of water required by them to do so. Acacia, a champion genus produces far more wood for a given amount of water than other plants.

Australia once had more acacia woodlands (Brigalow and Mulga lands) than eucalypt woodlands. Acacias are a quick growing species, and as Mark says, 'restoring acacia woodlands over vast areas would be a good way to benefit from acacia's innate ability to absorb carbon from the atmosphere'. In addition, acacias can do without fertilizer, getting nitrogen from the atmosphere, not needing to take it up from the soil.

Brigalow communities once covered 20% of the Lockyer Valley and now occupy a much smaller percentage due to clearing and land usage patterns. Much of the former range of Brigalow are now roadside remnant sites while some survive on steep degraded slopes, threatened by exotic plants.



Brigalow vegetation community, photo Martin Bennett.

With Brigalow's ability to fix Nitrogen from the atmosphere, enhance organic matter and sequester carbon, with minimum water, we could take up a lot of carbon via our land base by restoring Acacia woodlands.

The Brigalow Belt Bioregion itself is recognised as a national biodiversity hotspot. The Brigalow Ecological Community is listed as a threatened (endangered) ecological community under the *EPBC Act* 1999.

Monitoring threatened species in the Lockyer Uplands

Preliminary surveys to establish the presence of the threatened koala, Glossy Black Cockatoo (GBC) and/or Black-breasted Button quail (BBBQ) on properties in the local landscape are ongoing. Koala presence has been established on 13 properties while GBC presence has declined on five of the six properties, which contained known feeding sites. This finding coincides with the devastating drought impacts on the bird's preferred feed tree (*Allocasuarina littoralis*) in our area. To date, BBBQ has been recorded on camera on two of the properties with dry rainforest (SEVT) habitat with their presence to be confirmed at another seven possible sites.

An example of our most recent property survey in the Rockmount area recorded a wealth of biodiversity such as:

- Koala, listed as vulnerable in Queensland and by the Commonwealth
- Possible signs of BBBQ, to be confirmed with camera monitoring
- *Rhaponticum australe* (listed as



vulnerable in Queensland and by the Commonwealth)

- Baileys cypress pine (listed as near threatened in Queensland)
- *Scaevola albida*, the first record in the western half of the Lockyer
- *Apowollastonia spilanthoides*, only the sixth record in the Lockyer Valley
- *Sannantha collina*, for which there are only three records in the Lockyer.



Scaevola albida, photo Diane Guthrie.



Apowollastonia spilanthoides, photo Martin Bennett.



Sannantha collina, photo by Martin Bennett.

As well as providing the landholder with a property survey report, the records from these monitoring surveys will help LUCI members understand the biodiversity values on their property and in our Lockyer Uplands landscape, what habitats need to be managed and landscape connections improved.

10th October LUCI Spring Walk... by Kiri Marshall

With the group of Brisbane Intrepid Landcare I've had the opportunity to expand my scope of the Native and Regenerated Environments, so having the opportunity to attend LUCI's Gormans Gap and Helidon Hills Botanical Walks has been immensely educational!



Enjoying the panorama from Gormans Gap. Photo supplied.

I tend to focus (consciously or not! haha) on a lot of plants that may be missed by most people, things like small Groundcovers, Herbs/Forbs, Ferns, Mosses and Climbers/Creepers. They comprise a critical component of most ecosystems as food / shelter / soil stabilisation etc, but can be overlooked in favour of our regal Eucalypts etc.

The two Botanical Walks I've had the privilege of joining so far have given me an excellent 'Hands-On' learning of the Lockyer Upper Regions Flora, as well as networking with those who live there and are so happy to share their knowledge and experience.

I currently work for a Native Plant Nursery as Production Staff, as well as being an Amateur Seed Collector to ensure we have the ability to conserve and protect these incredible plants that we encounter in our Parks / Reserves / Properties.

Important number:

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

Flora highlights this spring...

Large Duck Orchid at Helidon Hills and Donkey Orchid and Spreading Mint at Fordsdale...by Martin Bennett

The Large Duck Orchid (*Caleana major*) is a widespread terrestrial herb, but not common, usually forming colonies of only a few plants in sclerophyll forest, coastal or swampy shrubland and heathland. Often in sandy or gravelly soils, basal leaves are usually prostrate, lanceolate, to 12 cm long and 8 mm wide, often spotted. Also called the Flying Duck Orchid as it resembles a duck in flight.



Large duck orchid at Helidon Hills. Photo Greg Tasney.

The Donkey (or Tiger) orchid (*Diuris sulphurea*) is a ground orchid found in eucalypt forests on ridges and slopes. With up to three lanceolate leaves, the stems carry up to seven flowers, which are yellow with dark brown markings.



Donkey Orchid at Fordsdale. Photo by Diane Guthrie.

The Spreading Mint (or Large-flowered Mint, *Menta grandiflora*) pictured below is the first to be recorded for the Lockyer Valley. It occurs on well-drained shady and rocky hillsides. With opposite, toothed and hairy leaves, the stems feature purple or pink flowers to 20mm by 15mm.



Spreading Mint at Fordsdale. Photo Martin Bennett.

Uncommon finds at my place...by Diane G

A perennial prostrate to ascending herb, the Dwarf Skullcap (*Scutellaria humilis*), is usually found in moist sheltered areas along creeks and gullies and on stony ground. It was a surprise to find it on the side of our hill amongst tall native grasses and lantana.



Dwarf Skullcap (*Scutellaria humilis*), photo by Diane Guthrie.

Another uncommon find in the understorey in the *Eucalyptus moluccana* open forest was the Small Firebush (*Seringia corollata*). A small shrub (to 1m tall) its branches and leaves are covered with dense intertwined hairs (tomentose). The leaves have a rough, wrinkly appearance with margins curved backwards (recurved). The flowers are mauve or pink.



Small Firebush (*Seringia corollata*), photo by Diane Guthrie

Which *Senecio* should be weeded? Advice and photos by Martin Bennett

There are 32 species of *Senecio* in Queensland, 5 are exotic and 1 of real concern (i.e. the Fireweed, *Senecio madagascariensis*). Two of the most common native fire daisies in the Lockyer Valley are *Senecio quadridentatus* (Cotton Fire daisy) and *Senecio pinnatifolius* var. *pinnatifolius* (Variable Groundsel). Neither native is very common in numbers, rather they are loners that like forested areas and sometimes open grassy areas.

Lately, fire daisies are popping up everywhere with landholders wondering whether to pull them out or not. Fireweed, *Senecio madagascariensis*, is a restricted (category 3) invasive plant under the Biosecurity Act 2014, which means it can not be sold, given away or released into the environment. It is toxic to livestock, particularly cattle and horses, causing illness, slow growth and poor conditioning,

which can result in death. It is important to distinguish between the fire daisies as the native varieties provide food for native insects.

The native Cotton Fire Daisy has an urn-shaped closed flower, easily distinguished from the open flower plants. Growing to 50cm high, it can have green or grey leaves, with fine toothed margins and some dividing of the leaves.



Native Variable Groundsel, most confused with the exotic Fireweed, is a long-lived perennial while the exotic is a short-lived perennial. In the Lockyer, the Variable Groundsel grows to 30cm while the exotic Fireweed can grow from 20-60cm. Making identification difficult is that both species have open flowers with 13 petals.



(Above Variable Groundsel, below Fireweed)



The bracts (i.e. leaves enclosing the flower) are somewhat distinguishing with the exotic fireweed featuring between 19-21 bracts and the Variable Groundsel between 15-18 bracts.⁴

Leaves can help distinguish the exotic from Variable Groundsel although it is important to take into account both the lower and upper leaves on the plant. Leaves on the exotic are mainly whole except for small teeth on the margin with only lower leaves sometimes having a few large lobes. On the other hand, the native fire daisy has the majority of leaves finely divided (fern-like) or deeply lobed.⁵



Visiting butterflies...by Paul Grimshaw

At our place we currently have about 15 butterfly species on the wing. Some butterflies we're seeing could be already breeding, as it is the only chance they get, due to their short adult life span. Since we have lived here on our property (38 years) we have seen and identified 69 butterfly species. During our time here at Mt Crosby we have planted many plants that are the larval food plants of various butterfly species to attract them.



Brown or Purple Crow (*Euploea tulliolus*) on its larval food plant the Burny Vine. Photo by Paul Grimshaw.

One of the butterflies we've often seen in the last couple of years, which used to be very rare here, is a butterfly known as the Brown or Purple Crow - *Euploea tulliolus*. Its

⁴ [Brisbane City Council weed identification website](#)

⁵ The Queensland Government [identification sheet for the exotic fireweed](#)

larval food plant is Burny Vine - *Trophis scandens*. We have a large specimen of this vine on the edge of our native rainforest patch. The Brown Crow is considered a tropical butterfly species.

I believe the reason that we are seeing this butterfly in South-east Qld more regularly is due to climate change. The purple colouration on the Brown Crow butterfly is very hard to see unless it is seen in strong sunlight. However, I recently took a photo of a Brown Crow using flash and was totally surprised to see how much the purple sheen showed up. Now I can see why it is also called the Purple Crow butterfly.

Interesting sights...



Photo Martin Bennett.

A very, very mature *Parsonia straminea* (Monkey Rope Vine) wrapped around a very old Crows Ash (*Flindersia australis*) at Stockyard. The vine provides nectar for a range of butterflies including the Blue Tiger and Varied Eggfly and larval food for the Lesser Wanderer and Common Crow butterflies. It also provides food for native bees and wasps <https://mbba.org.au/plant-of-the-month-parsonia-straminea/>

A flock of *Lopholaimus antarticus* or Topknot pigeons (as distinct from crested pigeons) have been feeding daily on a seed laden *Ficus rubignosa* at Egypt. At times, the Currawongs object and harass them. The Topknots withdraw from the scene without fuss but then quietly move back in when the coast is clear.



Photo Diane Guthrie.

and snippets...

Hugh Krenske (Friends of Escarpment Parks) shared this uplifting interview with [Tanya Loos and her Powerful Owl passion](#)

If you're into natural dyes, Martin Bennett shared this tip on the Red kamala (*Mallotus philippensis*). A common native rainforest pioneer species here and in south east Asia where the monks use the red dust off the hard seed capsules to dye their robes.



Photo montage provided by Martin Bennett.

*** NOW AVAILABLE ***

LUCI's booklet "**Native Grasses of the Lockyer Uplands. An introduction to some commonly occurring grasses**". Featuring 24 species with A4 size description and photo, the booklet can be ordered in PDF format for \$15 by contacting [LUCI](#).

The Quinine bush - *Petalostigma pubescens*, a native tree with no quinine...by Penny Kidd

On our rockiest, driest sandstone ridges at Stockyard, growing alongside dry sclerophyll forest trees like Ironbarks, Rusty Gums and Belah, is this hardy, remarkable small tree. It seems the sandier and more well drained the soil, the better it likes it.

The Quinine bush (*Petalostigma pubescens*) is 4-6m with a dark grey bark and a spreading, weeping canopy habit. It has a conservation status "Least Concern" assigned by the Nature Conservation Act. It may be common but it's not unloved.



The Quinine bush (*Petalostigma pubescens*).
Photo Martin Bennett.

Their profuse, large yellow fruits caught my attention last spring. I've long admired their hardiness and dainty, oval leaves which are glossy green above but downy (pubescent) underneath. The leaves are soft to touch and personally, I haven't experienced any adverse skin reaction to the leaves. But please take care as skin irritation reactions vary from person to person.

Their hardiness is legendary and I've never seen one die off in any drought - just the ticket to survive climate change. One native plant nursery in the Northern Territory promotes them as useful for farm

windbreaks and screening trees in the NT, which proves they can stand up to significant heat and long dries.

The luscious-looking fruit is actually a capsule which 'explodes' to dehisce. Some references claim the fruit is 'edible' but my experience is they're extremely astringent and bitter with a ghastly after-taste, so I leave it to your own judgement and good sense.



Photo Penny Kidd.

At Stockyard we have young trees and ancient, twisted-trunked ones growing at the very edge of bouldered-ridge tops. The fruit seems popular with local fauna and we've found carefully gathered caches of fruit casings under a log. We definitely need a wildlife camera on this tree!



Fruit casings from the Quinine bush, evidence of feasting by local fauna. Photo Penny Kidd.

One famous 1989 study described observing a three-phased seed dispersal process for this species with fruit consumption and dispersal by emus, followed by the dried out capsule 'exploding' and then final seed dispersal by ants. With its shady, spreading canopy for woodland birds, it's no surprise that *Petalostigma pubescens* is a host to a mistletoe in our region.

<http://toowoombaplants2008.blogspot.com/2010/04/banana-mistletoe.html>

A 2014 Griffith Uni study confirmed this genus has anti-bacterial, anti-fungal and anti-viral properties which were accessed traditionally by indigenous people. Another study highlighted *Petalostigma pubescens* for further research potential for leukaemia and liver cancer.

Ironically the common name, Quinine Tree, is a misnomer as studies have found no scientific evidence that this species contains quinine itself ($C_20H_{24}N_2O_2$)! The NSW Herbarium PlantNet website warns people against using misleading common names for this species.

<https://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Petalostigma~pubescens>

Totally unrelated to our *Petalostigma pubescens* species, but still fascinating to read about is a South American rainforest tree (*Cinchona officinalis*) which **does have** quinine compound in its bark. This plant was used medicinally throughout history as an antidote against malaria, however quinine is no longer used due to side effects.

<https://www.bbc.com/travel/article/20200527-the-tree-that-changed-the-world-map>

Thanks Martin Bennett for identification of this plant.

Recent visitors...



UPCOMING EVENTS ***

☞ **Saturday 30th October, Property Planning meeting, 9:30am-12:30pm.** Hosts, Mark and Penny Kidd, will share their story of managing biodiversity on their property and guest speaker LVRC's Catchment Officer, Chris Hoffmann will talk about weed management. All welcome, for more information and venue details contact Penny Kidd at [LUCI](#)

☞ **Sunday 31st October, Tanglewood Natives Nursery Open Day, 10am-2pm** at 64 Reibstein Gully Road, Lefthand Branch. Check out the wide range of locally sourced native plants.

☞ **LUCI Christmas Party and AGM/GM on Sunday 5th December, from 11:00am at Ma Ma Creek Community Hall.** Celebrate another year of LUCI activities, all members and supporters welcome. Agenda and office bearer nominations and proxy forms will be sent out in mid-November. Any enquiries contact [LUCI](#)



Photo Martin Bennett

Do you have a photo or item of interest for the newsletter? Or concerns that you would like LUCI to consider? Then let us know by email ...remember...

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