

# ARMIDALE TREE GROUP NEWSLETTER

Number 106      Winter Edition

August 2016



**A Place for Trees in a World Affected by Climate Change**

**Dr Chris Nadolny**



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Cover Photo: *Previously cleared farmland regenerating back into woodland on Chris Nadolny's property north-west of Guyra.*

## **Editors note: 2016 Winter Edition**

Dear ATG Members and Friends Welcome to our 2016 Winter edition of the ATG Newsletter.

Our feature article this season has been written by one of our founding members, a past president and a current committee member, Dr Chris Nadolny. Chris is a very active and very experienced scientist and his article *A Place for Trees in a World Affected by Climate Change* he provides recent data and modelling studies that support our need to continue to plant trees and maintain tree cover if we are to tackle climate change.

Tim Collins (the ATG honorary Treasurer) provides an update of his new native hedge that is continued from Winter 2015. Tim has seen a lot of progress here.

A summary of the articles in this ATG Winter Newsletter

- *President's Report* by David Carr
- *Back to the Landscape for ATG* –our new project.
- *Renovations of the Woodland Centre* – some needy repairs and a notice of a working bee.
- *A Place for Trees in a World Affected by Climate Change* by Dr Chris Nadolny
- *Woodlands Burn* – keeping the Woodland arson free
- *A Kurrawong's Lament Part 2* by Tim Collins
- *Winter in our Garden* by Warren Sheather
- *Koalas on the Northern Tablelands* – workshops and sightings
- *ATG Members' Seed collecting Workshop* 17<sup>th</sup> September
- Tim Marshall Workshop on *Planning A Spring Garden* 10<sup>th</sup> September

Kerry Steller (editor)

## Winter newsletter – Presidents Report

Things are looking good for Armidale Tree Group this winter. We are in a sound financial position, having turned things round from a poor position 2 years ago – largely due to the work of Dan and the staff. Our staff changes and redefinition of roles is starting to pay off.

Now that we have finally had some decent winter rainfall, we have perfect conditions this Spring for planting trees. If you only plant trees every few years, this is the year, with excellent soil moisture creating ideal conditions. I encourage you to get your sites prepared now and your seedling orders in. If you need advice about preparation, give Dan a call. As well as giving advice, he can arrange everything from fencing, ripping, spraying and planting if you need.

We have a busy six months ahead, with lots of grants and partnerships supporting plantings, events and festivals. We will be completing two grants that support farm plantings: the 25<sup>th</sup> Anniversary of Landcare grant from the Commonwealth; and the Greengrid project with Transgrid and Greening Australia.

We have also joined with an organisation called “Do Something” to help deliver their “One Tree Per Child” project. They will fund nearly 13,000 trees which will be planted in a number of sites around Armidale in partnership with Southern New England Landcare, Armidale High, Northern Tablelands Local Land Services and UNE.

We are part of the New England and North West Regional Science Hub, which has received a Regional Science grant from Inspiring Australia to run ‘Woodlands Week’ in October and November. This will feature wildlife spotlighting, a wildflower walk, a birdwatching breakfast, a return of the ant blitz in the Mike O’Keeffe woodland and an insect drawing workshop. It’s all part of a broader program of events leading up to the Black Gully Music Festival on 12<sup>th</sup> November. This program, called ‘Escape in New England’ also features a science film festival, Frog Dreaming, a new exhibition of Aboriginal art at NERAM and four eco-artists working around NERAM and Black Gully.

November is a big month for the Tree Group as we host the Black Gully Music Festival in partnership with Sustainable Living Armidale, NERAM and others. We also plan to hold our popular Open Day at the nursery on 5<sup>th</sup> November, featuring tours, speakers and specials.

The nursery will be open on Saturdays again in September so get ready to stock up on your spring vegie seedlings, wildflowers and trees.

Finally, I would like to acknowledge the great work done over the years by one of our members, Angus Adair, who is leaving Armidale for southern

climes. As a stalwart of the Armidale Urban Rivercare Group, Angus has been a driving force behind the transformation of Armidale creeklands. He has pioneered new methods and significantly improved Armidale's environment. All the best.

## **Back to the landscape for Armidale Tree Group –our new project!**

For 33 years, Armidale Tree Group has been growing and planting trees and shrubs to restore tree cover, improve wildlife habitat, shelter farms and do something about dieback. From an initial target of 10,000 trees, ATG moved onto some big projects including planting 38,000 trees in the Malpas Catchment and 20,000 trees on the Armidale bypass. Along the way we have sold or planted hundreds of thousands of trees, shrubs and now grasses across New England.

But no matter how many we plant, we are still short on trees! We still haven't solved the problems we set out to tackle 33 years ago- dieback, climate change, habitat loss, loss of trees. Its time to move on to our next big project.

Over the next six months we will be launching a new fundraising campaign to support more plantings, bushland management and regeneration. Our plan is to focus on large scale projects to replace tree cover in dieback-affected areas, improve and expand habitat for koalas and increase wildlife corridors across the Tablelands.

The as-yet-unnamed campaign will work on sites on both public and private land. Our first site will be an urban forest on the creeklands in Armidale with a launch and a planting day in late November.

We plan to work with our members to select a limited number of sites or districts to plant trees and shrubs where they will provide koala habitat, replace trees lost to dieback or connecting existing bush patches. In doing so, we will also achieve many other benefits such as habitat for other wildlife, shelter for farms, carbon sequestration and creating homes for predators of pasture pests.

To fund the project, we will be seeking donations (tax-deductible), looking for corporate partners, applying for grants and encouraging partnerships to share the investment in New England's environmental future.

You can get involved by donating or volunteering. Please encourage your friends and family to join ATG (still only \$5) and be part of the next 33 years. Look for more information in the next few months as we work towards the launch of the project with a big community tree-planting in November in the Armidale creeklands

## Woodland Centre Renovations

Due to some water damage to the Woodland Centre from the outside glasshouse (built to provide a passive solar heating of the Centre) we needed to do some urgent work to preserve the mud brick structure. Marty Lawler was quick to provide a solution using double glazed windows (kindly donated by Moars Doors) to replace the northern wall to the Mike O'Keeffe Woodland Centre. A working bee to remove the wall was held and the large windows were installed in a day by Marty's builders. What an amazing transformation occurred to provide light to this area! Thanks to everyone who helped out. A working bee will be held on Sunday 11 September from 10am to clean and repair other parts of the centre. Let us know if you can help out by calling Dan at the nursery.



*Clockwise from top left:*  
1. Marty Lawler peeks through the first hole.  
2. Alicia Cooper chips away at it.  
3. John Lemon works steadily at removal while foremen Marty Lawler and Dave Steller discuss the finer points of demolition while Dave Carr hold up a window.





*The wall is finally removed. Dave Carr, Marty Lawler and Dave Steller inspect the gaping hole.*



*The crew: Chris, Alicia, Kerry, Rob, Struan, John, Dave and Josh. Dave Carr took the photo. A good morning's work.*

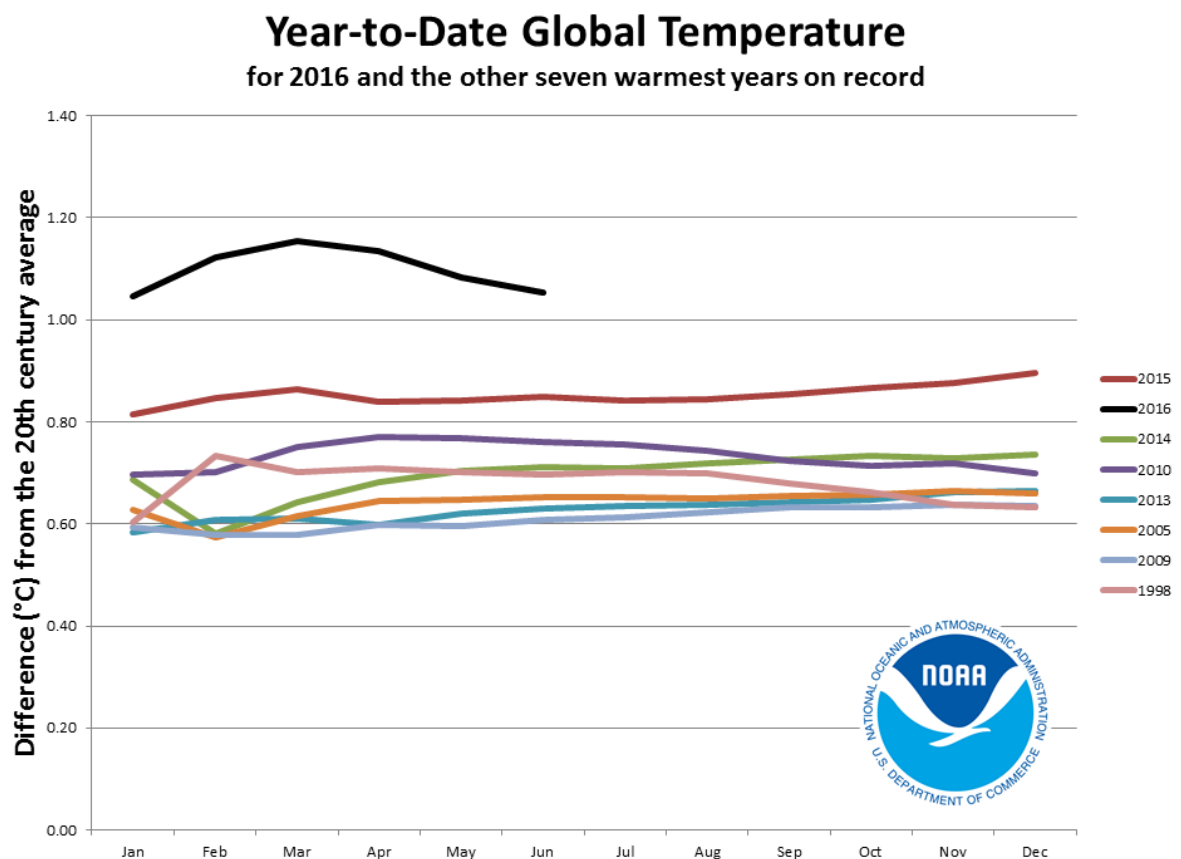
*Wow! Finished with new double glazed windows after two days!! Thanks Marty and your builders and thanks to Moar's Doors.*



# A Place for Trees in a World Affected by Climate Change

By Chris Nadolny

While you can still have a good argument in a pub about whether climate change is real, most people accept that climate change is happening. Worldwide, according to US Government figures, the first half of this year has been the hottest on record by a large margin, with 2015 being the hottest recorded complete year (see figure below). While the recent *El Nino* event certainly contributed to this warming, it appears that scientific predictions of global warming resulting from emissions of carbon dioxide and other greenhouse pollutants are being borne out.



This article is about trees and their role in our efforts to deal with climate change and manage its impacts.

Based on information by CSIRO, in Australia climate change is likely to result in:

- Increases in average temperatures (with an increase of 0.9° C since 1910 already recorded)
- Increases in extreme rainfall events
- Fewer but more powerful cyclones
- More extreme fire weather
- More prolonged droughts
- Rising sea levels and increased storm surges
- Warming oceans and increased acidity of sea water.

These effects will have lots of ramifications, affecting wildlife, coral reefs and the livelihoods, health and safety of many people. And that is just a start.

Our efforts to deal with climate change are usually classified as either: (1) *Mitigation*, which describes efforts to reduce emissions of greenhouse gases that cause climate change; and (2) *Adaptation*, which describes efforts to manage the impacts of climate change. However, in practical terms, this classification is rather simplistic and, for example, some actions result in both mitigation and adaptation.

### ***Trees and reducing greenhouse emissions***

For mitigation to work emissions need to be cut on a worldwide scale, because emissions can come from anywhere. So individual contributions are comparatively small, but will add up. Adaptation, in contrast, is important at every scale and involves everything, and can range from constructing buildings so they are better insulated or can withstand more intense storms to planning to avert famine on a continental scale. Or, from a wildlife perspective, linking remnants of vegetation so wildlife can migrate to places that are more climatically suitable.

Trees are important for both mitigation and adaptation and, as I will explain, also complicate the issue because they can directly affect climate.

The role of trees in capturing carbon-dioxide from the atmosphere is well known. In essence, roughly 50% of the weight of wood that has been dried out is carbon that was extracted from carbon dioxide in the atmosphere. Furthermore, since each molecule of carbon dioxide consists of two atoms of oxygen for each atom of carbon, roughly 3.6 tonnes of carbon dioxide is extracted from the atmosphere for every tonne of carbon added to the wood. Australian trees, such as woodland boxes and gums, usually have dense timber that weighs in the order of one tonne per cubic metre, so it is not uncommon for the wood in an old paddock tree to weigh over 5 tonnes. In addition, there is also carbon in the foliage and roots, and in soil organic matter that usually accumulates beneath trees.



The amount of carbon stored in Australian forests and woodlands ranges from a maximum of 1,867 tonnes per hectare recorded in mountain ash forest in central Victoria, to over 200 tonnes per hectare in typical dense sclerophyll forests to just tens of tonnes per hectare in sparse semi-arid woodlands.

Historically, loss of tree cover in Australia has been a net contributor to emissions, primarily due to clearing for agriculture, and this trend continues. According to *Australian National Greenhouse Accounts* figures, emissions from deforestation declined by 68% from about 140 million tonnes of carbon dioxide equivalent between 1990 to about 45 million tonnes in 2010, although recent figures are again trending upwards, primarily due to increased rates of clearing in Queensland. Undoubtedly, stopping such clearing needs to be part of our response to climate change. But there is also huge potential to capture carbon through revegetation.

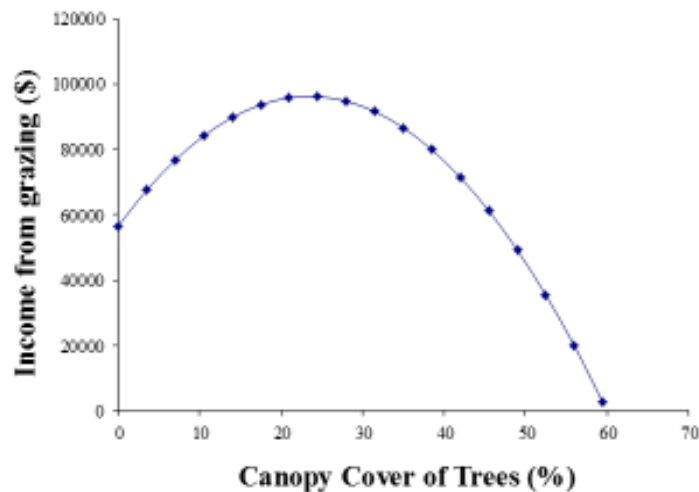
### ***The broader benefits of trees***

From a mitigation perspective alone, planting trees is a less secure means of reducing emissions, than, say, converting to renewable sources of energy, because planted trees may not survive, particularly if climate change means they will be subject to greater extremities of temperatures, drought, flooding, wind, wild fire and other sources of stress. However, from a broader perspective, trees also have the capacity to directly moderate climate, at a micro-scale, and almost certainly at a macro-scale as well, not to mention their value in providing habitat for wildlife.

Readers of this newsletter will be aware of the benefits of trees in terms of providing shade and shelter for livestock, and protecting pastures and crops (see the article by Sharon Brown in last summer's Newsletter). At least for grazing industries, there is evidence that income is greater in situations where there is moderate tree cover compared with situations where trees are absent altogether. For example, in an economic study of grazing properties in the Gunnedah district, economist Sandra Walpole found that properties with moderate tree cover were more profitable than properties with either too sparse or too dense tree cover (roughly following the trend in the graph shown below).

## GRAZING INCOME & TREE COVER

(Walpole 1999 - Gunnedah district)



The micro-climate within a forest is moderated by tree cover. Maximum temperatures are lower and minimum temperatures are higher. Small plants are protected from frost and humidity is increased. As part of an ecological study, I once placed maximum-minimum thermometers within rainforest near Dorrigo. I was surprised to find that after a full year the temperature had stayed within the absolute range of 5- 25° C, even though temperatures well above 30° C and below 0° C were recorded in town. This moderating effect of tree cover on maximum temperatures is most pronounced in moist forests and relates to the refrigeration effect resulting from the evaporation of transpired water.

### ***Direct effects of tree cover on climate?***

From an energetic perspective, tree covered landscapes actually absorb more solar energy than, say, grasslands, which tend to reflect most sunlight, especially if the grass is dry. So for many regions it is uncertain whether the overall direct effects of tree cover on temperatures is positive or negative.

**A role for urban forests in climate adaptation:** Concrete and tar also absorb more sunlight, without the compensating effect of cooling through transpiration, and can lead to a ‘heat-island’ effect in cities which exacerbates the effect of climate change. Heatwaves in cities can result in catastrophic outcomes. For example, the Chief Health Officer in Victoria reported that 3 consecutive days of temperatures exceeding 43° C in the lead up to the Black Saturday bushfires in 2009 resulted in 374 excess deaths in the State over what would be expected at that time of year. Another heatwave in January 2014 resulted in 167 more than expected deaths. As part of efforts to reduce the heat-island effect and provide shade and shelter for people, the City of Melbourne has embarked on program to increase the cover of urban forest from 22 to 40%. As well as protecting against extremes of heat, appropriately selected and placed trees also provide protection from wind and cold.

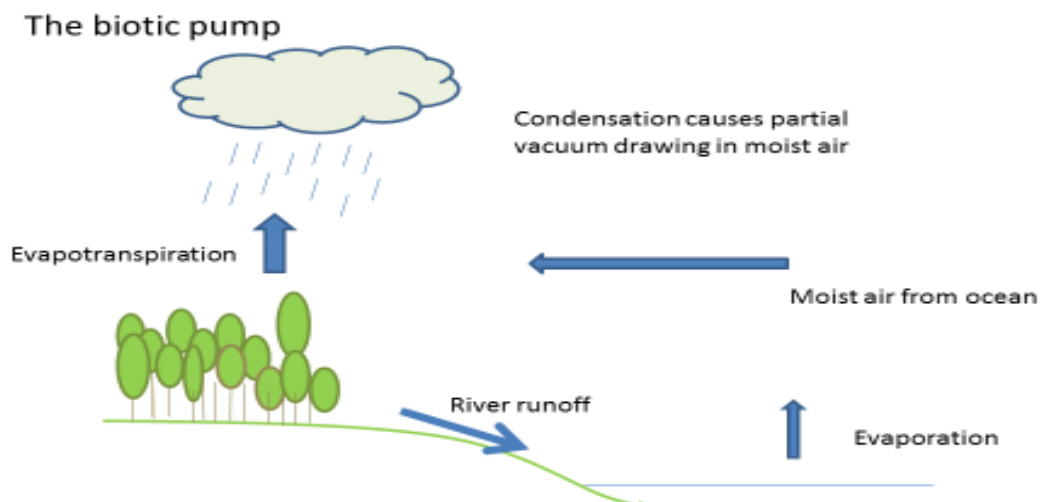
In contrast, substantial evidence is accumulating that rainfall increases with tree cover at a regional or perhaps even continental scales. For example, a modelling study in south-west Western Australia was initiated to determine the role of deforestation in a climatic shift to hotter and drier conditions that started in the 1970s and has persisted ever since. The climatic shift resulted in inflows to Perth’s water supply diminishing by 42%. The study concluded that the land cover change could explain 50% of the temperature change and all of the rainfall change [Pitman *et al.* 2004 *J. Geophys. Res.* 109: 1-12.].

Another modelling study led by Charles McAlpine from Queensland University used standard climate models to compare the influence of pre-European versus current land cover to determine the effects of land cover change. Land cover change was predicted to have resulted in an increase in surface temperatures of between 0.4 and 2° C in eastern Australia and a significant decrease in summer rainfall in south-eastern Australia. [McAlpine *et al.* (2007) *Geophysical Research Letters*].

These studies are interesting in the context of the standard hydrological model, which takes precipitation as a constant, so that river flow in a catchment equals precipitation minus evapotranspiration. This means if tree cover is increased, increasing evapotranspiration, then river flow is decreased. Of course, if precipitation is increased by tree cover then this standard model no longer applies. So how can tree cover increase precipitation? It has been suggested that if you consider the source of the water in precipitation, then precipitation would increase as the proportion of evapotranspiration that is recycled on land increases. For example,

evaporated and transpired water is known to recycle several times in the Amazon Basin.

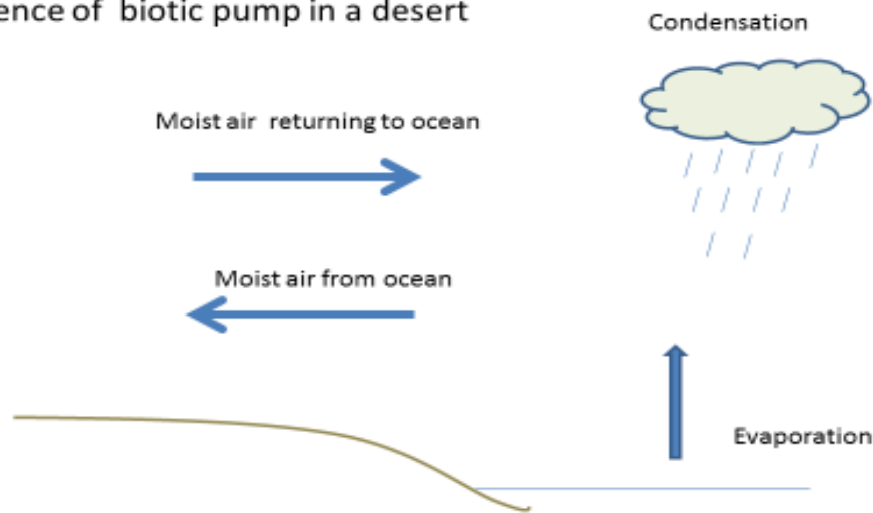
Climatologists have long puzzled over why rainfall does not diminish with distance from the coast in forested landscapes, such as Brazil and the Congo, where rainfall thousands of kilometres inland can exceed those near the coast. A new theory by Russian physicists Anastassia Makarieva and Victor Gorshkov called the ‘Biotic Pump’ provides an explanation for this and also predicts that precipitation may be much more affected by tree cover than current climatic modelling predicts. According to the theory rainfall does not diminish further inland because evapotranspiration from the forests can exceed evaporation from the sea. So, as the transpired water condenses over land it causes air pressure to fall, drawing in more moisture laden air from the coast. Continuous forest cover allows moisture-laden air to be drawn further and further inland (see diagram below).



Makarieva and Gorshkov have compared this to what happens in a desert landscape. In a desert the land surface is comparatively dry and sunlight tends to be reflected rather than absorbed, so evaporation from the ocean exceeds that from the land. Consequently, most condensation occurs over the ocean. This means more rain falls over the ocean and the comparative dryness of the land surface persists, so water flow in rivers remains minimal (see diagram below).



### Absence of biotic pump in a desert



Makarieva and Gorshkov have suggested that clearing on the scale that is happening in Brazil could easily result in a permanent shift to a drier climate that would mean that rainforest could no longer be supported. While many aspects of the theory are controversial and require more proof, and my explanation is over simplified, the theory provides a very different perspective on thinking about trees in the landscape and about climate change than is normally presented. [For a fuller description of the theory see Sheil & Murdiyarso (2009) How forests attract rain – examination of a new hypothesis. *Bioscience* 59: 341-347.]

As a lesson, and even acknowledging uncertainties, we should certainly be more cautious about the prospect of losing any more trees from our landscape, as well as think more seriously about the consequences of tree cover being reduced in other parts of Australia or, for that matter, other countries.

### *A path forward*

In writing this article I have assumed the reader already knows a lot about climate change and the urgency of tackling it. My key message is that if climate change is tackled in the most effective manner, then stopping deforestation plus restoring tree cover, in a way that enhances landscape function and minimises the impacts of climate change, needs to be a key element. The interesting thing about considering restoring tree cover from a climate change adaptation perspective is that the things we always advocated remain the same. It is still important to provide shade and

shelter for people and livestock, protect waterways and connect and expand habitat for wildlife. Given that the climate is already changing we need to be more cautious about choosing trees for a site (although looking at what is already growing is still the best starting point) and planning for contingencies such as wildfires. But the key message is to just do it.

*Chris Nadolny has worked in ecology and related fields for over 35 years. He is a founding member of the Armidale Tree Group and continues to be active in the group on the Committee and as a bushcare volunteer. He worked on eucalypt dieback at UNE in the early 1980s and on revegetation on farms in the late 1980s and has maintained an interest in these subjects ever since. Chris recently retired from employment as an ecologist at the NSW Office of Environment and Heritage where he focussed on the conservation and management of native vegetation, primarily in rural areas. He manages a property northwest of Guyra which he is restoring back to woodland.*

## Woodlands Burn

ATG and Armidale Fire Rescue conducted several burns of waste material from exotic tree removals within the Mike O’Keeffe Woodlands. Station Officer Wayne Zikan and his crew were most helpful in handling this problem before the arsonists could create a potentially dangerous situation. Many thanks to them for their help and professionalism.

**Dan Davies**  
**ATG Manager**



## A Kurrawongs Lament – Part 2

by Tim Collins

Last winter I wrote about the removal of an old privet hedge. It was very satisfying to see the old hedge go, but certainly we lost some privacy and the local Kurrawongs a food source! Since then a new fence has been built and in spring we planted 40 seedlings grown at the Armidale Tree Group nursery.

Before planting, the soil looked stony and low in organic matter. We prepared the soil by digging in some City2Soil compost from the council waste transfer station (aka “the tip”). I asked Rob at the nursery to pick out some shrubs suitable for a hedge. Rob selected a range of Bottlebrush (*Callistemon*) and species of *Grevillea* and included Blackthorn (*Bursaria spinosa*) and *Babingtonia*. These were about 30 cm tall and growing in either tubes or hiko pots, making them the cheapest plant size to buy at the Tree Group.

After planting we watered the new hedge with a “wetting agent”. This is a liquid added to the watering can that improves the penetration of water into the soil. It stops the water from running across the dry soil surface, and ensures that it soaks down into the soil where the plant roots are.



PHOTO CAPTION: These prickly seedlings are the invasive weed Mexican Poppy (*Argemone ochroleuca*) and appeared after the machinery that removed the hedge.

Despite the on-going dry weather, the seedlings have grown well over summer with occasional rainfall and hand watering. Whilst the seedlings were small when purchased, they have grown quickly to be about three times their original height. At this rate, I estimate that the hedge will be providing privacy, and flowers for native birds, three years after planting. There have been some deaths, creating gaps that need to be filled next spring, but overall I am happy with the survival rate. The best performers, in terms of growth and survival, have been the Bottlebrush (*Callistemon*) and Blackthorn (*Bursaria spinosa*).





PHOTO CAPTION: These Bottlebrush seedlings have tripled in size since planting five months ago.

I have also been selectively hand-removing weeds so as to favour the Wallaby Grass (*Rytidosperma racemosum*, syn. *Austrodanthonia racemosa*) that naturally occurs in my garden. This has produced a lovely meadow effect with its waving flowering culms.



PHOTO CAPTION: The flowering Wallaby Grass has the neighbours talking!

In one year, by removing the old hedge, building a fence and replanting with tubestock from ATG, we have transformed the garden and the appearance of the house from the street. In three years we will have an established hedge of native flowering shrubs.

*Tim has worked in native plant nurseries for 12 years. He is currently studying Honours in Botany at the University of New England and is Treasurer of the ATG management committee.*



## Winter in Our Garden

By Warren Sheather

Because of the range of native plants growing in our garden there is always something in flower. Winter is no exception with a number of plants flowering profusely.

Top of the list must be *Acacia flexifolia*, the Bent-leaf Wattle. This small to medium shrub has short, narrow phyllodes with a distinctive bend close to the stem (hence the common name). There is a small gland near the bend.

There are up to ten individual, bright yellow flowers in each globular cluster. In our garden the Bent-leaf Wattle has a long flowering period, starting at the beginning of June and extending until the end of August. This covers the winter period rather neatly. The flowers are followed by linear pods about 40 centimetres long.



Plate 1: *Acacia flexifolia* (Bent Leaf Wattle)

As with most wattles pruning is necessary to keep plants bushy and blooming bounteously. Pruning also prolongs the life of wattles.

*Acacia flexifolia* is propagated from seed that must be treated, usually with boiling water, before sowing. Cuttings could also be tried.

The Bent-leaf Wattle is a widespread species and is found throughout the western slopes and plains as well as central Victoria and possibly southern Queensland.

Our first encounter, with the Bent-leaf Wattle, was in the Binnaway area where we came across a roadside population in full flower. We were so impressed that we returned some time later and collected seed. There is a population along Thunderbolts Way near Abington. These plants develop into short, spreading shrubs usually less than one metre high. We are going to attempt to propagate these plants from cuttings. Because of their growth habit we feel that this population has great horticultural potential.

*Boronia crenulata*, the Aniseed Boronia, is a small shrub about one metre tall and the same width. The small, oval leaves have a strong aniseed scent when crushed. The four-petalled flowers are pink. In winter our plants are covered with blooms. In fact plants are seldom without flowers. The occasional tip prune is appreciated.

The Aniseed Boronia prefers well-drained sites and is happiest when growing amongst other plants.



Plate 2: *Boronia crenulata* (Aniseed Boronia)

*Boronia crenulata* is a native of the southwest corner of Western Australia and was first described in 1807 by Sir James Edward Smith. To confuse matters this species is often called “Pink Passion” in nurseries.



We find that cuttings produce roots readily. *Boronia crenulata* has proved to be hardy and free flowering in our garden.

*Hakea pycnoneura* is another species from southwest Western Australia. This species is not well known in cultivation but has proved to be hardy and free flowering in our garden.



Plate 3: *Hakea pycnoneura*

*Hakea pycnoneura* is a tall shrub reaching a height of four metres. The leaves are long, flat, leathery and 15 centimetres long. Flowers are carried in globular clusters that are crowded along the branches. Buds are purplish opening to purplish-pink with long cream styles. Flowers are perfumed, rich in nectar and attract honeyeaters. The flowering period extends through winter. The globular clusters are similar in shape to the better known *H. laurina* and *H. petiolaris*. Flowers produce woody fruits about two centimetres long with warty lumps on the surface. Each fruit holds two winged seeds.

We remember this species from a trip to Western Australia. The flower perfume was smelt long before we saw the plant.

Propagate from seed.



## Koalas on the Northern Tablelands

How many koalas do we have left on the Northern Tablelands? It seems that no-one really knows. While they are now a threatened species in eastern Australia, we don't really know if they are common or rare locally.

Northern Tablelands Local Land Services has commissioned two teams of researchers to find out more about local koalas. LLS can use this information to direct conservation efforts more effectively.

Stringybark Ecological, an Armidale-based business, will be searching in three specific areas of the Tablelands for the next 6 months and we need your help!

If you live in the Armidale-Uralla, Walcha or Nowendoc areas, we would like to hear from you about any koalas on your property or in your district. We are trying to find out where there are healthy populations, what sort of bush they live in and what trees they eat. To find out where they are, we will be searching for scats (poo) and noting the vegetation community where they are found. Any sightings we make will be added to the Atlas of Living Australia to build up a better picture of koala populations in these areas. A sighting recorded on your property won't restrict your land management; but it will help to preserve this iconic Australian species.



### Can you help us?

During September we will be conducting a series of workshops to show you how to find and record koalas. We would love to have you involved. You can help by:

- Signing up to attend a workshop,
- Allowing us to come on to your property to look for koalas (you can join us and we will show you how to spot scats, give you a tree species list and advise you on keeping your koalas healthy),
- Recording koala sightings directly to the Atlas of Living Australia (we'll show you how at the workshops).

Contact me directly at [dbcarr@stringybarkecological.com.au](mailto:dbcarr@stringybarkecological.com.au) or go to the website to register for a workshop or to arrange a koala search on your property [www.stringybarkecological.com.au](http://www.stringybarkecological.com.au). Alternatively you can contact Carina Johnson at NT LLS on 6770 2017 or [carina.johnson@lls.nsw.gov.au](mailto:carina.johnson@lls.nsw.gov.au).

**David Carr** (Stringybark Ecological).

*This project is part of the \$26.5 million of Catchment Action NSW investment that Local Land Services is delivering to enable better management of our water, soil, vegetation, biodiversity and cultural heritage.*



**Local Land  
Services**  
Northern Tablelands



A photograph of a person wearing a light-colored hat and a dark long-sleeved shirt, reaching up with a long green pole to touch a tree branch. The background shows a dense forest with green foliage and a clear blue sky. The text is overlaid on the image in red and white.

# **ATG Members' Seed Collecting Workshop**

**Saturday 17th September  
10am -3pm**

At the Woodland Centre  
Bring gloves, hat . lunch, secateurs,  
pen and paper  
Limited places - phone ATG 67711620

## **Tim Marshall workshop**

### **Planning A Spring Garden**

The ATG is excited to announce that Tim Marshall will be conducting a workshop at the Woodland Centre in September on planning a Spring garden. Tim is the bestselling author of four books and has been involved in international organic standards-settings and certification for 30 years.

*“Tim Marshall has long been a legend in Australia as an outstanding communicator, writer and broadcaster, specialising in organic techniques”*.-Peter Cundall



Learn how to plan and grow a spring/summer food garden in our New England conditions. Discover what and when to plant, how to select seeds and seedlings and successful garden design.

Bookings essential.

**Date:**10th September 2016, 9:00am-1:00pm

**Location:**80 Mann St, Armidale

**Price:**\$40p/p includes handouts and refreshments

To make a booking, please call the nursery on 02 67711620 to pay over the phone by card, or drop into the nursery anytime between 9-4, Tuesday-Friday.

## Membership Application/Renewal

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone: \_\_\_\_\_

Email: \_\_\_\_\_

**Payment method:** cash / cheque /credit card /direct credit

Membership is \$5.00 per year

Donation \$ \_\_\_\_\_

Please find enclosed my/our cheque for \$ \_\_\_\_\_

Make cheques payable to Armidale Tree Group Inc.

or

Please debit my credit card for \$ \_\_\_\_\_

**Card type:** Visa / Mastercard only

**Card number:** \_\_\_\_\_

**Expiry date:** \_\_\_\_\_

**CCV number:** \_\_\_\_\_

**Name on card** \_\_\_\_\_

Signature: \_\_\_\_\_

**To pay by Direct Credit Please remit payment to  
BSB: 932000 Account No...620682 (please tag payment as 'subs')**

[accounts@armidaletreegroup.org.au](mailto:accounts@armidaletreegroup.org.au)

**Donations over \$2.00 are tax deductible to The Armidale Tree Group Fund**

Date processed: \_\_\_\_\_

**Office use only**