Streamlines

Newsletter of the Pullen Pullen Catchments Group Inc.

May 2022

We begin this issue with a review by Graham Stirling of a book about soil. Graham uses this as an introduction to a report on research he has carried out on the health of soils in Anstead Bushland Reserve using nematodes as indicators of soil health. Graham previously discussed soil and its health in 2017 issues of Streamlines.

In the last issue of Streamlines, Jim Williams drew reader's attention to the new opportunity offered by Brisbane City Council for residents to develop gardens on their verges (nature strips). In this issue, Jim gives his first progress report.

Next, John Ness throws some light on how seeds 'know' in which direction their shoots and roots should grow.

My blue ginger, Dichorisandra thyrsiflora, *flowered amazingly through February and March and most mornings was absolutely buzzing with the sound of bees – blue-banded bees! So I've included an article and photos by Erica Siegel, native bee enthusiast from the Land for Wildlife South East Queensland website about this colourful group of insects.*

Finally, we have records of a new butterfly and two new plants in Anstead Bushland Reserve.

All members are welcome to submit articles to Streamlines via helian@pretirementresorts.com.au*. The deadline for the next issue is 15th August 2022.*

Helen Ogle
Editor

CONTENTS

Page

Pullen Pullen Catchments Group

A Landcare Group

Website

www.pullenpullencatchments.org.au

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Membership Options

Membership fees are:

- Annual Membership – $10 per person payable on March 1 each year
- Life Membership – $100 per person

We are delighted to accept donations.

a) Send a cheque payable to PPCG to PO Box 1390, Kenmore, 4069 or

b) Transfer the funds electronically to BSB 064 152, Account No.10107038 Ref: your name.

Working Bees

Anstead Bushland Reserve – 1st Sunday of the month, 8.30 – 11 am (April-September), 7 – 9.30 am (October-March)
Pullenvale Forest Park – 2nd Sunday of the month, 8.30 – 11 am (April-September), 7.30 – 9.30 am (October-March)

Tools, gloves, etc are provided at Working Bees. Just wear sturdy boots and sunsafe clothing and bring water and a hat!

BRISBANE CITY

Dedicated to a better Brisbane

"The PPCG acknowledges the support of the Lord Mayor's Community Sustainability and Environmental Grants Programs for a grant to help with administrative, bushcare and educational costs"

A Book about Soil

Graham Stirling

This is a quotation from the first page of a book I read a few weeks ago:-

"Soil has an image problem. It doesn't speak. It doesn't move of its own accord. It doesn't give us visceral pleasure like a forest or waterfall. The most wonderfully complex and the most important part of Earth involved in feeding us, healing us, nurturing us, and sustaining us isn't breathtakingly pretty. It isn't poetic. It lies just beneath our feet but well out of our minds and collective consciousness. It's part of Earth we've long overlooked. It's the stuff we've wiped our collective feet on for a couple of hundred thousand years, and often – to our detriment – ignored."

The book goes on to explain what humans are doing to our soils. Some examples:

- About 40% of the world's agricultural land has been abandoned and 40-50% of the current agricultural land is seriously degraded
- We lose a soccer pitch of soil every five seconds to erosion or desertification
- About half of Australia's topsoil has been lost since Europeans arrived
- One in five hectares of land in China is poisoned by substances such as cadmium, nickel, and arsenic
- In the USA, 12 million tons of nitrogen and 4 million tons of phosphorus is applied annually and about half of it finishes up in waterways

The book points out that humans focus on the plants and animals they can see. Most are not aware that a far more complex and diverse ecosystem exists belowground:

- There are more living things in a teaspoon of healthy soil than there are humans on Earth.
- Of the living things that have been identified, about 25% live in soil.
- Soil supports five times more life below ground than above. A hectare of healthy pasture can feed 20 sheep (weighing about a tonne), but about 5 tonnes of microbes will be living in the soil
- For every human on Earth, there are 60 billion nematodes

In discussions about climate change, trees are viewed as a carbon sink. However, soil is a much more important sink, as it contains 4.5 times more carbon than the rest of the biosphere (the air, water and all the plants and animals)

Evans M. (2021). Soil. The incredible story of what keeps the earth, and us, healthy. Murdoch Books. 272 pp.

I borrowed the book from the Kenmore library but then purchased a copy for about $34.

My fascination with nematodes and other microscopic organisms in soil explains why I did some nematological work at Anstead Bushland Reserve (see the following article).

For those who can't cope with the scientific jargon, I concluded that the soil in some areas is in reasonably good shape whereas in other areas it is highly perturbed. Also, one of the world's most damaging nematode pests is multiplying on creeping lantana, a weed that is widely distributed within the reserve.

Soil Nematode Communities at Anstead Bushland Reserve

Graham Stirling

Background

Soil is the most complex and biologically diverse ecosystem on Earth. A teaspoon of soil weighs about 5 g and if that amount of soil was collected from a healthy forest or grassland it would contain tens of millions of bacterial cells, more than 10 km of fungal hyphae, thousands of protozoans, hundreds of nematodes and numerous insects, mites,

and other small animals. However, these organisms are largely ignored by the people who visit the Anstead Bushland Reserve, as they come to walk their dog or see the plants, birds, and other wildlife.

Some areas of Anstead Bushland Reserve were farmed or quarried for many years, while the understory vegetation is now dominated by weeds, and so the community of organisms that live in the soil is likely to have been affected in some way. This initial study aimed to determine whether this has occurred.

Although bacteria and fungi are the dominant organisms in soil, they are difficult to quantify because there are thousands of different species and they occur in enormous numbers. Consequently, the soil nematode community was assessed because studies over the last 20 years have shown that the number and types of nematodes in a soil provide a good indication of its biological status.

Methods

On 19 October 2021, a sampling tube 22 mm in diameter was used to collect soil samples from six locations that were typical of the various plant communities in Anstead Bushland Reserve (Table 1). A representative sample of about 600 g soil was obtained by collecting 10-15 cores to a depth of about 10 cm. However, the samples from locations A and C could only be taken to a depth of 5 cm because there was a layer of rocks below the thin layer of surface soil.

Each sample was mixed gently, a 200 mL sub-sample was placed on a Whitehead tray and nematodes were retrieved after two days incubation at 24-28°C. Numbers of plant-parasitic nematodes and total numbers of free-living nematodes were counted under a compound microscope at a magnification of 40X. A random sample of about 100 free-living nematodes was then assessed and based on their morphology, each nematode was categorised as belonging to one of five trophic groups: plant associate, bacterivore, fungivore, omnivore, and predator.

Table 1. Details of locations sampled at Anstead Bushland Reserve

Sample	**Location**	**Vegetation**	**GPS location**	
			Latitude	Longitude
A	Near PPCG peg A	Mainly creeping lantana	-27°-32-39	152°-51-24
B	Near PPCG peg B	Very weedy (lantana, creeping lantana, cobbler's pegs, asparagus)	-27°-32-39	152°-51-26
C, D*	Mulched area near lookout	Planted trees with few weeds	-27°-32-44	152°-51-18
E	West of Hawkesbury Rd., 250 m south of entrance	Healthy bushland and *Lomandra* with few weeds. Recently burnt.	-27°-32-55	152°-51-38
F	10 m north of entrance near containers	Thick grass	-27°-32-36	152°-50-53
G	40 m from bitumen road along dirt road north of tank	Thick grass	-27°-32-47	152°-51-22

*D was a sample of mulch that was covering the soil surface at location C

Results

All the soils were relatively moist because more than 70 mm of rain had been received prior to the samples being collected. The soil from location C was the wettest, presumably because it was covered with a thick layer of mulch. Location E had much drier soil, either because of a soil type difference or because more large trees were present (Table 2).

Table 2. Details of soils and mulch

Sample	Soil colour	Soil texture	Weight of 200 mL sample (g)		% moisture
			Moist wt.	Dry wt.	
A	Grey	Clay loam	188	149	26.1
B	Grey	Clay loam	220	180	22.5
C	Grey	Clay loam	184	134	37.4
E	Reddish brown	Clay loam	220	192	14.3
F	Grey	Clay loam	212	168	25.9
G	Grey	Clay loam	210	167	25.7
D (mulch ex site C)	-	-	76	44	71.4

Six plant-parasitic nematodes were recovered from the reserve but most had a localised distribution (Table 3). There were many more free-living nematodes than plant parasites but numbers were quite variable, with the highest soil count being at site E (Table 3). The types of nematodes present at each site also varied markedly, particularly with regard to the proportion of bacterivores, omnivores and predators (Table 4). The mulch at site C was quite different to the soils, as it had very high numbers of free-living nematodes and almost all of them were bacterivores (Tables 3 and 4).

Table 3. Number of plant-parasitic nematodes (by genus) and total numbers of free-living nematodes (TFLN) recovered from soils and mulch at Anstead Bushland Reserve

Sample	No. nematodes/200 mL						
	Root-knot *Meloidogyne*	Spiral *Helicotylenchus*	Lesion *Pratylenchus*	Dagger *Xiphinema*	Pin *Paratylenchus*	Reniform *Rotylenchulus*	TFLN
A	83	0	10	0	0	0	2820
B	208	48	16	0	0	48	1544
C	0	0	0	0	0	0	1040
D	0	0	0	0	0	0	13,600
E	40	8	3	15	11	0	3480
F	0	273	0	13	26	0	1704
G	0	116	132	0	0	637	1077

Table 4. Composition of the free-living nematode community at various locations in Anstead Bushland Reserve, and the Nematode Channel Ratio (NCR) at each location (see page 6 for explanation)

Sample	% of the free-living nematode community in various trophic groups						NCR
	Plant associates	Bacterivores	Fungivores	Omnivores	Predators	Omnivores + Predators	
A	18	57	13	9	4	13	0.82
B	18	29	6	5	4	9	0.82
C	16	32	11	4	1	5	0.75
D	20	47	2	4	2	6	0.96
E	24	22	24	9	3	12	0.48
F	32	6	11	8	12	20	0.37
G	25	28	15	3	2	5	0.66

Explanation of the results

The first point to make is that some nematodes (the plant parasites) are detrimental to plants, as they have a stylet in the head region that is used to feed on roots (Figure 1). Two of the nematodes found at Anstead (root-knot and root-lesion) are important pests of agricultural crops, often reducing yields by 10-20%. All these nematodes have been introduced into Australia since Europeans settlement, and their presence at Anstead indicates that the below-ground ecosystem has been modified in the last 200 years.

The second important point is that most nematodes are beneficial. These free-living nematodes can be distinguished by their mouth parts and the shape of their oesophagus and are differentiated into five trophic groups (Figure 2).

Free-living nematodes play many important roles in soil.

- **Plant associates** are similar to plant parasites but only feed on root hairs, and so they do not cause any damage. However, during their feeding process, labile carbon moves out of the roots and becomes a food source for microorganisms that multiply in the rhizosphere and help the plant protect itself from pathogens.
- **Bacterivores** feed on bacteria, and in the process release nutrients such as nitrogen that can then be used by plants. This nutrient mineralisation process is vital in natural ecosystems, as it converts organic nutrients (e.g. the nitrogen in proteins) into inorganic forms (e.g. ammonium and nitrate) that can be taken up by plants.
- **Fungivores** mineralise nutrients in the same way as bacterivores, except that the nutrients are released from fungi rather than bacteria. As these fungal-feeding nematodes can use fungal pathogens as a food source, they also help regulate populations of the fungi that cause root diseases.

- **Omnivores** are large nematodes (usually 1-3 mm long) that feed on a wide range of soil organisms including fungi, algae, nematodes, and other microfauna. Their presence indicates that the soil biology is relatively stable and has some capacity to suppress pests and pathogens.
- **Predators** have a large open mouth cavity that is armed with teeth. They feed on other nematodes, including those that damage plants.

Figure 1. Root-lesion nematode (*Pratylenchus*) showing the stylet that is used to feed on plant roots

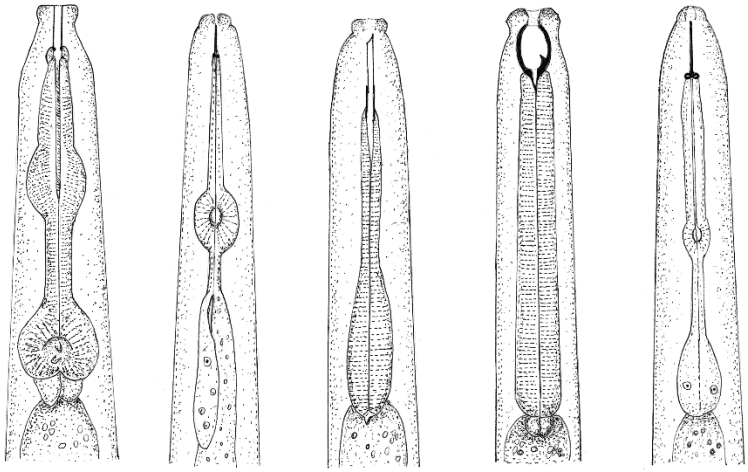


Figure 2. Free-living nematodes categorised by trophic group: bacterivore, fungivore, omnivore, predator, plant associate (from left to right)

One index that is sometimes used by nematologists is the Nematode Channel Ratio (NCR), which is calculated as B/(B+F), where B and F are the number of bacterivores and fungivores, respectively. A high NCR (>0.8) indicates that soil organic matter is being decomposed by a food web that is dominated by bacteria, whereas an NCR<0.4 indicates that fungi are predominant. As bacterivores mineralise more nutrients than fungivores, a high NCR means that significant nutrient mineralisation is taking place.

What do the results tell us about the condition of the soils at Anstead Bushland Reserve?

- Site E has the healthiest soil. This soil had the highest number of free-living nematodes, relatively few plant parasites, an NCR of 0.48 indicating a good balance between bacteria and fungi, and reasonable numbers of omnivores and predators.
- The soil at one of the grassed sites (site F) is also in good condition, probably because the soil is generally moist due to run-off from the higher ground above, and the grasses provide high carbon inputs. The high percentage of omnivores and predators at this site is an indicator of resilience and

stability. Site F has markedly better soil than site G, which has high numbers of plant parasites, low numbers of free-living nematodes, and few predators

- The presence of root-knot nematode at sites A and B is a concern, as it is a damaging pest of many plants. This nematode has a very wide host range (more than 2,000 plant species) and its occurrence indicated that it was multiplying on some of the plants at these sites. One of the hosts was discovered when creeping lantana was being removed at a Bradley Regeneration working bee on 6 February 2022. Its root system was heavily galled and when the galls were checked under a microscope, root-knot nematode females and eggs were observed. Thus, one of the main weeds at Anstead Reserve is hosting a pest that may be having an impact on some of the native plant species.
- The soil at site C is unusual. The absence of plant parasites is a good sign whereas the low numbers of omnivores and predators suggest that the soil is highly perturbed. Nevertheless, the layer of mulch on the soil surface is beneficial and will gradually improve the health of the soil over time.

Transforming our Nature Strips into a Resource for Nature

Jim Williams

Congratulations and a big thank you to the Brisbane City Council for allowing residents to plant out the nature strip between their front property boundary and the roadside kerb. Credit where credit is due. I stumbled across this change of heart quite accidently late last year and it has allowed me to commence a journey of extending the bush environment to the roads edge. The photograph below shows our nature strip before commencing the venture.

Partially, the motivation was to provide an extra source of food for our precious fauna. Also potentially help by reducing their need to cross the perilous Mt Crosby road so frequently. The nature strip will be there for nature. Now there is an interesting concept!

For me, the six main considerations were

1. Following the BCC guidelines
2. Keeping “contract mowers” away from my endeavour
3. Using wildlife friendly and suitable flora
4. Keeping the postie happy
5. Keeping the brush turkeys away
6. Sharing the journey to the benefit of others

1.Following the BCC guidelines

The BCC guidelines are great and they really gave me more “freedom” than I had expected. See: https://www.brisbane.qld.gov.au/clean-and-green/natural-environment-and-water/plants-trees-and-gardens/verge-gardens.

Requirements include a 1.2m pathway space across the front of the property and this became a significant aspect of the design.

2.Keeping "contract mowers" away from the endeavour.
The worst circumstance would be for mowing companies contracted to the BCC to mow our nature strip during the development of the project. As they say "time is money" and the ride on mower operators really do operate a very time efficient business. I hear them coming and suddenly there is a roar of activity and then they are gone disappearing in a cloud of dust. It just reminds me of a particular movie - See AND LISTEN to: https://www.youtube.com/watch?v=JWnaNtxyn0A

The whole performance takes less time than it takes for a chilled out Jim to put his guitar, book, paint brush, potting mix, weeding knife, coffee, binoculars, whatever, down and contemplate how I should go about communicating my desires with such a tunnel visioned, weed seed spreading, mechanical monster.

So a safer option is keeping the nature strip weed/grass "super short "down to almost earth level. This was committed to in the early phases. Hopefully the mechanical monster would resist the urge to feed on any tiny scraps that may remain.

3.Using wildlife friendly and suitable flora
Our nature strip faces N/NW, fully exposed and lies horizontal with zero water running on to it from adjacent land during rain. The soil is poor, made up from rocky fill resulting from the "cut and fill" operation when the cul-de-sac was made, some 45 years ago. The area is some 88m sq (22m X 4m). So there are very few naturally occurring plants surviving there. The rare exceptions are, remarkably, two *Plantago debilis* (herb) and approximately fifteen *Cyperus gracilis* (a prostrate grass-like plant).

Plantago debilis

Cyperus gracilis

The nature strip has never been watered, often scalped, regularly driven on, horse ridden on, truck driven on and always ignored. So these two species of natives are extremely tough! Adjacent to the BCC nature strip, our bush acreage block has been allowed to regenerate naturally over the last 25 years following the Bradley Method of Bush Regeneration and the results have been simply amazing. However there are no locations on our block that reflect the environment of the nature strip (fully exposed N/NW facing). So for species selection I observed similar environments occurring naturally in our area and when possible, sourced these naturally occurring grass species from nurseries.

Already, just 10 weeks after planting the first grass, we have kookaburras patiently sitting on the front boundary fences. They are eagerly peering down and seeking out lizards sheltering in the tussocks. The grasses have dropped seed and new plants have appeared! So this "micro ecosystem" is on its way already.

The BCC guidelines give good justification and suggestions for the size and form of species recommended, and these were also used as a guide during the selection of species. I am certainly not a gardener, so the whole design process is quiet foreign to me (gardening is a long way removed from natural bush

regeneration). However a “layered grass” picture appealed to me with short grasses and herbs close to the kerb, gradually transitioning to taller grasses at the rear of the nature strip on to the open fenced front boundary. In-between I fancied a “curved 1.2m “pathway” comprising solely of the tough, prostrate indigenous grass-like plant *Cyperus gracilis*. A basic layout of the envisaged 1.2m path is indicated in the picture below.

4.Keeping the postie happy

I needed to figure out exactly where the postman takes the motorcycle during the ride between the letter boxes of my neighbours’ and our own, at each delivery. I did not want to ask him/her directly as they may have wanted to be over-considerate to what I wanted to do. Eventually the entire nature strip needed to be hand weeded, however I decided to produce “strips of bare earth” between the kerb and our front property line, across the entire nature strip. By ensuring the surface of the soil was a fine till, it recorded where the postie left his motorbike tracks each delivery. This was used to guide me on locating the 1.2m pathway required to be left under the BCC guidelines.

5.Keeping the brush turkeys away

Love them or hate them, we have them. Having them obstinately convert our precious vegie garden into a nesting mound, they are here raising their family. How to stop them digging up any of the “to be planted grasses” on the nature strip, had to be addressed. A layer of thick cardboard under the mulch seems to have kept the brush turkey damage at bay so far. However I do admit to “Teddy the Tiger” (our King Charles Cavalier Spaniel) on turkey watch, being very effective. It also seems that the turkeys prefer to scrape in areas beneath protection, rather than the exposed site of the nature strip

6.Sharing the journey to the benefit of others

The idea of presenting this to you (in the PPCG Streamlines as an ongoing article) is to allow you a consideration for helping our environment. This would be achieved by

- Promoting the planting of naturally occurring grass species from our area on public land, i.e. the nature strip
- Providing food source and some habitat for a range of fauna including wallabies, frogs, birds, insects, lizards etc.

So if all goes to plan and if members are wanting, I will keep you updated with progress in the next Streamlines edition.

Smart Seeds

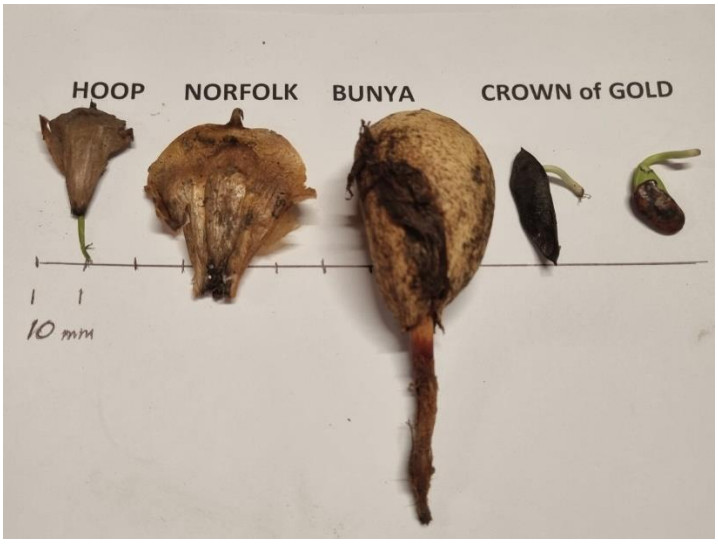
John Ness

Whether a seed is lying on top of the ground as typically occurs naturally or is beneath a thin layer of soil or mulch as in human planting, it has to ‘know’ which way is up. The shoot that becomes the root has to head

downwards into the soil and the shoot that becomes the plant should grow in the opposite direction. How does the seed 'know' which way is which and then respond accordingly?

There are two obvious possibilities. The emerging shoot could sense the direction of gravity and respond accordingly or it could sense the direction of light – the latter case would apply only to above ground seeds. Darwin and his son investigated this issue about one hundred and sixty years ago and came down on the side of sensing gravity.

The photo shows the seeds of a Hoop (~ 0.25g), a Norfolk Island (0.65g) and a Bunya pine (20g) and a Crown of Gold tree, *Barklya syringifolia*, (~0.1g). The Bunya pine seed is very large and the emerging shoot is also quite robust and covered in a husk. The hoop pine shoot that becomes the root emerges first from one end and bends directly towards the ground irrespective of the orientation of the seed on the ground. The emergent shoot is green so presumably it is already undergoing photo-synthesis. The bunya seed has a lot more internal stored energy so it does not need the energy boost of photosynthesis in the short term hence the husk cover. (In local planting, no Norfolk Island seed has yet germinated so the colour of the shoot is not known.).



In the Pine family, the Bunyas obviously provide a much greater inheritance to their children giving then about 30 times the assets of their Norfolk Island cousins and about 80 times the assets of the Hoop family. However, this is not necessarily such a wonderful thing for the Bunya offspring as their large assets attract an array of predators, from possums to cockatoos and even humans and very few survive through to germination. The Bunya family keep their offspring well protected within a spiky coating which does break apart in a week or so after hitting the ground close to the parent. The Hoop and Norfolk Island lot are not so fastidious about where their offspring end up and actually provide them with a winged structure so they can go further in the world before settling down. The Crown of Gold seed falls close to the tree and the root emerges first and heads down towards the ground. It is white which indicates full light reflection and so little photosynthesis activity.

Long after Darwin's time it was worked out at the general level that the direction the shoot turns is controlled by the growth hormone auxin. The level of auxin will increase on the lower side of the shoot under the effect of gravity and it is this variation in auxin level which controls the growth rate on the lower side of a shoot compared to the upper. If the growth in the auxin enhanced area is sped up then the shoot will bend upwards away from the higher growth rate section. If the growth rate is reduced in the auxin enhanced area then the shoot will bend down around the reduced growth rate. The fine details of how the auxin hormone actually controls this are still being investigated.

Blue-banded Bees

'There are eleven species of described blue-banded bees in Australia ranging in size from 8-14 mm. They are also known as long-tongued bees or buzz pollinators. Blue-banded bees are solitary and are found in all states of Australia except Tasmania. They have a sting but are not aggressive.

They have thick, reddish-brown fur on their thorax and a black abdomen with iridescent blue, whitish, green or reddish furry stripes. The colours are caused by microscopic diagonal stripes engraved on each hair which reflect light causing these glittering colours. Males have five stripes and females have four. Their faces have yellow, cream or white markings.

Blue-banded bees forage on a variety of exotic and native flowers such as *Hibbertia scandens, Melastoma malabathricum subsp malabathricum*, tomato, chilli, basil, buddleia, lavender, abelias, *Leucophyllum* and cigar plants (*Cuphea*). Research has shown that blue-banded bees could be valuable pollinators of greenhouse tomatoes.

This female blue-banded bee is robbing nectar by piercing the flower petals with the straw-like brown sheath that protects her tongue

Females build their own nest and are attracted to areas where other females are nesting. Nests are built in soft mortar, mud bricks or soft sandstone banks in sheltered positions. Females use their jaws to dig burrows. Inside the burrows, they create oval-shaped cells lining them with waterproof secretions.

Before depositing an egg, a mixture of nectar and pollen is placed in the cell. Once an egg has been deposited each cell is capped, and when all cells are filled and capped the burrow is closed with a layer of soil. The female then goes in search of another nesting site.

According to J. C. Cardinale (Australian National Insect Collection, Canberra 1968), blue-banded bees live for about 40 days and about three generations hatch during one summer. Baby bees take about seven weeks to hatch and those that do not hatch due to approaching winter, overwinter in their cells, emerging in the following spring.

Male blue-banded bees roost together in small groups at night, out in the open, hanging onto twigs or stems with their mandibles. They vigorously shake their legs and wiggle their abdomens when a new bee arrives to settle. Eventually they all tuck their legs under their bodies to sleep. After warming up in the morning they go on their daily routine of foraging and finding a female to mate with.

A male blue-banded bee roosts at night suspended by his mandibles

A group of male blue-banded bees roost together

Blue-banded bees can be attracted to your garden by making a mud brick. Drill a variety of holes 10-15 mm wide and 25- 50 mm deep before the mud brick dries and place the finished brick in a sheltered position. Alternatively, you can use an extruded brick with core holes, in which the holes are filled with mud. When the

mud dries, drill holes for the bees. Placing soil from an existing blue-banded bee nesting site on top of the brick will help attract females to the new nest. For more information on creating bee walls, there is an excellent factsheet available from www.permaculturenoosa.com.au > How to > Instructions for a Bug Hotel.'

Another New Butterfly in Anstead Bushland Reserve

In early March, following the postponement of a planned Brisbane Big Butterfly Count walk in the Reserve, member and butterfly enthusiast Karen Roberts reported:

'I did a solo butterfly walk around the perimeter of ABR down to the historic house that has been removed. There is some AMAZING bush down that way. Anyway Jutta (coordinator of the BBBC) was excited with the 30 species result (and one that she didn't have in any of the Brisbane records as part of the BBBC surveys … the long tailed pea blue (a first for Anstead Bushland Reserve … a first for Brisbane's big butterfly count!). In the November survey we only had 16 species. The butterflies are AMAZING at the moment!!!


Long tailed pea blue butterfly

Two New Plants in Anstead Bushland Reserve

Gillian Whitehouse and Jim Williams reported that two additional plant species have been identified during recent bushcare sessions: *Iphigenia indica* (a lily, uncommon in our area, close to the southern limit to its range) and *Secamone elliptica* (Corky Milk Vine**,** a food vine for the Blue Tiger butterfly larvae and sometimes Common Crow butterfly larvae).

Iphigenia indica

Secamone elliptica (Corky milk vine)
