

# OUT ON A LIMB

An informative newsletter for all those with an interest in horticulture



Bechtel  
Crabapple

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Barry Fitzpatrick



## For The Love Of Trees

Recently while visiting a friend and strolling around his garden, I noticed an obviously sick tree in quite a prominent position. The tree looked completely miserable with dried and shrivelled foliage and a number of blackened denuded branches.

The tree was a *Malus ioensis* 'Plena', the so-called 'Bechtel Crabapple' which sports gorgeous pink blossoms in the late spring. My friends had moved to the house and garden in late 2015 at which time the tree was in full bloom. It bloomed the following year albeit poorly, and last year it scarcely bloomed at all. It was quite clear the tree was dying and well beyond redemption.

In investigating the possible cause of the damage, the owners had made a close inspection around the base of the tree. The soil seemed healthy and moist; there was an irrigation sprinkler nearby and the entire bed was blanketed with a mulch of oak leaves. Underneath the mulch the soil was moist and worms were prevalent.

But a closer inspection revealed two other factors – close by the *ioensis* base there was another 'corpse' in the ground, identified as the probable remains of a *Pyrus ussuriensis* – a 'Manchurian Pear' long since deceased.

The other factor was a white frosting around the graft collar, which was presumed to be powdery mildew, probably caused by inadequate air circulation around the tree base which was surrounded on three sides by mature *indica* azaleas and several *Choisya ternata*, 'Mock Orange'. Together these plants had grown into a fairly dense hedgerow. On the advice of a local horticulturist, methylated spirits was applied to the stump and the 'frosting' vanished.

But this raises the question – did the previously departed tree die – possibly in similar fashion to the *ioensis*, or was it simply removed because it out-grew the site?

By the time you will be reading this, the old *ioensis* will have been removed and the stump ground down preparatory to spring when a new subject will be planted

– possibly another *ioensis* or perhaps a Crepe Myrtle.

The question still remains however, what caused the demise and will there be something sinister still lurking in the soil? Any readers who would care to comment on the scenario, are welcome to contact the editor Neil Williams by email to: [wuunaye@bigpond.com](mailto:wuunaye@bigpond.com)

### Still on trees

Because the central focus of this magazine is trees, and a love of trees was clearly the reason for the foregoing tale of woe, I was delighted recently to see an ABC documentary featuring the much-loved British actress, Dame Judi Dench. It was called 'A passion for trees' and was truly outstanding. Judi and her late actor husband Michael Williams, assisted by wildlife enthusiast David Mills, established an arboretum on their 6 acre garden in Surrey. The doco was filmed over a period of twelve months and moved through each changing season as Judi endeavoured to understand the vital role of trees down through history and into the future. In the course of her quest, she was joined by leading tree scientists and historians who helped her unlock the remarkable secret lives of trees and the stories that regrettably they are unable to tell. Through the cycle of the seasons, Judi discovers how trees feel; learns how they communicate and how they fight off invading armies and extreme weather.

In another segment Judi meets a designer with a special microphone that allowed her to hear the trees pulsing with life in spring, as water rushed up the trunks to the newly unfurled leaves. In another stanza, a scientist with 3D scanning technology was able to tell her that her favourite oak tree had some 260,000 leaves and a network of branches collectively exceeding twelve kilometres.

I pondered the thought that if my friend's dying tree could only talk, it could explain the mystery of its demise. Try to catch the film if you possibly can.

Finally best wishes to all readers for a healthy and prosperous new Financial Year.

# “Chemical warfare in the garden – where has it got us?”

WA horticulturist John Colwill reports...



Aphids - Squishnem



John Colwill

Ever since we have been eating plants we have been at war with other things that also eat plants, particularly insects. A long time ago this meant picking them off by hand - and it worked. Fast forward to the turn of the last century and the emerging science of chemistry which gave us new and powerful weapons. Three of them, cyanide, arsenic and nicotine.

Cyanide occurs naturally in many plants which use it as part of their defence against chewing insects. Some plants carry so much that they are poisonous to humans. The favourite cyanide weapon against insects was Hydrogen cyanide but it quickly lost favour as it was too dangerous to use and at times was not very effective.

Lead arsenate was the most popular form of arsenic, particularly with orchardists in their war against codling moth which went on for some 60 years before concerns

arose about the level of lung cancers among workers and the arsenic residue left on fruit. Surprisingly it wasn't until as recently as 1988 that the US Government officially banned the use of arsenic products. This particular war has left a battlefield of millions of hectares of land still contaminated with lead arsenate. Because it was colourless and tasteless, arsenic also featured in many accidental deaths and murders.

Nicotine was first used as a juice extracted from the leaves of the tobacco plant. Though effective, it never really became popular because people preferred to kill themselves by smoking the leaves rather than making liquid potions from them to kill insects. However, by 1900, scientists had extracted some isolates from tobacco that were then used to make insecticides that were in common use until the next big weapon hit the market in 1947.

That big weapon was DDT. It was a knockout. It was cheap, long lasting and killed just about every insect it came into contact with. It seemed as though the insect war was won at last but of course it wasn't really. DDT was used in a wide range of products and for a while seemed invincible. Then three patterns started to emerge. Firstly, after regular use, some insects seemed to not be affected by it. Secondly, and of ultimately far greater concern, it was found to be both persistent and also mobile, and thirdly, it was found to accumulate in fatty tissue. DDT was the first in a long line of organophosphate chemicals. It was banned for general use in 1972 by the US government.

Ignorem



Subsequently most organophosphates have now been banned or at least highly restricted. The insects were winning again. What to do now? Answer, invent a new type of insecticide. Enter the neonicotinoid group of chemicals, the best known of which is imidacloprid. Broad spectrum and systemic neonicotinoids have become the insecticide of choice worldwide but they too are under a darkening cloud.

While some have always relied on the latest wonder chemicals, others inspired by natural processes, have taken a new approach using natural predators known as biological control. This when mixed with select chemical procedures is known as integrated pest management. Interestingly it is research into biological control that has made us realise that for most of the past couple of hundred years we really haven't fully understood the problem. It turns out to be far more complicated than we thought. Take the case of the cabbage white caterpillar, the cabbage and the wasp. At first it seems pretty straightforward. Caterpillar eats cabbage, wasp is attracted by the smell of damaged cabbage and lays eggs in the caterpillar which then hatch and consume it from the inside before emerging to pupate. Gross, but then it was found that the smell of damaged cabbage is not only attractive to the wasp, it is also attractive to other insects like the cabbage moth which reasons that the plants defence mechanisms are already weakened so why not move in and finish it off. And the smell also attracts smaller wasps which like to lay their eggs in bigger parasitic wasps' larvae.

Complicated enough but now a team at Penn State University has found that that viruses are also playing a role in the plant-pest-predator relationship. The virus are transferred by the parasitic wasp to the caterpillar when



*Treadnem*

the eggs are laid in it. This virus suppresses both the caterpillar's and the plant's immune systems thus ensuring that the caterpillar will not kill the larvae inside it and that the plant will not prevent further feeding. Earlier research has also shown that viruses also cause the caterpillar to change its eating habits to ensure a better diet for those on the inside.

So where does all this experience and knowledge leave us? What do we use to control the insects now? I heartily recommend three products. Squishnem for soft bodied insects, Treadnem for tougher beasties and Ignorem for the rest.

These products may not solve all our problems but they certainly won't create any more?

If you're thinking about viewing this massed colour spectacle keep your eye on the rainfall reports. With WA's drying climate it happens a lot less frequently now than it used to, and there is another significant problem, weeds - millions of them. So many that people take photos of the weeds in bloom believing them to be wildflowers. Sadly nobody is doing anything about the weeds so it's likely that many of the ephemerals will join the threatened or extinct lists of the future.



**Australian Institute of Horticulture Inc.**  
*'Promoting Horticulture - the Profession of the 21st Century'*

An agenda of involvement with how our future horticulturists are trained and the standard of the trainers has always been a prime objective of the Institute.

Part of this program is to ensure that the Institute represents the widest possible interest in its practitioner members. There is an imperative to preserve and increase membership numbers.

'Three for Free' is a member promotion that asks existing members to 'sign up' three new horticulturists at lower than usual rates, in exchange for free membership for the 2018/9 year (a saving of up to \$440).

The promotion runs to July 31 and the response has been great says AIH Secretary Kim Morris.

Kim added that a parallel program of offering free membership of the Institute to any student studying horticulture has doubled the student body in the last year. The program is to attract, promote and mentor young students to take up a career in horticulture and have their Institute give them some help and backing.

Further enquiries to David Thompson at AIH membership@aih.org.au

# Retailer withdraws neonicotinoid insecticides

In what is considered in some parts of the industry as a 'knee jerk' reaction, Bunnings has removed all home garden neonicotinoid insecticides from its shelves in the UK and Australia.

Popular 'neonics' include Yates Confidor, Richgro Bug Killa and Defender MaxGuard.

While the company has not released an official statement on its decision, it is believed it was made in response to calls from consumers concerned about British bee populations. It has, however, admitted its decision was precautionary rather than based on any scientific evidence. Removal of neonics from the shelves has limited home gardeners' systemic insecticide options considerably.

There are several different classes of chemical in the neonic family, with just a few used in home garden plant protection products. The most common is *imidacloprid*, the active ingredient in Confidor and Bug Killa. Imidacloprid is considered to have the highest potential to affect beneficial insects like bees although there is no evidence its use has had any effect on their colonies or populations here in Australia.

One of the other chemicals in the group is the newer technology *acetamiprid*, the active in MaxGuard, which is said to be of extremely low risk to bees.



The Australian Pesticides and Veterinary Medicines Authority, the agency charged with the testing and registration of pesticides for domestic and agricultural use, conducted a review in 2014 but did not find any scientific basis for withdrawing neonics. It continues to monitor the situation.

It should be noted that the neonics that have been taken off the shelves are home garden products - many of the well-known neonics are still available for use by licensed chemical operators through agricultural and rural suppliers.

## Changes to Australia's green space revealed.

Scientists have answered the question, "Where should all the trees go?" through a study that investigated vegetation change across major Australian metropolitan areas and locations with abnormally high heat, socio-economic disadvantage and health concerns.

The study involved the use of high-resolution aerial imagery and heat, health, age-risk and canopy data to formulate an index for each Local Government Area. It provided a canopy cover health check to support the 2020Vision initiative – a collaboration which aims to increase green space by 20% by 2020.

The study gives local councils, schools, developers and the public a snapshot of the way their areas are tracking in the face of climate change and shifting urban environments.

Overall, the study found that greening had decreased by 2.6% across Australia.

Between 2009 and 2016, the nation experienced significant canopy cover loss but this was largely offset by gains in shrub cover (or saplings), representing a natural interchange between the canopy movement and shrubs.

To measure canopy cover, researchers utilised aerial imagery and a set of 1000 random sampling points generated within local government boundaries.



The urban heat island effect was estimated by measuring the difference in temperature between an urban and a corresponding non-urban area. Land surface temperature estimates were produced from satellite data approximately every two weeks during October 2015 and April 2016.

A liveability index was then created using data such as canopy percentage versus hotspot percentage, and 2011 ABS data including the Self-Assessed Health Age Standardisation Rates and Socio-Economic Indexes for Areas.

Download the full report: [2020vision.com.au/help-hub/the-research-hub/detail/?id=4059](http://2020vision.com.au/help-hub/the-research-hub/detail/?id=4059)

# NEIGHBOURHOOD TREE DISPUTES

*Fences, trees and noise  
- the 'top three' issues*



In his preface, The Hon PD Cummins AM, Chair of the Victorian Law Reform Commission says:

“ ... neighbour proximity and trees are not always a happy meld. In an increasingly urbanised environment, people’s decisions about their land and the trees on it can have significant effects on their neighbours’ homes and lives.

“Neighbour tree disputes are the third largest category of dispute that comes before the Dispute Settlement Centre of Victoria.

“Many people are involved in disputes about trees each year, including disputes about encroaching roots and branches and about trees which cause damage or harm. The methods for resolving such disputes — ranging from informal negotiation to litigation—can be unclear and unnecessarily confusing.”

Examples of the causes of disputes cited in the Consultation Paper are:

- Damage and interference to land and property by encroaching branches or roots, including damage to structures caused by falling branches and trees or roots undermining foundations, paths and drives
- Accumulation of leaf litter on neighbouring land which may result in blockages of gutters and drains and contamination of swimming pools resulting in algae
- Harm to people through health conditions exacerbated by pollen, flowers, leaf litter or fruits/seeds including breathing difficulties, contamination of potable water or physical damage from falling limbs, etc.

Neighbourhood disputes about trees can escalate quickly and damage relationships, not just between the directly affected parties but others within the immediate area. While it is always preferable to approach and respond to complaints in a respectful and constructive manner, sometimes reasonable negotiations simply don't work. The next step should be mediation at a community level. If that too fails, then 'official' mediation may be required.

Too often, tree disputes end up in one of the State Civil and Administrative Tribunals, Dispute Resolution Centres or in the Court system.

And frequently caught right in the middle of such disputes are arborists, landscape contractors and horticulturists, often called on by one or other of the 'warring' parties to undertake remedial work or by the mediation or judicial system to provide 'expert testimony'.

In this age of choosing litigation over negotiation, it pays for all of us to have a pretty good understanding of the appropriate laws governing trees and not-so-friendly neighbours!

Submissions to the Victorian Law Reform Commission in response to this Consultation Paper have now closed - we await the final report with much interest.



**F**ences, trees and noise - the 'top three' issues that pit otherwise friendly neighbours against one another in often bitter disputes that result in, at best, mediation and, at worst, drawn-out legal battles in court.

Last December the Victorian Law Reform Commission issued a voluminous Consultation Paper on neighbourhood tree disputes. Running to some 136 pages, it covers such things as:

- what defines a neighbourhood tree dispute
- examples of such disputes including impact on relationships between neighbours, damage and interference to land and property and potential as well as actual harm to people
- the resolution process in Victoria
- legislation affecting tree disputes
- common law
- planning laws and regulations including local tree protection laws and environment, transport, heritage and cultural protections
- how tree disputes are settled in other jurisdictions
- options for reform to the law pertaining to neighbourhood tree disputes

# The real value of trees

Our urban tree populations provide \$636 million of annual value to cities in the form of reducing pollution, smog and by combating the heat island effect, according to a recent study published by the online journal *Ecological Modelling*.

Urban tree populations have always held aesthetic value for many city planners and developers but now, as we look to the future and begin to face the effects of climate change, the value of trees could be substantially more than previously credited.

The study has estimated that trees in mega cities (defined as having more than 10 million inhabitants) provide \$636 million in value. This value comes through reduced air pollution, stormwater runoff, energy costs associated with heating and cooling buildings, and carbon emissions.

Ten cities were evaluated, with data collected from Beijing, Buenos Aires, Cairo, Istanbul, London, Los Angeles, Mexico City, Moscow, Mumbai, and Tokyo able to determine the overall value of trees.

The study also broke the value down into several figures:

- The present median benefit value from urban trees in all 10 megacities can be estimated as \$607 million per year due to reductions in CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> (particulate matter less than 10 microns and 2.5 microns respectively)
- \$14 million per year due to avoided stormwater processing by wastewater facilities
- \$0.6 million per year due to building energy heating and cooling savings
- \$10 million per year due to carbon dioxide sequestration

Commenting on the outcome of the study, co-author Sergio Ulgiati explained that: "A deeper awareness of the economic value of free services provided by nature may increase our willingness to invest efforts and resources into natural capital conservation and correct exploitation, so that societal wealth, economic stability and well-being would also increase."

Several international cities are aware of the benefits of incorporating mature trees and hedges into urban centres to capture pollution and combat the heat island effect. New York City, for example, is already allocating funds to increase green initiatives in the city.

In Australia, the City of Melbourne is also taking note of the immense value of urban canopies and using its \$1.2 million Urban Forest Fund to enhance tree establishment in the city.

Dr. Theodore Endreny of the College of Environmental Science and Forestry in Syracuse, New York, believes that more can be done worldwide to increase these efforts.

"If trees were to be established throughout their potential cover area, they would serve to filter air and water pollutants and reduce building energy use, and improve human well-being while providing habitat and resources for other species in the urban area," he said.

With many municipal bodies already taking notice of the value of trees, we may well see such an increase in our urban tree population in the years to come.



## Useful links & resources:

*(Please note: some of these addresses do NOT have 'www' in front)*

- Landscape Industries Association [www.landscapingaustralia.com.au](http://www.landscapingaustralia.com.au) (includes links to all State Landscape Associations)
- Nursery & Garden Industry Australia [www.ngia.com.au](http://www.ngia.com.au) (includes links to all State NGIs)
- Australian Institute of Landscape Design & Management (AILDM) [www.aildm.com.au](http://www.aildm.com.au)
- Australian Institute of Landscape Architects [www.aila.org.au](http://www.aila.org.au)
- Aborigiculture Australia [aboriculture.org.au](http://aboriculture.org.au)
- Dial Before You Dig Australia [www.1100.com.au](http://www.1100.com.au)
- Outdoor Design Source [www.outdoordesign.com.au](http://www.outdoordesign.com.au)
- Fitzpatrick & Co Insurance Brokers [www.fitzpatrick.com.au](http://www.fitzpatrick.com.au)
- Landscape Jobs Australia [www.landscapejobsaustralia.com.au](http://www.landscapejobsaustralia.com.au)
- Plant Safely [www.plantsafely.com.au](http://www.plantsafely.com.au)
- 2020 Vision [www.2020vision.com.au](http://www.2020vision.com.au)



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