Cactus & Succulent REVIEW

The online magazine for cactus and succulent enthusiasts Issue 34 September 2022



Contents

5 Click to read
Cactus at the Castle
Details of how to apply for a discounted entry voucher



7 Click to read
Some erroneous plant names
Len Newton



10 Click to read
Queen of the Night
Richard Torr

11 Click to read
Looking at Lobivias
Phil Crewe



19 Click to read
A few cunning strategies for times of drought,
East African aloes
Sue Allan

23 Click to read
Rhipsalis pilocarpa
Colin C. Walker

26 Click to read
Looking back
Jörg Ettelt



31 Click to read
Adeniums
Marie Iryna





A root-trained *Adenium* with the 'octopus' formation
Photo: Jakkapong Chaitha
See Adeniums Page 31

41 Click to read
Managing Mexican miniatures
Graham Evans



55 Click to read
Down by the sea
Peter Berresford



Editor's notes

Welcome to the September issue of the '*Cactus and Succulent Review*'.

Plenty for cactophiles in this issue with items ranging from *Lobivia* to Mexican miniatures, those choice plants which so many people love to grow.

In addition, for the 'other' succulent lovers, we have a comprehensive introduction to adeniums; and of course there's plenty more besides.

If you are in the UK, and can get to Lullingstone Castle in Kent, do come and join us for the Cactus at the Castle event on 24 and 25 September.

We are delighted that most of the UK's leading cactus and succulent sellers are able to attend and a full list of these is available on the Cactus at the Castle website.

In addition, on the Sunday, we have an auction of some amazing plants from the collection of Anne Lovejoy. More details of the auction are on page 6.

Readers of the *Cactus and Succulent Review* can claim reduced price admission, by requesting a CSR voucher, see full details of how to do this on page 5. When you request the voucher please mention whether you are on the CSR mailing list or whether you access it in another way, Facebook for example. This is purely for my own interest.

We very much hope you will be able to join us.

Sheila Cude



Some of the plants included in the auction on Sunday 25 September

Cactus&Succulent REVIEW

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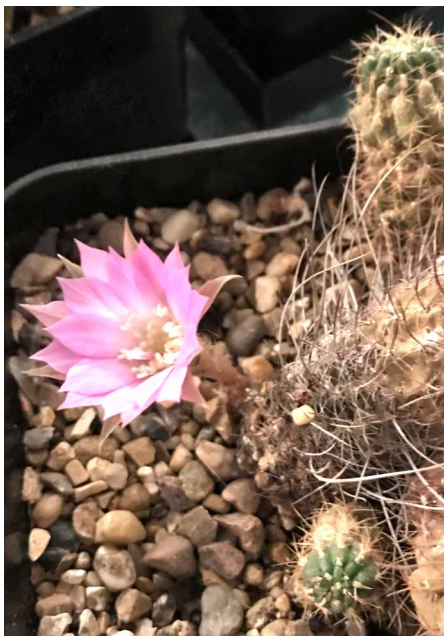
All back issues are available to download from the website.



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Succulent Snippets

An unusual flower



I have had my *Lobivia wrightiana* for a good number of years. It was originally given to me as a rooted offset, although unfortunately the roots chose to grow on one side of the cutting only, so the plant is a little lop-sided. It looks a little battered, due largely to red spider mite.

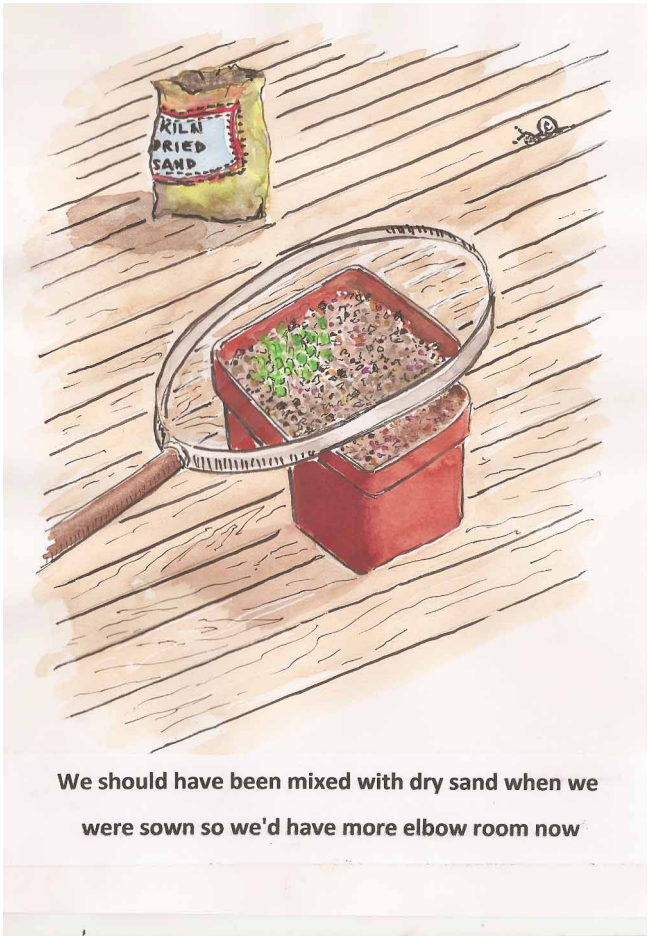
It flowered quite well earlier this year, so I was surprised when I noticed a further flower, in mid August, coming from the base of the plant as shown.

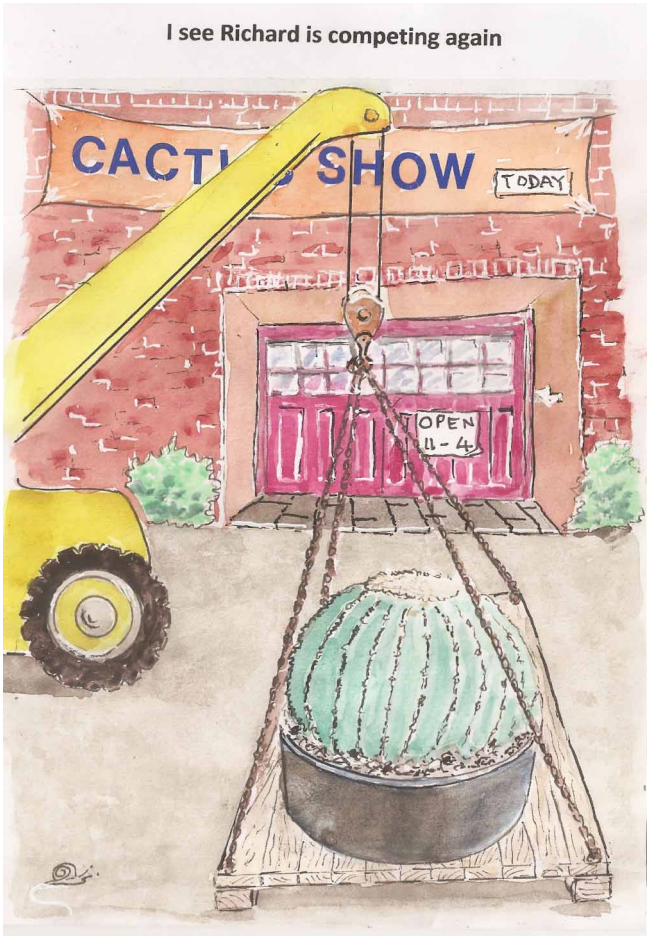
I have not come across this before, and wondered if other people have ever seen this with this species.

To see a *L. wrightiana* flowering in the normal way go to page 15 where it forms part of Phil Crewe's excellent article on a number of *Lobivia* species.

Sheila Cude

Tony Porter's CACTUS CAPERS





Little and large

A Mexican Celebration Weekend

Cactus at the Castle

The *Cactus and Succulent Review* is delighted to present 'Cactus at the Castle', with less than half-price admission for CSR readers by means of a special discount voucher.

Saturday 24th & Sunday 25th September 2022
11.00am to 5.00pm

'Cactus at the Castle' will feature plant sales from some of the UK's leading cactus and succulent nurseries as well as plant displays and entertaining talks by Graham Charles and regular '*Cactus and Succulent Review*' contributors Vicky Davies and Graham Evans.

For more information including a list of sellers visit our website

New

Sunday 25 September

The Lovejoy Auction

Over 100 lots of amazing plants.
See page 6 for more details

Lullingstone Castle is the family seat of Tom Hart Dyke and home to his renowned World Garden of Plants. Tom will give guided tours of this on both days and mouth-watering Mexican food will be available.

Location

Lullingstone Castle, Eynsford, Kent, DA4 0JA

Visit Lullingstone Castle for more information on how to find us.

Full price admission
Adults £12.50 (Under 16s Free)

Special Discount Voucher

For Cactus and Succulent Review readers

Entry £6 per person for two adults on either Saturday or Sunday



*To claim your discount voucher email Cactus and Succulent Review

A voucher in pdf format will be emailed back to you

At the gate:

- Show the voucher on your phone, or
- Show a printed version
- Or you can show a printed version of this issue's cover

*Last date for requesting a voucher midday Friday 23 September.



The Lovejoy Auction

Sunday 25 September

Commences 2.00pm

As part of the Cactus at the Castle event we are pleased to present the auction of a selection of cacti and succulents on behalf of Anne Lovejoy, owner of Freshacres Nurseries in West Sussex.

Freshacres was one of a very few commercial nurseries producing cacti and succulents for UK garden centres. Since production ceased the remaining plants have been cared for by Mrs Lovejoy.

Now she is in her 80s it is time to reduce the number of plants requiring her attention.

Over 100 lots

of amazing plants including mature specimens of:

Copiapoa calderana

Lophophora williamsii

Astrophytum ornatum

Kumara (*Aloe*) *plicatilis*

and many more.

For a full auction programme email
cactusatthecastle@gmail.com



Mea Culpa

I was pleased that Sheila selected one of my photos for the front cover of the June issue, but unfortunately I had given it the wrong name. The plant illustrated is in fact not *Cephalopentandra ecirrhosa* but *Momordica rostrata*. I apologise to readers for the error.

The caudex of *Momordica* tends to become elongated at the top, whereas that of *Cephalopentandra* remains more or less rounded on top. The surface of the *Cephalopentandra* caudex has many rounded tubercles, which are lacking in *Momordica*. The leaves of the *Momordica* are compound, whereas *Cephalopentandra ecirrhosa* has simple leaves — lobed but not divided into separate leaflets.

With thanks to Jean Luc Gatard for pointing this out.

Sue Allan



Momordica rostrata



Some erroneous plant names

by Len Newton

These notes are prompted by the reference to *Cephalopentandra ecirrhosa* in connection with Sue Allan's fine article on her garden in Kenya, published in the Cactus and Succulent Review, Issue 33, June 2022.

This is one species in which the name is not a correct description of the plant. However, Article 51 of the Code of Nomenclature for plants states that a name must not be rejected merely because it is "inappropriate or disagreeable". Therefore such errors are allowed to persist.

Cephalopentandra ecirrhosa

Both the generic name and the specific epithet of this species are incorrect. *Cephalopentandra* means that the flower has five stamens, bunched together in a head, but there are only three stamens. The epithet ecirrhosa means that the plant lacks tendrils, but it has tendrils.

The species was described from a herbarium specimen, now in Zurich University herbarium, not from a living plant. The specimen does not have tendrils and the author of the name probably assumed that there were five anthers in the flower because that is normal for most members of the Cucurbitaceae.

Cephalopentandra ecirrhosa

Above: a flowering shoot with tendrils

Below: the caudex



There is a dissected flower on the type specimen sheet, showing only three anthers, but that dissection was presumably carried out by someone else at a later date.

Euphorbia lateriflora

The specific epithet means lateral flowers but it is incorrect. The flowers (cyathia) do not occur on the side of the stem but are terminal.

The species was described from a herbarium specimen with a shoot that had branched just below an inflorescence.

The shoot and branch were straightened in pressing and the inflorescence appeared to be lateral. Again, the species was described from the herbarium specimen by someone who did not know the living plant.



Euphorbia lateriflora

Huernia

This stapeliad genus was named for Justus van Heurne, but in the publication the letters ‘e’ and ‘u’ were transposed. Presumably this was a printer’s error but the rules do not allow it to be corrected.

Huernia rosea





Cynanchum viminale

Photo: Al Laius

Wrong classification

Sometimes a plant is described in the wrong genus and/or family. Such errors are to be corrected.

Cynanchum viminale (Apocynaceae — known before a name change in 2012 as *Sarcostemma viminale*) was first described as *Euphorbia viminale* (Euphorbiaceae) in 1753 because it has milky sap like a *Euphorbia* but had not been seen in flower at the time. It was correctly transferred to the Apocynaceae in 1810.

As an example away from succulents, the cycad *Stangeria eriopus* was first described in 1839 as a fern, with the name *Lomaria eriopus*. Someone must have been very embarrassed when it produced a cone. ■

Photos: Len Newton except where indicated otherwise



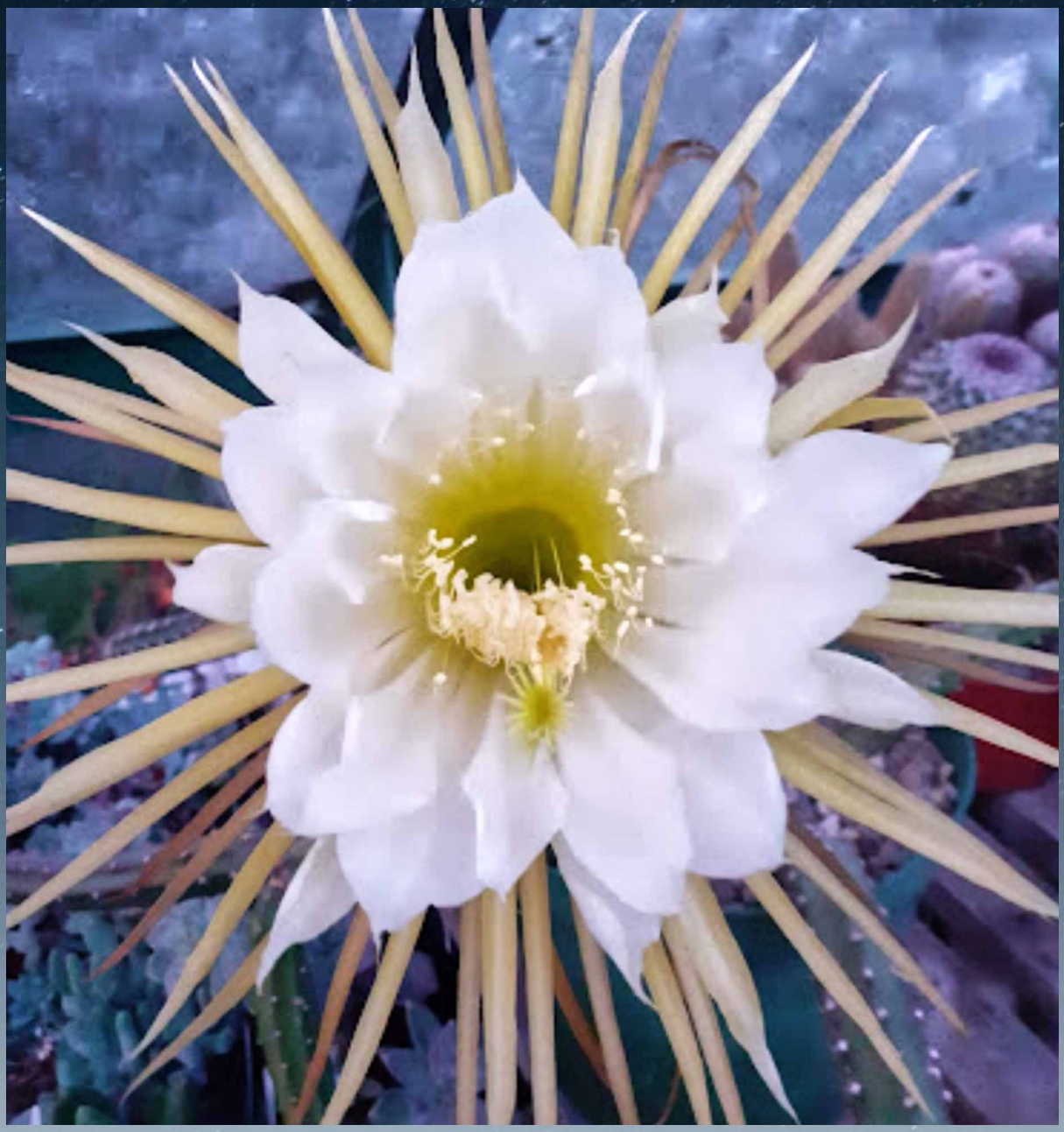
Stangeria eriopus showing the fern-like leaves and a male cone.

From the Mildred E. Mathias Botanical Garden - University of California, Los Angeles.

Public domain

Queen of the Night

by Richard Torr



This is a plant that came to me some years ago as *Selenicereus grandiflorus*. I can't remember when I got it or where it came from, but it used to sprawl round my greenhouse back in Nottingham, rooting down into other pots as it went.

When we moved north in 2016, I chopped the plant up and brought five cuttings with me, four of which are rooted in the same pot. It did flower once for me years ago but this is the first flower here in Northumberland.

It grows in my standard mix of 50% JI No. 3 + 50% horticultural grit. I have started feeding more this year, once growth is seen, with half strength tomato food at every watering.

The flower is 20-25cm in diameter and about the same in length. It opens at dusk and takes around 45 minutes to move from a loose bud to fully open – so quickly you can see it move!

Pity it only lasts one night... ■

Photo: Richard Torr



Looking at Lobivias

by Phil Crewe

In our mind's eye, many of us will have a picture of what a *Lobivia* looks like and most of those pictures probably have a few things in common. These features might include a fairly small, nondescript, globular plant body with some medium-sized colourful flowers that last a day or two. Even if we think 'they are all *Echinopsis* now', the general idea of a *Lobivia* is well established.

Within the last 15 years, however, things have become more complicated as studies have suggested that plants we would recognise as belonging to *Echinopsis* are, in fact, species of *Lobivia* and vice versa. For this reason my brief for writing this article – plants that are thought of as being lobivias – was not as straightforward as it first seemed.

Even when it was first created by Britton and Rose in 1922, the genus *Lobivia* was a ragbag of diverse plants, so it's not surprising that there has been continued debate about which species belong where. The ten lobivias that I have chosen to write about here include the type species and a few others that look a bit like it, and grow not too far from it, so none of them should raise eyebrows for being included.

The origin of the generic name *Lobivia* might be the best understood of all cactus names: it is a fairly easy-to-spot anagram of 'Bolivia', that country being the home of many lobivias. The genus' distribution is centred on western Bolivia but reaches way into Peru, just clips the corner of Chile and extends into Argentina to varying degrees depending on which species you include.

Above: A group of *Lobivia maximiliana* forms (all three subspecies) showing a range of plant bodies, spines and flowers. This high degree of variability is commonplace in the genus and helps to illustrate why so many names have been coined and why identification of unlabelled plants in cultivation can be difficult



Lobivia pentlandii ‘Hardeniana’ WR 298 from Potosí, Bolivia showing the white throat circle formed by the joined-together bases of the filaments. This particular specimen has only rudimentary anthers that produce no pollen, presumably an adaptation to encourage outbreeding.

Through most of this range they grow at high altitude, since the lowlands at these latitudes tend to be covered in thick vegetation, even rainforest.

Not surprisingly, in cultivation they like lots of light, tolerate a wide temperature range and enjoy plenty of water in the growing season, though that could be said for many popular cacti. Keeping night-time temperatures low in summer helps to stop them becoming semi-dormant in the hottest weeks, so maximising ventilation at all times through late spring and summer is advisable. Many species have thick taproots that benefit from deeper pots when small, although the taproot does not get proportionately longer as the body gets wider, so you often see older plants in wide pots or half pots.

I love the variety that can exist even within a single species, although identifying unlabelled plants is often tricky because of this. If there is a downside to lobivias it must surely be that the stems are prone to ugly marks that can disfigure them as they age. I am sure much of this is natural and unavoidable but perhaps their skin is more prone to spider mite attacks than some other cacti. Fortunately decapitation of old plants quickly leads to clean new branches that can be removed and rooted.

Lobivia pentlandii

Lobivia pentlandii is the type species of the genus, so it would be rude not to mention this one first. It must deserve some sort of award for the number of new names it has been given over the years. *The New Cactus Lexicon* lists 20 or so distinct names (and I am sure there are plenty of unpublished ones in circulation that were ignored there). Thankfully, almost none of them are in current use and you will usually find plants labelled just as plain *L. pentlandii*.

Flower colour is as variable as it can be for a cactus: red, orange, yellow, pink and purple are all possible. The plants

A form of *Lobivia pentlandii* with purple flowers



themselves do not all look the same either, showing a range of spine length and colour. One cultivated plant might become quite cylindrical while a neighbouring plant does not.

The flower filaments fuse together at the base in many lobivias to form a throat circle and in *L. pentlandii* this is white. Together with the rounded petals, which seems to be a consistent feature, the white throat circle can help identify plants, although it is not unique to this species.

Lobivia maximiliana subsp. maximiliana

This comes from the highlands of southern Peru and northern Bolivia. In fact, other than maybe three opuntias, it's the highest growing cactus and almost reaches altitudes equal to three and a half times the UK's Ben Nevis.

Any fear that this might make it a fussy customer in our greenhouses can be dismissed as it seems to do just fine with the standard requirements above, unlike the woolly opuntias with which it sometimes grows.

The flowers are very small compared to other lobivias, with the inner petals curved inwards to surround the style and obscuring the throat, but they make up for it by being a startlingly bright bicolour. The petals are yellow at the base and red at the tips, although there are shade variations between individual plants, many having a pink flush that softens the contrast between the red and the yellow. An orange tint to the spines on most plants is attractive in low winter light.

Lobivia maximiliana subsp. *caespitosa* BLMT 9.02 from Kayarani, east of Cochabamba, Bolivia at 3522m. This shows both the almost hairless flower tube and the clumping nature of the plant



Lobivia maximiliana subsp. *maximiliana* with a typical red-yellow bicoloured flower and fiery-orange spines



Lobivia maximiliana subsp. *westii*



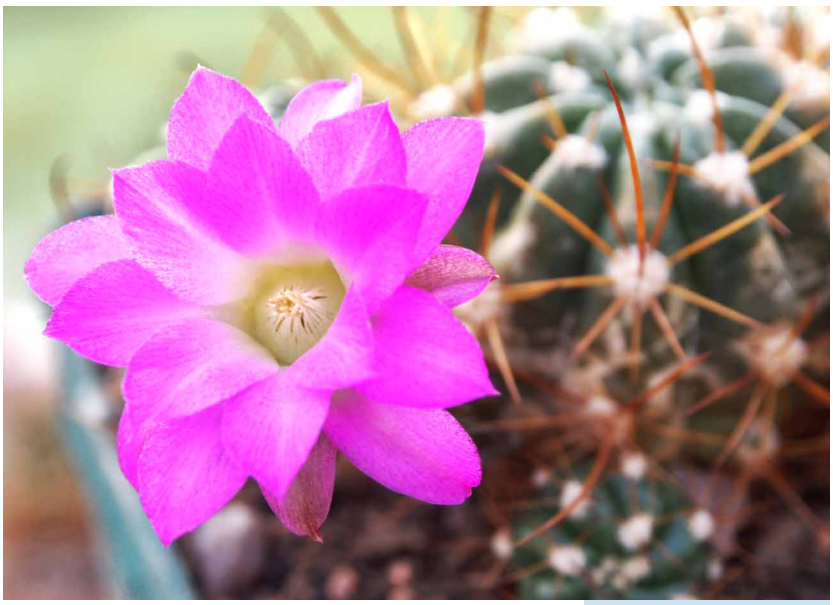
Lobivia maximiliana subsp. westii

This subspecies is less familiar to most of us than subsp. *maximiliana*. Named after James West, one of the founders of the Cactus and Succulent Society of America, it is also the most westerly growing of the three subspecies. We should be grateful that Mr West adopted this surname when he moved to the USA from Germany some time around 1914 since it's helpful for remembering which subspecies grows where.

The plants look much the same as the normal subspecies but the flowers are longer, hairier and the petals open wider, although they manage to retain a clear resemblance to subsp. *maximiliana* overall. When not in flower, I find it difficult to tell the two subspecies apart.

Lobivia maximiliana subsp. caespitosa

The third subspecies grows more to the south and east of the other two. A bit like subsp. *westii*, it has longer, more open flowers but this time they are almost hairless and typically a uniform orange-red, although there is some variation as we expect with lobivias. One population harbours plants that produce purple flowers. The subspecific name is appropriate as it can grow into substantial clumps of many heads, beginning to make its first offsets at only a few years old. Forms that offset freely make attractive plants since any marks low down the plant can become hidden by the offsets.



Lobivia maximiliana subsp. *caespitosa* 'Violacea' WR 735 from Altamachi, north of Cochabamba at 3400–3700 m. The flowers are short for this subspecies but otherwise very similar



Lobivia backebergii with smaller flowers than is usual



Lobivia wrightiana showing the long, twisting spines that wrap around the plant body

Lobivia backebergii

This is not encountered frequently in our greenhouses and it was the only *Lobivia* listed as endangered in *The New Cactus Lexicon* due to habitat loss from farming and the urban growth of La Paz. Its pretty pink-purple flowers are not as large as some but attractive none the less. Plants are small but with a large taproot and the rounded ribs can sometimes produce long, antenna-like spines. The area around the growing point often lacks any spines at all, these only forming on the older growth.

Lobivia wrightiana

Often treated as a subspecies of *L. backebergii*, I think this is different enough, and lives far enough away, to be better considered a good species. It is a popular plant in cultivation, particularly the form known as var. *winteriana*, which has larger flowers in various shades of pink.

Much of the plants' appeal lies in their spines. The typical form has long, grey or golden spines that twist and wrap around the body in an untidy fashion. Others have

Lobivia wrightiana 'Winteriana' FR1312 from Villa Azul, Colcabamba, Peru at 2500m.The larger flowers and neat spination make this a popular form





Lobivia pampana KK 1137 from Madrigal, Peru at around 3800m. This plant has yellow spines rather than the usual brown-grey but the flower is typical for this species

almost white spines only a few millimetres long, held close to the body where they spread out pectinately.

Lobivia pampana

This Peruvian species has attracted the interest of hybridisers for its pretty flower. The petals are numerous and taper to a narrow point. The inner ones are relatively short with longer ones behind them and even longer petals behind those.

Matching this gradient of petal lengths is a gradient of colour, usually from pale yellow at the centre of the flower, through oranges to a pale purple at the edge. The plant bodies can sometimes have a grey-green colour, especially in strong sunlight.

Lobivia tegeleriana

This is the most northerly of the genus coming to within about 1000km of the equator. A smaller plant than many, it tends to remain solitary. I find it one of the trickier plants to keep alive but as it is self-fertile, insurance against loss comes in the form of saved seed. Flowers have short, red (or occasionally white, yellow or orange) petals at the end of a long narrow tube. They remain open day and night. Short spines sometimes adorn the flower tube, becoming more obvious as the fruit forms.



Lobivia tegeleriana HJW 207 from Puquio, Abancay, Peru at 3470m. A young plant showing the narrow flower with small spines hidden in the hair at its base.



Lobivia schieliana WR 207 from between Chuma and Consata, Bolivia at 3000m. The flower is attractive but the spines are the best feature of this form

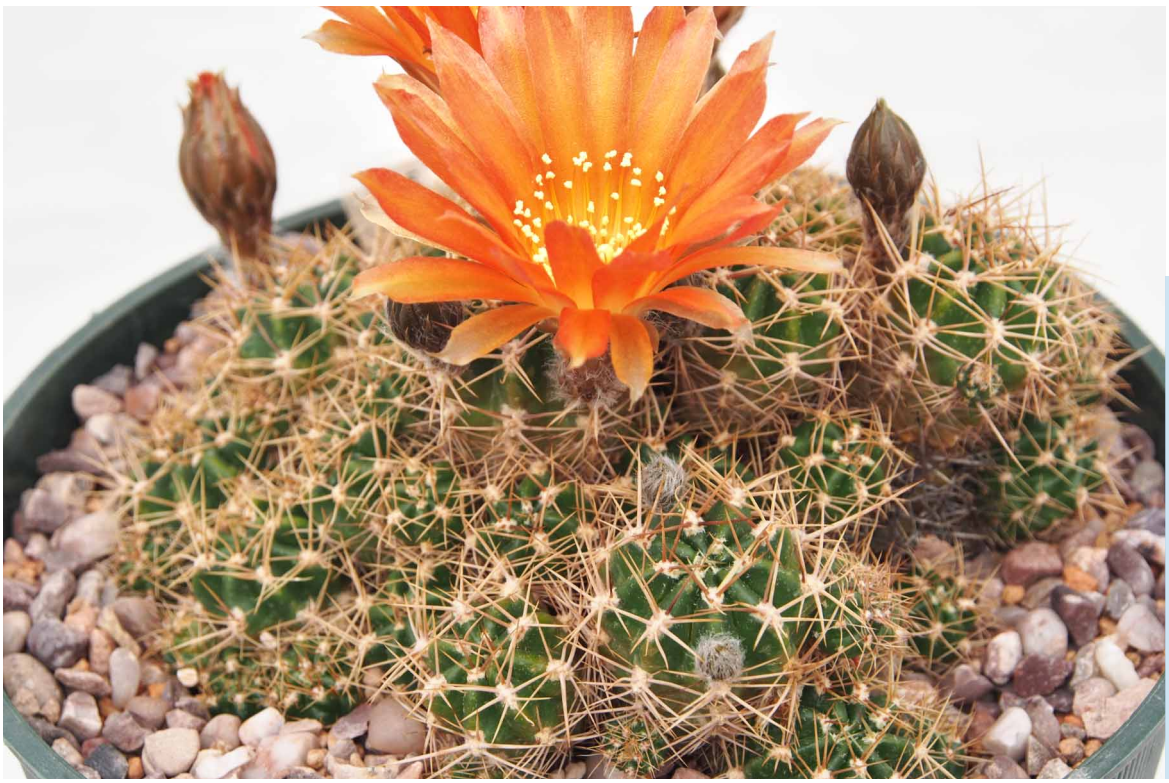
Lobivia schieliana

Only provisionally recognised in *The New Cactus Lexicon*, this is a good species in my view and there are a few different forms that are deservedly popular in cultivation.

Flowers coloured red, deep orange or yellow are produced by clustering plants bearing curling, interlaced spines and I would argue that it is the spines that are the outstanding feature of this species.



Lobivia schieliana 'Quiabayensis' L1004 from Quiabaya, Bolivia at 2700 m. This has much softer and darker spines than the WR207 plant and a yellow flower



Lobivia hertrichiana 'Laui' WR419 from the Río Urubamba valley, Cusco, Peru at 3000m. Larger, more orange flowers than some other forms of *L. hertrichiana* but with the strongly clustering habit that makes it easy to propagate

Lobivia hertrichiana

With its robust growth and willingness to offset, this species is the unloved member of the family. The plant bodies in particular are not very affection-inspiring.

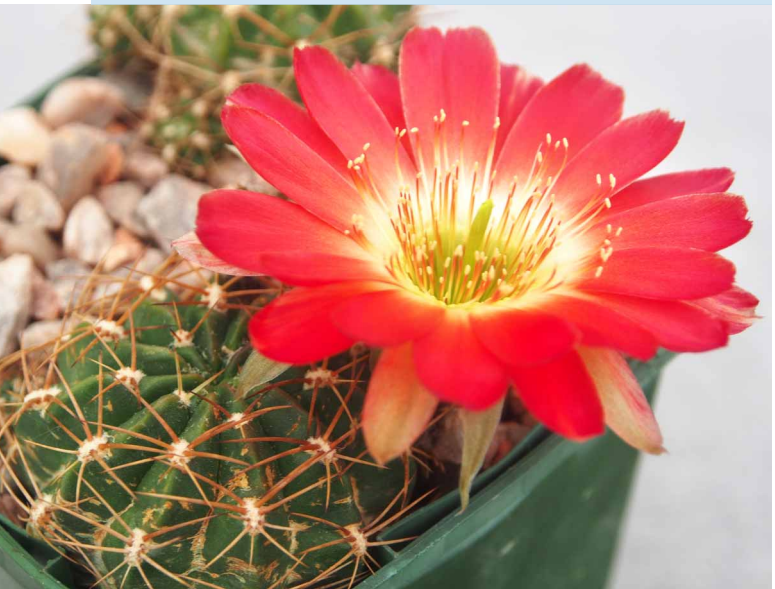
The flowers are most often a good strong red and, in my greenhouse, are produced a little later in the season than most of its relatives at a time when they are more appreciated. There are forms bearing red flowers with white centres, which is quite an unusual combination.

Whatever the flowers are like, if you have *L. hertrichiana* taking up too much room in the corner of your greenhouse, break it up and restart a small piece so that you can appreciate it before you come to resent how much space it might take up if you let it.

There are plenty more lobivias that I have not been able to look at here, but I hope this brief overview of a few of them inspires you to look out for some less familiar species to grow. ■

Photos: Phil Crewe

Lobivia hertrichiana 'Simplex' ES 142 from between Huambutio and Huancarani, east of Cusco, Peru at 3123m. Although several forms have white throats this one is about the most extreme. This plant is another that produces no pollen



Lobivia hertrichiana RKH 114a collected by Royston Hughes in 1986 from Saqsaywaman on the outskirts of Cusco. This has relatively small bodies and flowers



A few cunning strategies for times of drought

East African aloes

by Sue Allan

Two rainy seasons in East Africa (April and October) are generally followed by two seasons of quite hot and dry weather, which can have a serious impact on both plants and livestock generally. Aloes, which are able to hold a considerable amount of moisture in their thick and fleshy leaves, can grow both at sea-level and at altitudes of up to about 10,000 feet in Ethiopia, with extremely variable temperatures. In order to survive these extremes, aloes have developed some cunning strategies.

It is known that most plants are both phototropic and geotropic in response to light and gravity. Response to drought conditions is yet another survival strategy.



Fig 1

Aloe deserti with curled leaves during a drought

In the northern, more arid regions of Kenya, occasional outcrops of soil from old termite mounds will often provide sustenance for an acacia or other drought tolerant trees or bushes. These in turn will become 'nurse plants' providing shade for aloes or other succulents, these plants often delivering nourishment for pastoralists and goats alike.

Other aloes are not fortunate enough to have the provision of shade. Their shallow root systems do not allow access to underground sources of water, so instead the leaves of certain aloes have developed various ways to protect themselves during the dry seasons.

In order to survive heat and wind, there is a need to decrease the transpiration of moisture in a leaf and although the thick waxy epidermis/cuticle of the leaf will offer an element of protection the plant needs to be able to protect the stomata on the upper surface from the drying elements. Biologically, this involves an elaborate system of convoluted cell wall folding as a structured response to stress, involving contraction and expansion of the cell walls, minimising temperature and radiation damage under drought conditions.

Drought conditions will trigger the folding response and the leaves of, for example, *Aloe deserti* (Fig. 1) will form an almost tent-like structure protecting the inner, more vulnerable leaves.

The leaves of *Aloe penduliflora* (Fig. 5) will twist around almost forming a plait around the stem, the upper surface being protected close to the stem.

Sometimes an individual leaf of an aloe will curl over and the teeth on the leaf edges will often knit together in an endeavour to keep the upper surface and stomata away from the heat and the wind (Figs. 2, 3 & 4). Presumably, at the same time, this makes them less palatable or attractive to livestock during times when they are seeking moisture.

Some aloes, such as *Aloe lateritia* var. *graminicola* will have an accumulation of the red karotenoid causing the entire leaf to have a reddish tinge. This apparently has a protective function in that the absorption of light is minimised during stressed conditions. Others have a talc-like surface (epicuticular wax) on the leaves that will further serve to deflect the sun's rays from the leaf.



Fig 2

Aloe labworana with leaves beginning to knit



Fig 3

Knitted leaves seen in a coastal garden, possibly *Aloe labworana*



Fig 4

Drought colouration and leaves beginning to knit. Possibly *Aloe massawana* seen in a coastal garden

Even more extraordinary is the fact that in times of heavy rain, those same drought-stressed aloe leaves will lose their drought colouration, become more green and will realign themselves in a few days to channel water away from the soft inner portion of the plant into the surrounding soil, protecting them from a heavy deluge of water. Adaptability of the aloes to different growing conditions is a key factor to their survival in the wild and to their success in waterwise plantings. ■

Photos: Sue Allan

In a drought, when there are no inflorescences to be seen, it is always difficult to correctly identify aloes in habitat.

Additionally in a garden situation, where hybrids abound, it is well nigh impossible.

The photos selected for this article have been chosen to show the bending movements in response to the lack of moisture rather than to illustrate a particular species.



Fig 5

Aloe penduliflora with drought colouration and plaited leaves

Rhipsalis pilocarpa

A rare and localised Brazilian endemic

by Colin C. Walker

Introduction

Rhipsalis is a genus of epiphytic cacti encompassing 35–40 species. Its centre of diversity is in south and south-eastern Brazil.

Rhipsalis species have moderately diverse stems. Most are cylindrical and hence perfectly round in cross-section. At the other extreme are those species with flattened, epiphyllum-like stems. In between these ranges are those with narrow three- or four-angled stems. All flowers are relatively small, whitish, sometimes tinged with pink or yellow. Its fruits are small soft berries, usually smooth and hairless, but the current subject is unique with its hairy fruit, hence the name '*pilocarpa*'.

Rhipsalis pilocarpa Loefgr. was first described in 1903. In 1920 it was transferred to the monotypic genus *Erythrorhipsalis* A.Berger and also placed by Berger in *Rhipsalis* subgenus *Erythrorhipsalis* on the basis of its unique bright red to crimson fruit. It is the latter classification that is currently generally accepted (Taylor & Zappi, 2004).

Vaupel (1925) published a brief note on this species accompanied by a coloured plate based on a plant flowering in the Berlin Botanic Garden (Fig. 1). Since its first description this species has been universally accepted as being very distinct.

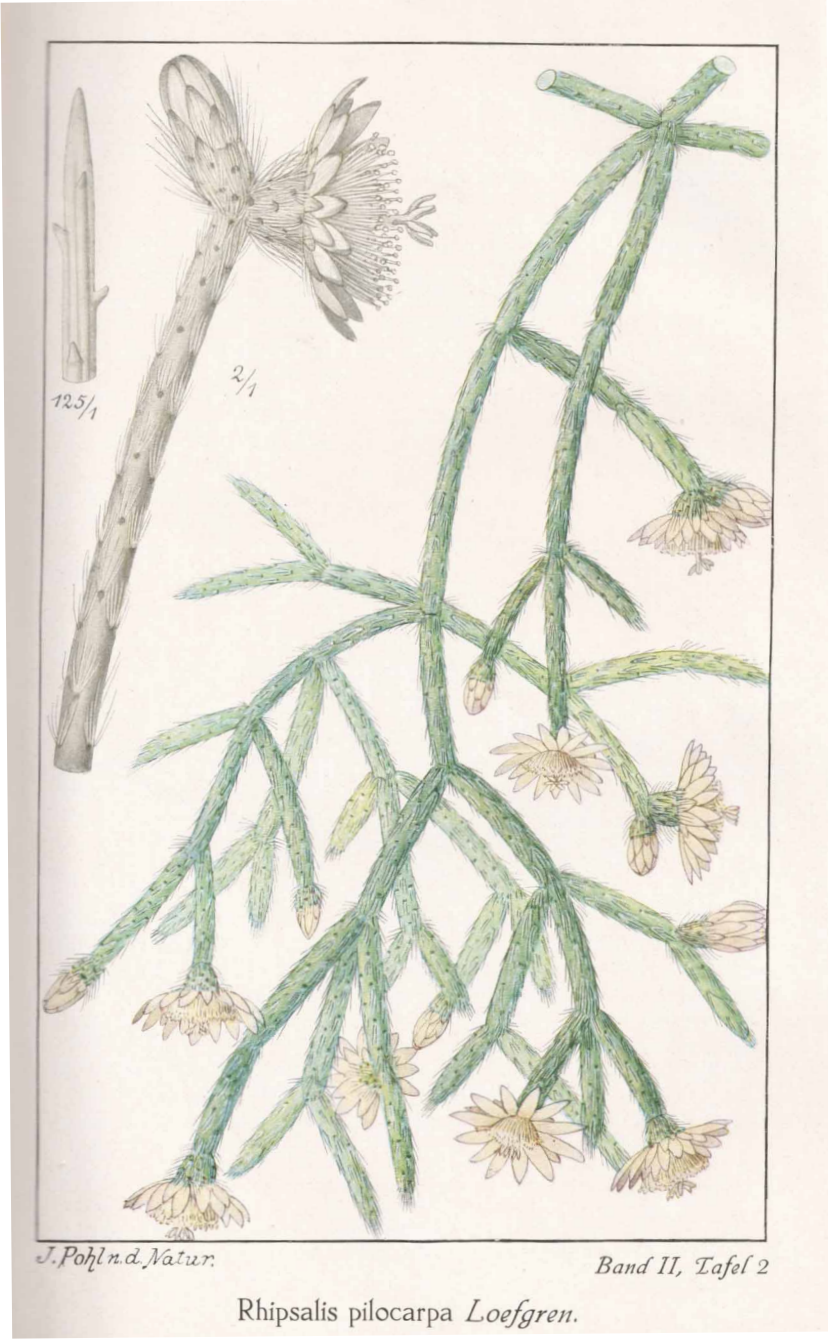
Rhipsalis pilocarpa in cultivation

My plant (Fig. 2) has grown steadily in six years so that it now descends 55cm from its pot. The stems are cylindrical without any ribs and of uniform thickness, about 4mm across, conspicuously bristly with fine white spines, although some of the branches are tinged with red making this species unique within its genus. Branching occurs at the shoot tips, so that often one stem divides into 2–5 branches. Such bristly or softly-spined stems are unusual in *Rhipsalis*.

The plant has flowered for four consecutive years although even now it can hardly be described as being floriferous (Fig. 2). The campanulate (bell-shaped) flowers are

Fig 1

Rhipsalis pilocarpa from Vaupel (1925)



produced pendulously either singly or in pairs at the branch tips; each flower (Fig. 3) is about 2cm across with the pink-tinged white tepals (perianth segments) strongly recurved. The flower tube carries numerous areoles and is densely bristly like the stems. Flowers are recorded as being scented but neither my wife nor I can detect any scent.

This year for the first time it has produced a small number of fruits (Fig. 3). These are spherical, dark red to crimson and bristly with soft white spines which account for the name of the subgenus *Erythrorhipsalis*. The fruit shown here is immature but I expect this to grow to about 12mm diameter at maturity and, as is typical for *Rhipsalis*, the fruit is a soft berry.



Fig 2

Rhipsalis pilocarpa in a 24cm tall terracotta pot

Its pot is unique among our large collection of varied containers since it is a former handmade terracotta wine cooler. We inherited this when we bought our current house but as is my usual practice I converted it into a proper plant pot by drilling two holes in its base. When first planted in this pot the plant was merely pendulous down the side of the pot. With subsequent growth, however, the plant is much longer than the pot is tall, so the pot now sits on the edge of the staging and the plant drapes over the edge. When next repotted it might be better housed in a hanging basket. I continue to find such hanging plants tricky to accommodate and to display attractively to their full potential. This plant won first prize at the recent British Cactus and Succulent Society Glasgow Branch Show, where I found staging this plant challenging. I opted for an upturned transparent plastic wine cooler as a stand but even this was not quite tall enough, so that the stem tips were draped on the staging.

Rhipsalis pilocarpa in habitat

Taylor & Zappi (2004) record *R. pilocarpa* as being endemic to Brazil centred on the south-eastern states of Minas Gerais and Espírito Santo and their map (25) shows a very localised distribution. They further record its conservation status as "vulnerable…Known from only eight localities throughout its entire range and apparently rare". It usually grows as an epiphyte but occasionally as a lithophyte (growing on rocks). They also suggest that "its bristly stem-segments may assist in the collection of moisture from mists and night-time dews."

Rhipsalis in a wider context

Rhipsalis is renowned for having the widest geographical distribution of any cactus genus, but it is especially interesting as it is the only genus with a natural distribution beyond the Americas. This widespread reach is accounted for by just a single species: *Rhipsalis baccifera* (J.S.Muell.) Stearn, which ranges from South America and the Caribbean, through central and southern Africa, Madagascar and other Indian Ocean islands to Sri Lanka, although it is apparently absent from mainland India. This very wide distribution and resultant diversity is expressed in the recognition of several subspecies with subsp. *mauritiana* (DC.) Barthlott being the most widespread (Smith et al., 1999). In contrast subsp. *hileiabaiana* N.P. Taylor & Barthlott is endemic to the state of Bahia, Brazil (Taylor & Zappi, 2004).



Fig 3

Close up of the flower and fruit of *Rhipsalis pilocarpa*

As mentioned above, *Rhipsalis* have small, soft-berried fruits that consequently have acquired them the common name of 'mistletoe cacti' for this feature, which undoubtedly accounts for its widespread dispersal by birds. The genus belongs to a small group, the Rhipsalideae, that also includes *Hatiora* Br. & R., *Lepismium* Pfeiffer and *Schlumbergera* Lemaire (Barthlott & Taylor, 1995). ■

Photos: Colin C. Walker

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A series by Jörg Ettelt

Looking back

The flowers make the garden, not the fence

German proverb

High season for our cacti in northern Germany is May and June. Of course this also depends on how the plants are housed. If they are grown in a bright greenhouse they may flower earlier; if they are not placed in the greenhouse until after the risk of frost is past, it may be later before they come into flower.

Like probably all cacti friends, I can hardly wait at the beginning of a new year to discover the first buds. With increasing sunshine and rising temperatures, more and more buds become visible, and you know that the main flowering will come soon. Then my feelings change – I would rather put the brakes on everything so that they do not all flower immediately. Instead I would spread things out to be able to observe all the flowers in turn.

Chamaecereus silvestrii

One of the cacti that usually shows abundant buds and then opens numerous

Chamaecereus silvestrii

Fig 1



flowers is *Chamaecereus silvestrii* (Fig. 1). There are numerous questions surrounding this species, from the fact that its origin was disputed to its taxonomic classification. The numerous, finger-length and narrow shoots break off readily and are easy to root, which has led to its wide distribution.

In the past, in Germany, it could often be seen at the windows of farmhouses. In summer in front of the windows, in winter behind them in an unheated bedroom which were ideal conditions for the species. In our heated homes today, it no longer finds these ideal conditions, especially in winter when it is too warm, and the humidity is too low.

C. silvestrii can tolerate these conditions but there is another problem – namely red spider mite. This pest loves such conditions, and *C. silvestrii* is like a magnet for it. Since the spider mite is tiny, the damage is usually not seen until it is extensive. The epidermis of the plants no longer looks green, but brownish. The spider mite bites the epidermis and draws nutrients from the body, leaving corresponding scars. Infestation usually starts at the top of the shoot, where the epidermis is still young and soft. Antidote? Chemicals (many of them are no longer permitted), fogging with sulphur powder (expensive equipment) or the real red spider, which grows considerably larger (easily visible to the eye) and can also run more quickly.

Growing *C. silvestrii* in farmhouses had the great advantage that a kind of biological balance could be established more quickly, a balance between the spider mite and the red spider, so that damage would not be so dramatic.

Apart from this problem, *C. silvestrii* is a wonderful plant that does not grow too large and produces numerous flowers, which have a colour that is rare in the cactus kingdom, but intense – I call it brick red. Are the bricks in Britain also of this colour? I am not sure....

In *The New Cactus Lexicon* this species was 'lumped' into *Echinopsis*. As there was already an *Echinopsis silvestrii* it was called *Echinopsis chamaecereus*. *Chamaecereus* is now considered to be a separate genus comprising five species.

Stenocactus (Echinofossulocactus) coptonogonus

There are so many wonderful cactus forms that the image of the same species can be included twice in one article. To show the variability of this species I take the liberty of doing this with *Stenocactus coptonogonus* or *Echinofossulocactus coptonogonus*, as the species is much more commonly called in German-speaking countries.



Fig 2

Stenocactus coptonogonus with shorter, weaker spines



Fig 3

Stenocactus coptonogonus more strongly spined

This species is not so often represented in collections, but one can discover very beautiful forms of this interesting, and for the genus rather untypical species, which vary from short and weakly spined (Fig. 2) to wildly spiny (Fig. 3).

This *Stenocactus* is atypical because it lacks the extremely numerous and often wavy ribs found in all other species of this genus. Instead it has the 'normal' ribs of most ribbed ball cacti. Nevertheless, this species always delights me – not only when it produces these beautifully striped flowers, which it does reliably from the size of a child's fist. I water the species abundantly during the growing season, as soon as the pot has dried completely. Of course I add different fertilisers each time, nothing comes from nothing. The species lets the buds dry out if it does not have enough nutrients.

Strombocactus disciformis

The species is still considered a rarity. The genus was long considered monotypic but eventually other species of this genus, were found in Mexico.

To see the species in its habitat is extraordinary; comparable in growth perhaps with *Aeonium tabuliforme* on the Canary Islands: flat and pressed close to the almost vertical rock. *Strombocactus disciformis* (Fig. 4) has been in collections for a long time and its cultivation requires a little sensitivity. The substrate must be very mineral and too much water is not good.



Fig 4

Strombocactus disciformis.

I received the plant pictured as subsp. *jarmilae*, note that there are a few red spots on the flowers

Under our conditions, the plants often do not become as disc shaped as the species name suggests. With sufficient nutrient supply, however, the species also likes to flower abundantly – sometimes twice a year.

Raising this species from seed is lengthy and requires experience and constant observation; the seedlings grow quite slowly at first and are delicate. Generative propagation is not possible as the species almost never offsets.

Sulcorebutia

I would now like to introduce one of my favourite genera. The genus was only described in 1951 and at that time united a



Fig 5

Sulcorebutia (*Weingartia*) *dorana*



Fig 6

Sulcorebutia (*Weingartia*) *gemmae* G256

few species that did not quite fit into the genus *Rebutia*. Today the genus has swollen to many species with even more forms. Its taxonomic status, however, is still questionable. It was placed in the genus *Rebutia* in *The New Cactus Lexicon*, but is now generally considered to be part of *Weingartia* based on DNA and morphological data.

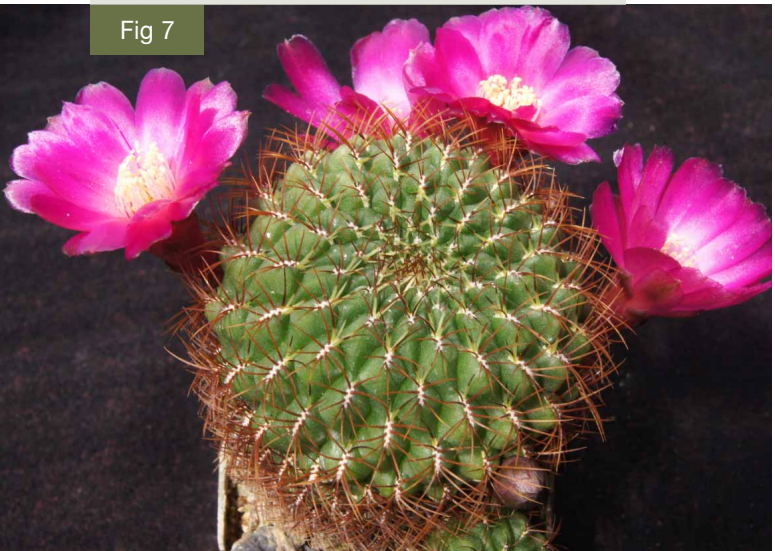
A number of species were assigned to 'older' names (as *Rebutia*) by *The New Cactus Lexicon* which led to a considerable reduction in the number of recognised species. This lumping does not go down well with many cactus lovers. After all, it is we who see every slightly different spine as something new.

In some cases species have been reinstated (as *Weingartia*) by Joël Lodé in his *Taxonomy of the Cactaceae*.

So where is the truth? It is hard to decide in an essentially still empirical science like botany. Modern analytical methods still do not seem to provide the ultimate key to classifying our plants. So, there will continue to be a discrepancy between botanists and enthusiasts.

Sulcorebutia (*Weingartia*) *frankiana* VZ157

Fig 7



Sulcorebutia (*Weingartia*) *purpurea* VZ150F1

Fig 8





Fig 9

Sulcorebutia pulchra subsp. *lenkae* VZ460, an example of a name with no combination in *Weingartia*

Fortunately, this does not bother our plants at all. So one can continue to collect a great many sulcorebutias, and each plant will have its own charm; and since field explorers still discover new forms, because new roads lead to previously unexplored regions or because someone had the courage to travel cross-country for once, we can admire beautiful new forms or variants or species – depending on your view.

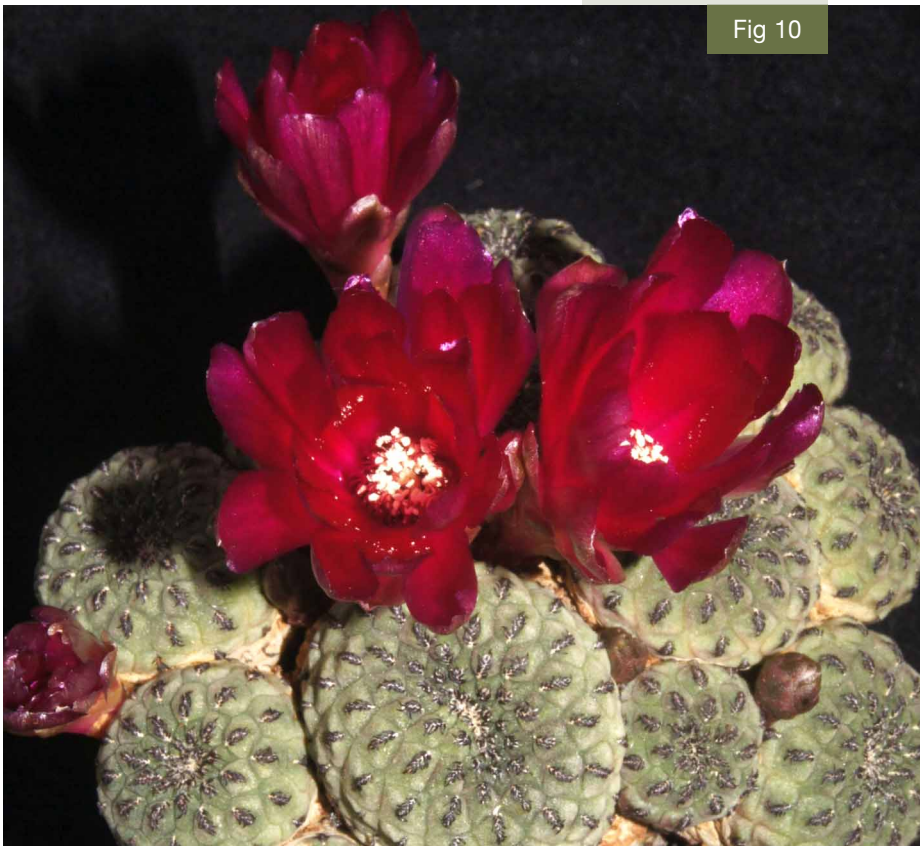
As a cactus lover, one should not be bothered by this confusion of names, the plants remain the same and delight us again and again in May and June with their wonderfully bright flowers, brilliant in all colours (except blue and green), not too large but appearing in large numbers.

It should be noted that many of the species have taproots, meaning that they need deep pots and the substrate can be predominantly mineral. It is often claimed that these species need hardly any water or fertiliser. In the arid mountain regions in which these plants grow, the extreme alternation of heat and cold, combined with sporadic, sometimes heavy rain, leads to a faster release of secondary substances. Not to mention the animals, which are constantly on the lookout for food, and leave their own fertiliser! I always water abundantly, however, as soon as the pot is dry, including different types of fertiliser, throughout the growing season, from seeing the first buds into September. ■

Photos: Jörg Ettelt

Sulcorebutia (*Weingartia*) *rauschii* VZ192aF1

Fig 10





Adeniums

by Marie Iryna

Adeniums are a caudex-forming, flowering plant in the Apocynaceae, native to Africa and the Arabian peninsula. There is some controversy over the number of species with the following being generally accepted:

- *A. obesum*
- *A. arabicum*
- *A. multiflorum*
- *A. boehmianum*
- *A. swazicum*
- *A. oleifolium*
- *A. somalense*
- *A. socotranum*
- *A. dhofarense*.

Most have been in cultivation for decades, with *A. obesum* and *A. arabicum* being the most commonly available.

In the wild the flowers are almost always pink, and have five petals; but after years of captive breeding specifically for flower colour it's possible to get multi-layered flowers of many colours (Fig. 1). Some specialist nurseries have increased the variety of caudex colours and forms, leaf shape and plant size (miniatures). Adeniums with an almost black, bright green or golden-yellow caudex are now being produced (Fig. 2).

Leaves vary naturally between species, with some being quite long and narrow, with or without wavy edges, and others having furry/velvety leaves. Over the years in cultivation, some additional types have been developed including the diminutive 'Dorset Horn' variety with its curly leaves (Fig. 3).

Adeniums are a popular plant in many parts of the world and there are a number of well-respected specialist nurseries. Mature plants are often sent around the world, and seeds are widely available.

The lesser-known species have also been in cultivation for some time and it's relatively easy to find seeds for these too. In the UK adeniums are still somewhat rare and it's unusual to see an example of one of the fancier varieties.

Please note – adeniums are poisonous, so please do not let your pets (or children) chew them! It's best to be cautious and wear gloves when trimming any part of an adenium or handling its roots; or at least wash your hands straight away afterwards.

A multi-layered, very dark coloured flower
Photo: Jakkapong Chaitha

Fig 1





Fig 2

A. socotranum with a very dark caudex
Photo: Jakkapong Chaitha



Fig 3

An example of a 'Dorset Horn'
Photo: Jakkapong Chaitha

Buying an Adenium

If you are looking for an interesting and easy-to-keep caudiciform, then an adenium might be for you. When buying one, look for healthy leaves and a firm caudex.

They can sometimes be found in garden centres – these will likely be mass-produced (and probably grafted) examples. It's also possible to find them on online marketplaces and from private sellers – make sure the seller shows you photos of the actual plant you are purchasing.

If the caudex seems wrinkled it might not be a problem. If the potting medium is very dry the plant could just be thirsty. Any discoloured, soft patches on the caudex or branches should be regarded with suspicion.

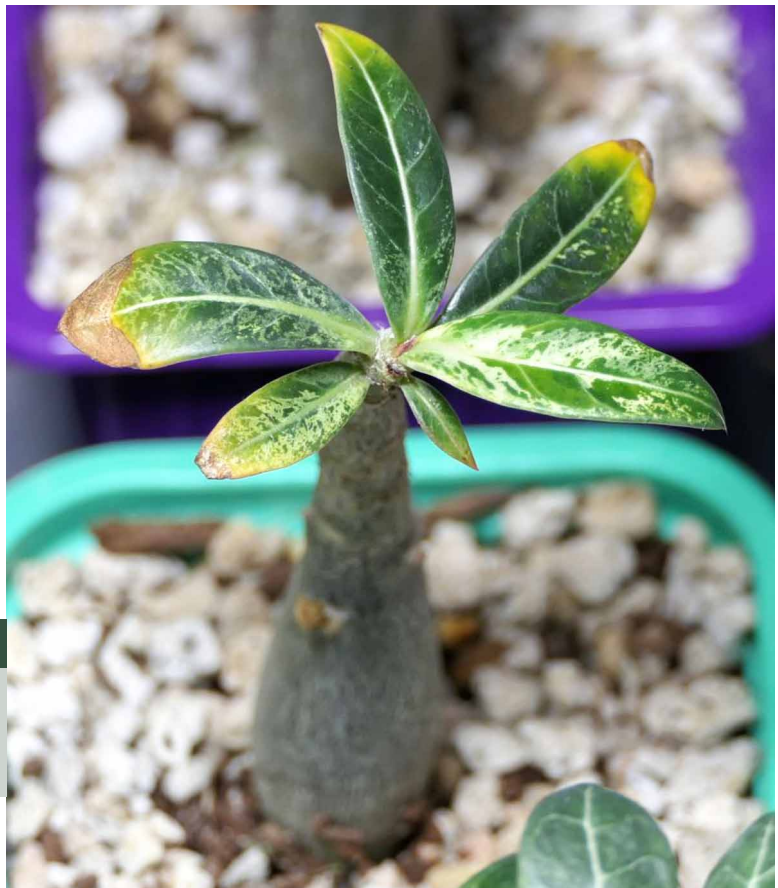


Fig 4

A one year old *Adenium somalense* seedling showing variegation. This is much slower growing than its siblings, which are around three times larger

The leaves should be healthy-looking. Fuzzy/velvety leaves are common on *A. arabicum*. If you are considering a variegated adenium, most will be grafted. Those grown from seed are still relatively rare. The variegation ranges from a speckled bi-colour effect (with either green or white/cream being the dominant colour) to creamy leaves with light green patches – and there are quite a few other patterns in between.

Some sellers will cut the leaves off adeniums before transport – this usually happens when they are being shipped worldwide. If this is the case, you should ask to see photos of the plant when it had leaves.

Any deformed leaves combined with mottled green colouring should be viewed with extreme suspicion – mosaic virus is increasingly common in mass-produced adeniums.

If you are buying a seedling then the above also applies, look for a firm caudex and healthy-looking leaves. You will not have to worry about any issues with grafting and mosaic virus is less likely.

Cultivation

Choosing a potting medium for adeniums is relatively easy – it has to be free-draining. My seedlings start in a coco coir/pumice 60/40 mix and progress to pure pumice as they get older. Your growing conditions may influence your choice a little, but pumice is probably the safest option in all cases, even if it may mean more regular watering depending on the temperature.

Pots must have drainage holes. For younger plants, plastic pots are best as they allow the roots to form more naturally; the pot will just split when the roots grow. A mature adenium could be kept in a ceramic pot but personally I prefer plastic as it gives me better control of watering. It is possible to find recycled/recyclable plastic pots now or old pots can be re-used; other plastic containers can also be re-purposed into pots.

Adeniums like very strong light and it's not always possible to provide that naturally in the UK. They will enjoy any warm, bright location – sunny conservatories, south-facing windows – but to really get the best out of them, they may need extra heat and additional light. If you have a greenhouse, they will grow well in there in the warmer months but will need to be moved when the temperature drops.

They are just as happy with artificial lighting and can still be grown if, like me, you live in a north-facing house. If you want to grow them indoors but do not have any sunny windows, then you can provide extra lighting. This does not have to be



Adenium somalense in flower

Fig 5



Fig 6

One of my adenium shelves showing the lights and flexible neck, clip-on bulb holders

expensive (to purchase or to run) as standard 6500k daylight LED energy saving bulbs (with an E27 fitting) are widely available. These will fit into many ordinary desk lamps if you only have one or two plants. Clip-on flexible neck bulb holders are also available – these are great for shelf units as your collection grows. The ones I use are generally around 13W (100W equivalent), cold daylight, 1521 lumen. To give an idea of how many to use, my shelves are about 80cm wide and 40cm deep and I use two bulbs for each shelf (Fig. 6).

The temperature range needed to grow adeniums successfully is where many people have problems. They will not survive being cold and wet and they are not frost hardy.

Adeniums have a dormancy period over winter – although some, mostly *A. obesum*, will often ignore this. They need to be kept in a place that is at least 15°C at this time, with no watering when dormant. An average temperature of at least 24°C during their growing period is preferred, and if you can provide temperatures above this, then that's even better.

Watering can also be a problem area. When actively growing, adeniums (in a free draining medium) can be watered once a week, with liquid fertiliser at half-strength added each time. Choose a fertiliser that has micronutrients, as adeniums do have a tendency to have deficiencies in this area. Towards the end of the year (October) you will notice that the leaves may start turning yellow or brown – this is when you should start decreasing the watering and switch to just water with no food. After a few weeks your adenium will have stopped growing and you can stop watering. By this time all the leaves will probably have fallen off. Some adeniums will retain a few leaves through winter but will not show any signs of growth.

If you have a wayward adenium that does not want to go to sleep and keeps producing new leaves, then keep on watering it as normal.

In the spring (around late March/early April in the UK) you should see signs that your adenium is waking up. Leaves will start to grow. This is the time to gradually begin watering again, and after a few weeks you can start adding food.

Sometimes the dormancy period can last for a long time – even years. If your adenium is otherwise healthy, then do not worry; just keep an eye on it for signs that it is waking up. If it starts to look wrinkly, a light watering should help, which may start to wake the plant up too.



Fig 7

Gently securing the branches in position with acrylic yarn

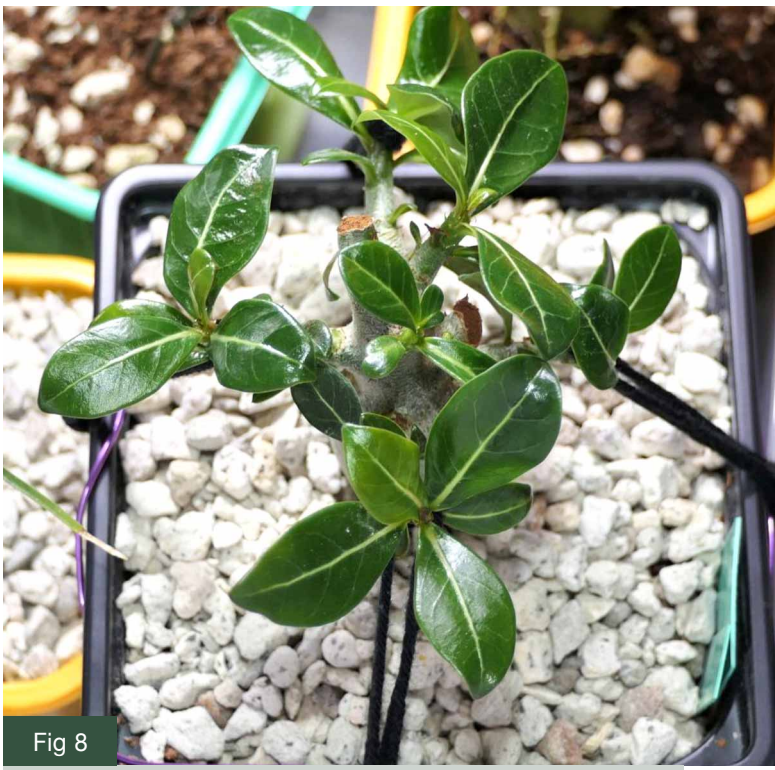


Fig 8

View from above. This plant had its leading/dominant stem removed to encourage additional branching

Pests and diseases

Adeniums are generally healthy, vigorous plants. A mature plant is not likely to be troubled by the occasional pest but it's always best to remove any unwanted guests. Depending on the pest involved, there are a number of options available – from washing with soapy water, spraying with isopropyl alcohol (70%), dusting with diatomaceous earth or using a proprietary insecticide. Seedlings will need to be treated straight away to avoid any permanent damage occurring.

Deficiencies are fairly common – and will cause problems with flower buds, discoloured leaves and slow growth. Regularly using a fertiliser that contains micronutrients should prevent this.

Mosaic virus has been seen in adeniums and is a serious plant problem. It's usually spread by poor hygiene – neglecting to disinfect when grafting, trimming and handling. Symptoms include deformed leaves with stringy-looking uneven veins, mottled leaves, abnormal growths on stems or on the caudex and deformed flowers. The sap from an infected plant can be carried by pests to other plants, infecting them also. If you suspect your plant has it, then there is really only one option – destroy it. It is also possible that it's transmitted through seeds – though this is not well documented in adeniums at present.



Fig 9

Getting ready to re-pot, this plant will be raised slightly. The pot is 17cm wide

Training

If you have a mature adenium it may already have been trained in some way, such as trimming, to encourage branching, or root placement work, and you will probably be happy with what you have.

If you have a younger plant, you may want to improve its look by careful training of the branches and roots. Any branch/root trimming should be done when the plant is actively growing.

Adeniums take bonsai styling quite well and you can start with a fairly young plant, especially one that has already started to grow branches naturally. If you have a single stem example of *A. obesum* or *A. arabicum*, you can try trimming the stem and hopefully that will encourage some branching. When trimming an adenium, do not cut straight across (horizontally) as this will create an ugly junction. Cut at an angle, with a growth point at the top point of the cut. I use a small piece of kitchen roll to soak up any sap, then dust the cut with cinnamon. When a new branch forms at the top, the shape will be much more pleasing. If your young adenium already has branches, then you can alter the direction they point in by tying them down – use acrylic yarn and remember to check the branches regularly. Eventually they will stay in place and you can trim them to encourage additional branching (Figs. 7 and 8). Good food, heat and great light are also factors when training adeniums – if you provide these then you will get a better and faster response from your adenium.

It's also possible to train the roots, although this is a fairly advanced procedure. The most drastic method is to cut the caudex at the base just above existing roots, leave to callous over, cover most of the underside with a circular piece of plastic then replant. The roots should grow from the edges of the caudex, giving an octopus-like effect (see front cover).

A less drastic option is to reposition roots when you re-pot to form a more pleasing shape. At this time, smaller roots can be removed and the plant can be raised a little every time you re-pot to give the characteristic *Adenium* look. Remember to leave the plant out of the pot for at least a week if you have trimmed any roots, so that the cuts can callous over (Figs. 9 and 10).

From personal experience, if your plant is *Adenium somalense*, I would advise against any trimming as they do not tend to cooperate.



Fig 10

Newly re-potted, the paler area of the roots was previously underground



Fig 11

Seeds germinating – including an albino

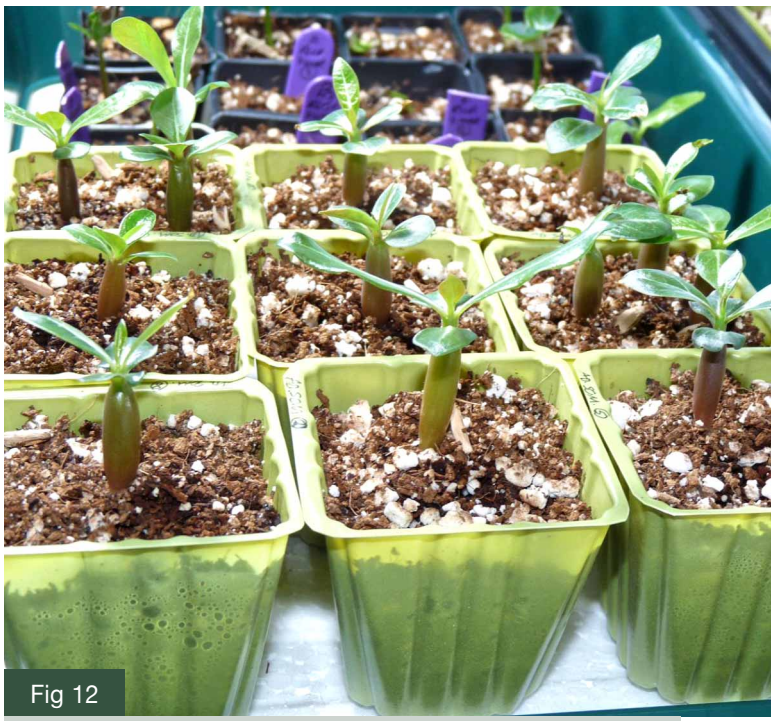


Fig 12

Adenium somalense seedlings, note the typical longer, narrower leaves

Growing from seed

Growing adeniums from seed is fun and rewarding. They are generally fast growers and look rather cute as young seedlings. It's also easier than you might think. You will, however, need a heated propagator and a strong light source. When choosing seeds, look for a seller/nursery with a good reputation, do not be tempted by random seeds from online marketplaces as these are unlikely to be adeniums. It is possible to find seeds for the rarer species, as most



Fig 13

A selection of seedlings in 7cm pots, all around three months old. The difference in caudex colour is genetic

have been in cultivation for quite some time, but again, check the reputation of the source.

Seeds can be anywhere from 5mm to 2cm long and are narrow and a pale creamy brown to mid-brown colour. You will need to soak them in warm water for three to four hours before planting them. Turn your propagator on, it should be in a warm room if it's a basic model without a thermostat, but if it has one set it to 29°C. Prepare your potting medium in advance and put your pots/seed tray complete with this mix into the propagator while it's heating up, so it's ready for the seeds.

I use a coco coir/pumice 60/40 mix with a thin layer (around 5mm) of just coco on the top for starting seeds, and I place one seed in each section (5cm) of a seed tray. Seeds should be placed horizontally under the 5mm coco layer, you will still just be able to see the seeds through it. Put the cover on the propagator. A strong light source above it will be very beneficial – a lamp with an LED 6500k bulb as mentioned earlier will work well. I turn the light on in the morning and off at night to mimic normal day/night. Adenium seeds can start to germinate within 24 hours but more commonly it will be four or five days before you start to see anything.

Occasionally, you will see a pure white seedling which, although they are very pretty, are doomed as they are albinos. A few growers have been able to graft them on to other seedlings but mostly they are left until they fail and then removed (Fig. 11).

When your seedlings have two sets of leaves (not including the cotyledons) you can think about taking the lid off the propagator. Try it for a few hours and see what happens. If the seedlings are fine, then do this every day, extending the time until the lid is off completely. By this time, you should have happily growing baby adeniums and you can, as long as your room temperature is high enough, turn the propagator off. The seedlings can be potted on into slightly larger (7cm) pots when they have acclimatised to your room temperature (Figs. 12-15).

A few tips – if the seed case is caught on the seedling, a drop of warm water on the case and a wait of a minute or so will help you to gently ease it off.

Make sure the seed trays do not dry out.

Put the light directly above the centre of the propagator.

A note on selecting seeds – adenium flowers are by default pink but, over the years they have been in cultivation, *A. obesum* has been bred specifically for flower colour and others have been bred for leaf shape, caudex colour and form. Research the reputation of the seller – view their photos, see if you can find others who have bought seeds from them. Due to our new import restrictions, it's likely you will be purchasing from a UK-based reseller, so



Fig 14

A healthy *Adenium arabicum* seedling at around eight weeks old



Fig 15

Adenium obesum seedlings ready for re-potting

see if you can find out which nursery their seed is from. The chances of success are now much higher for other coloured flowers, so if you choose wisely you should get good results. The same applies to the adeniums grown for leaf shape and caudex colours/forms. The only exception to this is variegated adeniums. The chances are very slim, it still seems to be mostly luck to get one from seed, so do not pay over the odds for 'variegated' seed.

If you are interested in experimenting with breeding adeniums, then it's complicated. You will need to learn how to pollinate flowers, a subject that could take at least a few thousand more words to explore. Thankfully, there are many videos available online that demonstrate how to do this but be aware, it involves cutting open the flowers.

...and finally

Adeniums are fun to grow, especially if you have an interest in bonsai, caudiciforms or both. They have the added bonus of beautiful flowers and astonishing root formations. They are quite fast growing and surprisingly tolerant of neglect – even thriving on it, which makes them easy to care for. Growing the fancier varieties from seed is a bit of a lottery, which is really part of the charm. You never quite know what you will get – and it could be something amazing! ■

Photos: Marie Iryna unless indicated otherwise



A white flowered adenium. White flowers can sometimes be scented

Fig 16



Managing Mexican miniatures

by Graham Evans

An overview of the slower-growing, smaller cacti of Mexico

The cactus world, like everything else, has always had fashions and phases, perhaps driven by new explorations, articles and literature or maybe just the commercial availability of species. Once upon a time notocacti were all the rage, then sulcorebutias or echinopsis hybrids. The former in particular are far from fashionable now. Throughout time, however, and despite the rise of *Copiapoa*, a group of genera from Mexico has remained pretty much at the top of the tree when it comes to desirability among collectors.

To a certain generation, Mexico's most famous miniature was a rapid rodent named Speedy Gonzales but in terms of alacrity there's more of Slowpoke Rodriguez (or Droopy) than the Fastest Mouse in All Mexico about these genera. The plants are nearly all slow to very slow in growth, which makes them a difficult proposition for major nurseries, and at one time they were available solely as imported ex-habitat plants. These were often very expensive and sadly most such plants suffered an inevitable slow death because they were extremely difficult to re-root and

Above:
Ariocarpus trigonus

there was a lot of misinformation circulating on their cultural requirements.

Today, probably for a short time only, many of these plants are available as cultivated seedlings from specialist nurseries but this situation is changing in the UK because of the increased difficulty and prohibitive cost of legally obtaining seeds from the merchants, virtually all of whom are in Europe or the Americas. Nearly all of the species featured in this article are listed in CITES Appendix 1, which makes the import of even seeds into the UK within the law almost impossible.

These plants, sometimes known as the aristocrats among cacti or the Mexican exotica, need to be treasured and hopefully kept living for the next generation, assuming they can afford to purchase them. Mature specimens are commanding ever higher prices, rather like the imports of old, and even a branch of the British Cactus and Succulent Society is getting in on the act, selling plants for hundreds of pounds via eBay. The top end of any collecting hobby, whether it be antiques, art or classic cars, has always been hugely expensive and, while not in the league of a Chippendale, Rembrandt or Bugatti, cacti are perhaps simply joining the club. There will always be a tension between making plants available and protecting the truly special from falling into the wrong hands. Do those with the deepest pockets have the deepest knowledge? Discuss.

Cultivation

In terms of cultivation, most of these plants have similar needs, perhaps the most important of which is patience from the grower!

They all require a very open, free-draining mix so that they do not sit in water for too long. It is well known that they are extremely drought tolerant but it may be less common knowledge that they nonetheless like water and benefit from being kept hydrated – the difference between survival in habitat and thrival in cultivation – so the old adage of water sparingly but frequently is probably well applied. Most cacti prefer to dry out between waterings but this is particularly important with the Mexican exotica. Many

Lophophora williamsii



of the species are quite woolly and water can take a surprisingly long time to dry from these areas, so watering only on bright days is recommended to further reduce the risk of rot.

Most of these species grow on limestone and much has been debated about limestone chippings in their potting mixes. Some growers swear by it and others swear about it!

Scientifically, chemical analyses appear to show that limestone is not influential to the plants' metabolisms and it seems clear that growers can get equally good results with a variety of mixes, some using traditional John Innes-based recipes with plenty of grit and others moving to pumice-based mixes, with or without limestone chippings. It may be that their addition is simply good for drainage and aeration. The best advice is, if it works for you keep doing it.

None of these species is particularly cold sensitive and most will tolerate near freezing temperatures during the winter if they are completely dry at the root. A minimum of around 3°–5°C is perhaps best recommended for safety and to avoid marking.

Damp in the air can be problematic, however, and good ventilation is essential at all times of the year but especially in winter, when greenhouses can be opened for a while on dry days and fans employed at other times to reduce any problems associated with damp spots. A simple household timer socket set to 15 minutes every hour will ensure operation while saving money.

Although most of these plants will grow fairly well in full sun, a little shading is most beneficial during the height of summer, when otherwise they can become dormant, which not only slows growth considerably but also increases the chances of rot as water is not being taken up. Plants grown with light shading also appear brighter and have more vigour.

These plants can take a while to settle after repotting so they can to advantage be left in the same pot for quite a number of years. Some growers never feed this type of cactus but occasional feeding with a low nitrogen fertiliser should assist with this strategy, although they should probably not be fed as frequently as other cacti.



Turbinicarpus gielsdorfianus



Turbinicarpus viereckii



Ariocarpus retusus

Ariocarpus

The most well known of the aristocrats is *Ariocarpus*, a genus of around eight or nine highly desirable taxa that was first erected by Michael Scheidweiler in 1838. Sometimes known as 'living rocks', these plants have a unique, almost other-worldly, appearance, making them among the most sought after cacti for nearly two centuries.

Visually, some of the species have long, pronounced tubercles (*A. agavoides*, *A. retusus*, *A. scaphirostris*, *A. trigonus*) while others have much flatter, normally grooved tubercles (*A. bravoanus*, *A. fissuratus*, *A. kotschoubeyanus*). The former tend to be various shades of green as opposed to the mainly greyish to brownish hues of the latter group, some of which are occasionally still encountered in collections under *Roseocactus.* These can be slightly alarming from seed because the tubercles are often long at first, fuelling fears of misnaming.

Only *A. scaphirostris* is genuinely challenging but otherwise seed-raised ariocarpus are not difficult plants to grow, even if patience is required for most species, although *A. agavoides* should flower three to four years from germination.

Ariocarpus kotschoubeyanus





Ariocarpus scaphirostris

Ariocarpus generally flower in September, October or November, in colours ranging from almost pure white to yellow to deep purple, and like most of us after a late night, they appreciate an extra hour asleep the next morning! For this reason, watering can most safely be started a fortnight to a month later than for most cacti.



Ariocarpus fissuratus



Aztekium ritteri

Aztekium

Erected by Friedrich Boedeker in 1929, *Aztekium* remained monotypic (*A. ritteri*), and perhaps the most desirable of all cacti, for very many years before the cactus world was stunned by the publication of *A. hintonii* in 1992, named for its discoverer George Hinton. More recently, a third species, *A. valdezii*, was described in 2013.

The generic name comes from the appearance of the plants' bodies, which have horizontal indentations and often intercostal ribs reminiscent of Aztec architecture. *A. ritteri* is incredibly slow but the other species do make quicker, though by no means rapid, progress. *A. hintonii* most often remains solitary but *A. ritteri* and *A. valdezii* form small clumps in time. The latter two also have a distinctive pale green colour, sometimes with a blueish hue. All three species flower throughout the summer in shades of white to pink (*A. ritteri*) to purple (*A. hintonii*), while *A. valdezii* often has a very attractive white centre to its purplish blooms, a bit like some forms of *Mammillaria luethyi*.

Other than the slow rate of growth, which can be accelerated by grafting, aztekiums do well under the conditions described above. Old imported plants of *A. ritteri* often remain weakly rooted, making an open mix and careful watering particularly important.

Aztekium hintonii





Epithelantha micromeris. Self-fertility guarantees a fine display of fruit after flowering

Epithelantha

Epithelanthas are small-growing, often clump-forming, plants with a vaguely mammillarioid appearance and normally short, whitish spines. Flowers are small, central and normally pinkish. *E. micromeris*, which is self-fertile, produces a plethora of long, bright red fruits to double the attraction.

Erected by Nathaniel Britton and Joseph Rose in 1922 for a plant formerly in *Mammillaria* (since 1856), the taxonomy of the genus has long been debated, with many authors suggesting as few as two or even one species, sometimes with a number of varieties or subspecies, while others recognise considerably more, up to over a dozen taxa. Recent DNA analysis seems

Epithelantha unguispina



Epithelantha greggii



to support a higher number with Davide Donati's classification, mainly followed by Joël Lodé in *Taxonomy of the Cactaceae*, being the closest. Whatever, the differences between all the names are fairly small and identifying a particular plant without location data would be far from easy. That said, any excuse to grow more epithelanthas can't be all bad!

E. micromeris is the most frequently encountered and grows reasonably well but *E. bokei* and *E. unguispina* should be easy to recognise because of their spination (remarkably fine and with a rather longer, greyish lower spine respectively) but all are worthy of space.

Watering requires care because the bodies take a long time to dry out and the roots are often poorly developed, weak and fibrous but as all the species are very soft, unlike most others in this article, they can desiccate if kept too dry in summer or are allowed to over heat.

Geohintonia

Consisting of a single species, *G. mexicana*, the genus *Geohintonia* was published by Charles Glass and W. A. Fitz Maurice in 1991 (for a plant discovered by George Hinton), making it the youngest of the genera in this review. It is thought to be closely related to *Aztekium* and a hybrid origin has also been suggested but this now seems unlikely.

Plants are strongly ribbed and normally a blue-green colour. The flowers are fairly small and deep purplish-pink. Young plants are elongate before filling out to become globular, the early growth being retained as a thin stem-like neck between the roots and the adult plant. Geohintonias grow well once established but the early years are very slow. They are easily marked by damp and perhaps require full sun to give of their best. They normally remain solitary and as they age the oldest parts of the epidermis can crack and even be shed. Try to keep water out of these little fissures to help avoid rot.



Geohintonia mexicana



Lophophora koehresii

Lophophora

Lophophora is a very uniform genus consisting of two to maybe half a dozen species, depending on your view point.

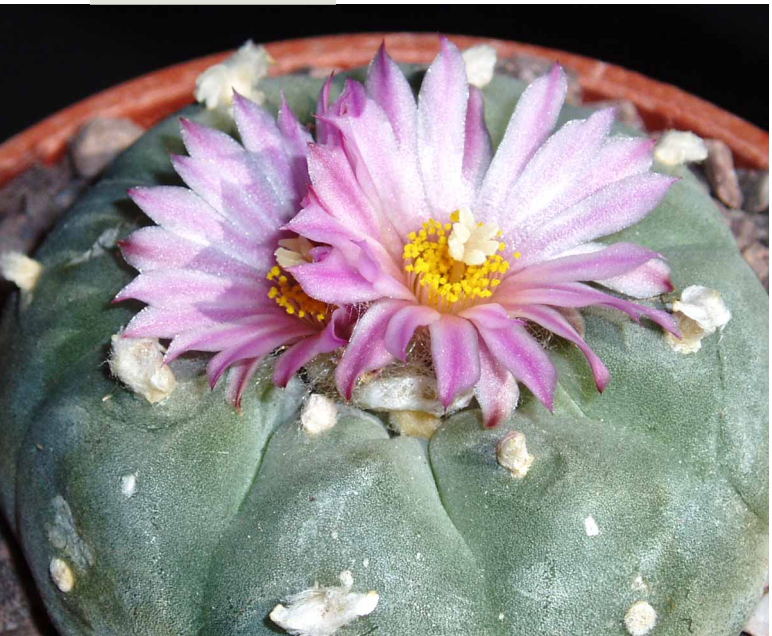
All the species are fairly soft and have stems with a large surface area. Most are a distinctive blue-green colour but there are very attractive forms of *L. diffusa* with pure green bodies.

Flowers are moderately small and off-white to dirty pink in *L. alberto-vojtechii*, *L. koehresii* and *L diffusa*, cream to whitish in *L. diffusa* or a very pretty pink in *L. fricii* and *L. jordaniana*. The latter is a rather dubious name but plants bearing it are unique in the genus for having small residual spines on seedlings and young offsets.

Whether a plant offsets or remains solitary appears to vary within all the species, although on its own roots the diminutive *L. alberto-vojtechii* seems to be consistently single (at least for many years).

L. williamsii had first been described as an *Echinocactus* in 1845 but the genus *Lophophora* was erected by John Coulter

Lophophora fricii



Lophophora difusa



in 1894, the name referring to the distinctive tufts of wool protruding from the areoles, which were said to resemble the crests on Roman soldiers' helmets. *L. williamsii* is, of course, the infamous peyote plant used in native American rituals on account of the hallucinogenic properties of the alkaloids it contains. These are not believed to be present in other species and apparently require far more sun than the UK can normally provide to develop significantly in cultivated plants.

All species of *Lophophora* seem to grow best in partial shade, perhaps because of their aforementioned soft bodies and high surface area. They require very careful watering early in the year (or after prolonged drying out) to prevent the epidermis being split by rapid expansion.

The other cultivational difficulty is their remarkable susceptibility to red spider mite, which can seriously and permanently damage the plants. Effective miticides are virtually impossible for hobbyists to obtain these days, so vigilance and regular spraying with fresh water (or a product such as SB Plant Invigorator) are highly recommended.

Obregonia

Obregonia is another monotypic genus which was erected by Alberto Vojtěch Frič in 1925.

The species, *O. denegrii*, is a flat, tuberculate plant that seems to have two forms: one remaining bright green, the other becoming a more brownish-grey colour. Flowers are from the woolly centre of the stem and are always whitish in colour.

Another slow grower, *O. denegrii* prefers a degree of shade but otherwise has no special cultivational needs. That said, plants are susceptible to loss but I am not aware of anyone who knows the reason for this.

The death throes usually begin with a random single tubercle turning black (the lowest tubercles ultimately drop, leaving a short 'trunk' in very old specimens, and this is normal). Once this happens, other tubercles follow like lemmings and it is only a matter of time before the whole plant dies.

Obregonia denegrii





Pelecyphora aselliformis

Pelecyphora

Pelecyphora consists of two, extremely slow growing species. *P. aselliformis*, which was named for its woodlouse-like spines and areoles, is especially slow on its own roots and is, to my mind, a plant that causes much concern because a large old specimen is virtually irreplaceable yet easily prone to red spider mite. Watering directly overhead in good weather seems to help prevent this, as does regular spraying with clear water. Proprietary products are not recommended for this species (unless absolutely necessary) because they tend to stain the spines.

P. strobiliformis, named for its resemblance to a fir cone, is perhaps my favourite cactus. It is a symmetrical plant with flat, upward facing, pointed tubercles and copious quantities of wool; its specific epithet is highly apt. It is less affected by red spider mite than *P. aselliformis* but needs careful watering to avoid water becoming trapped in the body for extended periods. This species is still sometimes seen under the generic name *Encephalocarpus*.

Both *Pelecyphora* species have similar, fairly large purple flowers. These are produced in some profusion and are a joy to behold.

The genus *Pelecyphora* was coined by Carl Ehrenberg in 1843, the name reflecting the hatchet-like tubercle shape. A recent DNA survey has suggested the genus is the same as *Escobaria* but as the older name it has precedence and should be expanded. Yikes! Conversely, two former *Pelecyphora* species, *P. pseudopectinata* and *P. valdeziana*, clearly belong in *Turbinicarpus*, their molecules supporting the morphological observations of their fruit and seeds!

Pelecyphora strobiliformis



Strombocactus

Like *Aztekium*, *Strombocactus* was a genus that remained monotypic for decades. Britton and Rose raised the genus in 1922 for *S. disciformis* (originally described as a *Mammillaria* in 1828) and it remained an only child without siblings until the arrival of a baby sister, *S. disciformis* subsp. *esperanzae* three quarters of a century later in 1996. To continue the similar timeline of events a third taxon, *S. corregidorae*, was described in 2010.

All three plants have blue-green to pale green bodies and flower well in cultivation. *S. disciformis* has moderately large pale yellow flowers with red backs and tips to the petals. Slow to very slow, it normally remains solitary.

S. disciformis subsp. *esperanzae* has smaller flowers but these are an intense deep magenta colour, making for a fine display. Unlike the other two taxa, *S. disciformis* subsp. *esperanzae* appears to be an obligate spring bloomer and does not continue flowering throughout the growing season. It is generally not as large as the type and can rival *Aztekium ritteri* for slowness of growth; fortunately it flowers while comparatively tiny. It is occasionally seen offered as *S. pulcherrimus*, purportedly a slightly later name.

*S. corregidora*e is the largest and most vigorous member of the genus. It has much stronger spines and lemon yellow flowers without any red. A very recent DNA study has suggested *S. corregidorae* may not be a *Strombocactus* at all, resulting in the creation of *Chichimecactus* for it, but it is hard to imagine this finding much traction.



Strombocactus disciformis cristate



Strombocactus disciformis subsp. *esperanzae*



Turbinicarpus pseudomacrochele

Turbinicarpus

Turbinicarpus is by far the largest genus among the Mexican exotica, consisting of around 40 taxa (including *Kadenicarpus* but excluding *Rapicactus*). The genus was erected by Franz Buxbaum and Curt Backeberg in 1937, at the time consisting of just a handful of species with small bodies, flexible spines and distinctive top-shaped fruit from where the generic name derives.

Over time, many new discoveries (and even more new names!) have been made, while the genus has also been expanded to include *Gymnocactus* (a name which must fall because its type, *G. saueri*, is undoubtedly a *Turbinicarpus*) and two species from *Pelecyphora*.

Rapicactus, which includes several former *Gymnocactus* species has been shown to be not closely related. I wrote about the resurrection of this genus in the March 2018 edition of the *Cactus and Succulent Review* (see Back Issues 2018) and readers are referred here to find out more. I also wrote about the *T. schmiedickeanus* complex of taxa (mainly plants with papery spines) in the December 2018 issue (see Back Issues 2018) and although DNA data is now suggesting most of these subspecies are not that closely linked and should be recognised at species rank I won't bore by repeating the content here.

Turbinicarpus pseudomacrochele subsp. *minimus*





Turbinicarpus pseudopectinatus



Turbinicarpus schmiedickeanus

Most *Turbinicarpus* are small plants that will never outgrow their space in the collection. They flower well in cultivation and other than being a little mean with the watering can after periods of drying out (to avoid splitting) they are fairly easy to grow and have no special requirements. A small number, including *T. pseudopectinatus*, *T. schmiedickeanus* and *T. valdezianus*, flower solely in the early spring but the majority will have several flushes throughout the growing season in colours from white to deep magenta.

Perhaps another article on those not covered previously might be a future endeavour.

So, that's about it on Mexican miniatures. There are, of course, many other small growing cacti in Mexico, including most obviously *Coryphantha*, *Escobaria* and *Mammillaria*, but this piece has restricted itself to the 'exotic' genera, those aristocrats of the cactus family that remain fashionable, charismatic, aspirational and sought after. ■

Photos: Graham Evans

Turbinicarpus lophophoroides





Down by the sea

by Peter Berresford

A journey through Baja California

When someone tells you they are going to look at cacti in habitat, this probably suggests a barren dry land with a few shrubby plants. Possibly the last thing anyone imagines is that you are going to spend any time by the sea, but of course many deserts have a coastline and in the case of Peru and Chile the coastline is of a considerable length. As no echinocerei grow in these two countries it will come as no surprise that they are not included in this article.

My first contact with Richard Römer was by email late in the year 2000. It seems such a long time ago but I was relatively new to *Der Echinocereenfreund* (the online journal produced by 'Echinocereus Online') and had a strong desire to explore the Baja California peninsula with particular reference to echinocerei.

I sent an email to Richard asking him if he would be interested in joining a small group consisting of myself, Paul Hoxey and Jos Huizer. Little did I know that he was keen to return to the site of *Echinocereus lindsayi* to further explore the area he had visited in April 2000, to potentially extend the geographic distribution of the species and seek more evidence of the status of this plant as a species in its own right rather than a variety (subspecies) of *E. ferreirianus*, as proposed by Taylor (1985) who later promoted it to subspecies (1997). He gladly accepted our offer and we acquired a most valuable travelling companion with a fluent knowledge of Mexican Spanish and a good knowledge of the country and people. The resulting report on *E. lindsayi* appeared the year after our trip (Römer, 2002). *E. lindsayi*, however, is not a coastal plant and serves only as an introduction as to how Richard came to be travelling with us.

When someone tells you they are going to look at cacti in habitat...possibly the last thing anyone imagines is that you are going to spend any time by the sea...

In the second week of May, with two vehicles hired in San Diego, we crossed the border through Tijuana. One vehicle was more than fit for purpose, the other was adequate on surfaced roads but struggled when the going got tough and was

sometimes ‘parked up’ while the four of us packed into the more appropriate vehicle. The metalled Mex 1 took us on a zig-zagging route to the tip of Baja California Sud but inevitably dirt-road diversions from this were frequent.

There is something of a sense of disappointment for the first 120km of the route as the coast is lined with condominiums – a poor introduction to a potentially beautiful natural area. We travelled quickly over 350km down Mex 1 and our first cactus encounter, with yellow-flowered *Echinocereus maritimus,* (Fig. 1) was just south of El Rosario in a landscape which included *Agave shawii*, *Ferocactus chrysacanthus*, the more common *F. gracilis*, *Lophocereus schottii* and sparse low shrubs (Fig. 2).

Please remember that we are talking of over 20 years ago when online resources were slightly less well developed in the mapping of individual species. At the time *E. maritimus* appeared to be a highly inappropriate name as no sea was in sight of the plants. One can imagine that the type location at Ensenada by the Pacific Ocean looked much less developed when the plant was first described by Jones (1883), as *Cereus maritimus*, at the time of the local gold-rush.



Fig 1

Echinocereus maritimus

A brief wander also revealed the yellow flowers of the sprawling, long stemmed *Bergerocactus emoryi* (Figs. 3 and 4).

Ferocactus chrysacanthus behind a clump of *Echinocereus maritimus*

Fig 2





Fig 3

Above and below: *Bergerocactus emoryi*

Fig 4





Fig 5

Corynopuntia invicta

The following day was spent exploring the extent of the habitat of *Echinocereus lindsayi* near Cataviña, a good distance from any sea water, although we located colonies of *E. maritimus* even here. Moving further south we found populations of *E. engelmannii*, the locally common *Mammillaria dioica* and *Pachycereus pringlei* (the Cardon).

We were heading towards the east coast and Bahía de los Ángeles and stayed in some basic cabins; enjoying the sunset, having eaten an excellent meal in a local restaurant overlooking the sea. It was a lovely introduction to what we could find down by the sea. In the morning we explored the area, finding *Stenocereus gummosus*. On a dirt road leading to the coast along Valle las Animas we found our first *Mammillaria insularis* and a massive *Corynopuntia invicta* with vicious spines (Fig. 5).

Our apparently random meanderings in this area had a purpose and later in the day we headed towards Bahía San Francisquito. The dirt road took us through some rocky terrain some 455m above the beach in the bay towards which we were headed. In these rocks we located one or two plants of *Echinocereus ferreirianus* (Fig. 6). As I recall there were few 'facilities' here at the Bahia and we spent the night in our tents, on the beach. Our plan was to visit an island on the following day and, once we got to the bay, Richard wandered off to find his fisherman contact who would provide our transport.

Very early the next morning our contact was ready with his boat and we headed off towards our furthest destination for the day, an island some 38km across the Gulf

Echinocereus ferreirianus

Fig 6





Fig 7

Landing on Isla San Esteban
Inset: Crossing the gulf of California. Peter Berresford (left) with Richard Römer (right) and the boatman Photo: Paul Hoxey

of California towards Sonora. Isla San Esteban is part of the protected species Biosphere Reserve of the area and has the largest population of Californian sea lions (*Zalophus californianus*) in the area. As we approached the island, this became apparent as every potential landing site seemed to be completely full of basking animals. Where these did not occur, large populations of pelicans performed the same function. It took us a while to find a suitable landing place (Fig. 7).

The island has no human habitation. At least two species of vegetarian lizards feed on the fruits of *Pachycereus pringlei*, climbing the plants to reach them (Fig. 8). Richard was very taken with them and had brought fruit to supplement their diet which was taken from his hand.

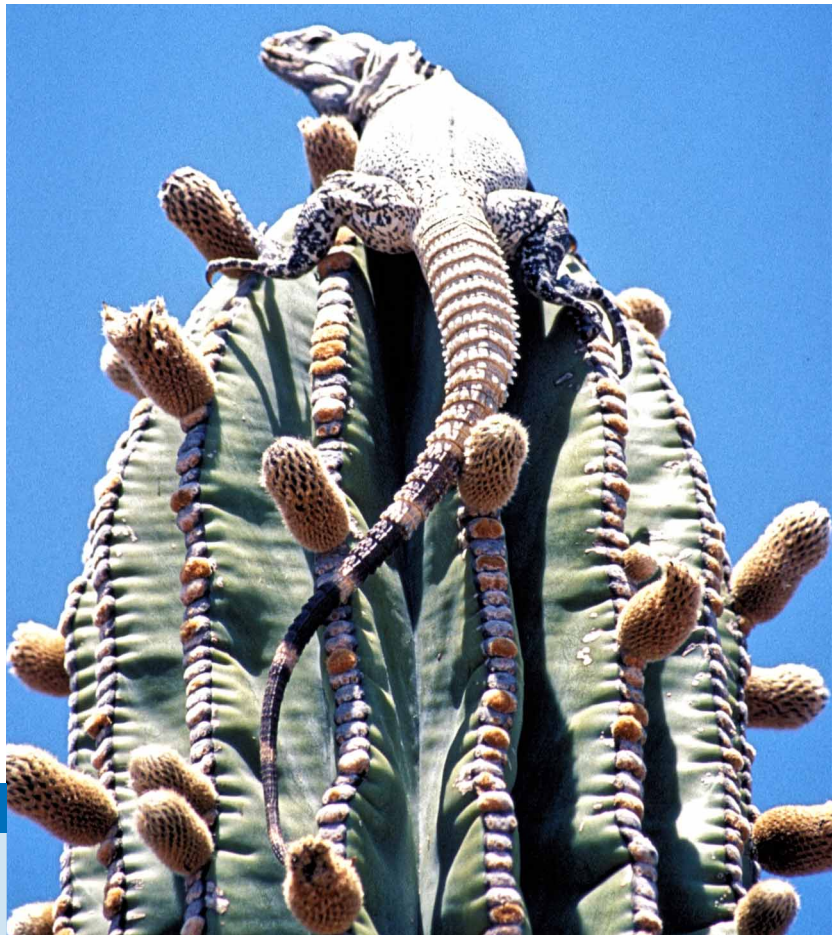


Fig 8

A vegetarian lizard, *Sauromalus varius*, on *Pachycereus pringlei* Photo: Richard Römer

Although it might sound like it we were not here to see the animals, although they enhanced our search for one of the finest echinocerei, *E. grandis*, which only grows on two islands. This is one of only a few columnar plants within the genus, which may have single stems or, unusually, up to eight. On this island the plants grow on the sides and on top of the arroyo and, contrary to some beliefs, they have either pink or white flowers with petals that can be 'normal' or shortened (Figs. 9 and 10).

From a distance another completely unrelated cactus has the same profile as *E. grandis*, namely *Mammillaria estebanensis* which is named after its location (Fig. 11).

It was with some sadness that we left the island but roughly halfway back to the Baja mainland is Isla San Lorenzo where *E. grandis* demonstrates its adaptability. It can be found a little further inland but the most obvious populations are on the beach amongst 'peppered' white crystalline pebbles and *Pachycereus pringlei*. It is remarkable how close these plants grow to the edge of the sea.

Some plants were draped in a 'creeper' which clambers indiscriminately over *E. grandis*, *P. pringlei* or *Cylindropuntia* species (Fig. 12).

Heading south, the following day we crossed over into Baja California Sur and

Fig 10

Echinocereus grandis (white flowered form)



Echinocereus grandis (pink flowered form)

Fig 9



Mammillaria estebanensis

Fig 11





Fig 12 *Echinocereus grandis* with the creeper which grew over many plants



Stenocereus thurberi subsp. *littoralis*

Fig 13

Mammillaria (*Cochemiea*) *armillata*

Fig 14



Mammillaria schumannii

Fig 15



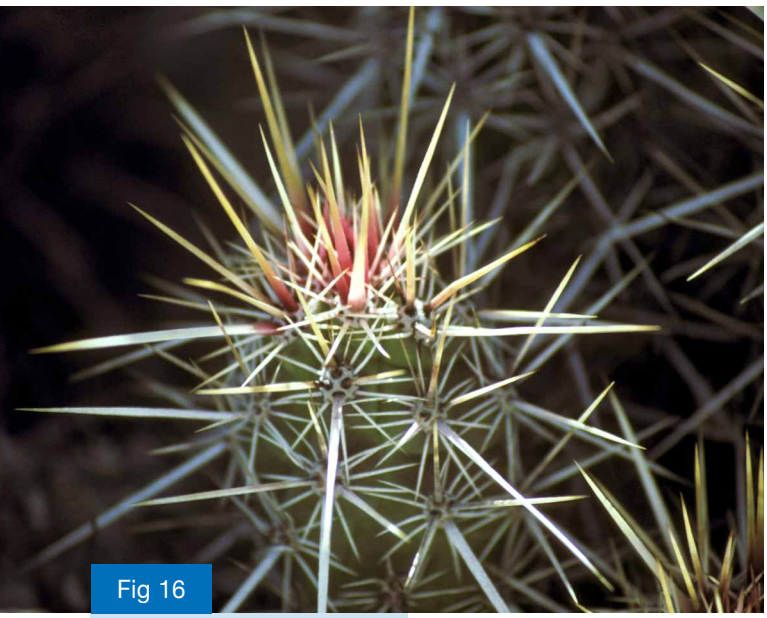


Fig 16

Echinocereus brandegeei



Fig 17

*Echinocereus brandegee*i in flower

two days later we reached the lighthouse at the southern tip of the peninsula known as Cabo Falso. The Cape is where *E. sciurus* was originally found in 1897.

Since then, the population of this tourist resort has grown to over a third of a million people and it is an unlikely place to be able to find any cacti. Fortunately, even in 2022, the route to the lighthouse is still down a dirt road so slightly 'off the track'. Near the lighthouse we found two small *E. sciurus* but no mature plants.

The steep slope on the seaward side is a better location with unspoilt views along the Pacific coast and out to sea. It is also the home of the purple-flowered *S. thurberi* subsp. *littoralis* (Fig. 13) and several mammillarias, including *M. armillata* (Fig. 14) and the endangered *M. schumannii* (Fig. 15).

Despite travelling through a major location of *E. brandegeei* near El Arco I have not mentioned this plant as it was certainly not on the coast at this point. It was a surprise and pleasure to find this distinctive plant with its flattened spines at the top of the slope near the lighthouse and also close to the sea, including the only specimen we had seen with a flower (Figs. 16 and 17).

I had several specimens of this plant in my greenhouse before travelling to Baja with carefully labelled locations, each plant



Fig 18

Echinocereus sciurus

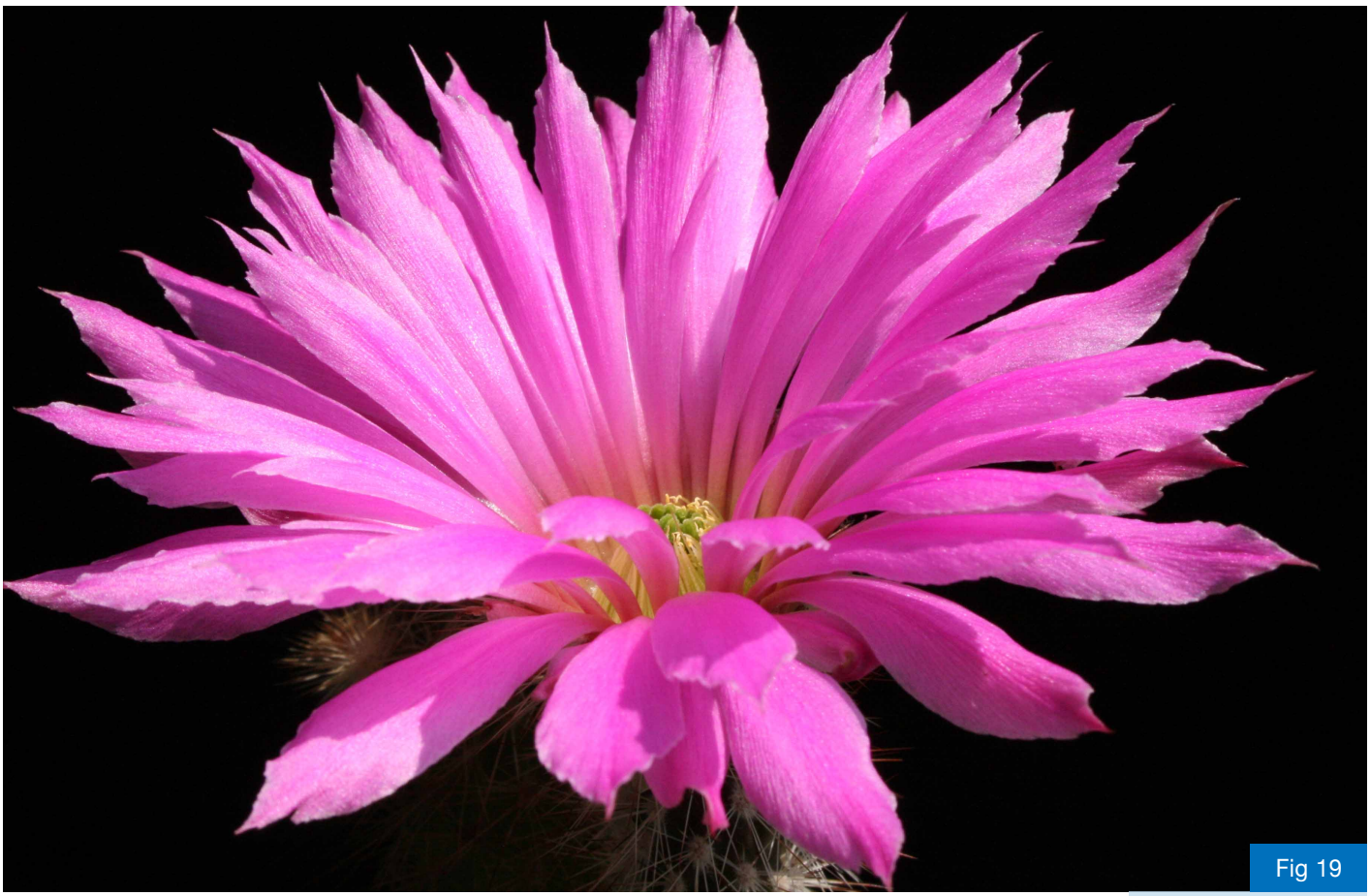


Fig 19

Echinocereus sciurus L047 San José del Cabo flowering in cultivation

being different from those from any other location. Following a conversation with Steven Brack in 1997, I was interested in these local differences, however *E. brandegeei* does not 'follow the rules.' Looking at the two images on the previous page, you can see the new spines on one plant are pink and gold. The plant in flower, however, has new spines which lack the pink colour and are narrower. Around El Arco every plant was slightly different. I now look at all my greenhouse and plants and pay less attention to the different 'localities'!

Following our lack of success in finding a mature *E. sciurus* we travelled a few



Fig 20

Ferocactus townsendianus

kilometres to the north-west and found one or two specimens with their tell-tale bent 'squirrel-tail' stems (Fig. 18) but no flowers. This is an easy plant to grow and flowers generously in the greenhouse (Fig. 19).

This was our turning point as we started to head back north. Our next location was high in the Sierra de la Laguna on a quest to find *Morangaya pensilis*, once known as *Echinocereus pensilis,* but this is certainly not coastal and is for another day.

On the west coast is a small fishing town, Puerto San Carlos. On waste ground at the edge of town grow *Stenocereus eruca* (the creeping devil), the sprawling *S. gummosus*, and *Ferocactus townsendianus* (Fig. 20). As you drive into town, ospreys perch on telegraph poles by the side of the road (Fig. 21). Our evening meal consisted of a freshly made bowl of Sopa de Mariscos. We watched its preparation while quenching our thirst with a bottle of Pacifico.

From the west coast a good road leads over to Mex 1 and on to the east coast near Ensenada Blanca before heading north to Santa Rosalía where we stayed

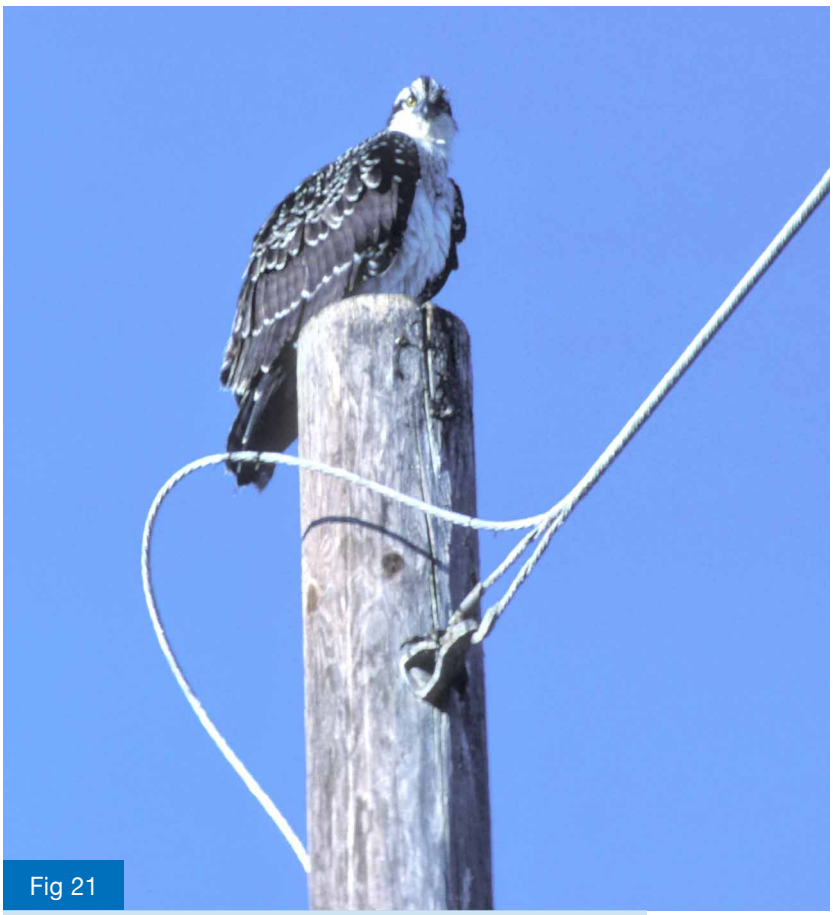


Fig 21

One of the many ospreys that live and nest in the area



Fig 22

Echinocereus maritimus subsp. *hancockii*



Fig 23

Echinocereus maritimus subsp. *hancockii* spines

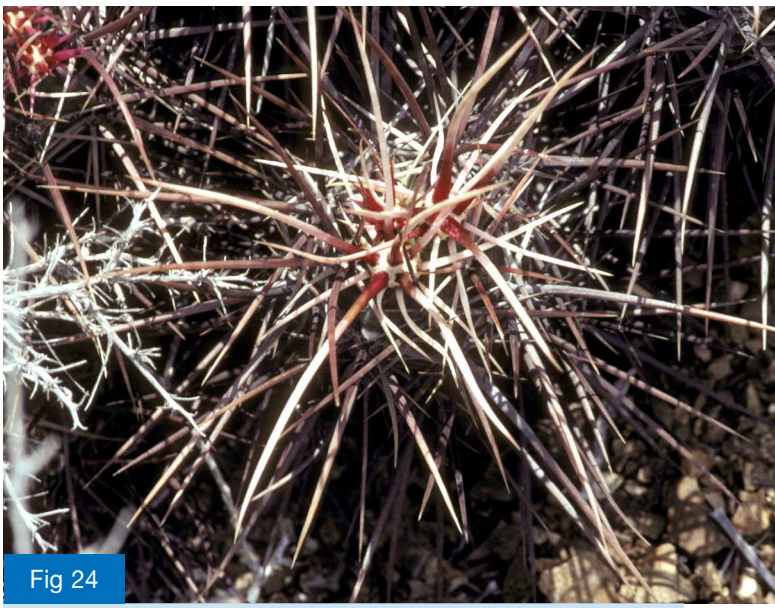


Fig 24

Echinocereus maritimus subsp. *hancockii* with some spines showing signs of contorting

overnight. The day after was one that I had been looking forward to for some time. We headed to Punta Abreojos and then north along the coast on a good road to Estero de Loa Bocana where the metalled surface ends. One reasonably obvious dirt road continues up the coast. Within a couple of kilometres of our target destination our luck gave out and the wheels got stuck in soft sand. We needed a shovel and nobody had packed one! Within a few minutes heads appeared over the dunes. Local heroes came to our assistance with the required tools and soon dug us out.

We were here to look at one of the finest spined echinocerei, *E. maritimus* subsp. *hancockii*. These plants were not far from the Pacific (Fig. 22). Like *E. brandegeei* the colour of the spines varies from plant to plant with the finest having spines which are rose-pink at the base becoming straw-coloured or white nearer to the tip (Fig. 23). Spines often show signs of contorting, perhaps not quite as much as those of



Fig 25

Ferocactus chrysacanthus subsp. *grandiflorus*

E. lindsayi, and this adds to the attraction of the plant (Fig. 24). As if this were not enough we also encountered a flowering *Ferocactus chrysacanthus* subsp. *grandiflorus* (Fig 25).

I do not think Richard had quite worked out where *E. maritimus* turned into *E. maritimus* subsp. *hancockii.* We camped at the base of a mesa, some 18km north-west of where we had just viewed the latter. The plants here certainly had heavy spination and some of the colouration of subsp. *hancockii* but I think the consensus was that the spines on these plants were too short and the clumps not as dense to qualify as subsp. *hancockii*.

The following morning, we crossed the border from Baja California Sur into Baja California and followed Mex 1 to the east coast at Bahía de los Ángeles, making one or two stops along the way. We arrived not far north of where the boat had launched to take us to Isla San Esteban nine days before.

Early the next day we were ready for another adventure, this time to Isla El Piojo (Island of Lice) which is about 11.5kms from the coast. In our outboard-motored boat we passed the thin promontory stretching southwards for 1.3kms with its attendant brown pelicans (*Pelecanus occidentalis*) which also swarmed over the beaches at Isla El Piojo. Among the cacti we had come to see were several we had seen on the mainland including

Ferocactus gracilis subsp. *gatesii* a young plant

Fig 28



Echinocereus ferreirianus

Fig 26



Ferocactus gracilis subsp. *gatesii*

Fig 29



Echinocereus ferreirianus in flower

Fig 27



Pachycereus pringlei, *Mammillaria dioica* and *Cylindropuntia fulgida*. My reason for wishing to visit the island was to see *E. ferreirianus*, this being the only known island location of the plant. It thrives growing on the rocks pushing their roots in between cracks (Fig. 26). Several plants were opening their flowers but at this time none were fully open. Many plants were in poor condition and yet still managed to produce flowers (Fig. 27).

Our final coastal stop was another island a few kilometres closer to the mainland of Baja California, Isla la Ventana (the name of the island refers to a triangular stack of rock in which there is a 'window'). We had our eyes on other objectives and more eyes had theirs on us. As we approached the island, we saw ospreys overhead and nesting on the cliffs. We could also see large *Ferocactus gracilis* subsp. *gatesii* from the boat on the cliffs although too far away to be able to identify them positively. As we climbed up from the beach we encountered more lizards on the rocks as on Isla San Esteban. It was not long before the ferocacti started to appear, both as young plants (Fig. 28) and larger flowering specimens (Fig. 29).

One of the last photos I took here was of *Agave cerulata* on the edge of the cliff overlooking the sea between the island and mainland Baja California. We left Bahía de los Ángeles early the following morning with the sun rising over the bay and islands. It is an image which comes immediately to mind when I think of this lovely peninsula. ■

Photos: Peter Berresford unless indicated otherwise

Reference:

Römer, R.C. et al (2002): Explorations in the habitat of *Echinocereus lindsayi*. *Brit. Cact. Succ. J*. 20(4): 170-176.



Acknowledgement

Our trip would never have been as successful without the knowledge and input from the late Dr. Richard Chr. Römer, who remained a good friend until his death in 2005.
Photo: Paul Hoxey

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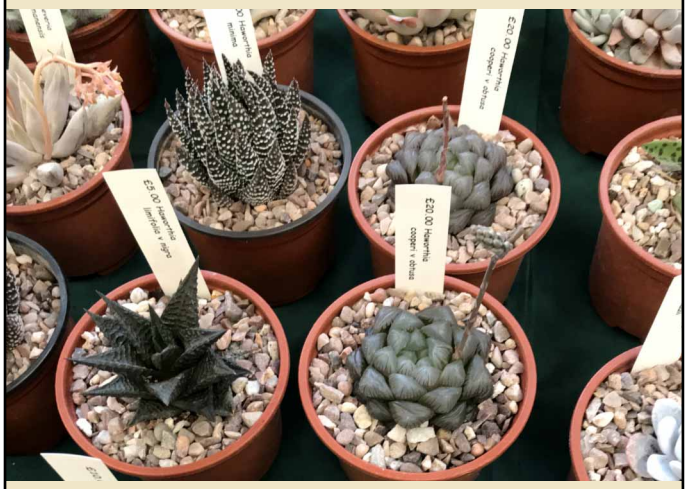
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