WANOSCG

The Official Bulletin of the Western Australian Native Orchid Study & Conservation Group

ISSUE 5 - JULY 2021

IN THIS ISSUE:

Next General Meeting:
7:30pm Wed 21 July 2021

NOTE VENUE FOR JULY MEETING:
G33 Bayliss Lecture Theatre, Crawley Campus, UWA. Turn right into **Fairway Entrance 4**, Car Park P43.

Click here for a map

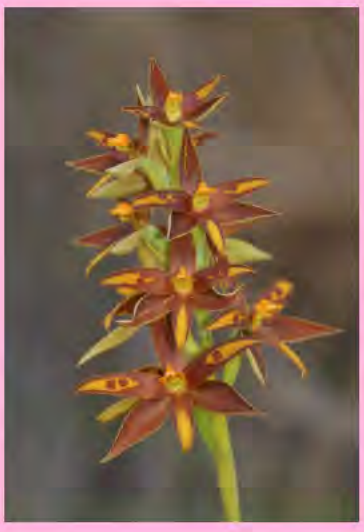
The Committee:

President – Jon Warren
1st Vice President – Ramón Newmann
2nd Vice President – Andrew Brown
Secretary – Pat Richards
Treasurer – Jay Steer
Committee Members –Kevin Uhe, Debbie Proudfoot, Bill Gaynor, Graeme Walker, Graham Warren

Bulletin Editor – Ian Puddey

Orchid taxonomy – morphology, DNA or both?

In a tour de force, at our June General Meeting, Jay Steer presented sophisticated analyses from a large and very carefully compiled dataset that firmly established that 2 orchids from the Fuscolutea orchid complex, T. stellata and T. magnifica, although having many similarities, can be robustly distinguished by their sepal length and the ratio of leaf length to width. The data, collected from hundreds of plants annually surveyed from 2016 to 2020, convincingly demonstrated the continuing power of well conducted morphological studies in enabling the increasingly complex taxonomy of Western Australian terrestrial orchids to be unravelled. Such studies are essential if we are to increase our knowledge of orchid taxonomy in a way that can mandate and underpin future conservation efforts. Jay is now awaiting DNA sequence results to further increase understanding of these beautiful orchid species. This leads to the question as to whether such meticulous, careful and painstaking collection of morphological data over the span of several years has now been superseded by the advent of DNA analysis. For those interested in this question, the bulk of opinion in most recent reviews is that we require evidence from multiple sources for an optimal approach to taxonomy, and that the use of DNA molecular techniques, although as exciting and ground breaking in botany as elsewhere in science, still has drawbacks as well as strong points. In the future, the combination of DNA analysis together with morphometric approaches that utilise computer analysis of high resolution images, should see our insights into orchid taxonomy increase exponentially.



Thelymitra stellata and Thelymitra magnifica – images by Jay Steer

The Fuscolutea orchid complex - *Spinoff from an Adopt an Orchid Research Project*

Jay Steer

We all love Sun orchids as they are so very showy. Western Australia is blessed with at least 36 species of orchid in the genus *Thelymitra* (Sun orchids). They are different from other orchids because they lack a modified lip (labellum), have a column that is highly decorated by glands and wings and their flowers open on warm sunny days.

For me the crowning glory of the Western Australian *Thelymitra* is the brown and yellow flowering Fuscolutea complex, commonly known as 'Sienna' Sun orchids. For some time I have been fascinated by the similarities and differences between two members of the Fuscolutea complex, *T. magnifica* and *T. stellata*.

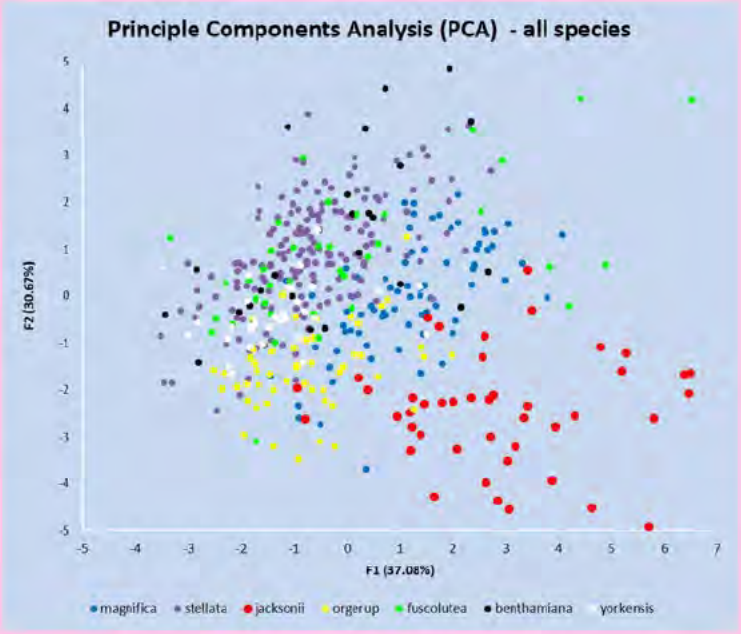
When the Adopt an Orchid Project (ADORP) began in 2009, I was very excited to be able to adopt the Perth Hills growing, Priority 1 species, *T. magnifica*. Jeanes had recently resolved the fuscolutea complex of southern Australia into 7 species *(Muelleria* 24: 3–24, 2006) creating a key to identify each species. He suggested that flowering time, location, fragrance, flower spike height, leaf size and shape, flower size and colour and column structure and colour were useful in distinguishing these species apart. Hence, my brother Bob and I began to collect field measurements and photographs of flowering plants from all members of the Fuscolutea complex that we found. We particularly concentrated on *T. magnifica* and *T. stellata* as part of our ADORP surveys.

By 2014 it became clear that the first branch point of Jeanes key, sepal length < 2cm, failed to discriminate the species *T. stellata* and *T. yorkensis* from *T. fuscolutea* and *T. benthamiana*. In addition, the two bumps at the top of the column in *T. stellata* that were supposed to be absent from *T. magnifica* did not appear to be a reliable separator of those species. Only 32% of *T. stellata* had them and what is more 25% of *T. magnifica* also had them.

Fuscolutea measurements in 2016

In 2016 Bob and I collected field measurements from 448 flowering plants in the Fuscolutea complex (39.3% *T. stellata*, 17.2% *T. magnifica*, 11.6% sp. 'Ongerup', 9.8% *T. jacksonii*, 9.4% *T. fuscolutea*, 7.4% *T. yorkensis*, and 5.4% *T. benthamiana).*

Principal component analysis (PCA) uses a series of orthogonal linear transformations to convert the data into a new coordinate system such that the greatest variability within the data comes to lie on the first principal component (F1)



and the second greatest variance on the second coordinate (F2). This allows us to visualize, in two dimensions, the measured differences between the fuscolutea groups. Flower spike height (23%), height to first bud (21%), leaf length (18%) and sepal length (13%) were the major contributors to the variability captured by the first principal component (F1). Whereas leaf width (26 %), number of buds (26%), leaf length/width (16%) and crowdedness of buds (13%) were the major contributors to the second principal component.

Since PCA indicated likely differences between some of the fuscolutea groups, I conducted an all pairwise comparison of species and measurements (ANOVA with Tukey's HSD test) to identify in which measurements these differences lay.

The majority of variability in the F1 axis was associated with flower spike height and height to first bud while the number of buds was a major component of F2. Each of these measurements showed significant species groupings (data not shown). Together these three measurements define bud crowdedness (cm/bud). ANOVA showed four groupings of species with *T. jacksonii* having the least crowded and *T. stellata* the most crowded buds

Bud crowdedness

Category	(cm/bud)	Groups			
jacksonii	2.30	A			
magnifica	1.53		B		
benthamiana	1.47		B	C	
yorkensis	1.22			C	D
sp. 'Ongerup'	1.21			C	D
fuscolutea	1.05				D
stellata	1.03				D

Flower size decreases as one goes up a *Thelymitra* spike, hence we only measured the lowest flower. *T. magnifica* and *T. jacksonii* fell into the only grouping with sepal length greater than 2cm and *T. jacksonii* and sp. 'Ongerup' each had significantly wider column fringes suggesting that *T. jacksonii*, *T. magnifica* and sp. 'Ongerup' had bigger flowers than the other Fuscolutea groups.

Sepal length

Category	(cm)	Groups		
magnifica	2.26	A		
jacksonii	2.26	A		
sp. 'Ongerup'	1.96		B	
yorkensis	1.71		B	C
stellata	1.69			C
fuscolutea	1.54			C
benthamiana	1.53			C

Column fringe width

Category	(cm)	Groups			
jacksonii	0.80	A			
sp. 'Ongerup'	0.70		B		
magnifica	0.63			C	
stellata	0.61			C	D
fuscolutea	0.60			C	D
yorkensis	0.57			C	D
benthamiana	0.57				D

Measurements of leaf length, in 2016, fell into three groups with *T. magnifica* having the longest leaves. *T. benthamiana*, *T. stellata* and *T. magnifica* had wider leaves compared to the other species. *T. jacksonii* had relatively long thin leaves compared to the other species.

Leaf length

Category	(cm)	Groups		
magnifica	14.1	A		
jacksonii	11.5		B	
benthamiana	10.1		B	C
stellata	10.0		B	C
fuscolutea	9.1			C
yorkensis	8.9			C
sp. 'Ongerup'	8.4			C

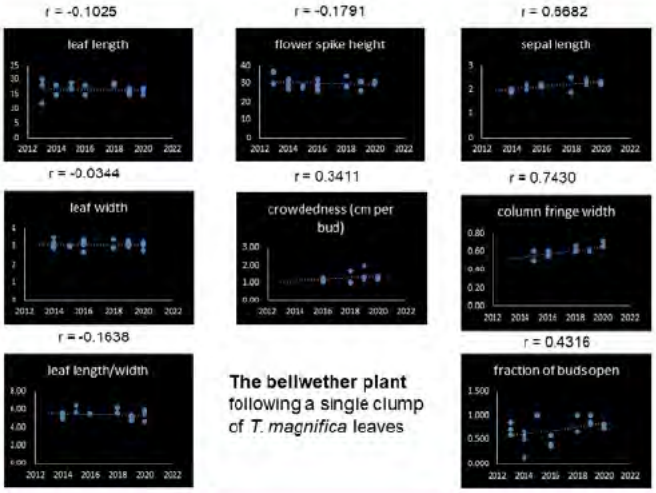
Leaf width

Category	(cm)	Groups	
benthamiana	3.0	A	
stellata	2.9	A	
magnifica	2.7	A	
yorkensis	2.0		B
fuscolutea	1.9		B
sp. 'Ongerup'	1.5		B
jacksonii	1.4		B

Category	leaf length/leaf width	Groups		
jacksonii	9.2	A		
fuscolutea	5.9		B	
sp. 'Ongerup'	5.9		B	
magnifica	5.5		B	
yorkensis	5.4		B	C
stellata	3.7			C
benthamiana	3.6			C

It is important to obtain measurements over a number of years to be sure that seasonal variations do not confound the apparent differences seen between the Fuscolutea groups in the 2016 data. Because we have only collected sufficient data on *T. magnifica* and *T. stellata* to conduct a meaningfully analysis of the effects of season and location, the focus shifted to studying these Fuscolutea groups.

Initially, I compared measurements taken over the 2013 to 2020 period from a single clump of *T. magnifica* leaves, known to us as the 'bellwether plant'. This plant produced 4 to 7 leaves with 3 to 5 flower spikes most years over this period. There was little variation between years of measurements of leaf length, width, length/width ratio, flower spike height or bud crowdedness, despite there being variation in times of leaf eruption, flowering time and rainfall over the period. There was, however, a correlation suggesting increased sepal length and column fringe width with increasing years.



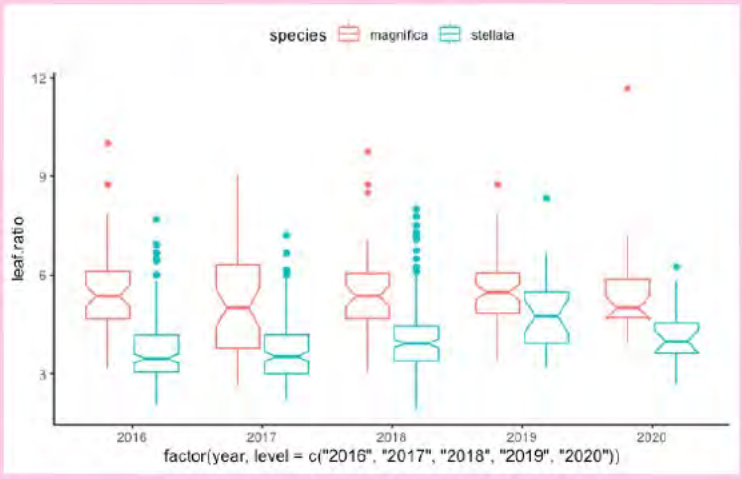
The bellwether plant following a single clump of *T. magnifica* leaves

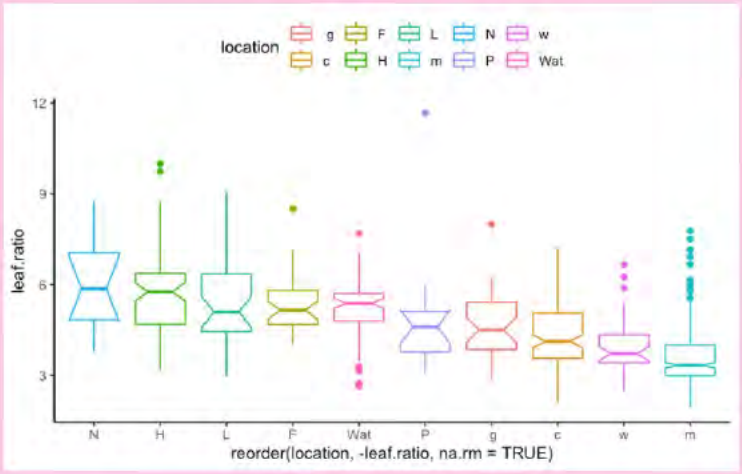
This is likely a result of our desire to conduct surveys at the time when we maximized our chance at finding flowering plants, the goal of our ADORP surveys. An increasing trend of the fraction of buds open at the time of measurement supports this view. Interestingly this implies that sepal length and column width increase the longer a flower is open.

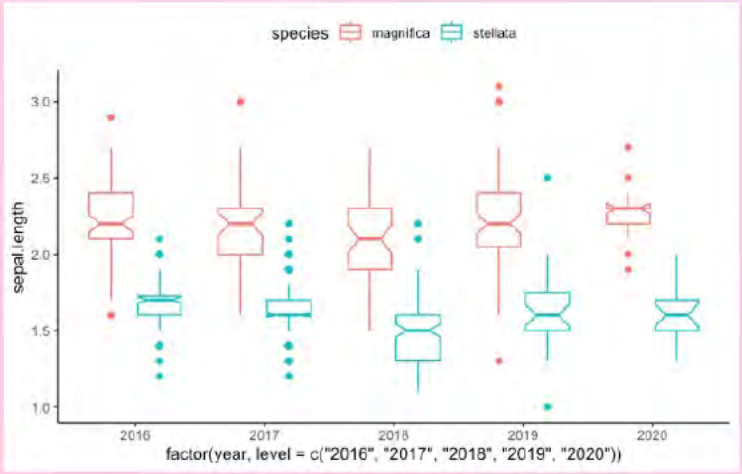
Unsupervised (groups unknown) dimension reduction analysis by *i)* PCA, which maximizes the variance of measurements and *ii)* multidimensional scaling, which maximizes both variance of measurements and covariance between groups, each showed marked differences between *T. stellata* and *T. magnifica* measurements (data not shown). These methods however are influenced by correlation of measurements and the potential of repeated measurement of individual plants over the seasons.

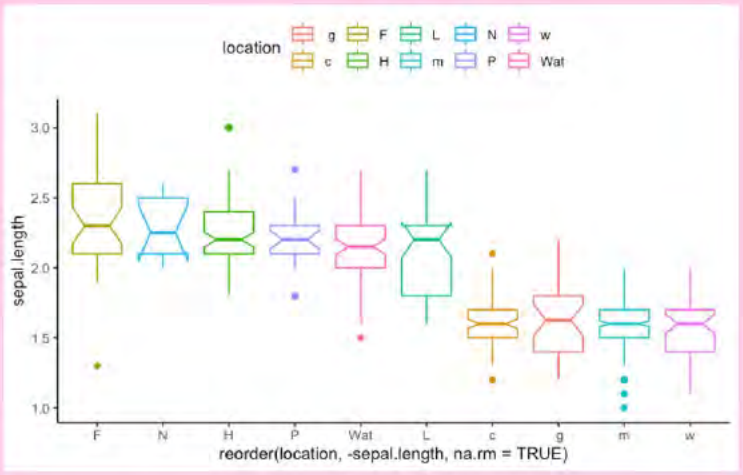
Sparse partial least squares discrimination analysis (sPLSDA), a supervised (knows the groups) analysis which is not influenced by correlated or repeated measurements also showed clear differences between *T. magnifica* and *T. stellata* groups.

Given that there appears to be differences in measurements between *T. stellata* and *T. magnifica*, that hold up over a period of 5 years, I developed a linear mixed model (R packages: lmer, Lmer Test and emmeans) that could test the difference in measurements taking into account the fixed effects of location with nested effect of season, and fraction of open buds [measurement ~ species + (1|location/year) + (1|faction.open)]. Results were displayed as a series of Box and Whisker plots, where thick horizontal lines are medians, thin horizontal lines are the upper and lower quartiles, vertical lines are range and dots are outliers. Indents in the bars set the 95% confidence limits of data in bars. Purported *T. stellata* and *T. magnifica* locations are denoted by lower case and upper case respectively.









After adjustment for season and fraction of buds open, I found significant differences between *T. stellata* and *T. magnifica* in leaf width (p =0.0013), leaf height/width (p= 0.0009), bud crowdedness (0.0044) and sepal length (p=0.000001) but **not** in leaf width (p=0.29), spike height (p=0.32) or column fringe width (p=0.29).

In some years and or at some locations, there were small differences in leaf length, leaf width and spike height. For example, at the *T. magnifica* site "**L**", across all years, measurements of leaf length, leaf width and spike height were less than at other *T. magnifica* sites ($p<0.05$). Leaf ratio (length/width), bud crowdedness and sepal length were however the same as at other *T. magnifica* sites suggesting smaller plants with similarly sized and crowded flowers at site "L".

The take home message

Sepal length and leaf ratio (length/width) robustly separate the *T. stellata* and *T. magnifica* groups without any significant influence of season or location.

Acknowledgements: My thanks go to Bob Steer, Jon Warren, Graham Warren, Andrew Brown, Mark Brundrett, Kim Hanson, Kevin Uhe and WANOSCG members who helped with data collection and or made the project possible.

Post Nota: I eagerly await the sequence results from DNA samples taken from members of the Fuscolutea complex.

Thelymitra magnifica in natural habitat

Two new orchid species named for Western Australia

Andrew Brown and Kevin Uhe

In the latest group of papers published in *Nuytsia*, the journal of the Western Australian Herbarium, two new orchid species—*Caladenia multiplex* (Bulbarnet Spider Orchid) and *Pterostylis occulta* (Little Frog Orchid)—were formally named by Andrew Brown and Ryan Phillips, and Garry Brockman and Chris French, respectively.

Caladenia multiplex is well known among WANOSCG members. We can thank Jack Eborall for bringing it to our attention and for his encouragement in having it formally named. Many members have seen it in the field, the species epithet referring to the more numerous rows of labellum lamina calli found in this species compared to other related species. *Caladenia multiplex* is found over a small geographic range around Moora and is only known from a small number of populations, so will be included on the Priority listing as possibly Priority two. This species is recognisable by its short petals compared to the lateral sepals. Both the dorsal sepal and lateral sepals terminate with a swollen osmophore. It can also hybridise with *Caladenia longicauda* subsp *eminens* to produce much longer pendulous lateral sepals.

The naming of the second species, *Pterostylis occulta*, may come as a surprise. Members have probably seen it on many occasions but not have realised it was unnamed. It is a great example of need to look carefully when examining our native orchids. In the past it was placed with *Pterostylis sargentii* (Frog Greenhood) but when looked at closely you can see many differences, especially in the labellum (see photos of both taxa below). It also has a later flowering period (late August to mid October) compared with *P sargentii* (July to early September) and has smaller and more widely spaced flowers. It is found over a large range from Northampton to Mt Ragged and often grows with *P sargentii*.

These papers are open access and can be downloaded from: https://florabase.dpaw.wa.gov.au/science/nuytsia/997.pdf and https://florabase.dpaw.wa.gov.au/science/nuytsia/996.pdf

Happy reading.

Caladenia multiplex – images by Andrew Brown

Pterostylis sargentii– image by Kevin Uhe

Pterostylis occulta – image by Andrew Brown

Pterostylis occulta – image by Kevin Uhe

Conservation issues

Respect for orchids and their habitat

The orchid season is ramping up and WANOSCG members are out and about exploring remote and not-so-remote locations looking to tick off species from their bucket list or just to reacquaint themselves with the familiar. It should be noted, however, that "conservation" is what "C" in WANOSCG stands for and protection of native flora, particularly orchids and their habitat, is at the core of our purpose.

There have recently been complaints reported of a vehicle parked off the road in the vicinity of an orchid listed as "Priority". You are probably familiar with DRF markers (yellow "hockey stick" stakes that are positioned along roadsides either side of the location where rare flora species have been identified. (See pic below - the markers point inwards towards the site.)) These are there to warn people to be especially careful to avoid damage to any of the vegetation at the location as that vegetation is part of the overall habitat for the rare flora species. We therefore urge all our members to avoid parking in the vicinity of these DRF markers and especially not to drive off the road into the bush.

In addition, we request our members to try to avoid visits to the same orchid sites over and over again. Heavy foot traffic in the bush can be just as damaging as vehicles off road. Try somewhere different and you might find something new. Happy orchiding!

Pat Richards, Secretary

A call for observations of the impact of prescribed burns on WA's native orchids

In view of a number of past issues, Fire and Biodiversity WA (FabWA) and others have been calling for a review of the current prescribed burning practices for in WA. FabWA, for instance, helped to organise the recent Fire and Biodiversity Forum in Margaret River, and Kingsley Dixon et al have written a recent paper* on the topic.

As part of a drive for this review, FabWA have asked organisations who have observed the impacts of prescribed burns to submit letters outlining their observations, data, concerns etc to the Premier and the Minister for the Environment. The WANOSCG Committee is considering the drafting of such a letter, which is balanced and based on the positive and/or negative observations of its Members.

This is a call for WANOCG Members to send in their observations, data, etc on the impact on WA's native orchids by the current prescribed burns practices. Please send in your information by the 21 July General Meeting, either by email (wanoscg@gmail.com) or by post (PO Box 323, Victoria Park, WA 6979) or hand it in to a Committee Members.

We have an opportunity now to leverage the work being undertaken by other groups in WA on this important topic, so please send in your in-the-field observations even if they are not the product of some 'scientific study'.

**Bradshaw, S. Dixon, K. Lambers, H. Cross, A. Bailey, J. and Hopper, S. 2018. Understanding the long-term impact of prescribed burning in mediterranean-climate biodiversity hotspots, with a focus on south-Western Australia. International Journal of Wildland Fire. 27 (10): pp. 643-657.*

Ramón Newmann, Vice President

Prescribed burn racing towards Mt Dale 2016 – it scared the life out of me! (Editor)

Introducing Our Committee Members
– Bill Gaynor

Can you give us a few insights into your background?

Born in the City of Angels (Los Angeles, California).

I have always had an interest in the natural world around me – animals, people, places and things.

I have travelled to many great places including driving across the Sahara to spend about 1.5 years in West, Central and Southern Africa. In years past I frequently visited Mexico, one of my favourite places. Visited a few destinations in Asia and many in Australia. Since translocating to Australia I have lived in NSW, Qld (met Margie there), South Australia and now W.A.

Spent a few years in the US Naval Air Force.

Academic - Zoology and Veterinary Science.

Worked for National Parks (Queensland) on a crocodile/herpetology research project.

Veterinarian at the Perth Zoo, the ultimate for this vet and the catalyst for moving to WA. The highlights were many but one non-veterinary standout was being involved in raising a lion cub and the enduring bond which developed as part of that. Small amount of time in private practice.

How many years have you been a member of WANOSCG? What led to you becoming a member?

Since about 2007 or 08. Took Margie, my wife, to look for Queen of Sheba and while looking bumped into WANOSCG members Kim and Thea Hanson - the spark that ignited the fire of interest in native orchids.

How did you first become interested in orchids?

Have always had a general interest in fauna and more recently flora which increased after the Queen of Sheba.

Which orchid is your favorite?

Generally the one I am looking at - just great to be in the bush and exploring. Those I have not seen can be a focus for an endorphin rush. I do like the variation in hybrids. Beyond that, currently, the granite rock duck orchids via ADORP has led me to appreciate the whole intricacy of their biology and ecology. I am learning there is a big world beyond the camera.

Are there any orchids left on your bucket list to find and if so, which one(s) are you most interested in finding?

Always will be – as the expression goes 'if I told you I would have to kill you'.

Do you have a favorite memory from any group or personal field trips that you would like to share?

First field trip, with Ross Fox as coordinator, turned out to be during a brilliant year for orchids. Most all of the species and locations were new so was very engaging. Generally enjoy the enthusiasm and discoveries of group trips over the years, particularly if there is a campfire at night. Also many earlier great orchid explorations with Kim and Thea.

Personal - Enjoy the Kalbarri and Jerramungup areas.

As a member of the WANOSCG committee, what's your ultimate goal for the organization? Is there anything in particular you hope to see achieved over time?

I think there are a number of aspects that WANOSCG can provide.

First of all, I think it should be fun, enjoyable and engaging. I also think another aspect is providing the spring board to a deeper appreciation of the biology and place in nature of the various orchids living in our (near) backyard. All of which will hopefully bring a deeper appreciation and conservation of these amazing little critters.

Orchid of the month - July

Diuris brumalis D.L.Jones (Winter Donkey Orchid)

Andrew Brown

This attractive donkey orchid was formally named by David Jones in 1991 from specimens collected near Kalamunda in August 1986. However, the first collection of the species held at the Western Australian Herbarium was made way back in July 1901 when Cecil Andrews collected it from Gooseberry Hill and Guildford.

It is one of the first Western Australian donkey orchids to flower each year and its beautiful yellow and brown flowers really brighten up the dull wintery landscape when few other native plants are in bloom. You can find it in early flower in late June but mid-July to early August is when it is at its peak. Reflecting this early flowering period the species has been appropriately named *brumalis* which when translated to English means winter solstice; wintry. The equally appropriate common name Winter Donkey Orchid also alludes to this early flowering period.

Winter Donkey Orchid grows to 500 mm high and has two to three dull green basal leaves 140–200 mm long by 8–10 mm wide. Each plant produces up to 15 (more commonly 5–-8) yellow and brown flowers 20–30 mm across, distinguished by their broad, sometimes recurved dorsal sepal, oblong to elliptic petals, narrow, often crossed lateral sepals and tri-lobed labellum with spreading lateral lobes and a short, usually convex mid-lobe.

Winter Donkey Orchid is found between Gillingarra and Serpentine, growing in lateritic and granitic soils in forests and woodlands, and in some areas can be quite abundant. It is often even more abundant in areas burnt by summer fire.

For many years the species was regarded as a form of *Diuris corymbosa* (Common Donkey Orchid) but that species is now known to have a different range of distribution and a later flowering period in August–early October.

There are two other donkey orchids that flower at the same time as Winter Donkey Orchid but neither occurs in the Perth Region. *Diuris perialla* (Early Donkey Orchid) is found between Cataby and Mingenew and *D. brockmanii* (South Coast Donkey Orchid) is found between Ongerup and Esperance.

If you are in the Darling Range area east of Perth in July take a wander through the bushland and I am sure it will not take long for you to find this lovely colourful donkey orchid.

Diuris brumalis (Winter Donkey Orchid) – images by Andrew Brown

My ADORP Orchid
Pterostylis frenchii
Jon Warren

My brother, Graham and I are relatively new to having an ADORP orchid all to ourselves although I have assisted the Steer brothers for a few years with their ADORP orchid.

Our orchid, *Pterostylis frenchii* or the Tuart rufous greenhood, was named in honour of Chris French who discovered the species. As the common name suggests it can be found in the Tuart forests south of Perth but there are also populations in Banksia peppermint woodland as well as in Marri/Jarrah woodlands. Suffice to say it is known, to the best of our current knowledge, to grow in calcareous sands in and adjacent to coastal areas from Mandurah to Capel.

Pterostylis frenchii habitat

Pt. frenchii can be best be described as austere in appearance and when it comes to flowering (from late October to early December) it is very adept at blending in with the yellowing and drying grass and herbs that grow in the same vicinity. For this reason the best way to determine the likely presence of these plants is to look for their rosettes in July to August. Mind you this doesn't make it any easier to find the blighters come flowering time but it does give a general location to be checked.

To make life even more challenging we have found large healthy rosettes in August, only for them to completely disappearing by late October, however you don't know they have disappeared until you have spent ridiculous amounts of time arguing about whether you are in the right spot and checking and rechecking just in case you have missed them.

And true to orchid form once you finally accept that there is no flowering plants and gingerly step back (just in case) to move on, lo and behold right next to your boot is a flower. So you then do yet another recheck.

Finding rosettes and counting them also has it challenges. When we first started Kevin Uhe took us on an introductory trip to explain the subtleties of identifying *Pt. frenchii* rosettes (it is all about rounded leaves on the rosette except when it isn't!) and showed us some of the sites. At one site we had a series of GPS locations which we dutifully followed, counting many a rosette and heading in an easterly direction. Two of the locations were about 100m further east and we walked up there but found nothing, turned and headed in a westerly direction back to the car.

Pterostylis frenchii – image by Jon Warren

On the way back we suddenly came across a mass of new rosettes and after counting took a GPS reading for future reference. The overall number were impressive. A few weeks later Kevin was looking at a possible new snail orchid in the same location and alerted me to another batch of rosettes near the originals.

I went down to count these and while there thought I would do a recount of those counted previously, just to get my eye in so to speak. The numbers didn't make sense, the GPS didn't make sense and I quickly realised that the group we found when returning to the car was in fact already counted but the terrain looked different coming from the other direction and we hadn't realised we had already included these rosettes.

First lesson was to get a new GPS unit and then not to rely on the GPS so much and just use it as a general location finder. The second lesson was we needed a better way of marking where we had counted and as I am loathe to use plastic tape the best method remains a work in progress. This problem is only an issue at a couple of sites where there are large numbers of rosettes relatively evenly spread across a large area of very similar habitat. In most other cases we found clusters of *Pt. frenchii* ranging from 1 to 10 plants in smallish areas and widely separated from other clusters.

One of these wide ranging areas is down Capel way with clusters extremely widely spaced (50-150m apart) and not always in the same place every year. How we would ever find them without the work of the fantastic John Mutton is beyond us. John covers this country regularly as he voluntarily undertakes weed control and knows it like the back of his hand. All we can do is try desperately to keep up with him as he strides from one cluster to the next. Bruce Hawkes should also be acknowledged for his sharing of some locations around Bunbury and more recently other members of the public have reported sightings which make our life finding new populations much easier.

Searching for *Pt. frenchii* is not without its perils. One location we survey consists of steep limestone hills crisscrossed with rudimentary tracks. Rudimentary, because lower forms of life feel the need to chop these tracks up using motor bikes and four wheel drives. It was whilst walking down one of these tracks on a particularly steep hill that I lost my footing after stepping on a rock loosened by the afore mentioned life forms. My plummet to terra firma was cartoonish in that my legs flew out from underneath me, my file and GPS unit went flying and I landed flat on my back amongst the track debris. Fortunately I had my brother on hand to assist which he did by admirably by immediately inquiring as to the well-being of the GPS unit.

As mentioned earlier we have only just started monitoring *Pt. frenchii* and we have already found some new populations ourselves which is very exciting. However, if one is even slightly analytical, one cannot just go out and count plants without starting to ask questions about the species you are counting. Apparently I put the anal in analytical, just ask my wife, and thus have pondered many a question about the life and times of *Pt. frenchii.* The following are just a few that I have been pondering.

As there are lots of large areas of suitable habitat in the known distribution area of *Pt. frenchii*, are there more populations? If there are, and one can be reasonably confident there must be some, where are they and what are the appropriate criteria to use when selecting search areas to maximise success? But hang on, there are also suitable habitats north and south of the known areas. Are there any populations in these areas? And while we are at it what is the eastern boundary for the species and what limits these boundaries?

Last year we noted lots of small leaves, either single or doubles in the vicinity of some larger and clearly *Pt. frenchii* rosettes. Checked them end of August and again late September and they grew no larger but come early November had disappeared. Checked the same areas this year and no sign of them at all. Are they *Pt. frenchii* juveniles? Previous sites for the species in areas affected by the Yarloop fires have shown no sign of the species or for that matter any form of Pterostylis. Will any Pterostylis recolonise these areas and if so how long will it take?

The ADORP program has set us off on a long road of *Pterostylis frenchii* discovery with many questions to be answered and populations to be discovered. We are looking forward to the challenge.

Pterostylis frenchii rosettes

Pterostylis frenchii – image by Jon Warren

The topic talk for November was given by Mrs Faye Hoffman on the Sun orchid; Thelymitra, and we have pleasure in printing this talk:

"The name comes from the Greek - thelys - a woman and -mitra- a cap or hood and refers to the hooded column which can be said to look like a woman's head-dress.

" Plants in this genus are called by the common name of sun orchids due to the fact that they react strongly to sunlight. The flowers remain closed at night and in cool overcast weather. They will however, open under warm conditions such as inside a heated room or a closed car so it would appear that they react to warmth rather than light.

"The sepals and petals are similar in appearance and colour and the coloumn has tufted appendages. The variations in the form of the column provide the chief distinguishing feature of the species. The sticky disc at the base of the column is common to all of this genus.

"The genus is found in New Zealand, New Caledonia and Java, as well as Australia. Australian species number more than 50, of which some 25 species are found in W.A.

"Some of the species are believed to be self-pollinating and Fitzgerald reported that where the anther rises above the stigma and the pollen masses crumble freely and fall on to the stigma, the flower is usually capable of self-fertilisation. Where the pollen masses are not easily broken up but come away whole at a touch, fertilisation needs the agency of an insect.

"All sun orchids have a singly leaf, usually sheathed around the stem, but these vary from long and thin, sometimes spiralled around the stem, to short and broad. All are smooth except Thelymitra villosa which has fine hairs along the veins.

"T. antennifera - (having antennae) - is a common and widespread species which favours damp areas but is in no way confined to these, being found in well drained sandy soils in some areas. Its strong lemon perfume give it the common name of Lemon-scented sun orchid but it is also known as the vanilla orchid - probably because of a fancied resemblance to the vanilla bean when in bud. T. antennifera flowers from August to October.

"T. Canaliculata - channelled - referring to the channelled markings on petals and sepals. This is a fairly rare species, though where it grows it grows in quite large numbers. It seems to prefer damp soils on swamp fringes and is rarely found far from water. It flowers from September to December and has no common name in W.A. to my knowledge.

"T. campanulata - bell-shaped - is relatively common on the sand-plains south of Dongara and extending southwards along the coastal plain. Similar in many respects to canaliculata, though the column is much more squat. The common name of shirt orchid does not appeal as much as the alternative Bell orchid. Flowering period September to October.

"T Villosa - hairy (referring to the leaves) The colouration varies somewhat in this species - the amount of "spotting" is variable and specimens are often found without spots at all. The colour is unspotted and the hair tufts are tinted with orange. The species is widespread throughout the S.W. but is not common. Flowering period August to October. Common name - Custard Orchid.

"T.mucida - a dainty plum coloured flower which is neither common nor widespread. The column is deeply cleft with a dark bloom on the surface, giving rise to the name of mucida which means mouldy. It is found mainly in wet swamp lands in the Albany area - (Gull Rock) and is endemic to this area. Common name - Plum orchid, flowering period - September to October.

T. antennifera

T. canaliculata

T. campanulata

T. villosa

"T.fuscolutea - brownish yellow. There are two varieties of this yellow and brown blotched orchid. The very darkly marked T.fuscolutea var stellata is uncommon except in the Darling Ranges. The paler fuscolutea var fuscolutea is more common and is found along the coastal plain and slightly inland throughout the South-West from September to December. The column on both varieties is similar, the hood being pale and the most striking feature is the long finger like appendages projecting from the hood. The common name is Leopard orchid.

" T.psammophila - (sand-loving) This dainty little yellow orchid was apparently common at one time on the sand plains east and north of the Stirling Ranges. With its short narrow leaf and brown reverse-side petals and sepals it can easily be mistaken for antennifera at first glance, but a closer look will reveal that the brown column ears of antennifera bear no resemblance to the pale tan flat-top of psammophila. The only known location - discovered in 1973 by Magda Wittiver (Kings Park) is in a rubbish dump just north of Borden. The common name is Sandplain sun and it flowers from late August to mid-October.

"T.tigrina (tiger-like markings) This slender, narrow-leafed orchid with small, yellow flowers, marked with brown dots is found mainly in the S.W. and flowers late - around October and November though it may be as late as December in the Albany region. The common name is tiger orchid.

"T.cucullata - hooded.: - found on the wet flats in the Albany district this small plant has whitish flowers with deep purplish-brown spots. The lateral lobes of the column are short and blunt. An unusual feature of this orchid is the drooping habit of the flowers after fertilisation, giving it a bell-like appearance. The rather unimaginative common name given to this dainty species is Swamp sun orchid and it flowers from November to early January.

"T.macmillanii -named for Thomas Macmilla who discovered it. A truly beautiful member of the genus, found in conjunction with T.antennifera, this apricot-coloured beauty flowers in September and October in such widely separated areas as Tambellup and Southern Cross. Its common name is the Salmon sun. Some have quite distinct lemon "bems" around the petals and sepals and the colour varies from pale apricto to almost red. It has a faint lemon perfume.

"T.variegata - variegated. Truly well named the Queen of Sheba this species with its narrow leaves spiralling around the stem is a rare sight on a sunny day when its bright petals and sepals fold back so far that they almost clasp the stem and the bright yellow ears of the column show their beauty. There would appear to be two varieties - an early variety flowering in June and July in the Jurien Bay area which has distinct spikes on the column ears and the more common, but later flowering variety which is widespread in September and October. The sepals and petals may show different shades of red or purple splashed with orange.

"T.sargentii - named after O.H. Sargent. This handsome species, although somewhat similar in appearance to T. villosa, varies from it in the form of the column lobes. The column of Sargentii carries spots while villosa does not. The species extends from the sandplains north of the Murchison to the eastern wheatbelt and bears the common name of the Freckled sun. Although the flowering dates of October to November are given by Brickson it flowers near the Murchison in late August.

"T.crinita - crested or hairy - referring to the crested column. This widely distinguished blue sun orchid known as the Blue Lady flowers throughout the S.W. from September to December. A variety found on Mt Clarence is consistently much more delicate and shorter than the usual types.

"T.nuda - a very variable orchid in colouration - varying from white through pink and mauve to deep blue. The column is sturdy with a semi-circular yellow cap setting of the black and purple column. In a swamp at Walpole, almost every plant was some shade of pink and along the Muir Highway in 1975, every possible shade was found in plants thick and sturdy enough to be almost mistaken for lupins. There is no common name in W.A. for this orchid, though the name Scented Sun was given to it when it was thought that it was T.aristata which it resembles closely."

T. fuscolutea

T. antennifera x T. macrophylla

T. speciosa

T. crinita

T. macrophylla

All images in this article by Ian Puddey

WA Native Orchids Flowering in July

From the WANOSCG database – from our registrar, Ramón Newmann, detailing where members have reported orchids flowering for the month of June. Study the chart and answer the quiz on Page 14.

North South WA	Cons Status	Common Name	Species	Flowering Start	Flowering Finish	Jun	Jul	Aug	Distribution
S		Reaching Spider Orchid	Caladenia arrecta	15-Jul	15-Oct		y	y	Bindoon to Esperance
S	P1	Yerina Springs Spider Orchid	Caladenia bigeminata	31-Jul	31-Aug		y	y	Port Gregory (North of)
S		Arrowsmith Spider Orchid	Caladenia crebra	15-Jul	30-Sep		y	y	Jurien Bay to Dongara, near coastal areas
S		Chameleon Spider Orchid	Caladenia dimidia	01-Jul	30-Sep		y	y	Paynes Find to Norseman
S	P1	Patricia's Spider Orchid	Caladenia dundasiae	15-Jul	31-Aug		y	y	Watheroo to Barbarton
S	T	Elegant Spider Orchid	Caladenia elegans	15-Jul	31-Aug		y	y	Northampton to Nerren Nerren Station, scattered populations
S		Salt Lake Spider Orchid	Caladenia exilis subsp. exilis	15-Jul	30-Sep		y	y	Woodanilling to Mullewa
S		Moora Spider Orchid	Caladenia exilis subsp. vanleeuwenii	01-Jul	15-Sep		y	y	Mogumber to Wongan Hills
S		Cowslip Orchid	Caladenia flava subsp. flava	01-Jul	01-Dec		y	y	Geraldton to Israelite Bay
S		Kalbarri Cowslip Orchid	Caladenia flava subsp. maculata	01-Jul	01-Sep		y	y	Shark Bay to Perenjori
S		Crimson Spider Orchid	Caladenia footeana	15-Jul	01-Oct		y	y	Cranbrook to Binnu, also Hyden, Norseman Rd
S		Dwarf Common Spider Orchid	Caladenia hiemalis	15-Jun	15-Aug	y	y	y	Jurien Bay to Tenterden
S		Pink Candy Orchid	Caladenia hirta subsp. rosea	30-Jun	30-Sep	y	y	y	Kalbarri to Israelite Bay
S		Glistening Spider Orchid	Caladenia incensum	15-Jul	15-Sep		y	y	Hyden to Nerren Nerren Station
S		Daddy-long-legs White Spider Orchid	Caladenia longicauda subsp. borealis	01-Jul	30-Sep		y	y	Cataby to the Murchison River
S	P2	Little White Spider Orchid	Caladenia longicauda subsp. minima	31-Jul	31-Aug		y	y	Yuna (SE of)
S		South Coast Spider Orchid	Caladenia meridionalis	01-Jul	15-Aug		y	y	Augusta to Albany, coastal
S		Western Wispy Spider Orchid	Caladenia microchila	15-Jul	01-Oct		y	y	Kondinin to Madura
S		Noble Spider Orchid	Caladenia nobilis	01-Jul	15-Oct		y	y	Capel to Kalbarri
S		Dwarf Zebra Orchid	Caladenia pachychila	31-Jul	30-Sep		y	y	Nerren Nerren Station to Mt Ragged
S		Rock Spider Orchid	Caladenia petrensis	31-Jul	30-Sep		y	y	Canna to Paynes Find
S		Perenjori Spider Orchid	Caladenia remota subsp. parva	15-Jul	15-Sep		y	y	Wubin to Perenjori
S		Outback Spider Orchid	Caladenia remota subsp. remota	15-Jul	15-Sep		y	y	Bonnie Rock to Eurardy Station
S		Pale Pink Fairy	Caladenia reptans subsp. impensa	01-Jul	31-Aug		y	y	Geraldton to Eurardy Station, north of the Murchison River
S		Little Pink Fairy	Caladenia reptans subsp. reptans	01-Jul	01-Oct		y	y	Northampton to Esperance
S		Banded Ironstone Spider Orchid	Caladenia saxicola	31-Jul	01-Sep		y	y	Diemals Station to Coolgardie
S		Sigmoid Spider Orchid	Caladenia sigmoidea	01-Jul	30-Sep		y	y	Mt Jackson to Mt Ragged
S		Bindoon Spider Orchid	Caladenia sp. 'Bindoon'	15-Jul	31-Aug		y	y	Bindoon - Wannamal area
S		Common Spider Orchid	Caladenia variana	01-Jul	15-Oct		y	y	Kalbarri to Esperance
S	T	William's Spider Orchid	Caladenia williamsiae	15-Jul	01-Sep		y	y	Near Brookton and Chinocup
S		Primrose Spider Orchid	Caladenia xantha	01-Jul	01-Sep		y	y	Mogumber to Kendenup, occ. Darling Scarp to the Swan Coastal Plain
S		Sandhill Helmet Orchid	Corybas despectans	01-Jul	01-Sep		y	y	Israelite Bay to Bunbury
S	P4	Crystal Helmet Orchid	Corybas limpidus	01-Jul	01-Sep		y	y	Walpole to Thomas River, coastal
S		Common Helmet Orchid	Corybas recurvus	01-Jun	01-Sep	y	y	y	Gingin to Albany
S		Busselton Helmet Orchid	Corybas intuta	01-Jul	31-Aug		y	y	Busselton area
S		Busselton Helmet Orchid	Corybas sp. 'Hamersley Inlet'	01-Jul	31-Aug		y	y	Busselton area
S		Midge Orchid	Cyrtostylis huegelii	01-Jul	30-Sep		y	y	Kalbarri to east of Esperance
S		Mosquito Orchid	Cyrtostylis robusta	15-Jun	31-Aug	y	y	y	Perth to Israelite Bay, also north of Esperance
N		Native dendrobium	Dendrobium dicuphum	01-Jun	31-Aug	y	y	y	Liverpool River in NT to Kimberley region, WA
S		Western Wheatbelt Donkey Orchid	Diuris brachyscapa	01-Jul	30-Sep		y	y	York, Tenterden to Ravensthorpe, mainly east of Albany Hwy
S	P2	Short-nosed Donkey Orchid	Diuris brevis	30-Jul	30-Sep		y	y	Perth (South of)
S		South Coast Donkey Orchid	Diuris brockmanii	15-Jun	01-Aug	y	y	y	Munglinup to Denmark
S		Winter Donkey Orchid	Diuris brumalis	15-Jun	31-Aug	y	y	y	Perth to Collie
S		Green Range Donkey Orchid	Diuris littoralis	01-Jul	01-Sep		y	y	Denmark to Esperance, coastal and near coastal
S		Northern Coastal Donkey Orchid	Diuris oraria	15-Jul	31-Aug		y	y	Kalbarri to north of the Zuytdorp Cliffs
S		Early Donkey Orchid	Diuris perialla	15-Jun	31-Jul	y	y		Cataby to Northampton

North South WA	Cons Status	Common Name	Species	Flowering Start	Flowering Finish	Jun	Jul	Aug	Distribution
S		Small-flowered Donkey Orchid	Diuris porrifolia	31-Jul	30-Sep		y	y	Perth to Boyup Brook, between Albany Hwy and SW Hwy
S		Beautiful Donkey Orchid	Diuris pulchella	15-Jul	30-Sep		y	y	Salmon Gums, Esperance to Balladonia
S	P4	Mini Donkey Orchid	Diuris recurva	01-Jul	31-Aug		y	y	Badgingarra to Kalbarri
S		Dainty Donkey Orchid	Diuris refracta	31-Jul	01-Sep		y	y	Bindoon to Northampton
S		Rock-Loving Donkey Orchid	Diuris sp. 'Scaddan'	01-Jul	01-Sep		y	y	Scaddan to Hyden
S		Arrowsmith Pansy Orchid	Diuris tinkeri	31-Jul	30-Sep		y	y	Yanchep to Geraldton
S	P2	Round-leaf Pink Bunny Orchid	Eriochilus scaber subsp. orbifolius	01-Jul	31-Aug		y	y	Walpole
S		Pink Bunny Orchid	Eriochilus scaber subsp. scaber	01-Jul	01-Sep		y	y	Jurien Bay to Cape Arid National Park
S		Blue Fairy Orchid	Pheladenia deformis	31-May	31-Oct	y	y	y	Murchison River to Israelite bay
S		Fringed Leek Orchid	Prasophyllum fimbria	01-Jun	30-Sep	y	y	y	Kalbarri to Esperance
S		Little Laughing Leek Orchid	Prasophyllum gracile	01-Jul	31-Oct		y	y	Shark Bay to Eyre
S		Autumn Leek Orchid	Prasophyllum parvifolium	01-Jun	15-Aug	y	y	y	Eneabba to Manjimup, also scattered populations to Mt Ragged
S		Coastal Short Eared Snail Orchid	Pterostylis actites	21-Jul	15-Sep		y	y	Perth to Israelite Bay
S		Narrow Hooded Shell Orchid	Pterostylis angusta	15-May	31-Jul	y	y		Stirling Range to Brookton
S		Varicoloured Banded Greenhood	Pterostylis arbuscula	01-Jun	31-Aug	y	y	y	Ravensthorpe, Brookton to north of Merredin with a disjunct population at Toolina Cove
S		Brown-veined Shell Orchid	Pterostylis aspera	15-May	31-Jul	y	y		Dongara to Jerramungup
S		Crowded Banded Greenhood	Pterostylis atrosanguinea	01-Jun	30-Sep	y	y	y	Katanning to Wongan Hills
S		Bird Orchid	Pterostylis barbata	31-Jul	30-Sep		y	y	Bindoon to Albany
S		Dwarf Shell Orchid	Pterostylis brevichila	01-Jul	30-Sep		y	y	Hyden to Mt Ragged, also west of Woodanilling
S		Short Eared Snail Orchid	Pterostylis brevisepala	21-Jul	07-Sep		y	y	Perth to Lancelin, near coastal areas
S		Cupped Banded Greenhood	Pterostylis concava	01-Jun	31-Aug	y	y	y	Bindoon to Mt Barker, also near Thomas River east of Esperance
S		Darling Range Banded Greenhood	Pterostylis crebriflora	01-Jul	30-Sep		y	y	Darling Range near Perth with some scattered occurrences on the Swan Coastal plain
S		slender Snail Orchid	Pterostylis crispula	01-Jul	01-Oct		y	y	Perth to Albany, inland in higher rainfall areas with disjunct population at Banks Rock
S		Robust Snail Orchid	Pterostylis dilatata	15-May	31-Aug	y	y	y	Geraldton to Toolina Cove
S	P3	Hairy-leafed Snail Orchid	Pterostylis echinulata	01-Jun	31-Jul	y	y		York to east of Hyden and south to Lake Grace
S		Red-sepalled Snail Orchid	Pterostylis erubescens	31-Jul	30-Sep		y	y	Mandurah to Albany
S		Red-veined Shell Orchid	Pterostylis hamiltonii	15-May	15-Aug	y	y	y	Toodyay to Stirling Range
S		Southwest Granite Snail Orchid	Pterostylis jacksonii	15-Jul	15-Sep		y	y	Walpole area
S		Kalbarri Shell Orchid	Pterostylis microglossa	01-Jun	31-Jul	y	y		Shark Bay to Moore River
S		Midget Greenhood	Pterostylis mutica	15-Jul	15-Oct		y	y	Wongan Hills to the SA border
S		Round Sepalled Greenhood	Pterostylis orbiculata	15-Jun	31-Aug	y	y	y	N of Geraldton to Bunbury, 150 kms inland; scattered between Mt Barker and Ravensthorpe
S		Fawn Snail Orchid	Pterostylis parva	01-Jul	31-Aug		y	y	Stirling Range to Israelite Bay and inland to Southern Cross
S		Broad-petalled Snail Orchid	Pterostylis platypetala	15-Jun	15-Aug	y	y	y	Kalbarri to Brookton
S		Curled-tongue Shell Orchid	Pterostylis rogersii	01-Jun	31-Aug	y	y	y	Binningup to Esperance, narrow coastal band
S		Dark Banded Greenhood	Pterostylis sanguinea	01-Jun	30-Sep	y	y	y	Mullewa to Toolinna Cove
S		Frog Greenhood	Pterostylis sargentii	01-Jul	31-Oct		y	y	Nerren Nerren Station to Israelite Bay
S		Green-veined Shell Orchid	Pterostylis scabra	01-May	31-Aug	y	y	y	Kalbarri to Esperance
S		Hairy Stemmed Snail Orchid	Pterostylis setulosa	01-Jul	30-Sep		y	y	North of State Barrier Fence on NW Coast Highway to Balladonia and west to Brookton
S	T	Northhampton Midget Greenhood	Pterostylis sinuata	15-Jul	31-Aug		y	y	Northampton to Mt Gregory
S		Coastal Snail	Pterostylis sp. 'coastal snail'	01-Jul	31-Aug		y	y	Bremer Bay to Israelite Bay
S		Northern Banded Greenhood	Pterostylis sp. 'northern'	31-May	31-Jul	y	y		Cataby to Binnu
S		Brittle Snail Orchid	Pterostylis timothyi	01-Jul	30-Sep		y	y	Kojonup to Esperance and north to Babakin
S		Banded Greenhood	Pterostylis vittata	15-Apr	30-Sep	y	y	y	Perth to Balladonia
S		Eastern Granite Snail Orchid	Pterostylis voigtii	01-Jul	01-Sep		y	y	Esperance to Israelite Bay
S	T	South Coast Underground Orchid	Rhizanthella johnstonii	15-Jun	31-Jul	y	y		Munglinup area east of Ravensthorpe
N	P1		Spiculaea ciliata	15-Jun	15-Jul	y	y		Single plant found in the Kimberley

North South WA	Cons Status	Common Name	Species	Flowering Start	Flowering Finish	Jun	Jul	Aug	Distribution
S		Lemon-scented Sun Orchid	Thelymitra antennifera	01-Jul	31-Oct		Y	Y	Shark Bay to Israelite Bay
S	P4	Cleopatra's Needles	Thelymitra apiculata	31-May	31-Jul	Y	Y		Mogumber to Eneabba
S		Eastern Curly Locks	Thelymitra maculata	31-Jul	01-Sep		Y	Y	Watheroo to Ongerup
S	P2	Northern Queen of Sheba	Thelymitra pulcherrima	30-Jun	01-Sep	Y	Y	Y	Lancelin to Dongara
S		Eastern Queen of Sheba	Thelymitra speciosa	30-Jun	30-Sep	Y	Y	Y	Stirling Range to Condingup and north to Hyden and east of
N	P2	Common jewel orchid	Zeuxine oblonga	01-Jul	30-Sep		Y	Y	Kimberley region, near Kununurra

July Flowering Orchids Quiz

Questions:

1. Select 4 July flowering orchids where the species epithet refers to characteristics of the labellum.

   A. *C. microchila*
   B. *Pt. atrosanguinea*
   C. *Pt. sanguinea*
   D. *D. oraria*
   E. *D. littoralis*
   F. *C. pachychila*
   G. *Pr. fimbria*
   H. *Pt. brevichila*

2. Select 4 July flowering orchids that have been named after past or present WANOSCG members.

   A. *Cyrtostlyis huegelii*
   B. *C. exilis* subsp. *vanleeuwenii*
   C. *Pt. timothyi*
   D. *C. footeana*
   E. *Pt. jacksonii*
   F. *Pt. voigtii*
   G. *Pt. hamiltonii*
   H. *Pt. rogersii*

3. Which July flowering orchid is named after the owner of a caravan park?

   A. *C. williamsiae*
   B. *C. caravanii*
   C. *D. tinkeri*
   D. *Rhizanthella johnstonii*

4. What is the most "well known" and "celebrated" July flowering orchid?

   A. *Th. apiculata*
   B. *Th. pulcherrima*
   C. *C. nobilis*
   D. *C. elegans*

5. What is the July flowering orchid most "looked down upon"?

   A. *Pheladenia deformis*
   B. *Corybas despectans*
   C. *C. hiemalis*
   D. *C. pachychila*

6. Which 3 July flowering orchids are named after their rocky habitats?

   A. *C. petrensis*
   B. *Pt. crebriflora*
   C. *C. crebra*
   D. *D. oraria*
   E. *D. littoralis*
   F. *C. saxicola*
   G. *Pt. scabra*
   H. *Diuris* sp. 'Scaddan'

7. Which July flowering orchid is only found in the Chapman Valley shire?

   A. *C. longicauda* subsp. *minima*
   B. *C flava* subsp. *maculata*
   C. *C. bigeminata*
   D. *C. arrecta*

8. Which is the prettiest July flowering orchid?

   A. *Th. speciosa*
   B. *Th. pulcherrima*
   C. *D. pulchella*
   D. *C. elegans*

9. Which 3 July flowering orchids are 'general, familiar, unexceptional'?

   A. *Pt. aspera*
   B. *C. varians*
   C. *C. sigmoidea*
   D. *C. bigeminata*
   E. *C. hiemalis*
   F. *C. pachychila*
   G. *Corybas recurvus*
   H. *Corybas limpidus*

10. Which July flowering genus is associated with frenzied music and dancing?

    A. *Diuris*
    B. *Corybus*
    C. *Caladenia*
    D. *Prasophyllum*

Pterostylis angusta – images June 2021by Mick Hurdus

A double headed *Pterostylis hamiltonii* found near Brookton in June 2021– image by Kevin Uhe

Answers on Page 17

Southern Rivers Group Field Trip Report

West Cape Howe - 12th June 2021

In our continued quest to discover new orchid sites we visited West Cape Howe National Park. During the preceding week the forecast predicted more rain, strong winds and cold weather, however, on the Saturday, once the fog lifted a beautiful calm, warm and sunny day prevailed.

As the day progressed we named the nearby islands and all the birds we saw; correctly guessed the shire of a rarely seen numberplate (Sandstone); kept a keen eye on the cloud formations on all quarters of the horizon; discovered the history of the proposed black granite mine and the Bruce Tarbottom memorial, all whilst slogging up and down consolidated dunes and tracks. On our way home it was reported that whales were seen out to sea.

No orchids have been mentioned yet .... as there were so few to see. Fortunately we did sight *Pterostylis vittata* (Banded Greenhood) and a single helmet flower so badly eaten, we could not identify the plant. Many Caladenia, Cryptostylis, Lyperanthus and Thelymitra leaves were found.

A great day was had with lovely crystal clear views along the miles of coastline, whilst in the company of enthusiasts happy to appreciate whatever the local environment had to offer.

Anna de Haan - SRG branch Convenor

President's Report

Jon Warren

A couple of weeks ago I was able to listen to a range of excellent talks from the Orchid Conservation Symposium Zoom webinar which was extremely well organised by the Australian Network for Plant Conservation. It was encouraging to hear about the developments in the science and understanding of what makes orchid's tick and to see it being applied to conserving threatened populations. One issue that struck a chord with me was that a number of Australian based speakers mentioned one of the emerging threats to endangered orchids was excessive visitation to the sites by orchid enthusiasts which appeared to be driven by the growing membership of social media orchid interest sites and the sharing of locations.

The recent flowering of Cleopatra's Needles (*Thelymitra apiculata*) provides a good example of this phenomena. I tracked a number of orchid social media sites over a two week period and determined with reasonable confidence that at least 50 people had visited the usual location. When you consider there will folk who don't post or didn't find anything to post on these sites and the posts continued after the survey period I wouldn't be surprised if somewhere between 50 and 100 people had visited the Cleopatra's Needles usual sites.

WANOSCG management committee has been concerned about the issue of excessive visitation for some time hence the changes we have made to field trips guidelines and limiting numbers. However it is up to each every one of us as a member of this orchid conservation group to also make sure we are doing the right thing. Being mindful of where we are stepping as we search as well as when kneeling or lying down to take photographs are two simple actions we can all take.

And yes I can hear the usual response of some 'well one person cannot make much difference so why should I worry?'. But it is the cumulative effect of many people taking that approach that will lead to damage but conversely small acts of this type of conservation when done by many people will make a positive difference as well as set an example to other enthusiasts. And speaking of foot traffic; as mentioned in the minutes of the last meeting, members are requested to avoid visiting the same well-known sites over and over again, try somewhere new for a change and if you find something new, share the excitement of the find but not necessarily the location.

Well as you may have guessed, health wise I am almost back in business, not 100% but pretty close so much to the joy of some of the committee members will be resuming my Presidential role over the next few weeks.

Field trips - Graham Warren

Field Trips coming up:

Thundelarra Station

A field trip is planned to Thundelarra Station NW of Paynes Find in August this year, arriving on the 21st and leaving on the 24th. Once at Thundelarra, day trips will be undertaken to the Paynes Find and Warriedar areas. The Shearers Quarters are fully booked but there may still be space for camping spots. Contact Andrew Brown (andrewbrown3@optusnet.com.au) for further information and to register your interest in this trip.

Eurardy Reserve

A field trip to Eurardy (Bush Heritage) Reserve has been arranged for WANOSCG members this year. The trip is reported as fully booked. Attending members will be involved in surveys of Caladenia wanosa, C. bryceana cracens and C. barbarella which are undertaken annually to follow population numbers. The plan is for people to arrive the afternoon/evening of 24 August for survey work on the 25th, 26th and 27th.Departures on either the 27th or morning of the 28th. Please contact Bill Gaynor for further information.

Beekeepers Reserve

A field trip is being organised for the weekend of the 28th, 29th August with Andrew Brown and Kevin Uhe on their return from Thundelarra, offering to show us over the areas burnt recently. Plenty of spots available. Planned meeting point for Saturday Morning will be at the Lake Indoon Campground on the Coolima-Eaneabba Rd. The time is still to be confirmed, with travellers coming from Eurardy Reserve.

Accommodation will be the members' responsibility. Some suggested sites close by are Western Flora Caravan Park, Banksia Village Eneabba, Leeman Caravan Park, Eneabba Free Camp Zones and Free Campground Lake Indoon.

More details will be sent out closer to the Trip. Please register your interest with me at

Walpole Wilderness BioBlitz

The Walpole Nornalup National Park Association (WMNPA) is looking to conduct the first Walpole Wilderness BioBlitz to be held over the weekend of October 2nd & 3rd 2021. The primary aim of the BioBlitz is to capture as much information about the natural environment over a short time period and to introduce the community to the Walpole Wilderness Area. It is a coordinated citizen science project with teams of community members being led by local naturalists and scientific experts into the Walpole Wilderness. The BioBlitz will focus on a number of habitats centred round Granite Peak - namely granite outcropping, relictual forests and peat lands, and community participants will gather data through the iNaturalist app on a variety of flora and fauna groups. A central scientific hub will also be established within the Walpole town site to show and discuss some of the specimens collected with community members not involved in the data gathering teams. There will be a social evening where participants can network and discuss their findings.

I have made contact with David Edmonds who is looking for volunteers to assist with planning and coordinating of the surveys. Therefore we are asking for those members with experience in this field to offer assistance for planning and leading on the day. He also would like volunteers to lead and to assist on the day in the search areas that will be mapped out. This is a good opportunity to look for orchids but also work and network with others who have an interest in our wildflower and wildlife populations of the WA.

Peel Region

Ron Fauntleroy is carrying out surveys for new populations (of glossy-leafed hammer orchids (*Drakaea elastica*). He has some new areas he needs to cover and would like some volunteers to assist with these areas. Dates and details for this to be finalised with Ron. All interest to be sent to me at

ADORP News – Kevin Uhe

Welcome to Lindsay Cahill, Valerie Hack and Taryn Parsons who have recently joined the ADORP program. It is pleasing to see members continuing to join the program which allows more taxa to be surveyed over a larger area of the state.

With the end of the 2020/21 financial year the ADORP program contributed a record 6,030 hours towards the DBCA volunteer program. Following the receipt of the 4th quarter timesheets 49 ADORP members will receive one or more of the annual DBCA volunteer rewards which should be in the mail by the middle of August.

The volunteer rewards are based on the number of hours worked and vary from discount vouchers to park passes to the annually produced badge for those who have accumulated over 150 hours over the last twelve months.

Now that the orchid season is beginning to ramp up, the first few surveys have commenced with others to follow over the coming months. With the good opening rains this year it promises to be a good season and much interest will centre on how the rainfall will affect flowering numbers over the season.

Kulin Wildflower Place and Herbarium

– a branch of the Wildflower Society WA Inc

Pt. sargentii - Frog Greenhood

Pterostylis abound in fluted Gimlet soils

We wish to invite dedicated orchid seekers to help us through July-August, plus any time after, to locate a wide range of species in Kulin State and Shire Reserves and on several farm remnants. Pre-Covid many areas from Corrigin to Hyden were searched but darkness always overtook us so we rarely checked out Kulin sites. This year the Winter Spider was found only 10km NW of Kulin and exactly 8 metres from the tar! Even if you don't find a new orchid the Tin Horses will delight you. The Fringed Hare, Wavy Bunny and Pygmy have folded up their tents but there are numerous Pterostylis rosettes awaiting flowers to prove their identity. We have had recurrent rain so many orchids are early and wildflowers have flowered several times already. From June to August we expect to find over 40 species and hopefully in new locations. The Mallee Banded Greenhood and Frog are open on the Macrocarpa Trail just out of town and I am expecting a rosette beside the caravan park to be the echidna *Pterostylis echinulata*. High on our list for you are the Red and Brown Veined Shell, *P hamiltonii and P aspera* and the spiders *Caladenia doutchiae, C paradoxa* and *C sigmoidea* and *Prasophyllum fimbria*.

Contact Robin Campbell on

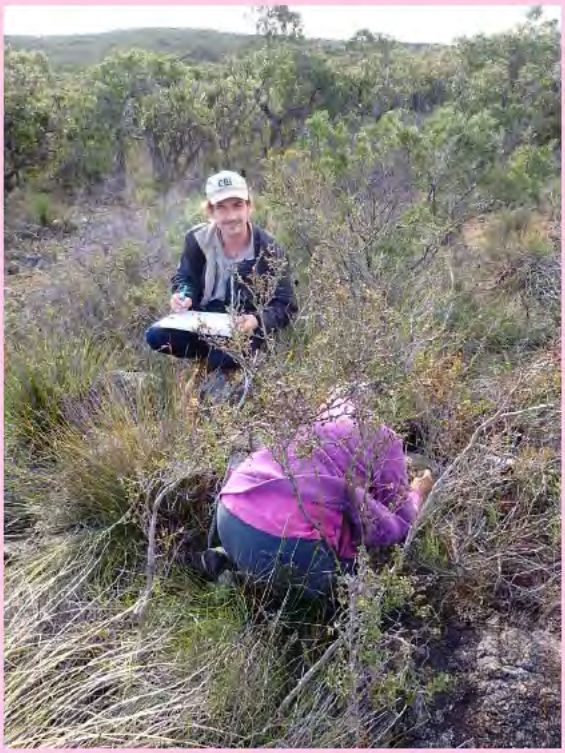
or

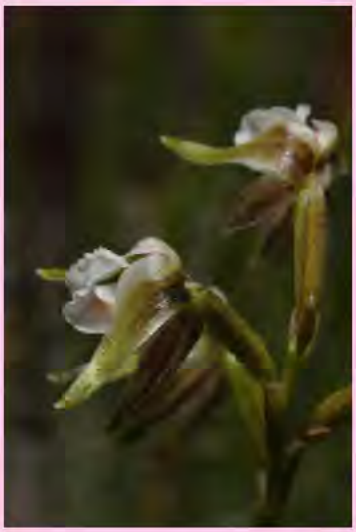
Pt. arbuscula - Mallee Banded Greenhood, in June

Pterostylis cluster in early May

Answers to Quiz:

1. A, F, G and H - *C. microchila* – meaning "small-lipped"; *Pterostylis brevichila* – referring to the short labellum; *Prasophyllum fimbria* - meaning "fringe" referring to the frilly edges of the labellum; *C. pachychila* – meaning "thick-lipped" – referring to its thickened, red, V-shaped glandular tip
2. B, D, E and F - *C. exilis* subsp. *vanleeuwenii, C. footeana, Pt. jacksonii, Pt. voigtii (Also in July - C. dundasiae, D. brockmanii, Rhizanthella johnstonii)*
3. C - *D. tinkeri* – Alan Tinker – Western Flora Caravan and Tourist Park
4. C - *C. nobilis* - epithet 'nobilis' is Latin for "well known", "celebrated" or "noble"
5. B - *Corybas despectans* – meaning "look down upon"
6. A, G and H - *C. petrensis* – meaning "among rocks", *C. saxicola* – meaning "rock dweller", *Diuris sp.* 'Scaddan' – the Rock-loving Donkey Orchid
7. A - *C. longicauda* subsp. *minima* – previously known as subsp. 'Chapman Valley'
8. B - *Th. pulcherrima* – epithet means "prettiest", but you get half-marks if you said *D. pulchella* – epithet meaning "beautiful and small"
9. B, E and G - *C. varians, C. hiemalis, Corybas recurvus* – each common name includes 'common'
10. B - *Corybas* - the name is derived from similarity of the flowers to the crested helmet worn by Corybas, a male priest of the goddess Cybele, whose religious rites were accompanied by frenzied music and dancing.





WANOSCG members Krystyna Rees and Bayley Castlehow in the field surveying *Prasophyllum sp.* 'early' – images by Lisa Wilson and Mick Hurdus

Bulletin Articles

Please send Bulletin contributions to the editor – Ian Puddey – at Wanoscg.newsletter@gmail.com. Due date for articles for the next issue will be Monday, 2nd August, 2021.

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