

STEP NEWSLETTER MARCH 2024



Looking towards the Forest 20 entrance (well in the background) from our eastern main path. Photo Andy Russell 7th March.

From the President

Hello All

It has been an excellent growing season for us, with just enough rain to keep Forest 20 looking colourful and vibrant. Our hardy bunch of STEP-pers has continued to attend the working bees through the holiday season, and it has been lovely to see a lot of family groups enjoying the walks and vistas. Quite a few plants such as the Showy Copper Wire Daisies *Podolepis jaceoides* and Vanilla Lilies *Arthropodium milleflorum* have been flowering prolifically due to the mild summer and we have been able to collect seed. This will be used to create more seedlings for planting, and so the cycle continues!

There has been no shortage of material for photographing this summer around the garden beds. The ephemeral wetland has been echoing with frogs and I have noticed an increased variety of insects. Some of these species damage our plants, like the Gumleaf Skeletoniser larvae *Urba lugens* (see photo I snapped on 18th January 24 opposite), but this is all part of a healthy ecosystem, so we let nature take its course. Our volunteers need to be careful when handling eucalypt vegetation though, as hairy caterpillars can cause a significant skin reaction. This is why we recommend wearing long sleeves, long trousers, and gloves when gardening.



Finally, I must congratulate our wonderful Newsletter editor and compiler, Andy Russell, who was recognized at the National Arboretum Canberra's end of year 2023 Volunteer Recognition Awards ceremony. Andy was a worthy recipient of the Sterling Service Award and was acknowledged for the many hours of work that he contributes to STEP and the wider community. A talented and dedicated photographer, Andy has been an active member of STEP since its inception and produces our monthly photo sheet *Of Interest in Forest 20* as well as this quarterly newsletter. Congratulations and a big thankyou to you, Andy!

Regards Jane Cottee

Sterling Service Award to Andy Russell

Andy Russell being presented with the Sterling Service award by Scott Saddler AM, Executive Branch Manager of the National Arboretum Canberra and Stromlo Forest Park. The shaded picnic area down in Forest 20, surrounded by *Eucalyptus blakelyi*, Blakeley's Red Gum, provided a fitting location for this significant occasion.

Text and photo Jane Cottee.



STEP signs an updated Memorandum of Understanding with the National Arboretum Canberra



With a signing ceremony held at the STEP morning tea tables, an updated Memorandum of Understanding was signed on December 14th, 2023, by Jane Cottee, STEP President and Scott Saddler AM, Executive Branch Manager of National Arboretum Canberra and Stromlo Forest Park. The document was witnessed by Andy Russell for STEP and Christine Callan for the National Arboretum Canberra.

Photos Andy Russell, text Jane Cottee

Treenet an institution Steppers should know.

I suspect many of STEP members may not have heard of Treenet. Full disclosure I am a card carrying though very inactive member.

In 1997 Dr Jennifer Gardner OAM, the long-term curator of the Waite Arboretum at Adelaide University, established Treenet with several colleagues. I had got to know the Waite Arboretum as a graduate student there in the 1960s, but the later appointment of Jennifer signalled the start of the transformation of what looked like a sad tree collection, into one of the great Arboreta of Australia.

Anyone visiting Adelaide should visit it (it is only 15 minutes from the city centre by car), it is open 24/7 and it is a great walk, well signposted on the Urrbrae Campus (Waite Institute) of Adelaide University. Treenet came about by reaching out to try to assist first South Australian and then National Local Government bodies to better manage urban forests.

They established tree trials by voluntary collaborations with local government and citizen science groups around Australia and they have now developed a truly important body of information to allow better planning and management of the treescapes of towns and cities. Their scientific results are all available on-line and this is a terrific resource for those of us interested in seeing better managed urban forests.

The Advisory Board includes some of the best “tree people” in Australia from the encyclopaedically knowledgeable Eucalypt Man, Dr Dean Nicolle, to our own Samantha Ning who runs tree week and is a senior manager handling trees in the ACT government.

To find out more about the organisation go to: <https://treenet.org/> . Especially look at the results of the urban tree trials around Australia on their user-friendly data base at: <https://treenet.org/street-tree-species-trials/>

Their work covers both native and exotic trees, but their mission is to get better trees and tree management in Australia.

The Waite Arboretum incidentally is now strongly supported by a Friends group which operates like STEP.



Max Bourke AM.

Max , photo by Andy Russell March 2018

Nerding around plants

I spend far too much time chasing plant issues down rabbit holes but recently came across a bit of arcane info which might amuse some Steppers.

Many of you will know the so-called “Burrawang Palm” by simply driving down to the coast and seeing it at the foot of Clyde mountain and along the south coast. It usually occurs on sand or sometimes clay soils among Spotted Gum (*Corymbia maculata*) forests. It is not a palm but a member of an ancient group of plants, the Cycads, and is formally called *Macrozamia communis*.



We have many Cycads in Australia; indeed, I have two grown from seed on my front veranda, a Burrawang and its “analogue” from the north coast *Lepidozamia perrofskyana* (Scaly Zamia or Pineapple Cycad), both of which make wonderful long-lived slow growing pot plants. *Photo Macrozamia communis pot on Andy & Janet’s balcony.*

They are all well known for their phytotoxicity, indeed early settlers, not observing how indigenous people used them correctly made highly toxic flour from the large seeds. Soaking the seeds, as the Indigenous people did, and drying before crushing does make an excellent flour substitute. There were Show Classes for such flour in the Braidwood Show in the 19th Century.

Being curious about this toxicity, and the usually ‘pristine’ foliage of this group I began researching their evolution. And I found something astonishing.

Here is the introduction to the paper I read: Cycads are often referred to as ‘living fossils’; they originated in the mid-Permian and dominated terrestrial ecosystems during the Mesozoic, a period called the “age of cycads and dinosaurs”. Although the major cycad lineages are ancient, modern cycad species emerged from several relatively recent diversifications . Cycads are long-lived woody plants that, unlike other extant gymnosperms, bear frond-like leaves clustered at the tip of the stem. Extant cycads comprise 10 genera and approximately 360 species, two-thirds of which are on the International Union for Conservation of Nature Red List of threatened species . All living cycad species are dioecious, with individual plants developing either male or female cones (except in *Cycas*, which produces a loose cluster of megasporophylls rather than a true female cone. Unlike other extant seed plants, cycads and Ginkgo retain flagellated sperm, an ancestral trait shared with bryophytes, lycophytes and ferns. Cycads exhibit other special features, such as the accumulation of toxins that deter herbivores eating seeds and vegetative tissues. They also produce coralloid roots that host symbiotic cyanobacteria, making them the only gymnosperm associated with nitrogen-fixing symbionts . The origin of the seed marked one of the most important events of plant evolution. As one of the four extant gymnosperm groups (cycads, Ginkgo, conifers and gnetophytes), cycads hold an important evolutionary position for understanding the origin and early evolution of seed plants. “

But what interested me most is that this work goes on to show that the toxic chemicals produced by these plants evolved through the relatively recently discovered process of horizontal gene transfer **FROM FUNGI!**

In other words, at some stage the reproductive system of these Cycad(probably, I repeat probably including Burrawangs, have gobbled up/absorbed/taken into their reproductive cycle the genes from a fungus, and there are many, which are highly toxic to animals, see the recent murder trial in Victoria for instance.

Max Bourke AM

News from Forest 20 by David Shorthouse

Since the December 2023 Newsletter STEPpers have been as active and diligent as ever. We are now regularly observing growth in the plants newly established across Forest 20 thanks to some good rainfall events over the summer period, supplemented when necessary by some intensive watering in between. A row of *Eucalyptus macrorhyncha* (Red Stringybark) that replaced trees killed during the very wet carpark overflow period in 2022 now show vigorous growth and again define the top edge of Forest 20.



Replanted Eucalyptus macrorhyncha, photo Lainie Shorthouse

Equally vigorous growth of the grassy understorey across much of Forest 20 has also yielded a few surprises. The understorey beneath the upper rows of trees already supports several species of native grass which we are encouraging. But what surprised us during our annual campaign against St John's Wort was discovering several species of flowering herbs, including many *Glycine clandestina* (Twining Glycine) and *G. tabacina* (Variable Glycine), *Wahlenbergia stricta* ((Tall Bluebell) as well as some *Calocephalus citreus* (Yellow Beauty Heads) and *Tricoryne elatior* (Yellow Autumn-lily). The latter was particularly interesting to see, as we have only one specimen elsewhere in Forest 20, albeit amongst a small patch of *Bothriochloa macra* (Red-leg Grass). Where has the seed come from? Has it been there all the years since the pine forest or even before that and waiting for the conditions to be exactly right for germination? What agent might have introduced new seed? Might the seed have been sown when we first started work in Forest 20 when Warren Saunders helped us establish the forest? We hope that this upper part of Forest 20 will continue to diversify and display a more 'natural' grassy understorey.



Tricoryne elatior Photo Andy Russell

As briefly noted above, STEPpers have continued their annual onslaught against St Johns Wort. We spot spray the plants when first they show evidence of flowering and then concentrate on hand-weeding and root removal in subsequent months. Our strong impression is that the population of this weed is declining across Forest 20, but we are menaced by massive growth in adjacent Arboretum and Nature Reserve lands that surround us. We are also vigilant about eliminating African Love Grass whenever we see its familiar leaf colour or flowering head. So far so good, but it is elsewhere at the Arboretum, and mowers are renowned for being a source of spread.

STEPpers regularly work with the Arboretum's horticultural team, and we are very grateful for their support, especially delivery of small buggy loads of mulch just where we need it! As we age wheel-barrowing mulch across Forest 20 has become a bit too much to expect, so we appreciate this assistance with mulch delivery and removal of significant biomass.

Notes from the last STEP Committee meeting

Increase in annual membership fee.

At the February Committee meeting it was decided to increase the annual membership fee to \$30 to apply from 1 April. This is the first increase in membership for more than 10 years. Actually, it is fifteen years since the last increase in our membership fees says Andy Russell STEP Membership Officer.

This increase in membership revenue will assist in meeting increased cost of insurance and other costs of maintaining and growing STEP at Forest 20.

Overflow Car Parking access.

The NAC intends to reverse the direction of the traffic exiting the overflow parking at eastern end of the overflow parking. The current one-way Exit at the eastern side of the car park, will change to one-way Entry. There will be no change to entry and exit at the western end.

There is no indication of timing of the change. It will give clear two-way vision when exiting, compared with the current arrangements.

Harvest stall at the Visitors Centre

Margaret Saul and Lainie Shorthouse extolling the virtues of Chocolate Lilies - *Dichopogon fimbriatus* . This was another successful sale of plants and cards at the Harvest Stall, Sunday 24th March.



Grasses of the Southern Tablelands

The Southern Tablelands of NSW is a vast area, much of which is covered by grasslands. These are the Temperate Montane Grasslands, which are characterised by a dense cover of tussock grasses, a variety of broad-leaved herbs and where woody shrubs and trees are rarely present. These grasslands comprise a wide variety of plant communities that vary in their species composition due to the effects of position in the landscape, soil type, grazing intensity and altitude. On heavier clay soils, *Poa* and *Themeda* tend to dominate, while more open grasslands of *Rytidospermum*, *Bothriochloa* and *Austrostipa* tend to occur on the lighter textured soils and slopes where water drains more freely.



Throughout the Monaro region this important class of vegetation has been heavily disturbed since the early 1800's when the potential for grazing was quickly recognised by pastoralists. By the 1830's many squatters had established pastoral camps over much of the Monaro.

Grazing since then has relied on the many native grasses found in these grasslands. Pasture improvement began as early as the 1860s. More recently since the 1940s, the introduction of exotic pasture grasses and legumes, agricultural weeds, ploughing and the use of superphosphate fertilizer has heavily impacted the existence of native grasses.

Photos both of Rytidospermum bipartitum,

In recent years at STEP, we have greatly expanded our collection to represent the many species of grasses and herbs found naturally throughout the Southern Tablelands in both Grasslands and the closely related Grassy Woodlands.

Along the northern edge of Section I at Forest 20 is a stand of *Rytidospermum bipartitum* (Wallaby Grass) that is currently in flower. This grass grows into a medium sized tussock. It is a conspicuous grass at this time of year as the floral shoots grow to around 0.7m tall and contain numerous large straw-colored flowers. This show of flowers is accentuated by massed planting.

The seed from this stand was collected in 2011 from a remnant population in Fyshwick ACT.

It had remained there on a rural block and existed as an almost pure stand of about 0.5ha with very few weeds in the spaces between tussocks. It was a surprising and delightful sight. Remarkably, this population had survived grazing, nearby roadworks, and land clearing for light industry until that time. Sadly, 12 months after this seed



was collected, the paddock was graded for industrial expansion. A small number of individuals remain in the local area amongst patches of mostly exotic weeds such as blackberry, Phalaris, and Paspalum.

The stand at Forest 20 was planted about 5 years ago by students studying Conservation and Land Management at the CIT. Around 8-10 students spent several hours weeding, planting and watering-in the new seedlings for this project. The seedlings (STEPlings) were produced by STEPpers at one of our propagation sessions. Since that time this planting has grown well with many new seedlings establishing amongst the original plants, despite considerable competition from weeds.

Terry Murphy Text and photos

An Interesting Insect

This insect is *Porismus strigatus* (family *Osmyidae*) Pied Lacewing. They belong to the ancient order of *Neuroptera*. Lacewings are named for their usually transparent and lace-like wings. As a group their larvae are known as antlions and look like ants. Adults and larvae are both predatory, eating soft bodied insects like aphids, and scale insects so they are considered beneficial to agriculture. Most larvae have grasping jaws to hold their prey. Apparently, these lacewings are found from southern Queensland to Victoria.

I think this may be the first time this species has been photographed at forest 20.

Photo and Text Andy Russell.



Some recent photos from Forest 20

Below Lythrum salicaria Purple Loosestrife 11/1/24



Below, a good morning's weeding! 11/1/24



Below Chrysocephalum semipapposum Tall Everlasting Below the Ephemeral Wetland is refreshed.



Below Cymbopogon refractus Barb Wire Grass Below



Westringia erimicola Slender Westringia (24/2/28)



Photos are by Andy Russell and were taken on 6/4/24 except where other dates are indicated.

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The STEP Newsletter is produced quarterly in March, June, September, and December. Contributions are welcomed. This newsletter has been edited by Andy Russell.

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