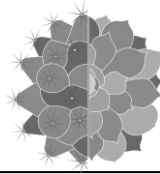


# British Cactus & Succulent Society

## Southampton & District Branch Newsletter

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## Editorial

We are in the peak summer season now and there were some hot days last week, but it's been a bit cooler this week. We've also had some rain and some thunderstorms which has meant the garden doesn't look too parched. It's still light until 9pm but I think we can see that the days are getting shorter.

## Last Month's Meeting

Cath opened the meeting, and David said the only thing to mention was the Oxford Branch show at which was due to be held at Grove near Wantage on 13<sup>th</sup> July. David said he was judging at the show and had a spare seat if anyone wanted a lift. David also mentioned that one of our members from 15-20 years, Carol Sanger, had contacted him to say she was in hospital with terminal cancer but she had some plants to donate. David collected them and had brought them in. There was a large *Euphorbia canariensis* which Jane wanted and there were also half a dozen other cacti which were available for purchase, to raise some branch funds.

Next month is our *Plant Focus Meeting* – please read the notes at the back of the newsletter and do bring in some plants. David has extended the cacti genera to include **Thelocactus** and **Ferocactus**, and the succulent genera will be **Haworthia**.

Cath introduced Derek Tribble, who had had come down from London. Derek is a very experienced grower with a lot of knowledge about many succulent genera. Derek mentioned it was not his first time talking to our branch.

## Defeating Drought - A Tour of the South African Veld

Derek mentioned this was a talk which he had written for conventions but these are not held very often these days. It wasn't an in depth look at any groups of plants but more an assessment of the different vegetation and habitats which exist in South Africa. He talked about vegetation and what is it? It's the green stuff out there in the distance and there are technical terms which come down to how the plants fit around each other. This talk was material he had put together for a talk he was invited to give to a Mediterranean gardening group in Portugal. As it happens, South Africa was first visited by Europeans from Portugal - Bartolomeu Dias was a Portuguese explorer who led the first European expedition (in 1488) around the Cape of Good Hope and there are various stone monuments dedicated to him located in South Africa.

A map showed the main cities in South Africa, namely Cape Town, Pretoria, Durban and Johannesburg. Derrek said the distance from Cape Town to Pretoria and Johannesburg is 950 miles which is the same distance as from London to Rome - so the country is continent-sized. The country is unique in having a wide variety of plant habitats.

The next slide showed us some of the geographic regions which exist in the country and what proportion of the country they cover - he hoped we were familiar with some of them.

Savanna	32.5%
Grassland	27.9%
Fynbos	6.6%
Nama-Karoo	19.5%
Succulent Karoo	6.5%
Albany Thicket	2.2%
Desert	0.5%

Biomes are the same concept as the vegetation, but they also take into account the animals as well. Another map showed us some of the areas of significant interest to us - the Richtersveld & Namaqualand, the Knersvlakte and the little Karoo.

Derek proceeded to describe some of the key characteristics of these biomes.

### Savanna

This occurs in the North East of the country and has medium altitudes. It is dominated by trees and grass species, but it is not species rich. Temperatures are sub tropical and it is a summer rainfall area with long dry winters. There are periodic fires and the plants also suffer from heavy grazing. Derek had also included some detailed climate diagrams which showed graphs of the rainfall in different months and other information about the conditions. Being in the southern hemisphere, winter occurs in June, July and August.

The abbreviations on the charts (the source for them is mentioned later in this writeup) stood for :

MAP - Mean Annual precipitation

APEV - Annual Precipitation - Coefficient of Variation

MAT - Mean Annual Temperature

MFD - Mean Frost Days

MAPE - Mean Annual Potential Evaporation

MASMS - Mean Annual Soil Moisture Stress

The rainfall here was 500mm and the number of frost days was 16. The evaporation number has to be looked at in conjunction with the actual rainfall. Some of the herbivores in this region include zebras.

Derek showed some of the succulent plants we could expect to see in the region. *Aloe marlothii* is a tree aloe. It has lots of prickles on the leaves for protection from things that might attempt to eat it. We also saw a tree Euphorbia - *Euphorbia ingens*. There are also smaller plants and we saw *Dioscorea silvatica* which has a caudex and *Sansevieria aethiopica* which was impersonating some grass. There are not too many succulents in this region - the plants will be tender and need ample water in the summer but they can handle long dry winters.

The next region was **Grasslands**. These are species rich and contain grasses and geophytes (tubers and bulbs etc). There is ample summer rainfall and the soils can be fertile or poor. There are 40 frost days. The disruption to the plants is caused by annual fires and also plants being grazed by animals. There is more rainfall and less evaporation than the previous zone, so it is less arid. The wild fires tend to go through quickly and are soon followed by the green shoots of recovery as things regrow. We saw *Xerophyta retinervis* which is a deciduous perennial and *Sphenostylis angustifolia* (wild sweet pea). The area is rich in geophytes. We saw *Raphionacme hirsuta* which is a tuberous geophyte and member of

the Asclepiad family. *Elephantorrhiza elephantina* has a big underground tuber.

North of Pretoria are the Magaliesburg mountains and there is quartzite grit here. One of the endemics here is *Aloe peglerae* - we don't tend to see mature plants in cultivation because you need to keep it dry in the winter. *Euphorbia schinzii* forms a tuberous rootstock. A tuberous succulent found here is *Ceropegia conrathii*. To summarise, the plants from this region can tolerate cooler temperatures. They need ample summer water and also prefer long dry winters. The grass aloes come from this region.

Next was "**Albany Thicket**" - which is named after the Albany region of the Eastern Cape, in the South-East of the country. It is low altitude and has thicket vegetation, with shrubs and climbers, and lacks grasses. The rain fall is spread better through the year and the soil is more fertile. There is some protection from fire but there are herbivores and megaherbivores (elephants!) present. The evaporation is 5 times the rainfall and there is 20 inches of rainfall. We saw some of the succulents which grow here. A tree Euphorbia which is too big for pot culture is *Euphorbia grandidens*. The light green bushes near it were *Portulacaria afra* which has pink flowers - the Afrikaans name for it is spekboom which means bacon tree.

This is one of the richest areas for some succulent plant families. We saw *Gasteria pulchra* with 4 or 5 foot flower spikes and narrow leaves. Both *Gasteria* and *Adromischus* can regenerate from pieces of their leaves. *Haworthias* also occur in this area and many grow on small cliffs. We saw *Haworthia cooperi* var *picturata*. Cotyledons are also found in this region and there are around 20 species and we saw *Cotyledon woodii*. We met our first mesemb - it was not one of the typical ones we grow - it was an ancestral mat-forming spreading plant called *Aptenia cordifolia*. A succulent mint was *Plectranthus spicatus*. A *Ceropegia* without a tuber was *Ceropegia zeyheri*. There are herbivores here and other pests include slugs/snails and also tortoises. The summary page mentioned these plants grow in temperate conditions and receive some water all the year round. They enjoy being repotted and appreciate some fertiliser. Many *Crassulas* and *Haworthias* come from the Eastern Cape.

New heading inland, the next region was the **Nama-Karoo** interior plateau. This is at a higher altitude and it is also a drier place. It is species poor and has bushes and grasses. It has low and erratic summer rainfall of just 8 inches. The soils are fertile but they are poorly developed and skeletal and rocky. The evaporation rate is high and is 10 times the rainfall.

There is a drier feel to the place and the winters are cold due to the altitude. The disruptors are herds of herbivores who move in and out of the region (nomadic). The gaps between the bushes are quite large.

We saw a picture of Steven Hammer - he is a vegetarian - so can he be considered a herbivore? They were taken to a place to see lithops and we saw two different species growing together, which is quite a rare occurrence. The plants were *Lithops hookeri* v. *subfenestrata* (yellow flowered) and *Lithops hallii* v. *ochracea* (white flowered). *Titanopsis calcarea* grows on limestone and each population has different textures on the leaves so it is worth growing a few different ones. We also saw *Euphorbia obesa* ssp. *symmetrica* - this is sadly very restricted in habitat now, with just 2 populations left.

There is water below the ground so if this is pumped up then farms can be maintained. The area has Springbok migrations and Derek mentioned the Kgalagadi Transfrontier Park. There are also locust swarms - these can be devastating since they will eat everything. We also saw *Aloe aristata*. To summarise, this area has cooler temperatures and the plants are summer growing, with long dry winters. Infrequent repotting is OK. Of course the Lithops need a special watering regime.

Next was the **Fynbos** region. This is the vegetation near Cape Town, in the South West and Southern coast of the country. It is species rich with shrubs, low bushes and geophytes. We are now in a winter rainfall regime, with rainfall of 20 inches and the evaporation is about 4 times that. The soils are infertile. Wild fires are a problem, but there tends to be a long period between them, so they can occur from 5 to 50 years apart - they will burn with higher temperatures due to the build up of plant material. There are not too many animals or birds in this region - there isn't much for them to eat.

In the Autumn, cold fronts come up and so there is some rain in the winter time for some months. You do need to know which part of the country plants come from due to the variable moisture patterns. The region includes the Cape Fold Mountains which is a long range and includes the town of Worcester. We saw *Protea exima* in flower - it's a compound flower and they are very long lasting and make good cut flowers. Daisies grow there in numbers and we saw *Achyranthemum paniculatum* (Aster). Heathers also grow here - there are some 600 species and we saw *Erica rosacea*. Restios are now used as garden plants and we saw *Elegia capensis* (the horsetail restio) - some have nice yellow flowers. The wild

fires are slow burning and release a lot of nutrients and recycle the plants. It's a rich area for bulbs and Derek mentioned the South African Bulb Society. We saw *Gladiolus venustus*, *Babiana geniculata* and also plants of *Ferraria/Homeria*. There are parasitic plants too - they don't have leaves and use other plants as hosts and we saw *Hyobanche sanguinea* and *Hydnora africana*.

Many pelargoniums grow here and we saw *Pelargonium abrotanifolium*, *Pelargonium incarnatum* and *Pelargonium glutinosum*. There are also Geraniums - but *Geranium molle* shouldn't be growing here - it was here but originates in Europe.

There are other alien species such as Acacia from Australia, which they have tried to control using rust fungus. Derek quoted Professor Richard Cowling who is an authority - "the battle against alien invasive plants in the Fynbos region is being lost and hopelessly so". Looking westwards to Table Mountain, the nutrient poor sandstone has bushes, many of which are from the daisy family. The succulents here are more recently evolved species - they can compete with plants in the drier places where the other plants can't survive too well. We saw *Adromischus hemisphaericus* growing in the rocks. A succulent mesemb, *Oscularia deltoides* has an abundance of purple flowers in the summer. Erepisia is a family of about 30 species of mesembs with colourful flowers and we saw *Erepisia inclaudentis*.

*Aloe perfoliata* grows close to Cape Town - and this means that these were some of the first species to make it back to Europe and be given names. We also saw *Euphorbia tuberosa*. Visiting another place further inland, we saw a windowed Haworthia from the Retusa section - this was *Haworthia mirabilis* v. *triebneriana*. *Crassula pellucida* is one of the more ancestral forms of the genus and the flowers don't form a compact head. The dry adapted ones are more recently evolved members of the genus. Amongst the Ruschioideae we saw a *Drosanthemum* species - these are quite soft plants with dazzling mesemb flower. and we also saw a *Carpobrotus*. Stapeliads grow over a wide range and we saw *Stapelia hirsuta* in flower with a fly on the flower. The seeds are distributed over a large area due to the parachute structure, so the plants tend to be well spaced out.

Summarising, the plants from this region need frost free temperatures - the UK winter temperatures can be too severe. They need a dry rest in the summer and you can provide some late summer watering and let them go dry in December/January. They are generally easy succulents to grow.

After the mid-meeting break, we covered the **Succulent Karoo** region. This is in the West of the country. The altitudes are low and it is species rich. The plants consist of shrubs, geophytes and annuals. The rainfall is low (6 inches) and comes in the winter - when the evaporation rate is low. The skeletal soils can be fertile and periodic droughts occur. These droughts are disruptors and when the winter rainfalls fail, the plants will just die out.

The following is a list of the many plant families which are found in this region.

Aizoaceae 659	Mesembs: Conophytum (81)
Asteraceae 495	Daisies: Senecio (42)
Iridaceae 286	Bulbs: Morea (68)
Scrophulariaceae 230	Herbs
Hyacinthaceae 177	Bulbs: Lachenalia (59)
Fabaceae 140	Peas
Crassulaceae 134	Crassula (81), Tylecodon (36)
Poaceae 117	Grasses
Asphodelaceae 111	Bulbine (37)
Apocynaceae 110	incl Stapeliads
Geraniaceae 92	Pelargonium (77)
Oxalidaceae 87	Oxalis (87)
Amaryllidaceae 82	Bulbs
Euphorbiaceae 63	Euphorbia (58)

Mesembs are a key feature of the region. The evolution of the mesembs happened due to events which occurred between 9 and 4 million years ago. The climate became cooler and drier and there were empty niches north of the Fynbos biome where summer rainfall plants were not able to grow. The mesembs evolved from small short lived herbaceous plants to become larger and longer lived woody shrubs. This was enabled by water storage (succulence) and also the development of Crassulacean Acid Metabolism (CAM) – this means plants can close their stomata during the day and take up CO<sub>2</sub> at night, when the air temperature is lower – meaning water loss can be lowered by an order of magnitude. The plants have betalain pigments (producing bright flowers) and also have unique seed capsule designs.

There are various areas to look at. We started in the little Karoo region. *Gibbaeum pubescens* is found on the white quartz stones. We also saw *Gibbaeum petrense*, *Gibbaeum cryptopodium* and *Gibbaeum album*. Most extreme is *Muiria hortenseae* which is almost spherical and where the flowers have to burst through the body of the plant. *Euphorbia suzannae* does mound up in cultivation. *Crassula tecta* is a dry adapted Crassula which produces white flower clusters in February in this country. We also saw *Crassula capitella* ssp. *thyriflora*.

With leafy pelargoniums, the stems have reduced and tuberous rootstocks form below ground. We saw *Pelargonium nervifolium* (Hoarea). They are leafless in the hot summers and grow leaves after the autumn rains. There are 300 species and 100 of them have tubers. There are also subtle shifts in the designs of the flowers. Some plants are pollinated by birds. We saw *Tylecodon paniculatus* with tubular red flowers - hummingbirds don't exist in South Africa but sunbirds can do the same job and they can almost hover. There are also invasive alien plants and we saw *Opuntia engelmannii* and *Agave stricta* - they are now on the weed list. The cochineal insect (white mealy bug) was introduced to try and attack the Opuntia plants.

The Knersvlakte has fields of white quartz and we saw *Lampranthus reptans* and *Conophytum uviforme*. Previously, the shrubby mesembs were considered ancient and primitive - but this is not correct - they developed later and they are well adapted plants. Some plants with leaves hold them held upright - rather like the Saguaro, to minimise the amount of sunshine intercepted. Other mesembs have taken a different route, with small flowers – and some Conophytums have nocturnal flowers. The plants have also miniaturised and there can be vast numbers of plants in a small area. A quote from Steven Hammer's book says "the whole genus travelled in the direction of reduction - reduction of branches, reduction in exposed surfaces, floral parts and also the seeds".

To summarise some of the advantages of minutism:

- exploit shallow soils if rainfall reliable
- fogs become significant water-source
- evade wind within boundary layer
- hide from or ignored by predators
- use small areas of shade under rocks/bushes
- allow more generic diversity per unit area

The final comment is one of the most important - more genetic diversity per unit area means increased resilience against climate change - the genus has a much better chance of surviving a shift in the climate.

Taking a further look at the Knersvlakte, there can be regular fogs in the shorter day-length months of the year. This provides an element of shade as well. We could see mesembs in the white quartz stones. All the members of the genus *Argyroderma* come from this region. We also saw *Conophytum minutum*. Other things have evolved too and we saw a completely white grasshopper - it has to stay on the quartz area to maintain its camouflage. There are other species which are coloured red and they live on the normal soil.

There are succulents and daisies here, and *Othonna* has around 80-90 species. *Othonna hallii* has a tuberous rootstock and has deciduous leaves. Moving north, the scenery changes. In Namaqualand, there is igneous rock (crystalline rock) and rounded hills (gneiss domes). There is a lack of strata in the geology - you get grit pans forming. Conophytums grow well in these. We saw a picture with *Crassula namaquensis* and also *Conophytum depressum* seedlings - *C. depressum* is one of the smallest. We also saw *Conophytum rugosum*. Chris Rodgers had blown away some of the sand for the pictures. When it rains, the grit pans fill up and it can remain wet for a week. So when growing them in the UK, give them 4-5 good waterings in the winter months.

Namaqualand is also famous for the displays of wild flowers from the daisy family and we saw a *Gazania*, which are used as garden plants in this country. The hotels become full up as people visit the area see the spectacular flower displays in the wild. The locals also often offer up their spare rooms to visitors. There are lots of geophytes again, with different species. There are 250 species of oxalis here. We also saw a geophytic pelargonium - *Pelargonium incrassatum* is called the pride of Namaqualand and is widespread. *Lachenalia* bulbs also grow here and we saw *Lachenalia kliprandensis*. The area is also rich in reptiles. We saw a Southern rock agama and a Cape flat lizard. There are snakes too although they usually stay out of the way. Scorpions are more of a problem but they are only active at night or early in the mornings.

Stick euphorbias stand up to minimise their exposure to the sun and a number of different species grow here. We saw *Euphorbia dregeana* and also *E. gummifera* and another iconic bush, *Euphorbia gariiepina*. Ants visit the flowers and there are also flying insects who pollinate them (termites too, perhaps). We saw some of the iconic plants of the succulent areas - including pictures of the tree aloes - *Aloe dichotoma*. Their flowers are rarely seen since they occur in the summer months - the trunks have lovely bark.

Inland in the flat country, there is red sand and quartzite mountains, and you get clouds forming in the hills. The halfmen are plants of *Pachypodium namaquanum*. They have an unusual colour to the flowers, a combination of green and purple. We also saw a *Tylecodon*. To summarise the Succulent karoo, we saw a picture of *Mitrophyllum clivorum* (from Bryan Makin). It has frost free temperatures and there is water in October and March. It is a good idea to give them a short rest in the winter. You

can water the plants in the summer, it won't matter. The soil has to be gritty and open. This is the richest succulent flora in the world and the statistics tell us that quite clearly.

There was one more area to visit - **Desert**. This is a very dry region - in the North West of the country and with low altitude. There is little vegetation and it consists of annuals, a few bushes, a few grasses and some succulents. There is 2 inches of rainfall but it is erratic and can be considered as extreme drought. The "mist" in the distance in the picture was not moisture but dust. There are strong winds so the plants get sand blasted. At Luderitz in Namibia, we saw *Sarcocaulon pattersonii*. It has no leaves or flowers most of the time - it grows opportunistically, when the rain comes. It has tough stems which are resiniferous and hard, to survive the droughts.

Some plants have adapted to grow underground - *Fenestraria aurantiaca* does this, with windowed leaf tips. *Tylecodon schaeferianus* makes a small bonsai tree shape in a pot and is a nice bonsai plant. *Anacampseros (Avonia gariiepensis)* has papery scales which cover the tiny leaves. In effect each leaf has a private greenhouse which also protects against the sand blasting.

*Larryleachia marlothii* (this genus used to be called *Trichocaulon*) has small flowers with an unusual structure in the centre of the flower without free pollen. There are few succulents here, and almost all are specially adapted ones. The annual mesembs here grow like mad when water occurs. They dominate small areas and flower when they can. *Opophytum hypertrophicum (Mesembryanthemum hypertrophicum)* is one plant that grows here. The conditions favour lichens. There is very fine soil here which generates a dust. There are 26 species of lichen on this one hill and there are other lichen fields in Namibia further north.

Summarising this region with a picture of *Sarcocaulon peniculinum* (courtesy of Tom Jenkins), the plants need to be kept frost free. Treat the plants as opportunistic summer growers with long dry winters. They need open gritty soil and some would appreciate a deep pot.

If you want to know more these areas, Derek said we are fortunate to have three coffee table books.

"Fynbos" - South Africa's Unique Floral Kingdom  
 "Namaqualand" - A Succulent Dessert  
 "East of The Cape" - Conserving Eden

The book with all the climate diagrams and data on the regions and biomes is a monumental book

published in 2006 and titled "The Vegetation of South Africa, Lesotho and Swaziland" which is three inches thick and has two(!) ribbons in it. It was heavily subsidized and available for just £30 from SANBI. When I looked for references to it, I found that the book was available as a free PDF download from their website. Derek finished with a South African sunset, looking to the West with the sun setting over the Atlantic Ocean.

There were some questions at the end from the audience. One of the questions was about the size of the *Euphorbia obesa* plants we had seen earlier. Derek said they were around 5 inches. You always photograph the best ones. He said there was some regeneration going on. And the farmer who owns the land is doing his best to cover the plants to protect them from being grazed on by goats and sheep.

Tom asked about *Sarcocaulon* - can they be propagated and rerooted? Derek said almost certainly not. However, the one from furthest east is the least succulent one - it's *Sarcocaulon vanderietiae* - it has thin stems and white flowers - and that one is possible to propagate. You can also set seed on it - it will self-pollinate. Put fresh pollen onto an older flower and it should set seed.

Another question was about the status of the plants? Does the country suffer from plant poaching? Derek said when he first went, in the 80s - it was unusual back then. But these days it's a quite serious matter. The world has got smaller - China and other countries have opened up and suddenly everyone wants to try and grow cacti and succulents. Some of the more unscrupulous people have either collected plants from the wild (or got others to do it for them) and then posted these to the buyers. It also happens with some of the animals.

Vinay Shah

## Next Month's Meeting

At our next meeting on Tuesday 3<sup>rd</sup> September we will hold another of our Plant Focus evenings, where we select particular genera of cacti and of other succulents which we will examine in detail, using for discussion the plants that everybody brings along, to show the selection and diversity available. The chosen genera this time are both **Thelocactus** and **Ferocactus** for the cacti, and **Haworthia** for the succulents.

The success of these meetings depends entirely upon members bringing along examples of the chosen genera from their collections, so that we have plenty of material to talk about. So please make a special effort to bring along as many plants as you can - they don't have to be large show quality specimen plants, just bring along any examples that you have in your greenhouse.

We will talk about the various species, about which are the easiest, or slowest, or most difficult, highlighting the most cherished and highly sought species. We will discuss cultivation requirements, best sources of plants and seeds, the best books available etc.

This type of meeting has proven very popular in the past, and we hope that everyone will bring along plants from their collection to help make the September meeting as successful as our previous meetings in this format. Without the plants, there would be little to talk about.

David Neville.

## Forthcoming Events

Sat 10 <sup>th</sup> Aug	Isle of Wight	Open House Meeting – members only
Sat 17 <sup>th</sup> Aug	Portsmouth	no meeting
Tue 3 <sup>rd</sup> Sep	Southampton	Plant Focus Evening – Thelocactus/Ferocactus and Haworthia
Sat 14 <sup>th</sup> Sep	Isle of Wight	Winter Growing Succulents
Sat 21 <sup>st</sup> Sep	Portsmouth	Social Evening
Tue 1 <sup>st</sup> Oct	Southampton	Recommended Cactus & Succulent Resources on the Internet (Vinay Shah)

Branch website: <http://www.southampton.bcsc.org.uk>

Facebook : <https://www.facebook.com/southamptonbcsc>