

Blandfordia



North Shore Group
(ABN 87 002 680 408)

JUNE 2019

CONGRATULATIONS to BARRY LEES

on being endorsed as a **LIFE MEMBER** of Australian Plants Society NSW on 18th May 2019.

It is a fitting acknowledgement of all the contributions that Barry has made to APS NSG and APS NSW since joining in 2003. Barry led our group for the past 6 years as President (2013-2015), Vice President (2016 when there was no president) and President again in 2017-2018. Prior to becoming president in 2013 Barry was the editor of *Blandfordia* for two years and a committee member in 2010. Barry has always been supportive of all members, especially those on the committee, and provided constructive advice whenever needed. Barry almost always attended the monthly group outings and annual trips away. Barry would beaver away at working bees at the APS NSG propagating area at Ku-ring-gai Wildflower Garden, where his engineering expertise and practical skills always facilitated a positive outcome. At meetings, visitors and members were always welcomed and Barry would often gently explain to new comers why botanical names were so important for the accurate identification of plants.



Image by Sue Fredrickson

Barry's interest in native plants is focused on LOCAL species as they are found in the local bush. Barry has been active in the Hornsby Herbarium work on an almost weekly basis for about 20 years. He has also managed the Herbarium website and all the data for the group over many recent years.

For the past 11 years, Barry has also been active in his local Still Creek Landcare group based at Fagan Park, including being the coordinator. This work involves bush regeneration, planting native plants and providing advice to landholders on many aspects of growing native plants and managing their bushland. Not content to be land bound, Barry has also assisted with the Floating Landcare group on the Hawkesbury River. Barry's own property is a "Land for Wildlife" reserve with the Office of Environment and Heritage. APS NSG members have been extended hospitality on group outings there.

Barry has contributed to Streamwatch by doing water quality monitoring in local streams. He also supported other plant and bush conservation causes by making submissions and representations to government and other organisations.

Barry has spent many an hour up the fire tower on look-out as part of his duties with Hornsby Ku-ring-gai Rural Fire District Support Brigade.

Barry's volunteering is part of a pattern of consistently helping the community over time. Many members would not know that Barry has been an extremely active member of TAD Disability Services (TAD NSW) over almost 40 years. In this role he puts his vast engineering and innovative and creative skills to work to assist in designing and making individual equipment for people needing help.



Barry was supported by several APS NSG members at the meeting. Image by Ron Watts

Still not one to be idle (Barry doesn't know the meaning of that word) he participated in an amateur musical group (Loosely Woven) for several years by repairing musical instruments, making props and being part of the "cheer squad" at events. Sometimes Barry and Noni provided music at the APS NSG Christmas parties. Finally, Barry has a long association with the Sydney Clockmakers Society.

On behalf of all APS NSG members, thank you Barry for your all your contributions, leadership, enthusiasm and your friendship. Your love and respect for our native plants is contagious and you have inspired many others to share this passion.

Written by Jan Williamson

Genetic Variation in Australia's Red Gum in Eastern Australia

John Whale, one of the 2018 Val Williams Scholarship recipients, spoke on his research that covers an extensive area of Australia, from Victoria to Queensland. Worldwide there are approximately 850 species of eucalypts with most endemic to Australia. Red gums, which include the River Red gums and Forest Red gums have a large distribution throughout Australia (and are the two most widely distributed of any eucalypt tree), across a large range of temperature and rainfall gradients.

Two characteristics that distinguish red gums from other smooth-barked eucalypts are the reddish colour of the heartwood and the raised disc on the fruit.

John's study has focused on 4 species, two with a widespread distribution, *Eucalyptus blakelyi* & *Eucalyptus tereticornis*, and two with a restricted distribution, *Eucalyptus glaucina* & *Eucalyptus parramattensis*. Each of these species are of ecological and economic importance. He has been investigating whether any of these species possess genetically based adaptations to respond to changes in climatic conditions, which are causing an increase in the tree mortality rates.

The studies focus on Single Nucleotide Polymorphism (A single-nucleotide polymorphism, often abbreviated to SNP, is a substitution of a single nucleotide that occurs at a specific position in the genome, where each variation is present to some appreciable degree within a population. [Wikipedia](#)). Genetic variation exists both within and between populations of a species; both are essential for adaptation. Genetic drift is a process that causes random fluctuations in allele frequencies that can have a major effect on the genetic diversity. Adaptive genetics is when the variations occur as a result of natural selection, typically improving its fitness, survival, and ability to produce healthy, viable offspring.

Genetics, physiology (traits), and the environment (climate, soil) are all integrally interrelated, and together can help determine the adaptive capacity of the red gums to climate change.

John's research questions were:

1. What is the genetic diversity of the red gums?
2. Which climate variable (temperature or rainfall) is more informative when explaining the adaptive genetic variation of these red gum species?
3. Are any of these adaptive variants in the DNA shared between species?
4. Do the restricted species, *Eucalyptus glaucina* and *Eucalyptus parramattensis*, as a result of their limited geographic distribution, also possess fewer genetic variants associated with climate and/or the environment?

John then spoke on his NSW results where each species occurs naturally. The principle outcomes were that there is a lot of genetic diversity within each species, with only a small proportion (less than 10%) of the genetic variation occurring in the parts of the DNA that are not in genes, or have no effect upon a trait. For each species, most of the genetic variants found were associated with temperature, indicating this is the most important climatic factor for the adaptation of these species. Interestingly though, *Eucalyptus blakelyi* also had many more variants associated with rainfall than any of other species. This species is mostly found west of the Great Dividing Range, and so these variants may allow this tree to be more tolerant to more irregular (or the seasonal variability of rainfall) that it is likely to experience over the other species that are found east of the Great Dividing Range. John found that only a handful of the adaptive variants were shared in at least two species, indicating that many of the adaptive variants that each species possesses, is specific to that particular species. Finally, John told us that the restricted species had at least as many adaptive genetic variants as the widespread species, despite their much smaller geographic distribution. This is something he found surprising, but thought might mean that *Eucalyptus glaucina* and *Eucalyptus parramattensis* may be highly locally adapted or specialised to the environments they inhabit, potentially placing them at great risk as the climate changes.

John's future work in this project includes analysing the genetic data of populations of these four red gums from Victoria, the ACT, and Queensland, a drought experiment where he will look at several morphological and threshold traits and how they change when under water stress. Once he has finished, he will be able to combine the information collected from this experiment with the genetic data to determine how vulnerable each of these red gum trees are to a changing climate, and whether we might need to relocate some populations to ensure their survival.

Many thanks to John for his presentation. Once again, the group is greatly encouraged by the quality and enthusiasm of the successful Val Williams Scholarship recipients.

Further information on this topic on page 3.



EDITOR'S POST SCRIPT: John wrote some of the summary for me, because I was out of my depth trying to take notes at the meeting. I sent a query to John. My query and John's response are below.

Editor's query: I am still struggling a bit with the concepts in the sentence-The principle outcomes were that there is a lot of genetic diversity within each species, with only a small proportion (less than 10%) of the genetic variation occurring in the parts of the DNA that are not in genes, or have no effect upon a trait. Does it mean that 90% of the genetic variation is in the gene DNA? Is the DNA that is not in genes in the other intracellular organelles e.g. mitochondria. Genetic studies have gone a long way forward from my limited studies. I wouldn't be alone in this. Could you please add some words that might help my understanding? Thanks Jan

John's response: I won't go as far to say (yet – further analyses are needed) that the 90% of variation is in gene regions, but it seems that a large proportion of the genetic variation we have observed with my work (and some of Paul's previous work) is adaptive. Meaning that it occurs in parts of the genome (the entirety of the species' DNA) that control for visible traits, responses to stressors (physical/biological e.g. physical destruction or like an immune response, or environmental/climatic changes which modify the organism's metabolism etc.). These adaptive variations (SNPs) may be in the genes found on the chromosomes, in the mitochondrial DNA, or in the chloroplast DNA – we just don't know yet (the genes in the *Eucalyptus grandis* genome that we compare our data to, hasn't been fully described yet – basically we have a good idea, but not 100% certain).

But that 10% I mention, does not have any (apparent) adaptive function, and is something that we call 'neutral genetic variation'. And this variation allows us to figure out how genetically variable/diverse individuals within a population are, and on the larger scale, how different populations of a species are from one another. An determining this 'neutral variation' in conjunction with the adaptive variation, will help us further down the line to determine whether populations and/or species are diverse enough to persist through climate change.

2019 Val Williams Scholarship Winner

Congratulations to Farhad Masoomi-Aladizgeh who is a PhD candidate at Macquarie University. His topic is is "DNA: the key to understanding evolutionary relationships between Australian ecotypes of *Themeda triandra* (kangaroo grass)".

The May outing was attended by 13 people who were treated to a glorious morning at Helen and Ed Peel's most impressive native garden at West Pymble. Together they have created, over the past 17 years, a diverse and beautiful garden. It includes large trees, shrubs, ground covers, a pond, a bee hotel and productive citrus and herb areas, compost bins and water tank. Barely a weed was visible. Helen credited this to the extensive use of mulch. Helen collects all manner of vegetative material to use as a mulch. Many thanks to Helen and Ed for their generosity in letting us visit and for providing us with a delicious morning tea.



Other images by Jan Williamson

Future GROUP OUTINGS for 2019

SUNDAY 16th June WORKING BEE at KWG Propagation and BBQ to follow (see page 4 for full details)

SATURDAY 13th July GARDEN VISIT at Jan Williamson's home, Thornleigh

SUNDAY 25th August WILDFLOWER, ART and GARDEN FESTIVAL

SUNDAY 15th September GARDEN VISIT at Clare Bell's home, Berowra

OCTOBER Volunteer required. Do you know of a suitable walk or venue? Please contact Jan on janw7531@gmail.com

Friday 14th & Friday 28th June at The Knoll Garden



For anyone interested in working on the Knoll, the current plan is to work on every second and fourth Friday of the month from 10am to 12 pm. We meet at around 9.50 am in the carpark next to the locked gate that leads down to Lambert's clearing. (Follow the road past Caley's Pavilion). Please email michaelgriffith1@gmail.com if you wish to join us.



SUNDAY 16th JUNE A working bee at the shadehouse.

9am start with 12.30pm BBQ at nearby Dampier's Clearing.

The APS NSG shadehouse is located behind the Visitors' Centre.

PLANTS for sale



HELP !!!!!!!

Do you or anyone you know have expertise in drainage work? Your help is needed. There is an issue with drainage around the area. The labour is available but some experienced advice and guidance would be appreciated. Please contact Sue Bowen on 0478 957 951 if you can assist. Even if you can't make it on the day, a phone call would be appreciated.

Please bring tools (spade or shovel, rake), wear stout shoes and protective gloves and eye protection. Bring food for BBQ.

Lunch will be at 12.30 pm and all are welcome, even if you can't assist with the working bee.

MONDAY 17th JUNE Commencement of the 2019 WALKS AND TALKS sessions.

9.45 am at Caley's Pavilion for 10am start. There is talk for about one hour followed by an easy walk for about an hour to look at the features covered in the talk.

Please wear a hat, closed suitable shoes and bring water and your lunch if you wish to stay on and have a chat.

APS NSG members \$2 per person, non members \$5 per person



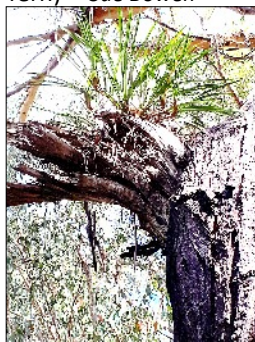
- 17th June An Introduction to Australian Native Plants
- 24th June Banksias (Family Proteaceae)
- 1st July Gum Trees- Eucalypts, Angophoras, Corymbias (Family Myrtaceae)

There will be some books from *Lifeline* for sale, including a good collection of lightweight paper back Field Guides to Native Plants of both the Sydney Region and Australia.

Free to good homes

- 1 *Banksia serrata*
 - 1 one metre tall *Melaleuca quinquenervia*
 - 3 *Grevillea robusta*
 - 1 small *Syncarpia glomulifera*
- Contact Sue Bowen on 0478 957 951

At KWG on 15th May . *Cymbidium suave* (snake orchid) and native bee nest in same gum tree and *Lindsaea microphylla* (lacy wedge fern) Sue Bowen



Editor's note: exposure adjusted

Notices and Reminders

APS NSW Get Together Newcastle Saturday 17th & Sunday 18th August

A most interesting programme has been organised by the Newcastle APS Group

Registration for the weekend is \$40 and includes lunch and morning tea on both Saturday and Sunday.

Please register and pay by 15th July 2019

For full details: <https://austplants.com.au/event-3175542>



Wildflower Art and Garden Festival 2019 Sunday 25th AUGUST at KWG

Please set aside this date and Friday 23rd & Saturday 24th August for doing the flowers, setting up and moving the plants. Any small vases or containers for flower arrangements will be most welcome. Any ideas for new activities/ displays etc are always welcome. Please contact Jan Williamson janw7531@gmail.com

Australian Native Plant Society (Australia) ANPSA National Conference and Biennial General Meeting 2019

will be held in Albany WA from 29th September to 3rd October 2019.

www.bloomingbiodiversity.com.au

Eucalyptus photo competition . Entries close on **Monday 22 July 2019**.

<http://www.nespthreatenedspecies.edu.au/news/eucalypt-photo-competition>



open for entries between June 3 and August 2

Lorraine Bower

Threatened Species Children's Art Competition

PO Box 226, Annandale NSW 2038

Phone 0414 958 714 02 806 88805

Website: <http://www.threatenedspeciesartcomp.net.au>

Follow the competition on Facebook

<https://www.facebook.com/groups/289862308022985/>

Creating Native Gardens

Some APS NSW members supplied images for the following resource. At the time Council was putting together an educational resource for residents of the Canterbury-Bankstown LGA to help them create native gardens.

This resource, Your Native Garden: A guide to bring native plants and animals back to your garden, has now been launched and is available for download at cb.city/nativeplants

(<https://www.cb.city.nsw.gov.au/environment/biodiversity/native-plants>).

Another resource is also available. <https://www.hornsby.nsw.gov.au/environment/flora-and-fauna/plants/community-nursery>

The next Hornsby Shire plant giveaway is on Sunday 30th June for Ward B Residents (Hornsby, Normanhurst, Pennant Hills, Thornleigh, Wahroonga, Waitara, Westleigh) residents.

With the dry, and unseasonably hot weather, expect the unexpected.

From Narelle Barden in May. I went for a walk last weekend in the local Berowra Valley National Park and spotted *Telopea speciosissima* in bloom (is it October already?) + some healthy new buds ready to go. Then to the Blue Mountains Botanic Garden Mount Tomah and they have some in bloom as well.



Editor's note: The exposure has been adjusted by me to enable easier visualisation of the buds.

Plant Propagation at KWG on Wednesdays from 1pm to 4pm on 5th & 19th June

Contact:

Margaret Hamilton on 9488 5234

Ku-ring-gai Council Bushcare at KWG on Wednesdays (fortnightly)

at 9 am on 12th & 26th June 2019

Contact Sue Bowen on 0478 957 951

Monday Walks and Talks at the Ku-ring-gai Wildflower Garden

St Ives.

17th June. An introduction to Australian Native Plants

24th June Banksias (Family Proteaceae)

1st July Gum Trees- Eucalypts, Angophoras, Corymbias (Family Myrtaceae)

Contact: Bob Failes 9417 5217

The Knoll KWG Fridays 10am to 12 noon. 10th & 24th May 2019

Contact: Michael Griffith

michaelgriffith1@gmail.com

Members and friends are always welcome at these activities.

Next Meeting of our North Shore Group

Friday 14th June 2019

(7.30 pm for 8 pm)

Beatrice Taylor Hall

Willow Park Community Centre,

Edgeworth David Ave, Hornsby

Speaker: Wendy Grimm

Topic: Native Pollinators

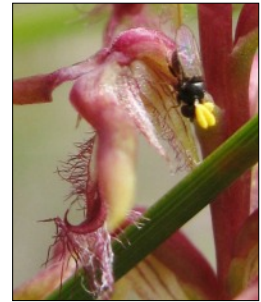


Photo: Chloropid fly on flower of *Corunastylis fimbriata*.

What motivates insects to visit plants? How do plants deceive insects into providing pollination services?

These questions have tied Wendy's interest in Australian native plants to her passion for capturing images of small, mostly inconspicuous insects. She will talk about insect pollinator relationships in several well-known plant families.

Next meeting **Friday 12th July**

Speaker: Jacob Sife

Topic: Natural Areas Program Leader, Ku-ring-gai Council

May Committee Notes

- Val Williams Scholarship 2019
- Guest Speaker acknowledgements
- HSC hall hiring requirements and future arrangements.
- Bendigo Bank Savings Account has been opened. CBA account will be closed.
- Group activities for the remainder of the year.

Committee Contacts

President: Sue Bowen 0478 957 951

Secretary: Judy Jeffery 0429 438 598

Address for general correspondence:

Australian Plants Society, North Shore Group, PO Box 141 ROSEVILLE 2069

Email: secretary@blandfordia.org.au

Website: <https://austplants.com.au/North-Shore>

The preferred method for Membership Applications & Renewals is to go to the APS NSW website and follow the instructions at <https://www.austplants.com.au/about-membership>.

If joining or renewing online presents any problems assistance can be given at any general meeting. Please speak to Genevieve Meares or Helen Ray.

Alternatively email your query to membership@blandfordia.org.au.

For your convenience, an EFT payment option is now available.

Newsletter Editor: Jan Williamson 9875 2262 janw7531@gmail.com

Newsletter submissions: Deadline for submissions is the third Friday of the month.

For the July 2019 edition this will be 21st June Editor: janw7531@gmail.com

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The Newsletter of the Australian Plants Society North Shore Group PO Box 141 ROSEVILLE NSW 2069