



Streamlines

Newsletter of the Pullen Pullen Catchments Group Inc.

February 2017

Welcome back to another year of interesting activity with Pullen Pullen Catchments Group. We are currently working on two very different sites. Pullenvale Forest Park along pretty little Pullen Pullen Creek, is largely vine rainforest grading into dry eucalypt forest further away from the creek. The soils along the creek are deep and fertile – thanks to the topsoil it receives from elsewhere in the catchment during flood events! In contrast, the area where we are working at Anstead Bushland Reserve is high above the Brisbane River. The soils are shallow, weathered and infertile and the plants are exposed to extreme environments in terms of heat and wind.

Whichever area we are working in, how often have we stopped with a plant in our hand and debated with ourselves and others whether it is a ‘goodie’ or a ‘baddie’? Should it ‘stay’ or should it ‘go’? In this issue of Streamlines, Brian Dean expands on the concepts of ‘good’ and ‘bad’ in relation to the cane toad which leads us on to the Cane Toad Challenge, a new approach to controlling cane toads. Brian illustrates his article with one of his witty cartoons.

Usually at our working bees, we are looking at the plants and maybe the animals. We pay scant attention to the medium in which plants grow. In this issue, we start a series of articles on the biological components of soil written by PPCG member, Graham Stirling, who has a wealth of experience studying and promoting soil health. Graham’s article is illustrated by another member, Marcelle Stirling.

As a background to Graham’s articles, I’ve assembled some general notes on soils from a range of sources. The Queensland Government site www.qld.gov.au/environment/land/soil/soilproperties which covers the physical properties of soil – texture, structure, colour, pH, carbon content, water, fertility and sodicity (roughly, saltiness) – was particularly useful. The information is easy to understand and not over-abundant!

All members are welcome to submit articles to Streamlines via helian@pretirementresorts.com.au. The deadline for the next issue is May 15. Can a member or a member’s contact write a brief article on the major soil types in the local area?

Very best wishes,

Helen Ogle

Editor

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Pullen Pullen Catchments Group

A Landcare Group

Meetings

Meetings are held at 7pm on the first Wednesday of each month at Pullenvale Environmental Education Centre, 250 Grandview Road, Pullenvale.

Website

www.pullenpullencatchments.org.au

Working Bees

Pullenvale Forest Park – 2nd Sunday of the month, 8.30 – 11 am
Anstead Bushland Reserve – 4th Sunday of the month, 8.30 - 11 am.

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

Committee Members 2017

President:	John Ness	3202 7556	president@pullenpullencatchments.org.au
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Creek Catchment Officer	Leah Hattendorff		

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.

- Send a cheque payable to PPCG to PO Box 1390, Kenmore, 4069 or
- Transfer the funds electronically to BSB 064 152, Account No.10107038 Ref: your name.



Dedicated to a better Brisbane

“The Pullen Pullen Catchments Group acknowledges the support of the Brisbane City Council for costs associated with the website, the printing of Streamlines and with running the working bee mornings in Anstead Bushland Reserve and Pullenvale Forest Park.”

NEWS

Let's begin with everyone's favourite subject – Statistics! – according to the President's Annual Report for 2016. PPCG has 206 members (approximately 2% of the population of the catchment area), ten working bees were held at Anstead Bushland Reserve and nine at Pullenvale Forest Park while about 180 hours were spent on the Airlie Road Park and wildlife carers put in a staggering 14,000 hours!

John indicated that the PPCG has three main activities or reasons for existence: These are:

1. Regeneration/weeding/floral maintenance of public land (usually BCC owned)
2. Support of Wildlife/Conservation
3. Education on matters of environment

In 2016, the main activities were:

1. **Anstead Bushland Reserve** – weeding and planting, labelling of key plants along the walking tracks completed planning and approval stage, bird hide proposal did not hatch
2. **Pullenvale Forest Park** – weeding and planting, clean up and repair after Pullen Pullen Creek flood, student volunteer planting and tour.
3. **Airlie Rd Park** – planting and protection of trees, on-going mowing, watering and weeding along riparian zone.
4. **Wildlife** – on-going wildlife support, feeding and care for native animals
5. **Educational Walks** – two educational walks were done through the PFP

Looking ahead, John predicted that the main projects for 2017 would be:

1. **Anstead Bushland Reserve** – continue the plant labelling program, seek BCC support for a safe walking track down to the quarry, perhaps revisit bird hide proposal
2. **Pullenvale Forest Park** – repeat the student volunteer morning
3. **Airlie Rd Park** – assist BCC with spending the \$15k allocated to the park.

Pullenvale Forest Park – The March Working Bee has been deferred to March 19th. It will involve a big planting, especially of understorey plants. Lynn reported that pathways damaged by wet weather have been restored. She is trying to clarify Council's plan for a large pile of mulch dumped in the Park some months ago. **Working Bees will be held on March 19, April 9 and May 14.** Contact Lynn (0417 648 050) for more information.

Anstead Bushland Reserve – Brian reported that the path from the picnic area to the Lookout has eroded badly in places and is steeper than originally planned in parts, also that more information brochures are needed. Leah agreed to organise printing of these and pointed out that way-finding signage needs to be upgraded – hard to know where to go without the map in the brochure. **Working Bees will be held on March 26, April 23 and May 28.** Contact Brian (3202 8553) for more information.

Airlie Road Park – Leah reported that grant money from Council will be available soon and that she has approached Brisbane Bush Care about carrying out the work involved.

PPCG Website – Nola reported that she can now monitor the number of hits on the site and will report on the number next meeting. She would also like to add keyword searching to make site more user-friendly.

Wildlife – Irene reported that she is getting at least 1 injured animal referral/day from Council. She has purchased a large aviary but still needs a trailer to make a mobile soft-release aviary. Contact Irene (0409 026 883) if you can help. PPCG approved her request for funds to purchase materials to make possum dreys.

Education – Ron is hopeful that Daniel Rekdahl will be able to do a walk, a night walk may be another possibility. Leah mentioned UQ's Cane Toad Challenge and its cane toad tadpole baiting system, Tony Woodhouse talking about native bees is another possibility.

Moggill Haven for Wildlife Last year I had the good fortune to visit the property owned by Ian and Janet Hampson on Moggill Rd just before the Moggill Ferry. They have owned the property, which was previously a dairy farm, since 2003. It runs from Moggill Road down to the Brisbane River. The Hampsons have a fascinating blog (Moggill Haven for Wildlife) describing what they have done to regenerate the property. It involves large amounts of blood, sweat, tears, plants and carpet! Earlier owners had begun a tradition of planting local figs. The Hampsons have continued this so the property is now a shady, green sanctuary for both people and animals. I strongly recommend the blog to anyone looking at regenerating their property.



Stranger in Paradise

Brian Dean

Summer evenings; the day's heat ebbing, the cicadas' one-note chorus, the smell of new-mown grass, the sound of leather on willow and the thump of iron on toad skin. These are the times when, with torch and elbowed water pipe, I hunt the invader, *Bufo marinus*, the warty alien cane toad, about which there is hardly a good word spoken.



Remember the Glory Days of BCC's "Toad-buster" pogroms, when a citizen's proudest moment was when his freezer was filled to overflowing with cryogenically euthanased toad corpses? Personally I have always favoured the swift, clean, fatal blow that only a piece of rusty water pipe can deliver – a "short, sharp shock" as Gilbert & Sullivan would have it. But something has changed.

Gone are the days (or nights) when it was commonplace to despatch a couple of dozen large, healthy, muscular toads, each weighing in at 7-800gm, not to mention the roadkill (hilariously recorded in the movie "Cane Toads" where a vehicle is shown swerving all over the road, not to avoid, but to squash a largely unresponsive toad presence).

Now the toads are fewer in number and, most significantly, much smaller, to the point that they are – almost – cute. *Cute!* So have I been killing them because they *weren't* "cute"? The death penalty for "lack of aesthetic appeal"? If that were so, how many of us should be on death row? But no, I say, they are an invasive species, and hence should be exterminated, should they not?

Our friends across the Tasman have determined to do just that - eradicate all invasive mammals by 2050. Now that's what I call a pogrom – possums, rats, stoats, you name it – all for the chop, Kiwi-style. The cost is horrendous, but presumably it will have been worth it – if it works. So why can't we do the same with the toads (or the feral cats, pigs etc)?

Well, it was while I was pondering this question that I came across "The New Wild" by Fred Pearce, an environmental writer who "used to think of invasive species as evil interlopers spoiling pristine 'natural' ecosystems." the blurb states, adding "Most conservationists would agree". But having explored ecosystems old and new Pearce now considers that "our ideas about the 'balance of nature' are now seriously outdated".

Having had similar thoughts myself (I set them down in the August 2014 "Streamlines") I was keen to see what an environment and development consultant at *New Scientist*, award-winning science writer & UK Environment Journalist of the Year had to say on the matter. Lots. For one thing he's examined the statistics used to support eradication programs and found inconsistencies and opinions not backed up by research, but cited and quoted as if they were Holy Writ. He deplores the "black & white" xenophobia which regards all "native" species as "good" and the invasive ones as "bad".

"What can it mean, 150 years after Darwin, to say that some species or communities are good and some are bad?". Since no one has ever been able to give me a clear definition of 'native' I cannot but agree with him. As to 'pristine', Pearce argues that the term is virtually meaningless; even the 'pristine' rainforests and jungles of the Amazon or Indonesia show evidence of human intervention, clearing and farming dating back thousands of years.

There is a kind of romantic idea shared by some conservationists that 'restoration' means a return by nature (assisted by us) to a state of ecological balance and harmony, where all creatures great and small, animal or vegetable, are said to 'belong' – a kind of 'Garden of Eden', an Earthly Paradise.

Let's not forget that the Persian word 'paradise' meant a walled enclosure, a garden cut off from the outside world, and from which all aliens and interlopers were to be excluded. But this, says Pearce, is the antithesis of how nature works. Species invade, flourish and decline – there are no natural 'aliens', no 'pristine' states, no unchanging Edens; nature is in a state of flux, and delicately 'balanced' ecosystems are as subject to change as any other. And, he observes, incoming plants and animals often *increase* the biodiversity of an

A box trap was developed. If one of these traps with bait is placed in a body of water such as a dam or creek – something that is not flowing too fast – a plume of pheromone is generated and attracts cane toad tadpoles. Once they are in the box, they can't swim out and remain trapped inside. Anywhere between several hundred and 20,000 can be caught at a time, depending on how many are in the water body.

The trap is being patented but in the meantime Professor Capon and his team have set up the Cane Toad Challenge. If cane toads are affecting your local area or business, and you would like to be part of IMB's ground-breaking work, visit www.imb.uq.edu.au/canetoadchallenge. The Cane Toad Challenge web page links to 'An Ugly Menace' which has more information about the project as well as a series of maps showing how cane toads have spread across Australia since 1935 when 101 were released in north Queensland.



A cane toad trap

Soil – A Brief Introduction

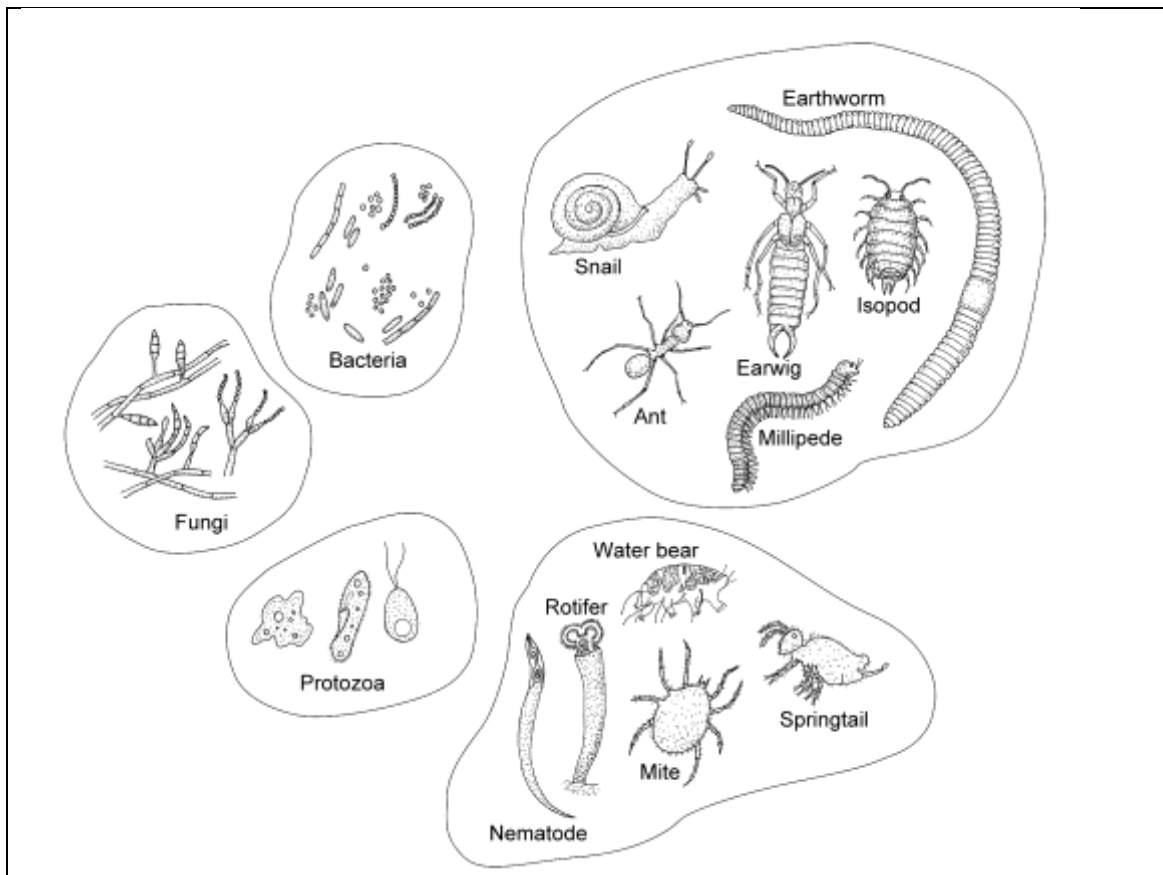
Helen Ogle

Soil is a product of climate, relief (elevation, orientation, and slope of terrain), organisms, and parent materials (original minerals) interacting over time. Soil continually undergoes development through numerous physical, chemical and biological processes, including weathering with associated erosion.

Soil is a mixture of minerals, organic matter, gases, liquids, and countless organisms that together support life on Earth. It stores and purifies water, modifies earth's atmosphere and is a habitat for organisms; all of which, in turn, modify the soil.

Mineral soil particles come from the underlying parent rock and sediment. Coarser materials are usually fragments of the original materials, while finer materials are usually the product of considerable weathering. The three most influential classes of mineral particles are sand (0.02-2 mm diameter), silt (0.002-0.02 mm) and clay (less than 0.002 mm). Sand particles can be classified as coarse, medium or fine. Clay particles are flat and made up of many plates with chemically charged surfaces. They can hold large amounts of water and several of the minerals needed by plants for growth.

The size of the mineral particles making up each soil type determines the size of the pores (spaces) between the particles. The pores hold air and nutrient-containing water, both essential for plant growth. The larger the particles in the soil, the larger the pores between them. Water enters the soil through large pores and is stored in many small pores. Porous soils have a balance between large and small pores.



A pictorial view of some of the organisms found in soil (grouped according to their size)

The end result of all this biological activity is that the soil's physical and chemical condition improves and it continues to support plant growth. Bacteria and fungi produce glues that bind soil particles into aggregates, thereby enhancing aeration, while the channels formed by the soil fauna provide pathways for water to move and roots to grow. Mycorrhizal fungi form close relationships with plants and help them take up water and nutrients. And because enormous numbers of organisms are constantly competing for nutrients and space, the 'biological warfare' that occurs in a healthy soil prevents the uncontrolled proliferation of root pests and pathogens.

Soil biological activity and diversity is also important from an environmental perspective. The effects of soil organisms on soil structural properties increase water infiltration rates, thereby diminishing run-off following a rainfall event and ensuring that valuable topsoil and nutrients are not washed into the nearest waterway. The presence of soil organisms also minimises the nutrient pollution of rivers and streams because when nutrients such as nitrogen and phosphorus are held within the bodies of soil organisms, leaching losses are markedly reduced.

For those who would like some practical information on how to improve the health of their soil, I have committed to write short articles on the following topics in the next four newsletters. Hopefully they will be of interest to all members.

- The key role of organic matter in building a healthy soil
- Pathogens, beneficial organisms and disease suppression
- Assessment of biological soil fertility
- Key practices to improve soil health.

If you would like to learn more about these fascinating organisms and the vital role they play in maintaining life on the planet, the book cited below may be of interest. Although written for farmers who are trying to improve the health of their soils, students and anyone with ecological or environmental interests will find the book useful. It provides readily understandable information on a below-ground world that most people never see.

Graham Stirling, Helen Hayden, Tony Pattison, Marcelle Stirling (2016). *Soil Health, Soil Biology, Soilborne Diseases and Sustainable Agriculture. A Guide*. CSIRO Publishing, Melbourne. 275 pp. The book can be purchased via the CSIRO Publishing website at a cost of \$99.95. Just click the search button in the top RH corner of the website.