



Some of the many visitors who came to our Open Day at the end of May

President's Message

The highlight of this last six months was our Open Day at the end of May. This was also the day we officially opened our new walking track in the Hoop Pine Forest. It was a marvellous occasion – hundreds of people came, the weather was perfect and the excitement palpable. Jenny Dowell donned her mayoral robes and officially opened the path for us.

We had devised a system where visitors were encouraged to carry small rocks up to the top of the new path and place them on the labyrinth which we are installing up there. This proved to be a very successful idea and some of the younger people ran up and down that track several times, carrying rocks and putting them in position. Our Education leader, Margaret Hildebrand organised a Teddy Bear's picnic for the little

kids and that too was very popular. There were lots of kids and their parents and lots of teddies and other stuffed toys – some quite enormous in size! With coffee and edibles available many of our visitors stayed around enjoying the morning in warm sunshine and the beautiful place our Gardens have become.

Special thanks must go to all the available committee – four of our key people were overseas on that day! - and other FLRBG members who pitched in and helped the day to flow well.

Since our last newsletter lots has been happening in other parts of the Gardens. The steep slope on the southern side of the Anniversary Path has been planted with a mix of mostly small rainforest trees and understory plants. The central area of the Sensory Garden has been planted. In March we planted a coastal plants Garden which special soil

mix in two raised garden beds. Thanks to Bunnings for supplying the timber for the beds and some of the plants. There has also been some additional planting in the Uncommon Plants Garden.

We are continuing our plant audit of the specimen rainforest trees. A maintenance plan has been devised for the rainforest areas, so that jobs are being done systematically and the Gardens are looking all the better for it. A new bush track is going in between Rooms 2 and 4 to take people deeper into the rainforest.

There is a lot of behind the scenes reorganising going on – with the guiding, administration, data base, education and nursery to name just a few. The Wednesday Work group continues to work miracles and the Sunday group, though smaller, is an important cog in keeping the Gardens growing and operating.

Marie Matthews

Species profile *Alphitonia excelsa* Red Ash or Soap Bush

Peter Gould

Family RHAMNACEAE



This multi-stemmed Red Ash is typical of regrowth trees seen in paddocks and roadsides



New growth showing the finely hairy underside of leaves, fine golden brown fur on branchlets and typical caterpillar damage.



The fine light grey bark of a young tree

The Red Ash is a widely distributed, common tree on the margins of Subtropical, Dry and Littoral Rainforest, Vine Thickets, Scrub, Eucalypt forest and Eucalypt and Acacia savannas. It is found from the Mount Gulaga (previously known as Mount Dromedary) area south of Narooma in New South Wales, west to Narrabri and through Queensland and the Northern Territory to the Northwest of Western Australia.

While generally a small to medium sized tree which can grow up to 35 m or more, it is a highly diverse species often occurring as a large shrub in forest on poorer soils. Floyd gives the dimensions of one exceptionally large tree in Koreelah State Forest as 42m. in height and 116cm. in diameter.

Leaves are simple, elliptic or ovate to oblong from 5 to 15cm long, dark, glossy green and finely veined above, with the underside being white with dense fine hairs.

The small cream-green flowers occur in terminal or axillary cymes. The fruit is a dull black, globular drupe containing powdery red flesh surrounding two hard cells each containing



Deep, rough fissures develop as the tree matures

several seeds. The hard, long-lived seeds are usually scarified to ensure germination, though some reports indicate that propagation is best from fresh seed with no special preparation required. Propagation by cuttings is effective.

The leaves of this tree contain high levels of saponin and Aborigines used the crushed leaves and berries as a fish poison. Saponin produces a soapy foam which deoxygenates pools, so stunning fish. Leaves were also crushed, mixed with water and applied as a head bath to reduce headache and sore eyes. Infusions of the bark and root were rubbed on bodies to reduce muscular ache or gargled to cure toothache. They have been found to contain anti-inflammatory chemicals.

Alphitonia excelsa is a food plant for the caterpillars of the Moonlight Jewel *Hypochrysops delicia* and Small Green-Banded Blue *Psychonotis caelius taygetus* butterflies.

It is an excellent tree for farm forestry producing a soft, straight and fine-grained red timber that takes a high polish - good for plywood, furniture, cabinetwork and veneer.

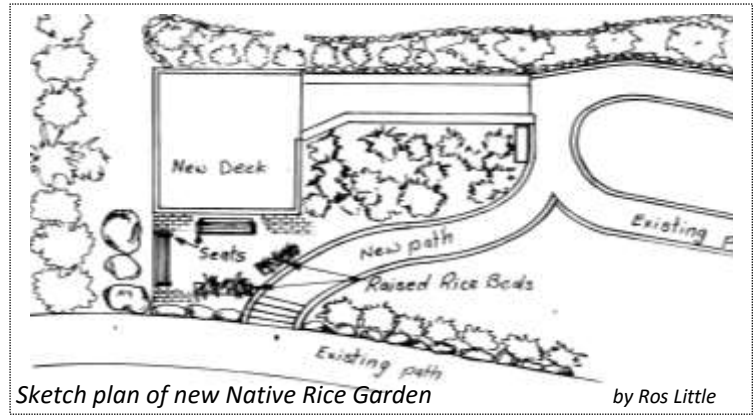
References:

- Floyd, A.G. 2008, *Rainforest trees of mainland south-eastern Australia*, Terania Rainforest Publishing, Lismore, NSW.
- Harden, G.J. (ed) 1993, *Flora of New South Wales, Vol 2*, New South Wales University Press, Kensington, NSW.
- Harden, G., McDonald, B. and Williams, J. 2006, *Rainforest trees and shrubs: a field guide to their identification*, Gwen Harden Publishing, Nambucca Heads, NSW.

Our team of volunteer guides is planning to run regular guided walks at the Gardens from early 2017. Currently they are working on preparing information sheets for training new guides. They need members' help to develop materials for this project - especially unusual facts, stories and anecdotes - firstly about species in the Useful Plants Garden but, as the program develops, about rainforest plants throughout the Gardens. They want these plant information sheets to be living documents that are revised and expanded as guides add material of their own. They also want to include lesser known facts about the plants to help make the guided tours more memorable for the participants. For example the commercial production of Tea Tree Oil dates back to the 1920s and it was standard issue to Australian soldiers in World War II as an effective treatment for foot fungus.

Please send your ideas for interesting anecdotes to Graeme Patterson graebo@gmail.com

Native Rice Garden



Sketch plan of new Native Rice Garden

by Ros Little

When Tony Blakeney, husband of our Guide training officer, Rosemary, died last year some of his friends and old work colleagues wanted to do something special to celebrate his memory, to commemorate the many years of research into rice... the *Oryza* species... with which he had been involved.

After a lot of thought it was decided to establish a Native Rice Garden at the western end of the Sensory Garden. It would also complement the Commemorative Garden planned for an adjacent area. This will be a garden which reflects the plants that were of importance to the many Australian soldiers involved in the two World Wars and other smaller conflicts throughout the world. Emphasis was to be on plants that actually grew in the war zones or their equivalent which are native to this area. And rice certainly fits into this category.

Strictly speaking none of these three plants are true rices but they are rice-like grains with potential for future development as food crops.

Dr Robert Henry has a lot of experience in this area and was able to steer us in the right direction. He knew where *Potamiphila parviflora* was growing wild at Casino.

So on Easter Saturday this year several car loads of us went out suitably attired in gumboots to search for wild rice in the Richmond River. It was a lovely sunny morning and once we had identified the plants it was relatively easy to collect several plants and take them back to our cars. Easy might be an exaggeration – they were easy to find but actually dislodging from the rocks to which they were attached – often in fast running water – was something of a challenge. But Florence in

particular proved very handy with the spade and soon we had a good collection. Various people have taken them home to care for till we are ready to put them in the new garden.

The two other species we plan to use are *Leersia hexandra* which along with the *Potamiphila* will go in special self watering tubs in sunny positions, and *Microlena stypioides* which will be planted in the ground in a shady spot. It grows naturally at the Gardens so there will be no trouble finding enough suitable plants.

We plan to have a couple of garden seats around a small paved area bordered by the rice tubs, with a path linking the garden to the main Sensory Garden and the Commemorative Garden deck. It is a lovely area and this garden will enhance it even further.

Special thanks must go to Dr Barry McCleary, David Tomlison and the Blakeney Family for their generous support of this project.

Research into using Australian native plants for large scale rice production has been underway for over 20 years, especially in the Northern Territory. In a recent report on ABC rural radio Dr Robert Henry indicates that wild rice from Cape York has links to varieties domesticated in Asia, and could help to establish new rice growing regions in Australia's north. The report concludes that the varieties of rice grown today have genetics that can be traced back to 'uncontaminated' wild rice from Australia's remote Cape York. <http://www.abc.net.au/news/2015-09-11/wild-rice-australia>

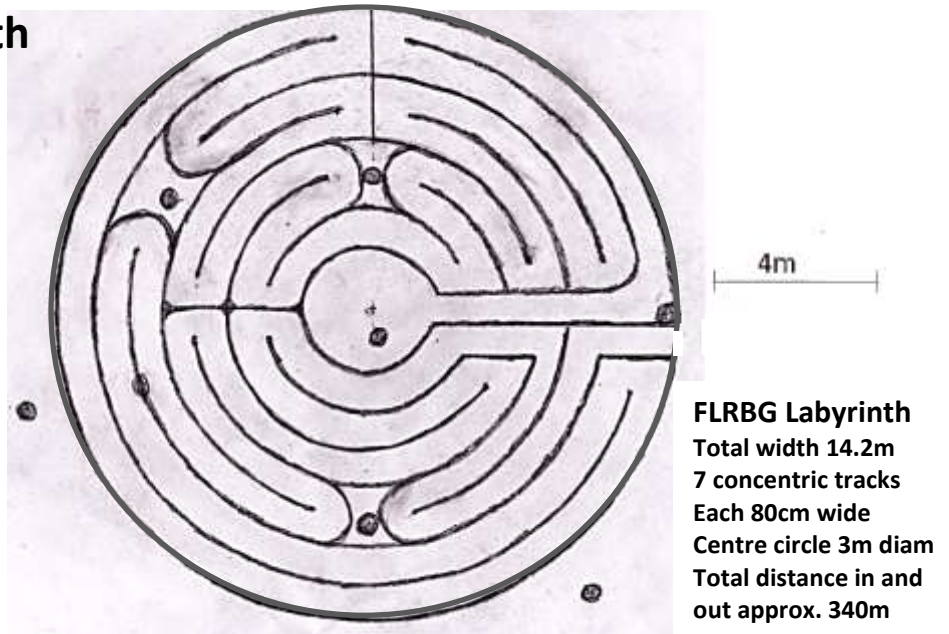
The making of a labyrinth

by Denis Matthews

It was rather exciting last year when it was decided to open up the Hoop Pine Forest with a well graded track. And when we discovered a rather special open area at the summit it was suggested that we establish a labyrinth there. But how do we go about building a labyrinth... especially as the area contained large thirty year old Hoop Pine Trees? And we definitely didn't want to remove any of the trees!

I browsed the internet looking for designs. A circular pattern seemed best. The labyrinth on the floor at Chartres Cathedral involved 12 concentric circles. I found it still worked with just 8 circles.

I thought that I could plot the positions of the trees accurately enough just using compass and tape measure. If I had a scale drawing of the trees I should be able to draw a labyrinth to fit among them. This was only partially successful as we found when we began to draw the pattern on the ground. Our first outside circle was too big – so back to the drawing board. This time the diameter of the inner circle was reduced as was the width of each track. When Mary and Marie started again they



moved the centre of the circle a short distance, then they drew eight circles on the ground using a spray can and patiently shifting their string radius to avoid the five trees that interfered with most of their eight circles

What had seemed impossible at first was suddenly a reality. It was remarkable that not one of the six trees involved interfered with our plans. The plan shows that three trees were used to determine points where a walker should change direction and move to an adjacent track. Other such "turning points" were marked with large stones many of which were found partially buried in the tracks. With the basic pattern in place we walked the labyrinth and scrubbed out a few lines we had accidentally painted. And we had our labyrinth design on the ground and ready to place the stones!

Placing the Stones

The Labyrinth is at the top of the walking path and although we did have a fair number of appropriate stones nearby, most of the stones were to come from a heap at the bottom of the hill. How to get them to the top? We didn't have any motorised transport small enough to get them there. Then we came up with idea of inviting

people to carry stones to the top and place them in position. We provided small carry bags for those who wanted them and encouraged people to carry one or more stones to the top and place them in position. At the top they could sign their name in the Labyrinth Builder's Book.

My job on the Open Day was at the top of the hill and it was such a thrill to be up there in such an exciting atmosphere. Enthusiastic visitors arrived carrying stones of all sizes. Not only was there great variety in the stone size, but also in the people bringing them - they were of all ages. We even had a child arrive in a stroller. That mother deserves a medal! My job was to greet people and make sure that they were placing the stones in the right places – the lines were clearly marked with white paint. We also invited children, who wanted to, to put their name on the stone they placed, using a paint pen. But there was such a great demand for that pen that I decided to be their scribe and that worked really well. I had an offsider, Leanne, and she looked after the actual book signing.

I was amazed at some groups who made several trips up the hill carrying stones and returning for more. A barrow load of stones had

been wheeled up there by one of our volunteers. All it took was a suggestion and suddenly that heap of stones was moved to mark some of our circles. It was wonderful to see people of all ages joining in the experience. But those school aged kids entered so whole heartedly into the spirit of the exercise that they created a special wave of enthusiasm and encouragement.

The response of our visitors that day was just amazing. They were excited about the whole idea and by lunch time we had two thirds of our stones in position! After placing their stones many people walked the labyrinth. There were times when the whole space seemed to be full of people. It was a privilege to be up there on the hill and to witness the wonderful spirit of cooperation. The suggestion that people be invited to carry stones to add to the Labyrinth was surely inspired. That Labyrinth will be owned by the people of Lismore, especially those who helped to build it. And the process of building it is still going on!

Labyrinth history

The history of the labyrinth goes back a very long way. The earliest examples dated to the Neolithic and Bronze Age periods. The same design, was found on coins from Crete from the first few centuries BC. During Roman times the labyrinth was used as a decorative symbol on the mosaic floors. They were also constructed outdoors as a playground for children and as a test of skill for soldiers on horseback. During the medieval period the labyrinth developed into a more intricate form. It often related to religious belief and was laid in coloured marble and tiles on the floors of cathedrals. The most famous is at Chartres Cathedral, where the labyrinth constructed in the early 13th century survives to this day. During the late 20th century labyrinths were rediscovered by a new generation.

Adapted from article by Jeff Saward
http://www.labyrinthbuilders.co.uk/about_labyrinths/history.html



What pollinates our native sub-tropical species?

Adapted from article by Dr Geoff Williams: 16 Dec 2013 On Australian Museum website.



Image Hover Fly *Ceriana* sp. On *Leptospermum* flower Photo Ozwildlife

Pollination in Australia's subtropical rainforests seems to be carried out primarily by much smaller creatures than bees, birds or bats. For almost 20 years Drs Geoff Williams (Australian Museum) and Paul Adam (University of New South Wales) have been investigating one of the most intimate yet essential of natural phenomena – the pollination ecology of plants. And in particular, the pollination of trees and shrubs in the scattered, and often remnant, subtropical rainforests of northern New South Wales. Many of the species growing here are of such significance that they have been accredited with World Heritage status. In their research, these two scientists found that in NSW the vast majority of woody rainforest plants, be they towering canopy trees, or diminutive shrubs of the shaded understorey, were pollinated solely by a diverse range of small insects, most of which are less than 5mm in length. And though the popular view is that birds and bats are important pollinators, in reality relatively few flowers that they encountered in subtropical rainforests were adapted to be pollinated specifically by vertebrates of any kind. Even native bees, as distinct from the introduced honey bee *Apis mellifera*, don't play the significant pollinator role that the public ascribe to bees in general (but this

could this reflect competitive displacement by the exotic bees)? Bats, specifically flying-foxes, as pollinators in subtropical rainforest are normally totally absent, restricting their visits mostly to flowering plants in eucalypt forests and open woodlands. And even where birds visit flowering subtropical rainforest plants their choice of plants is very broad. Often their visits are aimed at feeding on insects, or the developing fruit. Relatively few flowering subtropical rainforest trees and shrubs have large, bright or resplendent flowers. Instead their flowers are usually small in size, and white or cream coloured, with open floral structures that are accessible to a range of visitors.

Individually, such flowers produce only small quantities of nectar and/or pollen which acts as an ecological 'filter' against animals that require large quantities of floral resources to survive.

The insects participating in generalist pollination strategies are primarily beetles, flies, wasps, and to a degree, bees. However, it was also discovered, in a few instances, that ants appear to be important in facilitating pollination. This is contrary to the prevailing view of most pollination ecologists that ants are poor pollinators.

Many of the smaller insects found at flowers are relatively inefficient pollinators, and their frequency of movement between and within flowering plants is probably low. Therefore, as subtropical rainforest fragments are becoming more and more isolated, ensuring that pollen from one plant reaches another individual of the same species is likely to become increasingly challenging.

Ref: Geoff Williams and Paul Adam, 'Plants and pollinators – an essential partnership in subtropical rainforest', Australian Plant Conservation 22(2): 5-7.
<http://australianmuseum.net.au/blogpost/science/amri-pollinators-australias-subtropical-rainforests>

Smaller RF Plants

Kangaroo Apple *Solanum aviculare*
Family Solanaceae

Kangaroo Apple is an erect soft-wooded short lived shrub 3 to 4m high. It is only sparsely hairy with no prickles. The dark green leaves are variable, some lobed and looking like a kangaroo foot while others are entire. The lobed leaves are commonly found on young plants and on the lower parts of older plants. They are up to 30 cm long and the lobes 1 to 10 cm long, 0.5 to 2 cm wide. The entire leaves are lanceolate up to 25 cm long, 1 to 3.5 cm wide.



The blue violet flowers, typical of this family, are on long stems followed by berries 10 to 15mm, ripening in summer to orange red. The fruit is attractive to birds which aid in its dispersal. Ripe fruit is common bush food. However, the leaves and unripe fruit are poisonous. They contain solasodine which is used in the production of cortisone and other steroid drugs. Kangaroo Apple is cultivated extensively in Russia and other eastern European countries for this purpose, though New Zealand is the main producer. Leaves were used as poultice for sore joints by Aboriginal people.

Kangaroo Apple is a common colonizer of disturbed and bare areas in rain forest and surrounding moist bush land from Victoria to North Queensland, it is also found in Lord Howe Is., New Caledonia, New Zealand, Norfolk Island and PNG. It is suitable for fast growing cover for regenerating rain forest. Seeds require fermentation before germinating. Ref: *Rainforest Plants* 5, H & N Nicholson
<http://www.australiangeographic.com.au/>

From the Earth to the Cloud

By Danielle Teague



As a relative newcomer to the Friends, I am grateful for the warm welcome extended to me by all those who volunteer their precious time at the Botanic Gardens, whether on the Committee, developing and maintaining the Gardens, conducting Guided Walks, or propagating in the Nursery. When I first spoke to President, Marie Matthews, and Organiser, Ros Little, I said that whilst I didn't have any particular plant knowledge or skills, what I could offer was business knowledge and skills to improve the running of the Friends.

Attending my first Committee meeting with the Friends, I was very impressed by the level of commitment and enthusiasm shown by the group towards the Gardens. Whilst the group were extremely good collaborators to get projects and activities done, there was definitely a need for improved methods of communication and storage of information. The Friends have now moved to the cloud.

Introduction of cloud computing

The Friends have now implemented cloud-based software, Microsoft Office 365 Nonprofit and Reckon One, to assist the running of the organisation. The benefits of using cloud computing include flexibility, automatic software updates, capital-expenditure free, increased collaboration, work from anywhere, document control, and security. The Friends are now able to work from any location and device connected to the internet.

As a registered charity, the Friends were able to access Microsoft's

Product Donations program and Office 365 Nonprofit for zero cost. Office 365 Nonprofit E1 provides access for unlimited users to Office web applications (Word, Excel, PowerPoint,

Outlook, and OneNote), individual and shared document storage, personal email addresses, intranet, and collaboration tools. The Office 365 portal provides the committee with a set of professional tools and a central point for all files and communications.

Setting up and implementing any new system involves careful planning and training to help users learn new methods of operation.

An Introduction to Office 365 Workshop was held at the Lismore City Environment Education Centre on 18th June. Many thanks to the Lismore City Council and Northern Rivers Waste for allowing the use of facilities and internet connection to run the workshop. The workshop was well attended and highly interactive. Participants learnt how to sign into the portal, send emails to individuals or the committee, and explored the intranet including document storage (creating a report), form and picture libraries, group calendar, contacts, and newsfeed. Many thanks to my very ET literate daughters, Jocelyn and Charlotte, for their technical assistance and help in answering queries on the day. A follow up workshop was held on 6th July for anyone who had missed the first session or wished to refresh. The transition to the Office 365 was finalised on 16th July.

The Friends have also been busy upgrading their financial recordkeeping to Reckon One cloud-based accounting software. Whilst a number of options were considered, Reckon One provided the most

features for minimal cost, and is customisable if the needs of the organisation change. The software is easy to use and has improved financial recording and reports for the committee.

Whilst, the introduction of Office 365 and Reckon One cloud computing has brought new and affordable means to conduct operations, the software provides the Friends with a firm foundation to incorporate future technological improvements.

Nursery plant sales



We have had two very successful plant stalls during the last six months. The one in April proved to be the best we have ever had! Great plants and a very enthusiastic and hard working nursery crew helps boost the popularity of these stalls.

We will be relocating the nursery later in the year and another sale is planned for Thursday 29 September at our usual site at the corner of Carrington and Magellan Streets in Lismore CBD. Because of the move we want to reduce the number of plants we have in stock and so prices will be particularly good for this sale.

There are some very interesting young plants which will be ready for sale by then. *So put it on your calendar.* We will send out reminders closer to the date.

Death of well known local naturalist



Dave Mason (right) with Dr Calder Chaffey and Hazel Hawke and very early FLRBG event in January 1995

North Coast naturalist and supporter of Lismore Rainforest Botanic Gardens, David Mason, died on 15 March 2016. He is survived by his wife, Eva and two daughters Wendy and Hazel. He lived at Coraki for many years before retiring to Valla Beach in 2004. He is especially remembered at the Gardens as the author of two local native plant books, *The Blooming Grevillea* and *The Blooming Banksia*. These definitive texts were written between 1997 and 1999 to describe those species endemic to the North Coast. David was a frequent visitor to our Gardens and several years ago, donated the rights and royalties of his two books to us.

More recently he had been revising and updating the text of both books and, in fact, resisted the advance of cancer until he had completed these revisions! The new editions, printed in colour, were picked up from the printer on the day he died and are now available for sale from the Friends of the Gardens.

In his early days David and his wife Eva, often in the company of botanists Keith King and Dr. Calder Chaffey, explored most national parks and flora reserves in an area

bounded by Stanthorpe, Goondiwindi and the Mid North Coast. In fact he was photographing species in the New England area to within a few weeks of his death. In 1994 an unnamed and endangered grevillea was discovered by him growing only between Lawrence and Whiporie. He submitted it for registration. The shrub, which is less than one metre in height, with pink/purple flowers was named in his honour as *Grevillea masonii*. Many of these plants are now thriving in our Gardens, along the lower end of the Anniversary Path. They flower prolifically and attract small birds.

David was an executive committee member of the Australian Plants Society (Far North Coast) and served for some years as its Treasurer. In the late 1990's David and Eva sold children's textbooks to North Coast and New England schools through their bookshop in Keen St. Lismore.

Geoff Walker

Revised Full Colour Editions

NOW AVAILABLE

Blooming Grevillea

Blooming Banksia

by David Mason

and

Blooming Orchid

By John Moye



\$15 each

For further information contact
secretary@friendslrbg.com.au



The idea of attaching an identification tag at eye level, directly to a small branch, is seen in many European Botanic Gardens. Florence Trevorrow found this one recently at an arboretum located near Tetbury in Gloucestershire, UK.

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Chimes installed in the Hoop Pine Forest

One of the features we have installed in the Hoop Pine Forest are The Chimes.

These Chimes were made by Nev Lloyd and Rod Little from the Men's Shed at Dunoon.

When Nev found an old trampoline being thrown out by one of his neighbours he immediately saw the possibility of rescuing the frame, cutting up the piping and making a set of wind chimes. They had already successfully made a marimba. The idea expanded into making the pipes into tuned chimes and, eventually, having them installed in the Botanic Gardens.

Nev did the cutting and Rod the tuning, and for several months the chimes hung in Rod's garage making their own music each time they were touched. Eventually it was decided that they belonged here in the Hoop Pine Forest.

They were installed by Don, Will, Grahame and Mike of the Wednesday group, using recycled treated pine posts. The tuning may not yet be perfect but you can definitely get a tune out of them.



Will, Don and Graham installing the chimes



Volunteers at work in Sensory Garden

Our plans for this coming year

Our first task is to complete the viewing platform at the pond in the Sensory Garden. Construction is well under way and we hope that it and the landscaping of the pond will be complete in the next couple of months. Our next big task is to re locate our nursery. This involves dismantling and reconstructing the shade house , upgrading the entrance road and building a potting shed. Before that move takes place we want to build a new and bigger tool shed and plan to use the old shed as a temporary store for the nursery supplies. The Native Rice Garden will be going in and we hope to at last get started on the Commemorative Garden viewing deck. We have a new Visitors Centre at the first car park. That has to be outfitted, and work is already happening re that job. We would like to seal the rest of the Anniversary Path from the entrance to the Sensory Garden down the hill to link up with the path from the Education Centre to the Education shelter – giving us a sealed loop path in that section of the Gardens. We also have plans to start work in the old quarry at the high western end of the Gardens. It has been a dream of Geoff's for many, many years to make this a fern and palm garden, with a path above and through it. We are just starting to work out how exactly how to do this. We have received a grant that partly covers the cost of a Cool Cubby in a children's play area. That and other features are to go into the picnic area near the barbecue. We hope to install a security system, and there will be more planting in several areas. And these are just the main things. Obviously a very busy year ahead!!

Looking At Overseas Botanic Gardens

Recently I visited botanic gardens in London, Cornwall and Edinburgh. The following ten observations seemed to be common threads.

1. Regular reviews of the Master Plan and its two objectives : short and long term.
2. Keeping in tune with modern environmental challenges. *Do not copy botanic gardens of bygone centuries.* What should we be showing to to-day's child
3. Have smooth paths with very few steps. Major paths should be 3-4 metres wide.
4. Climate change demands heavy annual mulching well out from the plant stems.
5. Keep all signs free of bird-dirt and mildew, always recently painted, and indicate at car parks, the location of toilets and bubblers .
6. Have summer shade fall on garden seats. Install many seats through the Gardens with more resting places beside the steeper paths.
7. Remove "lingering" and dead plants as soon as possible.
8. Small identification labels should hang at eye height from the edges of selected trees.
9. *Many* vandal-proof donations boxes at major points e.g. car parks and near toilets.
10. **Keep refreshing the appeal of The Gardens** - how can The Gardens attract families? e.g. volunteer guides on duty, regularly during the school holidays.

Geoff Walker



Geoff has been in the news recently. First he turned 90 which was pretty impressive, then he and his daughter went off to Europe for six weeks and also he made it onto the front cover of Lismore City Council's Local Matters newsletter. In the photo above he is about to cut his cake at the FLRBG Nursery on Tuesday work morning. They didn't dare put on 90 candles – danger of conflagration! - so instead put 9, one for each 10 years of his life!

**Happy Birthday
Geoff from all of us
at the Gardens**

Geoff Walker, a long-time volunteer with Friends of the Lismore Rainforest Botanic Gardens, recently turned 90. Happy Birthday Geoff!

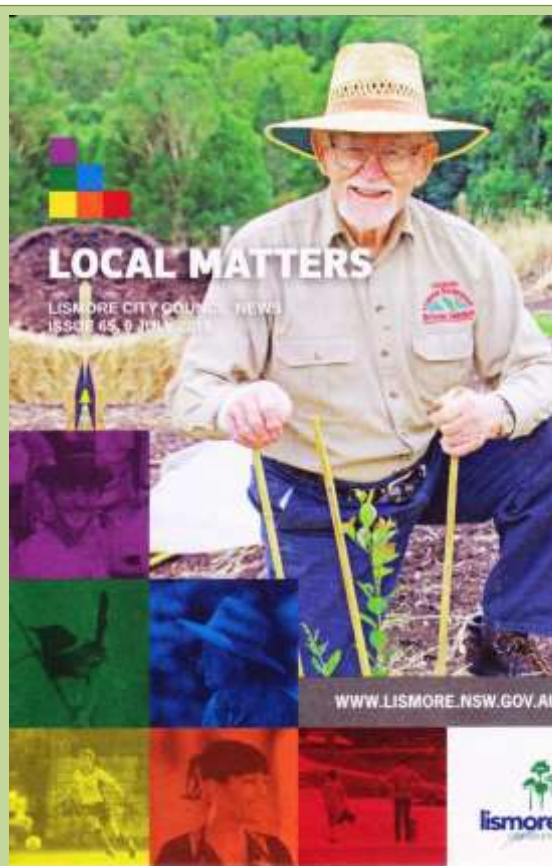
Geoff was originally a member of the Society for Growing Australian Plants and when the idea for a botanic garden was first suggested many moons ago he immediately got involved, recruiting others to the cause.

The Friends of the Lismore Rainforest Botanic Gardens eventually took over management of the gardens and Geoff has continued to help grow and shape the project and the landscape.

Today, Geoff is still the first one there to open the gates on the monthly workday and he also propagates and pots new seedling for the gardens, waters plants and even cleans the signage.

Geoff got a bit of a shock recently when Council tried to implement a registration of all volunteers. The forms state you have to be 90 or under to volunteer, which worried Geoff, as he had no plans of retiring at 91! Thankfully we have sorted out this little hiccup, and Geoff is free to keep tending his beloved gardens for as long as he wishes.

Many happy returns Geoff... we hope to see you volunteering until at least 100! *Editor LCC Local Matters*



From Local Matters LCC 6 July 2016

Bulbophyllum minutissimum

One of the smallest native orchids in Australia, *Bulbophyllum minutissimum*, is also one of the tiniest orchids in the world. It resembles a lichen in appearance and growth habit and its flower is reddish and only .3cm in size. According to PlantNet it is not considered rare being found 'growing on trees and rocks in rainforest to dry sclerophyll forest in coastal districts north from near Milton on the south coast to northern NSW, from sea level to around 300m altitude.'

There is an even smaller orchid with cream flowers *Bulbophyllum globuliforme* which has similar growth habit and is found in the McPherson Ranges at altitudes from 300-600m... mostly on the upper limbs of rainforest trees especially Hoop Pine *Auracaria cunninghamii*. Over time *B. minutissimum* has been mistaken for *B. moniliforme* which is native to south east Asia and has often been labelled wrongly. In fact Kew Gardens had these two plants confused for several years!



Photo John Moye. The tiny red orchid flower is barely visible just left of centre in the photo

An interesting feature of the *B. minutissimum* is the history of its discovery. In an article in Australasian Native Orchid Society in August 1984 John Moye detailed the story of this plant's discovery. In 1849 Archdeacon King discovered it growing on the top of a rock below a waterfall in Mr William Macleay's garden at Elizabeth Bay in Sydney. The plant is not mentioned again until 1857 when well know botanist Baron Ferdinand von Mueller is shown the orchid in Mr MacLeay's garden in Sydney. Then in 1878 Charles Fawcett discovered the orchid at Ballina and sent Mueller a sample for confirmation of identification - twenty years after its original discovery. Information

about this orchid was published in 'Australian Orchids' by R D Fitzgerald in 1884. In 1943 Rev HMR Rupp, in 'Orchids of New South Wales', also gives Ballina as one of two locations where it had been found. In 'Australia's Indigenous Orchids' by AW Dockrill, (first published in 1969) it is stated that the orchid is 'distributed sporadically from Clyde River in southeast NSW to the extreme south east of Queensland and suggests that a 'favourite place to find it is on large Ficus trees which have been left standing in open paddocks,' but it makes no reference to the abundance or scarcity of this plant. Since this article was written in 1984 John Moye has located the plant at several locations within the Ballina Shire growing as a lithophyte. He also found it growing in the Cana Gorge National Park in Central Queensland. Plants were collected from a huge fallen Moreton Bay Fig near Wollongong and it has been seen growing on fig trees in the Cessnock area. Though not rare its diminutive size makes sighting of this plant a rarity.

<http://plantnet.rbgsyd.nsw.gov.au/>

Article by John Moye in Australasian Native Orchid Society August 1984

Can forests affect the weather?

Forests play an important role in regulating the earth's temperature and weather patterns by storing large quantities of carbon and water. This regulatory function has a profound effect on both the local and the global climate. Locally, trees provide shade, which in turn lowers summer temperatures and prevents the soil from drying out, they reduce heat loss from the ground in winter and reduce storm damage by providing shelter from wind.

But there is another layer to the role of forests in weather regulation. Biological ice-nucleation. Water can evaporate at very low temperatures but water vapour needs something on which to condense. Water droplets will not form without some nucleus even if the conditions are otherwise right. It is the very impurities in the air which can act as nuclei. And if droplets don't form then water will not fall back to the ground as snow or rain.

Many different types of particulates in the atmosphere can act as ice nuclei, both natural and those resulting from human activity. In relatively recent times it has been discovered that bacteria and fungi from plants and the humus in soil are also an important nuclei. Because they have little mass they float easily to great heights in the atmosphere. And they increase the temperature at which ice will form in a cloud mass. However, the exact nucleation potential of each type varies greatly and very little is known about their overall importance for global climate through cloud formation.

The search for ice nuclei has long been a pre-occupation of the atmospheric sciences but relatively recent interest in these biological ice nucleators has propelled this search into the limelight. In 2006 a group of scientists from the Life Sciences and Earth Sciences convened in Avignon, France for an interdisciplinary meeting to set into motion international research on the role of microorganisms in atmospheric processes. Since those initial meetings, and as a consequence of the collaborations and publications that resulted, the surge of interest in this field has been remarkable. There is still a lot to be learned.

References: Article, C.E.Morris bioice.wordpress.com/; A decade of interdisciplinarity 2016/03/07

Schnell R.C. and Vali G. 1976: Biogenic Ice Nuclei: Part I. Terrestrial and Marine Sources. J. Atmos. Sci., 33, 1554-1564 en.wikipedia.org/wiki/Ice_nucleus

WORK MORNINGS

Sunday Group usually last Sunday of each month starting at 7.30 in summer 8am in winter

Contact Denis 0431 223340

Wednesday Group meet every Wednesday starting 8am

Contact Ros 6628 2909

0412 317744

roslittle46@gmail.com

Propagation Group every Tuesday at the nursery, starting 8am

Contact Rose 0402 7891

rosedaphne1@gmail.com

Wear protective clothing and bring insect repellent, sunscreen ... and something for morning tea.

FLRBG AGM

at Environmental Education
Centre at the Gardens
at 9.30am
Saturday 17 September

Thanks to Sponsors

We would like acknowledge Andrew and Jeni Binns and local firms Armsign, Versacom, Bunnings, Yates, Lismore Timber and Plywood, ConnectingUp and Nick Alderson who are all supporting us in various ways. We are very grateful to them and to all who help in any way at the Gardens



Lismore Rainforest Botanic Gardens Open Day Program

Sat 20th August - Science Week 9 am to 1 pm

*"Supported by the Northern Rivers Science Hub and
Inspiring Australia
as part of National Science Week"*

- **Hugh and Nan Nicholson - Workshop on using their Rainforest Plant Identification Key**
10 -12:30 pm at the Education Centre at the Gardens
Bookings essential T: 66886204 or email terania@rainforestpublishing.com.au
- Friends of the LRBG - **Electronic Microscope** viewing plants
- Barbara Jensen - **Catching Water Critters** to assess water quality (Pond Area of Gardens)
- Friends of **Koala display** in Eucalypt Forest
- LRBG **Plants, Books and Cards** Stall
- **Potting up seedlings** and other discovery activities for children
- **Walking trails** to explore gardens
- **Bring your own picnic lunch** – gas BBQ available
- **Coffee van on site**

In conjunction with the Lismore City Council there will also be the **monthly Recycled Markets** and guided tours of the Materials Recycling Facility (MRF) at 10 am, 11 am and 12 pm, leaving from the Education Centre.



Ros helping one very young planter to put in a Wattle tree



Sunday 31 July proved to be a glorious sunny day and we had a group of Girl Guides from Clunes with their leader and some parents helping us plant several varieties of wattle trees near the first car park – to mark National Tree Day.

They were a wonderful group – very enthusiastic and interested. Other people visiting the Gardens joined in including two young visitors from Japan - delightful morning