

CALGAROO

June 2023



Eucalyptus parramattensis - Calgaroo

**Newsletter of the Parramatta and Hills District Group
Australian Plants Society NSW Ltd**

Our vision: inspiring people to admire, grow and conserve native plants

What's on in 2023

Saturday 24 June - 10am: Bushwalk Challenger Track West Head, Ku-ring-gai Chase NP
Leaders Lesley Waite and Ian Cox. See page 2.

Saturday 22 July: Visit Mt Annan Botanic Garden

Saturday 26 August: Bushwalk

Saturday 23 September: Members' meeting at Gumnut Hall, Gumnut Place Cherrybrook.

Saturday 28 October: Bushwalk Vineyard Creek Dundas. Leader Jennifer Farrer.

Saturday 25 November: Members' meeting and end-of-year celebration

* * * * *

Bushwalk Challenger Track, West Head

Saturday 24 June, starting 10am.

Don't let the name put you off – it's not really challenging. This is an easy walk on a level, wide track, about 3km return.

Lesley and I did this walk in October 2022, and were very impressed with the many beautiful plants, flowers and trees, and great vistas. In fact, there was so much to see, it took us about half an hour to walk the first 100 metres!

Meet for a 10am start at the beginning of the track, which runs to the left off West Head Road. Park on the side of West Head Road. When you enter the Ku-ring-gai Chase National Park there's a fee of \$12 per car to pay by credit card.

Harry Loots walked this track in late June last year. Harry is the APS NSW Treasurer, an orchestrator of words extraordinaire, and a great photographer. I hope Harry's enticing article and wonderful photos whet your appetite!

Challenger Track on West Head

Harry Loots

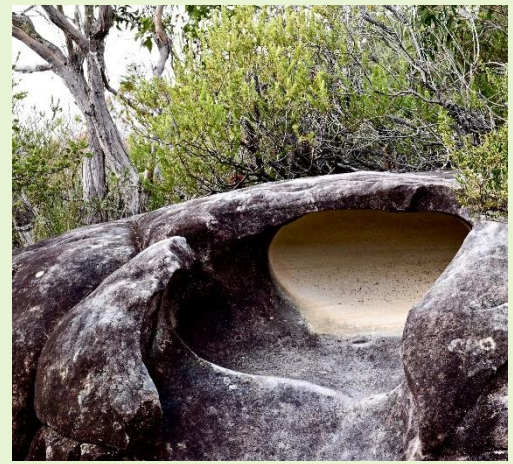
We ventured into the bush on the coldest day just after the winter solstice. Four layers of clothing was de rigueur. Dew sparkled on flowers even at midday. There was no rain, but the air was as wet as the ground after a week's drenching. Mosses grew high and lichen stood to attention.

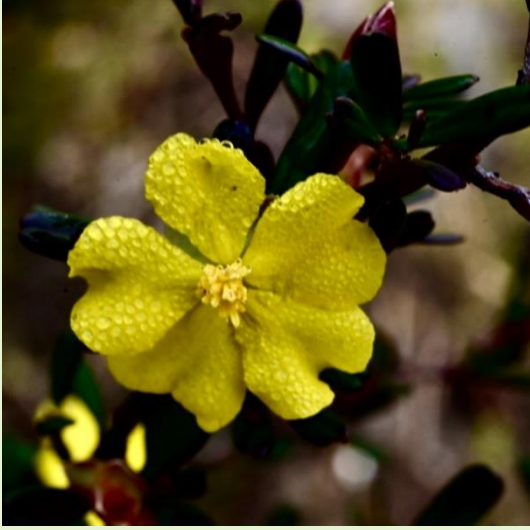
Ridge-top rock shelf heath flowers relished the chill. Astonishing pinks posed before cool greys while pretty whites danced from dense greens. It was viridescent, olive and pea green, emerald, lime, bottle green, Lincoln green, sea green, sage, acid green, eau-de-Nil, aquamarine, aqua, virescent, glaucous. For eons a hundred species had a home. Bar fire, drought and shallow sandy soils, these survivors grow where man would never dream to cultivate.



Rocky escarpments, overhangs and caves view blue drowned depths. The sun burns sharp-edged ironstone ripples. Glistening drips furrow, wear and colour the impenetrable. Pools mirror bonsai. Puddles muddy the track. Roots seek crevices, grow mats in the dust over less resilient sandstone. Stunted trees and shrubs find little purchase.

This primeval habitat near the metropolis is the Challenger Track on West Head. Their names defy their beauty. Unintelligible to most they are a list in Latin—*Eustrephus latifolius*, *Banksia serrata*, *Darwinia fascicularis*, *Epacris microphylla*, *Leucopogon juniperinus*, *Boronia ledifolia*, *Hibbertia*, *Eriostemon australasius*, *Persoonia levis*, *Philothea salsolifolia*, *Eucalyptus haemastoma*, *Epacris longiflora*, *Woollisia pungens*, *Hakea teretifolia*, *Xanthorrhoea arborea*, *Angophora costata*.



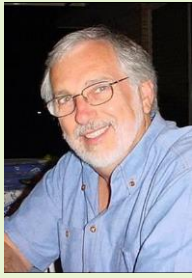


* * * * *

This article was first published in the Australian Flora Foundation's newsletter, *Research Matters*, of July, 2015. It's reproduced here with Lawrie's permission.

Design with Nature

Lawrie Smith*



It would not have been possible to create the diverse range of parks and gardens, each with its own unique Australian regional character, without the close association I have enjoyed as a member of the Australian Plants Society. Being integrally involved with this organisation at all levels for more than 40 years, has allowed me the opportunity to access some of Australia's foremost botanists and horticulturalists. This has ensured that every project for which I have been responsible celebrates the unique Australian flora of the relative bioregion by interpreting and demonstrating to the community the potential that the local flora has for use in amenity horticulture.

The Importance of Gardens

Throughout my career I have been fortunate to be able to convey this 'Design with Nature' philosophy through all of the projects, and specifically the public parks and botanic gardens for which I have been responsible. Public gardens generally and Botanic Gardens particularly are places where the community can be encouraged to reconnect with nature.

Contemporary urban communities are becoming increasingly divorced from the 'natural' landscape origins from which we all evolved, with consequent expanding physical and psychological problems. A garden is a special space that can restore our natural association with nature and importantly improve our health and wellbeing.

These are some of the tangible and intangible elements that a garden offers to those who experience them: stroll along the avenues; meander the pathways; explore progressively, enticed by glimpses, views and vistas; appreciate the innovative natural or built focal points; stop and smell the roses (or preferably the Wattle); appreciate the seasonal diversity; experience the sun and shade patterns; and importantly, understand the preferences of plants suited to differing environments and soils;

Inspiration for landscape and planting design

In commencing a project, I do not consciously set out to 'design' a landscape. My initial approach is practical rather than artistic. The inspiration is primarily derived from a detailed understanding of the physical site, the visual attributes and the imposed functional components of a project. This is complimented by identification and evaluation of the range of related issues that may be used to influence the planning and detail design – for instance related natural or cultural heritage stories can inspire layers of interest. To be successful the final outcome must have a strong sense of place and ready acceptance by those who use it. Without the combination of these two aspects any park or garden can never reach its intended potential.

The primary element of a landscape of any scale is the plant material. This dictates that the designer has a thorough knowledge of plant species for the region, their form, suitability, amenity, horticultural potential and particularly availability. Species selection and massing

that considers growth habits, specific forms, seasonal effects and colours is the fundamental palette used to inspire the overall design.



Finch Hatton Waterway, Mackay Regional Botanic Gardens



Geology Garden, Mackay Regional Botanic Gardens

Similarly, understanding the materials chosen for the built landscape elements will inspire and enhance the design, specifically when using innovative approaches to their use in construction. A park or garden can be distinguished as special or unique if the built elements are inspired by the forms found in the regional landscape or in the detail shapes and textures of rocks, plants or water. The ability to innovatively synthesise, interpret or conventionalise nature provides a range of planning and design opportunities that will firmly place any project in a logical relationship with its surrounding environment, whether this is urban or rural.

Linking with natural and cultural heritage

Design of any garden, public or private, is fundamentally a creative endeavour as you are constructing a contrived place that, in its planning and design, must react appropriately and sometimes innovatively to imposed site constraints and opportunities. Generally, these functional impositions (drainage issues etc.) can be designed to be positive elements of the garden – this is the creative challenge that can lift a design above the ordinary.

Critically analysing the forms and forces of nature provides strong prompts that suggest how to creatively combine the various hard and soft landscape elements. Whether the creative result is subtle or blatant, the opportunity exists for these artistic elements to enhance the observer's understanding of the processes of nature. This is fundamentally important in a botanic garden, where it is vital to define the environment or habitat for specific plants or plant communities, so that the scientific value of the plant collection is enhanced and understood.

First impressions are the most lasting – so it is important to set the scene at the arrival locations by creating a strong visual and physical experience that attracts the observer, and tempting deeper exploration into the park or garden. It is important to incorporate or interpret local physical and heritage elements appropriately into the planning and design process to achieve local character and relationships. This requires detail research into the history and heritage of the site or locality.



Cremorne Visitor Centre, Mackay Regional Botanic Gardens

It is important not to imitate nature, but aim to plan gardens and create associated elements that have a physical or aesthetic connection with nature. Be inspired by nature and natural processes in the planning and design process. These built or sculptural elements might be stylistically embellished to enhance the experience, sometimes using subtle messages or even frivolity to enliven and make a walk through a garden more memorable.

Application to Mackay Regional Botanic Gardens

In the Mackay Regional Botanic Gardens, a number of local characteristics have inspired the planning, design and the collection.

The anabranch of the Pioneer River forms Eulamere and Kaliguil Lagoons as the central feature of the Botanic Gardens. The steep to undulating slopes down to the water provide a strong basis for a variety of views, vistas and ecological niche environments. These are celebrated and enshrined in the overall site planning and design.

The intrusive volcanic hills typical of the coastal lowlands landscape is reflected in the site landform and winding pathway down through the Sarina Proserpine Garden to suggest the plant associations and altitude at which the related species naturally occur.

The century-old barnacle encrusted rainforest logs saved from the demolished finger wharf at Mackay Harbour initially logged from Fraser Island, were used in numerous ways throughout the Gardens: as the structure of the Tropical Shade Garden Fernery; clusters of tall stately pillars clothed in ferns and epiphytes; a large arbour of triangular frames extending geometrically along a walkway to support robust rainforest lianas;

Traversing the Coal Garden is 'a walk back through time', progressively suggesting the plant species of the various evolutionary eras planned to underline their economic importance and interpret the botanic derivation of the coal extracted from the nearby Bowen Basin.



Lawrie Smith (right) making fossil concrete for the Coal Garden

In the Heritage Garden photographs of several of the significant local homestead gardens, now long gone, were used to create small cameo glimpse gardens to commemorate their contribution of imported botanic additions to the local tropical landscape. One was established by Baron Ferdinand von Mueller.

The Torres Strait Islanders and South Sea Islanders each have their own specific precincts inspired by their local homelands and plant communities to similarly celebrate their significant, if enforced, role in the fledgling sugar industry.

The Maltese Garden celebrates the important role of this emigrant community in developing the sugar industry and links the Mediterranean to the tropics through a native olive hedge beside the Bocce court as well as beds of Australian succulents.

The Screens and Hedges Garden comprises a collection of dense low-growing local species planted in a stylised arrangement of maze-like beds to research and demonstrate their value in this aspect of amenity horticulture. None of these species have ever been used in this way before.



Screen and Hedges Garden

Whatever the future holds for the planning and design of parks and gardens it is fundamentally important that Australian Native Plants are widely acknowledged as a principal component, in order to practice and celebrate Design with Nature.

* Lawrie Smith AM is one of our country's leading landscape architects. Some of the more significant projects for which he has been responsible are: World Expo 88; the Australian Gardens at Liverpool International Garden Festival 1984; the International Garden and Greenery Exposition Osaka 1990; Regional Botanic Gardens in Gladstone, Bundaberg, Darwin, Mt. Isa, Longreach, Gold Coast, Barcaldine, Townsville, Maroochy, Tweed, Dubbo,

Cairns, Mackay and Whitsunday. He has held many honorary positions, including President of the Australian Institute of Landscape Architects Queensland, President of the Society for Growing Australian Plants Queensland, and National President of the Australian Native Plants Society (Australia). Lawrie was an Australian Flora Foundation Councillor from 1991 to 2000.

* * * * *

The world of Waratahs - *from Wild Blue Mountains 19 May 2023*

The central Waratah image below is from last year's flowering, but the surrounding images were taken recently to show what the wonderful Waratahs get up to in between blooming.



Many Waratahs have regrown from their underground lignotubers, which allows the plant to produce lots of vegetative growth after bushfire. The lignotuber is a modified stem and can be a metre or more in length and depth, and may weigh up to a quarter of a tonne!

Last year's flowers have set seed and the elegant seedpods, still ripening, will mature in early winter. When they finally break open, the winged seeds will be released and dispersed by the wind. It's rare that a Waratah seed germinates and becomes a new plant. The seeds are carbohydrate rich and are therefore an attractive food source for animals, and if they do manage to germinate, they may not establish due to lack of water. When a Waratah does establish from seed, this is an important source of natural variation.

Some older Waratah leaves have taken on rich red and maroon tones due to age and weather damage, and flower buds are forming that, later in the year, will burst into the impressive red Waratah blooms that are loved not only by walkers, but also by native birds, animals and insects.

* * * * *

At our April meeting James Indsto in a fascinating presentation told us how *Diuris* orchids mimic pea flowers, so that they are pollinated by bees. This South African daisy mimics female flies, attracting male flies - and pollen. This story is from the University of Cambridge:

How does this daisy create 3D fake flies?

Decades-long mystery solved

"This daisy didn't evolve a new 'make a fly' gene. Instead, it did something even cleverer."



A male fly approaches a flower, lands on top of what he thinks is a female fly, and jiggles around. He's trying to mate, but it isn't quite working. He has another go. Eventually he gives up and buzzes off, unsuccessful. The plant, meanwhile, has got what it wanted: pollen.

The only daisy that makes a three-dimensional fake female fly for enticing male flies into pollinating it is the *Gorteria diffusa* from South Africa. For decades, scientists have been

enthralled by the mechanism underlying this impressive deception which is complete with realistic hairy lumps and white highlights.

Now, researchers have discovered three sets of [genes](#) that are involved in creating the fake fly on the daisy's petals, according to a new study published in [Current Biology](#) on March 23.

The deceitful daisy's fake ladies - how did this come to be?

The biggest surprise, according to the researchers, is that each of the three sets of genes already serves different purposes within the plant. For example, one set regulates when flowers are produced, while the other two transfer iron around and create root hairs.

It so happens that the three gene sets have been combined in novel ways to make the false ladies. The 'iron shifting' genes change the petal's pigments from their natural reddish-purple color to a more fly-like blue-green by adding iron. The root hair genes cause the hairs to spread out to add texture to the petal. The random position of the false flies on the petals arises due to the third set of genes.

"This daisy didn't evolve a new 'make a fly' gene. Instead, it did something even cleverer - it brought together existing genes, which already do other things in different parts of the plant, to make a complicated spot on the petals that deceives male flies," said co-author Professor Beverley Glover in a [press release](#), from the University of Cambridge's Department of Plant Sciences.

The daisy's petals, argued the researchers, provide the flower with an evolutionary advantage by luring more male flies to pollinate it.

In South Africa, the plants live in a hostile desert environment with only a brief rainy season to develop flowers, receive [pollination](#), and set seeds before they perish. As a result, there is a fierce rivalry to draw pollinators, and the South African daisy stands out from the crowd thanks to its petals decorated with lady flies.

The group of plants that includes the sexually deceiving daisy is relatively young in evolutionary terms—it has only been around for 1.5–2 million years—compared to most other living things. The authors suggest that the lack of artificial fly spots in the earliest members of this family tree indicates how quickly they must have developed on the petals of daisies.

"It's almost like evolving a whole new organ in a very short time frame. Male flies don't stay long on flowers with simple spots, but they're so convinced by these fake flies that they spend extra time trying to mate and rub off more pollen onto the flower – helping to pollinate it," described first author Dr. Roman Kellenberger.

* * * * *

From Poh Ling Yeow, chef, in *Australian Story*, ABC TV:

Gardening is a kind of religion. "It kind of replaced God for me. Nature is the number one thing that inspires me most. It gives me this sense of connectivity to something that is bigger than myself. The colours, the forms, the cycles, it teaches you the impermanence of it as the seasons roll by. You become really aware of being a speck in the firmament."

She even finds weeding profound. "There's so many wisdoms to be discovered in nature. If you are watching and listening, it helps you develop this sort of sensitivity to things that aren't always loud but you have to discover them yourself."

* * * * *

Book review – from Simon & Schuster

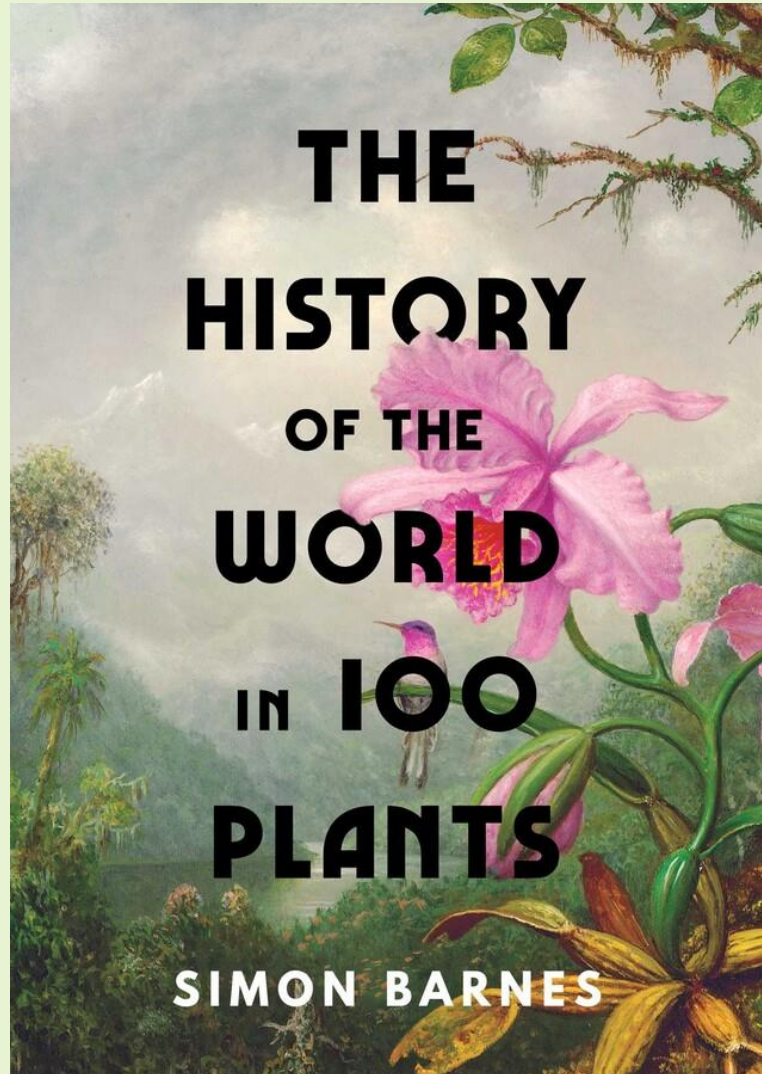
From the author of *The History of the World in 100 Animals*, comes an inspirational new book that looks at the 100 plants that have had the greatest impact on humanity, stunningly illustrated throughout.

As humans, we hold the planet in the palms of our hands. But we still consume the energy of the sun in the form of food. The sun is available for consumption because of plants. Plants make food from the sun by the process of photosynthesis; nothing else in the world can do this. We eat plants, or we do so at second hand, by eating the eaters of plants.

Plants give us food. Plants take in carbon dioxide and push out oxygen: they give us the air we breathe, direct the rain that falls and moderate the climate. Plants also give us shelter, beauty, comfort, meaning, buildings, boats, containers, musical instruments, medicines and religious symbols. We use flowers for love, we use flowers for death. The fossils of plants power our industries and our transport. Across history we have used plants to store knowledge, to kill, to fuel wars, to change our state of consciousness, to indicate our status. The first gun was a plant, we got fire from plants, we have enslaved people for the sake of plants.

We humans like to see ourselves as a species that has risen above the animal kingdom, doing what we will with the world. But we couldn't live for a day without plants. Our past is all about plants, our present is all tied up with plants; and without plants there is no future.

* * * * *



Is *Eucalyptus Sp. Cattai* ‘newly-discovered’?

Ian Cox

I thought the presentation on [Gardening Australia](#) (ABC TV) on 19 May 2023 that showed *Eucalyptus Sp. Cattai* as a newly-discovered species was a bit misleading.

Eucalyptus Sp. Cattai has been treated as a separate species by botanical authorities for many years. It was first collected and named in 1954.



In 1999 botanist Steve Douglas, a former member of our Group, had an article published in *Danthonia*, newsletter of the Australian Network for Plant Conservation, about an endangered species of eucalypt – *Eucalyptus Sp. Cattai*.

In 2015 *Eucalyptus Sp. Cattai* was declared as a Critically Endangered Species by the NSW Scientific Committee. It only grows in The Hills LGA in a small area between Castle Hill and Cattai. Its distribution is highly restricted, the remnant vegetation being fragmented by expanding urban development.

It’s probably Sydney’s rarest eucalypt, but it was ‘discovered’ quite a while ago.

* * * * *

WA’s Christmas tree *Nuytsia floribunda*

What the world’s largest mistletoe can teach us about treading lightly.

Noongar Country of southwestern Australia is home to the world’s largest parasitic plant, a mighty mistletoe that blooms every December. That’s why it’s commonly known as WA’s Christmas Tree. But it also goes by other names, mungee and moodjar. And it holds great significance for Noongar people including the Merningar people of the south coast.



The plant’s ability to access a wide array of resources is remarkable, enabling it to prosper in the hostile, infertile, but biologically rich landscapes of southwestern Australia.

This is also the case for Noongar people, whose traditional diet reflects the biological richness of their Country.

To continue reading this story from *The Conversation*, click [here](#).

Weekend away up north

Pip Gibian

On Saturday 27th May, eight of us congregated at the country property, 'Parragilga', of Phil Baird, one of our members. It is in an area called The Branch, north of both the Hunter and Karuah Rivers, and east of Buckets Way, the road to Gloucester. The property once belonged to a logging family, but for a very long time has been untouched and allowed to regenerate. It is woodland with tall trees, grasses and a variable collection of not very high under-shrubs. There is remarkably little weed. Phil has had a botanist flora survey done for the council, which shows over 200 different species.

Initially, we had a small walk around the level of the house, the highest part of the property. The most common tree species are *Eucalyptus fibrosa*, an ironbark, and *Corymbia maculata*, a spotted gum. *Acacia terminalis* was flowering, a pale-yellow form. Near the house, Phil had planted *Grevillea guthrieana*, an endangered plant only found in this area and around Buladelah.

After lunch, we had a longer walk down the slashed fire trails to the main attraction at this time of year. Quite a large area supports a great many *Banksia spinulosa* plants, flowering furiously. They show a collection of different colours in their styles. Some are bright gold, or various shades of red, and some are very dark, almost black. They are beautiful. Because of a recent severe storm over Newcastle, the fire trails became increasingly wet, so we didn't progress to the strip of rainforest flora along the Branch River, one of Phil's boundaries. Light was fading fast by the time we left. Many thanks to Phil, who is a great host.

Plants seen by the group included:

<i>Acacia falcata</i>	<i>Daviesia ulicifolia</i>	<i>Lomandra longifolia</i>
<i>Acacia floribunda</i>	<i>Epacris pulchella</i>	<i>Lomandra obliqua</i>
<i>Acacia longifolia</i>	<i>Eucalyptus fibrosa</i>	<i>Notelaea longifolia</i>
<i>Acacia myrtifolia</i>	<i>Glochidion ferdinandi</i>	<i>Ozothamnus diosmifolius</i>
<i>Acacia terminalis</i>	<i>Glycine clandestina</i>	<i>Parsonia straminea</i>
<i>Allocasuarina torulosa</i>	<i>Glycine tabacina</i>	<i>Persoonia levis</i>
<i>Banksia oblongifolia</i>	<i>Hardenbergia violacea</i>	<i>Persoonia linifolia</i>
<i>Banksia spinulosa</i>	<i>Isolepis inundata</i>	<i>Pratia purpurascence</i>
<i>Billiardiera scandens</i>	<i>Kennedia rubicunda</i>	<i>Pultenea villosa</i>
<i>Bursaria spinosa</i>	<i>Leptospermum</i>	<i>Zieria smithii</i>
<i>Corymbia gummifera</i>	<i>polygalifolium</i>	
<i>Eucalyptus maculata</i>	<i>Leucopogon juniperinus</i>	

Five of us stayed in the area overnight and met at 10 am at the Hunter Wetlands Centre in Shortland, an outer suburb of Newcastle. If you are going there, be aware that there is also a Hunter Wetlands National Park, a different place altogether. The Shortland one has a collection of large ponds, swamps and marshes, populated by a great variety of Australian water birds: ducks, swans, egrets, geese, moorhens and many more. A network of paths winds around these with some bird hides and other interest points. There is an enclosure featuring a freckled duck, pretty with dark plumage and small yellow spots. The signage explains that this is a very primitive species of duck.

The Newcastle District APS Group is heavily involved with the Wetlands, and has planted native plants around the Centre building. They also sell plants produced by their very active propagation group. The Centre is a two-story building, giving a view over the wetlands. It contains lots of explanatory maps and leaflets, a shop and a very good café, with a large verandah area, as well as education facilities on the lower level. On walking around the wetlands there are areas of rainforest. There is also a very good wild food display area, showing lots of labelled plants, and signs explaining the uses of many of them. A visit here is different from our usual activities, and is very interesting and worthwhile.

Thanks to Pip, Ricki and Jennifer for these photos from the weekend away . . .





View from the Cafeteria,
Hunter Wetlands Centre.



Ron, Barbara and Joan, on the
way back.

Closing thoughts

If you are coming on our bushwalk on 24 June starting at 10 am at the Challenger Track, Kuring-gai Chase National Park, bring your lunch. After the walk we will drive to the end of West Head Road to the West Head Lookout and have lunch there. There are great views across Broken Bay, Pittwater, Barrenjoey Headland and Palm Beach.

* * * * *

Share your stories . . .

Your contributions to *Calgaroo* are always welcome.

If you have interesting observations of plants in the garden or the bush, including photos, or any other news worth sharing, please send it to me at itcox@bigpond.com for the next edition.

* * * * *

In the spirit of reconciliation, we acknowledge the Traditional Custodians of our Country, the people of the Dharug Nation, whose cultures and customs have nurtured, and continue to nurture, this land since time immemorial. We honour and celebrate the spiritual, cultural and customary connections of Traditional Owners to Country and the biodiversity that forms part of that Country.

* * * * *



Parramatta and Hills District Group

Secretary: Jennifer Farrer apsparrahills@gmail.com 0407 456 577

Editor: Ian Cox itcox@bigpond.com

Join us on Facebook [here](#)

Our website [here](#)