FLRBG

February 2013

Newsletter of the Friends of Lismore Rainforest Botanic Gardens Inc.

President's Message

First let me welcome the New Year, and hope that it will be a good one for us all and for our Gardens.

We had a very successful 10th Anniversary celebration on National Tree Day last August, planting an extension of Sunny Slope with more flowering shrubs, and enjoying a birthday cake cut by the Mayor, Jenny Dowell ably assisted by our hard-working, long-serving member, Pat Offord. The Waste Facility organised refreshments for everyone, and the general manager of Lismore Council, Gary Murphy unveiled a plaque and planted a special tree for the occasion.

Now we are embarking on our next ten years, and I hope that we will have as much to show 2022 as we did for the first decade which involved the preparation and planting of many areas of the Gardens from scratch. We are rightly proud of what has been accomplished. As our Gardens mature, the work we do must change. Weed control, pruning, replacing plants which have not survived the initial shock of planting, are all part of our programme now. We also have to consider removing plants which are growing in the wrong place or which have grown too large for their present position.

This leads us to an interesting dilemma. We are dedicated to growing plants native to an area of about 200 kms around Lismore. So what do we do with plants which are native to this area but which we consider are not appropriate for a Botanic Gardens or which are growing in the wrong place? In some cases, we can deal easily with the offending plants. The native *Commelina cyanea* with its pretty blue flowers, and the pink flowered Native Geranium, *Geranium olanderi* could both very easily take over all our planting, especially our new areas. We have decided to remove them from our small, susceptible new plants, but to leave them in the older established parts, where they provide effective ground covers. The pioneer tree species, *Macaranga tanarius,* shows its true nature as a pioneer species, popping up all over the Gardens. We have often had to remove these young trees where they threaten to overshadows smaller plants. There are other fine examples of this species elsewhere in the Gardens.

But there will be occasions when we will have to remove larger plants, and that will require serious consideration. In this category comes the Giant Stinging Tree, *Dendrocnide excelsa.* Two have self sown close beside the path in the Wilson Park Garden. Probably they have grown from seed brought by birds from the nearby Wilson Park Nature Reserve. Because of their stinging characteristics (see P.7) they could become a danger to visitors who come in contact with their leaves, fruit or trunk. However, they are an important part of the ecology of the local rainforest which leaves us in a quandary about what to do about them.

Meanwhile, the Wednesday work group continues to add to the beauty of the Gardens in many ways. Rose Hand and her team are propagating plants for the Gardens, and as fund raisers, and our Sunday morning work group meet on last Sunday of each month. We are watching with interest the building of the new Environmental Education Centre, adjacent to the Useful Plants Gardens, where we will have access to a room and occasional display space, and easily accessible toilets. It is another step forward in the establishment of our Gardens as an important asset in Lismore and district. We hope to officially open later this year – date yet to be decided.

So we are facing a very interesting year, and we hope as many of you as possible will continue to work with us.

Jan De Nardi

President Jan De Nardi and Lismore City Council General Manager, Gary Murphy, unveiling commemorative plaque at 10th Anniversary celebration in August

NEXT SUNDAY WORK DAY
24 FEBRUARY Starting 7.30am
Contact Denis 6689 5261

Work Organiser's Report... ... *Pat Offord*

After the hard work and excitement of our 10th Anniversary celebrations in August, we experienced a dry spring and early summer. A water roster was drawn up so that the most vulnerable areas would get at least one watering each week. We had many hassles with water supply because pressure is very low at certain times on weekdays when the waste operations are in full swing. We persevered and I know that many people were frustrated particularly those who came to town especially to water. Damian, the gardener, did lots of deep root watering in other areas and the Wednesday work group kept the new planting in Sunny Slope alive with some ingenious hose setups. As the weeks went on I was amazed at how well the plants survived and I think some plants actually thrived under the hot dry conditions. We had lots of flowering and fruits are now ripening. Many plants in Uncommon Plants Garden are flowering for the first time. The big disappointment is the anniversary tree, Syzygium floribundum, which is looking very stressed and may not survive.

Most areas are looking green and luscious. The two vines along the wire fence in Useful Plants Garden have flowered and have beautified that area. They are *Pandorea pandorana*, Wonga Vine which flowered in spring with lovely white/maroon flowers and *Pandorea jasminoides*, Bower Vine which is still flowering with larger pink flowers. New plants in Sunny Slope and Discovery Trails 1 and 2 survived. I believe this is due to the effort of all on the watering roster. Thank you!

We are very happy with the new Discovery Trail 3 built by the Wednesday work group in the Wilson Park Planting. The three Discovery Trails provide access for the workers and special visitors such as the Southern Cross University Research team. We may have to do some work on the path surfaces to make them safer if we want to take guided walks in those areas.

Pandorea jasminoides Photo Ian Murray

A team from Southern Cross University collected samples from 27 plants in January. The team is looking for compounds which might be useful in wound management. They usually collect about 1 kg of leaves from each plant. This was the second collection made by Dr Hans Wohlmuth and his team. When we provide or receive plant material to or from an outside organisation, a Plant Material Agreement is signed by both parties. We have received plant material from National Parks and Botanic Gardens in the past.

We have now installed all the permanent labels from our last order. Thanks to Peter Gould and Mary Harrison for helping us finish that job. I have started on a new list and we will probably order them from the next budget.

It is such a pleasure to take visitors through the Gardens now. The signs designed by Molto Creative with input from Marie and her team, are the finishing touch and provide much information for visitors and our own volunteers. I now have no hesitation in sending visitors on self guided walks.

Thanks for the great work that you all do. *Pat Offord*

BGANZ Conference

Mary and Bert Harris were indefatigable in attending conferences and visiting other gardens, but our current Friends hac little acquaintance with Botanic Gardens Australia and New Zealand (BGANZ). As the recent state conference was at Coffs Harbour in October last year we felt it essential that we have at least one member ir attendance and I was it. Not only dic I hear about other gardens in NSW and meet people running them, but I had the chance to make a five minute power point presentation about our own project, which created a lot of interest.

One of my first discoveries was the existence of the Association of Friends of Botanic Gardens which we have now joined.

I was amazed at the predominance of botanic gardens professionals in attendance at the conference. But the focus of the local Friends was catering to the comfort and refreshment of participants. This would seem to be a general pattern. Most gardens are owned and run by a local council. One notable exception is the Hunter River Gardens which is run entirely by volunteers. It is my personal view that the time will eventually come when our Friends also play a less crucial role in the development and maintenance of LRBG and slip into the role of supporting professional botanists and horticulturalists.

While Coffs Harbour has highly qualified professional staff they are blessed in the outstanding qualifications of some of their volunteers. The highlight of the weekend for me was the time I spent with Alex Floyd - noted forester, and sub-tropical rainforest specialist - in his herbarium.

Denis Matthews

Calder's Collections on line

The late Calder Chaffey was one of the original people involved in the establishment of our Gardens. He was a passionate botanist. He collected many specimens and wrote several books on native plants. Some longer term members may remember that Calder's herbarium collections were given to Southern Cross University. They can now be viewed on *'Atlas of Living Australia'* website. Search *'Calder Chaffey'*

Report from Council

Kevin Trustum

We are amazed to see how the plants in the Gardens have grown over the past few months and congratulate the Friends and Council's maintenance team for their hard work in keeping the Gardens well presented.

Council continues to work with the Management Committee and the Friends to ensure the Botanic Gardens are developed in a way that is safe to visitors. This has involved Council organising much of the new infrastructure works including the new pathway between the Useful Plants Garden and the BBQ area.

Environmental Education Centre and Water Management Pavilion under construction

A highlight in the past few months was the National Tree Day and 10th Anniversary of the first planting. This day demonstrated the solid partnership that has been developed between Council and the Friends Group. Council was happy to provide catering on this day. In preparation for this open day a number of new signs were organised to help provide information and direction for visitors.

The new education centre is under construction and will provide information to the public on waste and recycling, botanic gardens, waste water, storm water, koalas, rehabilitation, weeds and floodplain management. A number of new community education programs will be run out of the centre and it will be available for Botanic Gardens open days. The education centre will also provide toilets in a more central area of the garden.

The education centre development will also include an outdoor teaching area - the Water Conservation Garden and will be surrounded by local native water wise plants.

The Council maintenance crew has been hard at work in the Botanic Gardens applying mulch, pruning branches and undertaking general maintenance work.

The official opening of the Education Centre and Phytocap, planned in the coming months, has been seen as the ideal time to officially open the Botanic Gardens to the public. More information will be sent to all involved as this time approaches.

Council is planning to meet with the Botanic Gardens Management Committee to formulate a Management Plan for the Gardens to help guide management and operations over the coming years.

Kevin Trustum, Waste Operations Coordinator

Council Representative

Glenys Ritchie

I was delighted to be welcomed by Lionel Phelps and Geoff Walker at the carpark of the Lismore Rainforest Botanic Gardens recently. They gave me a wonderful guided walk through the Gardens and their pride was evident in their voices as they described the incredible development of the Gardens over the last ten years. I was impressed.

I've since met many of the Friends and have committed to becoming a Wednesday girl to help out whenever I can. I'm looking forward to learning more about our indigenous plants and trees.

I feel I'm blessed to be joining you all at this time, as such a lot of work has been done and there seems some great plans for the future including the development of a professional self guided walk system so that we can share this wonderful garden with our visitors.

I'm looking forward to my time as Lismore City Councillor representative on the LRBG Management Committee. I follow in the good footsteps of previous Councillors such as Ros Irwin, Jenny Dowell and Ray Houston and hope that I can bring positive results for the LRBG both as a helper and as a Councillor.

Warm Regards, Councillor Glenys Ritchie

Propagation News - *germinating native plant seeds*

Rose Hand

For small native seeds *use a* 50/50 mix of coarse river sand with peatmoss or coir. For safety, mix and dampen in a barrow, outdoors. Mix the fine seeds with sieved sand and place in a salt shaker with large holes. Prepare a tray with a smoothened surface and sprinkle the prepared seed-mix across the top. Now cover the seeds with fine or sieved river sand (not beach sand) to a depth one and a half times the size of seeds. Firm gently with something flat (an oblong of thick polystyrene, wood or stout plastic). Soak the tray in very shallow water for absorption from the base. Place on a level surface in a lightly shaded position. Check daily to keep moist.

For larger native seeds *use* same mixture, place seeds on the surface but cover with ***unsieved*** coarse sand to one and a half times size of seed. Place the tray on a lightly shaded and level surface. Lightly water from above. Check daily to keep moist.

The Tuesday propagation team work each Tuesday from 9am to noon at the nursery. Contact 6622 6558

What's that buzzing in your garden? *Australian Native Bees* **from Rosemary Blakeney**

Classification
Kingdom Animalia **Phylum** Arthropoda **Class** Insecta **Order** Hymenoptera **Family** There are five families of native bees in Australia, Stenotritidae,Colletidae, Halictidae, Megachilidae and Apidae. The first, comprises about 50 species in two genera , Ctenocolletes and Stenotritus, is restricted to Australia. The remaining families occur world-wide.

There are over 1,500 species of native bees. They exhibit a huge range in size and colour. One of our largest native bee is a member of the Xylocopa genus commonly called carpenter bees because they cut holes into soft wood to make their nests. Our smallest bee is only 2mm - a small yellow bee (Quasihesna) from Cape York. Our native bees come in a multitude of colours, red, orange, yellow, green, blue, black and white. They are found in most regions of Australia including the arid inland - where there are flowers you will find bees. Some bees are generalists they will collect pollen from a wide range of flowers, while others display varying degrees of specialization. They may collect only from one family, from one or two genera or sometimes just one species.

The majority of Australian native bees are solitary. They nest in tiny holes in the ground or wood. They also utilize man-made holes such as bolt holes and pipes. A few species build free-standing nests on stems or rocks. They build an urn shaped cavity, the brood cell. One egg is laid in the cavity and it is stocked with sufficient food to enable the egg to develop. The cell is then sealed and the egg left to hatch. A few species are semi-social. The females co-operate to build a nest and to guard it but each female lays her own eggs. The male bee is never involved in nest building . Their sole function is to locate and fertilise the females. Male bees of some species can be very aggressive and territorial engaging in violent skirmishes with rival males. Solitary and semi-social bees do sting much the same as the honey bee.

Australia does have about **ten species of stingless social bees**. They are all in the Genus Tetragonula (was Trigona—name change in 2012) and Austroplebeia. They are all small and black, resembling a flying ant or small bush fly. In fact it is very easy to mistake social bees for flies so if you spy what you think are flies around your garden look again carefully-they may be bees.

These bees have a very specific temperature range –they will generally only forage when the temperature is between 18-35 degrees celsius. This means they are more commonly found in subtropical or tropical New South Wales, Queensland, Northern Territory and Western Australia. T.carbonaria is found as far south as Bega on the south coast of New South Wales but it is very rare to find them inland because of the temperature variation.

Native stingless bees have a highly developed social structure very similar to the European honey bee. However, our native bees build nests of egg shaped pots, like bunches of grapes, unlike the honey bee's vertical combs of regular hexagonal shaped cells. Native honey is usually darker, thin and sweet. It has been highly prized by Australian aboriginals for thousands of years .

SOME INTERESTING NATIVE BEES
Bluebanded Bee
These bees are about 12mm long and have four blue bands on their abdomen. They belong to the genus Amegilla and are solitary bees. The female usually makes a nest in soft earth and works by herself collecting pollen. It is common to find a number of nests together which can give the appearance of social behaviour but each nest hole is separate and leads to the nest of the solitary female. The males are not allowed in the nest so at night

gather in small groups clinging to dried stems of weeds, grasses or even edges of leaves. The site, once established, is used by the bees year after year. They attach themselves using their jaws and curl their legs up under their body. When a new male approaches the bees already attached wave their hind legs and wag their tails up and down in unison. It looks like a welcoming dance and it has been suggested that the bees emit some kind of welcoming scent.
These fascinating bees are also capable of a very special form of pollination, buzz pollination. In some flowers the pollen is found inside very narrow cavities eg Solanum. To pollinate these flowers a bee grasps the flower and vibrates it until the pollen shoots out. These bees have been suggested as pollinators of greenhouse tomatoes and successful trials have been carried out at both Adelaide university and the University of Western Sydney.

Carpenter Bee
This bee is a member of the genus Xylocopa, a large genus distributed world-wide. It can be seen visiting pawpaw trees early in the morning. It is often mistaken for a bumble bee. It is large (24mm) with a brown to black abdomen and a bright yellow thorax. It makes a loud buzzing noise very like a bumble bee.

Another interesting Carpenter bee to look for is the Peacock Carpenter bee, one of our most spectacular bees. It has bright metallic colours that change with the light –

sometimes purple and sometimes yellow green. They emit a deep droning noise when flying between flowers and are found north of Sydney in urban areas, forests, woodlands and heath.

Native Stingless Bees or Sugar Bag Bees

Austroplebeia sp & Tetragonula sp
These bees are all small (3-5mm) and black and can be very hard to tell apart. The most reliable way is to look at the structure of the nest particularly the brood comb. They are, as a group, being closely looked at for their agricultural use.
These bees live in nests made of resin and wax found in hollow tree trunks, branches, fallen logs and rock crevices. Each nest has a queen, drones and thousands of worker bees. Each hive produces about 1 kg of honey, much less than a honey bee, called sugar bag. It is highly prized by aboriginal people who collect it from the wild.

The most common stingless bee in our area is Tetragonula carbonaria. It is black with whitish hairs on its thorax. It has been domesticated for over 40 years in artificial hives and the hives are available for purchase.

If you are interested in keeping bees these bees are an interesting option, their main advantage being that they are stingless. There is now a lot of information available about keeping native stingless bees - see reference list at end of article.

Photographs of these or other Australian native bees are found on the Australian Native Bee Research Centre website www.aussibee.com.au

Importance of Native Bees

Native bees play an important role in the pollination of our native plants. Callistemon(bottlebrush), Cassia, Leptospermum, Eucalyptus, and Melaleuca are some examples. They are important pollinators of Macadamias. They also have been seen collecting pollen from pawpaw, passionfruit , granadilla, mango, avocado, lychee and grapes.
Australia is very dependant on the honey bee as a pollinator of our horticultural crops. The problems of diseases in honey bees and their decline world wide has been well documented. Research is underway in Australia on the use of our Native bees as an alternative pollinator. Stingless bees lend themselves to this use as they are easily transportable and have been used successfully to pollinate field crops of watermelons, avocados, lychees and macadamias. Research has been done on using native bees for pollinating greenhouse crops such as tomatoes.

References

Houston, Terry(2011). Native Bees. Information Sheet. Western Australian Museum.
Dollin A , Batley M, Robinson M and Faulkner B (2000). Native Bees of the Sydney Region. Australian Native Bee Research Centre.
Klumpp J (2007) Australian stingless bees.A guide to sugarbag beekeeping. Earthling Enterprises.
Maginnity, Steve.(2011) Australian Native Bees for Schools. Steve's Native Bees. New South Wales. Australia.
Dollin A and Heard T (1999). Tips on stingless beekeeping by Australian Beekeepers. Vol.1 Australian Native Bee Research Centre.
Heard TA (1988) .Propagation of hives of *Trigona carbonaria* Smith (Hymenoptera:Apidae). Journal of the Australian Entomological Society 27,303-304
Dollin A, Zabel R and Zabel J (2001). Boxing and splitting hives. Australian Native Bee Research Centre.
Bell Mc, Spooner –Hart RN, Haigh AM (2006).Pollination of greenhouse tomatoes by the Australian bluebanded bee *Amegilla(Zonamegilla) holmesi* (Hymenoptera:Apidae). Journal of Economic Entomology 99,437-442
www.qm.qld.gov.au
http://australianmuseum.net.au
www.stevesnativebees.com.au. This is a local site and has hives for sale.
www.aussiebee.com.au. A very informative site with books and bulletins for sale.

Guided Walks Committee

Rosemary Blakeney has agreed to lead a committee to prepare text and clarify the logistics for guided walks at the Gardens. Rosemary, an experienced botanist, has worked as a gardens' guide at the Royal Botanic Gardens in Sydney. At a preliminary meeting it was decided that an average walk would be approximately 90 minutes. There would be around 20 points of interest and the focus would be a balance of botanical information and general information about the Gardens. Some emphasis would be given to the significance of botanical names, their history and the pattern in those names. Anyone who is interested in becoming a guide please contact us. We will give you the information and train you. *Contact Denis Matthews 6689 5261*

Changes in role

After 10 years as works organiser, because of her husband's ongoing poor health, Pat Offord is relinquishing some of the jobs she has been doing. This role is now being divided into several streams. Pat will still continue to: source plants as required and organise planting in appropriate areas; keep plant records for each planting day and each room; send planting lists to GPS and data base teams ; research for new plants and check for dead plants. She will also continue to organise exchange of plant material with Universities, other Botanic Gardens and National Parks; liaise with GPS and labels teams, the propagation officer, workday leaders, and also record work day attendance. She will prepare permanent plant labels lists and supervise installation of labels; do some grant submissions, and the paper work for Centrelink volunteers.

Pat Offord trying to keep off the rain - just two of the many hats that she wears in her role at the Gardens!

Denis Matthews is taking over the organisation of the Sunday morning work group and Ros Little has offered to do tool maintenance and deal with the ordering of garden supplies etc. One of our members with sound botanical knowledge, yet to be decided, will help with the installation of permanent labels. If anyone out there would like to take a more active role in the organization please make contact with Denis or Pat. See back page for contact details

Palms Growing in Lismore Rainforest Botanic Gardens *from Mike Fulloon*

There are only four species of palms native to NSW of which three are growing in the Lismore Rainforest Botanic Gardens. Palms form a small part of the vegetation of the rainforest but are a noticeable feature and can be locally quite common in certain areas. They often grow in almost pure stands in wet areas along streams and in swampy places.

Archontophoenix cunninghamiana **Bangalow or Piccabeen Palm**

This is a solitary feather leaved palm with a prominent crown shaft and with pink to mauve branched flowers followed by bright red fruits. It can grow to a height of 20 -25 M. It occurs between Mackay in Qld to near Batemans Bay in SE NSW. These palms can grow in extensive colonies with very little else growing under them except stunted palm seedlings. Where they grow along stream banks the tangled mat of fibrous roots help to prevent erosion. This palm has an edible heart or cabbage which was utilised by the local Aborigines as a food & the leaf sheaths were used as containers.

A good place to see a stand of Bangalow Palms is in the Nightcap National Park at Protesters Falls or in the Victoria Park Nature Reserve near Alstonville.

Linospadix monostachya **Walking Stick Palm or Midgin-bil**

This is an attractive small solitary feather leaved palm which grows to about 3 m. It has unbranched flowers growing from the leaf axils followed by orange-red fruits. This palm grows from Gympie in SE QLD to Bulahdelah in NSW. These small palms were extensively harvested to provide walking sticks for wounded soldiers returning from WWI. A good place to see this attractive little palm growing is in the Border Ranges National Park scattered in the under story along the many walks through the forest

Livistona australis **Cabbage Palm or Fan Palm**

This is a tall solitary fan leaved palm growing to about 20-30 M. The leaf stems are armed with numerous curved prickles; the flowers are branched and are followed by glossy black fruits. This palm is quite common and grows in a narrow band from Fraser Island in QLD along the NSW coast to eastern Victoria where there are three isolated patches, it is the most southerly palm found in Australia. It is found in rainforest but also in more open situations along river flats and back in swamps where it can form dense colonies. The Aborigines and early settlers used the leaves to weave hats & baskets & the hearts were eaten as cabbage. A good place to see a stand of these palms is in the Byron Bay Nature reserve Palm Valley walk

Calamus muelleri **Southern Lawyer Cane or Wait-a-while**

This is the notorious Wait-a-while or climbing palm. It forms impenetrable clumps with several stems per clump. It has prickly leaf sheaths with barbed leaf stalks and flagella with recurved hooks which are modified inflorescences growing from the leaf axils. The stems or canes can grow to many metres in length and have been used to make cane furniture and baskets. The distribution of this palm is from Kenilworth in Qld to the Bellinger River in NSW. This palm is not yet planted in the Gardens. A good place to see this palm is in the Victoria Park Nature Reserve near Alstonville where it is quite common growing along with Bangalow Palms.

Young *Livistona australis* Cabbage Palm *photo Mike Fulloon*

References: *Palms In Australia* 1st ed 1984 by David Jones pub. Reed Books
Information from John Dowe, Townsville Palmetum

Rhodamnia maideniana

Smooth Scrub Turpentine

This delicate little shrub (1.5 to 3 m) is rare and occurs from Ballina to the Gold Coast (north of Springbrook) in subtropical rainforest in coastal districts. It is planted in Room 3 and Uncommon Plants Garden. In both places it is shaded and protected by other plants. It was flowering early last month. The shrub was covered in very small flowers similar to other members of this family. New growth leaves are red. The fruit is a black globose berry which I hope to collect for Mt Annan Botanic Gardens where Graeme Errington is researching this genus (Rhodamnia) as it was particularly infected with Myrtle Rust last year. Maybe our plants have escaped because they are in protected spots. For further information about Myrtle Rust see our July newsletter 2012 pages 4 and 5. ***Pat Offord***

References: Rainforest Trees and Shrubs-Harden, Mc Donald &Williams
PlantNET and Australias Virtual Herbarium (AVH) which can be accessed through the PlantNET site. AVH is useful because it shows occurrence on a map & lists information about all collection sites.

Tick deterrant shirts

We have had several queries about the availability of work clothes treated to deter ticks & have two possible contacts
Bisley Clothing - Totally Workwear etc.
http://www.bisleyworkwear.com.au/Protectivewear-Insect-Protection/
Safari Life
http://www.safarilifeworld.com/long-sandstone-shirt.html

Tree Profile…. *Flindersia schottiana*

Cudgerie, Bumpy Ash or Silver Ash, Family Rutaceae *Peter Gould*

Young Cudgerie growing as a street tree in Lismore photo Flickr

Cudgerie is a common tree in lowland subtropical and littoral rainforest and is often seen regenerating in cleared former rainforest sites. Distribution is from the Hastings River in New South Wales north to Papua New Guinea and west to Kingaroy.

A tall, slender tree it can grow up to 50 m with a spread of 15 to 25 m. Comparatively fast growing, moderately frost and drought tolerant and able to establish in full sun or part shade, Cudgerie is a hardy tree, easy to establish.

The small white flowers are about 9 – 10mm across and appear in terminal racemes up to 40 cm long. Pollination is via a range of insects, including native bees and night flying moths. It is a host plant for the Orchard Butterfly *(Papilio aegeus)*

Leaves are compound, pinnate, leaflets opposite in 7 – 19 pairs, almost sessile, usually falcate, 5 – 22 cm long and 1.5 to 6cm wide, upper surface shiny and dark green, lower surface greyish, oil dot dense, distinct. The branchlets, leaves and inflorescences are glabrous to stellate-hairy.

The fruit, a woody capsule 8 - 13 cm long separates into 5 boat shaped capsules at maturity, releasing winged seeds of 5 - 6 cm in length. Propagation is by fresh seed with no special preparation required.

It is an excellent tree for farm forestry producing a moderately hard, straight and fine-grained golden yellow timber that takes a high polish. It is used for furniture, cabinetwork, boat building, veneer, tool handles, panelling and flooring.

References:
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, Nambuccca Heads, NSW.
Bracken, L., Gould P., and Novak, M. 2001, *Farm forestry manual and planner for subtropical Australia,* Subtropical Farm Forestry Association, Lismore, NSW.
http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Flindersia~schottiana

Stinging Trees of the Rainforest

from Jan De Nardi

Australia has a number of species of stinging trees, although only two of them are actually trees, the others are shrubs and occur in rainforests further north than our catchment area. The only species that occurs in our region is the Giant Stinging Tree, *Dendrocnide excelsa.* These plants belong to the plant family Urticaceae, which includes the stinging nettles, and the native mulberry, *Pipturus argenteus*, which also grows in our Gardens.

We have at least self sown three examples of *Dendrocnide excelsa* in our Gardens.

This particular species can grow to a very large tree, up to 40 metres tall, with a buttressed trunk, and a stem diameter of 430 cm. The young leaves, branchlets and enlarged juicy fruiting stalks are covered with stinging hairs - hence the common name - although the older parts of the trees lose these hairs.

When touched, the tips of the hairs break off and the toxin is released, causing a painful sting, which can recur for some months when the stung area is wet. More information about the stings and some possible treatments for them can be found on the world wide web, and I have listed a couple of them at the end of this article.

In the wild this species occurs in areas which have been disturbed, by cyclones or other forms of clearing, e.g. where a large tree has died and fallen, leaving an open space. They can also be found along bush tracks or sometimes besides roads through rainforests. Since they have very large leaves when young, and grow quickly and tall, but do not have a dense canopy, they may serve a useful purpose in protecting juvenile plants of many rainforest species which are slower growing.

It seems that native Australian animals are not affected by the stings, and eat the leaves and fruit. However, introduced animals are affected by the stings, sometimes quite badly. The White Nymph Butterfly is reported to lay its eggs on the leaves and the caterpillars eat the leaves, as do many other insects. Often older leaves are quite severely chewed with many holes. Birds eat the fruit and spread the seeds.

The aborigines used the fibres from the bark on the roots for making nets and lines. Our trees are to be seen in the Wilson Park planting area, and should be treated with extreme caution.

References: A.E.Floyd, Rainforest Trees of Mainland South-eastern Australia, revised edition 2008, p. 424
Nan & Hugh Nicholson, Australian Rainforest Plants, vol II, 4th edition, 2007, p.23
Harden et al, Rainforest Trees & Shrubs, 2006, p.97
www.abc.net.au/science/articles/2001/02/08/243639.htm (this is an article by Karl.S.Kruszelnicki) and article on web site for Australian Tropical Research Foundation, re treatment for stings.

"Fruit Loop" Garden at Mt Annan

Steve Davies The Australian Botanic Garden, Mount Annan

Peanut Tree fruit *Stercula quadrifida*

The Fruit Loop Garden is situated in and around Melaleuca House Restaurant and links the Education Centre, Garden Restaurant and the Visitor Centre in the heart of the Australian Botanic Garden, Mount Annan. Along the pathway can be found an abundance of plants used by Australians past and present as food, tools, shelter or medicines. As preparation often involves quite complex processes we can appreciate the resourcefulness of Indigenous Australians who used plants like these to survive and flourish in our environment for thousands of years. Today, these same plants are being used to enhance contemporary cuisine and many make good plants for the home garden

GARDEN DESIGN

Various stories about the plants are told along the Fruit Loop pathway.

***The tool box – a dilly bag full of tricks*:** Plants played an important role in the lives of Aboriginal people before the introduction of metal, plastic and rubber. With such an abundance of natural resources and array of skills perfectly adapted to the environment, they had a tool for every purpose. Their tool box was developed by countless generations over 40,000 years to assist with their hunting, food collection, construction of shelter, health, and well-being and for celebrations.

***Cooking without gas – traditional food plants*:** At least half the traditional food eaten by Aborigines comes from plants – collected and prepared by women! Meat and vegetable roots are often wrapped in plant leaves and bark for baking, while wattle and other seeds are ground on stones and used to make a flat bread for baking either on hot rocks, or in hot coals as damper. Wild fruits of quandongs, native raspberries, midgenberries, pigface, figs, lilly pillys and geebungs make good snack foods

***Take it or leave it – starving in the lucky country*:** In the 1780's the biggest threat to Captain Arthur Phillip's colony was starvation. Until they could harvest their first crops, the new settlers were reliant on the food staples brought out with the first fleet. Very few of the new settlers were farmers and those who were faced a vastly different climate and nutrient poor sandy soils. The first crops were woefully inadequate and the spectre of starvation stalked the colony constantly.

By contrast the local Aborigines were so well adapted to the country that their standard of nutrition and general health was probably higher than many European settlers. Settlers learned from the locals. They also experimented with local plants – such as substituting Warrigal Green for spinach and Native Sarsaparilla for tea

***Oz nouveau – riding on the quandong's back*:** Innovative Australian chefs have embraced the concept of an Indigenous influenced cuisine. Contemporary restaurants are seasoning their dishes with lemon scented myrtle, native pepper and riberries. Quandongs, finger limes and macadamia nuts are now popular ingredients in many dishes. Other plants, such as the native raspberry and various wattles with tasty seeds have great potential to be introduced into cultivation and from there into recipe books

Our country, our food - a recipe for reconciliation: The benefits of cultivating Australian native foods include conserving wild resources and protecting biodiversity; use of Aboriginal knowledge, values and traditional lore; contributing to combating salinity problems – through the introduction of more perennials; encouraging farmers to diversify from traditional crops; creating incomes and jobs in Aboriginal and rural communities and raising the appreciation of our rich Indigenous culture.

SOME OF THE RAINFOREST SPECIES in the Fruit Loop Garden include:

Backhousia citriodora

This species occurs from Mackay south to Brisbane in Queensland, growing in coastal scrub and rainforests, often on the rainforest fringes. It is called "ironwood" because of its very hard timber. The beautiful flowers of the ironwood will attract many different insects to your garden as well as the birds which come to eat them. Now available in supermarkets the lemon flavour can be used in soups, custards, sorbets, mayonnaise and is superb cooked with fish. Add fresh leaves to the teapot to make lemon myrtle tea

***Citrus* 'Australian Blood Lime'**

This is a hybrid between *Citrus australasica var. sanguinea* (the red finger lime) and the Rangpur lime (*Citrus x limonia*) selected by CSIRO. It is an attractive, dense, upright shrub to small tree, usually 2 to 3 m high and 2 m wide with dark, glossy-green foliage. Under the right conditions the tree produces striking, blood red coloured fruit which ripens in winter. The skin colour may range from gold, with red flecking, to a uniform intense blood red, while flesh and juice may show red tinges or occasionally be more intensely red. Seasonal, geographic and harvest timing practices appear to influence the intensity of colour development. Spines are present in the leaf axils which inhibit hand picking and cause post harvest problems as the spines can damage the fruit. The blood limes are relatively acidic like a

lemon, but are excellent when used in sauces. They can also be used as an ingredient for preserves, condiments and beverages, or fresh as an attractive garnish for sweets or savoury dishes. Juice squeezed from the fruit has a sharp crisp-clean flavour.

Citrus australasica

This is a medium to large shrub or small tree from the rainforests of south-east Queensland and north-east NSW. White or pale pink flowers appear in late summer and autumn, followed by edible, elongated fruits which ripen in winter through to spring. The fruit may be green, yellow, black, purple or red with green, yellow or pink pulp and has recently become popular as a gourmet bush food. It is hardy in tropical to temperate climates in well drained conditions. Plants are usually slow growing and seedlings may take from 5 to 15 years to reach maturity. The stems are protected with vicious thorns, wearing gloves and long sleeves is recommended when harvesting fruit. The fruit has a similar flavour to lime and is used in salad dressings, chutneys, marmalades, desserts and sauces. Interest from chefs such as Jamie Oliver has

Flickr image

generated huge orders from Europe and the Middle East

Podocarpus elatus

The plum pine is a primitive species that has survived since the dinosaur age. The Podocarps originated in the Gondwanan forests of the Triassic period, 245 million years ago where they grew alongside wollemi pines, cycads, tree ferns, giant club mosses, horsetails, ferns (not grass) which covered the ground.

In Australia today, this tall shrub to medium tree occurs in the rainforest and rainforest margins of Queensland and New South Wales, often associated with waterways. This species is dioecious which means there are separate male and female plants. One of each must be growing within pollination range in order for the female tree to set fruit. The fruits are composed of two segments. The edible portion is the grape like swollen stalk. It has a resinous flavour, high Vitamin C content and can be used in jams, jellies, tarts and cakes.

Hernandia bivalvis

A tall shrub or small tree which is an uncommon to rare species restricted to a few remnant patches of rainforest around Brisbane and near Biggenden in Queensland. The common name, grease nut, refers to the edible seed which contains up to 65% oil. These were roasted and eaten by Aborigines. The spectacular and unusual fruit with lime fleshy, overlapping bracts which age to orange or red, make this an outstanding small tree for gardens especially in subtropical and temperate regions.

Conclusion

The Fruit Loop Garden is one of many interesting and informative gardens on display at The Australian Botanic Garden, Mount Annan. Further interesting rainforest including rare and endangered species can be found in the Connections Garden. The Garden is open every day of the year, except Christmas Day, from 10am – 5pm. Entry is free

Steve Davies, Senior Horticulturist
The Australian Botanic Garden, Mount Annan

Wednesday Work Group

I love working with the happy, hard working Wednesday group. They are a great team and we get a lot done each week. Along with weeding, planting and mulching we have completed two pathways. The first through Rose's Garden in Room 2 involved moving a lot of rock with wheelbarrows. Luckily we were helped by a couple of younger guys from SCU. The second track is through the Wilson Park Garden - to give better access to the great variety of dry rainforest plants in this area. This pathway took several weeks and a lot of effort. We used rocks on the edges and filled the walking area with mulch. The team did a great job and it is a very pleasant path to wander along.

In the later part of last year we were part of the watering team keeping the plants alive during the drought period. Those on Sunny Slope area are in full sun so, Paul, one of the group, came up with a watering system to cut down the time spent standing out in the heat hand watering. It still needs a little bit of tweaking but it is another example of how versatile and hands on our group is.

But it has not been all hard work, we have occasional day outings visiting local rainforest areas. Our most recent trip was to Rocky Creek Dam where we walked into the Big Scrub, from there drove up to Minyon Falls. While having our picnic lunch a kookaburra flew down and took Peter Gould's sandwich out of his hand leaving him surprised and us laughing.

The Gardens are a beautiful place to work and recently we saw four koalas in one tree, an adult male, a female and a young female with baby. Wonderful! With the new education building soon to be in operation we are anticipating more and more visitors to the site. It is a good feeling to know of that I, with the rest of the Wednesday Group, have contributed to the successful establishment of these Gardens.

Ros Little

Koalas in the Gardens

from Damian Butler

Monday the 7th of January was Australia's hottest day on record,

Not the koala in this story but one seen recently in BBQ area

according to the Bureau of Meteorology. The average maximum temperature Australia wide was 40.3°C, beating the 1972 record by 0.1°C. So what does this have to do with Koala's?

Koalas search for water during hot, dry weather! It is important to leave water out for Koalas, which I have been doing in the 'Gum Forest' area of the Gardens. Water will attract predators like foxes, cats or dogs. They know where their prey congregate so they will use this resource for prey as well as water. It is important, then, to leave the water out of reach of such animals.

The Northern Rivers Waste Facility grounds (which includes the Botanic Gardens) are a dog/cat/exotic livestock/pet free area. A dog's saliva is very toxic to a koala, so do not underestimate the impact even a small dog can inflict in an encounter with a Koala.

The Koala population at the Gardens consists of a number of individuals that tend to stay in situ, and a few that are trekking through on their way to find a place to stay or a mate. It's a dynamic population too. One day there will be a Koala in one tree, the next day it has moved past many others to get to another tree.

From Flooded Gum, Forest Red Gum, Grey Box, to Swamp Mahogany – koalas will exploit the resource until dieback has set in. So it is important to have a diverse range of cohorts of Eucalyptus spp. on offer for Koalas.

On a final sad note, before Christmas I rang the Friends of the Koala to come and have a look at an un-well Koala I had noticed around the BBQ area. The next day, I received the sad news that the Koala (a female) had cancer and had to be euthanised. Pat Barnidge, Koala care coordinator, informed me that this individual was the second oldest Koala that she had ever known of in the area, at an age of approximately 13 years.
http://www.friendsofthekoala.org/fok/
http://www.abc.net.au/local/stories/2012/01/04/3402047.htm

Follow up on sick koala

Each koala that we have had in care and then released is tagged with a small tag in the ear so the koala we picked up from the Gardens would have had this if she had previously been in care. She had no tag.
When an animal is brought in it is taken to the local Keen St Vet Clinic and sedated for a full checkup which includes bloodwork, ultrasound and aging them by their teeth. This system of aging gives a rough estimate although the area they come from and what leaf they eat may have an impact on how their teeth wear. When the koala is sedated we can also look in the pouch to see if it has been used. We are extremely grateful to vets who do our vet work locally.
Unfortunately we have a really high incidence of koala disease in our area including cancer and chlamydia. Chlamydia can cause females to become infertile which is the case with many that we see.
It is nice to think that this older girl, who had no signs of chlamydia, had been breeding successfully throughout her lifetime. A change from what we often see which is young, infertile, diseased animals. Because of the disease factor thirteen is quite a good age for our area, especially a female.
Barb Dobner and Pat Barnidge, Friends of the Koala.

Christmas in a foreign land

Early settlers in sub-tropical valleys tended to give trees nick-names and so lonely expatriates far from their European homes, named the Brown Kurrajong , *Commersonia bartrimia* the Christmas Tree. In December this local tree was loaded with snowy-white blossoms as if snow had fallen overnight on its pagoda-like branches. There is a mature specimen in our original planting, inside the main gate. Its young bark is peppered with small raised spots or lines of cork. These are lenticels and the tree uses them to exchange oxygen and carbon dioxide. It is happiest on the edges of disturbed land and this fast grower is suitable for a large garden. It can be raised from cuttings in the humid months. Or from seed - the seed capsules first soaked in boiling water or placed in a paper bag in a warm sheltered site to release the seeds. This tree likes initial moisture and will accept light frosts. ***Geoff Walker***

Friends Committee

President: Jan De Nardi 6629 8244
jande@activ8.net .au
Vice President: Pat Offord
Secretary: Denis Matthews
6689 5261
friendslrbg@bigpond.com
Treasurer & Membership:
Mary Harrison
Organiser: Pat Offord
6629 1435
pofford3@bigpond.com
Publicity & Newsletter: Marie Matthews
6689 5261
mariemathews1@bigpond.com
Data Base Manager Mary McDermott
Propagation: Rose Hand
6622 6558
rosedaphne1@gmail.com
Sunday Work day Organiser
Denis Matthews
0431 223340
Wednesday Group Organiser: Ros Little
6628 2909
rnrlittle@southernphone.com.au
Walk Guides: Rosemary Blakeney
Committee: Geoff Walker
Margaret Smith
Peter Gould
Annette Deal
Website: www.lismore.nsw.gov.au then >things to do>recreation>Botanic Gardens