CALEYI

Australian Plants SOCIETY NSW

NORTHERN BEACHES GROUP

austplants.com.au/northern-beaches **March 2019**

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CALENDAR

APS Northern Beaches meeting Thursday March 7, 2019 at Stony Range Regional Botanic Garden, Dee Why.
7.15 pm Plant family. Apiaceae: genera - Platysace: species - Platysace lanceolata (North Head form) - **Russell Beardmore.**
7.30 pm Presentation: Hannah McPherson. Restore & Renew. A large-scale analyses investigating landscape patterns for over 200 native species commonly used for restoration.
Supper: Lindy & Harry

APS NSW Quarterly at Ku-ring-gai Wildflower Garden, 420 Mona Vale Rd., St Ives, 10.30 am Saturday March 23, 2019**.** (See p. 3)**.**
APS NSW Quarterly + AGM at Blaxland. Saturday May 18, 2019. (See p. 3).
APS NSW Get-Together Newcastle Sat 17 & Sun 18 August, 2019 (See p. 3)
2019 ANPSA 'Blooming Biodiversity' conference Sunday 29 Sept. to Friday 4 Oct. 2019 **Albany, WA.** (See p 8)**.**

A REFRESHING VIEW

At our February meeting we had a couple surprises.

First was the new '**Plant Family**' presentation which proved hilarious! More of that later from Penny.

The second surprise was a very candid presentation about her experiences with bush regeneration from our young guest **Heather Maddock**.

Conny introduced her. 'Heather Maddock, aged 15, is a year 10 student at Davidson High School and a member of the Garigal Landcare Group. She chose Landcare for her Duke of Edinburgh and Queens Guide volunteer work and has participated in weekly bush regeneration work for ten months.

Heather has a sharp eye and sees many things that escape our view. She composed a diary supplemented with photos of our progress and special sightings, which she shared with us on the night. Heather loved nature and I think restoring the bushland made this love grow.'

BRUNONIELLA AUSTRALIS AND THE INTERLOPER, RUELLIA SQUARROSA.

Penny Hunstead

The botanical description of this species differs very much from the Brunoniella that grows in my garden.

About 10 years ago, I planted three B. australis plants on each side of my drive. The plants were so well suited to this situation that they thrived and multiplied, dominating the existing small plants and reducing the drive to a narrow path.

The characteristic of this species is that it loves damp heavy soil. My garden supplies this, being heavy clay on Wianamatta shale. Another characteristic is that the fruit is a two-celled capsule which dehisces explosively, sending the seeds far from the parent plant.

I now have this plant all over my garden and where it is not growing in the drive area, regard it as a weed to be pulled out. I believe that it grows in a weedy way under the racks of its tubestocks in the propagation area of Stony Range.

Now…. at the last meeting of APS Northern Beaches, I was informed that my Brunoniella australis was the Mexican plant, Ruellia squarrosa. This species is a government-declared weed in several States of Australia and in other countries of the world. Well……I had a sneaky suspicion that it was a WEED!

In the case of many introduced species of both plants and animals, the factors that limit growth and reproduction are absent in the alien country. Famous examples of these, in Australia, are the cane toad, rabbits, prickly pear and the blackberry plant. In the past, species were introduced without the benefit of environmental science knowledge that we have now. Climate change is a new factor that is affecting many species of plants and animals. I see Australian native plants that are now growing in a weedy way in the Sydney region.

Soon, my fake Brunoniella australis will be replaced by a true Australian native. I'll cross my fingers, after that!

A VISIT TO THE CALYX

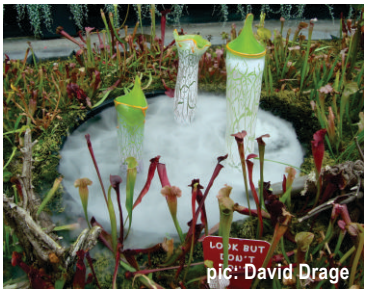
David Drage with help from Julia Tomkinson & Penny Hunstead.

The Group's outing for February was a visit to the Calyx in the Royal Botanic Gardens, Sydney (RBG) to view the current botanical exhibition on display there. The curators of the exhibition, which is about carnivorous plants, gave it the catchy title of "Plants with Bite'. The humour is continued on the information page of the RBG website with lurid images reminiscent of movie posters and paperback book covers of the 1940-60s where adult humans are being eaten by plants. This tone is continued in the journal of the Foundation and Friends of RBG, "The Gardens", Issue 119 Summer 2018-2019 with an article entitled 'Attack of the killer plants'. I am reminded of the old Harvey Corman gem of a short film, made on a shoestring, 'The Little Shop of Horrors' which featured a ravenous carnivorous plant that demanded constant feeding and grew, and grew, and grew to man-eating proportions.

Hanging pitcher plant pic: Georgine Jakobi.

Notwithstanding all that, carnivorous plants are, in reality, quite fascinating. The processes of carnivory probably evolved independently nine times in five orders of the plant kingdom resulting in at least twelve genera containing 583 known species. They are all green plants so can photosynthesise to produce energy but, they tend to inhabit areas with low nutrient soils. In order to maintain themselves and be able to reproduce they need nitrogen, phosphate and other elements not available in the soil, but they acquire by trapping and digesting insects and other creatures.

The curators have amassed some 10,000 plants, from Australia and around the world, for this exhibition to show the various methods of trapping prey. There are five large beds, some with what looks like steam coming off ponds within the bed but, in fact, it is 'cold fog'. This is created by passing an electric current through a ceramic disc under water to produce bubbling and the cold fog. Very effective.



pic: David Drage

Methods of Entrapment

Snap Trap; the Venus flytrap Dionaea muscipula from North America is the best-known member of this group but there is a species found in Australia, Aldrovanda vesiculosa, which has been collected in the North Coast and South Coast regions of NSW.

Pitcher plant pic: Georgine Jakobi.

Flypaper trap; this is the most common method of entrapment with Drosera spp the most well-known exponents. In fact, there are nearly 200 known species and most of them are found in Australia. We encounter local species on most of our local walks.

Pitfall trap; another common method of entrapment that employs a modified leaf in the form of a tube containing digestive fluid. The display includes Sarracenia leucophylla from North America, Nepenthes spp and hybrids, and the West Australian native Cephalotis follicularis.

Venus fly trap pic: David Drage

Lobster pot; exotic species such as Darlingtonia californica and Sarracenia psittacine have a trap shaped like a lobster pot that has easy entry but very difficult exit.

Bladder trap; there are nearly as many bladderwort species as there are flypaper trappers. Utricularia spp abound in Australia and members will remember the excellent talk about his work on the genus that Dr Richard Jobson of the RBG delivered at our meeting in November 2014

Fly paper trap pic: Georgine Jakobi.

This is a splendid exhibition with much to entertain and educate. All our members in attendance were impressed.

Aussie pitfall trap pic: Ed.

As with many other plants, carnivores are facing threats to their survival. The usual suspects of agriculture, changes to fire regimes, development and pollution are all there. But another danger is poaching. Carnivorous plants are a desirable collector's item – unfortunately.

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MERLE THOMPSON RECEIVES THE OAM

Congratulations to Merle Thompson a recipient of the OAM in the Australia Day Honours List.

Members will appreciate the pivotal role Merle has filled in Australian Plants Society NSW (APS NSW) as an organisation, AND as a font of knowledge where native plants are concerned. Other organisations have benefited from her dedication including the Australian Federation of Graduate Women and Polio NSW.

APS NSW QUARTERLY GATHERING
Saturday, 23 March 2019

Featuring Greenwalls

Keen to find out more information about greenwalls, then join us at our first quarterly gathering for 2019 on Saturday, 23 March, which is being hosted by the North Shore Group, at: Caley's Pavilion, Ku-ring-gai Wildflower Garden, 420 Mona Vale Rd., St Ives.

Our guest speaker is Mark Paul, Horticulturist and Founder of The Greenwall Company. Mark is a very experienced speaker who has spoken on greenwalls to many groups in Australia, New Zealand, Asia, and North and South America. During his talk, he will share his expertise with us on the design, construction and choice of plants suitable for greenwalls

Mosman's Mark Paul of The Greenwall Company shows how he returned the iconic Qantas First vertical garden to its roots. Picture: Chris Pavlich

Mark created what is believed to be the very first greenwall in Australia over 30 years ago. His company is involved in greenwall design and construction, in a wide range of residential, commercial and public works.

In a recent media release, Mark stated "We have been working tirelessly on creating new forms of eco-friendly greenwalls for all types of spaces, including new designs for high-rise buildings. Not only do greenwalls look fantastic on the exteriors of the buildings, but they truly transform the aesthetics and atmosphere of the street, and surrounding areas, not to mention the health benefits.

For further information visit https://greenwall.com.au

Program:

10.30 am Walks and talks.
A choice of two guided walks around the gardens;
· **Walk 1** will visit the rare plants in the garden and the propagation area;
· **Walk 2** will look at the rainforest plants in the gardens.

12 - 1pm Lunch. Bring your own lunch. Tea and coffee will be available. Plants will be on sale during lunch time.

1-3pm: Mark Paul's presentation on Greenwalls, and afternoon tea.

APS NSW QUARTERLY GATHERING & AGM
Saturday, 18 May 2019

Our AGM and May Quarterly Gathering is being hosted by the Blue Mountains Group.

Start the day with a guided walk through the **Glenbrook Native Plant Reserve** (10am) or a guided walk along **Pippa's Pass Blaxland** (9.45am **Blaxland Community Centre Carpark**).

Our **AGM** will be held from 12.30 to 1pm.

The highlight of the day will be a talk on **Australian carnivorous Plants** by Mt Tomah Botanic Garden manager and curator, **Greg Bourke**, who has an unbridled passion for these highly unusual plants, will answer all your questions including on how to care for them. Greg's talk starts at 1pm. You will also be able to purchase a carnivorous plant on the day.

SAT, 18 MAY AT 09:45
AGM Quarterly Gathering
Blaxland Library 33 Hope St, Blaxland, New South Wales

SAVE THE DATE - 17 TO 18 AUGUST 2019
APS NSW GET-TOGETHER IN NEWCASTLE AREA

21 Dec 2018 Heather Miles (APS NSW Administrator)

You are cordially invited to the 2019 APS NSW Get-Together. This not to be missed event is being held at a varied range of locations in the Newcastle area.

There are a range of different native vegetation communities available to explore. Your visit will take you to some of the gems of the area and you will be able to see the spectacular coastal flora at its peak.

Highlights will include a visit to the Hunter Wetlands Centre where you will be welcomed to the Newcastle Groups home base, this will also include the opportunity to purchase from the wide range of native plants produced by the "Thursday Mob". https://wetlands.org.au

A visit to the award-winning Hunter Region Botanic Gardens and herbarium is also on the agenda. https://huntergardens.org.au

There will be some gentle bushwalks included, these will feature some of the special places that can be found in the Newcastle area. There will also be an evening dinner to look forward to on the Saturday night. More details including registration forms and prices will be covered in the next issue of Native Plants.

HOT BANKSIA PROPOGATION TIP

Brian Roach writes: Apropos your article on the banksia project at the National Botanic Gardens, I visited Phil and Catriona Trickett at Milton late last year. They are involved in propagating a few banksias for the collection, in particular Banksia vincentia which has only recently been described and is very threatened down on Jervis Bay. They allowed me to take a few cuttings from the plants they have growing on their property and Phil told me something I never knew before, that is to not use any hormone product on banksia cuttings. No wonder I've had little or no success with banksia cuttings before. Needless to say, I followed Phil's advice and struck pretty all the dozen or so cuttings I put down when I got home.

THE HUMBLE SPADE FLOWER MOONLIGHTS AS THE 'LOVE SHRUB'

theconversation.com February 4, 2019 Bronwyn Smithies, Edward Kalani Gilding

If you are observant enough in the Australian bush, you may be able to spot the spade flower, a member of the violet family. Spade flowers grow under the semi-shade of open eucalypt forest, among other little green herbaceous plants.

This often-overlooked member of Australian flora hides some interesting secrets, including a rare chemical that may hold the key to turning regular plants into medicinal cures.

The common name spade flower refers to the flower's shape, which is dominated by the spade-shaped labellum. Its botanical name, Hybanthus enneaspermus, is equally descriptive. The generic name Hybanthus means “humpbacked flower”, referring to the posture of the flowers. Meanwhile, the specific name enneaspermus means “nine-seeded”, because upon maturity each tiny 5mm fruit splits into three sections bearing three seeds each.

A hidden talent

Violets are familiar objects, from the showy native Viola banksii or the scent of European sweet violets. What is not common knowledge is that members of the Violaceae family produce some very curious molecules called peptides.

People – and many other organisms – use peptides as signals that enable communication between cells and tissues. An example of a peptide messenger from humans with an important function is oxytocin, also known as the “love hormone”. Oxytocin regulates social bonding and other key aspects of our biology and sociality. In contrast, plants sometimes use peptides for a different purpose, as toxins to protect themselves from insects and other pests.

But unlike most peptides, those produced by Violaceae are circular instead of linear. Because of this circular shape, they are highly stable in conditions that would degrade other peptides. This special class of peptides are called “cyclotides” and are only found in relatively few plant species. This is why we have been searching all across northern Australia, from the Kimberley region in Western Australia to the Queensland coast, for samples of native Australian Violaceae.

The first cyclotide to grab the attention of scientists comes from an African plant called kalata-kalata, traditionally used in teas to hasten childbirth. In 2013, it was shown that a specific cyclotide from kalata-kalata acts on smooth muscle to cause contraction of muscle tissue.

But easing childbirth might not be the only effect cyclotides have. Initial experiments with spade flower extracts demonstrate a significant effect on the mating behaviour of rats. Rats treated with peptide-laden extracts from spade flower exhibit, uh, increased copulation frequency.

In us humans, the receptors that detect peptides control libido, sleep, and other aspects of our biology. These observations leave spade flowercyclotides as prime suspects underpinning this amorous bioactivity, and could be the basis for coining yet another name for this

Kalata-kalata, or Oldenlandia affinis, is used in a traditional medicinal tea. It's efficacy comes from the cyclotides it produces. KalataB1/Wikipedia

shrub”. Despite this intriguing effect, until further scientific investigation validates these initial aphrodisiac findings and their basis, it is probably wise to steer clear of ingesting these plants.

Spade flower is indigenous to Australia, but the native range extends through southern Asia, India, and into Africa. Despite the wide range of the species, the plant is usually distributed in a here-and-there fashion. In our experience this sparse distribution has meant finding no sign of them along the roughly 600km Gibb River Road at the end of the wet season, and just a single observation from a roadside south of Gladstone. This scarcity tests the resolve of many skillful plant spotters, ourselves included.

You're most likely to find spade flowers in semi-shaded environments north of the Queensland-New South Wales border, along the east coast, and across the Top End. It grows along roadsides or near waterways, but it is difficult to spot because its narrow leaves tend to blend into the mix of herbs growing alongside it.

Look for the lilac spade-shaped flowers among the understory herbs during the warmer and wetter months, but do this before midday when the flowers wilt away from view. There are other Hybanthus species in Australia, however the genus appears to be polyphyletic (meaning they are grouped together but don't share a single common ancestor) so the genus is not truly representative of a single taxonomic group per se. Other Hybanthus species look similar to spade flower, namely H. monopetalus, which grows multiple purple-blue flowers on a single stem instead of single lilac-coloured flowers.

In habitats between Brisbane and Sydney spade flower is scarce, however a similar and arguably showier species called H. stellarioides occurs. H. stellarioides is somewhat more delicate, but what really sets it apart are the bright royal orange flowers it produces in summer and autumn.

Spade flowers next to their flashier orange cousin, H. stellarioides. Author provided

In many other aspects these two species look so similar that for some time H. stellarioides was considered a subspecies of the spade flower, however it is now clear they are genetically distinct.

As part of Professor David Craik's research group at The University of Queensland, we have sequenced the expressed genes of spade flower shoots and roots to uncover how these clever plants make cyclotides. These data helped explain spade flower's cyclotide amino acid sequences.

Armed with this information, the scientific community can now make stable designer peptides as potential pharmaceuticals. The Craik group is working on making modified cyclotides that can treat cancer and other diseases, and then reintroducing those genes into edible plants – turning a tomato plant into a medicinal plant for example. Learning how the spade flower makes cyclotides has already helped us to make some new cyclotides in other plant seeds

AUSTRALIAN PLANTS FACING EXTINCTION

Sciencedaily.com January 31, 2019 University of Queensland

New research by the Threatened Species Recovery Hub has identified the top 100 Australian plant species at risk of extinction.

This is Banksia fuscobractea. Credit: Andrew Crawford

Researcher Dr Jennifer Silcock from the University of Queensland said three quarters of Australia's threatened species are plants.

"Knowing which plants are at greatest risk gives us a chance to save them before it is too late," said Dr Silcock. "This list of Australia's top 100 imperilled plants will help conservation managers prioritise where to direct efforts to prevent extinctions. "Without action, future generations will not have the blue top sun-orchid, pretty beard orchid, hairy geebung, yellow mountain bell or matchstick banksia."

The research has just been published in the Australian Journal of Botany, and is based on a review of all available published information and interviews with 130 botanists from across Australia.

Ground orchids topped the chart, with 15 species making it on to the list.

According to co-researcher Dr Rod Fensham from the University of Queensland, the research team also identified the major threats driving species to extinction.

Urbanisation was the leading threat resulting in 22 species on the list, while 19 species are on the list due to inappropriate fire regimes.

"Many plants only remain in small isolated patches, which usually miss out on a lot of important natural processes like regular fires, meaning that fire-dependent species are not regenerating," said Dr Fensham.

"Introduced plant diseases like phytophthora and myrtle rust are pushing 18 of the plants on the list towards extinction.

"We are still learning the best way to control these plant diseases. Research is underway and will be vital to minimising the impact of these diseases on Australia's unique flora."

Historic and ongoing habitat loss is the major threat to Australia's plant species. Other threats increasing the risk of plant extinctions include grazing and trampling by livestock, native and feral animals like rabbits, climate change, weedy grasses and mining.

"The good news is that every one of the species on the list can be saved, we have the techniques required, we just need the commitment," said Dr Fensham. "Seventy-one of the species are already on the national list of threatened species, for the remaining species applying for formal conservation listing will be an important step in their protection.

"The fate of these species depends upon support and action from governments and the community. "A bonus will be that the actions required to save these species will also benefit many other vulnerable plant species."

Australia's Threatened Species Commissioner Dr Sally Box said the research was important to ensure action was informed by the most up-to-date scientific evidence.

"Work is already underway for several species identified on the list, be it through targeted investment under the Threatened Species Strategy, or through the efforts of the Australian Seed Bank Partnership."

"My office will continue to work with our partners and the Australian community to protect Australia's unique native flora" said Dr Box.

The Threatened Species Recovery Hub is a partnership of ten Australian Universities and the Australian Wildlife Conservancy to undertake research to recover threatened species. It receives funding from the Australian Government's National Environmental Science Program.

NEW FLOWER DISCOVERED IN A SWAMP WEST OF WEE WAA

northerndailyleader.com.au December 31, 2018. Madeline Link

A BOTANIST was performing some field work in northern NSW when something caught his eye.

Richard Jobson from the Royal Botanic Garden in Sydney discovered a tiny new flower species in a swamp west of Wee Waa. "I saw a flash of purple from a tiny plant with a single flower about one centimetre in diameter - I knew I had found something new to science," Dr Jobson said.

He then had to wait several years until there was enough rain in the area for the elusive flower to re-emerge and provide the evidence to officially confirm it as a brand-new species Lobelia claviflora.

"The deep purple bands on the flower's throat inspired the name 'claviflora', which comes from the Latin 'clavus', resembling the purple stripe decorating the tunic worn by persons of state in Ancient Rome," he said. "Besides its striking purple colour and tiny stature, another interesting feature is its inflated stems, which is possibly an adaptation that allows it to support itself in water."

Every year scientists discover about 2000 new plant species in different parts of the world. Director of Science and Conservation at the Royal Botanic Garden Sydney Brett Summerell said scientists here have been studying and documenting plant life in NSW and Australia for over 200 years. "Uncovering and understanding our biodiversity is essential to protect the future of threatened species," Dr Summerell said. "This discovery is yet another example of the vital scientific work being done by plant scientists in NSW."

Naming a species is the first step in understanding their relationship to other species, creating a conservation plan or investigating their medicinal qualities.

Fieldwork is a critical component and this discovery highlights how we can still uncover remarkable biodiversity in the most unlikely places," Dr Jobson said. "These elusive swamps also harbour the likewise potentially threatened bladderwort Utricularia fenshamii; a plant only known to occur in one other site near White Cliffs, NSW."

Dr Jobson's discovery and description of Lobelia claviflora has been published in the Royal Botanic Garden Sydney's Telopea journal.

HOW AUSTRALIA MADE POISONING ANIMALS NORMAL

Theconversation.com February 19, 2019 Justine M. Philip, UNE.

Colonial graziers found it more effective to poison dingoes than rely on convict shepherds to protect their flocks. Justine Philip/AMMRIC 2017, Author provided

One of the many difficulties faced by the pioneers of Australia's sheep industry was finding a reliable shepherd. Among the convict labour available, for every two experienced farm labourers there were five convicted sheep, horse, cattle or poultry thieves.

The conditions were demanding. Convicts returning from pasture with fewer sheep than they left with faced a penalty of up to 100 lashes – close to a death sentence. Going bush was the only option for those unwilling to submit to the punishment back "inside", as the settlements were called. Sheep were lost through negligence and misadventure, others to hungry dingoes. Eradicating dingoes therefore had a double benefit for the graziers: they would reduce stock losses, and eliminate the need for (unreliable) convict labour.

Reverend Samuel Marsden announced the first plan for the destruction of the native dog in Sydney Town, 1811. On offer was a generous bounty of one gallon of spirits for each complete skin of a fully grown native dog. (Incidentally, Marsden went on to introduce sheep to New Zealand, followed by the mysterious disappearance of the Maori kuri dog in following decades.)

Three years later, the first instance of using poison to eradicate the dingo was recorded in the Sydney Gazette. A "gentleman farmer" with extensive stock in the Nepean District initiated the operation. By applying arsenic to the body of a dead ox on his property, he managed to eradicate all the wild dogs from his landholding. The technique gathered a quiet following, though there were concerns that in the wrong hands this venture could inadvertently backfire on the penal colony.

Revolutionising toxicology

In 1818 French scientist Pierre Joseph Pelletier successfully extracted beautiful but sinister crystals from the plant nux vomica. This discovery revolutionised toxicology: it enabled mass production of a highly toxic, stable and cheap poison known as strychnine.

Strychnos Nux vomica, Köhler's Medizinal-Pflanzen 1887 (Plate 107).

The crystals were soon to be exported en masse around the world. Strychinine became an essential item in the Australian farmer's toolkit, and by 1852 its use on landholdings was mandatory to control unwanted wildlife. In 1871 author Anthony Trollope wrote in his observations of Australian life:

'On many large runs, carts are continually being taken round with (strychnine) baits to be set on the paths of the dingo. In smaller establishments the squatter or his head-man goes about with strychnine in his pocket and lumps of meat tied up in a handkerchief.'

Over the course of the 19th century, the Australian economy became irreversibly dependent on this industrial agrochemical farming system.

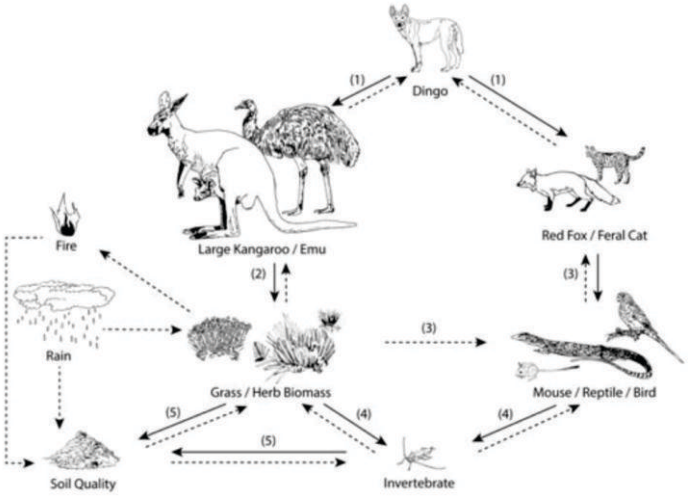
The pace of Australia's agricultural revolution was rapid; between 1822, when fine wool became NSW's major export product, and 1850, the national flock numbers increased from 120,000 to 16 million. By 1892 the Australian sheep flock numbered 106 million.

A central Australian dingo extermination campaign was launched in 1897, to eradicate dingo and rabbit populations from South Australia's arid zone. Described as the "Party of Poisoners", the team travelled from Gawler Range to Wilpena Pound, covering an area 1,000km long by 480km wide. It took five months. The poisoners dispensed phosphorised pollard and strychnine sticks and laid poisoned grain in lightly covered furrows. Meat baits were placed around the bases of the red and white mallee bush. Billabongs were poisoned. All species that might have competed for the scarce resources were effectively eliminated – carnivore and herbivore. Farming ultimately failed in the region. The natural biodiversity never recovered.

The legacy of Australia's chemical-dependent farming over the past 200 years remains largely unacknowledged in conversations about the current biodiversity crisis. Australia has around 500 threatened animal species, and our rate of mammalian extinctions is unparalleled anywhere in the world. The main drivers of the crisis are attributed to introduced species, changed fire regimes, and land clearing.

In the history of agricultural expansion, it was the dingo that was the initial target of eradication campaigns. Land clearing worked in concert with the broad scale application of vertebrate pesticides. The expansion in the application, range, methods of delivery and quantity of poison and poisoned baits applied was rapid, using increasingly sophisticated machinery.

The effects reverberated throughout Australia's ecosystems: the removal of the dingo, the top order predator, lead to the explosion of herbivore populations, more poisons, the establishment of introduced species and destabilising of the native ecosystem.



Influence of the dingo on ecosystem function. Restoration Ecology, Newsome et al. 2015

In the 1870s newspapers were reporting on the impact of herbivore populations including the introduced rabbit. The South Australian Advertiser, wrote in 1877: '*We have destroyed the balance of nature in two ways simultaneously, by destroying the carnivore and introducing a new herbivorous animal of immense reproductive powers'.*

In the 21st century, more vertebrate poisons are dispensed by air in National Parks, than on private land – in efforts to protect biodiversity from invasive species. My research examines how poison has been normalised in land management. The use of vertebrate pesticides has been supported by services and systems embedded within Australia's social, political and legal framework for 200 years. Applying more vertebrate pesticides to the environment to try and solve the problem, is arguably an extreme case of mistaking the poison for the cure.

HIDDEN WOMEN OF HISTORY: KATHLEEN MCARTHUR, THE WILDFLOWER WOMAN WHO TOOK ON JOH BJELKE-PETERSEN

The Conversation January 31, 2019 Susan Davis

In this series, we look at under-acknowledged women through the ages.

This year marks 50 years since the launch of one of Australia's first major conservation battles, waged against Queensland's ultra-conservative, pro-development premier Joh Bjelke-Petersen. It was for a location few had ever heard of – Cooloola, an area that stretches from Noosa to Rainbow Beach, around 70 km north.

Portrait of Kathleen McArthur by Lina Bryans (1960). Courtesy Alexandra Moreno

The unlikely leader of this campaign was a wildflower painter named Kathleen McArthur, who led the Caloundra branch of an environmental group the Australian newspaper called "the most militant of conservation cells".

Kathleen, together with colleagues such as poet Judith Wright, pioneered and honed activist strategies that are still instructive today. She understood art's ability to prompt human emotion and marshal the public support required to bring about change.

From her homebase at Caloundra in Queensland, Kathleen created nation-wide awareness of the existence of the Cooloola region, which incorporates internationally significant high dunes, coloured sands, rainforest and wallum heathland habitats. It is now part of Great Sandy National Park, but at the time was under threat from sand mining and development.

A highlight of the Cooloola campaign was the distribution of 100,000 protest cards across Australia, with at least 15,000 of them sent to Queensland's then Premier. Conservationist Arthur Harrold described Kathleen as the "cunning mind" behind the cards.

Abandoning convention

Kathleen McArthur was born in 1915 into one of Brisbane's leading families. Her parents were Daniel Evans of Queensland engineering company Evans Deakin, and Kathleen (Kit) Durack, of the Irish pastoralist family made famous via the books of cousin Mary Durack.

Kathleen had an early life of considerable privilege. However, she turned away from the conventional life of the society matron. After a well-publicised marriage to military man Malcolm McArthur, and three children, Kathleen eschewed life on military bases or the city. The family bought a modest home at Caloundra that she later named Midyim.

Discovering her husband's unfaithful ways, Kathleen initiated divorce proceedings in 1947. By the 1950s, she was a single mother of three. She lost her parents to illness in 1951. From then on, Kathleen forged a new life for herself, writing about and illustrating Queensland wildflowers. She began painting in part to help identify the wildflowers in her local environment, there being a limited range of books to assist with their identification.

n 1953, Kathleen set herself the task of recording all the native plants in bloom across key locations of the Sunshine Coast region. This project fed into numerous publications including weekly newspaper columns and books. This year was also notable for a wildflowering expedition Kathleen took with her friend Judith Wright to the peak of Mt Tinbeerwah, which provided the spark of the idea for a national park at Cooloola.

Judith and Kathleen were among the founders of the Wildlife Preservation Society of Queensland, established in 1962, along with naturalist David Fleay and Jacaranda Press founder Brian Clouston. Brian offered to help their cause by publishing an educational wildlife magazine, which still exists today.

The 'Mistress of Midyim'

A crisis point was reached for Cooloola in 1969, with mining applications pending for much of the region. Kathleen's idea to use wildflower postcards activated the public campaign. She had been inspired by a US campaign utlising such cards and though others were sceptical, set about creating a postcard, a letter and a brochure that could be distributed far and wide. She also created wildflower cards and prints featuring her artwork, sold to help raise funds.

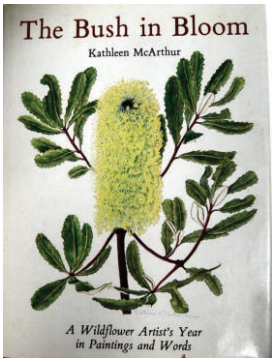
After the postcard distribution, hundreds of letters of support flowed back to the "Mistress of Midyim". The campaign was further promoted through feature articles and letters to editors, talks, a documentary and capitalising on a web of allegiances. From early on, the Wildlife society formed relationships with scientists such as Dr Len Webb, from the CSIRO, who played a central role.

Kathleen and the society communicated regularly with politicians from all sides of the house. Her local MP Mike Ahern was a Country Party member but sympathetic to the conservation agenda.

On 1 December 1969, Bjelke-Peterson issued a press release stating that "substantial areas" of the Cooloola sand mass would be set aside as a National Park. But this was by no means the end of the campaign. Six weeks later, it was revealed that applications had been lodged for sand mining leases within some areas of Cooloola. This delayed formal action on the declaration of a national park and required the campaigners to change tactics.

In the meantime, the newly formed South Queensland Conservation Council, the Cooloola Committee and Dr Arthur Harrold took on the next phase of the battle. While Kathleen gave up leadership of the campaign, she did not leave the fray entirely. As key hurdles were encountered she would return to letter writing and other forms of maintaining the rage. Eventually, 22 years after Kathleen and Judith first stood on the peak of Mt Tinbeerwah, the Queensland parliament gazetted the Cooloola National Park in December, 1975. However Kathleen's role is rarely mentioned in most accounts of the Cooloola campaign.

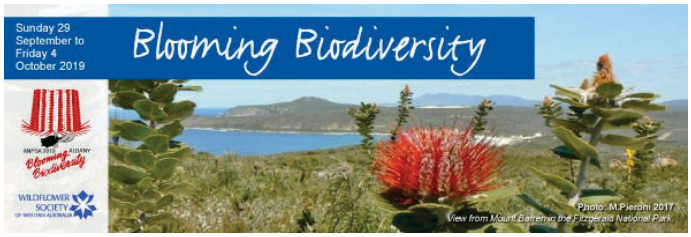
After Cooloola



Kathleen refocussed on her art, wrote a suite of books and established a series of monthly presentations called "lunch-hour theatre". She remained involved with her local branch of the wildlife preservation society, prepared the submission to have Pumicestone Passage added to the register of the National Estate, and campaigned to protect beach dunes. She also identified areas that should be protected as reserves, including one posthumously named Kathleen McArthur Conservation Reserve just north of Lake Currimundi. After a period of illness she died in 2000, the same year as her friend Judith Wright.

Because of the likes of Kathleen McArthur, today there are national parks, beaches protected by dunes rather than rock walls, and birds calling from humble heathlands where gentle wildflowers bloom. She is but one of a number of women from the period who could be "wild", radical and difficult, but who was passionate about wildflowers and protecting our natural environments.

A 'Wild/flower Women' exhibition will be on display at the Fryer Library, University of Queensland throughout 2019, with an online exhibition to be available via their website. A public lecture and performance will be staged in late March as a part of the Fryer Fellowship program.



ANPSA – Albany 2019 – Overview

Why come to Albany, Western Australia?

- Biodiversity – extraordinary range on impoverished soils
- Fascinating vegetation communities
- High proportion of endemic plants
- Knowledgeable tour and trip guides
- Stimulating program of speakers
- Study Group gatherings

When

- **Sunday 29 September to Friday 4 October 2019**
- Tours the week before and week after

Getting to Albany

Fly to Perth

- Albany is 420km south east of Perth by road
- Take a one-way pre-conference tour from Perth to Albany
- Take a one-way post-conference tour from Albany back to Perth
- Regional flight with Rex Airlines between Perth and Albany
- Transwa Government bus, 3 routes – comfortable and cost effective

Driving from the East

- Turn south at Norseman on Hwy 1, via Esperance – 650km
- Continue west from Norseman, good gravel road through the Great Western Woodland to Hyden, then sealed – 680km

Tours

Three pre-conference tours from Perth and finishing in Albany, and three post-conference tours from Albany finishing in Perth:

East – Sorry, but the Eastern tour will not take place due to lack of accommodation.

North – Perth to Mt Lesueur, then Wongan Hills and an inland route to Albany (and reverse post-conference) – 6 nights

South-western – Perth, the Swan Coastal Plain to Busselton, and through the forests to Albany via Pemberton (and reverse post-conference) – 4 nights

South-eastern – Perth through Dryandra and Kojonup to Albany (and reverse post-conference) – 1 night

One tour beginning in Albany and finishing in Albany, both pre and post conference **Albany to Ravensthorpe**, Esperance (including Fitzgerald River NP) and return to Albany - 5 nights

Half-day pre-conference tour:

Two half day tours will be offered for Sunday 29 Sept 2019. One of these tours is envisaged to be a bus/coach hop-on hop-off tour around Albany to see the natural highlights and the other one is a 2 coach tour to Torndirrup National Park and the Whaling Centre, with a maximum of 50 people in each of the 2 coaches.

ALL REGISTRATIONS MUST OCCUR ON SATURDAY OR SUNDAY AS TOURS COMMENCE ON MONDAY MORNING.

Draft Programme (subject to change)

Sat 28/9 – Albany Wildflower Show last day (early registration available)

- **Sun 29/9** – Short local tours, Registration, AGM, Welcome Reception

- **Mon 30/9 – Day excursion (see below)**
- **Tues 1/10 – Talks and AJ Swaby lecture**
- **Weds 2/10 – Day excursion (see below)**
- **Thurs 3/10 – Talks and Conference Dinner**
- **Fri 4/10 – Conference talks and Farewell**

During the Conference, two days will be allocated to full day excursions. We will be running 3 destinations both days with a maximum of 100 guests to each destination. **Conference attendees will be able to go on only two of the tours.**

Full day Conference Tours:

1. **Stirling Tour**

Stirling National Park 30 Sept and 2 Oct 2019

Take in the majestic sights of Stirling Range National Park. The Stirling Range stretches for 65 kilometres from east to west and is regarded as an area of great biogeographic and evolutionary interest. The area supports 1,500 plant species, of which at least 87 occur nowhere else in the world. The park is home to five major vegetation communities: thicket and mallee-heath on the higher ground; and woodlands, wetlands and salt lake communities on the lower slopes and plains.

2. **Mt Barker Tour**

Greens Pool, Mt Barker, Tenterden 30 Sept and 2 Oct 2019

This excursion will take you to some of the lesser known gems that lie to the south and north of Albany. You'll visit William Bay National Park and see the aquamarine waters of an iconic beach and learn about coastal vegetation. You'll stop at an old quarry between Albany and Mt Barker that is rich in native flora, and visit the Banksia Farm in Mount Barker with its famous botanic garden. You'll also be shown a secret orchid spot and visit a private property in Tenterden, situated on a biodiverse woodland west of the Stirling Range.

3. **Porongurups Tour**

Porongurups and Cheynes Beach 30 Sept or 2 Oct 2019

On this excursion you'll travel north and east of Albany to visit a community conservation reserve at the base of the ancient granite domes of the Porongurup National Park. This reserve has a rich diversity of soil types and therefore habitats, and you'll hopefully see spectacular fields of wildflowers. You'll also visit the lower slopes of the Porongurup National Park to look for the delicate orchids that flourish there. Lovers of the coast will enjoy the rugged Cheynes Beach, where you might spot whales and birds after you've finished hunting for wildflowers in the coastal heath.

Accommodation

Albany a popular holiday city.

Full range of accommodation options close to conference venue.

Early booking of accommodation is advised. Conference week is the first week of WA school holidays.

- Conference rates at selected places.
- Recommend Albany Visitor Centre for bookings.

For registration and full conference details:-

https://meetingmasters.eventsair.com/QuickEventWebsitePortal/bloomingbiodiversity/eventinfo