

Essex **Succulent** Review

Volume 54 Number 1

March 2017



In this issue

Day trips for Conophytums

by Chris Rodgers

Fog

by Paul Klaassen

Some interesting Euphorbias

by Bob Potter

Editorial

We didn't actually have an editorial in the last issue, I wonder if anybody missed it. I suspect probably not.

We have revamped the Essex Succulent Review website considerably, and it is now mobile friendly. This is achieved with an incredibly clever piece of software which will sense what device you are looking at the site on and resize it to give the best possible viewing experience. I could not possibly have done this myself – and I would like to thank my partner, Paul, for all the hard work he put into this. Unfortunately it is not possible to resize the pdfs.

Having completed the first ESR issue of the year I am already planning ahead for the remainder of the year. Like every editor, everywhere, I always need more material. One of my mottos is 'Written by growers for other growers' and I am sure that there is a wealth of untapped talent out there. If you have a suggestion for an article please let me know. It doesn't have to be a long item, as I can always use shorter items or fillers.

I'll hope to hear from you

Essex

SucculentReview

The Essex Succulent Review is published quarterly in March, June, September and December.

It is available on-line free of charge. Just send an email to sheila@essexsucculentreview.org.uk to receive a pdf of each issue when it is available.

Past issues are archived at www.essexsucculentreview.org.uk

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Zone 15 Events March–July 2017

Sunday 19 March

12noon–5.00pm

Zone 15 Mini-convention

Speakers Kathy and Keith Flanagan, Alice Vanden Bon
All tickets for this event have been sold.

Saturday and Sunday 22 and 23 April

10.00am–4.00pm

Display of plants, plant sales and information stand for the Essex Plant Heritage, Spring Fair at RHS Hyde Hall.

Saturday and Sunday 20 and 21 May

10.00am–4.00pm

Plant display in conjunction with the Haworthia Society at RHS Hyde Hall.

Saturday 28 May

12noon–4.00pm

Lea Valley Branch Annual Show:

Capel Manor College, Bullsmoor Lane, Enfield EN1 4RQ

The plants remain on display over the May Bank Holiday weekend and the show includes sales of cacti, succulents and garden plants.

Saturday 3 June

11.00am–4.00pm

Havering Branch Annual Show

1st Floor, YMCA, Rush Green Road, RM7 0PH

Saturday 10 June

11.00am–4.00pm

Southend-on-Sea Branch Show:

United Reformed Church Hall, Kings Road, Leigh-on-Sea SS0 8PP

Saturday 8 July

10.30am–4.00pm

Waltham Forest Branch Show:

Chingford Horticultural Hall, Larkshall Road, Chingford E4 6PE

Plant sales from 9.00am

Saturday 15 July

12noon–4.00pm

Zone 15 Annual Show

United Reformed Church Hall, Kings Road, Leigh-on-Sea SS0 8PP

The 12th Spalding Cactus Mart

will be held on

Saturday 22nd April 2017

10.00am–3.00pm

Holbeach Community Centre, Fishpond Lane,
Holbeach, Lincs P12 7DE

At least 14 sellers in attendance

Ample free parking and free admission to the Mart

Refreshments available all day

For further details please see the

[Spalding Branch website](#)

South-East Cactus Mart

Saturday 29 April 2017

10.00am to 3.00pm

Following the success of last year's Mart this will be repeated
at the same venue

Swalecliffe Community Centre, 19 St John's Road,
Whitstable, CT5 2QU

Refreshments available all day Adults £1 Children free

For more information and directions contact

[Dave J Appleton](#), Herne Bay Branch Secretary



by Paul Klaassen

I had been a great fan of the book, '*Copiapoa in their environment*' by Rudolf Schulz and Attila Kapitany (1996) and so was very happy to be invited to make up a British car party for a trip to the Chilean Atacama Desert in 2001 to join Rudolf and Attila for a further study of the plants. We experienced the famous *camanchaca*, cloud banks that occur along the Chilean coast. We found many cactus and succulent locations and recorded their GPS coordinates.

In 2008 I made two trips in quick succession to Baja California, again recording the coordinates where we found cacti and other succulents in habitat and the locations where we photographed the plants.

Back home in the UK, I would plot these locations on Google Earth, a virtual globe, map and geographical information program that can be downloaded free of charge for Windows, OS X, Linux computers and Android 8.0.0 and iOS mobile telephones. I was

intrigued to find that the coastal area, where *Copiapoa*, *Eriosyce sensu lato* and *Eulychnia*, to name but a few, grow in the Atacama Desert, in the southern hemisphere is almost a mirror of the Pacific Ocean area along the Baja California coast in the northern hemisphere. Again, we ran into dense fog.

Coincidence?

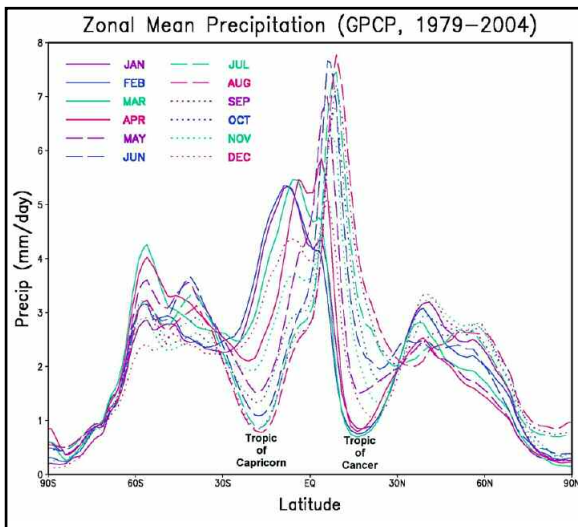
A search on the internet for '*camanchaca*' led me to 'fog-deserts', which confirmed that the Atacama Desert and parts of Baja California, in particular the Vizcaino Desert, are fog-deserts and that the third such desert is the Namib Desert in South Africa, particularly the Skeleton Coast, where the

Above: *Eulychnia taltalensis*, covered in lichen and algae, on top of the coastal hills above Paposo

The water droplets of the fog collect on the spines of *Eulychnia taltalensis* and on lichen and guide them to the soil where roots of the cacti and other lomas vegetation can benefit from the only source of water. Other cacti found here: *Copiapoa humilis*, the high-altitude form of *Copiapoa cinerea* subsp. *haseltoniana*, *Eriosyce paucicostata*, and *E. taltalensis*. Succulents include a *Calandrinia* sp., *Euphorbia lactiflua*, *Nolana* sp. and a *Viola* sp.



Fog continued



Graph showing zonal mean precipitation i.e. precipitation against latitude

above the sea surface. As the hot air rises, it pulls cooler air from the sea and so sets up a light sea breeze. Dewpoint is the point where temperature, relative humidity and barometric pressure conspire for water to condense and form fog or mist. The difference between 'fog' and 'mist' depends on a number of definitions but in simple terms it centres on the size of the particles and the distance over which objects can be seen.

After sunset the land cools down more quickly than water so that the direction of

frequent thick coastal fog caused many shipwrecks that gave the area its name.

I learned that the key requirements were a hot body of arid land along a cold body of water. During the hot day, air over land warms up more quickly than that

the wind is reversed. I remember at the Botija Valley setting up our tents (during daylight) with the opening facing inland. By the time we turned in, the wind direction had turned and had filled the tent with smoke from the bonfire.

The Humboldt Current comes from the South Pole and passes along the South American Pacific coast, past the Atacama Desert where it is said there are areas where it has 'never' rained.

As the name implies, the Vizcaino Desert is also an extremely dry place, a desert being defined as an area receiving less than 25cm (10") of precipitation per year. The cold body of water in this case is the California Current in the Pacific Ocean. By comparison, annual precipitation averages for the UK are 885 millimetres (33.7"). So, although we get plenty of fog in the UK, we are far from being a desert.

The fog in the Namib Desert comes from the Benguela Current in the Atlantic Ocean.

These three currents, together with the Somali Current and the Canary Current, are affiliated with 'upwelling zones'.

I found a neat graph showing that the two poles are the driest places. In joint second



Crossing the Tropic of Cancer on the road between Zaragosa and Victoria in Mexico with signs showing how the exact location of the tropic moves each year.

Photo: Roberto González licensed under Creative Commons Attribution-Share Alike 4.0 International

Fog continued

place are the Tropics of Cancer and Capricorn at a latitude of 23°26'13.5" north and south of the equator respectively, which corresponds to the axial tilt of the planet.

It just so happens that these tropics cross the Atacama Desert and the Baja Peninsula. One year, in the bar of the annual ELK cactus and succulent plant event in Blankenberge, Belgium, I was discussing this with friends and suggested that, as we had already visited the Atacama Desert and Baja California in pursuit of cacti, we should really visit the Namib Desert to complete the trio of fog deserts.

After some prompting and teasing at subsequent ELKs, in 2011 I finally had my bluff called and announced that I would go in September 2012 and surprised my friends by adding that I wanted to go for 13 weeks – three months!

Even before I had been to Namibia, I was booked to present 'Fog' at the Succulenticom 2014 in Brisbane and it became the topic of choice for a mini-tour of cactus and succulent societies in California and Nevada (Las Vegas) the following Spring.

I started to sort through my images of trips

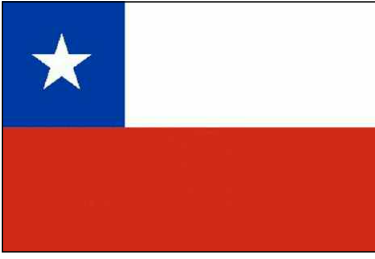
to Chile and Baja California and, although I had pictures of stops at the monuments that mark the position of the tropic's latitude, imagine my surprise to find that our GPS seemed to be out by a few seconds. This is due to a 'wobble' that planet Earth experiences as it spins around its axis, so that the exact position of the tropics can vary by a few metres from year to year.

I travelled to the point where the Tropic of Capricorn crosses the coast in Namibia and retrieved images from my archives of the coast in Chile and Baja California where the tropics crossed. I concluded that, although the science suggests a specific spot to observe these conditions, they can be experienced in a zone of some 100km or more around this point.

So why do we care? Because we have an interest in cacti and other succulent plants which, in nature, have evolved to survive and thrive in such arid environments. Here, without the presence of regular fogs, no plant life is possible and thus animal life is severely restricted, as we found when we visited the disused airport of the town of Maria Elena in northern Chile that is said to be the driest place on earth. There may be drier places – but they have no facilities to measure precipitation figures.



View from the top of the coastal hills at Las Lomitas in the Pan de Azucar



Chile – Atacama Desert



***Eulychnia saint-pieana* and man-made fog nets at Las Lomitas**

The previous page shows a view from the top of the coastal hills at Las Lomitas in the Pan de Azucar with the thin cloud coming in from the Pacific Ocean turning into fog as it is blocked by the hills. Very little fog can penetrate farther inland, creating a ‘no precipitation shadow’ over the extremely dry Atacama Desert where hardly any plants can survive.

Cacti at the top of the coastal hills here include:

Copiapoa grandiflora,
C. cinerea subsp.
columna-alba (Ritter’s
C. melanohistrix)
Eulychnia saint-pieana.

Also at Las Lomitas, in the north of the Pan de Azucar National Park, above Esmeralda, are Nature’s fog nets, *Eulychnia saint-pieana*.



Euphorbia copiapina

Behind are man-made fog nets that measure the volume of water that could be collected in this way. Also here, *Copiapoa esmeraldana*, and *C. cinerea* subsp. *columna-alba*, (*C. melanohistrix*).

Some plants have evolved a geophytic life style to reduce water loss, such as here *Euphorbia copiapina* growing south of Caldera. Said to be rare, it is actually quite common, but rarely seen: only when the fog has provided sufficient humidity as in an El Niño season.

El Niño is the warm phase of the El Niño Southern Oscillation and is associated with a band of warm ocean water that develops in the central and east-central equatorial Pacific, including off the Pacific coast of South America.



Nolana crassulifolia

Nolana are not ‘true’ succulents, as they do not store water to enable the plants to survive long periods of drought. The leaves shrivel and dry up when conditions are too dry.



Mexico – Baja California



In Baja California, the Tropic of Cancer crosses the Pacific Coast just south of Todos Santos. This is an arid area (250–500mm precipitation per annum) rather than a desert (less than 250 mm). Each time that I have been here there was bright sunshine, but at San Carlos and Isla Magdalena and in the Vizcaino Desert, south of Guereño Negro, about 100–450km farther north, morning fog is the order of the day.

The *Capitan* of the panga (fishing boat) that was due to take us to Isla Magdalena called early to cancel our trip – his SatNav did not work in the fog. “Never mind, ours do!” Each of us carries a GPS unit to record where we see plants of interest.

The picture to the right shows *Mammillaria* (*Cochemiea*) *halei* on Isla Magdalena, dripping with moisture from the thick fog. Also found on this small island:

Agave margaritae,
Bursera microphylla,
Cylindropuntia cholla,



Dudleya albiflora,
Echinocereus barthelowanus,
Fouquieria splendens,
Grusonia santamaria,
Mammillaria dioica,
Opuntia pycnantha. margaritana,
Pachycormus discolor,
Pedilanthus macrocarpus,
Peniocereus striatus 'diguettii'
Stenocereus (Machaerocereus) gummosus.



Pachycormus discolor var. *veatchiana*

On the previous page *Pachycormus discolor* var. *veatchiana*, shaped by the prevalent wind off the Pacific Ocean near the beach on Isla Cedros.

We also photographed
Agave sebastiana,
Dudley acuminata,
D. albiflora,
Echinocereus maritimus,
Mammillaria (Cochemiea) pondii,
M. goodridgii and
Opuntia oricola.

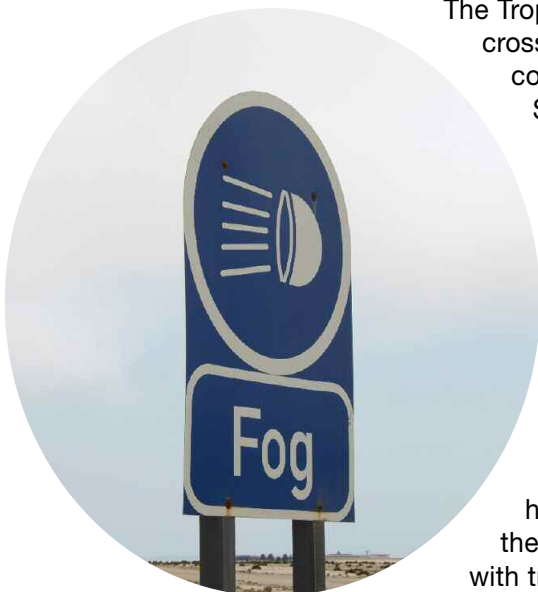
Below: *Stenocereus (Machaerocereus) eruca*, the Creeping Devil along the road from San Carlos to Ciudad Constitucion.

The human Creeping Devil is my friend Alain Buffel from Oostende, Belgium.

Also here: various species of
Cylindropuntia,
Ferocactus townsendianus,
Mammillaria dioica.



Namibia



The Tropic of Capricorn crosses the Namibian coast just south of Swakopmund. Here we did see thick fog and, as in Baja California, the fog could drift hundreds of miles inland, unhindered by coastal mountains, unlike the Atacama Desert. No cacti here, but plenty of the other succulents, with tree aloes and tall 'cactus-like' *Euphorbia* able to fill the role of fog catchers and miniature geophyte succulents such as

Lithops hiding from the strong sun, just as the *Theloccephala* group, in the genus *Eriosyce*, do in Chile.

Here, the regular fogs stretch north to the Angolan border, and probably beyond, while 11 degrees (some 1,280km) to the south, Table Mountain near Cape Town is often shrouded in cloud, covering the mountain like a table cloth. While there are frequent fogs further south, there is too much precipitation to consider that to be a desert region.

In any of these three fog deserts, the authorities have been so kind as to put up road traffic signs to tell you to put your headlights on when you run into fog.

Of course, in thick fog, the first you know of these instructions is a loud CLUNK as the car runs into the sign.



The wreck of the Zeila

That's why the area north of Swakopmund is known as the Skeleton Coast! Here, the wreck of the Zeila has been left as a home to sea birds, while the Atlantic Ocean does the demolition work. The mounds on the beach are *Zygophyllum* sp., xerophytic shrubs with succulent leaves that are dropped at times of drought, just like *Nolana* in Chile.

Below: A field covered in *Welwitschia mirabilis*, the iconic fog plant of the Namib Desert, with the Brandberg in the background. The plants grow some 100km from the Atlantic coast and the Brandberg is the first feature that stands in the way of fog as it drifts inland.

The ceroid-like *Euphorbia virosa* replaces the *Eulychnia* and *Trichocereus* sp. in the Atacama Desert and the *Pachycereus* sp. found in Baja California.

The lichen fields at Alexander Bay, north of Port Nolloth, South Africa, may look very desolate, but the fog drifting in from the Atlantic Ocean that dominates the weather here, enables a very diverse flora to survive or even thrive. I photographed *Cheiridopsis brownii*, *Crassula deceptor*, *C. nudicaulis. herrei*, two other *Crassula* sp., *Euphorbia ramiglans*, *Fenestraria rhodophylla*,

Below:
Welwitschia mirabilis



Fog continued

Lithops herrei,
two other Mesemb. sp.
Monsonia (*Sarcocaulon*) *patersonii*, and
the bright red lichen, *Teloschistes capensi*.

I had always associated most of the 'other succulents' with plants requiring extra warmth in the English greenhouse, but here our photography was slowed down by continually having to take off our gloves as the early morning temperature rose from 2° to 5°C.

On the coastal hills in the Atacama Desert, where you can see the *camanchaca* rolling in from the Ocean, I recorded a 15°C drop in temperature as we became engulfed by the cloud. Not only does the fog provide moisture but it also protects plants from the extreme heat often found at these latitudes.

Below: the lichen fields at Alexander Bay and, inset, *Fenestraria rhodophylla* growing there.

The geophytic habit is also found in *Theloccephala* and *Euphorbia* such as *E. copiapina* in the Atacama Desert.

Photos by Paul Klaassen except where indicated otherwise



Euphorbia virosa

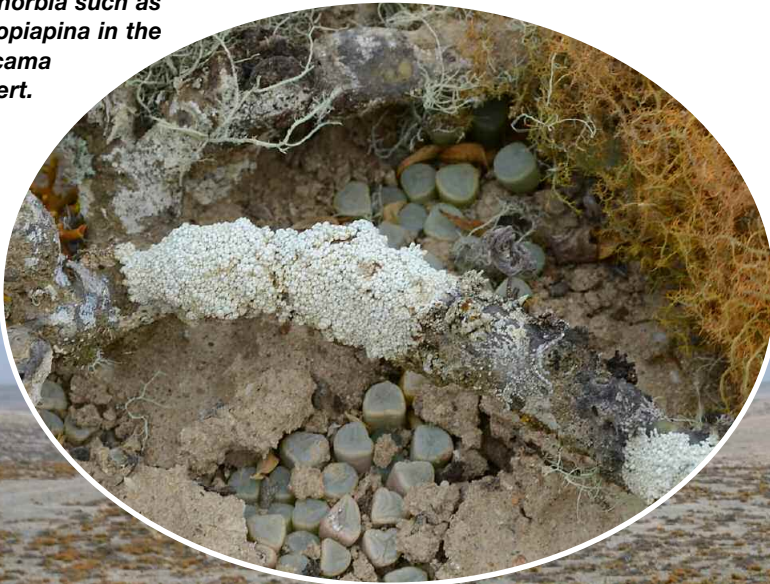




Fig. 1 Part of the famous 'Baobab Alley' in Madagascar featured on a stamp and a postcard
The trees are *Adansonia grandidieri*

Fat tree philately

by Rick Gillman

Like many cactophiles, I have several other hobbies; these include golf, playing the ukulele, and philately. These hobbies can have unexpected crossovers. For example I have six ukuleles which are in one way or another decorated with cactus designs. My stamp collection includes ten large overflowing albums of cactus and succulent philatelic material. A huge number of genera are represented therein,

so why an article on fat trees on stamps? Two reasons: I have seen many of these in habitat (they are magnificent plants), and I like the title!

This article may seem to have a narrow focus, but when one takes into account postage stamps, revenues, specimens, unusual uses, first day covers, postmarks, mini sheets, used postcards, overprints, varieties, errors, forgeries, 'cinderellas' etc.,

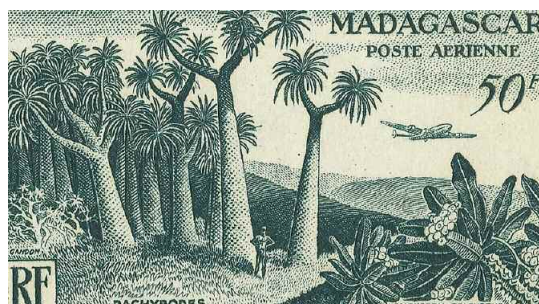
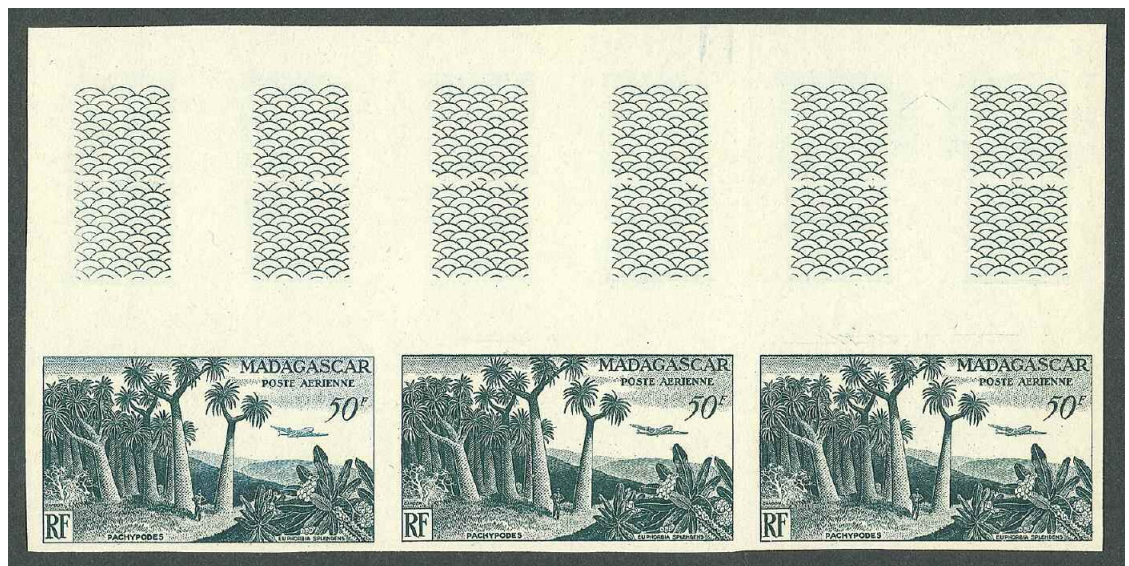


Fig. 2 The author at 'Baobab Alley', a bit further along the road

Fat tree philately continued

Fig. 3 A rare imperforate block from the top edge of a sheet of Madagscan stamps featuring 'Pachypodes'

Below: one of the stamps



Below: Fig. 4 The 'half mens' plant, *Pachypodium namaquanum*, another rare imperforate pair, probably a colour proof

Below right: Fig. 5 Two stamps from Botswana featuring the flower and fruit of *Adansonia digitata*

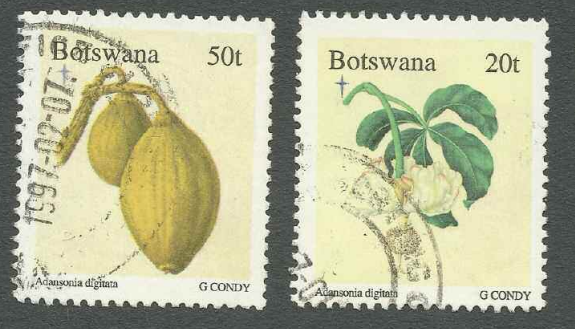
there is a huge amount that might be collected. In this article, I am restricting myself to the 'other succulents', as to include cacti would at least triple the amount of possible material to include, and would probably send the reader to sleep.

I'll start with what I consider to be an iconic image – that of 'Baobab Alley' in Madagascar (Fig. 1). The postcard shows the image which the design of the stamp

thereon was presumably based. It is postmarked 1952, the year the stamp was issued. The stamp itself is a piece of art, having been produced using the 'line engraving' technique, as were so many of the beautiful older French stamps. I visited Baobab Alley and attempted (poorly) to capture a similar image of myself! (Fig. 2).

Also in Madagascar can be found huge pachypodiums which are depicted on several of their stamps, (Fig. 3), again a really beautiful image. Pachypodiums also feature on the stamps of South West Africa (Fig. 4), whilst baobabs, their flowers or fruits (Fig. 5) feature on the stamps of over 20 other countries, many of which have used baobab postmarks too. Most, but not all, of these countries are African.

Some of the baobab stamps are rather rare. British Bechuanaland issued a series of definitive stamps featuring baobabs in 1932, 1938, 1955 and 1961; each series showing the relevant British monarch (King George V, George VI and Queen Elizabeth II), with the last series being overprinted with new currency values when decimalisation took place. The stamps are usually known as the 'cattles' as they also feature three cattle grazing. The top values

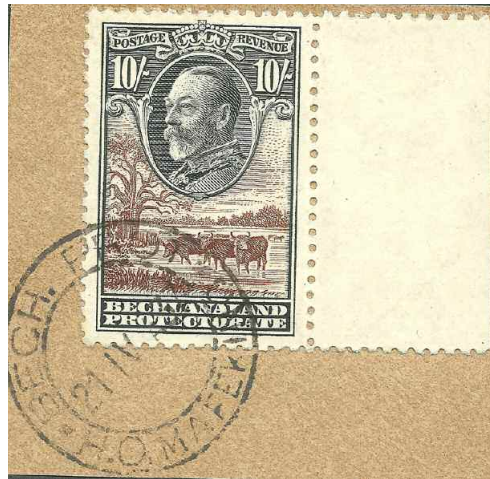


Fat tree philately continued

in the King George V issue (Fig. 6) are very collectible as are some of the overprinted Queen Elizabeth II stamps (Fig. 7), because a number of different overprint fonts were used (sometimes on the same sheet of stamps!) making some of them quite rare.

The same design was also used on revenue stamps and postal stationery.

But what else can be found?



Above: Fig. 6 The top value of the King George V 'cattles', with a neat circular date stamp



Fig. 8 Stamps from Batumi featuring an Aloe tree. One of them is a forgery (see page 14)

The Black Sea coastal port of Batumi (now known as Batum) had been part of the Russian Empire but fell under British occupation at the end of World War 1, and the Town Council issued a set of imperforate stamps with an Aloe tree design (why? I do not know!). Later on, the role of stamp issuance was taken on by the British, and stamps were overprinted accordingly (Fig. 8).

Fig 7 A very rare mint block of four Queen Elizabeth II 'cattles' with the type one overprint of one rand. Only 1,800 stamps were thus overprinted, of which around 700 were used on first day covers, and 300 remain in archives in Botswana (formerly British Bechuanaland)



Fig 9 A stamp from Namibia depicting a Quiver Tree (*Aloe dichotoma*) forest, and a mini sheet from the same series of stamps, cancelled with the same design as the Aloe stamp



Fig. 10 Stamps of South West Africa issued in 1937, bilingually overprinted for official use in 1938. The Aloe tree is in the bottom left hand corner. On this used pair, the overprints have been printed on the wrong stamps (the English stamp being overprinted in Afrikaans)



Fig. 11 Another stamp from South West Africa featuring *Aloe dichotoma*



Fig. 12 A mini sheet issued by Mozambique. The stamp design is a Baobab but the sheet design also contains a giant Euphorbia

A large number of forgeries of these stamps were produced, and part of the interest that collectors of these have is in identifying them! Personally I find the forgeries as fascinating as the real thing. Can you spot the difference (see answer right)?

Aloe trees can also be found on the stamps of other African nations, for example Namibia (Fig. 9), Botswana, South Africa and South West Africa (Figs. 10 and 11). Some of them are quite difficult to spot!

Giant euphorbias can also be found in the philately of various African countries (Fig. 12). Commiphoras are harder to find, but here is an example from Djibouti (Fig. 13). Adeniums (Fig. 14) and Adenias

(Fig. 15) can also be found.

Perhaps the most unexpected stamp is one featuring a *Dendrosicyos*, from Yemen (Fig. 16). Still other stamps feature things that look like fat trees, but remain to be identified, by me, at least,

This article has only scratched the surface of what can be found. I hope that it has sparked your interest to collect a few stamps featuring succulents. After all, unlike the real thing, the stamps do not die and take up very little space!

P.S. The forged Aloe tree stamp is the one on the left. It has only five white blobs above the right hand side value tablet. Thee tree branches are different too. There are other more subtle differences that can be found with a great deal of study



Fig 14 - *Adenium obesum* on a stamp from Mauritania. The stamp also shows a stapeliad

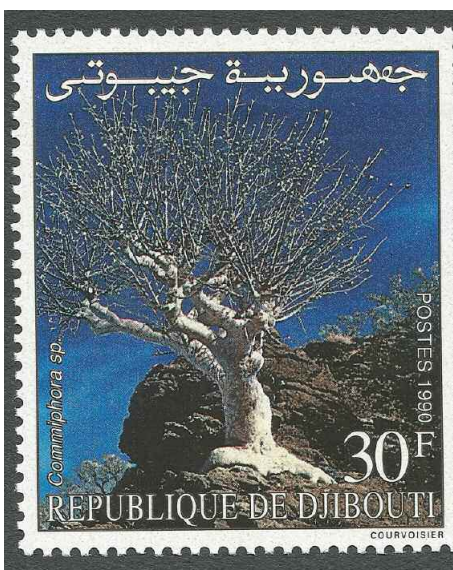


Fig. 13 *Commiphora* species

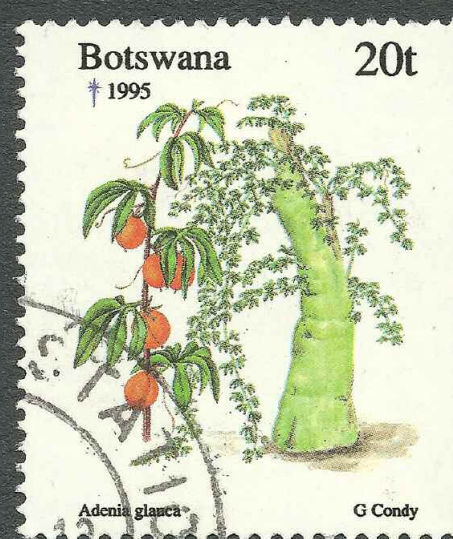


Fig 15 - *Adenia glauca* in flower , from Botswana



Fig 16 - *Dendrosicyos socotranus*, its leaf and flower (which is very difficult to see on the stamp)

Some interesting Euphorbias – Zimbabwe

by Bob Potter

One of my favourite plant families is the Euphorbiaceae and I have been lucky enough in recent years to be able to travel in countries looking for plants that have been home to some very interesting members of this family.

I would like to share with you some of my encounters with these plants and hope that you will find them of interest.

First stop is Zimbabwe, I was fortunate to be able to visit Zimbabwe with two Dutch colleagues in 2015. We travelled extensively within the country and were guided by some members of the Zimbabwe Aloe, Cactus and Succulent Society who took us to some fantastic locations

The first location is a band of serpentine rock about 120 kilometres north of the capital, Harare, which runs in a south-west direction and is known as the Great Dyke. The soils found in the Great Dyke are mineral rich, for example they are heavily enriched with chrome. The fact that they are mineral rich can be easily evidenced in this area as the Chinese are digging up vast tracts of this land, bagging the material and

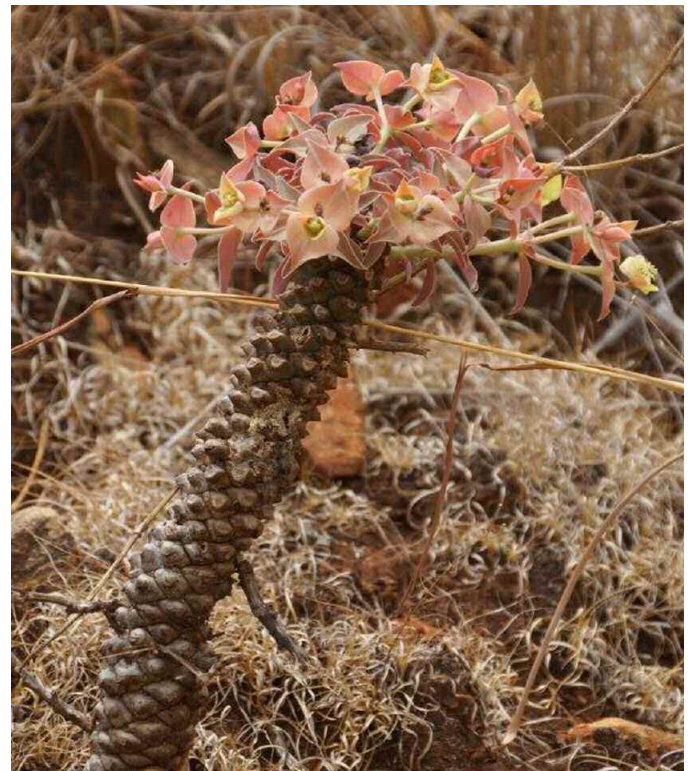
shipping it off to China for processing. They are even stripping up to one metre depth of material from some of the mountain slopes.

One of the remarkable species found here is *Euphorbia wildii* a spineless plant which can grow up to two metres high, although more normally plants that we encountered were rarely more than one metre high. It is fairly thick stemmed with tuberculate branches which produce long inflorescences and leaves at their tips.

This plant is rarely seen in cultivation but is now one of my firm favourites and I think a truly beautiful plant.



Euphorbia wildii at Great Dyke



E. wildii a smaller plant



E. wildii inflorescence

Some interesting Euphorbias – Zimbabwe continued



Euphorbia trichadenia v. gibbsii

Next location is about 50 km south-west of Harare in flat terrain abounding with low shrubby plants and small trees.

In this location there are numerous outcrops of large boulders many showing evidence of early tribal art. Unfortunately these boulders are also being sought after by the Chinese and the non-stop sound of their heavy crushers can be heard as you walk around this area. They show scant regard for the priceless art on

Flower of *E.trichadenia v. gibbsii*



these rocks and continue to scoop them up, crush them and ship the material away.

Here we came across the very nice geophytic *Euphorbia trichadenia v. gibbsii*, a plant that is not easy to spot mainly because there is



Talinum cafferum* showing similarity to *E.trichadenia

only the thin leaved stems showing above ground. *Talinum cafferum* also grows in this location and has remarkably similar stems to the *Euphorbia*.

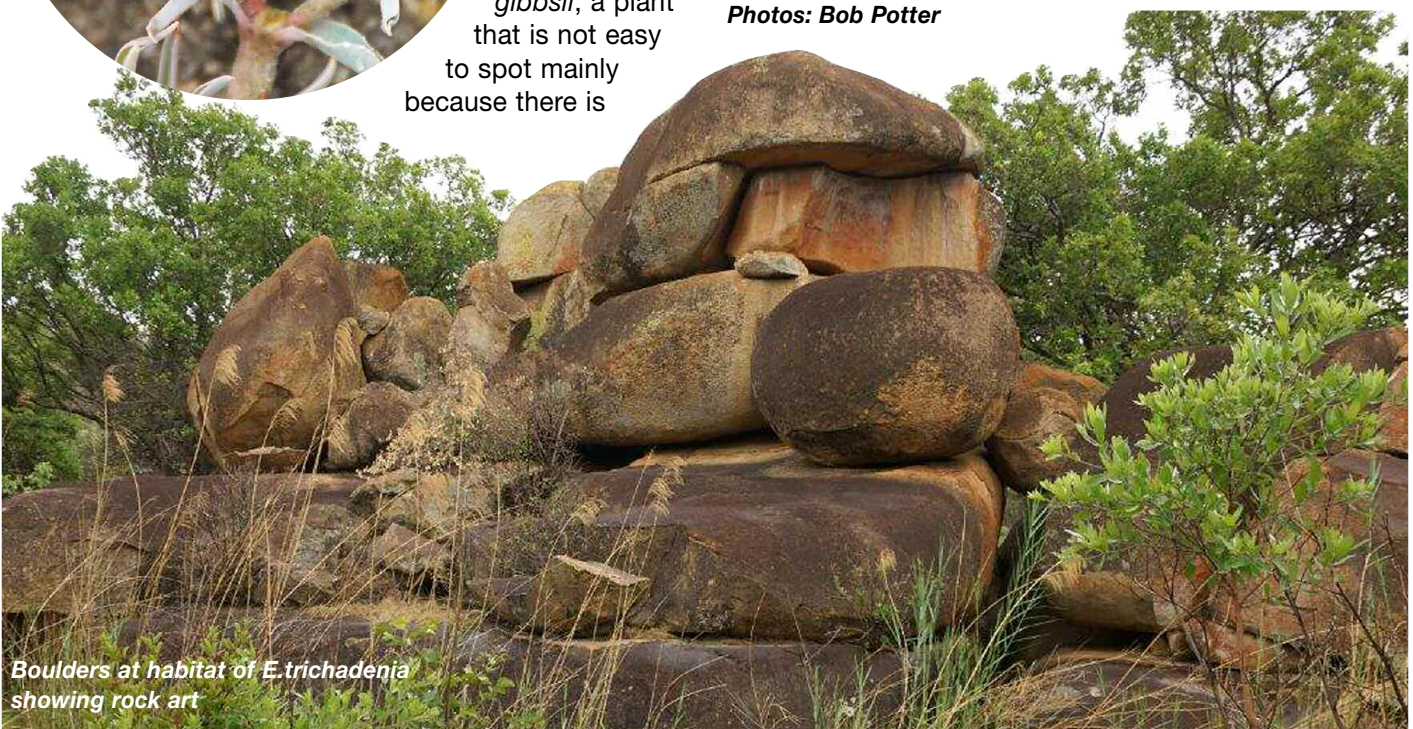
At the moment it is fairly abundant but the Chinese are coming closer so who knows how long these plants will remain here.

The tubers of the plants we encountered are smaller than the type species being about 4–5cm in diameter and about 10–12cm long. The tubers are completely buried with just the stems and leaves showing and typically these extended about 5cm above the soil surface. Many were showing flower and fruit which made them much easier to spot.

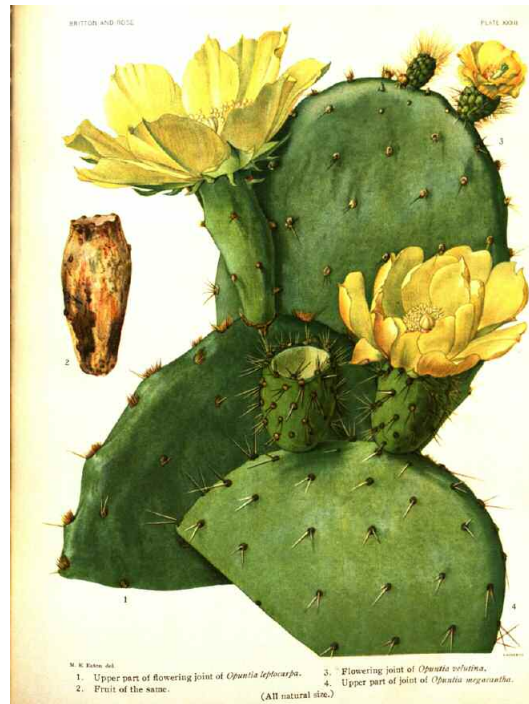
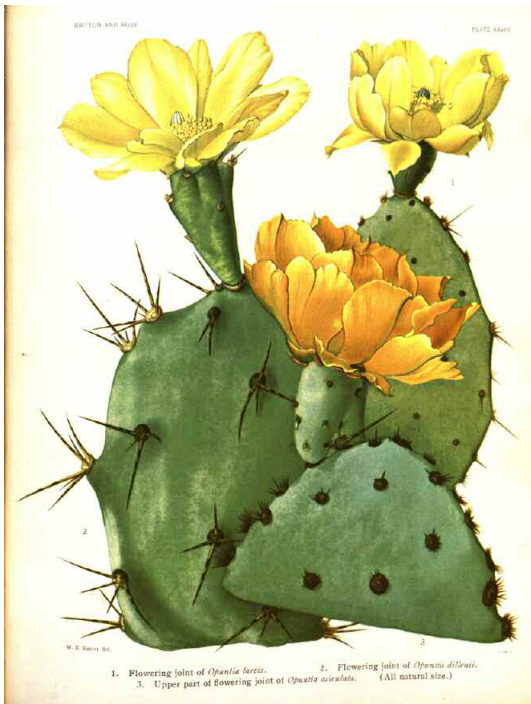
This plant is available from time to time and is well worth cultivating, usually we raise the tubers above soil level but I have successfully grown these with completely buried tubers and achieved far better top growth.

Next time I will talk about plants from an entirely different country.

Photos: Bob Potter



Boulders at habitat of *E.trichadenia* showing rock art



Mary Emily Eaton is particularly renowned for her paintings of Opuntia.

Mary Emily Eaton

by Sheila Cude

The name Mary Emily Eaton may well be familiar to cactus growers for her superb illustrations for Britton and Rose's *'The Cactaceae'* but she seems to have left very little biographical information behind her.

She was born in 1873 in Coleford, Gloucestershire, educated privately and studied art at a number of institutions including what is now the Royal College of Art. She worked for a while for Royal Worcester as a porcelain painter producing, it would seem, lavishly decorated items which now sell for considerable sums of money.

In 1909, she travelled to Jamaica to stay with her brother who ran a banana plantation there and spent her time in painting the local moths and butterflies.

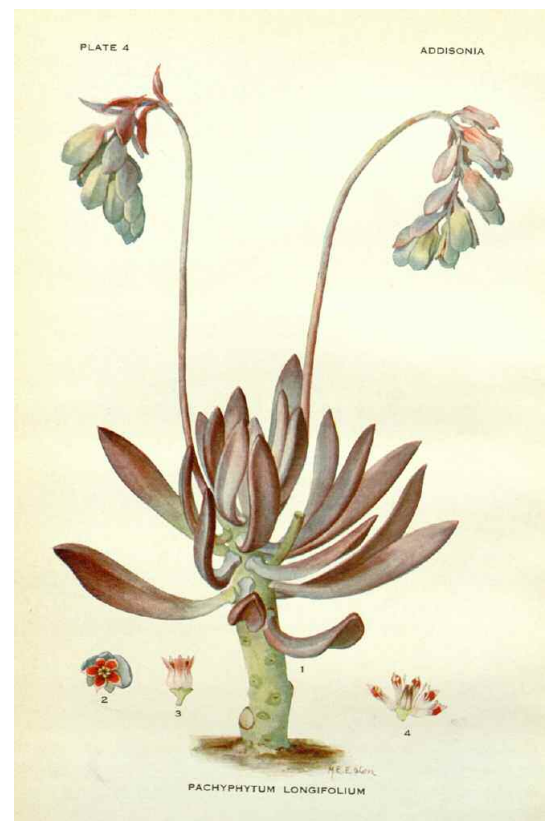
She moved to New York in 1911, and from 1914 was employed by the New York Botanical Garden as a staff illustrator. One of her principal duties was to illustrate the Garden's journal *'Addisonia'* which first appeared in 1916 and was issued quarterly until 1932. Mary Emily Eaton is credited with painting approximately three quarters of some 800 hand-painted plates, covering many plant subjects including some cacti and succulents.

Mary Emily Eaton also worked for the American National Geographical Society, contributing paintings of wild flowers to *'Our State Flowers'* the 1917 issue of the Society's magazine and *'The Book of Wild Flowers'* published by the Society in 1924.

She also painted birds, insects and butterflies for the American Museum of Natural History and illustrated the *'Field Book of Common Gilled Mushrooms'* by William Sturgis published in 1928.

But it is of course as the principal illustrator of *'The Cactaceae'* that she is best known.

The New York Botanical Garden was founded in 1891 and Nathaniel Lord Britton was one of its co-founders and its first director. Work on *'The*





**Two magnificent
Hylocereus flowers**

Cactaceae', with Joseph Nelson Rose, a plant curator at the Smithsonian, began as early as 1904 and it was published in four volumes between 1919 and 1923.

For this monumental work Mary Emily Eaton was responsible for most of the colour plates in all four volumes, producing some 383 full colour paintings of cacti together with over 300 black and white line drawings. She painted in watercolour and worked very quickly, apparently she could



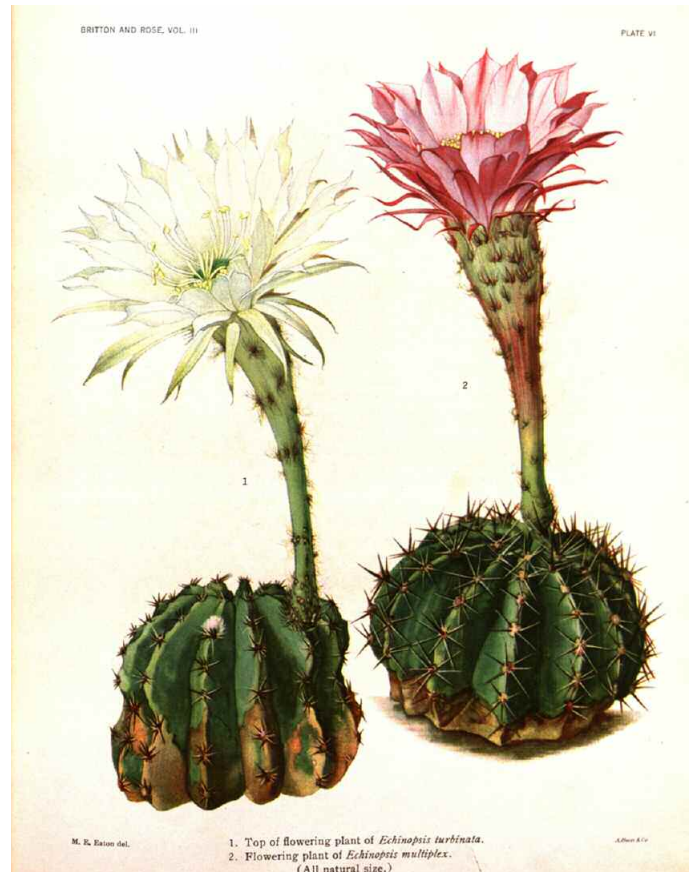
complete a painting in a single morning. Many of the colour plates used in '*The Cactaceae*' consist of a number of individual paintings, and in some cases it is easily possible to see the joins. Her paintings are well known for their quality and botanical accuracy and it would seem that the colour plates do not do justice to the originals.

Her work was exhibited at the Royal Horticultural Society in 1922 and 1950 where she won silver and then gold Grenfell medals.

Her work has also been shown on a number of occasions in the USA including an exhibition at the New York Botanical Garden in 1932.

However in 1932 Mary Emily Eaton lost her position at the New York Botanical Garden due no doubt to cutbacks resulting from the Great Depression. It seems that she struggled to find alternative work in New York and returned to England in 1947, where she lived until her death in 1961.

Images of plates for
this article from
PlantIllustrations.org





The Creosote bush – the longest living lifeform on Earth?

by Peter Clayton

Where does one look to find the oldest living things on Earth? In the Animal Kingdom the creatures that live longest might be turtles that live for about 200 years. In the Plant Kingdom some cacti such as *Carnegiea gigantea* and *Stenocereus thurberi* are extremely slow growing and may take a couple of hundred years to reach the gigantic proportions of those we see in the S.W. United States and Mexico.

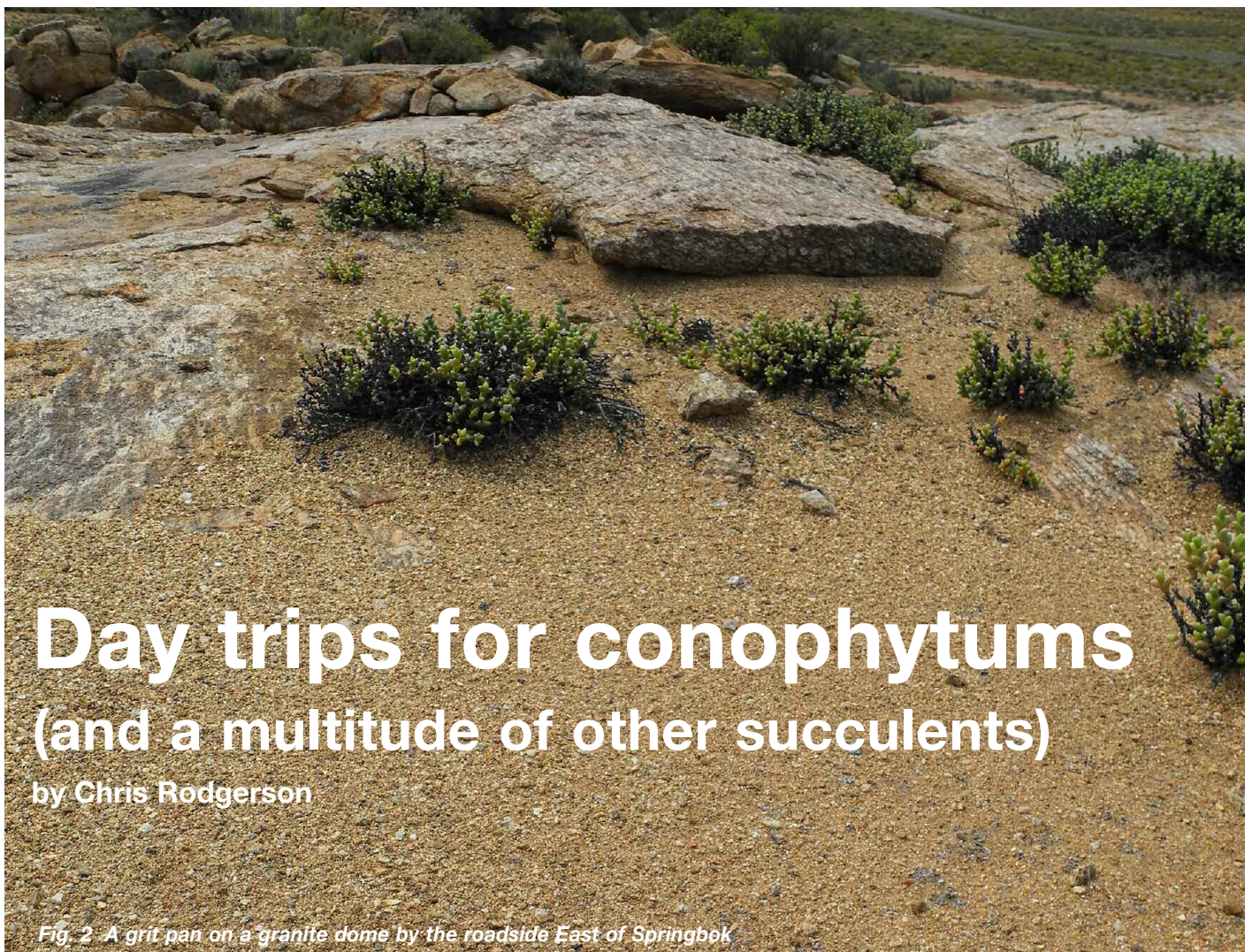
The oldest succulent in captivity is reported to be a specimen of *Fockea capensis*, collected in 1798 and still alive at the Schönbrunn Palace in Austria in the late 1990s.

Cacti and other succulents are short-lived when compared with some members of the conifer group. *Welwitschia mirabilis* of Namibia is cone-bearing and may be related to the conifers. It is reported to live in excess of 2,000 years – a single pair of leaves growing continuously for all that time. The tree that most people associate with longevity is the giant redwood, *Sequoiadendron giganteum* of California. These huge trees have been reported to live more than 3,000 years. Specimens of the bristlecone pine, *Pinus aristata*, of the western United States have been recorded as being more than 5,000 years old.

These were thought to be the oldest living things until quite recently. However, a plant that shares the desert

regions of the SW United States and Mexico with the cacti is the Creosote Bush, *Larrea tridentata*. This is perhaps the most widespread shrub in desert areas and it has been shown that specimens can live for centuries. In fact a plant from the Morongo Basin on the edge of the Mojave Desert in California has been dated at 11,400 years old. It is astonishing to think that this plant started its life at the end of the last Ice Age. *Larrea tridentata* is not a succulent plant but a xerophytic shrub. It only puts on leaves when there is some moisture to support them and in extreme conditions it can die back to its roots. The roots spread underground and, when conditions are again suitable, new shoots appear a short distance from those that had previously dried back. In this way the plant spreads outwards in rings and it is the old, but still living, roots near the centre of the ring that have been shown to live to such a remarkable age.

More recently the creosote bush circle known as 'King Clone' pictured above has been dated at 11,700 years of age by a team led by Frank Vasek, a professor at the University of California, Riverside. Two methods were used to date the age of the ring; one used annual growth rings and the other used carbon-dating on wood from old roots at the centre of the ellipse. Both of the dating methods gave identical results. It is in the Creosote Rings Preserve of the central Mojave Desert.



Day trips for conophytums (and a multitude of other succulents)

by Chris Rodgers

Fig. 2 A grit pan on a granite dome by the roadside East of Springbok

So many people write about the plants and where they grow, but I have never seen anything written about the actual process of plant hunting in South Africa.

If I had to recommend just one place in South Africa to stay during a succulent plants holiday it would have to be my favourite base, Springbok. It is a bustling small town with supermarkets, many shops and restaurants and a few garages for petrol and the inevitable puncture repairs. Accommodations are

numerous from basic to four-star, all bookable online these days and, at 300 miles or so north from Cape Town, it is a steady day's drive straight up the N7, one good road all the way. Just do not choose THE

Springbok Hotel and maybe take a look at my Trip Advisor review to discover why!

Of course there is much to see on the way there. Many succulents can be seen along the route within a few minutes of the main highway. There are other nice towns to visit and stay at such as Vredendal, Van Rhynsdorp and Clanwilliam. But for scenery, general succulents and especially a *Conophytum* trip then Springbok is the place to be. I gave it the name 'Conophytum Central' many years ago as there are more species within day-trip distance from here in every direction than anywhere else and all accessible with a normal car, although something more robust would provide even more options. All the main roads are tarred and in good condition but the side roads are gravel, although you soon get the hang of driving on them. At the time of writing, with current exchange rates giving around 18 Rand (ZAR) to one pound sterling, it is a cheap place to visit and great value for money.

As you drive around exploring main roads and side roads, at this point I should warn against climbing fences. It is far better to seek permission so you feel relaxed looking

Fig. 3 The plants are very cryptic of course so look very carefully and close to see them





Fig. 4 *Lithops marmorata* at Areb in Bushmanland



Fig. 5 *Conophytum marginatum* with *Crassula sericea* at Areb

around and not trespassing on private land. Farm entrances are usually gated and named and if unlocked, (be sure to close all gates behind you), drive to the farmhouse to introduce yourself and explain what you are looking for. The people are invariably friendly and happy to oblige, often offering refreshments and wanting to chat and learn more about you. Politics and sport, usually rugby and cricket, are popular conversation subjects! If there is no answer and the place looks deserted then drive away. But if occupied then they are usually only too pleased to help and may even show you the plants if they are aware of what they have – some are very familiar with what grows on their land, others not so. If they do not speak good English – often they claim not to but actually do, but use it so infrequently – then showing your camera along with hand gestures explaining your wishes usually does the trick. Even when the (usually) white owners are absent there are often coloured workers who will let you walk on the land. It is normal practice in South Africa to talk of white, black and coloured people.

By staying in Springbok there are succulents on your doorstep. More or less dominating the skyline is a large quartz hill which forms part of a continuous ridge that stretches for many kilometres. Park your car among the residential back streets at the bottom and it is an easy, if steep, walk to the top, where grow two different conophytums, *C. bilobum* and *C. violaciforme*. *Adromischus alstonii* also grows here along with numerous crassulas. The front cover photo (Fig. 1) is of *Conophytum violaciforme* in flower during

early May and shows how close the centre of town is in the background.

In addition to the quartzite, Springbok is more or less surrounded by brown granite or gneiss which forms rounded 'domes', some huge and steep, other smaller and only slightly convex. On one small dome just to the east of town, literally by the roadside heading towards Pofadder on the N14, are grit pans containing the 'pardicolor' form of *Conophytum pellucidum*.

Continue east from Springbok along the N14 to Pofadder and in less than an hour you will be seeing well-known farm names you probably know from plant labels. Quartzite dominates the area and it is on the border of winter and summer rainfall so the plants are usually in excellent condition as they can get rain at any time. Areb appears first where there is a richness of different succulents which has to be seen to be believed. It is very accessible, easy walking and *Lithops marmorata* is plentiful, along with *Conophytum marginatum*, *C. calculus* subsp. *vanzyliae* and *C. hermarium*. A great place to spend a full day and within an hour or so from your Springbok hotel. Continuing west the next farms are Smorgenskadu and Kangnas, both worth visiting if

Fig. 6 *Conophytum pellucidum* var. *terricolor* in a grit pan to the South of Springbok





Fig. 7 *Conophytum roodiae* under a granite fissured overhang on a farm South of Springbok
Inset: Close up of *C. roodiae*

the gates are unlocked and the owners are at home.

Further out east towards Pofadder and Pella, by making an even earlier morning start, we have been as far as Dabenorisberg as a day trip from Springbok. It was a long and tiring day, some 300km+ round trip but we had four hours on the mountain and got to see *Aloe dabenorisana* and other rare succulents. This story can be seen on the [BCSS Forum](#).

Retrace your route to Springbok, back south down the N7 and the side roads are all well worth exploring. They lead to farms on which the domes have pans and fissures with *Conophytum pellucidum* var. *terricolor*, *C. roodiae* and *C. pageae* and many other succulents. They are very particular about the depth of grit and the pan has to be level, meaning they do not grow in every pan so you may have to look at quite a few.

Fig. 8 *Gasteria pillansii* in the shade of bushes on a hillside in the Komaggas vicinity



Driving west out of Springbok on the R355 Kleinsee road – maybe 40 minutes or so – takes you to the famous Spektakel Pass which is as impressive as the name implies. Drive further to the town of Komaggas and explore communal land where no permission is needed to walk. If there are no fences you may assume it is OK to hike the hillsides to find *Conophytum auriflorum*, *C. meyeri*, *C. bilobum*, *C. velutinum*, *C. stevens-jonesianum* and *C. frutescens* which are all quite common in the area and, as usual, in the company of many other succulents. Look for rocky and stony areas as well as quartz outcrops and cover all aspects, sunny and shady. Some succulents prefer the shade of bushes or low shrubs so look inside and underneath them for *Gasteria pillansii* and stapelias for example, and on the shady side of hills for mitrophyllums, crassulas, pelargoniums and tylecodons.

For a day north from Springbok, Eddy Harris recently did an article here about Umdaus and the succulent diversity there. Breakfast in your Springbok hotel at 7.30am, leave at 8.00am and you can be at Umdaus looking at *Pachypodium namaquanum* by 10.00am. Wander here and there, up hills and across flat quartz plains – it is a vast area, completely deserted and accessible – a paradise for succulent lovers. There are no signposts to



These are the succulents which can be seen in just a couple of hours on the Springbok kop

Adromischus alstonii
 Aloe melanacantha
 Conophytum bilobum
 Conophytum violaciflorum
 Cotyledon orbiculata var. orbiculata
 Crassula atropurpurea var. watermeyerii
 Crassula cotyledonis
 Crassula muscosa
 Crassula namaquensis
 Crassula tomentosa
 Euphorbia mauritanica
 Pelargonium crithmifolium
 Pelargonium echinatum
 Pelargonium oblongatum
 Pelargonium rapaceum
 Othonna euphorbioides
 Othonna retrofracta
 Senecio juncus
 Tylecodon paniculatus
 Tylecodon wallichii subsp. ecklonianus
 Various shrubby Mesembs

or at Umdaus as no one really knows exactly where it is! So as a first time visitor to the general area you will need directions or even better, GPS. There is so much to see and so far to walk. I have explored this area on more than 20 day trips and continue to return for more.

There are many more day trips I could describe but hopefully this provides a few examples of what can be achieved. Who needs camping in the wilderness when you can see so much from the comfort of a nice Springbok hotel?

Photos: Chris Rodgers unless indicated otherwise

Fig. 9 The quartz vlakte to the North of Umdaus

Fig. 10 On an Umdaus hilltop where, among many other plants, rarities such as *Avonia quinaria* subsp. *alstonii* and *Conophytum armianum* grow in the quartz gravel
 Photo: © A J Young



Day trips for conophytums continued

This is a list of Conophytums which it is possible to see on a day out from Springbok. Some would mean a long day trip but it can be done, although the more westerly species would be easier as a day out from Port Nolloth

Section BILOBA

- C. bilobum subsp. bilobum
 - var. bilobum
 - var. elishae
 - var. linearlucidum
 - var. muscosipapillatum
- C. bilobum subsp. altum
- C. bilobum subsp. claviferens
- C. frutescens
- C. meyeri
- C. velutinum subsp. velutinum
- C. velutinum subsp. polyandrum



C. blandum

Section HERREANTHUS

- C. blandum
- C. herreanthus subsp. rex
- C. marginatum subsp. marginatum
- C. marginatum subsp. haramoepense
- C. marginatum subsp. littlewoodii
- C. regale

Section WETTSTEINIA

- C. bachelorum
- C. bolusiae subsp. bolusiae
- C. chrisocruxum
- C. chrisolum
- C. flavum subsp. flavum
- C. flavum subsp. novicium
- C. francoiseae
- C. fraternum
- C. jucundum



C. flavum tetracarpum

- C. jucundum subsp. marlothii
- C. obscurum subsp. obscurum
- C. obscurum subsp. barbatum
- C. obscurum subsp. sponsaliorum
- C. schlechteri
- C. wettsteinii

Section MINUSCULA

- C. antonii
- C. auriflorum subsp. auriflorum
- C. auriflorum subsp. turbiniforme
- C. ectypum subsp. ectypum
- C. ectypum subsp. brownii
- C. ectypum subsp. cruciatum
- C. ectypum subsp. ignavum
- C. ectypum subsp. sulcatum
- C. irmae
- C. longibracteatum
- C. mirabile
- C. smaleorum
- C. tantillum subsp. tantillum
- C. tantillum subsp. amicorum
- C. tantillum subsp. eenkokerense
- C. tantillum subsp. heleniae
- C. tantillum subsp. inexpectatum
- C. tantillum subsp. lindenianum
- C. violaciflorum

Section VERRUCOSA

- C. hermarium



C. ectypum brownii and a hybrid

- C. smorenskadiuense
- C. vanheerdei

Section CYLINDRATA

- C. roodiae subsp. roodiae
- C. roodiae subsp. corrugatum
- C. roodiae subsp. cylindratum

Section PELLUCIDA

- C. lithopsoides subsp. lithopsoides
- C. pellucidum subsp. pellucidum
 - var. pellucidum
 - var. neohalli
 - var. terricolor

Section OPHTHALMOPHYLLUM

- C. devium subsp. devium
- C. devium subsp. stiriiferum



C. auriflorum

- C. limpidum
- C. longum
- C. lydiae
- C. pubescens

Section CHESHIRE-FELES

- C. hammeri
- C. maughanii subsp. maughanii
- C. maughanii subsp. armeniacum
- C. maughanii subsp. latum
- C. achabense
- C. burgeri
- C. ratum

Section CATAPHRACTA

- C. breve
- C. pageae

- C. calculus subsp. vanzylii
- C. stevens-jonesianum

Section SAXETANA

- C. hians

Section COSTATA

- C. angelicae subsp. angelicae

Section BARBATA

- C. depressum subsp. depressum
- C. depressum subsp. perdurans
- C. pubicalyx
- C. stephanii subsp. stephanii
- C. stephanii subsp. helmutii

Section BATRACHIA

- C. armanum