



The Red Bridge linking the Sensory Garden with the Wilson Park planting. .

President's Message

This has been a very busy six months for the new FLRBG committee who moved into their new roles at the AGM in August. For some of us it has been a fast learning experience. But we are getting there!

Work in the Sensory Garden is proceeding well and plants are growing fast – there has been plenty of rain and not too many very hot days so far this summer.

On 16 December we officially opened the Mosaic Path. It was an informal occasion with special invitation going to members of the Village Artists who were very involved in this project. We even had new signs installed – literally on the morning of the event.

Another new feature of that area is the red hump bridge linking the Sensory Garden area with the Wilson Park planting. It is a delightful addition to the Gardens,

creating a lot of positive comment. Special thanks must go to Don Woodley and Will Evans from the Wednesday group who were project leaders for the path and bridge.

In the Hoop Pine Forest basic work has been done on a new walking path that goes right up to the summit. This year we will gradually pretty it up but already it is a lovely place to walk.

There is great interest from the mental health community about this project as it could be a place for people to make contact with nature and maybe get involved in developing some of the beautiful little, often secluded, areas adjoining the path.

We have had two requests from community groups to set up art displays at the Gardens – one in March, another in August. Already this year we have had a series of workshops conducted by the Gulibal Living Culture group giving instruction in the ancient skills of

making fibre articles from the natural fibres of local plants... many of which are growing in our Gardens.

We had a visit from Costa Georgiadis from the ABC Gardening Show. He was a guest at the Art/Science/Big Scrub event at the City Hall in August. He had a full schedule but managed to fit in a half hour at the Gardens.

Peter Gould is working on a plant audit of our rainforest specimens – a massive task. And we are currently formulating our policies and methods of rainforest plant management.

A new shade house has gone up at the nursery. Rose's team continues to work miracles raising beautiful healthy plants. And Ros's Wednesday Group is still doing wonderful things and they are such a happy, hardworking group.

And that is just a tiny bit of what has been going on.

Marie Matthews

Species profile *Toona ciliata* Red Cedar

from **Peter Gould**

Family MELIACEAE



Young shoots



Bark of Red Cedar



Young tree with buttresses



Remains of stump of old cedar

Description

Red Cedar is a large to very large tree growing to 60m tall with a trunk diameter up to 3m. Floyd lists one tree found in Yabbra State Forest, west of Casino, as having attained a height of 55m and a diameter of 2.9m but there are larger trees to be found in Queensland.

Leaves are compound, 15–45 cm long, usually paripinnate but sometimes with a terminal leaflet in juvenile growth. The leaflets are mostly 8–20, ± ovate, often falcate, 4–15 cm long and 15–50 mm wide. The apex is acuminate, base strongly asymmetric, margins entire (± toothed in saplings). They are mostly glabrous and domatia are present as small hair-tufts. The petiole is 4–11 cm long, petiolules 5–12 mm long.

White flowers appear in spring in panicles 20–40 cm long with petals 5–6 mm long,

The fruit is an ellipsoid capsule, 10–20 mm long, 6–8 mm diameter and the seeds are winged at both ends.

Distribution

In New South Wales, this tree is widespread in the warmer rainforest of the coast and coastal ranges, north from Milton; also on the tablelands and the Central West Slopes. It is also found throughout coastal Queensland.

The Australian population was once considered a distinct species (*Toona australis*) but has now been incorporated into the species *Toona ciliata* - a much more widely distributed tree which also grows throughout southern Asia from Afghanistan to Papua New Guinea.

The rich red brown timber is one of

Australia's finest and most sought after cabinet timbers. It was used extensively for furniture, wood panelling and construction, including shipbuilding, and was referred to as "red gold" by early Australian settlers. Its high monetary value led to over exploitation and large old trees are now quite rare.

Toona ciliata is one of Australia's few native deciduous trees. Its new foliage is tinted a vivid red and this often quite spectacular display was one of the ways timber cutters located trees in the dense rainforest.

Because of its adaptability to a wide range of climatic conditions and comparatively rapid growth, the Red Cedar has been widely planted in subtropical and tropical regions as a shade tree. It is now common in Hawaii, south and east Africa. It is naturalised in South Africa and Zimbabwe.

References:

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Harden, G., McDonald, B. and Williams, J. 2006, *Rainforest trees and shrubs: a field guide to their identification*, Gwen Harden Publishing, Nambucca Heads, NSW.

<http://plantnet.rbg Syd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Toona~ciliata>

Red Cedars are easy to grow, however they are unlikely to develop the straight trunks so sought after by the early loggers, due to the branching effect of damage caused by the tip-moth, *Hypsipyla robusta*. This problem is most common in trees grown in the open, outside the rainforest canopy. 'The damage arises where shootborer larvae of the *Hypsipyla* tunnel in the interior of stems and eat out the central pith. This is especially significant when the stem is the apical (terminal) one. Tree growth is retarded and the response of the host tree is to compensate by producing branches below the site(s) of attack. Consequently the tree that grows is multi-branched with little straight bole, is often stunted, and thus of little commercial value. Damage is especially prevalent in young trees up to approximately 3 metres in height.' Growing Australian Red Cedar RIRDC publication number 04/135 2005

Native Bees in Gardens

by Peter Swain

Thousands of eager workers recently joined the Friends of the Lismore Rainforest Botanic Gardens. Over the coming months this army of intrepid labourers, stingless native worker bees - *Trigona carbonaria* to be precise - will busy themselves repairing and adding to their 'Sugar Bag hives' in two recently installed boxes. At the same time they will be pollinating flowering trees and other plants whilst gathering pollen and nectar for conversion to honey as food supply.

For me, keeping native bees is an integral element of native plant gardening; they are an essential part of the natural habitat that we are trying to recreate. In early December Wednesday Group volunteer Don Woodley and I divided two bee boxes at my Alstonville garden and later, using two of the halved hives, installed them in two new bee boxes at the Lismore Botanic Gardens.

Over the years several designs of artificial hives have been developed to supplement the natural tree hollows that bees use in the wild. I have adopted the design produced by Peter Davenport, a bee enthusiast at Elanora on the Gold Coast. The box is constructed of exterior grade plywood with external dimensions of 200mm x 200mm x 200mm. The box is divided into two halves to facilitate division



Peter Swain and Don Woodley with newly installed bee box

at a later date. A simple polystyrene cover, formed from a veggie box provides weather protection and insulation. We owe a big thank you to Don for making the bee boxes and faithfully following the surprisingly tricky internal design features.

With care and good luck it is usually possible to divide a colony after one year. The colony must be well developed within the box; a viewing window is incorporated in the design for occasional inspection. As a rough gauge, the net weight of the hive should be a minimum of 4 kilos before division takes place. Divisions are best undertaken in the Spring (September to December) so that the newly divided hives have time to recover before the winter.

Like us, native bees don't like excessive heat or cold. On a hot summer's day you can hear the hive humming as the bees vibrate their wings to cool the hive, and when

the temperature drops below 18 degrees C then they shut up shop and stay home!

Boxes are best sited away from frost hollows and positioned to take advantage of the morning sun, but

sheltered from the late afternoon heat if possible. The boxes can be simply bolted to a star picket, with an oily rag tied underneath to deter marauding ants.

The native stingless bee commonly found in our area is *Trigona carbonaria*. This species is found in coastal Queensland and sub-tropical New South Wales, even extending down to Sydney. *Trigona carbonaria* is one of 12 species of Australian stingless bees, although some taxonomists feel that some are strains not separate species .

Similar to the introduced honey bee, our native species live in colonies with a single fertile queen, thousands of female worker bees and a smaller number of male drones. Worker bees collect the pollen as protein source and the nectar (which they convert to honey) as an energy food for the whole colony. Our native bees store honey in irregularly shaped honey pots attached to the walls and ceilings of their home. This makes the harvesting of honey much more difficult than from the orderly vertical combs of the introduced honey bees.

This year will see me busy experimenting with an extra tier to a couple of boxes at home, lofts for bees to store their honey pots. With any luck FLRBG will be able to sample a few teaspoonfuls of honey at morning tea, in the not too distant future!



**Our bees at work.
Note defender
bees guarding the
entrance hole**

Social and health benefits of Botanic Gardens

I can't help but be inspired by the founders of the Lismore Rainforest Botanical Gardens (LRBG). They were a group of visionary people with a background of botanical knowledge and commitment to conservation. This long term evolving project will not only help nurture our environment but has the potential to contribute to our health, wellbeing and quality of life.

A diverse and growing number of volunteers, Friends of the Gardens, are the driving force in the development at the Gardens. Some are semi-retired people looking for a meaningful activity and others are currently out of the work force, with practical skills and interests, whose contributions are so valued.

My visits to the Gardens never fail to impress me with the progress that is being made and the potential for the long term achievements. Our major cities all have botanical gardens that have developed over more than 150 years. More of our regional cities and towns are developing their botanical gardens too and it is heartening to see the City of Lismore now having gardens that are well worth visiting and exploring. I can only imagine what the experience could be in years to come with more plantings, growth, facilities and activities.

To have these Botanic Gardens adjacent to and partly on reclaimed land of the Lismore Recycling and Recovery Centre is well aligned to

the protection of our environment through the excellent management of the forever increasing quantity of waste. Credit must go to the Lismore City Council for their renowned leadership in waste management systems as well as their increasing support for LRBG.

The educational program at the Gardens is also impressive with many visiting school excursions. Some children have never been in a forest before nor had an opportunity to learn about their environment in a natural setting. Their curiosity and potential for a unique experience particularly plays out in the cool shade and breezes of the Hoop Pine forest.

Aside from the conservation goals the Gardens fulfil many other social benefits. The obesity epidemic and the chronic diseases that can result are largely preventable with lifestyle change. We live in times of abundant food being readily accessible. Our activity levels seem to be forever diminishing. With technology dominating our lives there are even greater threats to being physically active in the future with robot driven machines fulfilling more manual tasks.

Previous generations would have looked for opportunities to rest after a heavy day's work. Now the growing population of those with sedentary occupations need to look for opportunities to be more physically active in the

interests of their health. The Gardens have great potential to provide such recreational activities for all, including those with disabilities.

Maintaining our mental health is just as important as keeping physically fit. There is a campaign in Western Australia, developed by Professor Rob Donovan from Curtin University, which is based on extensive research that is called Act-Belong-Commit.

www.actbelongcommit.org.au

This is a comprehensive health promotion campaign that encourages individuals to take action to protect and promote their own mental wellbeing. It encourages organisations that provide mentally healthy activities to promote participation in those activities. The A-B-C guidelines for positive mental health provide an approach that we can easily adopt.

Act: *Maintain or increase levels of physical, cognitive and social activity.* Walking in, and engaging with, the Gardens and other outdoor places of natural beauty is one example.

Belong: *Maintain or increase level of participation in groups if already a member, or join a group. Maintain or increase participation in community events and with family or friends.* Becoming a volunteer in a local group is one way to go.

Commit: *Take up a cause or learn a new and challenging skill.* This may involve joining an organising committee, taking an active role in developing a community project.

Lismore Rainforest Botanic Gardens provide opportunities for an Act-Belong-Commit approach to promote mental and physical health and wellbeing, connecting with nature as well as contributing to conservation. The LRBG is an impressive community project worthy of more financial support through grants and donations.

*Dr Andrew Binns AM,
General Practitioner*

Goonellabah Medical Centre

Jullums Aboriginal Medical Service



School group walking into the Hoop Pine Forest with guide Margaret Hildebrand

We officially open the Mosaic Path in the Sensory Garden

On 16th December we had an official opening of the Mosaic Path in the Sensory Garden. It was a delightful morning and we combined it with a thank-you Christmas morning tea for the Wednesday Work Group in the Education Centre.

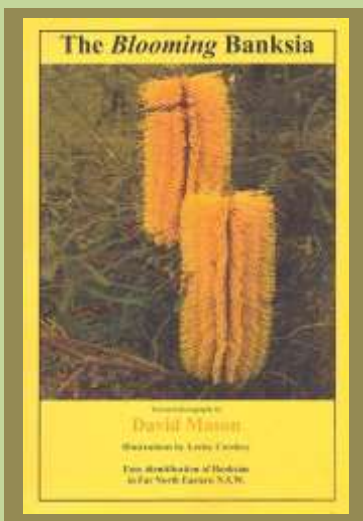
Will Evans cut the ribbon to officially open the path. He had been the project manager of this job and with Don Woodley and others of the Wednesday group as needed, made the path and its surrounds a reality. We were especially pleased to have Richard and Mary Jacombe present. Richard made the forms for the mosaic pavers and then added cement and reinforcing to the actual mosaic image which the members of the Village Artists had prepared. His wife Mary is one of those artists and she also prepared some lovely morning teas on the days we worked at their place. We couldn't have done it without them and are very grateful for their support, and that of other Village Artist members. While there is still a lot of work to do in establishing the Sensory Garden it is really taking shape. The growth in plants over the last six months has been amazing and now with some the new signs installed and path open, we are another step further along in the very long term plan that the Sensory Garden has been.



Will, ready to cut the ribbon and declare the path officially open.



Rosemary Blakeney and grandson Jimmy finding interesting things to look at along the mosaic path



Revised Editions of local plant books soon available

Over the last several months David Mason, author of the **Blooming Grevillea** and **Blooming Banksia** books, has been busy revising the text of both books and replacing most of the line drawings with full colour illustrations. These two books were originally published by the Society for Growing Australian Plants (NSW) Inc, Far North Coast Group, in the 1990s. Both are almost ready to go to the printer and it is hoped they will be available for sale in March. They will join the new edition of the **Blooming Orchid** which was revised and reformatted by John Moyer last year. All three books focus on native plants of this area.

For further information contact secretary@friendslrbg.com.au

Brunswick Bird Watchers keep a count of our birds

On 14 October we had a visit from thirteen members of the Brunswick Birdwatchers group. This group has been keeping count of birds at the Gardens since 2008. On this occasion they were present for four hours and sighted birds from 52 different species.

As our plants grow and provide habitat as well as producing flowers, fruit and seeds... to say nothing of insects... our variety of birds present has increased dramatically and the focus has moved from big birds to more and more of the little birds. Of the birds sighted on this visit – six species were nesting and six species were sighted that had not been seen at the Gardens previously. Since this bird count started a total of 111 species of birds have been noted at the Gardens.



Birdwatchers ready to start their count



Brown Honey Eater



Immature Superb fairy Wren

Bird photos Ray Jones

Cloudcatchers in the Gardens

The Cloudcatcher Haiku group met at the Gardens in October. To quote one of their members, Quendryth Young, "We had such a wonderful day and felt there was not enough of our allotted time to do everything we would have liked.

What a fantastic amount of work you, and your fellow-enthusiasts, have done to create so much joy, as well as information.



Marie Matthews was there when we arrived, and she showed some of us the brown honey-eater's nest in the rushes. What a thrill, especially as the bird was flitting on and off the nest. This featured in a few haiku. We went first to the Hoop Pine Forest with its awesome ambience of dignity and vitality. Then into the main rainforest area, which displayed its personality with that first intake of breath, as we moved in. And there were even seats where we could sit and take it all in... and write among this festival of foliage. There is excellent classification signage, and such a wealth of information to take in, but most of all was just the feeling of 'being there'. We loved our morning. It was a fruitful visit, as far as the writing was concerned. We did amass many first-draft haiku, which were worked on over the next few weeks. See some included below"

HAIKU

SIT & PONDER
the pine goes on
to the sky *Quendryth Young*

along in the forest...
a bird's-nest fern clings
to its rock *John Bird*

honey-eater's nest
her teacup and mine
ready to be filled
Helen Davison

scrawled patterns
on the gum tree's trunk -
forest healing
Nathalie Buckland

rainforest path
skittering sounds
of fallen leaves
Angela Smith

distant rumbling -
pine needles
mute my step.
Vivien Royston

A Return to the Gardens

Michael Grehn



Michael at work in the Gardens

I normally live in Germany, but with family in Australia I travel out there on a regular basis.

About half a decade ago I visited Lismore Rainforest Botanic Gardens for the first time. Since then - whenever I travel to Lismore and stay there for several weeks - or months - I visit the Gardens. I joined the Friends of Lismore Rainforest Botanic Gardens and the Wednesday group. This Wednesday working group does indispensable ongoing work such as weeding, watering and fertilizing, preparing garden beds, keeping pathways clear, etc. It was and will be my wish to make a small work contribution to the growth and increasing significance of these Botanic Gardens.

My recent return to the Gardens in November 2015 – after more than one year's absence and stay in Europe – was an especially exciting one: the lush green scenery and the dense foliage around me gave me, more than ever before, the impression of a subtropical forest. Whether it was because the trees planted a couple of years ago were now quite high or whether the vegetation had unfolded quite

mightily because of the copious rainfalls in springtime 2015 or whether I recognized a tree I had not noticed earlier when it was only waist high - I don't know, but I had the strong sensation of being surrounded by pure indigenous subtropical rainforest flora – without the well-known introduced weeds which are often seen elsewhere outside the Gardens. This was the case not only when moving through the main rainforest areas but also when in the Useful Plants Garden near the creek where it opens to a pond, and especially on the walking track that crosses Grandis Creek and leads through rooms 3, 2, 1 and into the Fern Gully.

I was surprised and delighted, too, when I recognized the newly created areas - the Sensory Garden, still a work in progress, with a new pond and with benches to enjoy the fragrances; the Education Centre with its excellent equipment; and a new walking track in the Hoop Pine Forest which I haven't yet fully explored.

I don't hesitate to confess that I am proud to be a member of this volunteer group. In my opinion LRBG is a very important project and it is highly interesting not only for experts but also for the public because it is specializing in the regional vegetation, particularly the rainforest trees and shrubs, of the Lismore area. The revival of the original native flora, as it existed before the European settlement began with its far reaching changes of the landscape, is a fascinating task.

My hope and desire is that more and more people recognize the importance of these Botanic Gardens and that this project will be carried on peacefully.

I am looking forward to returning to the Gardens in the future and working there again as a volunteer.

Michael Grehn, January 2016
Now back home in Germany

SCU study at the Gardens

At present we have a visitor from France, Manuel Chollon, who is working on a project at the Gardens which he will use to complete his field botany Diploma at University de Picardie Jules Verne. His focus is mainly in the Hoop Pine plantation (forest) where he is making a fairly comprehensive inventory of all the native rainforest species that are coming up there. The idea is to project into the future what the species composition might change into in the plantation. This work will provide a baseline study for future reference in the prediction of growth of regenerating rainforest in this area.

In another project Honours student Maximo Bottaro has sampled White Booyong (*Argyrodendron trifoliolatum*) and Native Tamarind (*Diploglottis australis*) leaves from the Gardens and carried out DNA extraction and sequencing on these samples. With my assistance as his supervisor, he is using these DNA sequences to design assays for genotyping to study genetic diversity in these two key rainforest tree species.

Peter Bundock

Southern Cross Plant Science
Southern Cross University

Plant Audit

Peter Gould and Mike Fulloon are working on the audit of our rainforest specimen plants. Uncommon Plants Garden and Room 3 North have been completed and they are now moving into the rest of the Stage 1 area and the Wilson Park planting.



Night Walks

Geoff Walker has trialled a couple of night walks at the Gardens.

Logistically they worked well though attendance was not high. However, the exercise gave us some hands on experience about how we could run such walks in the future.



School Holidays Events

We have been participating in holiday events for children in conjunction with the Education area of the Recycling Centre. The Education and Propagation teams have been specially involved

Visit to Mt Tamborine

A minibus load of FLRBG members and friends visited the Botanic Gardens at Mount Tamborine in September. They were all very impressed with the time and energy given to them by the President, Roger Lenahan, and came back with a load of ideas which we could apply to our own situation. The Skywalk with its cantilevered walkway added much to the excitement of the day. Special thanks to Dunoon Sports club for supplying the bus, and to the driver, Rod Little

Art Exhibitions at Gardens

Two community groups have approached us about having art displays at the Gardens. Sunita Bala from RealArtworks Inc., and Wendy Jansen an art facilitator for school children and adults with disabilities. One event is planned for March and the other in August, though both events are still to be confirmed. For us this is a new step in the possible uses of the Gardens areas and is an exciting prospect for our future development.

Smaller rainforest plants for home garden

Alocasia brisbanensis

from Mike Fulloon

Alocasia brisbanensis or Cunjevoi is a species of plant in the family Araceae. It is native to Eastern Australia from about Sydney to Cape York. The plant is a massive erect herb and has very large glossy green spade shaped leaves on long fleshy petioles. The leaf blades are about 70 cm long by 60 cm wide with the petiole about 1 m and the plant can reach 1.8 m high. The flower spike is about 1 m long topped by a spoon like spathe which encloses the flower. The summer flowers are perfumed and a greenish white colour, they are followed by fruit which are ovoid 8-15 mm long and red when ripe. The fruiting head is enclosed by the lower part of the spathe. All parts of the plant exude a toxic irritating sap when damaged. The poisonous principle is an insoluble oxalate which contains calcium oxalate crystals and a proteolytic enzyme.



Cunjevoi are a common species which grow as under story plants in wet sclerophyll, sub tropical and tropical rain forest in damp areas with dappled shade, they can form quite extensive colonies. The plant can be heavily attacked by larvae of Hawk Moths which can give the leaves a tattered appearance.



Costa Georgiadis visiting the Gardens in August last year with Ros Little, Marie Matthews and Rose Hand.

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.

Seed Collecting

As our Rainforest Botanic Gardens mature we are enjoying being able to collect seeds from our own plantings. We have a small dedicated group of collectors who are continually on the lookout for seeding plants. Maturing seeds observed in our Gardens are reported to our Plant Nursery Supervisor Rose Hand who advises whether the seed is required. Rose has given us all Guidelines for Seed Collecting stressing the importance accuracy with provenance. We do not take all the maturing seeds for most are needed on site for germination and food for birds and insects. The collected seed is stored in a paper bag labelled with provenance details.



One example is *Micromelum minutum* - Cluster Berry of the Rutaceae Family. It has been listed as extinct in the wild in NSW, including the Northern Rivers area, since 1911 but is widely grown northwards into Asia. However, like Coffs Harbour Regional Gardens, our Gardens have several of these plants and in late Spring 2015, ours displayed their red egg-shaped seeds in clusters, in great numbers. A bonus of growing this plant is that it attracts birds and butterflies! Several trays have been planted in our Nursery and Rose reports that the germination has been almost 100%. It is recognised that the continual collection of seed from the same plant will adversely narrow the gene pool. So it is desirable to use plants of the same species but with different provenances to strengthen this pool. Some of our members have collectors' licences which enables us to have access to seed from further afield. *Geoff Walker*

Fontainea oraria

The *Fontainea oraria* is a rare plant which grows only in the NSW far north coast. Several sets of this species have been planted in this area and Di Brown, Threatened Species Officer at the office of Environment and Heritage at Coffs Harbour, is keen to receive information about them.

In late Spring 2015 several of our *F. oraria* plants produced fruit. What makes all this particularly interesting is that *F. oraria* is a dioecious species - a plant having male and female reproductive organs in separate individuals, as opposed to monoecious - having both the male and female reproductive organs present in one individual. And the plant that produced the most fruit in our Gardens is labelled as being a male.

Now, whether this is a case of incorrect original identification or labelling, or rather a case of a male tree producing fertile fruit is still being investigated. Not all plants are necessarily clear cut male or female - occasional female flowers can appear on male plants, male flowers on female plants or some species may actually change sex in reaction to environmental stresses such as drought or low light levels. The fruit from our *F. oraria* plants is now being propagated in our nursery and so far one has sprouted. However, germination of *Fontainea* fruit can take up to four months so we can't yet be sure that the seed from the fruits from the male plants are fully viable.



The flower



The fruit



Germination

New Shade House for Nursery



In September we opened the new shade house at the nursery. It is a great asset and improves dramatically the organisation of the nursery area with lots of space and lots of shelving - even the left over benches from the very old earlier shade house are being used for sunning out plants. Rose Hand and all her hard working team are thrilled with the new arrangement.

Plant with no immune system – *Nicotiana benthamiana*

The Native Tobacco Plant, or *Nicotiana benthamiana*, an ancient desert plant found in north western Australia, and known locally as Pitjuri, has long been used in labs around the world to test viruses and vaccines due to the fact it has no immune system. Scientists at the Queensland University of Technology (QUT) have recently identified the gene relating to this characteristic.

Although the lack of an immune system leaves the plant prone to disease, it frees up energy (that would otherwise be used for defence) to be used to produce bigger seeds, to germinate and to grow faster. While this isn't advantageous in pathogen-rich environments, it is beneficial to this desert plant whose main problem is dealing with drought. It is the plant's ability to rapidly set seed after even small amounts of rain that has helped it survive in the harsh Central Australia climate for around 750,000 years.

This genetic discovery has great potential in the field of research. Because of its lack of an immune system the *N. benthamiana* is already in use in molecular labs

around the world, because it will readily take genes introduced into it. Also its rapid growth rate helps speed up research in testing vaccines and viruses. It was recently used to create an experimental antibody for the Ebola virus that was trialled on two French aid workers.

"This plant is the 'laboratory rat' of the molecular plant world," says Professor Peter Waterhouse, a plant geneticist at QUT. "We think of it as a magical plant with amazing properties." Like 'nude mice' it doesn't have a rejection response when receiving foreign tissue.

The team's discovery of the gene responsible for the plant's lack of an immune system means it is now possible to transfer this trait to other plants.

"Scientists can now know how to turn other species into 'nude mice' for research purposes," says Prof. Waterhouse. "So 'nude' versions of crop plants could also speed up agricultural research." And because the plant produces large seeds, it makes it an ideal candidate for commercial use as a biofactory. Seeds can be used to make

antibodies for pharmaceutical use, and the larger the seed, the greater the antibody yield.

Adapted from article by Darren Quick GizMag in Nov 2015

<http://www.gizmag.com/australian-tobacco-plant-gene-space-crops/40253/>

*The Native Tobacco plant referred to in this story is NOT the Wild Tobacco plant - *Solanum mauritianum* - which is a common weed in Eastern Australia, and which originally came from Brazil.*

Quandong timber

The timber of the fast growing rainforest tree *Elaeocarpus grandis* - the Blue Quandong – is being used by Brisbane instrument maker Reg Cooke, as soundboards for his violas. The tree produces an attractive blonde wood that is uniform, light, strong and flexible. In the past it has been used for flooring, furniture and even in the construction of WW2 aircraft, including the Mosquito fighter/bomber

Extracted from article by Jamie Brown Northern Star's Rural Life Nov 2015



Some, but not all, of our wonderful Wednesday Day Work Group

Basket making workshops with local fibres

A series of basket making classes was run at the Gardens late last year, culminating in the display of some of the works produced as part of an exhibition at Kyogle 's Roxy Galley in December.

Ruth Tsimbinis, Director of the Roxy Gallery said, "The exhibition is a part of a journey that has been taken by many people looking into the history of early settlement of this area and skills shared by local aboriginal people and non indigenous settlers to this land." It was felt that it was very important to keep this knowledge alive and that this exhibition should honour the local indigenous people and the forward thinking of Mary Bundock in wanting to preserve local aboriginal knowledge and skills.



Almost completed eel trap made by one of the participants

The basket makers have been supported by three local talented women who have studied the traditional methods used by Aboriginal people in the Northern Rivers. Lauren Jarrett, a Bundjalung woman, Ben Radic, a Wiradjuri woman, and Janet Wilson a descendant of the Wilson's who settled at The Risk. Lauren and Ben have selections of their work acquired by The National Museum and Janet has had work exhibited in Australia and overseas. They are

now part of the Gulibal Living Cultural Group that have been studying traditional weaving methods which were recorded by Mary Bundock during her life on an early white settlement in the Wiangaree area.

Mary had the foresight to realise that Aboriginal people were losing their culture and began documenting weaving methods, plant material used and collecting samples of weavings which were eventually acquired by The British Museum in 1928.

In November 2015 some of these items were loaned back to the National Museum in Canberra and are currently on display there.

The local project has been sponsored by Arts Northern Rivers and has been a rare and unique opportunity for local people to gain insight into this local knowledge. Over thirty people have taken part in these classes - Aboriginal and non Aboriginal men and women. Our Botanic Gardens proved to be an ideal area to identify plants and bring to life an art almost lost forever.



One of the baskets

Chief Guide's visit

On 29 January we had a meeting with Lyn Cusack, who is involved with the organisation of guides at the Royal Botanical Gardens in Sydney. She gave us a morning out of her holidays and presented us with a lot of very useful and usable information to help us better organise our guided walks. She was much appreciated. Rosemary Blakeney has offered to move into the role of Guides Organiser.

Sealing Paths at Gardens

We are in the process of organising the sealing of some of the paths at the Gardens. We want to link the Sensory Garden with the entrance path to the EEC. At present we have a gravel path but that is not easy for people with any difficulty walking

Adopt a Journo

Recently the Northern Star has instigated a program allotting reporters to specific community organisations. Our journo is Cathryn McLachlan. She gets in touch with us regularly and has managed to have several articles and photos published about the Gardens. We are very grateful to her.



Lauren Jarrett at the fibre workshop

Mary Bundock's relationship with the women living near Wyangerie station is described by a local historian:

"Miss Mary and her sister Alice were interested in the local aborigines. They collected weapons, baskets, network and campware for the Sydney Museum. It was their delight to sit and sew on a grassy plot with three or four Aboriginal women, and listen to their folk-lore, their songs and traditions...." "They wove bags of grass and also made others of string twisted from the bark of a hibiscus, which grows plentifully along the banks of the creeks. The women stripped the bark and soaked it for three days and chewed it to make it flexible before twisting it into string. This string was used for fishing lines, and for making bags which have a pretty twisted stitch..."

Extracted records at RRHS, Lismore.

Path in Hoop Pine Forest



Maybe not Stonehenge but our little stone circle gathering space in Hoop Pine Forest

In October last year we started work on the new walking track in the Hoop Pine Forest – Auracaria Walk. Local Landscape Architect, Nick Alderson, recruited Calvin Conlan with his ultra compact excavator and they graded a gently sloping zig zag track that takes the walker right up to the top of the Hoop Pine forest. There is a lovely open area there where we plan to install a stony labyrinth as well as seating for walkers to rest and enjoy the forest ambience before making their way back down the hill on the loop path. The original perimeter track along the bottom of the forest swings around and meets the new path to make yet another loop path. All together there are will be over a kilometre of track for easy walking in a beautiful environment, very close to the Lismore CBD.

More recently Nick and Calvin came back and worked on a couple of our

feature areas. We now have a lovely little gathering space with its own stone circle, and another teaching space adjacent to the huge old fig tree which is just off the walking track. As well they did some levelling of the labyrinth site. They did a wonderful job and special thanks must go to Nick who gave his time and expertise pro bono.

The Wednesday group last week cleared a lot of fallen timber from the summit area – they were there for less than two hours but miraculously removed a large amount of fallen branches that had accumulated over many years. They transformed the area!

We now plan to install seats and signs and do some limited planting in our feature areas. The building of the labyrinth will be, we hope, a community project placing stones already on site along a labyrinth pattern marked on the ground.

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Thanks to Sponsors

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"Maybe Claude Monet was in mind when the bridge was thought of but his bridge at Giverny was a copy of a Japanese Shinkyō (sacred bridge). Traditionally, like a Torii gate, meant to mark the entrance to somewhere sacred. Totally appropriate in this case."

Comment on our Facebook page from Helen Robinson about our new red bridge